

FLUMINENSE FEDERAL UNIVERSITY

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DECONSTRUCTING THE “RECONSTRUCTION”:
An Analysis of the Causes of Perestroika

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SUMMARY

| | |
|--|-------|
| Summary | p. 3 |
| List of tables | p. 6 |
| List of abbreviations and acronyms | p. 9 |
| Abstract | p. 10 |
| Acknowledgments | p. 11 |

Part One: What were the main causes of perestroika?

| | |
|---|-------|
| 1 Introduction | p. 14 |
| 1.1 Preamble | p. 14 |
| 1.2 Apparent and profound causes of <i>perestroika</i> | p. 14 |
| 2 Technological revolutions | p. 23 |
| 2.1 Introduction | p. 23 |
| 2.2 Characteristics of the capitalist production system during the second and third technological revolutions | p.29 |
| 2.2.1 Second technological revolution | p. 29 |
| 2.2.2 Third technological revolution | p. 31 |
| 3 The concept of Scientific-Technical Revolution (STR) in the actually existing socialist countries..... | p. 42 |
| 3.1 General concepts | p. 42 |
| 3.2 Automation, STR and socialism | p. 46 |
| 4 The Soviet production model | p. 48 |
| 4.1 Introduction | p. 48 |
| 4.2 <i>Val</i> | p. 51 |
| 4.3 Central planning and <i>nesbalansirovannost'</i> | p. 52 |
| 4.4 Price structure | p. 56 |
| 4.5 Worker alienation | p. 57 |
| 4.6 Vertical, authoritarian command structures | p. 59 |
| 4.7 Consumer sovereignty and permanent buyers' market | p. 60 |
| 4.8 <i>Vedomstvennost'</i> | p. 62 |
| 4.9 <i>Zatratnaya sistema</i> | p. 63 |
| 4.10 Extensive growth economy | p. 65 |
| 5 Soviet production model, fordism, toyotism and Scientific-Technical Revolution .. | p. 68 |
| 5.1 Introduction | p. 68 |
| 5.2 Fordism and Soviet production model | p. 72 |
| 5.2.1 Flexibility | p. 75 |
| 5.2.2 Information | p. 78 |

| | |
|---|--------|
| 5.2.3 Quality | p. 80 |
| 5.2.4 Positive aspects of the Soviet system for the STR | p. 81 |
| 6 The nature of the Soviet model and its origins | p. 87 |
| 6.1 Conceptions about the nature of the soviet model | p. 87 |
| 6.2 Conclusion | p. 100 |

Part Two: other factors pressuring the soviet system

| | |
|--|--------|
| 7 The burden of military expenditures..... | p. 104 |
| 8 The problem of Soviet agriculture | p. 116 |
| 8.1 Introduction | p. 116 |
| 8.2 Origins of the problem | p. 117 |
| 8.3 Small- versus large-scale agriculture | p. 120 |
| 8.4 Results of collectivization | p. 121 |
| 8.5 Stalin, Khrushchev, Brezhnev | p. 123 |
| 8.6 Conclusion | p. 126 |
| 9 The Soviet nationalities problem | p. 127 |
| 9.1 Problem outline | p. 127 |
| 9.2 A brief history of relations among nationalities in the URSS..... | p. 135 |
| 9.3 Conclusion | p. 144 |
| 10 The <i>nomenklatura</i> as exploitative class? <i>Perestroika</i> as rebellion of the exploited masses? | p. 156 |
| 11 Final thoughts | p. 160 |
| 12 Sources | p. 164 |
| 12.1 Archival sources | p. 164 |
| 12.2 Periodicals | p. 165 |
| 12.3 Primary and secondary printed sources | p. 168 |
| 13 Appendices | p. 194 |
| 13.1 Appendix 1: CPSU power structure and the economy in the USSR on the eve of <i>perestroika</i> | p. 195 |
| 13.2 Appendix 2: growth trends in the Soviet economy in different decades | p. 200 |
| 13.3 Appendix 3: economic growth rates: USSR, USA and japan | p. 201 |
| 13.4 Appendix 4: productivity indices: USSR, USA, japan..... | p. 206 |
| 13.5 Appendix 5: intensive and extensive growth factors in the Soviet economy..... | p. 208 |
| 13.6 Appendix 6: price and wages indices in the USSR, USA and Japan | p. 209 |

| | |
|--|--------|
| 13.7 Appendix 7: Toyotism, Fordism and macroeconomic growth compared | p. 210 |
| 13.8 Appendix 8: Soviet military spending | p. 215 |
| 13.9 Appendix 9: agriculture in the USSR | p. 222 |
| 13.10 Appendix 10: nationalities in the USSR | p. 227 |

LIST OF TABLES

| | |
|--|--------|
| Table 1.1 - Average annual growth of the national income of COMECON countries, 1950-1985 | p. 18 |
| Table 1.2 - Average annual growth of national income in the USSR, 1951-1975 | p. 18 |
| Table 1.3 - Number of industrial robots in use in Japan and in the USA, selected years | p. 40 |
| Table 1.4 - Cumulative annual growth rate in the volume of world trade, 1820-1967 | p. 28 |
| Table 1.5 - Cumulative annual growth rate of world production per capita, 1865-1938 | p. 28 |
| Table 1.6 - Annual average economic growth of OECD countries, 1960-1993 | p. 29 |
| Table 1.7 - Comparison of productivity in car factories: Toyota Takaoka and General Motors in Framingham | p. 39 |
| Table 1.8 - annual rate of grain production in the USSR, 1975-1986 | p. 125 |
| Table 1.9 - GDP Growth: USA, OECD-Europe and Japan, 1990-1996 | p. 213 |
| Table 2.1 - Average rates of annual growth of NMP in the USSR, 1928-1985 (according to official Soviet statistics) | p. 200 |
| Table 3.1 - average annual growth rates in the USSR, USA and Japan, 1928-1985 (various sources) | p. 201 |
| Table 3.2 - Annual economic growth of the USSR, 1928-1985 | p. 205 |
| Table 4.1 - labor productivity index in the USSR, the USA and Japan, 1913-1986 | p. 206 |
| Table 4.2 - Labor productivity growth in the USSR, USA and Japan, 1920-1986 | p. 207 |
| Table 4.3 - Average annual growth of labor productivity in the USSR, 1928-1985 (different estimates) | p. 207 |

| | |
|--|--------|
| Table 5.1 - Western calculations of extensive and intensive growth sources in the USSR, 1928-1985 | p. 208 |
| Table 6.1 - Index of nominal average wage in the USSR, 1960-1986 | p. 209 |
| Table 6.2 - Consumer price index in the USSR (CIA estimates) | p. 209 |
| Table 7.1 – Comparison of GNP per capita: Japan, the USA and Germany, 1950-1988 | p. 210 |
| Table 7.2 - GDP per hour worked, several countries, 1870-1987 | p. 211 |
| Table 7.3 - GDP per hour worked relative to the leading country, 1820-1987 | p. 212 |
| Table 8.1 - Soviet military spending, 1950-1985 (different estimates) | p. 215 |
| Table 8.2 - Soviet military spending as a percentage of GNP, 1950-1985 | p. 217 |
| Table 8.3 - Military spending: USSR, USA, NATO and Warsaw Pact countries | p. 219 |
| Table 8.4 - Average annual growth of military spending in the postwar period, USA and USSR | p. 219 |
| Table 8.5 - Soviet military spending as a percentage of GNP before World War II | p. 221 |
| Table 8.6 – Percentage of annual average growth in military spending: USSR before the Second World War | p. 221 |
| Table 9.1 - Income generated through agricultural investments in the USSR, 1918-1985 (annual average) | p. 222 |
| Table 9.2 - Index of gross and marketed agricultural production in the USSR, 1913-1945 | p. 223 |
| Table 9.3 - Nemchinov-Stalin Table: agricultural production in the USSR and Tsarist Russia | p. 224 |
| Table 9.4 - Agricultural production and productivity in several countries | p. 225 |
| Table 9.5 - Agricultural productivity growth index in several countries, 1920-1986 | p. 225 |
| Table 9.6 - Structure of investments in the USSR, 1918-1955 | p. 226 |

Table 10.1 - Relative distribution of nationalities in the republics the USSR: years 1959, 1970, 1979 and 1989. p. 227

Table 10.2 - Major criminal organizations active in Moscow p. 227

LIST OF ABBREVIATIONS, ACRONYMS AND SYMBOLS

% = percentage (of)

c. = column

d. = *delo* (Russian archival unit = “file”)

f. = *fond* (Russian archival unit = “collection”, “fonds”, “record group”)

GARF = *Gosudarstvennyi Arkhiv Rossiiskoi Federatsii* (“State Archive of the Russian Federation”)

gorkom = *gorodskoi komitet* (“city committee”)

Gosplan SSSR = *Gosudarstvennyi Planovyi Komitet Sovieta ministrov SSSR* (“State Planning Committee of the Council of Ministers of the USSR”)

Gossnab SSSR = *Gosudarstvennyi Komitet po Material'no-Tekhnicheskomu Snabzheniyu* (“State Committee for Material and Technical Supply of the USSR”)

kraikom = *kraevoi komitet* (“regional committee”)

l. = *list* (Russian archival unit = “page”)

obkom = *oblastnoi komitet* (“regional committee”)

ob. = *obratnaya storona* (“reverse side” [page])

op. = *opis'* (Russian archival unit = “record series” or “series”)

p. = page

pt. = part

raikom = *raionnyi komitet* (“district committee”)

RGAE = *Rossiiskii Gosudarstvennyi Arkhiv ekonomiki* (“Russian State Archive of the Economy”)

RTsKhIDNI = *Rossiiskii Tsentr Khraneniya i Izucheniya dokumentov Noveishei Istorii* (“Russia’s Center for the Preservation and Study of Documents of Recent History”)

SM SSSR = *Soviet ministrov SSSR* (“Council of Ministers of the USSR”)

SP SSSR = *Sobranie Postanovlenii Pravitel'stva SSSR* (“Collection of Decrees of the Government of the USSR”)

TsKhSD = *Tsentr Khraneniya Sovremennoi Dokumentatsii* (“Center for Preservation of Contemporary Documentation”)

v. = volume

VS SSSR = *Verkhovnyi Sovet SSSR* (“Supreme Council of the USSR”)

VVS SSSR = *Vedomosti Verkhovnogo Soveta SSSR* (“Register of the Supreme Council of the USSR”)

ABSTRACT

The author analyzes the causes of perestroika, that is, the factors that led the Soviet leaders to initiate these radical reforms in the mid-eighties. It was observed that they were especially worried about the economic slowdown since the sixties and about the growing technological gap with the West. Thus, in this doctoral dissertation, the origins of perestroika are investigated, not merely as an intrasystemic process of the USSR, but as a historical phenomenon correlated with the more global context of the transformations brought about by the advent of the Scientific-Technical Revolution (STR). The author concentrates his analysis on the relationship between the internal developments in the Soviet Union and the consequences of the unfolding of the STR in the world economy. Other factors which affected the Soviet system in the pre-perestroika decades — such as, excessive defence and agricultural expenditures and the nationality question — are also secondarily analyzed. In a way, this is a pioneering work in Brazilian historiography since it is the first time a Brazilian historian writes a doctoral dissertation on the Soviet Union based on direct research of Russian primary sources *in loco*.

Keywords: Perestroika; Soviet Union; Scientific and Technical Revolution

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“Let me first explain the far-from-simple situation that had developed in the country by the eighties and which made perestroika necessary and inevitable [...] Analyzing the situation, we first discovered a slowing economic growth. In the last fifteen years the national income growth rates had declined by more than a half and by the beginning of the eighties had fallen to a level close to economic stagnation. A country that was once quickly closing on the world’s advanced nations began to lose one position after another. Moreover, the gap in the efficiency of production, quality of products, scientific and technological development, the production of advanced technology and the use of advanced techniques began to widen, and not to our advantage [...] And all this happened at a time when scientific and technological revolution opened up new prospects for economic and social progress.” (Gorbachev, 1987c, pp. 18-19)

PART ONE:

WHAT WERE THE MAIN CAUSES OF PERESTROIKA?

1 INTRODUCTION

1.1 PREAMBLE

The word *perestroika*, in Russian, literally means “reconstruction,” thus associating itself with the idea of reformulation, reorganization, in its figurative sense. In the context of the Soviet historical experience of the mid-1980s, the best term for translation may be “restructuring”.

It would not be an exaggeration to affirm that the unleashing, unfolding and denouement of the Soviet “restructuring” from the mid-1980’s onward felt like a political, social and economic hurricane. The consequences of this process were immense, causing reverberations throughout the world. Great changes in the balance of power and the further rise of neoliberalism in many parts of the globe took immense momentum therefrom. In Brazil, for example, the ideological debate in the “post-perestroika” presidential election, especially with regard to privatization issues, was marked by references to the situation in Eastern Europe. For this reason, the deepening of the theoretical discussion about the causes and consequences of these events seems very important to us.

We had the opportunity to be on-site observers of the events during the time we were pursuing our master’s degree in Moscow from 1989 to 1992. One of the findings that astonished us upon arrival was to note that the confusion about the origins and course of this “sudden” hurricane was so great among Russians (even the *intelligentsia*) as among us foreigners “out there.” The changes took place at such a speed that the Soviets had difficulty adapting to them. Just as the world had been taken by surprise by the pace of change, the natives were also perplexed. In the scientific and intellectual community we found a scenario of perplexity in face of the situation. Different opinions were aired about what had led Gorbachev and the CPSU leaders to unleash reforms so radical and profound as to jeopardize their own monopoly on political power in the country. As for what would happen in the near future, the prognoses were also varied.

Over time, experience *in loco*, personal contacts with native citizens and intelligentsia, and reading of the first theoretical analyses of the process, helped us form our own vision of the mechanisms involved in the transformations, corroborated later with archival and primary-source research gathered in Russia and the USA. It is this *Perestroika-Anschauung* that we intend to display here.

1.2 “APPARENT” AND “PROFOUND” CAUSES OF *PERESTROIKA*

In 1989, when we arrived in Moscow to begin our studies, we were involved with the question of not only why perestroika took place but also why it began exactly when it did (in 1985) and not before; or later ... Why did the “restructuring” begin in the mid-1980’s and not in the 1970’s or 1990’s, for example?

Several causes had been pointed out as the ones that led Gorbachev to initiate that process. At that time, some theories were advanced in the press. For example, perestroika had occurred at that time because of political pressure for greater democratic openness. Or that Gorbachev had to “do something” because of the decreasing standard of living of the Soviet population, which had supposedly fallen in the period of the so-called “Brezhnevian [economic] stagnation”.

As for the first hypothesis, in fact, after the end of the Stalinist era, with the Khrushchevian “thaw” and the Brezhnev period (especially after the 1975 Helsinki Accords) there was a relative slackening of Communist Party control over the Soviet society, allowing for a certain degree of opposition to be expressed, either in the passive form of alienation at home or in the workplace *vis-à-vis* the official ideology, or in the active form of the dissident criticism of the system (clandestine publication of *samizdat* and *tamizdat*, open opposition by important public figures like Sakharov, Solzhenitsyn etc.). Under Stalin, any articulated form of opposition was regarded as betrayal of the Soviet state and punished with extreme severity which included even the physical elimination of those involved. The period that followed — up to 1985 — was characterized by cycles of greater or lesser openness that did not allow systematic and organized internal opposition to threaten the structure of power but left room for clandestine or semiclandestine dissemination of ideas antagonistic to those of the party. Problems in the supply of goods, corruption in different echelons of the party machine, and the obvious bureaucratization of the system as a whole reached such a degree that it was virtually impossible to conceal them from the nation’s own citizens. This, coupled with the increase in the intellectual level of Russia’s population — which from, basically rural, with a high percentage of illiterates before 1917, had undergone immense improvements in the field of education — made aspirations for greater democratization more natural, more in line with the new cultural status of the country. The signing of the “Helsinki Accords” on human rights, the open opposition from public figures such as Andrei Sakharov, Solzhenitsyn and others, the increasing spread of *samizdat* — somewhat restricted, however, mainly to the layers of the intelligentsia — were symptoms of underground pressure for opening the political system. But if on the one hand these forms of cultural resistance were taking root among the Russian intelligentsia, this “opposition” movement was not organized and systematic enough to spread to other sections of the population. (Leonard, 1977, p. 155) Among workers and peasants, for example, if there was “resistance,” it came mainly in the “unconscious” form of work alienation (low productivity, high absenteeism, low responsibility for public assets, etc.). Thus, when Gorbachev came to power in 1985, despite the outbreaks of dissent, the Communist Party still had immense, almost global control over the country’s political, economic and social life. The idea that in 1985 the internal pressures for greater “aeration” of the system were reaching such a level as to make inevitable a democratic opening seems flawed to us. There was such pressure on the system but, other factors remaining stable, it would not have been powerful enough in the mid-1980’s to compel the CPSU to a change of course that could jeopardize its state monopoly.

The thesis that the standard of living of the Soviet population was declining in the so-called “years of stagnation” under Brezhnev — at least that is what was inferred from many foreign journalistic accounts that accompanied the onset of perestroika — is also quite controversial, and should be qualified. Indeed, “stagnation” referred more to the macroeconomic growth rates of the Soviet system as a whole — which were falling in the 1970’s and 1980’s — than to the standard of living of the citizens themselves. As we heard in our interviews and conversations with members of different sections of the population, the Russians had never lived so well (in terms of material economic standard of living) as during exactly the Brezhnevian “stagnation years.” This apparent contradiction is explained by the history of the USSR in the last 30 years and the peculiar nature of its economic system. It should be noted that at the end of World War II, the Soviet Union was devastated. Economic reconstruction was a daunting task that required enormous concentration of efforts and capital in the construction of industries, with the consequence that wages and the consumption sector had to be kept under restraint. The comfort level of the Soviet peoples until the late 1950’s was rather low (compared to advanced capitalist countries), sometimes with families having to share the same apartment (*komunalka*) in big cities, little variety in the supply of goods, low indices of private car ownership, etc. From the Khrushchevian era onward, with the post-war reconstruction already assured, the priorities were again turned to the consumer sector. Khrushchev initiated the mass construction of high-rise, cheaply-manufactured buildings to house individual households and reduce the housing deficit. (Burlatskii, 1988, p. 42) Wage levels, as a whole, began to rise. If during the 1960’s the material standard of living of the Soviets still seemed rather primitive compared to that of the advanced Western countries, it was during the 1970’s (precisely at the height of the Brezhnevian “stagnation era”) that Russians, especially those in urban agglomerations, saw the emergence and spread of a series of consumer goods previously considered “luxurious” or difficult to get but that now became more accessible, such as cars, color television sets, refrigerators. The prices (in relation to salaries) and the time in the waiting queues for such goods fell sharply. If in the early 1970’s a private car was a status symbol, in the 1980’s it was not uncommon in the big cities to see families (especially middle-aged couples) owing their small “Ladas” (or equivalent). This greater abundance and sophistication was accompanied by a policy of real wage increases. Table 6.1 of Appendix 6 shows the upward trend in nominal wages of the Soviets up to the 1980s. Taking into account that consumer inflation in the USSR in this period was very low — in the form of occasional “make-up” of products for sale at higher prices or seasonal increases in food products, especially in the winter —¹ the rise in nominal wages in that period translated into a real

¹ Official inflation in the USSR, as far as the final consumer is concerned, tended to be residual or seasonal. Using the Consumer Price Index (CPI) system of the UN Statistical Yearbook, from 1953 to 1969, there was deflation in the USSR with the index falling from 104 to 98 (year 1963 = 100); from 1969 to 1978, the index rose from a base 100 to 101. From 1979 to 1984 (base year 1980 = 100), the CPI changed from 99 to 104. In comparison, according to the UN Statistical Yearbook, the CPI from 1979 to 1984 changed from 88 to 126 in the USA, from 93 to 112 in Japan, from 56 to 2380 in Brazil and from 50 to 17462 in Argentina[!] (Statistical Yearbook 1970, p. 569; *ibid.* 1979/80, pp. 726; *ibid.* 1985/86, pp. 114-118).

It is important to note that this index, applied to the Soviet Union, only covered the prices in official government stores, where levels tended to remain stable for the long term: before perestroika, the last price increase of bread, pasta, kitchen oil and sugar had been in 1954 and the last price increase for milk and meat had been in 1962. (Bornstein, 1991, p. 187) Western specialists criticized that Soviet official statistics did not include price variation in the “free markets” of the *kolkhozy* (“collective farms”), the

increase in the purchasing power of the citizens. In table 6.1 we see that the rates of increase of nominal and real wages in the USSR in the period 1960-1985 followed a similar pattern. This can be checked from other independent sources. For example, the economist Michael Ellman (who could hardly be denounced as pro-Soviet) noted in his 1979 book *Socialist Planning*:

In the USSR, the past twenty five years have seen an enormous increase in real incomes. The housing situation has greatly improved, the quantity, quality and availability of food has greatly increased, as has that of clothing and other manufactured consumer goods. Except for the effects of bad harvest (such as the meatless days in 1976) there has been a continuous, and very substantial, increase in real incomes for a quarter of a century. (Ellman, 1979, p. 185)

This was not a rosy description of Soviet reality, nor did it mean that the Russians' standard of living was close to that of Western Europeans, for example, but rather evidence that the Russians' standard of living, as they entered the 1980's, was not decreasing as might be deduced from some journalistic accounts in the early period of perestroika. Thanks to centralized planning, the deceleration in macroeconomic growth rates in the Brezhnevian "years of stagnation" did not imply a proportional fall in the level of living standards in the country. The use of government subsidies, the rise in the price of some raw materials produced by the USSR — such as gold, natural gas and oil, whose price increase after the 1970's "energy shocks" brought higher export revenues —² and the possibility of transfer of resources from one sector of the economy to another via the control of central agencies such as Gosplan and Gosstrib resulted in this strange combination of declining macroeconomic growth rates and increasing (in the 1960's and 1970's) or stabilized/"stagnant" (early 1980's) living standards. (Checinski, 1987, pp. 33-34)

It is easy to note that this paradoxical situation is not sustainable in the long run. In the early 1980's, a number of Soviet economists began to sound the alarm that the rising standard of living of the population could not be maintained for long if the rates of macroeconomic growth in the USSR did not recover. (Aganbegyan, 1984, p. 8; *idem*, 1988, pp. 10-17)

The question is: why was the Soviet economy having a downward curve of macroeconomic growth in the so-called "years of stagnation" (late 1960's to 1984)?

disguised price increases in the introduction of new consumer goods (supposedly having superior quality), or the "hidden inflation" of costs in a scarcity market. (*ibid.*, pp. 189-190) However, even considering these other factors, whose precise measurement is problematic, Soviet inflation was rather low in comparison to international levels. Table 6.2 shows the CIA's calculations for the inflation of the USSR, trying to take into account the problematic factors mentioned above. Even allowing for these factors, we see a comparatively mild rate of inflation until 1985, followed by an "explosion" (by Soviet standards) in the final period of perestroika.

The impression that the vast majority of the Soviet population considered consumer price inflation in the USSR quite low, or even residual, before perestroika was confirmed in our interviews and conversations with residents during our three-year stay in the Soviet Union. (Segrillo, 1992)

² According to Bethkenhagen (1987, pp. 58-59), "As a free rider of the OPEC cartel, the Soviet Union gained unexpected profits from oil and gas sales to the West from 1.3 to 13 billion transferable rubles in the period 1973 to 1983 (although the quantity exported not even doubled)."

If we record the increase in national income of the socialist COMECON countries from 1950 until approximately the eve of perestroika, we get the following average annual percentages:

Table 1.1 - Average annual growth of the national income of the COMECON countries, 1950-1985

| | |
|-----------|------|
| 1951-1955 | 10.8 |
| 1956-1960 | 8.5 |
| 1961-1965 | 6.0 |
| 1966-1970 | 7.4 |
| 1971-1975 | 6.4 |
| 1976-1980 | 4.1 |
| 1981-1985 | 3.2 |

Source: *Statisticheskii Ezhegodnik Stran-Chlenov CEV*, 1988, p. 25

We can observe that, until around 1960, there were high growth rates. Thereafter, however, we enter a more or less regular downward curve until we reach relatively low levels of increase from the mid-1970s onward.

The economic evolution of the Soviet Union followed a similar pattern:

TABLE 1.2 - Average annual growth of the national income of the USSR, 1951-1975.

| | |
|---------|-------|
| 1951-60 | 10.3% |
| 1961-70 | 7.2% |
| 1971-75 | 5.7% |

Source: table 2.1 of appendix 2.

After 1975, the negative trend continued and worsened: in no year, from then onward, the USSR achieved growth substantially above 5%.

What changes occurred in the national or international conjuncture that led to this fall in the growth rates of the socialist countries (and the USSR in particular) from the 1960s onward? Or were the causes more structural (embryonic problems embedded in the very nature of the Soviet model)?

Even before perestroika, different authors pointed to several “structural problems” in the seemingly thriving model of the so-called actually existing socialist countries. Some theories even had a “catastrophic” character, predicting the downfall of the system in a not too distant future. In view of the events in Eastern Europe, it is urgent to re-examine such theories and analyze how right they were and to what extent the “disintegrative” factors pointed out by them had a bearing on the development of the

process leading to the reforms and, subsequently, to the disintegration of the former socialist bloc. Among others, we could mention the following authors and the “problematic” areas named by them:

— The French Sovietologist Hélène Carrère d'Encausse had for years been pointing to the “nationalities question” as an area of potentially explosive problems for the integration of the USSR.

— Various authors (Milovan Djilas, Voslensky, Bettelheim and others) emphatically pointed to the formation of the bureaucracy as a new exploitative class, which could lead to the internal division of the country into “enemy” fields.

— The military issue was placed as central by several authors (Holloway, Lee, Gaddy, Castels & Kiselyova etc.). Was the arms race, with its frantic growth in military spending, one of the causes of the deceleration in growth rates of the Soviet Union (a deliberate policy of the United States to weaken the enemy)?

We will give a more detailed account of these and other related theories later. Each of them points to several factors that could lead to the need for radical changes in the Soviet system.

We will present another causal hypothesis that seems to us the main one to understand not only perestroika itself but why it happened in the mid-1980's and not before or after.

As we mentioned, it does not seem to us that the explanation of why Gorbachev had to launch the reforms in 1985 were irresistible internal pressures for greater political openness, or popular discontent with a noticeable fall in the Soviet standard of living. The key to understanding the Russian dilemma was in the economy.

From the 1930's to the early 1960's (after the Second World War), the USSR had impressive economic growth rates. According to Soviet official data, the average annual growth rate of the Net Material Product was 16.1% in the first five-year plan (1928-32),³ 17.1% in the second (1933-37),⁴ 15.1% in the fourth (1946-50) and of 11.4% in the fifth (1951-55). The sixth six-year plan was interrupted by Khrushchev and replaced by a seven-year plan (from 1959 to 1965).

However, following the general pattern of the socialist countries already indicated in the previous tables, from the 1960's onward, the growth rates of the USSR began to decline. The seven-year plan ended in 1965 with an annual average of 6.8%, followed by other five-year plans: the eighth (1966-70 with averages of 7.8%), the ninth (1971-75, annual average of 5.7%), the tenth (1976-80 and 4.3% average). In the eleventh, from 1981 to 1985, the average was 3.2%. (Notkin, 1948, p.11; Narkhoz 1988, p.8; table 3.2 of appendix 3)

Once again we face a certain barrier around the 1960's. What would be the factor (s) to clutter the economy of the socialist countries in that particular period? What would be different about it in comparison, for example, to the 1930's, 1940's and 1950's when the USSR sustained very high growth rates?

³ The first five-year plan began in the fourth quarter of 1928 (the fiscal year of the five-year plans began, at that time, in October). From 1931 onward, the fiscal year was matched to the calendar year, starting in January. (Zaleski, 1971, p. 148).

⁴ The third five-year plan (1938-42) was interrupted by the Nazi invasion in June 1941 (until then the average was slightly above 10% per year).

In these three decades, the USSR made its pioneering five-year plans, built huge (sometimes *quasimonopolistic*) factories and mills that produced millions of tons of metal and production goods and employed great amounts of labor (both specialized and non-specialized) to compensate for the technological backwardness *vis-à-vis* the West etc. Thus, there was an extensive growth of the economy with a large use of labor power, of the enthusiasm of the masses (especially in the periods of post-war reconstruction, taking advantage of the patriotic fervor of the moment) and an intense concentration of resources in basic industries (heavy industry, aerospace, armaments, applied research, etc.) to the detriment of sophistication in the consumer sector. The result of this concentration of resources is that, at least in the mentioned areas, the Soviets stood on a par with the more advanced West (despite failures in the consumer and supply sectors and a problematic agriculture). So much so that they were the first to put a man in space (Gagarin in 1961), came to have the second largest GNP of the world etc.

However, if the first half of the century allowed this extensive planned growth strategy to “succeed,” taking its first baby steps in the 1950’s, growing in the 1960s and maturing (reaching its basic completion) in the 1970s, a new phenomenon that would change the face of world economic relations took place: the so-called “Third Industrial Revolution” or “Scientific-Technical Revolution”.

In the 1950’s, the development of computer systems already foreshadowed major changes in the speed of data processing, but with the inauguration of the first industrial robot in 1961 a new era was opened in the world industrial production circuit. In the next fifteen years, the fusion of *computing* with *robotics* and later with *telematics* (through *microelectronics* in the 1970s) led to a real revolution in production processes.⁵ The pace of electronical technological development accelerated sharply. If before the progress was arithmetic, now it has become geometric. Nowadays, a computer model is created and, in less than twelve months, it is already surpassed by a newer and more efficient one.

If until the 1960s the USSR was able to “compete” on an equal footing with the advanced West in those strategic areas, in this “Third Industrial Revolution” things changed. The extensive growth model exhausted itself. The technological gap with the West grew steadily, reaching a critical point in the mid-1970’s and becoming a huge gap in the 1980’s. While the advanced West had already embarked on the path of the STR (Scientific-Technical Revolution), the Soviet Union had a great deal of difficulty in embarking on an intensive course of development, still adhering to old extensive patterns.

Due to the very nature of the centralized planning model (with its subsidies, possibilities of transferring resources from one sector to another by administrative means), this “technological gap” and this decline in the “competition” with the advanced capitalist countries did not reflect directly in a proportional decrease in the living standards of the population, as we have seen previously. However, such a situation could not continue *ad eternum*.

⁵ The concepts of Scientific-Technical Revolution (STR) and Third Industrial Revolution (or Third Technological Revolution) were used in nuanced ways. The first one was used mainly by authors of the actually existing socialist countries, the latter ones by western authors. We will try to establish a bridge between these concepts in the course of our narrative. Subsequently, we will also analyze their individual nuances. Meanwhile, for the purposes of the analysis in this introduction, the three main temporal aspects of the Scientific-Technical Revolution to which we wish to draw attention to are the development of *computing* in the late 1940’s and 1950’s, *robotics* in the 1960’s, and the telematics boom (data transmission at a distance) mainly through *microelectronics* in the 1970s.

This was Gorbachev's dilemma! If by 1975 it was already clear that the USSR had practically lost the technological race with the advanced West, one can imagine the situation at the time of his rise to power in 1985.

To illustrate these difficulties, there is nothing better than giving the floor to Gorbachev himself. In his book *Perestroika: New Ideas for My Country and the World*, written shortly after assuming the post of General Secretary of the CPSU, he stated:

Let me first explain the far-from-simple situation which had developed in the country by the eighties and which made perestroika necessary and inevitable. At some stage — this became particularly clear in the latter half of the seventies — something happened that was at first sight inexplicable. The country began to lose momentum. Economic failures became more frequent. Difficulties began to accumulate and deteriorate, and unresolved problems to multiply. Elements of what we call stagnation and other phenomena alien to socialism began to appear in the life of society. A kind of “braking mechanism” affecting social and economic development formed. And all this happened at a time when scientific and technological revolution opened up new prospects for economic and social progress. (Gorbachev, 1987c, pp. 18-19)

The phrase “And all this happened at a time when scientific and technological revolution...” indicates that Gorbachev was clear about the relation between the slowdown in economic growth and the Scientific-Technological Revolution (Third Technological Revolution), seeing among them a relation of parallelism in time. Our thesis is that there was not only this temporal parallelism — as the STR deepened, growth rates slowed down — but also elements of causality: growth rates fell due to causes related to the Scientific-Technical Revolution.

We will deal more closely with this relationship between the two phenomena a little further. For now we shall return the floor to the former General Secretary of the CPSU:

Something strange was taking place: the huge fly-wheel of a powerful machine was revolving, while either transmission from it to work places was skidding or drive belts were too loose. Analyzing the situation, we first discovered a slowing economic growth. In the last fifteen years the national income growth rates had declined by more than a half and by the beginning of the eighties had fallen to a level close to economic stagnation. A country that was once quickly closing on the world's advanced nations began to lose one position after another. Moreover, the gap in the efficiency of production, quality of products, scientific and technological development, the production of advanced technology and the use of advanced techniques began to widen, and not to our advantage. The gross output drive, particularly in heavy industry, turned out to be a “top-priority” task, just an end in itself. The same happened in capital

construction, where a sizable portion of the national wealth became idle capital. There were costly projects that never lived up to the highest scientific and technological standards. The worker or the enterprise that had expended the greatest amount of labor, material and money was considered the best. [...] Accustomed to giving priority to quantitative growth in production, we tried to check the falling rates of growth, but did so mainly by continually increasing expenditures: we built up the fuel and energy industries and increased the use of natural resources in production. As time went on, material resources became harder to get and more expensive. On the other hand, the extensive methods of fixed capital expansion resulted in an artificial shortage of manpower. (Gorbachev, 1987c, pp. 19-20)

The situation of the “pre-perestroika” USSR is very similarly described by Abel Aganbegyan, an economist adviser to Gorbachev and considered one of the intellectual mentors of the economic reforms.

With the development of productive forces, the unfolding of the scientific and technological revolution, the strengthening of socio-economic factors in economic development, the administrative system of management began to stand in ever greater contradiction to the growing needs of the development of society and finally came into sharp and protracted conflict with them. The situation worsened at the beginning of the 1970's, when the potential of extensive development through growth of resources began to decline, when a new stage of the scientific and technological revolution began and the needs of the population grew significantly. In this period the [command-administrative] system of management of the economy began to act as a serious brake on development. As a result, towards the end of the 1970's and beginning of the 1980's crisis arose. (Aganbegyan, 1987, p. 31)

As we have seen, the Soviet leaders were aware of the need for economic reform. A parallel was also drawn between the difficulties that the USSR faced in this field and the new demands of the STR. But how can we establish the causal relation between them? To this end, it is necessary to examine the process of how the technological revolutions occurred in the advanced capitalist West, how the Scientific and Technical Revolution in the USSR took place and build a theoretical bridge between these processes through an analysis of the Soviet model in order to visualize how the connection between the economy of the actually existing socialist countries and the rest of the capitalist world system was made. This is what we will do in the following chapters, and then we will examine how the occurrence of all these processes in parallel led to the (political) onset of perestroika in the mid-1980's.

2 TECHNOLOGICAL REVOLUTIONS

2.1 INTRODUCTION

This chapter will serve as the foundation upon which to conduct the discussion of perestroika as a process that occurred within (and deeply influenced by) the Scientific-Technical Revolution.⁶

By “technological revolutions” we understand, as Mandel (1985, pp. 78 and 81), radical (qualitative) changes in the technical basis of the production system of a society, which take place in a given period of history and affect the production system as a whole — *i.e.*, “revolutions in technology as a whole” (as distinguished from technological improvements which affect only certain branches of the economy).

The concept of such general substantive changes occurring in (and decisively affecting) certain historical periods is used by many authors (R. Richta, V. G. Afanasev, J. Finkelstein, S. Kheinman, I. M. Hymes, etc.). The number of such technological revolutions and the terminology used to describe them varies from author to author. In the following pages, we will try to locate our position in this debate about the specification and explanation of such phenomena.

A moment on which rests certain unanimity among the specialists is the Industrial Revolution.⁷ The (original) Industrial Revolution — which began in England in the late eighteenth century — is accepted as a mark of radical change in the methods of production used up to that time. However, how many technological revolutions have occurred since then?

At this point we want to introduce the author whom we consider to have the most consequential position on this question: Ernest Mandel. In the following pages, we will try to give a succinct idea of the Mandelian theory of technological revolutions and to explain why we consider his position as the most productive.⁸

Writing in the mid-1980’s, Mandel considered that since the middle of the eighteenth century in capitalism there was one Industrial Revolution and three technological revolutions — which were themselves inserted within the capitalist paradigm of modern industry, inaugurated by the British Industrial Revolution. To the

⁶ The terms “Scientific-Technical Revolution” (used mainly by authors of the actually existing socialist countries), “Third Industrial Revolution” or “Third Technological Revolution”, in spite of the different conceptual nuances between them, generally designate a historical period of inauguration of the new productive processes that use automation based on electronics, from World War II onward.

⁷ For the purposes of our work, we will study the technological revolutions that have occurred since the Industrial Revolution, which created capitalism’s unique technical basis.

⁸ The works in which Mandel exposes his theory of technological revolutions are *Late Capitalism* and *Long Waves of Capitalist Development*.

Industrial Revolution, with its introduction of steam power, steam engines and modern industry based on machinery that was itself mostly craft produced, then followed:

— The First Technological Revolution, beginning in the late 1840's, in which the machinery of modern industry began to be produced with the aid of other machines. This was a step that not only provided great development to the productive forces, but represented the *desideratum* for the possibility of fully automated production in the future. Machine-made steam engine was the principal motive machine.

— The Second Technological Revolution, which occurred around the last decade of the nineteenth century and the beginning of the twentieth century, which saw the generalization of electric and internal combustion engines, and the beginning of production for a mass market.

— The Third Technological Revolution had its beginnings in the post-World War II period and marked the emergence of automated processes based on electronics and the use of nuclear energy.

This explanation will be further detailed below. We now want to introduce some of the reasons why we chose the Mandelian approach.

One immediately notices the differences between this approach and the ones that advocate the existence of a Second and Third Industrial Revolution (which correspond to the Second and Third Mandelian Technological Revolutions).

The first difference is that the concept of a second and third “industrial revolutions” obliterates Mandel's First Technological Revolution (from the 1840's onward, which saw the beginning of machines being made by means of other machines or machine-made machinery).⁹ This was a very important moment, which made it possible to move away from the limitation of the need for specialist fitters in the handcraft of machinery to gradually move to mass production (simplification of processes, standardization of parts, etc.) Without this qualitative leap, not only would the beginning of production for the mass market at the turn of the century not be feasible but also the possibility of automated production (today). For this reason, no classification of technological revolutions should leave out this specific moment.¹⁰

⁹ The term “craft production” or “manufacture” refers to the (pre-industrial) production processes in Western Europe from the mid-sixteenth century until the first half of the eighteenth century. As Marx (1961-1971b, pp. 356-390) described, the manufacturing process then still had a very strong handicraft base with an enlarged division of labor. Sometimes, it meant just a larger number of artisans working together under one roof for the same capitalist.

¹⁰ Another important detail, well emphasized by Mandel (1985, p. 84), based on Lange (1964, p. 160), is that the mention of a second and third “industrial revolutions” leads to a leveling of the historical importance between these and the “original” Industrial Revolution. This hides the specificity of the Industrial Revolution of the eighteenth century, which was the definitive moment of the consolidation of the technical basis of capitalism. During the manufacture (craft production) period, from the sixteenth century to the beginning of the eighteenth, methods of production were still largely derived from artisanal or semi-handcrafted techniques from earlier eras. Capitalism came to find its unique technical basis, with the emergence of the modern industry based on machinery. According to Lange (*ibid.*), this terminology of other “industrial” revolutions obscures the historical character of the British Industrial Revolution as the “genesis” for all later technological revolutions — which despite the intense changes produced, still fit within the framework of capitalist production developed from the “original” Industrial Revolution. On the other hand, we do not agree with authors like J. Tauile and others who disagree with the use of the term “Third Industrial Revolution” to designate the era of this Mandelian Third Technological Revolution because they think that the changes brought about by automation, microelectronics and the Information Society are so great, so qualitatively different from the Industrial Age, that one can speak of another post-

The other important reason for following Mandel is that he analyzes the Technological Revolutions by establishing their links with the movement of capital within its historical period. Thus, these technological revolutions are not fortuitous, the result of historical accidents or random conjunctures. Mandel sees a close relationship between the movements of capital and the changes in the technical basis of production of society, within the historical context in which economic cycles occur.

With profit being the central objective of capitalists, Mandel¹¹ sees in the (average) rate of profit the “seismograph” that signals the evolution of economic activity in capitalism. Within economic cycles (with their successive phases of /1/ expansion, /2/ crisis, /3/ recession and /4/ recovery) moments occur, after the “rock bottom” of recession in which activity returns in the recovery period. Thus, in the last phase of recession of the previous cycle, some of the capital is idle (underutilized) and some producers even go bankrupt (due to lack of demand). As this process (and other factors) deepens, little by little, supply and demand begin to enter into a better equilibrium and demand rises again. Prices and profits accompany this upward movement. We are then moving from the final phase of recession of the previous cycle and entering the first phase (economic recovery) of the next cycle. Marx (1961-1971c, p. 185) had noticed a periodicity of about ten years for these cycles. This coincided with the average period of depreciation of fixed capital (replacement of machinery and equipment of factories) at that time.¹² The period of economic recovery that represents the entry of a new cycle, with better prices and profits and greater demand for goods, provides the incentive for capitalists to invest in the reequipment of their production units. And there is an effort for this reequipment to be carried out at higher technological levels because this represents the opportunity to get *technological rents* and *surplus-profits*.¹³

Thus, it is observed that, with each new stage of fixed capital renewal, the technological level, in general, tends to rise. But Mandel draws attention to the fact that the repetition of these economic cycles does not happen in a uniform way. There are moments in history when the factors that cause the rate of profit to rise are so strong that

industrial phase, distinct from that. (Tauile, José Ricardo: personal communication to the current author on October 31, 1995, at the IEI-FEA of the Federal University of Rio de Janeiro) Our position is that the present era still forms part of the framework of capitalist industrial society. However, we concede that contradictions are becoming so strong that they may require future radical changes (rupture) in the production mode toward what may become a qualitatively distinct phase. But this is to be seen in the future. For now, we are still within the basic framework inaugurated by the eighteenth-century Industrial Revolution, that is, of industrial production by wage-earners with a view to profit and surplus value.

¹¹ The following explanations on Mandel's theory of economic cycles and technological revolutions are based on his book *Late Capitalism*, especially chapters 4, 6, and 8.

¹² In Marx's (1961-1971c, p. 185) time, the period of renewal of fixed capital (*i.e.*, machinery and equipment) was approximately 10 years. This corresponded to economic cycles whose duration was normally between 7 and 11 years. Nowadays, with the intense technological development, this time of fixed capital turnover, in certain areas, has been decreasing strongly towards levels of 5 (in extreme cases, up to 4 or 3) years. As Mandel (1985, pp. 157-162) noted, this has consequences in the economic oscillations of the late capitalist era.

¹³ *Technological rents* are *surplus-profits* derived from a monopolization of technical progress, *i.e.*, above-average profits derived from the use of superior, more productive technologies not yet generalized in the economy, being monopoly of some producers. Those who produce with the average technology obtain the average profit. Those who hold the monopoly of these superior technologies, during the time in which this technology has not yet been generalized, obtain an extra profit (the *surplus-profit*) because they produce at a lower cost per unit.

they cannot be neutralized by the subsequent increase in the mass of accumulated capital, as they usually are during the “ordinary” cycles. At this point, the average rate of profit is so high (and for much longer) that it provides additional impetus so that a much larger amount of previously idle capital — which could not achieve valorization during the underinvestment period that characterizes the last stage of the previous cycle — is thrown into the technological renewal of fixed capital (*i.e.*, machinery and equipment). Having the perspective of comparatively higher profit rate makes the capitalists more “daringly” invest in innovations, inventions (and even research) than they would in less promising times. Not only will the average profit be higher, but the technologically advanced surplus-profits of those “bolder” capitalists who achieve truly revolutionary methods of production will be extremely high.

Mandel sees technological revolutions not as historical accidents, or as a result of the “activity of certain isolated innovating capitalists,” but as a result of exceptionally favorable circumstances during the historical movement of capital. The economic cycles of about 10 years, already detected by Marx in his time, had the function of marking the renewal of fixed capital at a technologically superior level. But not just that. Each cycle brings with it an accumulation of capital. However, not all capital can achieve valorization in the phases of crisis and recession — a certain amount of commodities cannot be sold. In these phases of underinvestment of each cycle, part of the capital remains idle, not being able to receive the average rate of profit but, at most, the interest rate. This idle capital will then constitute a kind of reserve fund. The repetition of several cycles may increase this reserve fund until such time when exceptionally favorable conditions of higher and longer-lasting average profit rates provide the incentive for this idle capital to be thrown into the economy in a generous way, necessary for not only a quantitative increase in the productivity of industry (as is usually the case in ordinary cycles) but a qualitatively different revolution of the technical basis of production as a whole (“revolution in technology as a whole”).

At this point, we need to make an observation. Mandel analyzes the occurrence of technological revolutions linked to a sudden and especially prolonged rise in the rate of profit in society. As we have discussed, he regards the profit rate as the “seismograph” that signals economic changes in the history of capitalism. However, why does this rate rise so much at certain times? Mandel (1985, pp. 25-26) considers that changes in the rate of profit are mainly a result of the interaction of six fundamental variables: 1) organic composition of capital; 2) distribution of constant capital between fixed and circulating capital; 3) development of the rate of surplus value; 4) development of the rate of accumulation (*i.e.*, relationship between productive surplus value and surplus value consumed unproductively); 5) development of the turnover-time of capital; 6) relations of exchange between Department I (producer of capital goods) and Department II (producer of consumer goods) of the economy. For Mandel, these six variables are the most important factors regulating the profit rate. What one should do, then, is to examine what historical factors led to changes in these six variables on the eve of (and during) each period of technological revolution.

Mandel observed the occurrence of long “cycles” (called “periods” by him) of approximately 50 years that coincided with the occurrence of technological revolutions. Each of these “periods” was divided into two long “waves.” The initial long wave (of the

first 25 years or so) had an “expansive tonality.”¹⁴ In it, the “rising tide” of capital accumulation provided by the prolonged rise in profit rates leads to the technological revolution. This, in turn, provides surplus-profits for the holders of the new “revolutionary” technologies and the average profit for the other companies. It is basically a phase of prosperity (from the point of view of averaging the characteristic highs and lows of minor cycles within it). The last 25 years (approximately) of each period form a “long wave with a stagnant tonality.” Therein the new production techniques of the technological revolution of the “long wave with expansionist tonality” cease to be new (and monopoly of a few firms) and are generalized across the economy. This results in a fall in profit rates (the surplus-profits disappear, leaving only the average profits which, in turn, also fall as new capitalists, stimulated by the rates of the previous phase, jump into the market, increasing competition and creating overproduction). The result is a tendency towards stagnation.

The periods observed by Mandel were the following: 1793-1847; 1848-1893; 1894-1939; 1940/45 until the 1990's. We can see that technological revolutions coincide, roughly, with the initial part of each period. Subdividing each period into their “long waves” we get:¹⁵

1793-1825:

It is the long wave with expansionist tonality of the Industrial Revolution itself, whose technical basis was man-made steam-powered machines and engines. The expansion of the rate of profit and surplus value is realized on the basis of the expansion of the industrial proletariat and the industrial reserve army. There is a great expansion of the world market with the colonies in South America.

1826-1847:

Long wave with a stagnant tonality.

1848-1873:

It is the long wave with expansive tonality of the First Technological Revolution in which the machinery used in production begins to be produced by means of other machines (instead of being handcrafted like before). There is a great expansion of the world market due to the generalization of this new type of heavy industry, the construction of expensive railroads in North America and Europe and the increase of the gold production in California and Australia.

1874-1893:

Long wave with a stagnant tonality.

1894-1913:

The export of capital to the colonies in the imperialist period of monopoly capitalism marks a vigorous expansion of the world market, with the incorporation of areas in Asia, Africa and Oceania. This (and the consequent lowering of the price of raw materials) raised the profit rate. It is the long wave with expansionist tonality of the Second Technological Revolution, which created the electromechanical technical basis of production. This period marks the development of electricity as the energy source, the introduction of the internal combustion engine, and sees the birth of mass-production

¹⁴ This terminology of “periods,” “long waves with expansive tonality” and “long waves with slacking (stagnant) tonality” is used by Mandel himself.

¹⁵ The division into periods below was taken, with some modifications, from Mandel, 1985, pp. 92-93.

techniques (Fordist system). The organizational techniques of Frederick Winslow Taylor and the Fordist assembly line on an electromechanical basis are the main features of these radical changes in industrial production methods.

1914-1939:

Long wave with a stagnant tonality. The outbreak of war, the breakdown of world trade, the 1929 crisis and the victory of the Russian Revolution created difficulties for the expansion of capital and the world market.

1940/45-1966:

This was the long wave with an expansive tonality of the Third Technological Revolution. Fascism and World War II created the conditions for increased rates of surplus value and profit, which favored capital accumulation. It was firstly used in the production of armaments and then in the innovations of the Third Technological Revolution. The new technical basis of the industrial system was electronic. The use of computers, initially in scientific tasks and then in production itself (with numerical control machine tools, industrial robots, etc.) enabled gains in productivity. Nuclear energy was introduced as energy source.

1967- ...

Long wave with a stagnant tonality. The slow absorption of the “industrial reserve army” in the central countries acted as an obstacle to an additional increase in surplus value. The intensification of competition, with the use of less labor-intensive techniques to the point where fully automated systems already exist, created contradictory conditions for the valorization of capital, epitomized in the international crisis of the 1970’s and 1980’s.¹⁶

¹⁶ The empirical confirmation of these “periods” and “long waves” is not simple. In his books, Mandel reproduced tables with data on the growth of world industrial production and trade that apparently corroborate the existence of these long cycles. Among these, two stand out:

Table 1.4: Annual cumulative rate of growth in the volume of world trade:

| years | % growth |
|-----------|----------|
| 1820-1840 | 2.7 |
| 1840-1870 | 5.5 |
| 1870-1890 | 2.2 |
| 1891-1913 | 3.7 |
| 1914-1937 | 0.4 |
| 1938-1967 | 4.8 |

Source: Mandel, 1985, p. 99.

Table 1.5: Annual cumulative rate of growth of physical per capita output on a world scale:

| years | % growth |
|-----------|----------|
| 1865-1882 | 2.58 |
| 1880-1894 | 0.89 |
| 1895-1913 | 1.75 |
| 1913-1938 | 0.66 |

Source: Mandel, 1985, p. 99.

In relation to the long post-World War II expansionist wave and the subsequent long wave with stagnant tonality from the late 1960’s and early 1970’s onward, we can use OECD data (which includes the major industrialized countries in Europe, USA, Japan and Canada). After the glorious decade of the 1950’s,

2.2 CHARACTERISTICS OF THE CAPITALIST PRODUCTION SYSTEM DURING THE SECOND AND THIRD TECHNOLOGICAL REVOLUTIONS

For the purposes of our work, we need to analyze the characteristics of the Second and Third Technological Revolutions in more detail, as it was under the influence of these paradigms that the Soviet Union made its development effort (in a context of competition with the industrialized West).

2.2.1 Second Technological Revolution

The era of imperialism in the late nineteenth century led to increased export of capital to the colonies, brought about a significant expansion of the world market (with the incorporation of areas in Asia, Africa and Oceania) and produced a price reduction of raw materials and foodstuffs, causing a strong and prolonged increase in the rates of profit that led to the long wave with an expansive tonality from 1893 onward. This was the long wave of the Second Technological Revolution that introduced the use of electricity and internal combustion engines. The industrial system had an electromechanical technical basis.

What did this electromechanical technical basis consist of? The use of electricity provided a much more continuous and reliable form of energy for the operation of

when economic growth, stimulated by the postwar recovery, reached average levels above 5%, the average annual GDP growth of the OECD countries as a whole was as follows:

Table 1.6 - Average annual economic growth of the OECD countries, 1960-1993.

| 1960-68 | 1968-73 | 1973-79 | 1979-89 | 1989-93 |
|---------|---------|---------|---------|---------|
| 5% | 4.5% | 2.8% | 2.6% | 1.7% |

Source: OECD, 1989b, p. 44; OECD, 1995a, p. 50; OECD, 1970a, p. 21.

It is important to note that this downward trend in growth rates after the late 1960s was followed, without exception, by all OECD countries. Japan itself, whose real GDP grew at an annual average rate of 10.2 per cent between 1960 and 1968, slowed down to 8.7 per cent in 1968-73 and to 3.7 per cent between 1973 and 1987. (OECD, 1989b, p. 44) The OECD data shows that the signs of the crisis (as Mandel noted in 1972, the time of the launching of the first edition of his book *Late Capitalism*) were already present in the late 1960s. The 1973-74 “oil shock” only exacerbated trends already latent in the economies of central countries.

The existence of long cycles in the capitalist economy, though controversial, is also confirmed by other economists (Kondratieff, Schumpeter, W. W. Rostow, etc.), varying the explanation of the factors that produce them.

Credit should be given to Mandel for having prepared his theory on long waves and technological revolutions in the late 1960’s and early 1970’s, at a time when the economy of the big countries was still fresh from the high-growth decade of the 1960’s, and it was difficult to predict an international crisis like the one that occurred in the mid-1970’s. Mandel correctly predicted that the 1970’s and 1980’s would have “a stagnant tonality.” Similarly, on the eve of his death, Mandel, in the second edition (1995) of his book *Long Waves of Capitalist Development*, discussed a related issue: is there a possibility that the decade of the 1990’s will mark the beginning of another “long wave of expansionist tonality” for capitalism that will last for around two or three decades as the previous ones?

machinery than previously existing ones (steam energy, for example). This extended the capabilities of machine tools. The way was open for the inauguration of the era of mass production in the early twentieth century by means of two new methods: Taylorism and Fordism.

The engineer Frederick Winslow Taylor (1856-1915) proposed in his 1911 book *The Principles of Scientific Management* a new type of factory management. Working at the Bethlehem Steel Company in the U.S., he realized how “porous” (wasteful) was a typical workday: many unnecessary movements were performed by workers — not to mention deliberate “soldiering” and slow work — and waste of energy and time seeped in during the execution of manufacturing tasks. (Taylor, 1911, pp. 13-15) To reduce this porosity at work, Taylor (*ibid.*, pp. 77-80) divided each task into its basic component movements and set out to seek the ideal way of performing each movement with the least possible loss of time and energy. He also proposed the payment of individual bonuses to compensate for the increases in productivity. (*ibid.*, p. 121) The hallmark of the Taylorist system was, as Coriat (1994, p. 67) put it, the “allocated times.” If before each worker carried out the routine in his own way, Taylor (1911, p. 36) now proposed that management should scientifically study the best (most efficient, least expensive) way of carrying out the movements and oblige the worker to work only in this way (“replacement of the individual criterion of each worker by a scientific method”). The techniques, the way of working, passed from the worker to the management (“allocated times,” increasing separation of conception and execution). Frederick Winslow also laid down a number of other rules for management, whose keynote, in his own words, would be “the intimate co-operation of the administration with the workers,” so that they labor together in accordance with developed scientific laws, rather than leaving the solution of each problem, individually, to the discretion of the worker. (*ibid.*, pp. 14, 36 and 70) It is (un) necessary to say that this “intimate co-operation” must take place under the single and unequivocal direction of management.

Taylor’s method improved productivity through a qualitative (“scientific”) increase in intensity and decrease in “porosity” (waste) of work. Together with Fayol’s theory (in the field of administration), it represented the great change in organizational methods of work in the Second Technological Revolution.

In addition to organizational-managerial methods, the physical layout of the shop floor underwent another revolutionary change with the introduction of the Fordist assembly line. What did it consist of? At the end of the eighteenth century and much of the nineteenth, the machinery in the factories was divided according to functional principles (*i.e.*, according to their functions). (Best, 1990, p. 52) Thus the lathes were grouped together in one area, in another the drills etc. The parts to be worked on were carried in batches from one section to another, to be cut together, polished, drilled etc. In the nineteenth century, there appeared the concept of flow production in which the machines were arranged in order of sequence of operations. In one area, an exemplar of each different machine was grouped, so that the entire process (or much of it) could be done in one area, avoiding the waste of time and energy of parts having to be transported through different areas and departments. Flow-line methods and flow-through processes began to be employed in the refining and distillation industries at the end of the nineteenth century. Ford’s great breakthrough was to introduce flow methods in the metallurgical industries with the help of conveyor belts. If before the workers carried the

parts from one machine to another, they now simply sat, working on the parts that came to them automatically by means of the conveyor belts. (Ford, 1922, p. 80) It is unnecessary to emphasize the increase in productivity that this brought to the production process. Now the pace of work was definitely out of the control of the workman, and in the full control of management, which imposed the desired speed on the conveyor belt.¹⁷

The period of the Second Technological Revolution in capitalism would then be marked by an electromechanical technical basis, using Taylorist and Fordist methods. The productivity gains were huge,¹⁸ ushering in the era of mass production for a mass market.

2.2.2 Third Technological Revolution

After World War II (following the invention of computers), a new revolution took place: the electromechanical technical basis of production began to be replaced by an electronic technical basis. Numerical Control (= control by pre-programmed computer tapes) was attached to machine tools forming the NCMT (= Numerical Control Machine Tools). If machine tools, though electrically operated, were previously handled by an operator who intervened at every single work operation, now this constant intervention by the operator became unnecessary. To the machines were attached a numerical control cabinet or tape which contained, pre-recorded, the “instructions” for the operations so that the machine could carry out the whole work automatically. The task of the operator is often to just observe the equipment to make sure that everything runs according to the program, intervening only in case of error. Another development, initially used in automotive industries, was the Transfert line (“Detroit automation”). The Transfert line consisted of a series of cutting and polishing machines connected by a conveyor line. The engine blocks were automatically transported from machine to machine and automatically cut, polished etc. without human intervention. The productivity gains were huge. The Transfert line, for example, made the cycle of work operations on the engine block drop from 9 hours to 14.6 minutes! (Coriat, 1990, p. 40)

¹⁷ Another important contribution of Ford was the definitive implantation, in mass production, of the interchangeability of parts. This concept had its origins in the Springfield and Colt arms factories in the U.S. in the mid-nineteenth century, *i.e.*, as part of the period of the First Technology Revolution of capitalism. Until then, factory production had basically followed the British model of the Industrial Revolution in which, due to the imprecision of measuring instruments (among other factors), the parts that made up the equipment often had small differences between them, necessitating specialized workers (“fitters”) who filed them down to fit each other. The “American system,” — which began to supplant the “British system” in productivity in late nineteenth century (with the advent of more precise measuring instruments) — propounded a maximum possible standardization (and hence, interchangeability) of the parts component of manufactured products, using dedicated machines for each operation. Since the components were reliably fit, assembly production became much faster (no need for fitters, etc.) and repairing defective products much easier (replacing a defective part with any other). (Best, 1990, pp. 30-34) However, due to the technical difficulties and limitations of the time, the principle of interchangeability of parts could not be generalized on a large scale in the nineteenth century. It was Ford who generalized it in manufacturing processes. Fordism opened the doors to mass production by uniting the principle of interchangeability of parts with the principle of flow in the metallurgical industries (by means of the assembly line with conveyor belt). (Ford, 1922, pp. 74-75; Best 1990, 54)

¹⁸ Using his new methods, Ford was able to reduce the assembly time of a car by a factor of nine compared to the best previous automakers. (Womack, Jones & Roos, 1992, p 71)

The Third Technological Revolution is characterized by great advance in the possibility of using electronic computing to reach fully automated systems.¹⁹

The great initial foundation of the Third Technological Revolution was the development of electronics and computing after the Second World War. From this base, the “skeleton” of the Scientific-Technical Revolution was expanded when the 1950’s *computing* (mostly used for scientific purposes) allied with *robotics* in the 1960’s — the creation of the prototype of the first commercial industrial robot in 1961 inaugurated the entry of computing into the industrial sector — and the *telematics* (remote data transmission) via the *microelectronics* of personal computers in the 1970’s. Thus, by the mid-1970’s the basic framework for an *information society* was formed.

As for the actual technological developments in the factories, we can highlight the NCMT (Numerical Control Machine Tools), the Transfert Line (“Detroit automation”), CNCMT (Computerized Numerical Control Machine Tools), FMM (Flexible Manufacturing Modules) and FMS (Flexible Manufacturing Systems), CAD (Computer-Aided Design) and CAM (Computer-Aided Manufacturing).²⁰

¹⁹ To follow the evolution of postwar computing, here is a chronology of the most important moments, highlighting the introduction of vacuum tubes (used in first-generation computers), transistors (second-generation computers), integrated circuits (third-generation computers) and microprocessors (fourth-generation computers):

1943: creation of Colossus, the first programmable, special-purpose electronic digital computer.

1945: creation of ENIAC, the first large-scale general-purpose programmable electronic computer.

1947: AT&T’s Bell Labs scientists develop the transistor.

1949: numerical control is created.

1951: Remington Rand launches the first commercially successful computer, UNIVAC I. IBM soon launches its IBM 701.

1954: TRADIC, the first transistorized computer, is built by Bell Labs engineers.

1958: Texas Instruments’ Jack Kilby develops the integrated circuit (“microchip”). The third generation electronic computers will be based on the integrated circuit, just as vacuum tube computers constituted the first generation and transistorized computers the second.

1961: the first commercial industrial robot is built.

1971: the microprocessor, which will enable the emergence of microelectronics, is created.

1974: Altair 8800, the first commercially successful personal computer, inaugurates the fourth generation of computers (microcomputers for personal use using microprocessors).

²⁰ The NCMT and Transfert line have already been explained previously. CNCMT (Computerized Numerical Control Machine Tools) are like the NCMT, only their programming is more flexible and can be changed by computer. Unlike the NC (Numerical Control) installed inside the machine tool itself, DNC (Direct Numerical Control) represents the control of programming machines directly from a central computer located outside the machine tool area. The Flexible Manufacturing Modules (FMM) produce an interaction between the machines and the parts to be worked on in which the parts come to the machines automatically, without human intervention, through industrial robots and other devices. FMS (Flexible Manufacturing Systems) are more complex systems, which involve the automatic transportation of parts between different modules (FMM) through preprogrammed conveyor belts or trolleys. Computers also invaded more abstract areas, such as designing. CAD (Computer-Aided Design) systems represent programs that automatically perform almost all the manual tasks of drawing, repetitive calculation etc. of a project. The human designer is left only with the initial abstract intellectual creation since the “manual” work of drawing lines, doing math calculations, redesigning old works, etc. can be done by the computer. The integration of CAD-CAM (Computer-Aided Manufacture) systems dramatically reduces the time between design and execution in the factory. In the area of business administration there appeared the concept of CAPM (Computer-Aided Production Management) in which specific computer programs are used in the tasks of control, planning and execution of production management. (Hill, 1991, pp. 2-5)

PARADIGMS OF FLEXIBLE SPECIALIZATION AND TOYOTISM

The purely technological changes were accompanied by revolutionary changes in organizational-managerial methods of production. Just as Taylorism and Fordism characterized the second technological revolution,²¹ new organizational patterns, called “flexible specialization”, by Piore & Sabel (1984) proved to be superior in efficiency at the time of the Third Technological Revolution. The most famous of these flexible specialization paradigms was Toyotism.²²

Before we examine the origins of this new paradigm, it is important to note that Fordism was a rigid form of production. The assembly lines had the function of producing large amounts of identical objects, without variation between them.²³ Fordism

²¹ For practical purposes, henceforth when we refer to “Fordism,” under this concept will be subsumed the Taylorist techniques that were incorporated by it. In so doing, we are aligning more with the view of Raphael Kaplinski than Robert Boyer’s. Kaplinski (1989, p.12) saw Taylorism as a development in the paradigms of production which, along with other developments, was to flow into Fordism (and become an integral part of it later). Boyer (1990, pp. 131 and 133), along with other authors of the French “regulation school,” tended to emphasize the specificities of Taylorism and to see it socially as a historical phase, a “regime of accumulation” distinct from Fordism. In our view, from the 1930s — which is the initial period of Soviet industrialization that most interests us in the present work — onward, this separation of Taylorism and its specificity loses its meaning. At that time, the Fordist paradigm had consolidated. It would become hegemonic later, and it already contained in itself, as an integral constituent, several Taylorist postulates. In factory practice, Taylorism, Fordism (and, on another level, Fayolism) became interconnected, indivisible components of this new paradigm that is conventionally called Fordism.

²² We use the term “toyotism” to designate the Japanese microeconomic paradigm of flexible production that has been imposed worldwide (especially since the 1960s). In studying this paradigm, several authors employ a varied terminology to explain this phenomenon or parts of it: post-Fordism, Ohnism, Toyotism, “lean” production, etc. We chose this designation in order to simplify our explanation, since the Toyota company was a pioneer and to this day is the vanguard in the use of the great majority of the elements that form the constitutive framework of this post-Fordism of Japanese origin.

It is important to note that Toyotism was not the only paradigm of flexible production to stand out at the time of difficulties of the Fordist model. As Piore & Sabel (1984) put it, the 1970’s and 1980’s marked a sharp decline in the traditional Fordist model of mass production and the emergence of a new paradigm that the authors called *flexible specialization*. This flexible specialization took different forms in various parts of the world. Piore & Sabel (1984, pp. 133-164) recorded the crystallization of forms of flexible specialization in some regions of Italy and in industries in Germany and Japan. In the current work, we will be concentrating on the Japanese example of Toyotism since this has been the most widely developed (in practice and theoretically) flexible specialization model (because it encompassed more than just a few industrial regions or branches of the country), since it was (as we shall see) not only a different microeconomic model but also distinctive and original in its macroeconomic implications, and last but not least because it was the paradigm of flexible specialization that more directly and frontally challenged the primacy of the American Fordist model in the 1970’s and 1980’s. Other forms of flexible specialization were limited in their spatial geography or in their comprehensiveness in the overall set of industries in their countries. In addition, the Japanese paradigm reached a certain totality that already allows an attempt of theoretical comparison with the Fordist model. Toyotism decisively influenced the strategies of large Western firms which, faced with the superior Japanese productive efficiency of the 1970’s and 1980’s, were forced to change their way of thinking and adopt “flexible” production techniques in the 1990s.

²³ Among the machine tools with an electromechanical technical basis, two types can be distinguished: (*single-purpose, special-purpose*) *production machines tools* (which perform specific and invariable tasks on a single piece of equipment and are therefore used for high-volume production) and the *universal (general purpose) machine tools*, which are more versatile, and make it possible to perform different tasks (*e.g.*, cut, polish) on different types of parts. The former may be operated by unskilled workers, whereas the latter usually require skilled workers. (Tauile, 1984, p. 10) In order to obtain standardized, interchangeable parts at a lower price, Ford sought to divide the work into its most elementary tasks and emphasized the use

was based on economies of scale: the greater the quantity of the same object produced, the lower the marginal cost of each extra unit. Once the machinery was installed in a factory, it was assumed that it would function in an uninterrupted and identical way: it would be very complicated, for example, to stop the system to change the machine in order to produce otherwise. But this rigidity, this little flexibility for modifications, posed no problem at that time. Fordism was born along with the mass market at the turn of the century. The market expanded and so did the demand for consumer goods. Fordism and the mass market were complementary: the cheapening of costs caused by the standardization of parts and Fordist mass production stimulated consumption; and expanded consumption, in turn, provided the incentive for factories to scale up production. The rigidity²⁴ (= lack of flexibility for modifications and variations) was not a problem then: it was totally within the logic of the historical period, that is, standardized mass production to supply a growing market. Economies of scale were the logic of the moment (and would continue to be long thereafter).

How did Toyotism come about?

Unlike Fordism, which emerged to meet the needs of a mass market (and hence based on economies of scale), the Japanese domestic market immediately after World War II was in shambles. The priority of state policies was to direct the flow of capital to the basic areas of heavy industry and capital goods for national reconstruction. According to Coriat (1994, p. 40), “the number of motor vehicles manufactured in 1950 was only 32,000, and most of these vehicles consisted of trucks destined for public works.” In 1949, Toyota was experiencing an overwhelming financial crisis from which it emerged only with the help of a banking group which, in exchange for the help, demanded drastic changes in the company’s *modus operandi*. In 1950, after a long and hard-fought strike, 2,146 of the 8,140 employees were forced to leave the company (through a program of “voluntary” layoffs) and President Kiichiro Toyoda himself retired from the presidency, being replaced by Taizo Ichida. (Toyota, 1988, p.110) At this point, the role of production engineer Taiichi Ohno became crucial. Gradually, he implanted new organizational and production methods that soon proved to be revolutionary — hence some authors even use the term “Ohnism” instead of Toyotism.

Ohno had to seek out solutions to his main problem. How to make gains in a restricted market? (Coriat, 1994, p. 42) Fordism could not give him fully satisfying answers because it was based on economies of scale, cheapening goods through mass production for a large market. In addition, with the Korean War (1950-1953), Toyota began to receive orders for products of various types (in small series), with heavy fines in case of non-compliance with deadlines. For Ohno, the question was: how to achieve

of dedicated machines (specialized in one task). With these machines, a group of unskilled workers (who performed the simple tasks of operating these easy-to-handle machines) was even able to work on a larger volume of parts at a lower cost than a group of skilled workers using universal machine tools. “The only penalty with this system was inflexibility. Changing these dedicated machines to do a new task was time-consuming and expensive.” (Womack, Jones & Roos, 1992, p. 24)

²⁴ Ford’s famous quote about his model T that “Any customer can have a car painted any color that he wants so long as it is black” illustrates the level of standardization he proposed. The rigidity of a typical Fordist factory was evinced in 1927 when — hampered by competition from General Motors seeking to offer a greater variety of models and thus gaining significant market share — Ford was forced to make modifications in his production line to introduce greater variability in models (from model T to model A): to do so, the factory had to be closed for months! (Womack, Jones & Roos, 1992, p 71)

economies of scope, *i.e.*, how to achieve productivity gains by producing series which are both restricted (small lots) and diversified (variety of products)? (Ohno, 1984, p. 199; Coriat, 1994, p. 32) It is important to remember that Toyota had the size of its personnel reduced due to the layoffs caused by the 1949 financial readjustments and the 1950 strike. The scene was ready for the appearance of a flexible (adaptable) solution which increased productivity by cutting costs even with production in small series.

KAN-BAN SYSTEM, JUST-IN-TIME PRODUCTION, AUTONOMATION (*JIDOKA*), ZERO INVENTORIES, *KAIZEN*...

Ohno, impressed with American supermarkets and how they stocked inventory, searched for a way to lower the level of intermediate and final stock of parts and products (the ideal of “zero inventories”). (Ohno, 1984, p.220; Toyota, 1988, p.143) This is achieved by reversing the order of flow of production of the traditional Fordist factory. Instead of producing large quantities and stocking them in order to always have what to offer when there is demand, the Toyotist factory will now produce only what has already been ordered. Needless to say, this will create great tension. Orders of all kinds can be delivered at any time and the assembly line must be ready to adapt to them quickly. Thus, unlike Fordism, machines and workers cannot be destined for a single task: they must be flexible and multipurpose. If in “classical” Fordism the worker usually devotes himself to a single task on a single machine, in “Ohnism” the worker is called upon to operate several different machines, sometimes at the same time (taking advantage of the high level of automation of the new electronic machines, which require more supervision than manual operation proper). (Ohno, 1984, pp. 205 and 211; Toyota, 1988, p. 142) Production ceases to be rigid and becomes flexible. The innovations of the Third Technological Revolution helped in this regard. Numerical control coupled to machine tools (NCMT) gives the possibility of automatically performing different tasks with these machines, through changes in the program of the tapes. This requires operators with a certain level of education or training, prepared to multitask with these machines.

In the Kanban system, production is now governed by demand. This is reflected in the very communication between workers on the assembly line. Instead of the workers finishing their work and passing the parts to the next worker in line, an operator now only starts working on his parts after receiving the Kanban (= “signboard” or “billboard” in Japanese), a card in which the workers “downstream” place their orders of parts. Thus, unlike the Fordist “push” system, in which the upstream work stations command the rhythm according to which the downstream work stations will work, in Toyotism the flow of command goes upstream from the end positions to the previous positions (“pull system”). (Ohno, 1984, p 203-204, Toyota, 1988, p.143) Kan-ban cards go upstream with orders of parts from the downstream work station to the next upstream work station and return with the parts ordered delivered from the said upstream station to the next downstream station. The result is that the need for inventories is dramatically reduced. Production is activated by immediate demand. “Zero inventories” means large savings, because inventories represent “idle” money, capital advanced but not realized.²⁵ (Toyota,

²⁵ According to Toyota’s official history, “Just-in-Time” and “zero inventories” notions go back to Toyota’s then-president, engineer Kiichiro Toyoda, in the 1930s (though their full implementation and generalization was only possible in the post-war period).

1988, p. 69) “Zero inventories” also has the function of keeping the factory “lean,”²⁶ without unnecessary employees or performing superfluous tasks.

Another fundamental change was what Ohno called *jidoka*, or “self-activation” of production.²⁷ (Toyota, 1988, p. 143; Coriat, 1994, pp. 51-52) It is the idea that the workers have autonomy to stop the production in case of an anomaly or error that cannot be immediately diagnosed. This is one of the pillars of Total Quality. In the event of such an error, the assembly line is interrupted until the source of the problem is found and solved. This also goes against the principles of the classic Fordist assembly line. There work stopping is something to be avoided at all costs, since idle machines mean money being unused. Ohno started from a different principle. Instead of having, as in Fordism, quality control being done at the end of the assembly line (and separated from it, so that each defective product is returned to the assembly line to be reworked), at Toyota quality control began to be exercised during the assembly, concomitantly to it, and carried out by the workers themselves. What is lost in time of machines being idle is saved in the following dimensions: 1) no need to maintain a section exclusively for quality control (in the Toyotist factory, quality control is performed in the assembly, simultaneously to it, by the workers themselves); 2) once the root of the problem is found, it will no longer be repeated and no more than one item has been affected by it (whereas in the Fordist factory, where quality control is done after assembly, an error may represent a large quantity of defective parts before its existence is detected); 3) the workers become more aware of the quality issue and, therefore, fewer mistakes are made.²⁸

Kiichiro wrote the words *Just-in-Time* on a flag and hung it on the [factory’s] wall. “People say they missed the train because of a minute’s difference,” he said, “but it’s possible to miss the train because of a second. What I meant by *Just-in-Time* is not only that it’s important to do something on time, but that it’s absolutely essential that you take it in terms of quantity and not, for example, produce something in the right time but in excessive quantity, because excess means waste.” In this way, the *Just-in-Time* system was born, one of the pillars of the Toyota Production System. (Toyota, 1988, p. 69)

²⁶ “Lean production” (*i.e.*, with nothing superfluous in terms of too many workers, waste, excessive inventories, etc.) is the term James Womack uses to describe the Toyotist system as opposed to “classical mass production” (= Fordism). (Womack, Jones & Roos, 1992, pp. 39-70).

²⁷ Ohno’s concept of self-activation comes from another: “autonomation.” In observing the work process in the textile factories of the Toyota group, the founding President Sakichi Toyoda,

[...] shocked by the waste caused by the defects affecting the whole of a fabric flap if only one of the shuttles of a loom functions in a faulty manner, devised looms equipped with devices that allow automatic shutdown of machines in the event of an anomaly [...] the idea being to endow the automatic machines with a certain autonomy [...] This is what Ohno will call autonomation, a neologism formed from the contraction of two words: autonomy and automation. (Coriat, 1994, p. 52; see also Ohno, 1984, p. 202)

The autonomation created by Toyoda also served as a precursor to the future polyvalence of the workers in the factory, since it allowed a worker to operate more than one loom at a time.

²⁸ Womack, Jones & Roos (1992, p. 48), in an account of Toyota’s history, wrote:

Not surprisingly, as Ohno began to experiment with these ideas, his production line stopped all the time, and the workers easily became discouraged. However, as the work teams gained experience identifying and tracing problems to their ultimate cause, the number of errors began to drop substantially. Today, in Toyota plants, where every worker can stop the line, yields approach 100 percent. That is, the line practically never stops! (In [Fordist] mass-production plants by contrast, where no one but the line manager can stop the line, the line still stops

In Taylorism, the worker is just an executor of the “scientific” routines established by the administration. The control of the work process planning is the exclusive attribution of the administration, not admitting the interference of workers. In Ohnism, workers are encouraged to participate by giving suggestions on how to make production more efficient. Here is another feature of the Japanese pattern that differs from traditional mass production: long-term (often lifetime) employment. Large Japanese companies invest heavily in the training and retraining of their multiskilled workers, and are therefore keen to see this human capital remain in the company. Knowing that he will not be fired, the Japanese worker feels more comfortable when giving cost-saving suggestions than a worker in a Fordist factory — where suggesting cost-saving methods can mean losing one’s job in the long run. Lifetime employment²⁹ (along with seniority wage increases and bonuses linked to profitability) also makes the worker feel part of the company’s “family.” Aoki emphasizes that “J-firms” (*i.e.*, Japanese, Toyotist companies) differ from “A-firms” (American, Fordist ones), among other things, because the latter have extremely vertical information flow, whereas the J-firm emphasizes more horizontal³⁰ and cooperative relations, with some autonomy. (Aoki, 1986, pp. 972-973)

This statement of the J-firm as a cooperative firm has a double character. It fits into a framework that emphasizes great flexibility within a highly competitive context. Emphasis is always on greater profitability by reducing costs. But the goal is not merely to increase short-term profit, but rather to conquer ever-increasing market slices in the long run. (Kagono, Okumura & Komatsu, 1984, p.36) For this purpose, the Toyotist firm employs automatic and expensive flexible equipment. The workers are “polyvalent”: not only is there rotation of stations, but they often have to operate more than one extremely expensive machine at the same time. The Japanese company invests a lot of money in training its employees to make them versatile enough for such responsibility. Lifetime

constantly. This is not to rectify mistakes — these are fixed at the end — but to deal with material supply and coordination problems. The consequence is that 90% yield is often taken as a sign of good management) [...] Today, Toyota assembly plants have practically no rework areas and perform almost no rework. By contrast, [...] a number of current-day [Fordist] mass-production plants devote 20% of plant area and 25% of their total hours of effort to fixing problems.

²⁹ Lifetime employment in Japan mainly covers workers in large enterprises (about 30% of the working population). Typically, the core Toyotist company adheres to lifetime employment, whereas the subcontractors have more flexible hiring arrangements. Like many other characteristics of the employer-employee relationship in Japan, lifetime employment is an implicit tradition (not written in formal contracts) and large firms usually stick to it. But, in fact, in some times of recession, there have been lay-offs also by large companies. (Coriat, 1994, p.88).

³⁰ In the J-firm, the exchange of information between agents of the same hierarchical level (even if they are in different departments) or between the workers among themselves is encouraged. In a Fordist-Fayolist firm, direct contact between staff of different departments is often discouraged, and any interdepartmental initiative must be previously communicated to and authorized by higher authorities. This bureaucratization causes waste of time and delays in information processing. The J-firm also encourages initiative from the workers themselves. (Aoki, 1986, pp. 972-973) A telling example is cited by Jaikumar in studying the deployment of a Flexible Manufacturing System (SMF) in a typical midwestern U.S. enterprise. The equipment was flexible, but management was typically Fordist, rigid. While in Japan workers have the autonomy to stop the assembly line in the event of a defect (until it is remedied) and encouraged to make suggestions for changes to the production line, at the U.S. firm, managers, concerned about the high cost and complexity of the equipment, made clear that workers should stick to the guidelines and avoid doing things on their own (“If there is a problem, do not touch the machine: call your supervisor”). (Jaikumar, 1986, p.71).

employment safeguards this investment in human capital and ensures the cooperation of the workers' suggestions for cost-reducing changes in production. The stimulus element through competition is given by the fact that, in addition to the fixed part of the salary — which increases with seniority in the company, thus discouraging high turnover — there are substantial bonuses for profitability and productivity. These bonuses³¹ have an individualized part, the amount of which is established through the evaluation of individual work performed. To avoid this leading to an exaggerated individualism, the ability to do group work is one of the most important items in this evaluation. (Watanabe, 1995, p.7) The emphasis on cooperative group effort ranges from this assessment to the very disposition of work, with its rotation of functions, positions intimately integrated with each other, and so on. The wage egalitarianism is also stronger than in the West. In 1985, the pay differentials between the gross earnings of the upper tier of management and its lower tier were 5:1 in Japan, while in the U.S. they were 33.5:1 (*ibid.*) However, one should not think that the Japanese company has philanthropic or socialist characteristics in its conception. Everything is within the logic of increasing business profitability. Investments in human capital are as important to a Japanese firm as investments in fixed capital. It is important to recall that at the basis of Toyota's reformulation in 1950 (which paved the way for its future organizational developments) was the confrontation with the strike movement that led to the mass dismissal of about ¼ of the company's employees. In 1953, after several battles, the combative Japanese trade union movement in the automobile industry was virtually destroyed, being replaced enterprise-based (company) trade unions, which kept cozier relations with management. (Toyota, 1988, p.145; Coriat, 1994, pp. 45-46) This kind of company unions is also one of the foundations of the Japanese model. The economic health of the nation has allowed a sharp salary increase since the 1960s, which somehow legitimizes the system and brings the workers closer to their companies. (Coriat, 1994, p.94; OECD, 1995a, p. 98) This aspect of *a priori* non-conflictual relations between trade unions and companies is so great that working for a while in a trade union is considered desirable for managers before they reach higher levels in the company. (Coriat, 1994, p.46) The *real subsumption* of labor to capital, conceptualized by Marx (1975-1995a, v. 34, pp. 93-121), takes on new dimensions in Japan, by virtue of this outlook of the company as a "family."

The cooperation in the Toyotist model must also be analyzed at another level: that of the interfirm subcontracting relations. The degree of subcontracting in Japanese industries is generally higher than in Western firms. On average, only about 25% of the components are manufactured internally by the J-firm itself, the other 75% being purchased from suppliers. (Aoki, 1986, p.93; Coriat, 1994, p. 123) But the main difference is in the quality of the relationship between the main company and suppliers. While in the traditional Fordist factory the relationship with the supplier is cold, limiting itself to the buy-sell-delivery triangle, Japanese firms have special relationships with their subcontractors. A long-term agreement is generally established with the supplying firms by which, more than merely lower prices, the firm's reliability (within Total Quality and

³¹ Maddison (1991, p. 137) wrote: "[... in Japan] a significant portion of wage and salary earners have lifetime job security, which employers can guarantee because wages are very flexible, with mid- and end-of-year bonuses that move with business profits and can amount to a third of earnings in normal times. These bonuses can be squeezed to zero in depressed conditions, which enables employers to keep workers rather than sack them."

Just-in-Time standards) is taken into account. Toyota, for example, often works together (monitoring, evaluating, advising) with its subcontractors, in order to reduce costs. Despite periodic price revisions of the parts supplied (usually every six months), Toyota leaves the savings from the reduction of costs by the supplying firms with them for the period of one year. (Coriat, 1994, p. 126) This creates an extra stimulus for technological innovation and cost reductions by subcontractors. The pressure of delivery times and the need for just-in-time perfect quality requires this close cooperation. This is another reason for the success of Japanese companies in reducing costs: cooperative relations within the context of competition.

The secret of the Japanese production paradigm is its flexibility. Fordism was based on production in large series of few models. This provided economies of scale. How can a system based on the production in small series (small lots) of many variable models become more competitive? According to traditional logic, this would be very costly! The key lies in the flexibility of the Toyotist factory. While in Fordism the remodeling of machinery for altered production of other product models is a process that involves a lot of time and effort, the Japanese factory is ready to make these changes quickly, without much difficulty. Polyvalent (multipurpose, multiskilled) machines and workers; U-shaped layout of assembly line with variable, integrated and interchangeable modules (and posts) (instead of the 3 traditional Fordist layouts: in a row, in isolated islands or in closed cages); quick retooling techniques etc. make it easy for the assembly line to be modified to produce other models quickly. (Coriat, 1994, pp. 61-63 and 72-74)

The imposition of the superiority³² of the Japanese paradigm on the market was gradual. The system was formed in the 1950's. The 1960's were the years of consolidation. While the international market was growing, Toyotism seemed an alternative to Fordism but did not unequivocally surpass it. The oils shocks and economic crisis of the 1970's changed the situation and the Japanese model imposed itself as the most appropriate for the new conditions. With higher oil prices, the market for cars was more restricted. The world's manufacturers were in the same position as the Japanese in

³² The Massachusetts Institute of Technology conducted a comparative survey in 1986-87 between two automobile manufacturing plants with similar characteristics: General Motors' Framingham plant and Toyota's Takaoka plant. GM's was within the standards of "classical mass production" (Fordist) and the other one followed the "lean production" model. Although both were state-of-the-art factories in their companies, differences in productivity were notable:

Table 1.7 - Comparison of productivity between car plants: Toyota in Takaoka and General Motors in Framingham (1986)

| | GM Framingham | Toyota Takaoka |
|---|---------------|----------------|
| Gross assembly hours per car | 40.7 | 18.0 |
| Assembly defects per 100 cars | 130 | 45 |
| Assembly space per car (square meters per vehicle per year) | 0.75 | 0.45 |
| Inventory of parts (average) | 2 weeks | 2 hours |

SOURCE: Womack, Jones & Roos, 1992, p. 71.

For competition at macroeconomic level, see appendix 7.

the post-war era: how to obtain cost savings and profitably sell in a limited market? The Japanese model was much more adapted to the challenge. Have commodity prices gone up? A “zero-inventory”, “lean” factory, which uses materials only for products that have already been ordered, is much more economical in this sense. The very fact that the Japanese only worked with pre-ordered parts and products made the effects of the crisis less serious for them. With their incredible flexibility, they could adapt quickly to new demands, diversify products etc. In addition, lean production had always been dedicated to intensive cost-cutting in restricted markets and not, as in Fordism, geared towards economies of scale (using production of an ever greater number of units of the same product). It was therefore a question of further intensifying production in order to reduce costs and to get the market to buy the goods and not simply to bet on a larger market.

The 1970’s crisis sparked studies of the Japanese phenomenon. And its adaptation and “transferability” to the West was not easy in the beginning because it seemed to contradict traditional industrial logic. After all, isn’t lifetime employment conducive to passive accommodation? Don’t stops of the assembly line mean losing money while the machines are idle? Aren’t inventories essential for supply?

The main point that we want to emphasize here is that, just as the Fordist-Taylorist model was the one that best adapted to the conditions of the Second Technological Revolution, the Japanese paradigm (Toyotism) imposed itself as the best productive subsumption of the new electronic technical basis of the Third Technological Revolution. The utilization rate of the new technologies of the electronic technical basis in the Toyotist “lean production” industries is much higher than in traditional industries — a tendency that became stronger after 1971, the year of the invention of the microprocessor, which inaugurated the era of microelectronics. For example, the number of industrial robots in use in the USA and Japan in the eighties and nineties was as follows:

Table 1.3 - Number of industrial robots in use in Japan and in the USA, selected years

| 1981 USA | 1981 Japan | 1986 USA | 1986 Japan | 1992 USA | 1992 Japan |
|-------------|---------------|-------------|---------------|-------------|---------------|
| 6,000 | 21,000 | 25,000 | 116,000 | 47,000 | 349,458 |

Source: World Industrial Robots 1995, p. 14.

As for the percentage of machine tools that have numerical control, while in 1982 it was already 53.7% in Japan, in the USA it was still only about 5%.³³ (Gregory, 1986, p. 317)

³³ This despite Japan having entered these two fields later than the U.S. While in the United States numerical control was created in 1949 and the first industrial robot in 1961, in Japan the production of numerical control machine tools began in 1958 and the first industrial robot was produced in 1968 (in 1967 the Japanese industry had imported its first robot). (Gregory, 1986, pp. 304 and 317) This is an important detail, as it draws attention to the fact that Japanese superiority did not originate from technological superiority. First came the organizational innovations of “Ohnism.” These organizational innovations — which had a life of their own, being independent of the technology used in production — allowed for greater and more flexible productivity even within an initial technological pattern that was not yet the most advanced. It was mainly from the advent of microelectronics onward (with the invention of the microprocessor in 1971) that Japan acquired technological leadership in some areas. This detail — that organizational changes within the Japanese paradigm precede and subsume the technological changes,

The Toyotist model suited the new computer-based technologies, since, as we have seen, they tend to be flexible as well. Numerical control and computing have increased the potential for movements and operations that can be performed by machine tools. The machines were made more flexible, with greater capacity to adapt to other operations (greater variety). But these new sophisticated, numerically controlled, flexible machines (NC, DNC etc.) tend to be more expensive than traditional machines. They become more “viable”, less costly, if used “flexibly,” for various operations and models. For standardized operations of one or a few types (as was common in Fordism), the use of these flexible machines may not be so much more cost-effective.³⁴

although forming an indissoluble whole that explained Japanese superiority — will be of particular importance when analyzing the pre-perestroika Soviet model. The fall in the technological race with the West was fundamental to the difficulties of economic growth in the USSR after 1975, but we cannot analyze mere technology in these comparative studies of micro and macroeconomic efficiency between the two systems (capitalism and socialism); we must analyze technology in its correlation with the organizational-administrative methods employed (in the USSR, in general, macro and microeconomics were more closely linked than in the West due to centralized planning).

³⁴ After recognizing the greater productivity of Japanese flexible production (economies of scope) in comparison with Western rigid production (economies of scale), Western companies began adopting more flexible equipment to try to keep up with Japanese productivity gains. But the mere purchase of flexible equipment is not enough: they must be used flexibly (that is, with flexible organizational-managerial methods). For example, Jaikumar conducted a survey in 1984 on the use of Flexible Manufacturing Systems (FMS) in the USA and Japan. Its sample covered more than half of all such systems in use in both countries. It was noted that while in Japan such systems were used to produce the way they were supposed to, *i.e.*, flexibly producing a wide variety of models, in the USA there was a tendency to use such systems to produce in large volumes with little variety of models — that is, they could not escape the “temptation” of the Fordist logic of economies of scale. Thus, according to the survey, the average number of parts types produced by FMS was 10 in the USA and 93 in Japan! On the other hand, in the USA the size of each batch produced was much larger (1,727 pieces per batch versus 258). All this Fordist effort to produce in large volumes proved to be counterproductive, since the use of equipment more efficiently and intensively by the Japanese — the rate of utilization of the equipment, *i.e.*, the ratio of the actual cutting time of the metal by the machine in relation to the potentially available time, was 84% in Japan versus only 52% for the Americans — meant that the total number of pieces produced per day in Japan was 120 against only 88 of the Americans. The Toyotist model can produce more with more variety in smaller batches. Flexible technology is not enough. It has to be used flexibly through appropriate organizational-managerial methods. (Jaikumar, 1986, p. 70)

3 THE SCIENTIFIC-TECHNICAL REVOLUTION (STR) IN ACTUALLY EXISTING SOCIALIST COUNTRIES

3.1 GENERAL CONCEPTS

While in the West the terms *Third Industrial Revolution* or *Third Technological Revolution* were used to describe the processes that took place, especially since World War II, with the introduction of computing, automation, increasing computerization of society, transition from the electromechanical technical basis to electronics, etc., in Eastern European countries the most common term to describe this set of phenomena was *Scientific-Technical Revolution (STR)*.³⁵

Just as in the West the precise determination of the concepts of Third Industrial Revolution and Third Technological Revolution is subject to debate and their utilization acquires different nuances when used by different authors,³⁶ in the countries of Eastern Europe the concept of *Nauchno-Tekhnicheskaya Revolyutsiya* touched off discussions about its nature, its constitutive characteristics and the time frame of its occurrence.

P. N. Fedoseev, former vice-president of the USSR Academy of Sciences, tried to summarize the essence of STR:

The Scientific-Technical Revolution is basically the radical, qualitative reorganization of the productive forces as a result of the transformation of science into a key factor in the development of social production. By eliminating manual labor by means of technology, and substituting the direct participation of man in the production process by the operation of his materialized knowledge, the Scientific-Technical Revolution radically changes the structure and components of the productive forces and the conditions, nature and content of work. While embodying the growing integration of science, technology and production, the Scientific-Technical Revolution influences all aspects of life in today's society, including the areas of industrial management, education, everyday life, culture,

³⁵ In Russian, *Nauchno-Tekhnicheskaya Revolyutsiya* (NTR). The acronym NTR was commonly used in the Soviet literature; we will translate it as STR.

³⁶ We base our analysis on Mandel's approach to the Third Technological Revolution. Not only because we consider (for the reasons already mentioned before) that his was the most profound and consequential approach but also to convey clearly what we understand by Third Technological Revolution, its origins and implications for the study of the world situation in the period of perestroika.

people's psychology and the relationship between nature and society.
(Fedoseev, 1977, p. 88)

Thus, one of the central components of the concept of Scientific-Technical Revolution — and the origin of the term itself — is “the transformation of science into a direct productive force,” which makes possible the “scientification” (*onauchvanie*) of production. (Marakhov, 1970, pp. 94-95; Gukov, 1976, pp. 159-168) It does not refer here to the mere growing use of scientific methods for increasing production capacity, which is a not so recent trend of capitalism — modern industry had already been studied by Marx in *Das Kapital* in the nineteenth century, for example. (Marx, 1961-1971b, pp. 382, 407, 636 and 674) However, in the twentieth century, especially after World War II, science, according to some of those Soviet proponents of the concept of STR, was becoming a productive force itself; science, through its principles, was beginning to control and guide production.³⁷ (Marakhov, 1970, p. 97) One of the main reasons for this qualitative leap in the process of integrating science into the production process was the emergence of automation. Some authors see the deeper meaning of the transformation of science into a direct productive force at the moment when the worker leaves the scene, replaced by automatic processes of production:

The automation of production is the way in which the transformation of science into a direct productive force materializes [...] Science becomes a direct productive force in those production processes that will be abandoned by the workers [... In the future communist society] productive functions performed by people will be replaced by technical means, grounded in the achievements of science [...] The release of people from the functions of immediate material production will enable an increase in the number of scientists and engineers [...] and] under communism people will develop fully, becoming highly qualified professionals capable of working in the new conditions of fusion of intellectual and physical work. (Shukhardin *et al.*, 1970, p. 164-166)

The automation process, based on electronics, is reflected in the nature of the machines at the time of STR, which was emphasized by several Soviet authors.

In automated systems [from the time of the STR onward], in addition to the three classic elements that make up machines [of the time of the Industrial Revolution, *i.e.*, motive machine, transmission machinery and tool or labor machines] there is a fourth element, the control mechanism [*i.e.*, automatic self-control via feedback, by which machines self-regulate] that frees man from immediate

³⁷ These authors often cited other passages by Karl Marx, in which this German author seemed to foresee a qualitatively superior, increasingly decisive role of science as the guiding force of production as capitalism developed to its limits and the epoch of the lower phase of communism approached. (Marx, 1954 -..., v. 46, pt. II, pp. 213 and 215).

contact, not only with tools, but with the machines themselves.
(Medvedev *et al.*, 1990, p. 103)

These analyses have led Shukhardin *et al.* (1970, p. 124) to conclude that the essence of the Scientific-Technical Revolution consists in the “substitution of the direct productive functions of the worker (including his logical functions and control-regulation) by technical means.”

The direct integration of science into production, at this qualitatively higher level, greatly increases and accelerates the possibilities of technological development.

Atomic and thermonuclear energy [...], automation of production [...], modern chemistry [...], cybernetics, exploration of outer space, [of] new means of influencing the processes of organic life; here is a rather incomplete list of the creative potential opened by the STR. (Kheinman, 1981, p. 5)

Thus, the STR encompasses the vast majority of the new technological processes that have developed since World War II,³⁸ putting science as a link that, increasingly embedded in production, guides, accelerates, and interconnects all these fields.

It is easy to see how this finding could be identified with the idea of a scientific communism, whose ideal would be the radical transformation of the social structure towards conscious planning of production and social mechanisms. The fact that science becomes a decisive, conscious (“scientific”) influence in the sphere of production would greatly facilitate the task of overcoming the chaotic, anarchic, unconscious relations that regulate many of the social processes under capitalism. Theoretically, the Scientific-Technical Revolution would facilitate or even force the transition to a more planned, more conscious, productive structure such as communism. (Kheinman, 1981, p. 6)

No wonder the concept of *Nauchno-Tekhnicheskaya Revolyutsiya* found official recognition in CPSU documents and policies. The Soviets realized that a qualitatively new era in the technological field was unfolding after World War II. At the plenary meeting of the Central Committee in July 1955, N. A. Bulganin, commenting on the possibilities of atomic energy, stated:

We are on the threshold of a new scientific-technical and industrial revolution that will far surpass the industrial revolutions associated with the appearance of steam and electricity. (Bulganin, 1955, p. 2, c. 1)

But this “intuition” of the possibilities of the STR was embodied and took more definitive forms in the 1960s. The new CPSU program, adopted at the XXII Congress in 1961, officially adopted the STR concept.

³⁸ As with the concepts of “Third Industrial Revolution” and “Third Technological Revolution” in the West, there were some disputes in the USSR about when exactly the STR era started. The great majority of the authors regarded the postwar period as the time when humanity “entered” the STR. Thus, in one of political economy manuals used as textbooks in the freshman year of Soviet universities in the 1980s, we read that “in general the mid-1950’s is considered the beginning of the scientific-technical revolution.” (Medvedev *et al.*, 1990, p. 99)

Humanity is entering the period of a scientific-technical revolution linked to the control of atomic energy, the conquest of space, the development of chemistry, the automation of production and other great achievements of science and technology. But the relations of production of capitalism are too narrow for this Scientific-Technical Revolution. Only socialism is capable of realizing this revolution and using it in the interests of society. (KPSS, 1983-1989h, p. 99)

The concept of STR was incorporated by the Brezhnev administration as a basis for the claim that the USSR had entered the stage of developed socialism.³⁹ In 1967, in the same 50-year anniversary speech of the Russian revolution in which he had announced that the USSR was now a developed socialist society, Brezhnev assumed the idea that science was becoming a productive force in itself.

Humanity has entered an era of revolution in science and technology. The Soviet Union is proud of the splendid feats of her scientists. The great successes of physics and chemistry reveal new sources of energy, enable the creation of new materials and extend the horizons of all key industries. Discoveries in biology create new possibilities in agriculture and medicine. The feats of cybernetics increase the productivity of mental work and automate various types of business and administrative activities. Science is becoming a direct productive force, in the literal sense of the word. (Brezhnev, 1970-1982a, pp. 102-103)

The optimistic tone of the Soviet declarations in the 1960's showed great confidence in the possibilities of the USSR in the STR period. This was reflected in the growing use of the discourse of peaceful coexistence and the transfer of competition with the West to the strictly economic, scientific and technological field. As Khrushchev put it in a lecture to American businessmen on his trip to America in 1959:

[...] we are offering you economic competition [...] You can be sure that the Soviet Union will do well in it: we will overtake you and leave you behind [...] (Khrushchev, 1959, p. 128)

³⁹ In 1936, Stalin argued that socialism, in general, had already been achieved by the USSR through the socialization of the means of production and the results of the industrialization of the first two five-year plans. (Stalin, 1942, pp. 381-382 and 386) In 1967, in the 50th anniversary speech of the Russian revolution, Brezhnev stated that the USSR had entered the era of *developed socialism* (“*razvitoi sotsializm*”). (Brezhnev, 1970-1982a, p. 92) This idea had been launched by Fedor Burlatskii in an article in Pravda on 12/21/1966 and would serve to distinguish the stage of socialist progress of the USSR in comparison to other countries, like China, which were in a less advanced stage of building socialism. (Burlatskii, 1966, p. 4) The concept was incorporated into the Soviet Constitution of 1977 in its preamble. A number of Soviet writers sought to estimate the time when the USSR had entered this new phase, most pointing to the early or mid-1960's. Khrushchev also spoke of mature socialism (“*zrelyi sotsializm*”) at the XXII Congress of the CPSU in 1961, when he announced that the USSR would be preparing the transition from socialism to communism within twenty years. (Khrushchev, 1961, p. 21)

Much of this optimism was explained by the contradiction between the possibilities opened in the STR period and the limitations imposed by the capitalist system of production. These contradictions were strongly emphasized by Soviet ideologists, especially when linked to the phenomenon of increasing automation of production processes, which brought not only problems of adaptation in a market economy but also deeper theoretical questions about the adaptability and survival of the different economic systems.

3.2 AUTOMATION, STR AND SOCIALISM

The high level of productivity provided by computer-based manufacturing systems, whose levels of automation are increasingly approaching the concept of total automation in its broadest sense, brings with it important theoretical issues regarding capitalist and socialist modes of production.

It is estimated, for example, that at current levels of productivity, about 10% of the American population would be sufficient to produce all the goods needed for its maintenance and for that of the other 90%.⁴⁰ If this trend is extended at the global level, questions arise about the issue of appropriation of this economic surplus produced. Who will be entitled to which part of the “cake” and based on what principles? Without greater distributivism, unemployment⁴¹ and the exacerbation of social conflicts are almost inevitable in this context. But the adoption of such profound distributivism (in terms of unemployment wage or minimum income schemes) for such a large portion of the nonproductive population would certainly conflict with the very core of social relations within capitalism: private property. An exacerbated distributivism would be so close to the idea of socialism that one might ask if the time had not come for a qualitative leap toward a different mode of production.

Such perspectives had already been observed in the former actually existing socialist countries of Eastern Europe. In 1968, a group of researchers from the Czechoslovak Academy of Sciences, led by Radovan Richta, published an influential theoretical study claiming that the Scientific-Technical Revolution and automation, on the one hand dramatically increases the productivity of technical means of production, and on the other hand, sharpens the internal contradictions of capitalism, to the point of

⁴⁰ Tavares, Maria da Conceição, quoted by Tauile, José Ricardo, in communication to the author at the IEF-FA of the Federal University of Rio de Janeiro, on 10/31/95.

⁴¹ The question of whether the STR’s new technologies in capitalism lead to unemployment is quite controversial. If new levels of automation undoubtedly make a large number of jobs unnecessary, on the other hand, according to some economists, new technologies “increase production and create new demands, either by increasing productivity and consequently raising real incomes, or via creation of new products. VCRs, cell phones, walkmen had barely appeared 20 years ago. These new industries have created new demands and new jobs.” (Survey, 1996, p. 19) Despite the creation of new fields of production, the effect of the increasing automation of new technologies seems so overwhelming, judged by statistics of unemployment and wage levels in capitalist countries in the last two decades (OECD 1995a, pp. 47 and 98) that the solution to these contradictions within capitalism would be to reduce the working day to well below eight hours daily or forty weekly, in order to broaden the number of people employed. This solution is currently being proposed by several European trade unions.

questioning the latter's ability to lead the STR to its ultimate consequences. (Richta *et al.*, 1972, pp. 48-9) The contradiction between the increasingly interconnected relations of cooperation in production and the private form of appropriation of the economic surplus in capitalism intensified with the passage of time. Socialism (communism) would be better able to deepen STR without provoking unbearable tensions in the social fabric. (*ibid.*)

This was a widespread idea in the realm of actually existing socialist countries. Huge increases in machine productivity by the STR (*i.e.*, the development of productive forces) in capitalism conflicted with the social relations of private property: who would buy this growing output if the new machines employ fewer and fewer workers? This problem would not exist in socialism, since production is planned.⁴² (Kheinman, 1981, pp. 38 e 48)

The authors of the actually existing socialist countries who emphasized the idea of the STR as a distinct epoch of human progress argued that the new developments of the STR enlarged the conflicting relations within capitalism and that socialism would be the "way" more suitable to take the STR to its ultimate consequences, through a planned development the productive forces. (Kheinman 1981, 45, 51-52; Richta *et al.*, 1972, pp. 45-46) Only a planned economy could then prevent the increasing automation of STR leading to unemployment and economic chaos, and to channel this automation and greater productivity to create more free time for the members of society (instead of increasing the degree of exploitation of the workforce, as in capitalism). (Dalin, 1972, p. 174)

If automation seemed to actually require socialism (a planned economy) for its full development, what did the disintegration of actually existing socialism in Eastern Europe (exactly during the epoch of the STR) and the permanence of capitalism thereafter mean? Would it be indicative that those authors who identified socialism as the most adequate mode of production for the STR were wrong? Or perhaps they were right, and the disintegration of the USSR indicated that, in fact, the Soviet model was not socialist (or at least not Brezhnev's "developed socialism")?

To try to answer this question, we need to look more closely at the Soviet model of production.

⁴² Especially marked in capitalism are the contradictions in the field of leisure. With the current productivity of machines and equipment, the possibility of reducing the workday to well below eight hours per day would be assured. Due to competition and unemployment (existence of the "industrial reserve army"), this STR potential is not realized under capitalism.

4 THE SOVIET MODEL OF PRODUCTION

4.1 INTRODUCTION

We will deal here with the Soviet model of production implanted in the 1930's which, in general terms, lasted until the beginning of perestroika in the mid-1980's. Obviously, the system underwent some changes, adaptations and attempts at reform,⁴³ but one can consider that its basic structure maintained the essential characteristics throughout this period, that is to say, statization ("socialization") of the means of production and centralized planning, under the leadership of the Communist Party. There is an extensive literature on the functioning of the Soviet economy⁴⁴ and therefore we need not give a detailed description of the functioning of the whole system until 1985. We will point out only a few essential aspects of the economy and the production process that affected the behavior of the Soviet system at the time of the STR and the emergence of a post-Fordist model of production.

We refer simultaneously to the production model and the economy as a whole because in the USSR macro and microeconomic aspects were more intertwined than in a free market economy with private property. Due to centralized planning and the nationalization of the means of production, changes in the government's macroeconomic

⁴³ Besides perestroika, these reforms included:

- the Khrushchev reforms (in the mid-1950s), which created new *sovnarkhozy* (regional economic councils), decentralizing and regionalizing the vast majority of the operational functions (and even some planning functions) of the economy (VS SSSR, 1957a, pp. 341-346; SM SSSR 1957, pp. 199-203);
- the Kosygin reforms (in the second half of the 1960s) that extinguished the *sovnarkhozy*, recentralizing and re-establishing the administration of the economy on ministerial lines, carried out a price reform and tried to give more autonomy and incentives to companies. Its most innovative aspect was trying to put "profit" as one of the main economic indicators to be pursued by state-owned enterprises. In addition, it was proposed to account only for actually sold production (not merely total gross production), to prevent low-quality or defective articles from counting as plan fulfillment (SM SSSR, 1965, pp. 356-386);
- the industrial reorganization of 1973-74 that unified enterprises producing related products into larger units called *ob'edinenie* (= "association"), to simplify the tasks of coordinating central planning (SM SSSR, 1974, pp. 154-199);
- the decree of July 1979 which, among other measures, aimed at stimulating efficiency and quality in the production of enterprises and attempted to establish value added calculations (instead of traditional gross production indices) as one of the main indicators for business activity (SM SSSR 1979, pp. 390-341);
- Andropov's economic experiments (July 1983 decree) which, in selected companies, tried to establish more incentives for efficiency and discipline in companies. (SM SSSR, 1983, pp. 339-348)

For a discussion of these reformulations, see Hewett (1988).

⁴⁴ For detailed analyses of the functioning of the central planning economies of the Soviet type see: *Soviet-Type Economies* (Robert Campbell); *The Economics of Socialism* (J. Wilczynski), *The Soviet Economic System: Legal Analysis* (Ioffe/Maggs); *Reforming the Soviet Economy* (Edward Hewett); and *An Economic History of the USSR* (Alec Nove).

policies had a preponderant influence on state-owned enterprises. Therefore, in our analysis we will frequently merge these two aspects insofar as they jointly affect the development of the system.

The statization of the means of production had its great impetus in the 1930s and continued thereafter. The initial rapidity with which this nationalization occurred in industry and agriculture can be measured by the fact that Stalin, in his report to the XVII CPSU Congress in 1934 (*i.e.*, only six years after the first five-year plan began), could boast that 99.93% of the large industries and 84.5% of the agricultural area were already socialized (in the hands of the state or cooperatives). (Stalin, 1946-1951, pp. 313 and 323) By the mid-1980s, on the eve of the onset of perestroika, official statistics did not include the private ownership of urban and agricultural enterprises, or even individual private producers. In statistical terms, virtually 100% of firms and workers were “socialized” (*i.e.*, linked to state-owned enterprises or cooperatives).⁴⁵ (*Narkhoz SSSR za 70 let*, 1987, p. 11)

Central planning in the Soviet case indicated that most of the production was carried out, not based on the individual decisions of private producers, as in free-market economies, but issued from the directives by the government, mainly through Gosplan (*Gosudarstvennyi Planovyi Komitet Sovieta Ministrov SSSR*, “State Planning Committee of the Council of Ministers of the USSR”) to state-owned enterprises, based on long-term plans (15 or 20 years), medium plans (5 years) and short-term plans (1 year and quarterly). The 20-, 15- and 5-year plans gave the general direction to follow while the annual and quarterly plans were operative. Through these plans and directives, the state companies were given the amount of raw material to be received, the articles to be produced, to which customers to sell this production, etc.

The Communist Party’s leading role, both politically and economically,⁴⁶ was important in understanding the functioning of the Soviet economy. Soviet macroeconomics and microeconomics were not guided primarily by market signals, as in capitalist countries, but were consciously directed towards the objectives and priorities

⁴⁵ This does not mean that there was no private production. The *kolkhozniki* (farmers of collective farms) were entitled to work in small individual plots at off-duty hours. Many urban workers also performed parallel “odd jobs” (mainly in the area of services, repairs, construction). Not to mention clearly illegal activities such as gangs that diverted material from state-owned companies, black-market dealers, etc. For an analysis of the legal and illegal forms of the so-called “second economy” of the pre-perestroika USSR see Gregory Grossman (1977).

⁴⁶ The CPSU *political* leadership role was clearly defined in constitutional terms. The *economic* role of the party — in practice very large — was not so clear-cut in constitutional terms. In the famous article 6 of the 1977 Constitution (which deals exactly with the party’s relationship with society) the following was written:

The leading and guiding force of the Soviet society and the nucleus of its political system, of all state organisations and public organisations, is the Communist Party of the Soviet Union. The CPSU exists for the people and serves the people. The Communist Party, armed with Marxism-Leninism, determines the general perspectives of the development of society and the course of the home and foreign policy of the USSR, directs the great constructive work of the Soviet people, and imparts a planned, systematic and theoretically substantiated character to their struggle for the victory of communism. All party organisations shall function within the framework of the Constitution of the USSR. (VS SSSR, 1981, p. 29)

established by the CPSU.⁴⁷ This is essential in order to understand the logic of certain decisions taken by the upper echelons of the administration, which often frontally opposed the type of reasoning considered more productive within a market perspective. After a confused initial post-revolutionary period, in which members of the party interfered even in the day-to-day running of the enterprises, Lenin's⁴⁸ (and later Stalin's⁴⁹) orientations were to gradually move away from collegiality (participation of party and trade union representatives in corporate decisions) toward *edinonachalie* (responsibility of a single person, that is, the director of the company). Party bodies were urged not to interfere in the day-to-day administration of companies, seeking to limit the role of the party to the establishment of the macroeconomic priorities and general directions,⁵⁰ the oversight of how these policies were being implemented, and the work of political indoctrination.⁵¹

⁴⁷ For a more detailed description of how the CPSU influenced the economy, see Appendix 1.

⁴⁸ Lenin, 1967-1970a, p. 200.

⁴⁹ See KPSS, 1983-1989e.

⁵⁰ An article by *Bol'shevik* (the Central Committee's political-economic publication) put the official position on the separation of functions between party and government in the economy as follows:

The most important [of party leadership principles on economics] is the clear division of functions between the economic bodies, the Soviets, and the party. This requirement stems from the fact that the party should not be identified with the economic organs and that the party leads [*rukovodit*] the economic life of the country, but does not directly administer [*upravlyael*] the economy. (Slepov, 1951, p.47)

⁵¹ Ed Hewett (1988) made an excellent analysis of the sometimes ambiguous character of the party with regard to economics. Thane Gustafson (1981, p.2) had stated that the USSR was characterized by "a dual government between the party and the state." Ed Hewett agrees with this proposition and does an analysis along these lines.

The party has a clear authority and responsibility for the most fundamental decisions that affect the economy, that is, those that establish the division of the national product between consumption, investment and defense; the general direction of investment policy; important external economic variables (foreign debt, for example); policies involving large projects (such as the Baikal-Amur line). The primary responsibility of the government hierarchy [for its part] is to manage the economy in order to contribute in the best possible way to the implementation of the party's goals. (Hewett, 1988, p. 102)

Thus, the Politburo (on behalf of the Central Committee of the CPSU) previously discussed (in practice with veto power) the guidelines of the Gosplan plans and monitored their implementation, including intervening through decrees in problematic areas. "In the four meetings that normally take place every month, the Politburo can hear reports and enact decrees related to the Yambur pipeline, the preparation of cattle for winter, the development of the television industry ..." (Hewett, 1988, p. 164) The implementation of the plans in the different regions was monitored by local party bodies. The first secretaries of local party committees (*raikom*, *gorkom*, *obkom/kraikom*, respectively, district, city and regional committees) were held accountable to the CPSU for the performance of enterprises in that jurisdiction. In each state enterprise, there was also a party committee (made up of the firm's director, the party secretary for that enterprise, and the union leader), who was in charge of monitoring the implementation of the plan therein. The orientation was so that there was no interference in the day-to-day operational management of the enterprise, but rather positive stimuli such as suggestions, practical help (e.g., the traditional calling of volunteers to assist in the harvests), political doctrinal exhortation, etc. But the negative reinforcement was also present in practice: there have already been extreme cases where the local party secretary has even contributed to the replacement of directors considered inept. (Kuptsov, 1984, p. 6; Hewett, 1988, p. 144)

This type of mechanism allowed a great initial growth of the economy in the decades of the 1930's, 1940's and 1950's,⁵² because it allowed concentration of resources and efforts in areas considered a priority by the Soviet leadership.

Even in that period of high economic growth, some problems became salient and were explored in the specialized literature.

4.2 VAL

To understand the accelerated economic growth that marked the Soviet model for several decades, the concept of *val* (*valovaya produktsiya*, “gross production”) is extremely important. The economy of the USSR was guided not by market signals but by central plans established by the government. In capitalist countries, the vast majority of firms work toward maximizing profits. This was not the case with the Soviet Union. There the production units simply aimed to follow the instructions of the plan. These instructions were quantified in the *pokazateli* (“indicators”) that companies should achieve in order to succeed in fulfilling the plan. During most of the Soviet period, the main indicator, in practice, was gross production (*val*). (Valovoi, 1989, p.23) Stalin's primary objective with the first five-year plans was to create a strong industrial base capable of competing with advanced capitalist countries, even militarily. (Stalin, 1946-1951f, p. 172) Thus, it was necessary to rapidly increase production, especially of production goods, metals, energy sources, etc. Within this context, it was natural that *val* became the main indicator of success for the enterprises. The administrators pursued, by all means, the increase of gross production as a way of fulfilling the plan and satisfying their superiors.

This strategy can be considered successful, since the first five-year plans actually achieved their main objectives, greatly increasing the country's GNP and creating a strong industrial (and military) base. (Gorbachev, 1987a, p. 413)

However, this strategy of prioritizing *val* had side effects. The problem is that the emphasis on *val* meant that enterprises were pursuing the increase in quantity at all costs (even to the detriment of quality). Downsides were also excessive waste; excessive use of inputs (sometimes just to make the products “heavier” and therefore having higher prices or value); unwillingness by factory managers to adopt new technologies that, by requiring reorganization in the workplace, could disrupt short-term production, etc. (Goldman, 1987, p. 51; Bornstein, 1987, p. 98; Smirnitkii *et al.*, 1987, pp. 125, 139 e 173; TsKhSD, f. 2, op. 1, d. 805, l. 6)

These side-effects of *val* in the 1930's, 1940's and 1950's (time of relative abundance of reserves of labor and raw materials) were relegated to the background because of the apparent success in industrial development at that time. However, they became serious handicaps for the continuation of Soviet development from the 1960's

⁵² See table in Appendix 2.

onward when the above-mentioned inputs were no longer so abundant and the development of the world economy took a qualitatively different course.⁵³

4.3 CENTRAL PLANNING AND *NESBALANSIROVANNOST'*

The problem that might have been more inherent in the Soviet system would be central planning itself. Several Western critics pointed to the difficulties of planning all the major aspects of a complex modern economy. (Campbell, 1974, p. 33) It is estimated that in a modern economy more than twenty-five million products are produced. As early as the 1960's, there were Western critics pointing to the fact that the Soviet Union's economy was growing and becoming more complicated to the point that, even with the best available computers, it would not be possible to centrally plan efficiently the details required for the creation and circulation of all these products. (Richman, 1965, p.17;

⁵³ To remedy the shortcomings presented above, in the Soviet period, several attempts were made to reduce the importance of *val* as an indicator of plan fulfillment. The most profound of those was during the Kosygin reforms in the mid-1960's. (SM SSSR, 1965, pp. 356-386) In its most radical phase it was proposed that "profit" (not gross production) became the main indicator of success — and much of this profit would stay with the firm and not revert to the central government at the end of the year as was usual until then. Soviet enterprises would also be responsible for their own profits and losses by means of *khozraschet*, or self-financing. In addition, only the production actually sold by the company (rather than the mere gross amount produced) would be counted as plan fulfillment in order to avoid low quality or defective, unwanted items counting as successful production. The hope was to create incentives for the use of more productive techniques, to reduce waste, to encourage creativity in the production units, and so on. However, the Kosygin reforms were not carried to their conclusion. There began to appear a conflict between the interests of the individual enterprises and the central government agencies. With the new autonomy gained, the enterprises started to be interested in producing articles that yielded more "profit," interrupting the production of other items. This led to bottlenecks, curtailing production in some areas. The upper echelons of the ministries, which were pressed for results and growth of production, began again to intervene and interfere with the individual companies, often forcing them not to follow the "path to profit," but rather enable the continuous increase in output. In an effort to remedy this situation, the government began to establish new indicators (*pokazateli*) for companies in an attempt to harmonize the interests of the firms' individual profits with the more general government plans. But in this process, the profit *pokazatel'* started losing the importance it initially ought to have. By the early 1970's, the Kosygin reforms were completely watered down, virtually disappearing.

Another attempt to lessen the negative effects of *val* was the July 1979 decree, which created the new indicator of NChP or *Normativnaya Chistaya Produktsiya*. (SM SSSR, 1979, pp. 390-431) NChP roughly corresponds to *value added* calculations in the jargon of Western economists. The success of an enterprise would be judged not by the value of its *gross production* but only by the *value added* (net increase in value) created in the company itself (*i.e.*, discounting the value of the raw material and intermediate products used in the production itself). This was expected to discourage the overuse of raw materials and heavy materials (which under the *val* indicator tended to increase the total value produced by the enterprise). The use of the NChP *pokazatel'* did not live up to the expectation created around it, because a new problem arose: companies tended to use as much labor as possible (especially manual labor), as it directly influenced value added by the calculation methods used at that time. (Filippov, 1984, p. 83) This — at a time when the automation of production (and consequent diminution of manual labor) is one of the demands of the period of the Scientific-Technical Revolution — proved to be counterproductive.

As Marshall Goldman (in the mid-1980s) put it, even with all attempts at reform and "despite all the good intentions and even some temporary successes, the [spirit of] the *val* system continues to prevail." (Goldman, 1987, p. 22)

Yun', 1986, p.140) The bureaucratic apparatus to attempt such a task would need to have an exceedingly gigantic size. What happened in the USSR, then, according to these critics, is that because of the impossibility of performing such a task, there were great imbalances in the economy.

How was this central planning task carried out in the USSR? For the preparation of the annual plans, each company sent the ministries reports specifying their production capacity, costs, necessary raw materials, etc. With this information sorted out by the ministries, Gosplan drafted the annual (production) plan in aggregate terms, and Gosstab⁵⁴ planned the distribution of the supplies necessary to the production units. This information was disaggregated and passed on by the ministries to the production units. With all these directives, for the main products, it was specified how much the state-owned enterprises should produce, from whom they would receive raw material, to which other companies they should supply components, etc. This scheme can be considered characteristic for most of the main products of the USSR and (with a greater or lesser degree of independence to the production units within the periods of Soviet economic reforms and paying attention to the changes in the denomination and role of the different organs of the government⁵⁵) as the typical model from the 1930's to the beginning of perestroika. (Ioffe, 1989, pp. 71-76)

How, then, was the question of how to plan the production and distribution of the "millions" of products of the modern economy resolved? Hewett (1988, pp. 184-190)

⁵⁴ Gosstab (*Gosudarstvennyi Komitet SSSR po Material'no-Tekhnicheskomu Snabzheniyu* – "State Committee for Material and Technical Supply of the USSR") handled the distribution of raw materials, parts and equipment for state-owned enterprises. The traditional division of the main tasks of each body was as follows: Gosplan handled the production plans, Gosstab the distribution plans for raw materials and production goods for industry, and Mintorg (Ministry of Commerce) retail trade (consumer goods). However, this division of tasks was not as clear-cut as it might seem (and even varied with time). Thus, Gosplan also established plans for the distribution of some products considered essential, Gosstab also participated in the planning of the production of certain consumer goods etc. (Ioffe & Maggs, 1987, p. 184)

⁵⁵ The designation and role of government agencies in charge of production planning and distribution may have varied over time, but the essence of the operating mechanism remained relatively constant from the 1930's to the mid-1980's. Gosplan, for example, founded in the 1920's, underwent several reformulations (being subdivided, concentrating more or fewer tasks in its hands etc.). Gosstab was founded much later than Gosplan. The most extreme variation was perhaps from 1957 to 1964-65 during the Khrushchev period when, with the creation of the *sovnarkhozy* (Regional Economic Councils), economic administration was regionalized, rather than follow the traditional ministerial line (production line) as before. (Rubin, 1969, pp. 175-176 and 218-219; TsKhSD, f. 2, op.1, d. 805, l. 9 ob.) During the period from the 1930's to the 1980's, there was also variation in the degree of independence given to enterprises to establish their own product line (as indicated in the central plan) or the freedom to enter into supply contracts with other companies. The pre-WWII Stalinist period was the most rigid, with the allocation of almost all industrial products centrally determined. In the Khrushchev period, and especially after the Kosygin reforms in 1965, it was attempted to give enterprises more freedom to enter into supply contracts directly with one another (subject to approval by the upper planning authorities). (SM SSSR, 1965, pp. 356-386) As the results were not very good (supply bottlenecks arose due to the companies' attempts to make only the most profitable contracts for themselves), in the 1970s there was a certain return to a pattern closer to the traditional one. (Ioffe, 1989, pp. 74-75) Yun' (1986, p. 147) recorded a new attempt in the late 1970s to decentralize the allocation of wholesale products between supplier and recipient companies:

"In accordance with the resolutions adopted in July 1979, Gosstab, together with the ministries [...] should, in 1980, establish a transition of the majority of production associations to the system of direct contacts [supply contracts] between them in the long run. However, to date [1986] only one third of production is distributed in this way."

drew attention to three strategies used by the Soviets to accomplish this seemingly “impossible” mission: (1) (dis) aggregation of goods to be produced and supervised delegation of powers to other state bodies; 2) planning “from the achieved level”; 3) correction of plans in progress.

The first strategy is that Gosplan did not *directly* take care of the production of *all* goods. Gosplan focused on aggregate groups of the main products and provided instructions on how these groups should be disaggregated and fit in production and distribution plans that Gossnab and the ministries would develop within the parameters and indicators required by Gosplan. Thus, for example, in the early 1980’s, Gosplan worked with 2,000 aggregate groups of products, Gossnab divided these aggregate groups into 15,000 subgroups, which in turn were further subdivided into another 50,000 by ministries. In addition, when it came to the actual wholesale distribution phase, Gossnab’s departments, while designating supplier and recipient companies, further detailed the product nomenclature (in 10 to 15 subitems each).⁵⁶ (Yun’, 1986, p. 140) The center then concentrated on the most important product aggregates and left to the other instances (mainly ministries and regional authorities) the task of achieving these production quotas through the companies under their jurisdiction.⁵⁷ As Hewett (1988, pp. 129-130) described, “the center tries to focus only on the most important commodities and leaves the other parts of the planning to the lower echelons. In addition, planners work with goods in aggregate categories, not with each individual commodity, leaving the details of the breakdown of these products to the lower echelons.” For example, a ministry could receive from the center the quantity of different types of steel to be manufactured, but it would be up to the ministry to decide by which factories these types of steel would be produced, how much each would produce of them etc. However, all this “subplanning” was carried out in strict accordance with Gosplan’s instructions and subject to its supervision. Thus, from the 1930’s to the mid-1980’s, Gosplan was ultimately responsible for coordinating all production in the Soviet economy.

The second strategy concerned the problem of determining the growth rates of production. The importance given to the growth of gross production within the Soviet model was notorious. But how can a “single” center determine the production growth rates for thousands of production units in very different financial and technological conditions? We have already mentioned that for the preparation of the annual plans, companies sent reports to the ministries showing their production capacity, costs, raw materials, necessary inputs, etc. But these reports were screened and put into aggregate terms by ministries before they reached Gosplan. Based on what could Gosplan set the goals for the rate of growth of production of the different industries, for example? Igor

⁵⁶ It is important to note that Gosplan had regional subdivisions. So there were Gosplans in each republic and planning committees at the local level. Goods that were not covered by central planning, such as goods of local importance, were left to these regional Gosplans or ministries of the different republics (always taking into account the guidelines of the “central” Gosplan of the USSR).

⁵⁷ Thus, within the Soviet system, there was also a restricted degree of decentralization of planning (always subordinate to the more general directions of the center and subject to its supervision). In theory, the companies themselves, within the “straitjacket” of the different production indicators and distribution plans that they had to meet, could (mainly after the Kosygin reforms in the mid-1960s) employ the techniques and mix of products that they find most appropriate for the production of the goods required by the plan. However, in practice, even after 1965, “the specifically assigned directives for mandatory physical output are so detailed that any freedom of choice left to producers is minimal.” (Shmelev & Popov, 1989, p. 82)

Birman, a former Soviet *émigré* planner, wrote an article explaining how this was done. (Birman, 1978, pp. 153-172) The technique employed was commonly referred to as planning “from the achieved level” (*iskhodya iz dostignutogo urovnya*),⁵⁸ i.e., the center took from the last production report of the firms the growth rate of the previous year and repeated it or added a few points to it. This provided a simple method for determining the rates of increase of production in companies of the most diverse conditions.⁵⁹

Finally, the third and final strategy was used when it became obvious, within the actual period of the annual plan, that some indicators would not be reached: the correction of plans in progress. Objectives that proved to be unrealistic were then modified and adapted within the period of the plan. As noted by O. Ioffe, a former professor of law at Leningrad State University, this was a procedure which, by law, should be restricted to exceptional cases,⁶⁰ but which in practice was often used by planners to escape disproportions and errors committed. (Ioffe & Maggs, 1987, p. 113).

Even with all these planning techniques and “safety nets” against major errors, there were several problems with planning. One was the difficulty of accomplishing such a task effectively. Any delays in submitting enterprise reports, correcting data, etc. lead to a series of distortions and imbalances along the production chain.⁶¹

⁵⁸ Birman, 1978, p. 161; Filippov, 1984, p. 57; Gorbachev, 1987d, p. 8.

⁵⁹ However simple the method may seem, it served as an accessible rule for planning to have a basis in reality (in this case, in previous years’ reports which, at least theoretically, should provide a realistic description of the situation and potential of the firms). One of the major drawbacks, according to Birman, was the “inertial” character of the method, placing the center at the mercy of a preconceived situation that might not correspond to the dynamic reality of (primarily technological) processes in a company. (Birman, 1978, p. 167) After all, the fact that a company this year achieved a growth rate of 2% does not mean that this growth will be repeated the following year. Especially if there are changes in the reality of the market or if new technologies are introduced. Theoretically, these possibilities for changes (mainly in the technological field) should also be included in the annual reports of companies. But, as we will see later, another problem was that the reports were not always reliable descriptions of the reality of the enterprises...

⁶⁰ Formally, the government decree that governed the ministry-enterprise relationship in the mid-1970’s established that:

“Confirmed planning tasks for a production association must be stable and can only be changed by a superior agency in exceptional cases.” (SM SSSR, 1974, p. 175)

⁶¹ The gigantic task of collecting all the necessary data from a complex economy, in a correct and timely fashion, for annual plans sometimes led to serious problems in balancing the economy. There were occasions when the plan could only be completed in the third or fourth month of the following year. As Ioffe critically put it:

Due to the difficulties in obtaining correct data with outdated Soviet computer equipment, [...] the fact that even so, annual plans appear only three or four months late is a miracle in itself. Of course this miracle occurs because one overlooks many mistakes. But, from the Soviet point of view, it is better to have a central plan containing errors, but made in time, than an irreproachable plan that would not be ready until the following year. However, even a slight delay in editing the plan gives rise to an original problem. Not only is it necessary to confront the inevitable mistakes arising from haste and inefficiency but also state-owned enterprises are left without a plan to guide their production in the first months of the year [... In this case] According to established rules, the year plan should serve as a guide for production and distribution in companies until the new plan is ready and takes effect. From then on, all production units must make the necessary adjustments to the new guidelines, not only for the future but also retroactively to the months in arrears. (Ioffe & Maggs, 1987, p. 112)

Another problem related to technological development. It was already a gigantic task to simply plan the balanced functioning of a static economy, operating at the same technological level. But in the middle of the process, the emergence of more advanced technological processes necessitates totally different procedures, with other inputs and processes being used, etc. It was difficult for the planners, centralized in Moscow, away from most of the producing companies, without knowing details of their production processes, to control or “predict” these unfoldings. This led to bureaucratic complications for rapid decision-making on technological innovation. (Amman & Cooper, 1982, p. 17)

Since it was in the interest of the government to force the pace of economic growth in the country, Gosplan tried, from one year to the next, to make companies produce more and more, based on the data obtained the previous year. Since non-compliance with the quotas led to the loss of bonuses, there was a natural tendency for companies to try not to produce “too much” (*i.e.*, remain equal or slightly above the plan quotas, but not much higher), as production surplus in one year could lead to an excessive rise in quotas for the following period. With most of the extra profit not staying with the firm but rather going to the central government coffers, an attitude of intentional slow work or underreporting was maintained in order to avoid excessive demands the following year. (Ioffe & Maggs, 1987, p. 108) Besides, due to supply problems in the USSR, many companies tended to overestimate their need for raw materials in their reports to the central government, in order to stock for times when supply became particularly bad. All this created a vicious circle, in which the reports delivered to Gosplan often did not correspond to reality, causing this body to issue directives that, also not corresponding to reality, reinforced the imbalances (*nesbalansirovannost'*) in the economy. (Lewin, 1988, p.135) Deficiencies in supply, caused by poor allocation of resources, led several state-owned enterprises to use the services of *tolkachi* (expeditors) which, in a sometimes semi-clandestine manner, at the border between legal and the illegal, obtained materials that a company was in need of and was not getting.⁶²

4.4 PRICE STRUCTURE

The price structure in the USSR was also problematic and, according to some critics, central in explaining much of the inefficiencies of the Soviet economic system. (Shmelev & Popov, 1989, p 168; Gaddy, 1996, pp. 11-13) Prices were not determined by the relative scarcity of products but were established administratively by the government and tended to be fixed for long periods of time. For example, a subway ticket in Moscow cost 5 kopecks (= cents) for several decades before perestroika. Despite the consumer-friendly side of very low nominal inflation (or even deflation) over a long period of time,

⁶² As Shmelev & Popov (1989, p. 137) put it,

This is a vicious circle: you cannot get your supplies outside the plan; you can get your supplies only within the plan — but you will never get everything you need because they will have “run out.” If you want to break out of this vicious circle, you need a *tolkach* [an expeditor] who constantly travels through the country, first making agreements with producers and then managing to extract Gossnab’s approval.

this created macroeconomic financial imbalances. Sometimes the selling price⁶³ did not cover the production price (which led to the existence of subsidies covered by the national treasury). But this was not the main problem. The main problem was that if prices did not reflect the relative scarcity of products, they could not serve as a guide to the search for optimal allocation of resources. For example, if planners had to decide which of two processes of energy production (say, electricity or coal) would be the cheaper for a new plant to operate, perhaps prices indicated the advantage of one of them. But if that “good” were being subsidized, it might have been cheaper for society to invest in the other source of energy. Since the production chain consists of a huge number of products that serve as inputs to one another, from a certain point on, it was difficult to correctly calculate the “real cost” of the final goods. This led to certain distortions in terms of optimal allocation of resources, to *nesbalansirovannost*’ (disequilibrium) in planning, and to what some critics (including Soviets ones) called “economic system of expenditure and waste” (*zatravno-rastochitel’naya sistema khoziaistvovaniya*).⁶⁴

4.5 WORKER ALIENATION

One problem — difficult to analyze objectively because it contained a very large subjective component — was the lack of individual incentives for production and care of state property. The ideological defenders of capitalism generally impute this to the absence of private property in the economy. (Hayek, 1975, p. 239; Friedman, 1981, p.14) This argument is not sufficiently consistent to explain a possible advantage of capitalism in this field, since most of those working under capitalism do so without being owners of the means of production.⁶⁵ Indeed, the apparent greater “care” and diligence of workers

⁶³ The structure of domestic state prices in the USSR was as follows. There were three main types of prices: 1) wholesale industrial prices (paid by state enterprises among themselves); 2) agricultural prices (paid by the government to farmers); 3) prices of retail trade (to Soviet consumers). These prices were fixed administratively by the government, taking away from companies much of the “burden” of costs and profit. Wholesale industrial prices were subdivided into two types: 1) the wholesale price of the company (*optovaya tsena predpriatiya, i.e.*, the price that the producer company received); 2) wholesale price of the industry (*optovaya tsena promyshlennosti*, or what the state-owned buying company paid). And these two prices did not coincide (!), the difference being pocketed by the government. Theoretically, the company’s wholesale price should cover the average production price (*sebestoimost*’) of that industry plus a profit markup. (Bornstein, 1987, pp. 96-97) Problems began with distortions caused by firms that had a production cost higher than the industry average (these would then have a lower profit rate than other companies). Another distortion: as the markup of profit was also calculated on top of the costs of producing the materials (at least until the 1982 price reform), firms tended to want to use “expensive” materials in order to increase its profit volume accordingly. In the case of retail prices, the government tended to use the *nalogs oborota* (a differential tax on the sale of goods, whose value varied from product to product) to tax a few more articles (luxury items, cigarettes, alcohol etc.) or subsidize others (food, for example). This whole system allowed the maintenance of fixed prices for a long time, but tended to make the producers not take into full account the real individual costs involved (since these tended to hide behind a curtain of different purchase and sale prices administratively set). For an excellent description of the Soviet price system, see Bornstein (1987).

⁶⁴ Valovoi, 1989, p. 4.

⁶⁵ In the USA, for example, at the time of the start of perestroika (1985), 91% of the civilian labor force was composed of employees (deprived of the means of production). (Statistical Abstract of the United States 1996, p. 401)

in the private capitalist sector is due to a factor of economic coercion linked precisely to the lack of private property, *i.e.*, to the fact that the majority of the population, because they do not have the means of production, is obliged to act under the constant constraint of the boss, who does so diligently to ensure that the work is done in the most efficient way possible. The lack of economic coercion of this kind led the Soviet model to adopt state political coercion (the violence of “Stalinism”, for example) as a substitute. (Wright, 1980, 114) Indeed, there are reports in both economic literature and even in the field of literature itself, showing how the Stalinist “terror” in some ways kept the wheels of the productive regime running at an extremely rapid speed, if we take into account the difficulties that the USSR experienced in the 1930s.⁶⁶

In the post-Stalin decades, with the use of extreme political repression beyond the reach of Soviet leaders, this problem of individual economic incentives remained acute. Especially in Brezhnev’s time, a balance was struck between moral incentives (medals, symbolic rewards, etc.) and economic incentives in the form of bonuses to be incorporated into wages, but the results do not seem to have been satisfactory, either because bonuses did not raise wages to a sufficient level or because the monetary fund from which they were withdrawn was generally shared by all workers of the firm (thereby diluting individual motivational capacity). In any case, one of the main difficulties described, both in the economic literature and in the biographical accounts of former Soviet citizens, was to change the attitude of “They pretend to pay us and we pretend to work,” depicted in the Western economic literature literature (Nove, 1990, pp.

⁶⁶ The operation of Stalinist “terror” as a mechanism for accelerating the processes of economic growth in the 1930’s, 1940’s and 1950’s has been analyzed in the economic literature. (Nove, 1990, p. 213) However, it is perhaps in the pages of the fiction literature that accompanied the onset of perestroika in the USSR that these processes have had their most illustrative expression. For example, in the anthological scene of the novel *Children of the Arbat* in which an NKVD officer in the 1930s explains to an exiled student why the involuntary breaking of a tractor part by a semi-illiterate peasant was treated as an economic crime against the state:

For many centuries, our peasants knew only one type of instrument: the ax. Now we put them to work on tractors and harvesters; we gave them trucks to drive. And the peasants break these machines because they do not understand how they work, because they have no training, because they know nothing about technologies and other things. So, what can we do? Wait until our rural area overcomes its intellectual and technical backwardness? Wait until the peasants begin to change a mentality that took centuries to form? And in the meantime, do we let them continue to break our machinery until they learn? No, we cannot condemn our machines to destruction: they cost us a lot of blood. Nor can we wait: the capitalist countries would suffocate us. Only one method remains. A difficult method, but it is the only one we have: **fear**. Fear embodied in the word **saboteur**. Did you break a tractor? So you’re a saboteur and you’re going to get ten years in jail. For a lawn mower or reaper, also ten years. Then the peasant begins to think. He scratches his head, starts to take care of the tractor. He offers a bottle of drink to those who know these machines: “Help me, show me how, save me.” And there is no other way: we are saving our machines, our industry, the future of the country. Why don’t they do it in the West? I’ll tell you why. We made our first tractor in 1930, while in the West they made the first one in the 1830’s! They have the experience of several generations accumulated. There the tractor is private property and the owner takes care of it. Here the property belongs to the state and has to be maintained through state methods! (Rybakov, 1987, pp. 320-321)

367-368)⁶⁷ This problem of state ownership in the vicious circle of “what belongs to everybody belongs to nobody” was also at the heart of the discussion of privatizations in the capitalist countries in the 1980’s and 1990’s.⁶⁸

4.6 VERTICAL, AUTHORITARIAN COMMAND STRUCTURES

Due to the circumstances in which it was created after the 1917 revolution (surrounded by enemy capitalist nations, with deficient development of the forces of production, etc.), the Soviet regime, from its beginnings, had a centralizing and authoritarian character. With the implementation of the Stalinist model in the 1930’s, vertical command structures in the economy took definite priority over horizontal structures. (Lewin, 1988, p. 131) State-owned enterprises had to, at least theoretically,⁶⁹ carry out their transactions with one another at the orders of higher structures, through the plans established by Gosplan and Gosstab (instead of making independent horizontal arrangements directly between them). (Ioffe, 1989, p. 72).

The principle of *edinonachalie* (“responsibility of a single person”) set as the standard for government, party, and state enterprises also tremendously strengthened vertical ties of command over horizontal ones. Soon after the implementation of the Soviet regime, a lack of definition of power arose as to the form of management of state-owned enterprises. Segments linked to unions advocated a collegial form of management, with tripartite participation of the unions, the party and the company directors. (Antonyuk *et al.*, 1983, pp. 155-156). This lack of definition led to a certain disorganization of the economy, with the different sectors often not agreeing on what direction firms should take, with a dilution of responsibility for failures, and a certain chaotic atmosphere in the production sphere. (Rubin, 1969, pp. 32-33) This situation led Lenin to uphold the principle of *edinonachalie*, in which a single person would be responsible for the management of enterprises, even in the period of “war communism.” (Lenin, 1967-1970a, p. 200) The IX Congress of the Communist Party adopted the idea in its resolutions:

[...] to establish complete and absolute one-person responsibility on the factory floor, to move towards one-person responsibility for the administration of production units and to reduce the action of the collegial form of management at the intermediate and higher levels

⁶⁷ “They pretend to pay us and we pretend to work” and “what belongs to everybody belongs to nobody” were phrases that the current author often heard in Moscow during the period in which he studied for his master’s degree in the USSR (1989- 92).

⁶⁸ See previous note.

⁶⁹ We say theoretically because, due to supply problems, the enterprises often carried out informal transactions among themselves, through *tolkachi* (expeditors). The existence of this *tenevaya ekonomika* (“shadow economy”), on the border of legality and illegality, ended up fortifying the existence of a black market in the Soviet Union. This black market, growing in the Brezhnev period, eventually led to the formation of real “mafias” that trafficked an increasing number of products. The existence of these mafias, previously officially denied, was evident after perestroika erupted. For an analysis of these phenomena see Gregory Grossman’s article “The Second Economy of the USSR” in *Problems of Communism* (September-October 1977).

of the productive-administrative apparatus [...]. The collegial form of leadership, which takes place in the processes of discussion and decision-making, should give place to responsibility of a single person in the process of execution. (KPSS, 1983-1989b, pp. 247-248)

At the beginning of the five-year plan, Stalin officially established *edinonachalie* as the basis for the administration of state-owned enterprises through a decree of the Central Committee of the Communist Party of September 5, 1929.⁷⁰ From then onward, directors would be solely responsible for the routine administration of enterprises thereby preventing undue interference by party factory committees or trade unions.

This principle of *edinonachalie* allowed a great increase in the discipline of work, but it reinforced the authoritarian features of the system and the tendency that the vertical connections of command had priority over the horizontal ones, which led to problems in relation to the motivation for initiatives “coming from below”.

4.7 CONSUMER SOVEREIGNTY AND PERMANENT BUYERS' MARKET

One of the aspects that increased the imbalances in the Soviet economy was the lack of what Western economists call “consumer sovereignty,” that is, the orientation of production to the satisfaction of the needs and demands of the consumers in the market. (Campbell, 1974, p. 57) This is an automatic mechanism of the market economy in equilibrium, because the realization of the goods is a *sine qua non* condition for the profitability of producing agents.

Bolstered by its quasi-monopolistic position as owner of state enterprises, the Soviet government, since the 1930s, prioritized the area of production over consumption and heavy industry over light industry. (Antonyuk *et al.*, 1983, pp. 195 and 211) This strategy has its origins in Marx's own schemes of capital reproduction, described in Book II of *Das Kapital*, which divided the economy into “department I” (production goods) and “department II” (consumer goods). (Marx, 1961-1971c, pp. 195-211) According to the Soviet strategy, for a continuous growth of the economy, department I should grow at rates higher than department II: since department I provides the inputs to department II, faster growth of the latter could lead to bottlenecks in the system and slow economic growth due to deficiency in the more fundamental (heavy industry) base that sustains and provides the inputs needed to maintain light industry and consumer goods. (Stalin, 1946-1951f, pp. 181-183)

The difficulty of adapting production to demand was not only a result of obstacles in the planning task itself but also of the structure of prices that did not correspond to the relative scarcity of products. Once prices are established for some products that are not related to their relative scarcity, a chain reaction of disproportion in the economy is

⁷⁰ *Postanovlenie TsK VKP (B) the Merakh po Uporyadocheniyu Upravlenia Proizvodstvom i Ustanovleniyu Edinonachaliya* [“Decree of the Central Committee of the All-Union Communist Party (Bolsheviks) on Measures for the Standardization of Production Administration and Establishment of one-person Responsibility”]. (KPSS, 1983-1989e, pp. 556-562)

created, since some products serve as input to others. Total wage mass and the amount of money held by the population must also correspond to the total level of goods and services available in the market to avoid inflation or lack of products.

These proportions were not always maintained properly and the result was often overproduction in some areas and lack of products in others.⁷¹ (Shmelev & Popov, 1989, p. 88)

The most common situation was that there was a deficit of goods in relation to the purchasing power of the population. With low inflation, no official unemployment, rising real wages of the population and a production system based on the extensive use of inputs and gigantic oligopolistic enterprises, the Soviet economy was characterized by a seller's market. (Schroeder, 1972, p. 97)

Hungarian economist Janos Kornai used the concept of "shortage economy" to study and characterize the conditions of the administrative model of the command economy. (Kornai, 1979, v. 1, pp. 3-7) State oligopolistic or monopolistic firms also had little incentive to improve product quality, since in a seller's market, like that of the USSR, practically any production, even low-quality, would find buyers. The presence of an almost permanent seller's market was also an inhibiting factor in the introduction of technological innovations. (Amann & Cooper, 1982, p.12) After all, why bother with new technologies if the articles are "passed on," anyway?⁷²

Thus, the lack of "consumer sovereignty" was also present when goods were on store shelves in sufficient quantity, but not in the quality, model, color, size, etc. desired by consumers. Again, the pressure to meet the quantitative objectives of the plan in terms of gross production (*val*) led the factories to try to produce the types of products and models that would best suit them in terms of plan fulfillment. The question of quality was behind in the order of priorities. The lack of quality products and first-class services to ordinary shoppers has been well documented by the authors who described the Soviet system. (Aganbegyan, 1988, p. 36)

This situation was described by economist Abel Aganbegyan (one of the "intellectual architects" of perestroika) in the second half of the 1980s thus:

[In a system like the Soviet one] The main objective of the producer is to get rid of his production, pushing it away. The question of how and where this product will be used and how long it will work is not the responsibility of the producer [...] This leads to a separation between production and the needs of society. Take a classic example: the production of tractors. The USSR produces 4.8 times more tractors than the U.S., but we are far behind in grain production. If we bring this fact to the equation, we see that we produce six times more tractors than the USA. Do we really need all

⁷¹In a capitalist market economy of deregulated prices, such imbalances would be readjusted by the market itself. Missing goods would rise in price (thus decreasing demand) and excess output would be withdrawn from production (with or without the producer's bankruptcy). This mechanism of automatic price adjustment, in practice, was forbidden to Soviet planners, because of the very logic of the system.

⁷² The expression "passed on" may be more appropriate than "sold" in this phrase because outdated or shoddy products often remained unsold in government stores. But in this case, the problem was no longer a responsibility of the factories but rather of the distribution agencies. The most important mission of the factories was simply to follow the plan and reach the required production quota.

these tractors? If we put this question under the logic of the old administrative system, we would get the following answer: not only do we need them, but we need more. The fact is that the USSR does not produce enough models of high-powered tractors or small tractors for small areas of cultivation [...] This type of mass production naturally affects quality. Thus, instead of lasting for 12 or 15 years, a large number of Soviet tractor brands barely reach six, and are often broken or “being repaired.” (Aganbegyan, 1989a, pp. 35-37)

This alienation in the daily practice of production in relation to the concept of “consumer sovereignty” was a source of tension in the Soviet model, because it created a contradiction with the ideological notion that the purpose of socialism in the USSR was to satisfy the needs of the population.⁷³

4.8 *VEDOMSTVENNOST'*

One of the difficulties in implementing the general policies of the government was the existence of what the Soviets called *vedomstvennost'* (“departmentalism”). Theoretically, all production units should follow the directives of the government plans, putting the interests of the country above all else. In practice, there was strong “corporatism” in government agencies, with each agency trying to promote its own goals, sometimes to the detriment of others. In economics this was felt in relation to ministries. Due to the country’s perennial supply problems, each ministry tried to be as self-sufficient as possible — creating its own material supply sector, trying to manufacture all the necessary inputs to its main line of articles — and avoided diverting production to other ministries. This led to difficulties in integrating the different parts of the country’s economic organism and to waste of resources due to unnecessary duplication of efforts. Examples of this form of waste were exposed by the Soviet economists themselves:

Ministries haul their own products to the other end of the country for their enterprise, refusing to procure goods from “outsiders” and “unrelated suppliers,” even if they are conveniently located.⁷⁴ (Shmelev & Popov, 1989, p. 122)

⁷³ According to Article 15 of the Soviet Constitution of 1977, “the supreme goal of social production under socialism is the fullest possible satisfaction of the people’s growing material, and cultural and intellectual requirements.” (VS SSSR, 1981, p. 32)

⁷⁴ An example of this was cited in *Sotsialisticheskaya Industriya*, October 2, 1985:

“Minenergo [Ministry of Energy and Electricity], for example, sends lumber produced by construction firms at the Bratski and Krasnoiarsk hydroelectric plants [in Siberia ...] at a distance of 3,000-5,000 kilometers to their companies [in the European part of USSR]. At the same time, Minlesbumprom (Ministry of Wood, Pulp and Paper) sends wood produced by its enterprises [in the European part of the USSR] to Siberia, exactly the opposite way [!]” (Medvedev, 1985, p. 2)

A factory in Vladivostok is more willing to sign a supply contract not with a neighbor next door but with a company in Minsk that is from its ministry. This makes the supply more assured. If something goes wrong, you may complain in your own ministry, but with your neighbor you would probably have to end up oiling someone's palm. (Selyunin, 1981, p. 181)

In the USSR, economic management was traditionally organized along branches of production. (Rubin, 1969, pp. 174-175, 188-189 and 218-219; TsKhSD, f. 2, op. 1, d. 805, l. 9 ob.) Thus, many ministries were designated a similar product line, or even a single article: Minneftprom (Ministry of Petroleum Industry), Mingazprom (Ministry of Gas Industry), Minavtoprom (Ministry of Automobile Industry) etc. This rigid division by branch of production, in a context of *vedomstvennost'*, made it more difficult to carry out projects that did not fit well into the model of any of the ministries. This became a more serious problem in the STR era, in which technological developments often link heterogeneous fields of activity. In the USSR, if a project did not fit well in the profile of a ministry or department, there were greater difficulties for its implementation, due to the low inertia with which the ministries frequently agreed to collaborate with each other. (Castells & Kiselyova, 1995, pp. 19-20; Amman & Cooper, 1982, p. 21)

4.9 ZATRATNAYA SISTEMA...

Like *val*, the Russian word *zatraty* (= “expenses”) represents another fundamental concept for understanding the functioning of the Soviet economic mechanism. The term *zatravnaya sistema khozyaistvovaniya* (“system of economic administration based on expenses”) was used to describe the fact that the planning of the efficiency of the Soviet economy was based on costs (expenses), not on the results. (Lewin, 1988, p. 134; Valovoi, 1989, p. 4) According to the critics, the central planners — due to the fact that they could not follow the details of all the production processes for their estimates of the needs and possibilities of each production unit — had to plan based on the cost estimates that came to them from the enterprises themselves (via the ministries). Based on these reported costs — and on their experience in previous years' plans — Gosplan determined the supplies that companies would receive, which indicators (*pokazateli*) of success they had to meet etc. Gosplan then carried out the so-called “planning from the achieved level,” that is, establishing production goals a little above the (absolute) goals from the previous period, thus ensuring economic growth. (Birman, 1978, p.161) The problem is that — due to the lack of prices that actually indicated the marginal productivity of resources — nobody could be sure this was really the optimal result from the available resources. In the impossibility of objectively verifying the optimality of the solutions presented by the enterprises (the result), the center evaluated their success through calculations based on the costs (expenses) involved. This caused waste.

For example, before the 1982 price reform, business profits were calculated as a percentage of the cost of production of each material used in the final product. This led to

a tendency for the factories to try to use expensive materials of higher cost whenever possible since this meant higher profits in the end result. (Bornstein, 1987, p. 99)

Writing during perestroika, Soviet economists Shmelev and Popov criticized the *zatravnaya systema*.

The “cost approach” is reflected in our economic consciousness. When we describe the results of work in various spheres, more often than not we think in terms of outlays, not results [...] What did the farmers do? They sowed so many hectares of spring wheat and increased the head of livestock [...] Oilmen drilled so many kilometers of wells [...] Even now the growth of these input indicators is often presented as testimony of economic success. And not long ago we were proud of producing more steel and cement than any other nation. (Shmelev & Popov, 1989, p. 132)

How many of these hectares of spring wheat and drilled oil wells will actually translate into wheat flour and gasoline available to the consumer is what really matters, according to the authors. Along the same lines, Abel Aganbegyan stated that “the USSR produces 4.8 times more tractors than the USA, but we are far behind in the production of cereals.” (Aganbegyan, 1989a, p. 36)

“That is, the [*zatravnaya systema*] privileges waste and becomes, by definition, uneconomical.” (Lewin, 1988, p. 134) This aspect of waste was enhanced by other tendencies of the Soviet model in the same direction. The price system, not reflecting the relative scarcity of products, sometimes led to a non-optimal allocation of resources. The excess of centralism and vertical flows of information and command to the detriment of the horizontal ones caused alienation in the lower echelons of the production chain, diminishing individual initiative. This alienation and the attitude of “what belongs to everybody belongs to nobody” caused great losses in terms of poor maintenance of equipment (and sometimes diversion of material from state to private activities). The emphasis on the numerical, quantitative objectives of the plan led management and workers to try to always (quantitatively) “keep up the plan”, even at the expense of quality or economic rationality. As prices often did not reflect real costs, this “compliance with the plan at all costs” led to the use of techniques that might not be the most appropriate — including sometimes avoiding technological innovations that could disrupt production in the short term with the installation of new equipment, new unfamiliar practices etc.

Profits (above a certain level) or the loss of the enterprises of a particular branch of production did not remain with that enterprise at the end of the year: they went to a central fund, from which, the following year, they were redistributed back to the branch of production, in the way the government thought best. Companies which had losses did not risk going bankrupt. On the contrary, often companies in financial difficulties in a certain branch of production received more money the following year than those which had made a profit so that with the help of this “fraternal, socialist aid” they could recover. That is, sometimes the less efficient were rewarded (with greater allocation of resources)

and the more efficient “punished.”⁷⁵ This led to bureaucratic accommodation, inefficiency and waste.

4.10 EXTENSIVE GROWTH ECONOMY

Extensive growth of the economy is one in which the increase of production is accomplished through the increase in inputs (capital, labor, land and raw materials, etc.). Intensive growth is one in which, with the same volume of inputs, greater production is achieved, that is, it is achieved by means of a higher, more productive technological level. (Wilczynski, 1970, pp. 15-16) For example, if in a hypothetical situation we need to double the production of automobiles in a country, this can be achieved by doubling the number of existing automobile plants (extensive growth), or technologically increasing the capacity and efficiency of existing plants so that, with the same number of production units, twice as many vehicles are produced (intensive growth). In real life usually there is a mix of both, but, *ceteris paribus*, the more economically advanced a country is the higher is the proportion of intensive growth.

One of the striking features of the Soviet model, acknowledged equally by Western economists and former Soviet economists, is that the high economic growth of the USSR had a strong extensive component. (Wilczynski, 1970, p.15) Benefited by a mineral-rich nature and having control over the cost of the country’s labor force, the USSR had one of the highest percentages of GNP investment in the world — almost 30% of its GNP in the 1980s, according to Ofer’s calculations. (Ofer, 1987, p. 1.788)

The extensive character of the Soviet model was confirmed by official data. According to the Economic Statistical Yearbook of the USSR, if we count the national income of the year 1913 as index 1, the national income in 1985 reached index 82, whereas the capital investment reached index 154. (*Narkhoz za 70 Let*, 1987, p.7) *Ceteris paribus*, the fact that capital investment has grown more than the national income as a whole points to an extensive growth of the economy.

During the early decades of Soviet industrialization, the strategy to achieve rapid growth was through massive investments in capital, labor, and land. An intense rhythm of

⁷⁵ According to Shmelev & Popov (1989, p. 174),

[Until 1987] the unwanted differences in profit rates of [state enterprises] caused by the vicissitudes of command-administrative price formation were neutralized very simply: all of the “extra” profit was seized and incorporated in the budget. At first enterprises made obligatory, fixed payments for capital (up to 6% of capital stock) and rental payments, in addition to other payments (more than a third of the total profit in industry). Then they made payments into incentive funds (17%) and various other payments (paying off losses and bank loans, financing growth in their own net assets, and so forth — about a third of all profits) and then they were required to give to the budget everything that remained (20% of the profits) — the “payments on the remainder of free-and-clear profit.” Under these conditions, the incentive funds were not a fixed percentage of the profit but were calculated by a complex system that depended on changes in a number of fund-forming indicators (volume of sales calculated by contractual deliveries, increase of labor productivity, decrease in prime costs, and others). So it was possible to have higher profits but decreased incentive funds, and the other way around.

labor mobilization (compulsory labor, incorporation of surplus rural labor and female labor,⁷⁶ forced labor of prisoners, etc.), expansion of the agricultural frontier (the most typical example was Khrushchev's "virgin lands" campaign) and a high rate of investment fed high rates of economic growth until the 1960s. (Ofer, 1987, pp. 1782-1785)

However, after World War II, in the 1950s (and even more so since the 1960s), labor and land inputs were no longer abundant due to the physical limits of the frontier of agricultural expansion, the loss of a considerable part of the population able to work as a result of World War II, the depletion of surplus rural labor force, low demographic rates of the ethnic Russian population, among other factors. Capital investments were then of the essence.

The problem with extensive growth based on increased capital investment is that, mathematically, it has a limit. If the rate of capital investment is greater than the growth of the economy as a whole (*ceteris paribus*, extensive growth), increasing national investment rates are necessary for national income to grow. In the 1960s, investment rates in the USSR were already close to 30% of GNP and continued to grow. (Ofer, 1987, p. 1788) It was one of the highest in the world. Until then, among industrialized countries, only Japan and Norway had, for long periods, higher average percentages than this. (*ibid.*, p.1787) Japan and Norway, however, did not have the immense burden of defense spending the USSR did. This meant that in order for the USSR to continue growing in her rather extensive model, her investment rates would have to rise to more than 30% of GNP, which, with the weight of defense spending, would constitute immense sacrifice for the (low-priority) consumer sector. Obviously, the economic growth of the country could not go on like this.

This was the Soviet dilemma. From 1960 until the beginning of perestroika, the Russians had not been able to change to an intensive growth path as needed. According to Ofer, "the relative contribution of inputs to [economic] growth rose to 80% in the post-war period and became the only component from 1970 onward, when productivity stagnated [...]" (Ofer, 1987, p. 1782) The productivity growth in the USSR had declined since the 1960s due to the exhaustion of the extensive factors of production and the difficulty of adapting to intensive development.

Since the 1960s (or even in the late 1950s) a number of Soviet economists and politicians had been pointing to the fact that the USSR would have to change to an intensive growth pattern if high economic growth was to continue. (KPSS, 1983-1989h, p. 130) Attempts to reform the economic system since then — notably the Kosygin reforms (in the mid-1960s), the industrial reorganization of 1973-74, the decree of July 1979 and Andropov's economic experiments (in 1983) —⁷⁷ all had the ultimate goal of

⁷⁶ The share of adult female labor in the USSR (87% in 1980) was much higher than in the USA (59.7%) or in European OECD countries (48.5%). (OECD, 1982a, p. 33; Ofer, 1987, p. 1783)

⁷⁷As mentioned earlier, the "Kosygin reforms" (undertaken in the second half of the 1960s, beginning in 1965) attempted to give greater autonomy to enterprises (in relation to the central Gosplan) by encouraging them to increase productivity and reduce costs by pursuing profit that could be retained by the companies themselves, instead of being passed on to the central budget as before. The 1973-74 industrial reorganization unified production-related enterprises into larger units called *ob'edinenie* (= association) to simplify the tasks of central planning coordination. The decree of July 1979, among other measures, tried to adopt *value added* as an indicator to be followed by the enterprises (instead of traditional gross production indices). Andropov's economic experiments (July 1983 decree) tried, in selected companies, to establish

providing economic stimuli to achieve an increase in labor productivity through “intensive” methods. However, these attempts at change did not reach their ultimate goal. As Nötzold put it:

In the 1970s, Soviet industrial policy was more concentrated than ever in modernization, but it is clear that investment policy, which should have generated new productive processes, has not yielded the desired results. The average stock of machines and production facilities in Soviet industry increased even more, from 12.2 years in 1960 to 14.2 years in 1980. This was because the new machines produced were mostly assigned to new factories, rather than replacing the obsolete or aged stock of the old factories. As a result, it was not possible to change the traditional industrial pattern in the 1970s. The investment was used for the creation of new modern units and not for the rationalization of the existing one. However, if the rationalization of existing factories is low, the increase in labor productivity is correspondingly low. (Nötzold, 1987, p. 70)

This failure of the efforts to modernize and “intensify” the Soviet economy at the time of the STR led directly to the necessity of a more radical “restructuring” after 1985 with Gorbachev. However, the question remains: why have these efforts of modernization and “intensification” failed?

It is necessary to understand the specificities of the processes that occurred in the USSR and in advanced capitalist countries after the 1960s. After all, the great majority of the problem areas of the Soviet economic model mentioned in this chapter (the question of prices not reflecting relative scarcity, imbalances in planning, vertical and authoritarian structures, *zatravnaya ekonomika* etc.) were also present in the 1930s, 1940s and 1950s, but even so, the USSR achieved high rates of economic growth then. That is, even with all apparent imbalances between different sectors of the economy, despite the great waste in certain areas, the economy grew and became stronger in the first half of the twentieth century. Thus, it was not these factors, *by themselves*, that can explain a slowdown after the 1960s. We need to analyze, then, the new variables that came into play, both in the capitalist camp and in the actually existing socialist countries after the 1960s. The reasons why the USSR failed to adapt to a new type of development from the 1960s onward are, in our view, related to the new paradigms of production of the period of the Scientific-Technical Revolution and will be analyzed below.

more norms conducive to more efficiency and discipline in companies. (SM SSSR, 1965, 1974, 1979 and 1983)

5 SOVIET MODEL OF PRODUCTION, FORDISM, TOYOTISM AND STR

5.1 INTRODUCTION

We have already noted that Fordism was the paradigm of production that imposed itself as the most efficient in the first half of the twentieth century and that, in the post-World War II period, a new organizational model was formed and turned out to be more efficient and productive. Toyotism began to take shape in the 1950s, found its definitive form in the 1960s, and from the 1970s onward, it demonstrated its greater efficiency compared to the traditional Fordist pattern in the context of shrinking world markets. The mid-1970s clearly showed the superiority in terms of efficiency and rates of productivity of the Japanese model over the American and also marked the time when the *cul-de-sac* of the Soviet economy became evident. The Soviet decline seemed inversely proportional to the success of Japanese toyotism. It seems to us that this was not mere coincidence, for there was a certain parallelism between all these processes: in a certain way the Soviet model was linked (by a competition in terms of “copying and surpassing the capitalist West”) to Fordism. The Soviet industrialization model of the 1930s was built at a time when Fordism⁷⁸ was the world’s most efficient production paradigm. There was a natural tendency to incorporate some of its elements into the model of Soviet industrialization.

From the beginnings of the 1917 Revolution, it was clear from the official Marxist-Leninist ideology that, since the Soviet Union was starting from a lower economic level than that of the advanced capitalist countries, it would have to catch up with the productive stage of these countries and then overtake them.⁷⁹ This would include copying, whenever necessary, the most productive aspects of the organizational models of these countries. For example, Lenin, in his article *The Immediate Tasks of the Soviet Government* (published in Pravda on April 28, 1918), in which he discussed the problem of how to raise labor productivity in Russia, thus wrote in relation to work methods:

The task that the Soviet government must set the people in all its scope is: learn to work [efficiently]. The Taylor system, the last word of capitalism in this respect, like all capitalist progress, is a

⁷⁸ As in the previous chapter in which we did the analysis of these organizational models, under the concept of Fordism are also subsumed the aspects of Taylorism and Fayolism that, in factory practice, ended up being incorporated as integral parts of the former.

⁷⁹ The story could have been quite different if the Revolution of 1917 had been accompanied by socialist revolutions in the advanced capitalist countries (especially Germany), as initially expected by several Russian revolutionaries, including Lenin. (Lenin, 1967-1970b, p. 456; Lenin, 1967-1970c, p. 508; Lenin, 1967-1970d, p. 417) In this case, there would be no need to achieve and/or copy a more advanced production paradigm, since the socialist camp would already have (incorporated) in it such a paradigm.

combination of the refined brutality of bourgeois exploitation and a number of the greatest scientific achievements in the field of analysing mechanical motions during work, the elimination of superfluous and awkward motions, the elaboration of correct methods of work, the introduction of the best system of accounting and control, etc. The Soviet Republic must at all costs adopt all that is valuable in the achievements of science and technology in this field. The possibility of building socialism depends exactly upon our success in combining the Soviet power and the Soviet organisation of administration with the up-to-date achievements of capitalism. We must organise in Russia the study and teaching of the Taylor system and systematically try it out and adapt it to our own ends.⁸⁰ (Lenin, 1967-1970a, p. 189-190)

Russian economists Vladimir Popov and Nicolai Shmelev drew attention to the importance of the arrival of Western workers in Russia in the 1920s for the assimilation of Fordist-Taylorist techniques:

[In the 1920s, during the NEP] The [foreign] capital flowing into the USSR was accompanied by a flood of immigrant workers from all over the world. Thousands of workers from Western countries offered assistance, knowledge and experience to the young Soviet Republic [...] More than a hundred skilled mechanics from the Ford factories arrived in 1921-22 at the Moscow Automobile Factory to set up production. Members of an American garment workers trade union founded a cooperative called the “Third International Tailoring Workshop” and then equipped Moscow’s first mechanized shop for 600 laborers, using the principles of Taylorism [...] (Shmelev & Popov, 1989, p. 11)

Thus, from the outset, Soviet factory development was marked by an attempt to copy in order to catch up (and then overtake) what was considered a superior production paradigm.

With the beginning of Stalinist “forced” industrialization in the 1930s, this paradigm of catching up and overtaking was not abandoned. On the contrary, Stalin — especially in view of the instability of the international situation and the possibility of a future new world war — was quite emphatic about the need to fulfill this task. In 1931, fighting the arguments of those who feared that the pace of industrialization was too fast, he said:

⁸⁰ Lenin was also one of the greatest supporters of the creation of organs such as SOVNOT, a Soviet organization founded in the 1920s to carry out motion and time study in the workplace in order to achieve the highest possible efficiency with minimal movements by the worker. NOT (*Nauchnaya Organizatsiya Truda*, “Scientific Organization of Labor”), as this type of study was called in the USSR, was clearly guided by Fordist and Taylorist principles. (SES, 1980, p. 876; Voslenskii, 1980, p. 178; Conquest, 1967, p. 60)

We are fifty or a hundred years behind the advanced countries. We must make good this distance in ten years. Either we do it, or we shall be crushed.⁸¹ (Stalin, 1946-1951e, p. 39)

At the time of the first five-year plans, the pattern of trying to copy what was most advanced in the Western Fordist model continued. Unlike the NEP period in the 1920s — when *innostrannye kontsessii* (“foreign concessions”, *i.e.*, enterprises with full or partial foreign capital) were common — in the 1930s the direct absorption of Western organizational technologies and methods was achieved mainly through technical assistance contracts. (Sutton, 1971, p.1; Hardt & Holliday, 1977, p.194) The example *par excellence* was that of Ford Motor Co. A contract was signed between the Soviet government and Ford in May 1929 for the creation of the Gorky car factory. Through it, the American company would provide its most advanced technology and production methods for manufacturing, in the USSR, the Gaz-A passenger cars and the Gaz-AA light trucks (Soviet versions respectively of the Ford Model A car and the AA truck). The agreement held valid during the first two five-year plans. During this period, Ford trained Soviet engineers both in the USSR and at its River Rouge factory in the USA. This was not an isolated example. Similar contracts were signed with other Western companies such as the Austin Company, Tinken-Detroit Axle Company, Brown Lipe Gear Co., and others. (Hardt & Holliday, 1977, pp. 194-196) Through them, the Soviets gained access to modern Western Fordist techniques.

The Soviet microeconomic manufacturing model, in spite of all the differences in macroeconomic relations at state level, developed Fordist traits. And this was not accidental: it stemmed from the need, embodied in the statements above of the Soviet leaders, to reach the productivity levels of the superior paradigm of the advanced capitalist countries.⁸²

This strategy of copying⁸³ the Western Fordist model made logical sense within the context of the 1930s, for it was the most efficient production paradigm of the time.

⁸¹ Ironically, these words turned out to be prophetic. Ten years later, in 1941, Germany invaded Russia...

⁸² For example, in factories, from the time of industrialization in the 1930s, the alternating use of piece work (*sdel'naya rabota*) and time wages, the establishment of technical norms (*normativy*) and quotas of production (and even the introduction of salary bonuses and wage differentials) were clearly more guided by the need and goal of achieving standards compatible with the efficiency requirements of the more advanced Western (Fordist) model than by the hope of establishing alternative socialist forms of labor remuneration. (Conquest, 1967, pp. 59-60)

In this context, the arguments used by Stalin in his campaign against *uravnilovka* (“leveling” or “egalitarianism”) that greater wage differentiation would be necessary and would be in line with the principle that “in socialism, people are rewarded according to their contribution (work), not yet according to needs” seemed to reflect concern with criteria of efficiency and economic rationalization similar to the ones used in Fordism as much as concern to establish wage criteria that corresponded to the canons of socialism. (Stalin, 1946-1951h, pp. 56-57)

⁸³ It is important to note that the Soviet strategy, even as late as the 1930s, was not simply to blindly copy the Western Fordist model, but to master the most advanced techniques of this model so that, as quickly as possible, it would become independent of it and surpass it. So much so that the number of imported technical and foreign machinery contracts decreased significantly in the second five-year plan, and even more in the third, compared to the first. Based on a careful survey of Russian sources and Western studies, Parrott (1983, pp. 29, 36 and 46) determined that

“[Foreign] trade accounted for almost four-fifths of all machine tools installed in 1932 and almost 15% of the gross investment in the first five-year plan

Soviet industrialization, under the influence of this paradigm, achieved good results (at least in quantitative terms) with high growth rates in the 1930s, 1940s and 1950s.⁸⁴ Sensitive problems began in the 1960s when the world economy entered a period of deepening of the Scientific-Technical Revolution that brought a series of new demands on production. Fordism was not adequate to meet these new demands. A new organizational paradigm (Toyotism) was imposing itself as the most appropriate for this new era.⁸⁵ The USSR, however, could not fundamentally change its paradigm of

[,whereas ...] during the second five-year plan imported capital was responsible for only 2% of gross investments and less than 10% of machine tools were produced abroad [...] 40% of the main models introduced [in the machine tool sector] between 1938 and 1940 were based on foreign design, compared with 95% between 1928-32 and 75% in 1933-37 [... In addition,] the number of technical assistance contracts with foreign companies in the second five-year plan was approximately half that in the first”

As Nove (1990, pp. 220-221) put it, “around 1937, the basic industrial material and the production of weapons was manufactured within the Soviet Union.” This trajectory was presented, by Soviet propaganda of the time, as one of the signs that the USSR was achieving its technological independence and reaching a qualitatively new degree of industrial paradigm. For example, Merts *et al.* (1932, pp. 238-239), commenting in a scientific article on the high technical grade of the GAZ car factory installed in the city of Gorky, with the help of Ford Motor Co., underestimated the American contribution and stated that.

[...] the “last word” of capitalist technique is only the first word of socialist technique, and in this field we do not limit ourselves to copying capitalist technique, but we seek to go further in terms of technological progress [...] The level of automation at GAZ is greater than that at River Rouge [where the main Ford American factory is located].

Such boasting needs to be understood within the context of 1932, when the article was written, in which the Soviet Union was actually importing and putting into operation the most modern machines [the “last word of Western technique”], while the West was still struggling with the effects of the 1929 crisis. However, while it cannot be disputed that the Soviet Union at the end of the 1930s achieved remarkable results in the radical reduction of its technological dependence from abroad (with areas of excellence mainly in heavy industry and armaments), the assertions that the USSR would already be achieving a type of industrial production paradigm that is qualitatively distinct and superior to Western Fordism should be seen more as wishful thinking or part of ideological propaganda than based on the daily reality of the functioning of industries in the USSR. Even during the 1930s, some voices of the Soviet scientific-industrial establishment warned against premature isolation and autarchy of the country’s industry and science based on the belief in the superiority of native installed capacity. (Rubinshtein, 1937, p.42) Indeed, despite the ideological slogans to the contrary, the Soviet industrial model was still in a technological race trying to keep up with the progress of the central capitalist countries (which in the second half of the 1930s had already partially recovered from the 1929 crisis and began to resume their dynamism), within the parameters of the Fordist industrial paradigm that was shown as the most advanced and which the USSR was aiming to catch up and overtake. That is, the Western technological level was a more difficult mobile target to be achieved than originally envisaged. (*ibid.*) The typical example again can be given by the Gorki car factory, which Ford helped build. While in 1932, when it was newly installed, the Soviet factory was one of the most modern in the world, with a level of automation that was higher than most Western competitors, the Soviet author Chudakov wrote in 1936 that due to the constant progress, the GAZ-AA truck, produced in Gorky, was already being technologically surpassed by more advanced Western models as early as the mid-1930s. (Chudakov, 1936, p. 34) This was a constant in the development of the Soviet economic model: the attempt to catch up and overtake the moving target of the more advanced Western paradigm. And this meant, in practice, that the USSR, in a certain way, had its industrial development shaped by the Fordist paradigm, without being able to unequivocally achieve the second phase (“overtaking”) of the strategy of “copying to overtake” this paradigm.

⁸⁴ See table in Appendix 2.

⁸⁵ See table in appendix 7.

production, keeping a factory model that operated on Fordist-Taylorist lines. It is this difficulty of the Soviet model to adapt to the new higher paradigms of production that lie at the heart of the problems that led to the need for a radical perestroika in the mid-1980s. We will analyze these difficulties, first by looking at how Fordism influenced the Soviet industrialization from the 1930s onwards and then we will move on to specific problems of the STR era.

5.2 FORDISM AND THE SOVIET MODEL OF PRODUCTION

Let us review some of the main characteristics of Fordism (subsuming in this concept the Taylorist-Fayolist characteristics that were attached to it at the time of the Second Technological Revolution): rigid production, specialization of tasks, imposed (by management, by the cadence of the conveyor belt) rhythms, separate quality control section, strict separation between management and workers' tasks, vertical flows of information and control taking precedence over horizontal flows, emphasis on large quantities (with a "good enough" quality) and economies of scale.

We see that the characteristics above describe what was happening in the Soviet model quite well. The mania of gigantism in the projects of the USSR, with her immense factories,⁸⁶ hydroelectric plants etc. fit in well with the emphasis on large quantities and economies of scale.⁸⁷ The separation between administration and execution, *i.e.*, between planners and executors, between management and workers was well defined, not only by the principles of *edinonachalie* but also by the admittedly vertical and authoritarian structures according to which Soviet macroeconomics and microeconomics were run.⁸⁸ Quality control was separate from production,⁸⁹ and unlike Western Fordism, product

⁸⁶ Shmelev and Popov (1989, p. 115) wrote during perestroika: "Soviet enterprises are the largest in the world. The average industrial enterprise has about 1,000 workers and an average collective or state farm employs about 600 people."

⁸⁷ The logic of economies of scale was behind gigantic industrial projects such as the Dnieper Dam, the Magnitogorsk Metallurgical Center, the Kharkov Tractor Factory, Sverdlovski Uralmash, etc.

⁸⁸ At the time of the supremacy of the Fordist-Taylorist paradigm in the West, business management, as previously stated, was also deeply marked by Fayol's principles of functional divisions. His famous organization chart became part of the day-to-day planning of companies. In the book *Administration Industrielle et Générale* (1916), he enumerated some of the fundamental principles guiding business management. It is striking to note how the description could be applied, almost exactly, to the functioning of the Soviet business administration. The coincidence in principles (with only a few exceptions) is striking.

I will list some of the principles of administration that I have most frequently had to apply: 1) division of labor; 2) authority; 3) discipline; 4) unity of command; 5) unity of direction; 6) subordination of the individual interest to the collective; 7) remuneration; 8) centralization; 9) Scalar chains (authority line); 10) order; 11) equity; 12) job guarantee; 13) initiative; 14) *esprit de corps*. (Fayol, 1965, pp. 19-20)

⁸⁹ The OTK (*Otdel Tekhnicheskogo Kontrolya* – "Technical Control Department") operated in the tradition of the Fordist model as an "external" or *a posteriori* mechanism for monitoring the quality at the end of the production line. In a Soviet didactic industrial manual, Omarov *et al.* complained about the excessive number of employees in OTK. They cited cases of factories in which 12 to 20 percent of employees were in the OTK rather than directly in the production process. (Omarov *et al.*, 1964, p. 106) It is interesting to note how, since the 1960s, the Soviets were aware of the inadequacies of *a posteriori* quality control systems

quality often fell short of “good enough” (this being partly due to the pressure to keep up with the numerical, measurable time dimensions of the plan, to the detriment of quality). (Smirnitskii *et al.*, 1987, pp. 164-166). The excessive emphasis on large quantities and economies of scale (a Fordist characteristic) brought with it an extreme degree of standardization in the final consumer products, with relatively little variety for the consumer.⁹⁰

Thus, in relation to the production chain itself, the Soviet model followed a pattern clearly oriented by a Fordist perspective.^{91 92}

outside the production process itself, as in the Fordist model. There were reports in the technical literature that since the 1960s the Soviets had been trying to experiment with quality control simultaneous with production. However, they encountered difficulties in generalizing these attempts of what they called *samokontrol'* (“self-control”). Most production units continued to have their OTKs run in the traditional Fordist way of repairing the defects after they had occurred. (Smirnitskii *et al.*, 1987, pp. 164-166; Omarov *et al.*, 1964, pp. 105-106 and 111-112)

⁹⁰ Henry Ford’s famous phrase that the buyer of his T model could “choose any color he wanted, as long as it was black,” could be taken as a metaphor for some of the difficulties Soviet consumers experienced over supply problems.

⁹¹ When we refer to the Soviet model of production as being a model driven by a Fordist perspective, we do not mean that one is identical with the other. The economic literature is full of descriptions and accounts of how Soviet factories were (in terms of microeconomics) less efficient than the Western Fordist factories in advanced capitalist countries. Shmelev and Popov, for example, drew up a number of areas where Soviet factories could not reach the level of efficiency of Western factories (even Fordist, not to mention Toyotist): there were excessive inventories in factories and an attempt at autarky (*i.e.*, self-sufficiency in the production of intermediate goods and labor instruments within the production unit itself) due to the difficulties encountered in the supply of parts; the level of most civilian consumer goods did not reach the levels of the best Western factories; customer service was of poor quality; the level of product quality often did not reach the level of “good enough” typical of Western Fordism; the vertical hierarchical levels of the upper management of the companies, unlike the Fordist model, suffered external political interference. (Shmelev & Popov, 1989, pp. 73-77, 80-81, 118 and 133)

Despite all the shortcomings, these differences between the Soviet model of production and the Western Fordist model of the advanced countries do not invalidate, but rather corroborate our proposition. We do not affirm that the Soviet model of production was identical to the Western Fordist model, but rather that it was oriented by a value system [in what concerns strictly the production process of the factory floor: see next footnote] that reflects and is guided by a Fordist perspective. As we noted earlier in the aforementioned statements of the leaders of the USSR from the time of the beginnings of industrialization, the ideal of the Soviet model was, in practice, to achieve the productivity indexes of the most efficient Western model [Fordism] by copying and adapting it. We have seen how the characteristics of vertical hierarchy, separation of administration and executors (workers), economies of scale, etc. were the guidelines of the Soviet model. The Soviets tried, in every way (consciously or unconsciously), to catch up with the Fordist paradigm. They competed with the (Western) Fordist model guided by common production values and methods that they tried, with a greater or lesser degree of success, to emulate. This is not to say that they were able to keep up with Fordist successes in all fields and areas. Hence the deficient areas of the Soviet model of production mentioned above are the areas in which it was less successful in its policy of “copying in order to overtake” Western Fordism. It is not that the Soviets were trying to maintain areas of difference with Western Fordism. On the contrary, if they could, they would be in accordance with the Fordist logic also in these areas. If in terms of large scales and quantities, the Soviets (with their gigantic hydroelectric and industrial complexes) were not behind the West, in the aspect of quality they had not had the same success in copying Fordism (not to mention Toyotism). But this does not mean that they were not trying to get there in this area as well. (Smirnitskii *et al.*, 1987, pp. 164-166). This is also the case of the huge inventories and the attempt at autarky (self-sufficiency) of the Soviet production units that far exceeded what was considered normal for a Fordist pattern. This represented the “lesser evil” to keep the system functioning, in the context of supply difficulties. The Soviets were aware of this and tried to solve the problem in order to reach at least a level close to what was common in the West. The point is that, in

Now, let us review the main characteristics of Toyotism: flexible production, in small series with great variety, economies of scope, despecialization of tasks (= worker polyvalence), shared times (assignment of modular and variable tasks), quality control simultaneous with production, enhanced importance of horizontal flows of information and interaction, greater involvement of the worker in the organization of production, and emphasis on total quality and cooperation (among workers, between workers and management, and in relations with subcontractors).

Let us analyze these several points in more detail, especially the three characteristics (concepts) that we consider fundamental to understand the difficulties that

practice, they could not achieve these ideal of normal (Fordist) levels of inventory and supplier reliability. Even the question of party political interference in top management, which would, within the above deficiencies, be the most radical difference with Fordism, can be relativized. As we saw earlier, the Communist Party itself, from the resolutions of the Ninth Congress (confirmed at the beginning of the five-year plans by a decree of the Central Committee of September 5, 1929 and by other decrees in subsequent decades) established *edinonachalie* (responsibility of a single person, in this case the directors of the factories) as the basis for the functioning of the industrial administration in the country, moving away from the collegial direction. (KPSS, 1983-1989b, pp. 247-248; KPSS, 1983-1989e, pp. 556-562) The idea was that party bodies should stop meddling in the day-to-day management of enterprises, concentrating their efforts on helping directors to comply with established goals. If this did not happen in practice, with turbulence and political changes influencing the party's intrusion into business management, this can also be considered the case of an attempt to follow a pattern closer to the Fordist model, but with less success. The vehemence with which the Soviet authorities tried to impose *edinonachalie* from the outset of industrialization clearly showed how they were influenced by the attempt to reach the more advanced Western paradigms (then Fordism). Between maintaining a collegial form of industrial management — which, in principle, would be more in accordance with a socialist political form — and the *edinonachalie* — which in the West proved its greatest efficiency, at least at the microeconomic level — the Soviet leaders chose the latter. Now, if, in practice, they could not avoid partisan intervention in business administration, this is another matter and does not obfuscate the fact that the intention of the Soviet leaders was guided by a desire to use certain Fordist methods to achieve their goals.

Thus the deficiencies (or differences between the Soviet model of production and Western Fordism) listed above are “the exception that proves the rule.” That is, they do not deny that the Soviets guided themselves, for the most part from the time of their industrialization, by a Fordist perspective, and that these deficiencies were areas in which the Soviets, unwillingly, could not keep up with the Western Fordist model.

To conclude, we can cite the fact that, at the time of perestroika, several Soviet writers who studied Toyotism agreed that the USSR's industrial system was based essentially on assumptions of the so-called “American system” (*i.e.*, Fordism). On this, see, for example, Komlev & Vasyukova (1989, p. 20).

⁹² We are referring here only to the production process itself. We have not yet mentioned the socio-economic implications of Fordism in capitalist society as a whole. In this respect, the French *regulation school* (R. Boyer, A. Lieptz, M. Aglietta, and others) saw Fordism as the productive basis on which the strengthening of the welfare state of social democracy was based. The economic-financial gains brought about by the high productivity of the Fordist model made possible a whole structure of redistribution of income in the system, via unemployment insurance, free education and health, etc.

Even these socio-economic implications of Western Fordism would not be in complete disagreement with the modified version of “Soviet Fordism” since, to a certain extent, the USSR, with its emphasis on free education and health, eliminating official unemployment — besides a “commitment to a certain egalitarianism and stability in employment even at the cost of economic efficiency,” as Breslauer put it — could also be seen as a sort of Welfare State. If we take as welfare state the society in which the state intervenes to correct the “social injustices of the market,” in the case of the USSR this action would be represented by the very suppression of the capitalist market as the “source” of these social injustices and inequalities. For one of the possible views of the Soviet Union as a modified version of the welfare state see the essay by G. W. Breslauer (1978) “On the Adaptability of Soviet Welfare-State Authoritarianism.”

the Soviet model encountered to adapt to the new paradigms that were imposed as the most efficient in the STR era: *flexibility, information and quality*.

5.2.1 Flexibility

One of the basic characteristics of Fordism was its relative rigidity. (Coriat, 1990, pp. 19-20) The paradigm of production that replaced it as the most efficient in exploring the possibilities of the Third Technological Revolution, Toyotism, has as one of its most striking characteristics, a comparatively large degree of *flexibility*. It was due to this flexibility, in a period of restricted markets — from the 1970s onward — that Toyotism was able to clearly demonstrate its superiority over Fordism in terms of productivity growth and efficiency. In order to analyze the reasons why the Soviet Union did not achieve the same relative success in its strategy of “catching up with advanced capitalist countries” with Toyotism,⁹³ as it had done with Fordism, we must analyze this point in more detail.

From the late 1960s onward, the Soviet Union continued to follow the principles of a production paradigm (Fordism) that was being surpassed by a more efficient one (Toyotism). This is why the USSR would then be doomed to fail to reach the most productive part of capitalism. The Soviet model had, from its beginnings, characteristics of extreme rigidity. (Gorbachev, 1987a, p. 5) This was largely due to the fact that it had embarked on a course of “copying (in order to catch up and overtake)” the Fordist paradigm. The typical Soviet factory was Fordist in many of its essential aspects: emphasis on large quantities, serial production, economies of scale, priority of vertical flows of information and command, strong hierarchical principles, etc. These were exactly the aspects of Fordism that were criticized and modified by the proponents of Toyotism. Rigidity was one of the most visible features of the Soviet model and one of the most criticized as a source of inertia in the system. (Goldman, 1987, p. 101) This rigidity, partly stemming from the very choice of a “Fordist” pattern of development, was made more serious by the fact that it was a central planning economy, which increases the potential for rigidity. Centralism means that the “center” takes on innumerable tasks and decisions that, in other contexts, would be left to individual production units in the periphery. This does not mean that central planning has to be, by definition, rigid; only that there is a greater potential for this, depending on how this planning occurs (mandatory or merely indicative objectives etc.). In the case of the Soviet Union this potential for rigidity materialized. From the time of the formation of the command-administrative system in the 1930s, the principle of *edinonachalie* (= command and responsibility of a single person) was firmly established in business administration and government. From the highest to the lowest echelons of management, responsibility for the course of action should rest on one person, moving away from the idea of collegial management. (KPSS, 1983-1989e, pp. 556-562)

This long distance between decision centers and those performing tasks lead to the need for a longer period of time between the decision-making process and its

⁹³ See tables in Appendices 4 and 3 for calculations of the comparative performance of the Soviet, Toyotist (Japanese) and Fordist (USA) models in terms of productivity growth and national income.

implementation in practice. And not just that. In order to make decisions, the center has to be supplied with all the necessary information to be able to decide the most appropriate route to take. Here excessive centralism can take longer to get the necessary information to the center (increasing the possibility of erroneous data, false information, etc.). All this tends to make the center rather cautious in making its decisions, to avoid errors, and to become extremely demanding that all its policies be implemented “to the letter” — since all the members of the production process are connected by the center, failure in one of the points can jeopardize a large number of other links of this complex chain.

While Fordism was still the prevailing paradigm of production, this rigidity of the Soviet model was offset by its ability to concentrate large amounts of resources and efforts in priority areas (especially heavy industry), thus achieving high rates of economic growth in terms of gross output in the initial take-off period of the system.⁹⁴ The hierarchical, vertical structure of the Soviet model fit relatively well with the principles of the Fordist-Taylorist-Fayolist mode of production (also vertical and hierarchical).

The functioning of the Soviet system was based on complete obedience to the dictates of the plan. Deviations from this were not allowed, as they could cause “bottlenecks” in the economy. This created an extreme rigidity that prevented a greater degree of experimentation in the lower echelons of the production chain. Any experimentation that deviated from the original plan required special permission from above, which added even more time between the appearance of a new idea and its implementation in practice. This was especially felt in the technological field of Research and Development (R & D). Despite the huge amount of investment in this area, the gap between science and production remained. The distance between the planners and the shop floor made it even harder to take the right decisions about the most efficient process to be adopted. (Amman and Cooper, 1982, p.17) All this proved to be fatal in a time of Scientific-Technical Revolution, which by definition means the transformation of science into a productive force (suppression of the gap between science and production).

One should not think that the Soviets were unaware of these limitations and of these new needs brought about by the Third Technological Revolution. In the 1970s, S.A. Kheinman, the Soviet author of the book *Nauchno-Tekhnicheskaya Revoliutsiya: cegodnya i zavtra* (“Scientific-Technical Revolution: Present and Future”), drew attention to the vital link between technical progress under STR, flexibility and information society. He began by stating that during the STR period, the period of renewal of fixed capital (machinery and equipment) is shortened. At the present time, with the accelerated development of progress, the equipment tends to be outdated in shorter and shorter periods, and if they are not renewed, the production unit that uses them runs the risk of using obsolete technology. This creates an extra problem. With the new machines (normally sophisticated and expensive) operating with a shorter “life span,” there is the risk that the cost of production will become too high, unless the growth in productivity of these machines also becomes progressively higher and higher (“geometric” progression). Based on the table he built in his book, Kheinman stated:

In the event of a reduction in the useful life of the equipment from 15 to 14 years, the magnitude of the depreciation in general and per unit produced, given a fixed production quantity, increases by

⁹⁴ See table in Appendix 2.

7.2%; in the reduction from 11 to 10 years in 10%; and the decrease from 6 to 5 years by 20%. In this case, in order to keep invariable the amount used in the depreciation per unit produced, it is necessary that the productivity of the machines be increased by 50% in the case of a reduction in the useful life from 15 to 10 years and doubled in the case of a decrease from 10 to 5 years of useful life. (Kheinman, 1977, p. 245)

This creates a concrete limitation to the possibility of the development of the productive forces within production models based on rigid machines and economies of scale, since one of STR's characteristics is its tendency to widen the range of products offered to society (through the creation of previously non-existent articles or through the increase in variety and style of current products). This, in a market that is not in the process of growth, can lead to a reduction in the production scale for rigid machines that produce only one of the different current models of the old standard products. The solution, according to Kheinman, to continue accelerating the pace of scientific and technical progress, would be the introduction of flexible machines that could be adapted for the production of several different models, thus increasing the scale of use of each machine.

This dialectical contradiction of current technical progress is resolved through the synthesis of functional and product specializations of production machines, that is, the creation of flexible technological equipment. [...] The most important requirement for designers is that the new machines, in addition to being highly progressive and productive, must be *flexible* at the same time, that is, they can be easily reorganized to be used with new and more modern products and models, to adapt to the use of new technologies [...](Kheinman, 1977, p. 64)

Thus, it is important to note that in the mid-1970s, at the very time when the West was beginning to gravitate toward the study of the Japanese model, some Soviet scholars were already drawing attention to the need for *flexibility* in this new stage of STR. It is also striking how some of the characteristics quoted by these experts had similarities with certain assumptions of the Toyotist model. From the theoretical study of the functioning of technical progress under the STR, the Soviet authors were coming to the conclusion that flexibility would be the main trend of the new era. This harmonizes with our analysis of the Toyotist paradigm as being the one that best subsumed the technical basis of the Third Technological Revolution. As we had previously noted (see our chapter on technological revolutions), the organizational aspects of toyotism preceded its adoption of new STR technologies, but it was only a matter of time before these new STR technologies — which, according to Kheinman, had to be flexible to make their use economically advantageous within the smaller “scales” created by the larger variety of models of a single product — find their “natural partner” in the flexible Toyotist model.

We must emphasize that the Soviets were not totally unaware of these new technological trends. As in the 1950s — when Khrushchev, Bulganin (1955, p.2, c.1) and

other Soviet leaders, attached great importance to the new scientific developments in the areas of cybernetics, computing and electronics — in the 1970s and 1980s, there was also a large gap between the theoretical awareness of the need for change towards new patterns of technological development and the changes that could be implemented in the system in practice.

In short, *flexibility*⁹⁵ is a key concept to understand the main difference between Fordism and Toyotism and also to understand the difficulty that the Soviets had to adapt to the new times of a superior production paradigm.

5.2.2 Information

The authoritarian form of Soviet centralism came into conflict, not only with the need for flexibility but also with the need to propagate another fundamental pillar of the Third Technological Revolution: *information*.

We had previously mentioned that one of the most important characteristics of the Third Technological Revolution was the fact that computerized systems, numerical control, etc. invaded not only the sphere of material production but also several other domains of human activity and life. Computer systems are based on the transmission of organized and reorganized signals in a given pattern (binary, for example). But these bits and bytes are nothing more than small pieces of information that, arranged and rearranged in different ways, produce certain patterns of cybernetic behavior. Thus, information, in this broader sense, assumes unprecedented importance at the present time for the development of the productive forces. Information today does not mean mere accumulation of intellectual representations of reality used to guide behavior but separate from it. Information, with the advent of cybernetics and computing integrated into the productive sphere, has become an essential component of the material production process (not to mention its influence on other aspects of modern life in general).⁹⁶ It is no wonder that, especially in the countries of the industrialized West, the concepts of “Information Society” and “Information Revolution” are used to describe several of the new developments in social and economic relations during the STR period. (Castels & Kiselyova, 1995, p.4)

⁹⁵Take the case of the JiT (Just-in-Time) Toyotist techniques that denote the high flexibility of the Japanese model. Just-in-Time requires suppliers, parts and components to be delivered without any delay, as an immediate response to the needs of the producer company. This reduces the need for inventories in the company itself. How could the USSR, with her perennial supply problems, use such techniques? The specialized literature is filled with books describing how Soviet companies sought to accumulate huge levels of inventory of parts and components because of the bureaucratic difficulties in obtaining permission from Gosnab (and other agencies in charge of distribution) to get the necessary supplies (besides the eternal problem of the delay in deliveries of products). (Schroeder, 1972, pp. 114-115) In this context, it was very difficult to employ flexible techniques such as JiT.

⁹⁶ Several statistical studies show that a growing share of the GNP of rich countries is generated directly in the sectors related to information, such as telecommunications, education, computers, software, etc. For the USA, for example, the percentages indicated vary from approximately one quarter to more than half of GNP, depending on the definition of technologies and information industries adopted. (OECD, 1996b, p. 15; Survey, 1996, p. 43)

This special importance of *information*, in its new enlarged sense, was also recognized in the Soviet Union. As Kheinman wrote:

Together with matter and energy, information becomes increasingly important and becomes an instrument of work and a product of the work of an ever-increasing number of people. (Kheinman, 1977, p. 110)

However, the conditions for the advent of a true Information Society conflicted with some of the pillars of the Soviet model.

The USSR system was based on strict centralism that not only employed *edinonachalie* but also repressed (at least partially) the free flow of information within society, in order to ensure the preponderance of the state in the ideological sphere. From direct censorship of press organs to restrictions on the use of photocopying machines by citizens, different means were employed to maintain control of civil society, even if this implied restrictions on the free flow of information. This pattern conflicted with the growing need for the propagation of information (in its general sense and in its “cybernetic” sense) for an “intensified” development within the new STR paradigms. Take the example of *personal minicomputers*. This fourth generation of computers had its strategic importance recognized in the scientific circles of the USSR. However, while in the industrialized West the trend in the 1970s and 1980s was the spread of increasingly portable and individualized computers, Soviet leaders were reluctant to adopt this new approach, insisting on collective computer centers, where the use of computers was done collectively (and where control from above was easier to exercise). As one Western critic put it, the possibility of adopting a network of personal computers interconnected across the country was frightening to the top leadership of the Soviet Union.⁹⁷

This ambiguous positioning regarding the information problem, on the one hand recognizing the importance of information flows and, on the other hand, reluctant to release these same flows from the control of the state, showed the dilemma that the USSR faced. Thus the question of *information* (in its broadest sense) becomes a key to

⁹⁷In 1986, Paul Snell wrote:

There is evidence that the production of personal computers in the Soviet Union has been delayed, with Soviet authors pointing to technical problems as the cause. In the West, it is suggested that the Soviet authorities have tried to prevent the introduction of decentralized information systems of the type available in the West. The question is whether the introduction of personal computers with networked communication is really welcome by the Soviet authorities. The challenge they face is the loss of control of information in the lower echelons of society. Personal computers could be used to store clandestine *samizdat* information [...] if printers are available, then much information can be transformed into regular copies for more general distribution and, of course, networked computer communication can be used both ways and even Soviet classified information could be illegally infiltrated by computer experts. It seems that the Soviet authorities are facing a dilemma about whether this new decentralized information technology is really desirable [...] so much so that, unlike other computer technologies [...] when it comes to personal computers, Soviet authors use the excuse of technical problems that prevent their mass production. (Snell, 1986, p. 62)

understanding the difficulties that the Soviet Union had in adapting to the new paradigms of greater efficiency within the STR.

5.2.3 Quality

The concept of “Total Quality” (as in Total Quality Control [TQC] and in Total Quality Management [TQM]) also became difficult to implement under the conditions of the Soviet system. The pressure to fulfill the numerical objectives of the plan prevented the possibility of “interrupting the production line until the origin of the defect is discovered,” as advocated by Total Quality systems. One can imagine the pressure (from superiors and workmates) that would be felt by a Soviet employee who decided to interrupt the production line during a time of *shturmovshina*!⁹⁸

The concept of *quality* assumes a greater relevance during STR than the mere manufacture of products without defects. One of the paradoxes that haunts economists today is that, while new information technologies and microcomputers are evidently increasing the speed of information flow and enabling the creation of more productive machines, these productivity gains, so obvious “with the naked eye,” have not been so obvious in macroeconomic statistics. Thus, increases in productivity indices of all industrialized countries (including Japan) were lower in the period 1973-95 (microcomputers were developed in the 1970s) than in the 1960-73 period. One explanation for this apparent contradiction is that information technology tends to create an entire service area in which it is much more difficult to measure productivity than in traditional manufacturing. (Griliches, 1994, p.11) Besides that,

In many services it is difficult even to estimate a “unit” of production, in part because the greater “production” appears in the form of improvements in quality. In areas such as finance, health and education, statisticians assume that “production” increases with the number of hours worked. The paradoxical effect is that the measured productivity increment is, by definition, equal to zero. Also, the “production” of telecommunications is measured in minutes of call, omitting the incredible increase of information transmitted by fax or modem. Or the case of a carrier that introduces a computer system that helps its drivers choose shorter routes, thus providing better service to customers. If, as a consequence, the total mileage decreases, the statistics will show a fall in production. (Survey, 1996, p. 15)

Increasingly, therefore, the productivity gains of the new STR technologies show themselves in the form of quality improvements, which is difficult to measure in traditional statistical terms. This is an extra reason why the Toyotist model, with its emphasis on Total Quality, has made it easier to assimilate STR potentialities. The USSR,

⁹⁸ *Shturmovshina* = the practice of greatly intensifying production (often to the detriment of quality) in periods when the deadlines for the plan are near.

with its emphasis on numerical increase in production, prioritized quantity rather than quality, which posed another obstacle to its development at this stage of qualitatively new increases in the productivity of STR technologies.

5.2.4 Positive Aspects of the Soviet System in Relation to STR

Without the advantage of hindsight that we have today, it would be difficult to *a priori* predict, in the 1950s or early 1960s, the Soviet Union's difficulties in adapting to the specific requirements of the Third Technological Revolution. As the 1960s began, the mood was optimistic in the Soviet camp. The USSR had reached the second GNP in the world, had launched the first satellite and the first astronaut to space, had created a scientific and educational base that would later lead U.S. President Kennedy — in a climate of apprehension and competition — to review and reorganize the American educational system. (Kennedy, 1966, p. 101) The boastful optimism of Nikita Khrushchev's 1961 claim that the USSR, in 20 years, would leave the U.S. behind in industrial production did not seem so misplaced at the time.⁹⁹ (KPSS, 1983-1989h, p. 130)

Obviously there were criticisms of the way the Soviet economic model worked, but most Western criticisms were directed at the lack of market mechanisms (private property, competition, etc.) in the economy. (Hayek, 1975, p. 229; Friedman, 1981, pp. 14 and 17) These criticisms would not apply specifically to the time of the STR, having a general character and validity for other times as well. So much so that, although this type of criticism had been applied to the USSR practically since her inception, this did not prevent that country from having high rates of economic growth in the 1930s, 1940s and 1950s.

Another type of criticism that might have had a more direct application to the time when the STR began to be clearly delineated (from the 1960s onward) was that the central planning system had achieved very high initial rates of growth because the Soviet economy then was of a very basic and simple type, typical of early stages of industrialization. When you start from a very small base, initial progress is very rapid. The difficulty is to maintain these high growth rates later, as the economy becomes more complex, the factors involved are more numerous and the risks of bottlenecks and operational problems increase. This problem is potentialized in a planned economy. It allows a great concentration of efforts and resources in the priority areas, thus enabling a very fast take-off. In this initial period, the number of variables (products) to be

⁹⁹ As Castels & Kiselyova (1995, p. 27) put it,

[...] the irony is that, at least according to official statistics, despite the economic slowdown and social disarray in the 1980s, the Soviet Union produced substantially more than the US in some sectors of heavy industry: it produced 80% more steel, 78% more cement, 42% more oil, 55% more fertilizer, [...] and five times more tractors. The problem was that, in the meantime, the emphasis of the world production system had shifted to electronics and specialized chemistry and the biotech revolution was beginning to take place. In all these areas the Soviet economy was lagging behind. That is, the USSR missed the boat on the information technology revolution that took shape in the world in the mid-1970s.

controlled by planners is relatively small and “manageable.” But as the economy becomes more complex, the number of manufactured products grows exponentially. There were observations in the 1960s that even with the best existing computers it would be impossible to plan and control all aspects of manufacturing, stockpiling, transporting, and selling the millions of items produced by a highly industrialized society. (Richman, 1965, p.17) In this case, a natural economic slowdown would be expected over time.

This type of criticism proved to be quite serious, especially within the new conditions of the STR, which brought in its very existence a great variety in the number of models and products existing in modern societies. If, on the one hand, STR brought with it a tremendous acceleration in the number of models, products and services launched on the market, on the other hand, development in computer systems increases the possibility, not only of the calculations necessary for production planning but also creates the possibility of automatic inventory controls, which would facilitate the centralized planning task.¹⁰⁰ The discussion about whether a planned (balanced) administration of the economy through the resources of modern computing is possible remains a perennial controversy between proponents and critics of centralized planning.

We emphasize that it was not easy to *a priori* predict the difficulties that the USSR would have to adapt to the new STR times.¹⁰¹ In our previous analysis, we saw

¹⁰⁰ If, on the other hand, the STR increases the number of products to be “planned” and controlled, the STR itself increases the capacity of the computing systems that help this planning. Particularly with the advent of networked personal computers, from the 1970s onward, the possibility of automatic inventory control (e.g., automatic control of supermarket sales through scanners that read bar codes of products), could greatly reduce the burden of planners in a centralized planning system. The case of the food company Frito-Lay was cited by Malone and Rockart as an example of how networked microcomputing brings the possibility of decentralization of various pieces of information and decisions previously accessible only by the upper echelons. Frito-Lay has its employees in charge of the road distribution of the products

[...] registering the sale of each of their 200 own products on palmtop computers as they make the distribution route. Every night this information is transmitted to the central computer. In return, the central computer sends information about price changes and special promotions to palmtop computers for use the next day. Each week the central computer summarizes the information stored and combines it with the external data on the sale of competing brands [...] The availability of this information enabled the company to decentralize the decisions of the parent company to several local managers. Managers can use this data not only to compare actual sales with planned sales but also recommend changes in sales strategies to senior management. (Malone & Rockart, 1991, p. 130)

¹⁰¹ It is important to note that the Soviets, despite having had their first 3 decades of industrialization (1930s, 1940s and 1950s) guided by a Fordist perspective, with the aim of “copying in order to overcome” the efficiency of this paradigm, since the 1960s had been aware that radically new and more efficient characteristics were emerging in the evolution of production processes. Contrary to much superficial reading of the descriptive literature of the difficulties that the USSR was having to adapt to the new processes of the information revolution era, the Soviets quite early (already in the 1960s and even in the late 1950s) had studied the new trends of the time of the Scientific-Technical Revolution and had the serious intention of introducing them in their economy. Many of the organizational innovations of the Toyotist model, even before they became popular in the West — it was in the early and mid-1970s that the real flood of books about Toyotism actually took over the West — were already studied in the USSR, and their introduction had been tried in several experiments. Take, for example, the concepts of Flexibility, Total Quality and Zero Defects. We have already noted earlier how in the 1970s, S. Kheinman in his books scientifically explained that the processes and production machines needed to be flexible in the STR era. But if we go back in time and take a 1964 Soviet industrial manual, written by Omarov *et al.*, we see that

that the “actually existing” Soviet model had fundamental contradictions with three basic pillars — flexibility, information and quality — of the new, more efficient paradigms of the STR era. However, if we leave aside for a moment these characteristics and analyze other aspects of Toyotism, we shall see that some of these aspects would not at first be incompatible with the Soviet model or, at least, with the idea of central planning in general (and might even have some affinity with the latter).

The most important of these aspects is at the macroeconomic level: the close relationship between Japanese conglomerates and firms and the Japanese central government. In a sense, the role of central government planning and control was also extremely important in Japan. Using the characteristics of consensus¹⁰² and group thinking of Japanese culture, central government played an active role in steering the economy toward its own priorities.¹⁰³ In a way, that demonstrated how much the Japanese

concepts such as “Total Quality” and “Zero Defects” had Soviet equivalents *and were already being tried in some Soviet enterprises*. It is worth describing passages from this manual.

In reporting the issue of quality control in factories — which, as we saw earlier, was carried out by OTKs — Omarov *et al.* suggested that this control, rather than being carried out *a posteriori* (identifying defective products and sending them back to the assembly line for repair, as in traditional Fordism), should “verify and control, not so much the articles produced *per se* but rather the technological processes, equipment used etc. [... in order to] avoid defects before they occur, to predict [...]” (Omarov *et al.*, 1964, pp. 105-106). Now, this is one of the pillars of Toyotist Total Quality, that is, predicting and avoiding errors before they (repeatedly) happen. The purpose, according to the authors of the Russian manual, was to arrive at *bezdefektnoe izgotovlenie produktsii* (“production without defects”). (*ibid.*, p.109) This would be achieved through *samokontrol'* (quality control performed by the workers themselves during production). The Russian concepts of *bezdefektnoe izgotovlenie produktsii* and *samokontrol'* correspond to the Toyotist concepts of “Zero Defects” and “quality control simultaneous to production” typical of Toyotism and demonstrate how the Soviets were aware of new techniques even in the early 1960s. And not just theoretically. According to Omarov *et al.*, at the time of publication of the manual (1964), experiments with *bezdefektnoe izgotovlenie produktsii* were being carried out “in more than 50 factories of the Volga sovmarkhoz.” (*ibid.*, p. 109)

The truth, however, is that these experiments could not be replicated in the economy as a whole. Until the mid-1980s, most Soviet factories continued, in practice, to use traditional Fordist forms of quality control at the end of the assembly line, and problems with defects persisted. (Smirnitskii *et al.*, 1987, pp. 164-166; Berliner, 1988, p. 74) In other words, the Soviets had for a long time been aware of the theoretical need to change their production paradigm in some essential ways, but failed to implement these changes *in practice*.

These reports of how the typical techniques of Toyotism had been studied by the Soviets well in advance raise the question of the difficulties of adapting the Soviet production model to the new superior paradigms of the STR era. In the 1930s, 1940s and 1950s, the Soviets were copying a Fordist pattern that actually represented what was superior in the West. Even after the 1960s, when the most efficient paradigm of Toyotism had emerged, the USSR continued to follow a basically Fordist path, not because there were no specialists and political leaders there who were aware of the strength and potential of the new flexible specialization techniques from Japan, but because of the difficulties in practically changing the production model to adapt to these new techniques. The reason for these difficulties, as we have seen previously, is that paradigms such as Toyotism, with their demands for flexibility, greater emphasis on quality than on mere quantity, and horizontal information flows, proved to be more contradictory to the core of the Soviet model than Fordism, a paradigm whose characteristics of relative rigidity, emphasis on vertical structures of information and control, etc. better matched the characteristics of the political-economic model implanted in the USSR.

¹⁰² Aoki, 1984, p. 25.

¹⁰³ It is interesting to note that in the post-war reconstruction period, the priorities set by the Japanese central government for the economy resembled the priorities set by the Soviet model in its take-off period,

government wanted to influence the market and not be merely guided by it. (Rastogi, 1995, p. 245) This exhibits certain similarities with the notion of central planning.¹⁰⁴

The idea of the above paragraph is reinforced if we take into account that the type of development nowadays requires huge concentration of resources in Research and Development (R & D). Even in capitalist countries like the United States, private market forces are not enough for this task. State investment is required, especially in the area of basic research.¹⁰⁵ Moreover, it is not enough to provide financial resources. A coherent and harmonious policy is needed if research is to be carried out also taking into account the long-term objectives of society (or state) and not just short-term objectives linked to corporate profitability. This is a consensus among most of the theorists who study R & D. (Shibata, 1984, pp. 33-35) In this respect, at least in principle, a central planning economy could have advantages over a plain market economy, linked more directly to immediate profitability.

Enhanced central government interference is a feature of the modern economy itself. Despite the ideological battle waged in the 1980s with proponents of the deregulated market and small government (Reagan, Thatcher, the Chicago School, etc.), the truth is that in most countries central government interference has become standard practice. (Kornai, 1979, v. 2, p.1003)

In concrete terms of the STR, the more flexible paradigm (Toyotism) realized its potentialities in close collaboration with the central government of Japan. There, the ministries involved in planning, finance and production have always had a conspicuous coordinating (sometimes even interventionist) role.¹⁰⁶ Japanese development was

even showing some fundamental differences with the classic Western development recipes. According to Minami:

The industrial policies adopted by MITI [Ministry of Industry and International Trade] in the mid-1950s were designed to make heavy and chemical industry the leading sector of economic development. The choice of these industries was incongruent with classical economic theory that labor-intensive industries are more advantageous than capital-intensive industries (such as heavy industry and chemistry) in a society that possesses abundance of labor and lack of capital. (Minami, 1994, p. 122)

¹⁰⁴ However, these similarities should also not be overestimated. Even though the Japanese government tries to influence the market (including “gentlemen’s agreements” with the big business conglomerates), it does so within the instruments of classical economic policies of capitalism, not trying to substitute the market by plan. (Rastogi, 1995, p. 244)

¹⁰⁵ In the USA, for example, government is traditionally responsible for about half of all R & D spending in the country. From 1981 to 1989, the U.S. government invested \$ 485.8 million in R & D directly (including research expenditures at public universities), while the entire private sector contributed \$ 495,450 million. (OECD, 1991b, p. 337) In the 1970s (1970-79) the proportion of government spending had been even higher (55% versus 43% of the private sector). (OECD, 1984b, p. 77) The total influence of government in the field of research is not covered by these figures. They do not demonstrate the effect of fiscal incentives on private research, nor the central role of government in developing research in the less profitable but essential fields of fundamental research.

¹⁰⁶ The constant interaction between government and business in Japan, with the former having the central coordinating (sometimes even interventionist) role in the economy, was given the name of “administrative guidance” in the specialized literature. This practice (institutionalized, but often functioning through informal channels of communication, rather than necessarily being regulated by laws and decrees) was thus described by Ackley and Ishi:

Essentially, “administrative guidance” involves the use of influence, advice, and persuasion to get firms or individuals to behave in the way the government

leveraged by a strategy of close collaboration between private companies and MITI (Ministry of Industry and International Trade).¹⁰⁷ The assertion that Japanese development was under the aegis of national economic plans would not be far from the truth.¹⁰⁸ The elements of planning were strongly linked to the success of the model.

sees fit. Naturally, persuasion is exercised [...] by government officials who have the power to grant or deny loans, subsidies, licenses, government contracts, import permits, foreign exchange, cartel approval and other desirable (or undesirable) objectives [...] But it is not correct to think of “administrative guidance” solely in terms of “carrots and sticks” manipulation. In fact, the Japanese tradition of private submission to government leadership and the widespread recognition that state employees have more knowledge, experience and information than is available to ordinary businesses, as well as the sharing of values, beliefs and political preferences by both government officials and business leaders, all contribute to the success of the method. (Ackley & Ishi, 1976, pp. 236-237)

Shigeto Tsuru cites examples of the ways this “administrative guidance” is exercised:

1. Administrative guidance without intermediaries by the Ministry of Industry and International Trade [MITI], as in the case of the cement industry [...]
2. Establishment of a special subcommittee in the Industrial Funds Committee of the MITI Industrial Structure Council, as in the case of the steel industry.
3. Coordination through discussion at *ad hoc* bilateral meetings of government officials and business leaders, as in the case of the petrochemical, timber and synthetic fibers industries.
4. Granting of licenses to expand [productive] capacity based on specific laws, such as in the case of electric power generation and petroleum refining. (Tsuru, 1993, pp. 97-98)

¹⁰⁷ P. N. Rastogi, author of several publications on the Japanese model, describes the Japanese development system:

A crucial role in raising the country’s industrial economy to its current position of superiority was that of MITI (Ministry of Industry and International Trade). MITI has created an “administrative cartel” to regulate competition and coordinate investments between companies in the industry [...] Thus, Japan’s industrial standard can be considered as a regulated market economy [...] Due to the close co-operation and coordinated implementation of government policies among firms, unions, banks, trading and the bureaucracy, the country’s functioning is often compared to that of a single, gigantic company: “Japan Inc.” (Rastogi, 1995, pp. 244-245)

¹⁰⁸ From 1956 to 1985, Japan had 9 national development plans that were prepared by the Economic Council subordinate to the Prime Minister. It established growth rates and other macroeconomic indices of production to be achieved. The plans were prepared with the participation of the Economic Council, a government consultative body that has representatives of large companies, politicians, and some representatives of trade unions, the academic community and civil society. According to Aoki, the objectives of the national plans have a great influence on the behavior of large individual companies, serving as a reference for the establishment of their own production plans, within the traditional scheme of intimate cooperation between large enterprises and central government.

Forecasts on macroeconomic growth rates are competitively made by the private sector as well, and the forecasts by the Economic Planning Agency are not always considered reasonable by all companies. However, the formal and informal exchange of information between the government and the private sector in the course of the planning process, as well as the announcement of the planned final indicators constitute an important communication process within the economy that helps to form the general state of economic expectations [...] Overall, what matters is not whether the forecast will be realized, but rather that a single indicator of macroeconomic forecasting is proposed to serve as a frame of reference for individual firms’ investment plans. (Aoki, 1984, pp. 32-36)

Theoretically, then, central planning could turn out to be a comparative Soviet advantage in the field of economics in general, and in R & D in particular.

The Toyotist characteristics of *cooperation* (of workers, management and workers, and relations with subcontractors) would also have a “natural ally” in a planned economy. Theoretically, where should one have a greater degree of cooperation than in a centrally planned economy, where all (or almost all) components function (or should function) according to a predefined coordinated scheme?

One could even say that most aspects of the Toyotist model could theoretically also be incorporated by a central planning model (or at least not a priori be incompatible with its essence): despecialization of tasks (= polyvalence of workers), shared times (assignment of modular and variable tasks), quality control simultaneous with production, greater involvement of workers in the organization of production, emphasis on total quality and cooperation. These are aspects that could theoretically also be incorporated by a central planning model.

As we see, the incompatibility between a centralized planning model and many of the principles of Toyotism, at least at the level of theoretical abstraction, is not so obvious. Some aspects of this (cooperation, greater involvement of the worker in production) would seem to be even more intrinsically linked to central planning than to a free market economy. In practice, even these characteristics proved difficult to suit the Stalinist (and post-Stalinist) “actually existing” Soviet model of central planning. Why was this so? Why has the Soviet model been unable to adapt to the needs of higher production paradigms? Why did it fail to transform itself into a more flexible central planning that would allow greater participation of workers and better use of the new technologies of the Third Industrial Revolution?

To answer these questions, we need to analyze the nature of the Soviet model, its origins and its insertion in the World Economy.

6. THE NATURE OF THE SOVIET MODEL AND ITS ORIGINS

6.1 CONCEPTS ON THE NATURE OF THE SOVIET MODEL

That capitalism is a contradictory system and subject to instabilities is a point on which the overwhelming majority of scholars agree. The bone of contention is about the depth of such contradictions and their consequences for the survival of this social formation. In the second half of the nineteenth century there was a great debate between Marxism and the so-called “bourgeois political economy.” For the latter, capitalism was self-reforming, capable of managing its internal conflicts and surviving *ad eternum* through adaptations. For Marx’s followers, the contradictions within the system were so great that they would, sooner or later, lead to its destruction and replacement by socialism.

We will use some Marxist concepts to investigate the events in the final period of the Soviet Union “from within,” that is, regarding the USSR as a link in the historical transition from capitalism to socialism.¹⁰⁹

To understand what happened to the USSR during and after the whirlwind of perestroika, we must first understand what it was before. The first question that arises, then, is about the nature of the Soviet system. After all, could one classify it as socialist?

Departing from the simple and direct definition of socialism as a formation in which the means of production are socialized rather than private, there is a strong initial tendency to qualify the former USSR as socialist. After all, the overwhelming majority of the means of production were in the hands of the state — which, in the absence of private owners, claimed its status as representative of the interests of the community.

Taking into account Marx’s words in the preface to *A Contribution to the Critique of Political Economy* (“In broad outlines Asiatic, ancient, feudal, and modern bourgeois modes of production may be designated as progressive epochs in the economic development of society”),¹¹⁰ it would seem that the Soviet Union was really the beginning of the socialist society that would replace the capitalist one.

¹⁰⁹ It is important to note that this description of Marx’s social history of humanity (originating in primitive communism, going through the ancient, feudal, and capitalist modes of production ending up in [scientific] communism again) is not necessarily teleological, as some critics of the German philosopher had it. Communism was not an *a priori* direction towards which all past history of mankind was guided. In studying the internal and intrinsic contradictions of capitalism, Marx came to the conclusion (*a posteriori*) that these contradictions would lead to the specific direction of ending the anarchy of that mode of production. This direction (about which he made only general considerations, not trying to create detailed speculative schemes of the future society) he called *communism* (whose first lower stage would later be called *socialism* by Lenin).

¹¹⁰ Marx, 1961-1971a, p. 9.

However, we should recall another passage from the same preface:

A social order never perishes before all the productive forces for which it is broadly sufficient have been developed, and new superior relations of production never replace older ones before the material conditions for their existence have matured within the womb of the old society. (Marx, 1961-1971a, p. 9)

This passage draws attention to the fact that, according to Marx, the elevation of the level of productive forces played a central role in historical development. The mere socialization of the means of production would not alone suffice to characterize socialism, as Trotsky has noted:

[...] for the Marxist [...] this question is not exhausted by a consideration of forms of property regardless of the achieved productivity of labor. By the lowest stage of communism Marx meant, at any rate, a society which from the very beginning stands higher in its economic development than the most advanced capitalism. (Trotskii, 1936, p. 61)

Thus it would not be possible to create a fully socialist structure on a productive basis inferior to the bourgeois system,¹¹¹ for then socialism would be in charge of tasks which better fit capitalism and repeat much of its features.

Marx's main idea was that the socialist revolution would come from the advanced capitalist nations and therefore would inherit the level of their productive basis, and later build on it. The German philosopher had also contemplated the possibility that the revolution might first erupt in more backward countries, such as tsarist Russia, but linked the success of this first revolt to the need for subsequent revolutions in the more advanced regions.¹¹²

¹¹¹ Engels also strongly emphasized that the aim of the communist movement was not merely to create a classless society (after all, primitive communism was also a classless society...) but to create a classless society that was at a productively higher level than capitalism, to get out of the realm of necessity and into the realm of abundance for all. Thus, in the article "On the Social Movement in Russia" (1875), in which he even discussed the possibility of revolution in that country, Engels (1961-1971a, pp. 556-557) stated:

The revolution that modern socialism strives to achieve is, briefly, the victory of the proletariat over the bourgeoisie and the establishment of a new organisation of society by the destruction of all class distinctions. [...] Among savages and semi-savages there likewise often exist no class distinctions, and every people has passed through such a state. It could not occur to us to re-establish this state, for the simple reason that class distinctions necessarily emerge from it as the social productive forces develop. Only at a certain level of development of these social productive forces, even a very high level for our modern conditions, does it become possible to raise production to such an extent that the abolition of class distinctions can constitute real progress, can be lasting without bringing about stagnation or even decline in the mode of social production.

¹¹² On the possibility of revolution in backward Russia, Marx (together with Engels) wrote in the preface to the 1882 Russian edition of the *Communist Manifesto*:

If the Russian Revolution becomes the signal for a proletarian revolution in the West, so that both complement each other, the present Russian common

What would be the regime created by the Bolsheviks then? According to Trotsky,

The Soviet Union is a contradictory society halfway between capitalism and socialism, in which: (a) the productive forces are still far from adequate to give the state property a socialist character; (b) the tendency toward primitive accumulation created by want breaks out through innumerable pores of the planned economy; (c) norms of distribution preserving a bourgeois character lie at the basis of a new differentiation of society; (d) the economic growth, while slowly bettering the situation of the toilers, promotes a swift formation of privileged strata; (e) exploiting the social antagonisms, a bureaucracy has converted itself into an uncontrolled caste alien to socialism; (f) the social revolution, betrayed by the ruling party, still exists in property relations and in the consciousness of the toiling masses; (g) a further development of the accumulating contradictions can as well lead to socialism as back to capitalism; (h) on the road to capitalism the counterrevolution would have to break the resistance of the workers; (i) on the road to socialism the workers would have to overthrow the bureaucracy. In the last analysis, the question will be decided by a struggle of living social forces, both on the national and the world arena. (Trotskii, 1936, p. 287-288)

ownership of land may serve as the starting point for a communist development. (Marx & Engels, 1961-1971b, p. 576)

Or Engels' most direct statement in the question-and-answer text *The Principles of Communism*:

[question 19]: Will it be possible for [...] revolution to take place in one country alone?

[answer] No. By creating the world market, big industry has already brought all the peoples of the Earth, and especially the civilized peoples, into such close relation with one another that none is independent of what happens to the others. (Engels, 1961-1971, p. 374)

Similar idea, although formulated at a more general and theoretical level, is found in *The German Ideology*, written jointly by Marx and Engels. When referring to the prerequisites for overcoming the phenomenon of alienation (*entfremdung*) through communism, the authors emphasized that:

[...] a great increase in productive power [...] is an absolutely necessary practical premise because without it want is merely made general, and with destitution the struggle for necessities and all the old filthy business would necessarily be reproduced; and furthermore, because only with this universal development of productive forces is a universal intercourse between men established, which produces in all nations simultaneously the phenomenon of the "propertyless" mass (universal competition), makes each nation dependent on the revolutions of the others, and finally has put world-historical, empirically universal individuals in place of local ones. Without this, (1) communism could only exist as a local event; (2) the forces of intercourse themselves could not have developed as universal, hence intolerable powers: they would have remained home-bred conditions surrounded by superstition; and (3) each extension of intercourse would abolish local communism. Empirically, communism is only possible as the act of the dominant peoples "all at once" and simultaneously, which presupposes the universal development of productive forces and the world intercourse bound up with communism. (Marx & Engels, 1961-1971d, pp. 34-35)

What prevented the USSR from being socialist was not the problem of property relations but the problem of the level of development of the productive forces.¹¹³ The revolution, taking place in a relatively backward country like tsarist Russia, would need the outbreak of revolutions in more advanced countries. Since after 1917 these did not occur, Bolshevik Russia was isolated in its economic backwardness and, to survive, used repressive mechanisms to raise her level of development.

Thus, our theoretical framework shares the view of those who regarded the USSR as a “proto-socialist” (Bahro)¹¹⁴ or “transitional” society between capitalism and socialism (Troskii)¹¹⁵. Our position is due to the problem of the level of development of the productive forces set out above and also to the question of democracy (did state-owned property, under Soviet conditions, really mean socialized property?).

Our analysis of perestroika is based on this notion of the USSR as a “proto-socialist” or “transitional” society. We tried to analyze which processes were at play in that country within the larger Marxist context of the passage (or confrontation) between capitalism and socialism.¹¹⁶

¹¹³ It is interesting to note that this “economic-technological” bias present in Marx and (strongly) in Trotsky is also found in several Bolshevik writings, including Lenin’s and Stalin’s. Although they do not place the existence of socialism in itself unidirectionally dependent on the development of productive forces, in several passages both emphasize that this development is an essential condition for at least the final victory of socialism over capitalism. For example, in his 1919 text “A Great Beginning: Heroism of the Workers in the Rear (Concerning Communist Subbotniks),” Lenin wrote:

In the last analysis, productivity of labour is the most important, the principal thing for the victory of the new social system. Capitalism created a productivity of labour unknown under serfdom. Capitalism can be utterly vanquished, and will be utterly vanquished by socialism creating a new and much higher productivity of labour. (Lenin, 1967-1970h, p. 21)

Stalin, in his 1929 article “Year of the Great Transformation: On the Twelfth Anniversary of the October Revolution,” quoted Lenin’s passage above adding that:

[...] only the labour enthusiasm and zeal of the vast masses can guarantee that progressive increase of labour productivity without which the final victory of socialism over capitalism in our country is inconceivable. (Stalin, 1946-1951c, p. 120)

¹¹⁴ According to Bahro (1980, p.21),

It is not justified to call them [the countries of actually existing socialism] even “pre-socialist” (by analogy with the first phase of the capitalist epoch.) Pre-capitalism already contained in itself the fundamental germs of the capitalist social formation as it shows itself in its advanced stages, whereas [in the countries of actually existing socialism] socialization, which is a defining characteristic of socialism, remains totally masked in the form of “statism.” The most appropriate term would be that of “proto-socialist,” that is, [in them] socialism is still at an embryonic stage.

¹¹⁵ “It would be truer, therefore, to name the present Soviet regime in all its contradictoriness, not a socialist regime, but a preparatory regime transitional from capitalism to socialism.” (Troskii, 1936, p. 62).

Trotsky’s position seems to us more in keeping with the Soviet reality than the position of R. Bahro expounded in the note above. We agree with Bahro when he says that socialism in the USSR was “in an embryonic state.” We disagree with his position on the nationalization of the means of production of the USSR, contrasted with a “true” socialization of these means of production. We believe that, within the historical conditions of capitalism in the twentieth century, nationalization, carried out in a revolutionary context of alternative opposition to private capitalist property, is one of the presuppositions or stages necessary to reach a true (radical and democratic) socialization of the means of production.

¹¹⁶ We have placed this position in contrast to the currents that Kevin Kelly (1985, pp. 51-71) identified as being heir to the original conceptions by Kautski and Stalin, that is, those who regard the Soviet system

The considerations above about the discrepancy between the social relations of production (formally already socialized) and the relatively low level of development of the productive forces may constitute a first step in the investigation of what processes like perestroika represent. After all, Marx himself had always pointed out that the conflict between the social relations of production and the productive forces was the signal for the necessity of a social revolution. If we start from a position of the USSR as “proto-socialist,” but with this kind of internal contradiction, there is potential for social convulsion. Would perestroika fit into this picture?

To answer this question we need to use one more Marxist concept: that of permanent revolution. According to it, the revolution cannot stop in just one country. Especially if the first country to revolutionize is economically backward, the revolt would have to spread to the advanced nations under penalty of being repressed or degenerate.

The concept comes from Marx and Engels. In giving directives to the communist strategy in Germany, they wrote:

While the democratic petty bourgeois want to bring the revolution to an end as quickly as possible [...] it is our interest and our task to make the revolution permanent until all the more or less propertied classes have been driven from their ruling positions, until the proletariat has conquered state power and until the association of the proletarians has progressed sufficiently far — not only in one country but in all the leading countries of the world — that competition between the proletarians of these countries ceases and at least the decisive forces of production are concentrated in the hands of the workers [...] Their battle-cry must be: *The Revolution in Permanence!* (Marx & Engels, 1961-1971a, pp. 245-248 e 254)

In the twentieth century, Troskii was the one who most propagandized the concept of *permanent revolution*. Contrary to the Stalinist theory that a long-term occurrence of “socialism in one country” was possible, Trotsky preached that for its own survival (especially if it occurred in a backward country), the revolution would have to spread worldwide until the complete extinction of class society.

The permanent revolution, in the sense which Marx attached to this concept, means a revolution which [...] can end only in the complete liquidation of class society. [...] it is necessary to distinguish three lines of thought that are united in this theory. First, it embraces the problem of the transition from the democratic revolution to the socialist [...] The second aspect of the “permanent” theory has to do with the socialist revolution as such. For an indefinitely long time and in constant internal struggle, all social relations undergo transformation. Society keeps on changing its skin. Each stage of transformation stems directly from the preceding. This process necessarily retains a political character, that is, it develops

either as a form of state capitalism (in the wake of Kautsky’s suspicions) or as definitely socialist (following Stalin).

through collisions between various groups in the society which is in transformation. Outbreaks of civil war and foreign wars alternate with periods of “peaceful” reform. Revolutions in economy, technique, science, the family, morals and everyday life develop in complex reciprocal action and do not allow society to achieve equilibrium. Therein lies the permanent character of the socialist revolution as such. The international character of the socialist revolution, which constitutes the third aspect of the theory of the permanent revolution, flows from the present state of the economy and the social structure of humanity. Internationalism is no abstract principle but a theoretical and political reflection of the character of world economy, of the world development of productive forces and the world scale of the class struggle. The socialist revolution begins on national foundations — but it cannot be completed within these foundations. The maintenance of the proletarian revolution within a national framework can only be a provisional state of affairs, even though, as the experience of the Soviet Union shows, one of long duration. In an isolated proletarian dictatorship, the internal and external contradictions grow inevitably along with the successes achieved. If it remains isolated, the proletarian state must finally fall victim to these contradictions. The way out for it lies only in the victory of the proletariat of the advanced countries. Viewed from this standpoint, a national revolution is not a self-contained whole; it is only a link in the international chain. The international revolution constitutes a permanent process, despite temporary declines and ebbs. (Trotskii, 1972, p. 40-44)

This theoretical position emphasizes the existence of a World Economy. It would not then be a question of some socialist countries struggling against some capitalist countries, but of a single *locus*, the World System, in which capitalism and the embryos of socialism battle for life. (Kelly, 1985, p. 60)

This is conceptually different from the traditional positions of two systems coexisting together for a long time. What would exist, then, would not be two hermetic systems, but a single arena: the *World System* still hegemonized by capitalism, but with the emergence of embryos of socialism. The victory of socialism would be assured, not with the outbreak of isolated revolutions in several countries, but when socialism became hegemonic on a worldwide scale.¹¹⁷

¹¹⁷ This is not to say that the theory of permanent revolution affirms the existence of homogeneous capitalism and its absolute domination over the world economy. On the contrary, the notion of the law of unequal development is an integral part of it. According to this, different parts of the world are at different stages of development of modes of production. Capitalism (dominant) brings with it tendencies to homogenization (aspects of the more advanced societies are transferred to the most backward, etc.). But inequality continues, as evidenced by the occurrence of countries that combine the existence of a capitalist industrialization with pre-capitalist forms of production in other areas of the economy. The historical process flows with jumps, combining the existence of the old and the modern. This interconnection makes possible even the outbreak of a socialist revolution first in a relatively less advanced country (with capitalist elements merged with other elements), but makes it necessary to complement it with revolutions

This concept of the world economy as a single arena, the parts of which are intrinsically linked, is important to understand why the Soviet Union could not continue to fall indefinitely in the technological race with the West from the 1960s and 1970s onward. The fate of her proto-socialist format was intrinsically linked to her relation to the still hegemonic capitalist regime at the international level and to the remnants of capitalism (or other modes of production) in her own internal structure. From her beginnings,¹¹⁸ the USSR placed herself in a position of constant competition with

in the advanced countries so that the the initial level of the socialist revolution is, on a worldwide scale, from the beginning, equal or superior to that of the advanced capitalist nations. (Trotsky, 1932, vol. 1, pp. 5-6; Trotsky, 1936, p. 61)

¹¹⁸ In 1917, in his pamphlet *The Impending Catastrophe and How to Fight It*, Lenin stated:

The revolution broke out in Russia earlier than in other countries. The revolution has resulted in Russia catching up with the advanced countries in a few months, as far as her political system is concerned. But that is not enough. The war is inexorable; it puts the alternative with ruthless severity: either perish or overtake and outstrip the advanced countries economically as well. [...] Perish or forge full steam ahead. That is the alternative put by history. (Lenin, 1967-1970e, p. 198)

Stalin also emphasized that the fate of the USSR was intrinsically linked to the results of her performance *vis-à-vis* the advanced West. For example, in his 1933 report *The Results of the First Five-Year Plan*, commenting on the policies employed to launch the process of industrialization in the 1930s, he stated:

Was the Party right in pursuing the policy of accelerating development to the utmost?

Yes, it was absolutely right.

It was necessary to urge forward a country which was a hundred years behindhand and which was faced with mortal danger because of its backwardness. Only in this way was it possible to enable the country quickly to re-equip itself on the basis of modern technique and to emerge on to the high road at last. Furthermore, we could not know just when the imperialists would attack the U.S.S.R. and interrupt our work of construction; but that they might attack us at any moment, taking advantage of the technical and economic weakness of our country—of that there could be no doubt. That is why the Party was obliged to spur the country on, so as not to lose time, so as to make the utmost use of the respite and to create in the U.S.S.R. the basis of industrialisation which is the foundation of its might. The Party could not afford to wait and manoeuvre; it had to pursue the policy of accelerating development to the utmost.

Finally, the Party had to put an end, in the shortest possible space of time, to the weakness of the country in the sphere of defence [...] (Stalin, 1946-1951f, pp. 183-184)

This mentality that the fate of the USSR was inextricably linked to its performance in the field of competition, mainly economic, with the capitalist system permeated the thinking of the Soviets and found expression in various documents of the party. Thus, in 1961, when the XXII Congress of the CPSU established a program that provided for the transition from socialism to communism in the USSR in 20 years (in chronological terms), it was stated in the adopted resolution:

The Soviet Union has already surpassed the most advanced capitalist country, the United States, not only in terms of rates of relative growth but also of absolute growth of industrial production [...] Fulfilling the seven-year plan will lead the Soviet Union to such a time that it will not take long to surpass the USA also in *per capita* production. This will be the world historical victory of socialism over capitalism. (KPSS, 1983-1989h, p. 68)

The very passage from socialism to communism, a process in principle internal to the USSR (within the vision of the construction of “socialism in one country”) was often defined in comparative terms to the advanced capitalist field in the resolutions of the XXII Congress:

capitalism, first to catch up with it and then to wrench from it the hegemony of the World System. At the ideological level (as the mode of production that would prove to be the one that best meets the needs of its population) and also at the level of the military and economic rivalry, the USSR could not allow herself to fall further in the technological and economic competition with the advanced West in the mid-1980s. Since its inception, the *raison d'être* of the Soviet regime was to overthrow capitalism. Therefore, any possibility of non-reform of the system by the mid-1980s was excluded.¹¹⁹ For the USSR, within the above-mentioned view, it was excluded to isolate, to avoid any attempt at reform and to continue to slowly fall in the technological competition with the West.¹²⁰

The main economic task of the party and the Soviet people consists in the foundation of the material and technical basis of communism in a period of twenty years [...] In this way, the communist society will be built in general lines in the USSR [...]] The creation of the material and technical basis of communism [...] requires the development of heavy industry. The other industrial branches will be re-equipped based on it [...] From this point of view, the CPSU determines to increase the volume of industrial production [...] by at least six times in twenty years, well ahead of the general levels of US industrial production [...] (KPSS, 1983-1989h, pp. 128-130)

As we see, the mentality of the Soviet leaders, consciously or unconsciously, has always been permeated by the notion that the development of their country would depend on their relations, mainly economic, with the capitalist camp. There seemed to be a series of concentric circles in which the core of the development of the Soviet camp was seen, first in economic competition with the West, and within this economic field the role of industry was emphasized as a decisive factor. In Stalin's own quotation above, he puts the industrial base as the foundation of all power (including military) of the USSR. Therefore, in analyzing perestroika, we emphasize the technological question, which, from the 1960s onward, with the weakening of the extensive factors of economic growth, became crucial to determine Soviet industrial development, and from there (within the logic of its leaders), the development of other aspects (political, social, etc.) of the country's life.

¹¹⁹ For a literal statement by Soviet leaders that in the mid-1980s a system reform had become "not only necessary but inevitable," see Gorbachev (1988, p.17).

¹²⁰ It can be argued that in the Stalinist period the relatively successful strategy was precisely this: to isolate itself from the capitalist economy, to try to develop through autarchy. Paradoxical as it may seem, in our view, this does not invalidate the thesis of the permanent revolution. In using the strategy of closing itself within the USSR, attempting to develop socialism there through "forced" industrialization, Stalin never lost sight of the notion that the survival and development of socialism toward communism in the long run, would depend on their performance in the battle against the capitalist camp. The relative autarchy desired by Stalin could be seen as a tactic for victories in the World System arena in the future. And what brought about the permanence of this "semi-autarchic" Stalinist system for many years was exactly its efficiency in the competition with the advanced West. During the Stalinist era, and up to the 1960s, the Soviet regime was able to maintain this type of development, apparently autarkic and parallel to the capitalist camp, because this strategy made possible a great development of Soviet industry, even in relation to the capitalist field. Until the 1960s, the productivity growth rates of Soviet industry were higher than those of most advanced capitalist countries. From the time (late 1960s and early mid-1970s) when economic growth and productivity growth declined relative to the capitalist camp, the situation changed and there appeared the need for change in the strategy.

What we want to draw attention to here is that these needs for change were made pressing since the mid-1970s not so directly because of the internal situation of the USSR — which, even in the 1980s, had growth rates similar to those of USA — but because of the comparative situation of the USSR in the competition with capitalism (in a struggle for World System hegemony, the USSR, because of its lower initial position, had to grow at levels much faster than those of the capitalist camp in order to minimally catch up with it).

The concept of a World System¹²¹ of non-homogeneous parts intrinsically linked to each other gives us a theoretical framework that supports the view of perestroika as a

¹²¹ Much of our analysis of perestroika is based on the assumption that the USSR could not be examined separately from the World Economy. Thus all the transformations of the time of the Scientific-Technical Revolution in the West (the emergence of post-Fordist forms and new flexible production paradigms, the information revolution, etc.) directly affected the Soviet Union.

What bound the USSR to everything that happened abroad was not simply a system of exchanges (economic, political, ideological, etc.) between watertight compartments. In fact, to see how the interconnection between the various parts of the World System was realized at a deeper underlying level, we need to use concepts of political economy.

In *Das Kapital*, Marx demonstrated how the law of value ultimately regulates the production and circulation of commodities in the capitalist economy. Preobrazhenskii (1965), writing during the NEP period in the 1920s, described that in a revolutionary but relatively backward society such as the Soviet one under NEP, where a considerable part of the economy was already nationalized, but there was still space for private production (mainly in agriculture), a certain duality was established in the system. The private part of the economy was still regulated by the law of value, as in capitalism. However, the state part (due to the control of the means of production in the hands of the state, with the consequent prior planning of the activities) began to function according to new rules originating in the new (socialist) social formation. Studying the Soviet case, Preobrazhenskii postulated that the state sector followed what he called the *law of primitive socialist accumulation*. By this law, he understood

[...] the entire sum of conscious and semi-spontaneous tendencies in the state economy which are directed towards the expansion and consolidation of the collective organization of labour in Soviet economy [... They involve] the determination of proportions in the distribution of productive forces, formed on the basis of struggle against the law of value inside and outside the country and having as their objective task the achievement of the optimum expanded socialist reproduction in the given conditions and of the maximum defensive capacity of the whole system in conflict with capitalist commodity production [...]
(Preobrazhenskii, 1965, p. 146)

For Preobrazhenskii, the Soviet state sector tended to escape from the “dictatorship” of the law of value and to be increasingly regulated by conscious planning aimed at strengthening the expanded reproduction of the socialist production system. For example, loss-making firms, which in capitalism would be forced to close their doors, could, in the Soviet system, be kept in operation (because of their strategic value, for example). The conscious elements begin to operate at an ever-increasing level and activities will be planned in order to increase the expanded reproduction capacity of the socialist economy. In capitalism (a system without planning centers of all productive activity), the law of value, directly or indirectly, provides for the regulation of the equilibrium of the system.

Thus, in the 1920s, Preobrazhenskii saw the Soviet Union as a dual system in which the *law of value* basically regulated private sector exchanges, and the *law of primitive socialist accumulation* increasingly regulated the state sector. Obviously, the compartments were not watertight. The law of value also affected the state sector, since it bought from and sold to the national (and international) private sector. The Soviet private sector was influenced by the law of primitive socialist accumulation when the government used credit instruments to impose its priorities, etc. Basically, Preobrazhenskii then saw these two laws in intrinsic conflict with each other and hoped that, over time, and with the nationalization of ever larger parts of the economy, the law of value would lose its regulatory importance in the USSR.

After the 1930s, once agricultural collectivization and industrialization had taken place, the situation was different. While during the NEP, most of the population (the farmers) were in a private initiative mode, after the 1930s most of the economic activity was in the hands of the state. In the 1950s, when discussing a new official manual of political economy, Stalin (1952, pp. 12-22) made considerations about the operation of the law of value in the Soviet system in his book *Economic Problems of Socialism in the USSR*.

According to him, where there is commodity production, the law of value will act (Stalin, 1952, p. 18). Commodities are goods produced not for immediate use but for exchange (sale) (Marx, 1961-1971b, p. 55). Stalin (1952, pp. 16 and 18) conceded that, in the USSR, personal consumer goods circulated as

commodities. They were sold and accounted for as costs and expenditures, and not by means of a planned, direct distribution “according to needs” (for immediate use) that eliminates the intermediation of money, etc. In addition, *kolkhozy* (collective farms) were not state property — such as the *sovkhkozy* (state farms, where the peasants were direct government employees) — but agricultural cooperatives. Members of the *kolkhozy* produced goods hoping, through the sale of food, to obtain the highest possible profit, which should be divided among the cooperators. This is not to mention the sale in the *kolkhoz* free markets of private production carried out on the personal lots to which each member of the *kolkhoz* was entitled. Stalin (1952, pp. 18 and 19) argued that the law of value “within certain limits exerts a regulatory function” in the sphere of the *circulation* of commodities, mainly consumer goods, in the USSR — this, in turn, led to the fact that this law would also have influence in the sphere of *production* of these same commodities. In areas where socialist state regulation was practically complete, for example, distribution of the means of production and of the labor force among the different sectors of the national economy, the effect of the law of value would be minimized (or even annulled), since these were functions exercised exclusively by the planning organs of the country on the basis of the operation of what the Soviet economists called “the law of harmonious and planned development of the economy.” (Nikitin, 1983, p. 312).

Stalin, in his 1952 book, made a point of emphasizing that the existence of commodity production in the USSR did not mean the danger of a capitalist restoration:

Commodity production is older than capitalist production. It existed in slave-owning society, and [...] in feudal society. Capitalist production is the highest form of commodity production. Commodity production leads to capitalism only if there is private ownership of the means of production, if labour power appears in the market as a commodity which can be bought by the capitalist and exploited in the process of production [...] (Stalin, 1952, pp. 15-16)

The existence of circulation and commodity production in key sectors showed how the law of value still exerted influence within the USSR. And it is precisely through the “bridge” of this common underlying channel between the USSR and the rest of the World Economy that the interconnection between the fields of capitalist countries and those of the so-called actually existing socialist camp is to be understood. Directly or indirectly, the law of value regulated the functioning of distinctly capitalist economies and influenced, in key fields, the functioning of the actually existing socialist countries. No matter how much Stalin and other Soviet writers tried to emphasize the limitations of the value law in the economy of the USSR, the fact that the development of productive forces (“ultimately the level of labor productivity”) was lower in the Soviet Union than in advanced capitalist countries had direct consequences on the correlation of forces of regulation of the world economy as a whole (and in its different constituent parts). The value of goods produced in the more advanced, more productive economies ultimately establishes the basic parameters by which the realization of the values of goods produced elsewhere will be guided. However much the Soviet Union tried, through economic autarchy, to avoid the direct influence of foreign goods on its internal market, its position of competition with the West forced it to adapt and try to achieve the superior productivity conditions of the advanced West. In fact, a certain vicious circle gripped the USSR. With lower labor productivity than the advanced West, it was unable to achieve total autarky and domination by the (socialized) state sector of the economy as a whole. And, without this advancement of the state sector over the remnants of commodity production in its economy (so that the law of value was superseded by the new laws of “conscious” socialist regulation of production), the law of value continued to influence important sectors of the economy, preventing the country from achieving a full degree of socialization and leaving it vulnerable to partial regulation by goods produced elsewhere in the world economy.

This is the explanation, in terms of political economy, why we should not see the actually existing socialist countries and the rest of the capitalist countries as two watertight blocs in competition with each other. The World Economy established a single *locus*, still hegemonized by capitalism but rather heterogeneous, containing elements of other modes of production (pre-capitalist forms still survived in parts of some backward countries, “embryos” of socialism could be found in the camp of the actually existing socialist countries etc.). But precisely because this was a *locus* common to all these different formations, none of them could be seen in a totally separate way from one another. Hence the fact that developments in the capitalist economy during the period of the Scientific-Technical Revolution had consequences also in the sphere of the actually existing socialist countries. Therefore, perestroika must be analyzed within the context of the World System as a whole.

process (in a part of the World Economy) that was itself embedded in the context of the Scientific-Technical Revolution (STR). The STR would then be a development of the World Economy that had different consequences in different parts of it (*i.e.*, parts with uneven levels of development of the modes of production): in the “proto-socialist” part (*i.e.*, in the actually existing socialist countries), it eventually ended up in a disintegrating perestroika, while in the advanced capitalist countries it also created elements of pressure, such as excessive concentration of income, increase of worldwide unemployment, and so on.

Robert Kurz in his book *The Collapse of Modernization* presented a conception with some points in common with ours. According to him, the melancholic end of perestroika, with the disintegration of Eastern European countries, was not a simple victory of capitalism over “actually existing socialism.” Kurz called this global process “crisis of the commodity-producing world system.” This crisis had already hit the countries of the Third World in the early 1980s, engulfed the old Second World in the late 1980s and early 1990s and moved dangerously toward the heart of central capitalist economies in the form of rising unemployment, concentration of income, impoverishment of the old middle classes of the population and an imminent crisis of the external debt. (Kurz, 1993, pp. 206-213)

Although we do not agree in every detail with the overly nihilistic tone of Kurz’s analysis, we believe that it touches on a fundamental point: that the Eastern European crisis did not affect only that part of the world but was an aspect of a more global crisis of the World Economy (Kurz’s *warenproduzierende Weltsystem* or “commodity-producing world system”). And this crisis is closely related to the occurrence of the STR, especially since the 1960s. We have already seen that, since that decade, the growth rates of the USSR (and of the actually existing socialist countries in general) had been falling. But it was not only in the realm of actually existing socialism that STR was causing difficulties. In the advanced capitalist countries themselves, growth rates had declined since the 1960s. As we can see in Table 3.1 of Appendix 3, the Japanese economy, which grew at an annual rate of 10.4% in the period 1960-69, grew by 4.7% in 1970-79 and 3.9% in 1981-85. Likewise, the U.S. grew annually by 4.3% in 1960-70, but 3.2% in 1970-79 and 3.0% in 1981-85. Worse still, rates of productivity growth in capitalist countries themselves declined after the 1970s (see table 7.2 in Appendix 7). Thus, even within capitalism, there is a contradiction between the enormous potential technological increase that the STR makes available to the system and the capacity of the system (market) to absorb and utilize this potential. The STR involves investments in expensive technologies. This increases the concentration of wealth in oligopolies and in central countries, sidelining backward sectors of production and causing unemployment. This concentration of income, however, creates a contradiction between the potential production capacity and the demand that will actually exist for these products.

In this sense, it can be said that this “Third Technological Revolution” really had a “revolutionary” character (in Marxist terms). It caused the disintegration of a new (proto-socialist) mode of production that was being “forced to the limits” and made the capitalist system go through a real test of resistance, as it elevated technological competition and increased the levels of income concentration, unemployment and poverty (even in the central powers) in its heyday in the two decades after the 1960s. It is in this sense that we see Kurz’s interesting contribution to the perestroika debate, shifting the focus of

discourse from the mere constataion of the “victory” of one social system over another to the debate of a larger problem in a planetary scale.

It is interesting to note that such a historical development of the forces and relations of production within the fields of the capitalist and actually existing socialist countries had been envisaged as a possibility by none other than Stalin (author who starts off from a theoretical framework quite different from that of Kurz’s). In his 1952 book, *Economic Problems of Socialism in the USSR*, the Soviet leader, after reaffirming that socialism in general had already been achieved in the Soviet Union, criticized Yaroshenko for considering that the future harmonious development of forces (and relations) of production would be automatically guaranteed by the fact that they have entered this new phase. He claims that, even in socialism, relations of production may conflict with the productive forces.

Comrade Yaroshenko is mistaken when he asserts that there is no contradiction between the relations of production and the productive forces of society under socialism. Of course, our present relations of production are in a period when they fully conform to the growth of the productive forces and help to advance them at seven-league strides. But it would be wrong to rest easy at that and to think that there are no contradictions between our productive forces and the relations of production. There certainly are, and will be, contradictions, seeing that the development of the relations of production lags, and will lag, behind the development of the productive forces. Given a correct policy on the part of the directing bodies, these contradictions cannot grow into antagonisms, and there is no chance of matters coming to a conflict between the relations of production and the productive forces of society. It would be a different matter if we were to conduct a wrong policy [...] In that case conflict would be inevitable, and our relations of production might become a serious brake on the further development of the productive forces. The task of the directing bodies is therefore promptly to discern incipient contradictions, and to take timely measures to resolve them by adapting the relations of production to the growth of the productive forces. This, above all, concerns such economic factors as group, or collective-farm, property and commodity circulation. At present, of course, these factors are being successfully utilized by us for the promotion of the socialist economy, and they are of undeniable benefit to our society. It is undeniable, too, that they will be of benefit also in the near future. But it would be unpardonable blindness not to see at the same time that these factors are already beginning to hamper the powerful development of our productive forces, since they create obstacles to the full extension of government planning to the whole of the national economy, especially agriculture. There is no doubt that these factors will hamper the continued growth of the productive forces of our country more and more as time goes on. The task, therefore, is to

eliminate these contradictions by gradually converting collective-farm property into public property, and by introducing — also gradually — products-exchange in place of commodity circulation (Stalin, 1952, p. 52)

In the quotation above, Stalin had basically in mind the *kolkhozy* and the question of the ownership and circulation of commodities, but the concept set out in the first paragraph (that is, that the possibility that, even in socialism, relations of production will come into conflict with the productive forces), can provide an insight into what happened to the USSR in the period of the Third Technological Revolution or Scientific-Technical Revolution. Between the 1930s and 1960s, the production relations of the Soviet proto-socialist model (based on a rigid vertical hierarchical model) were basically in agreement with the development of the productive forces, not only in the USSR but, more importantly, according to the paradigm of production (Fordism) that hegemonized the most advanced part of the World Economy and which was also based on patterns of relative rigidity, vertical and hierarchical information and command flows, and so on. Within our view of the World System as a single and unifying arena, this alignment of Soviet production relations not only with the internal productive forces of the USSR but also with the more advanced part of the world's productive forces becomes extremely vital. While its labor productivity was inferior to that of the advanced West, the Soviet Union could not afford to lose sight of the most productive paradigm of the world system: as we saw earlier, however much Soviet leaders pursued economic autarchy, the performance of the law of value constantly confronted them with this problem. When the new flexible paradigms (Toyotism, etc.), which had been in gestation since the postwar period, bloomed and successfully challenged Fordism, the situation changed. Just as in the West a large number of enterprises (and even governments) had to make major modifications in their *modus operandi* to adapt to the flexible standards of the new era, in the Soviet economy the traditional rigid hierarchical production relations began to become incompatible with the development of productive forces both internally and globally. Internally, the model of extensive economic growth had visibly reached its limits. However, the move to an intensive model of growth (especially within the context of an already urbanized country with a high technical and educational level of the population) required an increase in the initiative from below (from the production units, regions, etc.) and not merely the obeying of orders from above. This was reiterated in several CPSU documents. (KPSS, 1983-1989i, p. 111; KPSS, 1983-1989j, p. 37; TsKhSD, f. 2, op. 1, d. 805, l. 6) At a global level, when the entire world (especially from the 1970s onward) began to study the new flexible paradigms (*e.g.*, the avalanche of Western studies about Japanese techniques in their attempt to learn the new ways), the disadvantages of rigid and vertical paradigms (such as Western Fordism or Soviet proto-socialism with Fordist characteristics) became apparent as well as the need for flexibility, initiative and creativity.

From the 1960s onward, the rigid, vertical, hierarchical relations of production of the Soviet model began to collapse progressively with the development of productive forces. Perestroika (with its emphasis on decentralization and “intensification” of the economy) was an attempt to resolve this conflict. The inability of the Soviet and CPSU leaders to resolve this mismatch within the framework of the (proto-) socialist model and

the consequent dissolution of the USSR (and the restoration of capitalism) characterized a real revolution (in this case, counterrevolution) in the Marxist sense of the term.

6.2 CONCLUSION

From the observations above, we can describe the Soviet mode of production as *proto-socialist guided in the light of Fordist principles*. These Fordist characteristics do not necessarily stem from the internal nature of the central planning system, but from the historical political-economic conditions of the world context in which the Soviet system was created.

Socialism, according to Marx, would solve the contradictions of capitalism, which would reach its maximum point of maturity — and contradictions — and would begin to deteriorate. Socialism (centralized planning) would not be appropriate to take a backward country to industrialization, which is traditionally carried out by capitalism. The regime that emerged in post-1917 Russia, owing to its isolation (the revolution did not spread to more advanced capitalist countries, as was expected at the time), according to the Stalinist model, attempted to carry out the task of industrialization within parameters of Marxist socialism (collective ownership of the means of production, central planning, etc.). Without the necessary level of development of productive forces, would these instruments be enough to develop the country within the concept that was conventionally called “socialism”? This was a theoretical doubt that would only be resolved, *a posteriori*, in practice.

The choice of the path of industrialization forced the system to absorb the Fordist characteristics of the prevailing paradigm in the World Economy and, in the absence of the economic coercive relations of capitalist private property (Joseph Berliner’s “invisible foot”), to use political coercion by the state as a substitute for the capitalist “boss.”

The Soviet model was then a “hybrid” model of transition between capitalism and socialism, with some characteristics of the two modes of production. In addition to an economy of permanent scarcity and the existence of a “black market” in it, the violence employed in forced collectivization and the political oppression necessary to keep the population disciplined for the execution of the national development tasks were signs that the level of development of the productive forces was not yet sufficient to promote a more harmonious and balanced development. These repressive mechanisms paralleled the repressive mechanisms employed by capitalism in its early stages of industrialization and development. The collective ownership of the means of production and central planning were the aspects of the system that embodied socialism there in an embryonic state. The Soviet model, as a “hybrid” system, maintained throughout its developmental years this permanent tension between its “socialist” and “capitalist” poles. In the late 1950s and early 1960s, it seemed that perhaps the socialist pole of the system might finally become dominant. The USSR had achieved high economic development in the mid-1960s, and Khrushchev had already spoken of overcoming capitalism in twenty years and moving on to communism. The STR, which had originated in the post-war period, reached full bloom from the 1970s onward. At this age of STR, Toyotism clearly proved superior to Fordism in the new conditions. The Soviet dilemma was then renewed on a higher level.

If the Soviet Union seemed to be catching up with traditional Western Fordism until the 1960s, from the 1970s onward, with the new challenges posed by the flexible paradigms, the USSR began to lag behind again in the technological race with the advanced capitalist countries, which renewed the tension between the two internal poles of the Soviet “hybrid” system.¹²² This tension was exacerbated within the process of perestroika and

¹²² Luís Fernandes, in his excellent book *URSS: Ascensão e Queda*, presented comparative data about rates of growth of production and productivity in the USSR and in several Western countries, using data from a Soviet comparative study conducted by IMEMO (Institute of World Economy and International Relations) of Moscow after the onset of perestroika.

According to B. Bolotin, industrial growth in the USSR from 1913 — when it was still tsarist Russia — up to 1950 was higher than that of any capitalist country. Soviet 1950 output was 4.5 times that of 1913 (against 3.5 from Japan, 2.9 from the USA, 2.4 from Italy, 1.5 from Great Britain and 1.4 from Germany) [...] From the point of view of industrial labor productivity growth, the USSR also had the highest rate in the period — 200% — although with a less pronounced difference in relation to capitalist countries: the rates were 185% in Japan, 180% in the USA, 195% in Italy, 115% in Great Britain and 110% in Germany. The fact that the difference in the rates of industrial labor productivity growth is lower than in the economy as a whole reveals exactly that the basic impulse for the elevation of social labor was the process of extensive industrialization [... Things change in the second half of the century] Whereas industrial production in the USSR was 10.1 times higher in 1987 than in 1950, that of Japan was 21.1 times higher. The growth of industrial production of the other capitalist powers in the period was slower: 2.5 times in the USA; 6 in Italy; 1.94 in Great Britain; and 3.9 in Germany [...] From the point of view of labor productivity growth, from 1950 to 1987, the Soviet Union, with an increase of 359%, was behind not only of Japan (968%) but also of Italy (452%) and Germany (388%); it remained ahead of the USA (210%) and of Great Britain (272%). The data for industrial labor productivity growth basically follow the same pattern. (Fernandes, 1991, pp. 263-264)

These data cited by Fernandes can be found, in their complete version, in Bolotin (1987). Some of these are also found in Appendix 4. How to evaluate these numbers? Are they not in contradiction with our claims that the USSR had lagged behind in the technological competition with the West after the 1960s? After all, the growth of labor productivity in its industry in the 1950-87 period had been greater than that of the USA!

The key to the issue is that in the 1950s (mainly) and also in the 1960s, the USSR maintained relatively high levels of growth (below only Japan). But although the STR had its initial period in the 1950s (creation of computerization), it sharpened in the 1960s (the beginning of the fusion of computing with robotics) and completed its basic framework in the 1970s (forming the “Third Revolution Industrial”) when computing and robotics were associated with generalized telematics (through microelectronics). It was precisely in the mid-1970s, when this formative cycle closed, that the economic stagnation of the USSR became apparent. After 1975 its economic growth plummeted to below 5% annually, never to rise substantially above this mark. Thus, as Fernandes (1991, p. 263) remarked, the relatively good results of the Soviet Union in the period 1950-87 are mainly explained by the 1950-75 period. According to Pitzer & Baukol (1991, p. 61), the increase in labor productivity in the USSR’s industry was larger than that of the USA in the period 1961-75 (3.5 vs. 2.9), but lower in the period 1976-82 (0.9 against 1.6). From then on the difference in favor of the United States increased even more. With these data, we want to corroborate our thesis that the deepening of the STR caused the fall in the economic indexes of the USSR. If in the 1960s and early 1970s the old (largely extensive) Soviet growth methods could still, even at a slower level, “compete” with the “Fordist” West, from the mid-1970s onward, with the height of the “Third Technological Revolution,” this became impossible. Something had to be changed in the system. Moreover, the temporal correlation above fits well with our view of the phenomena of Fordism and Toyotism within the STR. Just as the deepening of the STR marked the deepening of the problems of the Soviet model, it also recorded the supremacy of flexible paradigms (especially Toyotism) over the rigid Fordist paradigm. The 1950s represented the initial part of STR (computing); in the USSR the growth rates then were high

reached an explosive level in 1991, which ultimately lead to a disintegrative process of the system as a whole that year.

Thus, the emergence of the STR changed the course of the Soviet model from the 1960s onward. Until then the model seemed to have managed to pass through the most acute and violent phase of “forced” industrialization (the *take-off*), and reached a point when, owing to the rise in the level of the productive forces, it might be possible to move to a higher stage when the socialist elements of the system would outweigh the capitalist “remnants” and become more productive than the most efficient paradigms of the capitalist field.

Things changed in the 1970s and 1980s though. By 1985, the technological distance from the advanced capitalist countries was already so critical that it was obvious that something had to be changed. Due to the new need for *flexibility*, *information* and *quality* within the STR, it would no longer be possible to resort to a clamp-down using force, as under Stalinism. Such a closed, authoritarian system, which worked relatively well in the first half of the century, would be counterproductive because of its *rigidity*, insufficient *horizontal information flows*, and difficulty in integrating *quality*. The proto-socialist mode of production, then, could no longer remain competitive in the world arena and, during its last attempt at radical reform (perestroika), it disintegrated.

but not as high as before, while in Japan Toyotism began to take its first steps. The decade of the 1960s enlarges STR with robotics, marks the definitive formation and consolidation of Toyotism and the appearance of visible problems in the Soviet extensive model. STR reaches its relatively definitive contours in the 1970s (with telematics and microelectronics); the mid-1970s also demonstrate the undisputed productive superiority of the Toyotist paradigm over the Fordist (in this phase of the “stagnant wave” of the Third Technological Revolution). After 1975, the growth rates of the USSR economy fall below 5% per annum to never recover substantially above that mark (leaving the crisis phase of the system visible). As we have said before, it is not a matter of mere coincidence in time, but of phenomena that are interconnected.

PART TWO:
OTHER FACTORS PRESSURING THE SOVIET SYSTEM

7 THE BURDEN OF MILITARY EXPENDITURES

To slacken the tempo would mean falling behind. And those who fall behind get beaten. But we do not want to be beaten. No, we refuse to be beaten! One feature of the history of old Russia was the continual beatings she suffered because of her backwardness. She was beaten by the Mongol khans. She was beaten by the Turkish beys. She was beaten by the Swedish feudal lords. She was beaten by the Polish and Lithuanian gentry. She was beaten by the British and French capitalists. She was beaten by the Japanese barons. All beat her because of her backwardness, military backwardness, cultural backwardness, political backwardness, industrial backwardness, agricultural backwardness. They beat her because to do so was profitable and could be done with impunity. [...] It is the jungle law of capitalism. You are backward, you are weak, therefore you are wrong; hence, you can be beaten and enslaved. You are mighty, therefore you are right; hence, we must be wary of you. That is why we must no longer lag behind. [...] We are fifty or a hundred years behind the advanced countries. We must make good this distance in ten years. Either we do it, or we shall be crushed. (Stalin, 1946-1951e, p. 38-39)

Stalin's words above, spoken at a conference of industrial managers of the USSR in 1931, referred to the need to accelerate rather than diminish the growth rates of (especially heavy) industry in the first five-year plans. But they are also illustrative of another vital emphasis that marked the development of the Soviet model in the decades to come: the ever-present connection, even in the post-Stalinist decades, between the country's economic goals and defense priorities. These two aspects — the pressure for high rates of industrial growth due to the siege of a hostile external environment and the need to always combine economic development closely with defense needs — are important to discuss the problem we are now introducing: the burden of military spending on the Soviet economy.

One of the most cited points when discussing the difficulties of the Soviet economy in the 1980s was the question of military spending. With the escalation of the costs involved in the production of modern armaments in the nuclear age (atomic weapons, intercontinental ballistic missiles, etc.), it was estimated that the weight of Soviet military spending was becoming unbearable as we entered the 1980s. It was difficult to make an accurate estimate of these expenditures, since their amount was literally a state secret. The only figure officially published, on a regular basis, was the

item *oborona* (= “defense”) of the country’s annual budget. However, this figure¹²³ was noticeably too low to cover the expenses of a country that was in a permanent arms race, in search of parity¹²⁴ with the United States. (Holzman, 1989, p. 101) This led to a series of institutions and researchers in the West seeking to assess the “real” amount of Soviet military expenditures. In Tables 8.1 and 8.2 of Appendix 8, we present some of the Western estimates: those of the CIA, SIPRI, and William Lee.

The estimates by the Central Intelligence Agency were the ones that had more repercussion in the West, due to the whole apparatus of researchers and access to classified information it had at its disposal. CIA studies were variously criticized for either underestimating or overestimating Soviet spending. William T. Lee was one of the critics on the side of underestimation, while the Stockholm International Peace Research Institute (SIPRI) represented the critique on the other side. All these divergences were natural, as the methodologies employed to try to fill in for the lack of Soviet official information on the subject differed.

SIPRI used the Soviet official budget as a basis and tried to complement it with information from other primary and secondary sources. (SIPRI Yearbook, pp. 171-172) William T. Lee also used official Soviet sources but not only from the budget; he included official data from industry and from the economy as a whole, trying to reconstruct the actual flow of the production of goods (especially of the waste in each branch of production unexplained by the statistics and which was presumed to be secretly destined for defense) and assess the percentage *actually* devoted to military production. (Lee, 1977, pp. 2 and 138-140) The CIA used a completely different method. Based on the *building blocks* methodology, the agency collected information not only from Soviet statistical books but also used aerial photographs of satellites and other forms of espionage to determine the quantity of materials/products and labor employed in each branch or subdivision of the Soviet military sector (for example, how many planes were

¹²³With the opening provided by perestroika, some of the former Soviet military secrets were brought to the surface. Thus in 1987 Finance Minister Boris Gostev admitted that the value of the “defense” item of that year’s budget (20.2 billion rubles) covered only the maintenance and infrastructure costs of the armed forces (wages, pensions, repairs, etc.), excluding expenditures for military industrial production, weapons R & D and others. This confirmed an old suspicion of Western scholars: that the USSR’s official defense budget probably represented only the operational and maintenance expenses of the armed forces, whereas the other expenditures were disguised among the other general items of industry and science in the budget. Even this basis in the reality of the defense budget must be cautiously accepted, for later an article by Defense Minister Mikhail Moiseev implied that sometimes the Soviet leadership even disguised the direction (increase or decrease) of official military expenditures:

The Soviet state, confronted with the world political-military situation and the need to resolve the complex tasks of the construction of socialism quickly, was forced to hide information about the state of financing of the defense and about the tendencies of variation in this process. This was justifiable both when the absolute dimensions of the budget were diminished and when (as a consequence of the intensification of the military threat to our country) they were increased. (Moiseev, 1989, p. 5)

¹²⁴ Table 8.3 of Appendix 8 presents estimates of military expenditures of the Warsaw Pact, NATO, USSR and USA. We note the USSR’s attempt to maintain her parity (together with the Warsaw Pact) in relation to the arms race with the USA (and NATO in general). From the table, we see how the Soviet Union alone was responsible for the vast majority of the Warsaw Pact’s expenditure as a whole. If we take into account that the Soviet GNP represented 50 to 65 percent of the American (in the mid-1980s), we see how the military burden weighed much more on the USSR than on the USA.

produced, how many soldiers served in each division, etc.). With this information, the CIA calculated how much it would cost *in dollars* to reproduce in the USA a military apparatus of exactly the same proportions and characteristics. (CIA, 1978, pp.13-14; Holzman, 1989, pp. 103-104; SIPRI Yearbook 1988, p. 134) This was supposed to give an accurate idea of the comparative costs of the two countries in dollars.

None of the methods, of course, was perfect. SIPRI was criticized for basing its estimates too much on Soviet official information (and not precisely determining its methodology). William T. Lee was censured for making some debatable assumptions and having certain methodological inconsistencies. (Becker, 1985, pp. 6 and 8) The CIA was accused of overlooking the structural differences between Soviet and American societies in its calculations. For example, to imagine how much it would cost, in dollars, in the USA, to maintain a brigade of 50 soldiers, does not mean that the result is the equivalent of the amount actually spent in the USSR to keep these 50 soldiers since Soviet military salaries were relatively lower than in the USA. Likewise, the system of prices in the USSR did not obey the laws of the market, being fixed administratively. Thus, a Soviet aircraft could have its price kept artificially low (even below its costs of production) burdening the defense ministries less than it would normally cost in the USA. (SIPRI Yearbook, 1992, p. 208-212) In addition, some of the CIA's periodic revisions of its estimates were criticized for inconsistency with the agency's previous calculations (hence the diversity of CIA estimates in table 8.2 of appendix 8).¹²⁵

Let us now look at the question of the military burden in terms of percentage of GNP spent. If we look at tables 8.1 and 8.2, we see that SIPRI, Lee, and CIA estimates differ not only in the magnitude of the percentage of GNP devoted to military expenditures but also sometimes in the direction (increase or decrease) of changes in expenditure. However, we can glimpse some general trends that can be considered similar in most estimates. If we are guided primarily by Lee and CIA data in table 8.1, we see that, after a high expenditure rate in the first half of the 1950s (due to the Korean war tensions), there was a certain decrease in 1956-57, perhaps reflecting the more relaxed atmosphere after the XX CPSU Congress (with emphasis on improving the consumption sector of the economy). In the early 1960s, with the Cuban missile crisis, the acceleration of the atomic arms race and the manufacture of expensive long-range missiles, there was resurgence in defense expenditures, followed by a relative pause, between the years 1963-65, approximately. The period 1966-70 saw a rapid acceleration in military spending again. Increases in military spending in absolute amounts do not always correspond to increases in the percentage of GNP because they depend on how rapidly the Gross National Product of the country grows: the same increase in absolute terms will represent different proportions of GNP in times of faster or slower growth of the economy as a whole. The 1970s and 1980s represent different trends in terms of percentage of GNP. While Lee sees spending rising steadily until it reaches a peak of 18 percent of GNP in 1980 (last year of his estimates), the CIA also sees a high percentage of GNP spent on defense but relatively steadily throughout the period, with a small increase in the overall percentage from the mid-1970s onward. It is important to note that the CIA estimates have undergone several revisions over the period.

¹²⁵For a thorough critique of the inconsistencies of the CIA estimate revisions, see Holzman (1989). The author raises suspicions of political use of the agency's statistics.

The question was the following. Most Western estimates suggested that the military burden was reaching exceedingly high proportions in the 1980s, on the eve of perestroika, at a time when the Soviet economy was experiencing growth difficulties. Several scholars (D. Holloway, W. Lee, M. Castels, etc.) pointed to the fact that defense could be requiring resources that were needed in other areas of economic activity (especially investment and consumption). Some authors even posed the question of the military burden as one of the key issues that led the Soviet economy to the brink of stagnation in the late 1970s and early 1980s, and was thus one of the “causes” of the need for a “perestroika.” The costly SDI (Strategic Defense Initiative) program, proposed by U.S. President Ronald Reagan in the 1980s, further complicated the situation, forcing the Soviets to maintain (or increase) military spending at the expense of other sectors of the economy — according to some, this led to a fateful “overstretching” of the already burdened Soviet system and ultimately to its defeat.

How to assess the military issue in the USSR? Did the excessive defense spending really contribute to the country’s economic decline in the late 1970s and early 1980s? If so, to what degree? Was this really the main reason to explain the economic slowdown in the period immediately prior to perestroika?

Before we enter this assessment, it should be noted that the burden of defense was not seen by analysts only from the monetary angle of the increasing percentage of GNP spent for military purposes — which would mean that there would be fewer financial resources in the areas of investment and consumption. Since the 1930s, a system of priority had been formed for the Soviet military production sector. (Cooper, 1976, p.3; CIA, 1978, p.1; Holloway, 1982, pp. 280-281; Gaddy, 1996, pp. 40-43) Due to the traditional supply problems in the USSR (late deliveries, low quality of products, etc.), the military sector had priority in supply (received expedited, high-quality products in time) and often received the allocation of the best existing skilled labor. Some Western authors even regard the Soviet economy as dual: a civilian sector with a high incidence of deficiencies and a military sector that was quite efficient in terms of relative quality of production. (Davis, 1990, p. 155) This efficiency was largely achieved through the priority system, which spared the military sector from the day-to-day supply difficulties experienced by the civilian sector. In addition, the military sector had long had its own quality inspectors (the *voenpredy*), with the power and autonomy to reject *brak* (= “defective products”) from the supplier companies. (MO SSSR, 1976-1980, v. 2, pp. 271-272; Voenpredy, 1987, p.1).

All this made the military sector in the USSR have a high-quality production, respected even at international level.¹²⁶ However, this priority system was also seen as an

¹²⁶ A comparative study of the technological-military race between the USSR and the advanced Western countries, carried out by the Center for Russian and East European Studies (CREES) of the University of Birmingham in Great Britain, summarized some of the main aspects of the comparative technological level of the Soviet defense sector:

[...] the military-technological relationship between the Soviet Union and the advanced capitalist countries has changed [...] In the 1930s, the Soviet Union created the largest tanks production industry in the world and some of its designs for tanks were among the most advanced. In the 1940s and 1950s, Soviet tanks were superior to most Western tanks. In the 1960s, however, Western powers created several MBTs (Main Battle Tanks) that dispelled the leadership of the Soviets in this area. In the 1970s, the Soviets balanced the situation. As for rocket research, the Soviets were among the pioneers in this field in the 1920s and 1930s.

extra source of “burden” on the economy as a whole in that it drained an excessively high proportion of the best labor force and the best intermediate products for itself, leaving less to the civilian sectors. This would not be a problem, if the military sector served as a model of efficiency (in terms of managerial or technological processes) to be “copied” or followed by civilian enterprises. Critics, however, pointed to the fact that the atmosphere of secrecy that surrounded almost all defense projects prevented the innovations in that sector from automatically being transferred to the civilian area. That is to say, in the view of these critics, the military sector functioned as a “sponge,” absorbing a disproportionate share of the material and human resources of the rest of the economy and not repaying as it could with technological or managerial spin-offs. (Castels & Kiselyova, 1995, p.29)

This view of the military as a “sponge” of resources is difficult to assess given the precariousness of available information. Firstly, it has always been difficult to determine exactly what was *specifically military* in the industries of that sector. Since the 1930s, the economy of the USSR was designed to ensure the *convertibility* of civilian and military industries in the case of war. (Lagovskii, 1961, pp. 179, 180 and 184) Thus, the famous civilian tractor industry of the USSR was created so that it could be used for the production of war tanks, if necessary. (Cooper, 1976, p. 13; MO SSSR, 1976-1980, v. 7, pp. 662-664) Similarly, military ministries produced a surprising amount of civilian goods ranging from tape recorders, motorcycles, tractors to [...] baby carriages and samovars!¹²⁷ According to Brezhnev’s own assertions at the 1971 XXIV CPSU Congress, 42% of the production of military ministries was intended for civilian purposes. (Brezhnev, 1971, p. 46) Obviously, the opposite was also true: part of civilian production (*e.g.*, steel, raw materials, etc.) was consumed by defense industries.

Secondly, it is necessary to qualify the view that the defense sector transferred very little of its technological or managerial innovations to the civilian area. In fact, this may have varied over time and depended on the general conditions of the economy. If, on the one hand, this assertion appears to be valid in the 1980s, generally speaking, on the other hand, some authors have emphasized how the military sector has on several

After 1945, the USSR embarked on a ballistic missile program based on the technology captured from the Germans. In the 1950s, the Soviet Union called for two important achievements: the first successful explosion of a nuclear fusion bomb and the first successful experimental flight of an ICBM (Intercontinental Ballistic Missile) [...] In the 1960s, there was an acceleration in the development of American ICBM technologies that left the Soviet Union far behind. In the 1960s and early 1970s, the Soviet Union introduced two new generations of ICBMs that helped to bridge the technology gap. Thus, the relationship between the technological level of the two sides has varied. (Holloway, 1982, pp. 276-277)

The CREES study only reached the 1970s. In 1987, a similar comparative assessment was made by the US Department of Defense. In 20 areas of basic technologies (with potential for military use), the US led 15 fields, the USSR none, and tied for 5 (optics, energy sources, conventional explosive charge, directed energy and nuclear explosive charge). In the specific area of developed military systems technologies, out of 31 areas, the US led 16, drew 10, and the USSR led 6 (chemical warfare, biological warfare, ballistic missile defense, mines, anti-satellite defense and surface-to-air missiles). (JEC, 1988, pp. 158-160) It is important to note that this assessment referred only to the level of technology itself, and does not necessarily measure the efficiency with which these weapons could be used in practice.

¹²⁷ After carefully examining which ministries belonged to the various Soviet companies producing selected civilian products, Cooper (1986, pp. 38-41) concluded that of the products manufactured in 1980, the defense ministries industries produced 100% of the videocassettes, (and approximately) 10% of cars, 30% of bicycles, 47% of refrigerators, 35% of washing machines and 33% of vacuum cleaners.

occasions served to uplift the technological level of the economy as a whole. Cooper (1976, pp. 24-25, 28) provided some examples of the industrialization era of the 1930s. In that decade, military enterprises not only directly fabricated between one-sixth and one-fifth of the country's total machine tools but also their excessive demands in terms of the quality and need for ever more sophisticated machines for military purposes exerted upward pressure on technical demands for civilian manufacturing enterprises, forcing them to raise their technological standards. For example, the need for high quality steel and alloys for armament production led to the creation of companies with capacity for such production. Civil aviation was directly benefited by the innovations achieved in the production of military aircraft (one of the sectors with the highest priority in the Soviet rearmament scheme): civilian aircraft were often adaptations of military models. Moreover, as one Soviet expert of the time — quoted by J. Cooper in his 1976 paper — put it:

[...] the requirements of the aviation industry in the other branches of production were so great that they exerted a decisive influence on the profile and development of a number of other branches of production (ferrous and non-ferrous metallurgy, electrical engineering, etc.). (Rinberg, 1935, p. 3)

Thus the question of the Soviet military sector as a “sponge” of resources will depend on the context of the time. The very concept of the military sector as a “burden” on the economy of a country as a whole is open to discussion. This is seen most clearly within the capitalist economy. In the United States, for example, much of the armament production is carried out by private-sector companies that receive government orders.¹²⁸ In addition, a significant amount of this production is exported.¹²⁹ Thus, the creation of armaments not only brings profit but also drives the economy and generates jobs. Under these conditions, the mark of the “apogee” of 18% of GNP for the military sector that the USSR reached in the 1980s (according to the highest Western estimate among those presented in Appendix 8) would not necessarily represent a sign of “unbearable burden for the economy.” There is no definitive correlation between military spending and declining economic activity among the countries of the world. At most, one can speak of trends observed with some frequency. Suffice it to say that the USSR was not the country in the world with the highest percentage of military expenditures of GNP. Israel, for example, in the 1970-1985 period employed an annual average of 23.8 percent of its GNP in defense and no direct correlation was observed between periods of increased military spending and those of economic slowdown in the country. (WMEAT 1970-1979, p. 63; WMEAT 1989, p. 51).

¹²⁸ The US Department of Defense subcontracts a large part of the goods and services it purchases to private companies. In fiscal year 1985, for example, the Department of Defense budget was \$ 264.2 billion. Of this total, more than half (150.7 billion) went to private companies for the acquisition of weapons, vehicles, research and development subsidies, etc. (Department of Defense, 1985, p. 9; *Statistical Abstract of the United States* 1987, p. 298)

¹²⁹ In the decade preceding perestroika (1975 to 1985), the value of US arms exports totaled \$ 103.5 billion (at 1983 prices). This equaled (in constant 1983 dollars) about half of Brazil's GNP in 1984! (WMEAT 1986, pp. 67 and 139)

However, the examples above are from capitalist economies, where the possibility of profit could turn arms production into a trade rather than merely being a “burden on the economy.” But what about a non-capitalist system like the Soviet one, where this possibility was more limited?¹³⁰ Would 18% of national income¹³¹ in the 1980s represent an unbearable burden on the country?

Firstly, the 1930s is a period in which the amount of information available in the West, especially on sensitive matters such as national defense, was much lower than in the post-World War II era. With the disintegration of the Soviet Union and the partial opening of former classified archives of Soviet institutions like Gosplan, Sovnarkom (Council of People’s Commissars) and others, it is becoming possible to get a more accurate idea of the “real” military expenditures there although the information is still presented in fragmented form, the result of the work of individual researchers for different years or periods. Several estimates of military expenditures as a percentage of GNP/NMP appear in table 8.5 of Appendix 8. Bergson and JEC 1957 made their estimates before perestroika; Davies and Harrison, in the 1990’s, had access to the former Soviet classified archives. Bergson (1961, p. 149) made it clear that he calculated defense expenditures as being officially announced in the USSR budget (excluding military retirements), without intending to uncover the “hidden” military expenditures in other appropriations for industry and science. JEC 1957 proposed to calculate “real” defense

¹³⁰ Although the profit-making potential of the armaments industry is smaller in the USSR than in the countries of the West — where part of the production is carried out by the private sector — it was not entirely nonexistent in the period preceding perestroika. After all, the USSR also exported arms in large scale. It is true that up until the 1960s these Soviet arm sales followed a logic more based on ideology (export to socialist countries in local currency, supply to national liberation movements etc.) than on commercial objectives, but this underwent a change later.

[From the 1970s onward,] although Soviet weapons were still comparatively cheap, there was a shift from the practice in the 1950s and 1960s when the USSR offered big rebates, ten-year financing at two percent interest a year, and accepted local merchandise as a form of payment. The shift in this policy came in part in response to rising incomes in oil-producing countries, some of which — Iraq, Libya and Algeria — were among the largest buyers of the Soviets. But even Ethiopia, it seems, had to cover its purchases in hard currency. The net result of this policy was to improve the Soviet trade balance. It is estimated that between 1971 and 1980, 65 per cent of Soviet arms sales to the least developed countries were in hard currency, and amounted to \$ 21 billion. (Holloway, 1983, p. 125)

¹³¹ With the revelations of perestroika, the amount that the “real” military expenditures of the USSR reached in the 1980s became public. Gorbachev himself revealed them, in a speech delivered in 1990 in the town of Nizhniy Tagil in the Urals:

[...] in the period of the eleventh five-year plan, and even in the twelfth [...] the amount of military expenditures reached 18% of national income [...] (Gorbachev, 1990, p. 2).

Thus, in the 1980s, military expenditures reached 18% of the national income of the USSR. The Soviet concept of national income (called “Net Material Product”, or NMP, in the West) differs from the Western concept of Gross National Product (= total of goods and services produced in a country), mainly because it includes only the material production, excluding the service sector. Thus, taking into account that in 1985 (according to Narkhoz 1990, p. 5) the NMP of the USSR accounted for 74.4% of its GNP, the maximum of 18% of the NMP to which Gorbachev referred represented 13.4% of Soviet GNP at the time.

This 18% of NMP (or 13.4% of GNP) was four times higher than the figures officially presented by Russian leaders in the period prior to perestroika. From Table 8.2 of Appendix 8, we see that official defense expenditures from the Soviet budget between 1981 and 1985 (the eleventh five-year plan period) represented just over 3% of the NMP.

expenditures. Analyzing the year of 1940, JEC 1957 arrived at an assessment consistent with the “post-perestroika” findings by Davies and Harrison. Although Davies and Harrison did not provide accurate data for the years 1937-40, if we can guide ourselves by the percentage of the Soviet budget officially devoted to defense (see “Official % budget” line in table 8.5), we note that from 1936-7 to 1940, defense spending rose sharply. It is true that the years 1937-40, despite being marked by economic growth, were less intense than in some other periods of the decade. According to official data, the Net Material Product of the USSR grew at an annual average of 16.2 percent between 1928 and 1937 and “only” 10 percent between 1937 and 1940. According to one of Bergson’s (1961, p. 271) calculations, Soviet GNP grew at annual average averages of 11.9% in 1928-37 and 3.4% in 1937-40. This could mean that the military expenditures amplified in 1937-40 had a negative impact on economic growth. However, this is probably only part of the truth, for this behavior seems to have been part of a larger cyclical character of the development of the economy in the period, than exclusively a function of military expenditures.

In the 1930s, the USSR, unlike the capitalist countries, experienced continual economic growth. However, this process was not regular. Some “cycles” of faster and less rapid growth of the economy can be distinguished from what Davies (1994, p. 154-156) called “superinvestment crises.” The excess of ambition of the grandiose five-year plans and the radical structural transformations that the country underwent in a process of “forced” industrialization made it difficult to centrally plan and predict all the details of these transformations and to maintain the adequate proportions between the different branches of production. Periodically these disproportions became more and more numerous. There was a time when it was impossible to fulfill all the ambitious projects planned for lack of resources in some sectors and excess in others: several projects then accumulated as “incomplete” — which further increased the imbalance of the economy, since the country counted on those projects to “feed” other production branches. At that moment, the annual plans had to be revised, fewer new projects were presented and emphasis was placed on the completion of projects already started. This more “calm” rhythm allowed to increase the percentage of projects completed as planned, which restored a better balance and proportion among the various branches of production. Thus, the Soviet economy followed a cyclical rhythm of: investment phase and ambitious plans -> over-investment -> increased disproportion between the different branches of the economy -> reduction of planned rhythms, with a view to reducing the number of incomplete projects -> increase in the number of completed projects, better proportion among the various branches -> resumption of rapid growth rates -> new investment phase and ambitious plans. Most Western studies of the phenomenon see the following phases of faster (+) and less rapid (-) growth: 1928-1930 (+); 1931-33 (-); 1934-36 (+); 1937-39 (-) (Zaleski, 1971, p.270; Davies, 1994, p.154). The year of 1940 is controversial in Western estimates, with some authors including it within the decelerated growth phase of 1937-39 (Davies, 1994, p.154), and others pointing to a certain recovery on the eve of the war.¹³² (Zaleski, 1971, p. 270) Soviet official statistics also point to these “cycles,” but with slight differences in some years. (Davies, 1994, p.154; see also table 3.2 of appendix

¹³² Some Western estimates, following the curve of official Soviet estimates, note a small recovery as early as 1939-40, after the smaller growth of 1938 (see, for example, Moorsteen & Powell, 1966, pp. 622-623).

3) According to Soviet official data, the cycles are as follows: 1928-1931 (+); 1932-33 (-); 1934-36 (+); 1937-38 (-); 1939-40 (+).

Thus, defense expenditures in the years 1937-40 do not appear to have been the main drivers of the slowdown in economic growth in the period (although they may have contributed in part to this, together with the negative effects the Great Purge had on cadres of the administration). As we have seen above, this deceleration seemed to be part of a larger cyclical picture of the economy. So much so that the period 1939-40, just as the Soviets were urgently increasing defense spending due to the proximity of war, was a time of “acceleration” within the cycles seen above.

In addition to the years 1937-40, the period of the first five-year plan (1928-32) — which until the 1970s was considered in the West a period when military expenditures were at a relatively moderate level in GNP percentage terms — was also marked by military expenditures which, although not of the magnitude of 1937-40, were at least twice as much as previously thought. In other words, most of the 1930s was marked by a relatively high level of military spending, with a peak at the end of the decade. (Davies, 1993, p.580; see also table 8.5 in appendix 8) However, they were also marked by accelerated economic growth. Moreover, as we can see by comparing Tables 8.6 and 8.4 of appendix 8, the average annual growth rates of military spending in the USSR were higher in the 1930s than in the decades after World War II: 26.6% between 1928 and 1940 (Ofer in table 8.6) against annual averages slightly above 3% for the entire 1955-85 period (according to the same Ofer in table 8.4). Thus, in the 1930s, the impact of the introduction of increasing militarization was much greater, since the USSR started from a lower level in terms of defense spending. In the post-World War II decades, when the Soviet Union already had a higher level of militarized economy, increases in defense spending were smaller and more evenly distributed over time. If there were any direct correlation between increased military spending and decelerating impact on the economy as a whole, this correlation should have been felt more strongly in the 1930s than in the postwar period (when expenditures remained steady and uniformly high, both in periods of rapid and slower economic growth).

Thus, the question of the “burden of military spending” in the Soviet economy has to be seen within the different historical contexts. A high level of military spending does not automatically mean economic slowdown. It all depends on how this “war economy” fits into the overall economic model of the system. (Holloway, 1983, p.171) In the 1930s, for example, when the process of initial industrialization of a less sophisticated economy required a large concentration of resources in basic areas (construction of large hydroelectric power plants, steel mills, machine tools, etc.), the “discipline” and hierarchy in the distribution of resources stimulated by the militarized economy seems to have served as a stimulus to maintain the rhythms of “forced” industrialization. (*ibid.*) In the 1980s, when the USSR had a developed industrial economy and an educated population with more demanding urban habits, the contradictions between the demands of the civilian and military sectors were becoming more acute. Moreover, global industrial standards were moving toward what Piore & Sabel (1984) called “flexible specialization.” This flexibility demanded by the new industrial paradigms contradicted the eminently rigid character of a militarized economy.

The problem of the “military burden” in the Soviet case seems not to be a question of amounts or percentages *per se* but rather of the way in which this militarized

sector “fits” into the economy as a whole. In the 1930s, the militarized economy seems not only not to have contradicted but rather stimulated economic growth under “forced” industrialization. In the postwar period, in the first half of the 1950s, the high military spending rate did not prevent rapid economic growth either.¹³³ As for the 1970s and 1980s, most Western analysts detected a contradiction emerging between the military and civilian sectors of the economy. But if on the one hand the demands of the military sector seemed to be becoming excessive for the conditions of the economy as a whole, it is perhaps exaggerated to place this process as one of causality (as some authors sometimes put it) of military spending causing the economic slowdown but rather as the case of a somewhat lame economy, which already had failings, and which was no longer in a condition to maintain such a military apparatus. To make this idea clearer, we can draw a parallel, in the Western world, with the welfare state apparatus (unemployment payments, free medicine, etc.) that was under attack in the neoliberal decades of the 1980s and 1990s even in traditional European social democratic countries. It is not that welfare state spending *caused* the Western economic slowdown begun in the 1970s (as some neoliberal economists seem to suggest), but rather that due to a structural crisis (whose causes are elsewhere and are also linked to changes in the world industrial paradigm) the Western economies seemed to be no longer able to maintain such a large apparatus of the welfare state social network as before. But the fact that welfare state expenditures became a heavy burden in a world of smaller markets and intensified and flexible competition does not mean that these expenses were the source of the problems of deceleration.¹³⁴

¹³³ Even in the consumer sector — where the problem of military spending is often posed as a guns-versus-butter dilemma — the level of *per capita* consumption in the USSR seemed to be more related to other factors such as, for example, agricultural performance — the devastating effects on the Soviet economy of the bad harvest years are famous! — rather than increases and decreases in military spending. (Cohn, 1970, p. 174)

¹³⁴ Some econometric studies seem to confirm the thesis that defense spending, while representing a considerable burden on the economy, was not be the main cause of the economic slowdown of the USSR. Becker, in his 1985 review of three Western econometric studies simulating substitution of civilian investment for military spending — Hopkins/Kennedy (1982), Wharton Econometric-SOVMOD (Bond, 1983), and Hildebrandt (1983) — came to the conclusion that without a resolution of the problem of the stagnation of productivity in the economy which the USSR had suffered in the 1970s and 1980s, a decrease in defense spending would have little practical effect on a renewed acceleration of Soviet economic activity:

The importance of this conclusion is emphasized if we consider the magnitude of [economic] improvement resulting from a decrease in defense costs. The various simulation studies generally agree that the growth benefits of limiting the increase in military spending are limited. Although the defense budget is large, the changes postulated in these studies and the magnitude of the actual deceleration of [military] expenditures are relatively small in comparison to the immense volume of fixed capital of society [...] The difference between military expenditures held after 1976 at an assumed rate of 4,5% and the limited rate [of the studies] would have totaled around 37 billion rubles in 1982 [...] If this amount consisted entirely of materials and equipment that could be easily transformed into investment resources, [...] industrial investment would have increased by 13% in this period, but this would have added only 6% to the value of fixed industrial capital at the end of 1981 [...]

Thus cuts [in military expenditures] would have to be more substantial and prolonged in order to have a more significant impact on GNP growth rates. Depending on how these economies are reallocated, the effects on consumption could be more apparent. Assuming that cuts in military order expenditures were

Finally, one last word to better contextualize the problem. All the above discussion was based on criteria of market economic rationality. What is the opportunity cost of military expenditures? Would the economy of the USSR be better, more efficient, grow faster if these expenditures were not being used in defense but in another productive sphere? However, this type of analysis, often employed by Western analysts in examining the Soviet military question, leaves aside an important factor, namely that the logic of the Soviet state was not guided primarily by considerations of economic market rationality. Since its Leninist origins, the Soviet state adopted decisions based on criteria of maximization of power (within a Marxist logic), which often clashed with the principles of capitalist microeconomic efficiency. The question of the survival and strengthening of Soviet power within a context of “capitalist encirclement” was the main consideration in the first decades of its existence. All other goals — tactical and strategic — were subordinated to this question. This is not difficult to understand given the sequence of military episodes — such as World War I, foreign intervention, civil war, general rearmament in the 1930s, World War II — in which the Soviet power was involved literally from its birth. (Gorbachev, 1987c, p. 149) But not only that. Even in the 1960s, when the USSR could “afford” to transfer part of the competition with capitalism to the economic level, other aspects made “peaceful coexistence” between the two systems impossible in practice (in spite of the official rhetoric then employed). Just as capitalism is intrinsically expansionist — because of the characteristics of the process of capital accumulation and valorization — the Marxist logic of Soviet power made it inherently expansionist too. This becomes clearer from the angle of a theory such as that of the permanent revolution, in which the flourishing of the communist system would not be possible without the concomitant weakening (and subsequent disappearance) of capitalism worldwide. The coexistence of two systems based on mutually exclusive logics made militarism an almost natural consequence. Throughout the USSR’s existence (even at the height of the era of the slogan of “peaceful coexistence”),¹³⁵ Soviet leaders

allocated to capital formation, Hildebrandt was the most pessimistic among the studies cited, estimating that if the defense budget were frozen at the level of 1980, an annual increase of only 0.5% in *per capita* consumption would be obtained. Hopkins and Kennedy were more optimistic: in their study, the freezing of the defense budget would yield an increase in *per capita* consumption of 1%. Only if the reduction in military spending were accompanied by other measures that would increase the productivity of resources in use [...] the effects would have been substantial even in the medium term. (Becker, 1985, pp. 32-33)

Thus, the key to the problems of economic downturn was in solving the problem of stagnation in productivity from the 1970s onward, not defense spending *per se*. In other words, if productivity increased, it would be possible to have a scenario — which in fact happened in the 1930s, 1950s and 1960s — where an increase in military spending could be combined with an increase in consumption and investment. Since Soviet productivity was stagnant after the 1970s (or even declining, according to some Western authors), defense spending became a very heavy burden. However, it would not suffice to cut military spending if the root of the problem — stagnation in productivity — was not solved. This is one of the reasons why Gorbachev’s subsequent efforts to carry out military budget cuts and the reconversion of military industries into civilian industries did not yield the desired results.

¹³⁵ For example, in Khrushchev’s words:

Now, let me speak a little about war and peace [...] Of course we do not like to use the labor of many people in producing means of destruction instead of beneficial material goods. But as long as we coexist in a world with imperialist countries, as long as the monopolists oppose the disarmament agreement, we are

made the permanent feeling of threat from capitalism clear. This permanent threat was used as justification for the maintenance of the formidable defense apparatus. (Stalin, 1946-1951e, pp. 38-39; Stalin, 1946-1951g, pp. 302 and 305; Khrushchev, 1963, pp. 172-173; Brezhnev, 1970-1982b, p.375; Moiseev, 1989, p.5).

In conclusion, the “formidable defense apparatus” was an integral part of the Stalinist and post-Stalinist Soviet system, with no possibility of trade-off in favor of a system that strongly prioritized the civilian sector based on purely economic opportunity cost calculations.¹³⁶ Moreover, in relation specifically to perestroika, there are no direct indications that the existence and maintenance of this apparatus *caused* the economic deceleration in the 1970s and 1980s.¹³⁷

obliged to maintain an army equipped with the most modern equipment and military weapons [...]

Recently, we had to face the following problem in the Soviet Union. The state was selling meat to the population at prices lower than it paid to collective farms [...] The meat was being sold at a price below the cost of production. We had to raise the price that the state paid, so that the collective farms could obtain [profit ...] But, where to obtain the [necessary] funds? Of course, we could have reduced defense allocations and produced fewer bombs, rockets and other weapons. However, we wondered if this would be a wise decision. Would people give us a pat on the back? Like all members of the Soviet government and the Central Committee of our party, I knew that when the price of meat rises, buyers are not satisfied. Everyone wants a better and cheaper product. It's natural. And yet we decided to raise the price of meat [to the consumer ...] (Khrushchev, 1963b, pp. 172-173)

¹³⁶ This possibility of trade-off would exist only in strategic politico-military terms, in which a policy of general disarmament, with maintenance of parity, would enable the USSR to invest more in the civilian sector, trying to transfer the bulk of the socialism-capitalism competition to the economic field. (Khrushchev, 1963a, p. 158; Gorbachev, 1987c, pp. 148-149)

¹³⁷ The fact that, unlike some authors, we do not consider the high level of military expenditures as one of the factors that could *per se* explain the specific economic deceleration of the pre-perestroika period in the USSR does not mean that we do not consider that military expenditures represented a burden on the country's economic system. The burden of defense was one of the main factors explaining why the USSR, despite having one of the largest GNPs in the world, could not provide her citizens with a standard of living consistent with the size of the national income produced. However, as we have previously emphasized, this high level of defense expenditure was a constant throughout most of the post-1930s Soviet period and therefore could not serve as an explanation for specific periods of economic downturn.

8 THE PROBLEM OF SOVIET AGRICULTURE

8.1 INTRODUCTION

One point, with characteristics similar to those of the problem of military spending in its consequences in the economic deceleration of the USSR in the 1970s and 1980s — a deceleration that led to the need for a perestroika of the system in the mid-1980s — was that of agriculture. Soviet agriculture, having been seen as a source of accumulation of resources to finance the process of industrialization in the 1930s, has since become increasingly considered by many as a “burden” on the country’s economy due to the unfavorable relationship between the enormous amount of resources it consumed and its low productivity. (Hedlund, 1984, p. 11; Doolittle & Hughes, 1987, p. 27) Table 9.1 of Appendix 9 shows that while in the pre-WWII period the agricultural sector had a lower priority in allocation, in the decade before perestroika more than a quarter of the country’s capital investments were dedicated (directly or indirectly) to agriculture.¹³⁸

The situation became critical because, with the fall in the rates of capital growth since the 1960s (exhaustion of the extensive model of growth; see table 5.1), an ever larger amount of investment was necessary to keep up economic growth. (Gorbachev, 1985, p.15) In the early 1980s, on the eve of perestroika, competition for resources among agriculture, defense, industry, and other sectors was growing.

In principle, a high allocation of resources to the agricultural sector would not be a problem if the income derived from there were correspondingly high. Critics, however, pointed to the fact that this high priority did not correspond to high productivity. On the contrary, Soviet agriculture was becoming a drain on investments. (Ek, 1987, p. 1) The problem was not only low agricultural productivity but also inefficient use of available inputs and equipment and high post-harvest waste. Gorbachev (1985, p. 20) himself, at a party conference in 1985, claimed that almost one-fifth of the crop was lost in the storage, transport, or processing phase.

From this point of view, spending on agriculture was indeed one of the strongest points of tension that could contribute to the growing economic difficulties of the USSR, especially since the mid-1970s. Unlike military expenditure — which, from the 1930’s onward, were fairly uniformly high — spending on agriculture (as percentage of total investment) increased progressively in the post-World War II years, reaching an apogee

¹³⁸ On the eve of perestroika, the Central Committee commissioned several reports on the bottlenecks of Soviet agriculture, the financial difficulties of the sector, and the measures that should be taken to overcome them. TsKhSD, f. 5, op. 90, d. 378 contains several of these confidential reports dated from 1984-85 (declassified in 1996).

(see table 9.1) in the decade before perestroika. Thus, excessive spending on agriculture seemed to be more of a pre-perestroika problem than military expenditures — which have traditionally remained high in times of high and low economic growth, and it is therefore more difficult to impute to them the cause of the low economic growth of the specific period prior to perestroika.

Indeed, there was an understanding not only among Western authors but also among the Soviets themselves that a more productive rural sector with a more efficient relationship between investment and production could make it easier to resume the desired economic acceleration in the mid-1980s. Yet agriculture, even in today's world, is a very specific field, with peculiarities that often require a more nuanced reading than, for example, the more “standardized” industrial sector. Therefore, the real level of contribution of the Soviet agricultural sector is a highly controversial issue.

8.2 ORIGINS OF THE PROBLEM

The Soviet economic model has its most distant temporal frontier in the late 1920s and early 1930s, when the end of NEP and the beginning of the five-year plans began to take shape more definitively. In the period of initial formation of this model, two processes had fundamental influence: agricultural collectivization and heavy industrialization. And these two processes were intrinsically interconnected. As the USSR could not rely on external resources to finance her industrialization (as did tsarist Russia), resources would have to come from agriculture itself. This was a conclusion that was relatively obvious to the Soviet leaders in the late 1920s. However, the way this process should be carried out divided opinions. On the one hand, there were those who advocated a policy of exerting pressure on the agricultural sector, with the creation of terms of trade unfavorable to agriculture (lower prices and higher taxation for producers of agricultural goods, higher prices for industrial products, etc.), in order to execute the *perekachka* (= “pumping,” transfer) of resources from agriculture to industry. (Preobrazhenskii, 1965) On the other hand, the Bukharin camp advocated a policy of incentives and priority for agriculture and for the “enrichment” of peasants, so that higher agricultural production through taxes would lead to the creation of resources for a gradual but harmonious and stable process of industrialization. (Bukharin, 1967, pp. 245-316; *idem*, 1967a, pp. 375-397) At the center of the discussion was the evaluation of NEP (New Economic Policy) and the results of the 1920s in the agricultural field.

NEP was decreed in 1921, as a measure to escape the impasse of the fall of production during the years of the Russian civil war (1918-1921). In the field of agriculture, it replaced the hated *prodrazverstka* with *prodnalog*.¹³⁹ The possibility of being able to sell on the free market production above the level of *prodnalog* meant to give the peasants the incentive to recover the level of production lost during the civil war.

¹³⁹ *Prodrazverstka* = compulsory confiscation of the peasants' production that exceeded their family's minimum needs for self-consumption (an emergency measure created by the Soviet government during the civil war to secure the supply of towns and the army during the civil war of 1918-1921). *Prodnalog* = tax in kind. Under the *prodnalog* system, the peasant was to give over a certain percentage of his grain production to the government, and he could sell the rest of his crop on the open market. Established in 1921, the *prodnalog* was replaced by a regular cash tax in 1923-1924. (SES, 1980, p. 1076)

Free from the exorbitant confiscations and other difficulties, the peasants did indeed get to work. If in 1921, at the end of the civil war, the level of gross agricultural production in the USSR was 60% of the 1913 level, in 1925-26 that pre-war level was restored (see table 9.2 in Appendix 9). The year 1925 marked the apogee of NEP. From then on, agricultural production continued to grow, but not at such rapid levels. And a negative phenomenon began to become apparent: the delay in the growth of marketable crop surplus. Although overall production was increasing, the quantity of grains available in the market did not grow in the same proportion. In other words, due to a number of factors, such as low prices for agricultural products, the difficulty of obtaining affordable industrial goods (the famous “scissors crisis”), etc., the peasant found no incentives to market the whole production. He preferred to use increasing amounts of grain for his own consumption, in his diet and as animal feed (or keep them for future sales in times of scarcity and better prices) than make them available to the government or the market. Production had increased during NEP, the peasant was definitely eating better, but the surplus available on the market did not grow at the same rate. Stalin (1946-1951a, p. 85), in a speech in May 1928, pointed out that in 1926-27 only 13.3% of the crop had been marketed (*i.e.*, consumed outside the countryside) against an index of 26% in 1913. Table 9.3 of Appendix 9 shows these data. We see that in tsarist times large farms and peasants were responsible for most of the grain placed on the domestic and external market, while small peasants tended to subsistence agriculture (with a lower percentage of outside trade). With the agrarian reform promoted by the Soviet revolution, smallholding was responsible for most agricultural production. These small peasants continued to incline to subsistence agriculture, with the result that marketable NEP surpluses did not keep up with the growth rate of production as a whole. From table 9.3 we see that although the two years (1913 and 1926-27) had roughly equivalent gross output, the marketable surplus of 1926-27 was less than half that of 1913.

Thus, on the eve of the first five-year plan, in 1928, the Soviet leaders were faced with a dilemma. They needed a growing agricultural surplus to finance industrialization, but the structure of agriculture inherited from NEP did not seem appropriate for that. Small isolated peasants, without individual capital for large investments in machinery, tended to use the grains more for their own consumption than for the market. The possibility of allowing the enrichment of the most powerful peasants (*kulaks*), so that they, with increased capital, could make greater investments in production, was ideologically forbidden. (Stalin, 1946-1951a, pp. 87-88) What then was the solution? The answer was given by Stalin himself:

The way out lies, above all, in passing from small, backward and scattered peasant farms to united, large socially-conducted farms, equipped with machinery, armed with scientific knowledge and capable of producing the maximum amount of marketable grain. The way out lies in the transition from individual peasant farming to collective, socially-conducted economy in agriculture. (Stalin, 1946-1951a, p. 88)

These words served to mark the tone of the new policy to be implemented. The XV Communist Party Congress in 1927, which established the directives for the drafting of the first five-year plan, also instructed that

[T]he task of unifying and transforming small individual agricultural production units into large collective units must be placed as the main task of the party in the countryside [... with the party] stating categorically that this transformation should only be carried out with the consent of the peasants [...] (KPSS, 1983-1989f, p. 299)

Despite the relatively moderate tone of the statement, which emphasized the voluntary and persuasive nature of the campaign, which should show the peasants the economic advantages of joining collective farms (*kolkhoz*), real practice took other directions. In the zeal of fulfilling the objectives of the plan and increasing the quantity of grain that the peasants were to sell to the state for supply to the cities, the process of collectivization became a real battle between the Soviet power and a large part of the rural population. The details of this “battle,” the excesses and arbitrariness committed were the targets of meticulous Western studies, as well as denunciations by Soviets themselves. (Lewin, 1985; Strauss, 1969; Antonyuk *et al.*, 1983, p. 209) The rhythms of collectivization, implanted with brutal determination, were rapid. In 1928, only 1.7% of rural units were collective. At the end of the first five-year plan, in 1932, 61.5% of the rural units had already been collectivized. In 1937, at the end of the second five-year plan, the collectivization rate was 93% and in 1940, 96.9%. (*Narkhoz* 1958, p. 346)

In a relatively short period of time, Soviet agriculture underwent a real revolution from a base of small agricultural producers to large-scale collectivized agriculture. Moreover, the way this process was carried out, and the parameters that guided it, would mark the Soviet rural sector for decades to come. In order to understand the logic of collectivization, it is important to note that the aim of collectivization was not simply to increase agricultural production (after all, NEP did that as one can see in table 9.2) but to increase the agricultural surplus that could be used to finance industrialization. (Stalin, 1946-1951a, pp. 93 and 94)

Shaffer (1977, pp. 58-59) summed up the tasks of Soviet collectivized agriculture seen from this prism:

For good or ill, the fundamental priority of the Soviet leadership was rapid industrialization at all costs [...] In order to industrialize at maximum speed, all efforts had to be directed toward the accelerated development of the heavy industry sector. The tasks assigned to the agricultural sector reflected this priority. The main task was to provide the necessary food and raw materials in the cities and, if possible, generate a surplus of exports capable of financing imported machinery and equipment. In other words, the goal was the maximization of marketable agricultural production, not the mere increase in production on farms. The second task was to provide food and raw materials at minimum prices: there were no resources

for the production of large quantities of industrial consumer goods to pay for agricultural commodities. The last task was to generate a surplus of labor necessary for the factories [...]

This summary view is quite consistent with the later historical developments of collectivization and with statements by party leaders and various official documents. (Stalin, 1946-1951f, pp. 176-177; KPSS, 1983-1989, pp. 104-105; Gorbachev, 1987a, pp. 413-415) It is important to keep this in mind when evaluating the results of collectivization of Soviet agriculture. These results can be analyzed from the productive prism itself, that is, from the increase of the country's production or agricultural productivity compared to other alternative models that could hypothetically be adopted, or from the point of view of how agriculture fulfilled the priority tasks above, as laid down by the scheme. We will try to analyze the results through both prisms.

8.3 SMALL- VERSUS LARGE-SCALE AGRICULTURE

Before analyzing the results of collectivization and its influence on later agricultural development, we will make some comments on one of the issues at the heart of the decision to start collectivizing Soviet agriculture: the need to abandon the structure of small farms and replace it them with large collective farms, which would allow the advantages of large-scale production.

The world experience of the twentieth century shows the existence of two main types of agricultural production in industrialized countries. On the one hand, there is the American or Canadian model of farms of considerable size and at the other end of the spectrum we have agriculture like the Japanese, based on the tiny farms of that extremely populous country. Overall, in advanced and efficient economies, large-scale agriculture tends to have higher productivity per employed rural worker, while small-scale agriculture tends to have higher productivity per planted area. (Strauss, 1969, p.95) From table 9.4 of Appendix 9, we can clearly see this trend. Taking the year 1985, for example, while in Japan the production of cereals per hectare was 5.8 tons, in the USA it was 4.1. In the productivity per rural worker (year 1986), the USA index was 54.7 and Japan's was only 10.1. Western European countries (such as the FRG in the example in the table) occupy an intermediate position between these two types, being much closer to small-scale agriculture than to large-scale agriculture (productivity figures from West Germany demonstrate this). The choice of one or another model as the most efficient will depend on the natural conditions of each country (availability of land, labor, capital, etc.).

In the case of the USSR on the eve of the first five-year plan, the preference for large-scale agriculture really seemed the most rational. With an extreme abundance of land and a need for labor to accelerate industrialization, several analysts, including Westerners, agreed that the preference for large-scale agriculture would be the most appropriate for the conditions of the USSR at the time. (Strauss, 1969, pp. 96-97; Shaffer 1977, 60) This preference becomes more justified if we take into account the low degree of capitalization of NEP peasants. Small-scale agriculture is productive in countries such as Japan, Germany, etc. due to the fact that these small peasants have an efficient

apparatus of technical support, conditions of capitalization through loans and subsidies from the government, etc. These conditions were absent in the USSR of 1928. Most rural plots (see table 9.3) consisted of small peasants whose output was geared more toward subsistence than generation of excess of capital that could be turned into investments to modernize agriculture. From table 9.6 of appendix 9, we can see the structure of investments in fixed capital of the USSR. From 1918 to 1928, little money was invested in agriculture (only 3.1% of total investments). Denoting the subsistence structure of agriculture, most of the investments (67.5%) were for the construction of housing and other non-productive investments. In other words, the majority of NEP's small independent rural producers invested little in the modernization of the production processes, with the purchase of machines, etc., using more primitive methods which involved less financial expenses. With the first five-year plan (1928-32), we can see the radical change in the structure of investments: non-productive investments in housing fell to 16.1% of the total, while productive investments soared. The 16.1% that agriculture (also) received for productive investments in fixed capital in the period represented the capital released, mainly through collective farms, in the modernization and industrialization of agriculture.

It is important to note that the decision to undertake forced collectivization was not merely economic. It was considerably a political decision of the party to allow agriculture to serve as the basis for the industrialization of the country (within the concept of proletarian hegemony in the alliance with the peasantry), and not as an end in itself. (Stalin, 1946-1951a, pp. 93-95, Stalin, 1946-1951f, pp. 176-177)

8.4 RESULTS OF COLLECTIVIZATION

We can begin to analyze the results of collectivization as a production process and as a means of financing industrialization. It is important to observe table 9.2 of appendix 9. In it, we have the growth index of gross agricultural production of the USSR. From the "GAP" line, we see that, from an index 100 in the pre-revolutionary period (year 1913),¹⁴⁰ production fell to 60 during the civil war (year 1921). The production only went back to its level of 1913 around 1925-26. And what happened during the collectivization of the first five-year plan? Due to the excessively rapid initial rhythms of collectivization, the disorganized way the process was conducted, the resistance (passive and active) of much of the peasant population, production fell! We see that, from an index 124 in 1928, agricultural production fell to 107 in 1932. The fall was mainly felt in livestock. From the "GLP" line, we observe that, from an index of 137 in 1928, livestock production plummeted to 75 (!) in 1932. Cattle ranching was especially hard hit, since many peasants, before associating "voluntarily" into collective farms, preferred to kill their animals, to eat or sell, than give them to common use. The animals died in the millions:

¹⁴⁰ For the purpose of comparisons with the pre-revolutionary period, the year 1913, in fact, is not the most appropriate, for it was a bumper crop year. As we shall see later, Russia's agricultural production traditionally underwent extreme variations due to climatic and natural instabilities. Ideally, in order to verify the *de facto* state of agriculture, both Soviet and tsarist, we should take the average of a few years. For example, if the bumper crop year of 1913 was 100, the average annual gross production index for the period 1909-1913 was 88. (Sel'khoz 1960, p.23).

from 68.1 million heads of cattle in 1929, the country declined to 38.6 million in 1933. (Stalin, 1946-1951g, p. 321).

However (and this is important to understand the logic of the then Soviet leaders), despite total production falling in the first five-year plan, the marketable surplus of production rose (!). From the same table 9.2 (line “MCP”) we see that NEP left a dubious legacy: on the one hand, production rose, reaching and surpassing the levels of 1913. On the other hand, the subsistence agriculture of most peasants (see also table 9.3) left marketed production below the level of 1913. Table 9.2 (line “MCP”) shows that, even with the fall in production in the period 1928-32, the marketed surplus increased in relation to the NEP period. That is to say, the financial contribution that agriculture gave (at least in the first five-year plan) to industrialization came not from an increase in production but from a large extractive “tightening” in terms of low wages, low agricultural prices and violent requisitions of agricultural surplus. There was a forced transfer of resources from agriculture to the industrial-urban sector.¹⁴¹ From Table 9.6, we can see that the large transfer of investment resources went from the housing construction sector to the other sectors in the first five-year plan. The small peasants — who, with their tendency to subsistence agriculture, used most of the income from their production to improve their own food consumption (or their animals’) and individually improve their own housing situation —¹⁴² with collectivization had the result of their work channeled to other productive parts of the economy (including to productive investments in agriculture itself, but mainly to industry).

¹⁴¹ The question of the net transfer of resources from agriculture to the urban sector in order to finance industrialization in the first five-year plans is very controversial. In the West, the traditional view that agriculture “financed” industry in this period began to be criticized after the 1960s (Karcz, 1967; Millar, 1970 and 1974). For a debate between proponents and critics of this thesis, see Millar & Nove (1976). For a Soviet attempt to quantify this net transfer (in the period of the first five-year plan) see Barsov (1968). Among Western authors, Millar (1974) and Ellman (1975) provided alternative estimates to check those of Barsov’s (1968).

As Alec Nove pointed out, the transfer of agricultural resources to finance industrialization seems to have been larger in the second and third five-year plans than in the first. (Millar & Nove, 1976, p.58) During the first five-year plan (1928-32), the initial decline in agricultural production caused by the disorganized and violent manner in which collectivization was carried out, plus the initial investments necessary for the installation of the machines and equipment of the new large-scale agriculture of the *kolkhozy*, lessened the net income that could be extracted from the rural sector in that period. Barsov (1968, p. 81), based on the sophisticated calculations outlined in his paper, estimated that only about 30 percent of the cost of Soviet industrialization in the first five-year period was financed by the net transfer of agricultural resources. That is to say, without external financing, this would mean that most of the industrialization effort of 1928-32 was based (to use the Russian expression current at the time) on a *rezhim strogoi ekonomii* (“regime of strict economy”), by which there was an increase in the rate of surplus-product extracted from (urban and rural) labor and dedicated to the accumulation for expanded reproduction of the country’s industrial base. In a capitalist economy this would be equivalent to an increase in the rate of surplus value used for productive purposes.

¹⁴² Table 9.6 shows that in the period of 1918-1928, which predominantly covers NEP, of the total investments, 67.5% were dedicated to the construction of housing. Of this percentage dedicated to housing, 86.7% were financed by the population itself, with the rest being covered by the state (including collective farms). (Narkhoz 1961, pp. 535 and 540) This denotes the strong subsistence character of the NEP agriculture (the peasantry made up the majority of the population), with small-scale, de-capitalized farmers preferring to employ most of their incomes unproductively (*i.e.*, in the construction or improvement of dwellings, etc.) than invest in expensive equipment and machinery to modify the traditional methods of planting and harvesting to which they were accustomed.

Regardless of the increase in production itself, collective farms increased the extractive power of the state and its power over society overall. The great contribution of collectivization, from the internal point of view of the system, seems to have been to put the “last remnants of capitalism” (*i.e.*, independent peasants) at the disposal of the command-administrative economy,¹⁴³ facilitating the reallocation of financial resources and labor in accordance with the priorities established centrally.

The critics of collectivization, in addition to emphasizing the enormous human costs of how the process was carried out, point to the evidence that it so profoundly marked the Soviet rural sector that even in later times several systemic failures lingered on, leaving the country’s agriculture at a comparative disadvantage to that of other industrialized nations (Strauss, 1969, pp. 123-129; Lewin, 1975, pp. 397 and 515).

We must, then, analyze how Soviet agriculture behaved later.

8.5 STALIN, KHRUSHCHEV, BREZHNEV...

From table 9.1 of Appendix 9 (line “%PDI”), we can see a great difference in the treatment of investments in agriculture in the pre- and post-World War II era. While in the Stalinist period, the rural sector was given low priority of investments (being treated more as a generator of resources for industry), from the rise of Khrushchev onward this situation changed. With industry already more developed and able to generate its own resources, Soviet leaders began to pay more attention to the agricultural sector in an attempt to make it more productive. The picture was then reversed. The share of investment in agriculture increased from decade to decade. In the ten years leading up to perestroika, more than a quarter of the country’s fixed capital investments were being used in agriculture. Critics pointed out that, even with all this amount of resources, collective farm-based agriculture was not becoming productive enough. (Ek, 1987, p. 1)

Let us see how the process of production in the USSR unfolded. From Table 9.2, we can see that the gross agricultural production of the Soviet Union, after falling in the first five-year plan, recovered at the end of the second (1937). In 1940, gross agricultural production was 45% higher than that of 1913. However, with the advent of World War II, the production index fell again. In 1945, the Soviets had a 14 percent lower production than that of 1913. In other words, upon entering the postwar period, the Soviets were back to pre-revolutionary production rates. However, with a collective farm structure already set up and based on the use of large-scale production machinery, the recovery of post-war production levels was faster. Especially after the 1950s, with Khrushchev inaugurating the time of greatest attention (and even priority) for agriculture, the rates of increase of the agricultural production indexes of the USSR from 1950 to 1986 were rapid and much higher than those of the USA and Western Europe over the same period (see table 9.5).

We need to separate the facts. In terms of total output, Soviet agriculture grew much faster than that of industrialized capitalist countries (table 9.5). As we entered the

¹⁴³ Stalin (1946-1951f, p. 173), commenting on the situation generated by NEP, stated: “The Soviet regime could not for long rest upon two opposite foundations: on large-scale socialist industry, which destroys the capitalist elements, and on small, individual peasant farming, which engenders capitalist elements.”

1980s, the USSR was the world's largest producer of wheat and the second (behind the U.S.) of grains in general. (FAO Yearbook 1987, pp. 113-117) However, this increase in production was achieved through a comparatively much greater injection of resources and manpower than in other industrialized countries. As was noted at a conference on Soviet agriculture promoted by the Kennan Institute of Washington in 1976:

Since 1950 Soviet agricultural production has more than doubled. Although progress has been uneven, average annual growth has been of the respectable magnitude of 3.5% per year, more than double that of the US and above the average 3% for the rest of the world. As a result of this relatively rapid progress, Soviet output in 1974 amounted to 85% of American production, compared with about three-fifths in 1950 [...] Since 1950 the inputs utilized in agriculture went up 75% and included costly programs that required massive support from industry [...] In contrast to the dramatic increase in inputs injected into Soviet agriculture, US farm inputs remained virtually constant since 1950. As a result, almost 50% of growth of American production is attributable to an increase in factor productivity. (Diamond, 1976, pp. 3-5)

In other words, from the 1950s onward, when the improvement of agriculture became a priority, the USSR achieved substantial increase in its productive capacity. However, this increase came at a relatively high cost of investment. While in the United States production increases were largely achieved through technical progress (without much proportional increase in input expenditures), in the USSR improvements in production and productivity were achieved through increased allocation of resources to the rural sector. And this, in the 1970s and 1980s, proved to be too big a burden on an economy that did not grow as quickly as before.

From tables 9.5 and 9.4 of Appendix 9, we can see that, between 1950 and 1985, despite the fact that the agricultural production in the USSR grew much faster than in the USA and Western Europe, productivity per rural worker and per hectare did not grow proportionally. In 1985, for example, the productivity per hectare of the Soviet Union was about 1/3 of the American, whereas the productivity per rural worker was almost 10 times smaller (the USSR had 16.2% of its population employed in agriculture versus only 2.8% in the USA). (Table 9.4 and FAO Yearbook 1987, pp. 69 and 78).

It is important to note that this low productivity was not shared by all former European socialist countries. Some of these countries, such as East Germany, Hungary and Czechoslovakia had relatively high productivity per hectare. From Table 9.4 we can see that, in 1985, the productivity per hectare of cereals in East Germany was close to that of the USA. In wheat crops, for example, productivity per hectare (in the mid-1980s) in East Germany, Hungary, and Czechoslovakia was higher than in the USA (although productivity per worker was lower). (FAO Yearbook, 1987, pp. 16-17)

The fact that agriculture in the USSR was less productive, even in relation to other Eastern European socialist countries, was partly explained by the climatic and natural conditions of the country.

These natural difficulties are highlighted if compared directly with the situation of the American rural sector. Although the USSR is 2.5 times larger than the United States, due to bad conditions, only about 1/4 of the area was used for agriculture in 1985 (against almost 50% in the USA). (FAO Yearbook 1987, pp. 51 and 57) Only 1% of U.S. arable land is in areas considered problematic for agriculture, compared to 60% in the USSR. (Novosti Press Agency, 1977, p. 151) As one Soviet minister of agriculture put it:

The entire US territory lies south of the 48th parallel, while in the USSR this is true for only 1/3 of the land. While only 1.1% of Soviet territory has an annual precipitation above 700 mm, the American percentage is 60% [... In the Soviet Union] precipitation is insufficient in 2/3 of the area planted with grains [...] Severe droughts happen every three years [...] Temperature variation is extreme [...] Sixty percent of Soviet arable land has a temperature of 5 degrees or less, versus just slightly more than 10% in the US [...] (Matskevich, 1973, p.4)

It is important to keep these natural conditions in mind, especially when examining the issue of large grain imports by the USSR in the 1970s and 1980s. At that time, several analysts posed the problem as if “the USSR cannot feed itself.” (Ek, 1987, p.1) This was true only in part. As we have seen, through a large injection of resources, Soviet agriculture, surpassing the USA, was the world’s largest wheat producer in 1985, for example. (FAO Yearbook 1987, pp. 113-117) Why were there years in which the USSR became one of the largest importers of wheat?

The answer is twofold. Firstly, there was the weather instability. As we have seen above, approximately every three years the Soviet Union suffered severe droughts (apart from other natural problems). This was revealed in the zigzag character of production, with two or three years of good harvests, interspersed with crop failure.¹⁴⁴ In those years, it was necessary to import grains.

The need for import intensified in the 1970s and 1980s due to the increase in real incomes of the population. With the price of food fixed by the government and stable over a long period of time, and nominal and real wages going up, a change in the food patterns of the population began to occur: consumption of a higher percentage of meat instead of the traditional diet based on cereals. As one 1983 OECD study put it:

The increase in the Soviet standard of living since the 1960s is also reflected in a higher consumption of animal products, fruits and vegetables and a decline in the proportional *per capita* consumption of potato products and other cereals [...] The daily calorie intake of

¹⁴⁴ For example, given the yearly rate of cereal production in the USSR in the decade prior to perestroika, one can clearly see the rise and fall of years of good and bad harvest.

Table 1.8 - Annual grain production index (average 1979-81 = 100):

| 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 |
|------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|
| 75.5 | 127.1 | 110.6 | 138.2 | 102.5 | 108.3 | 89.2 | 105.8 | 107.5 | 94.9 | 107.1 | 120.0 |

Source: *FAO Yearbook* 1986, p. 46

an average Soviet citizen is [...] similar to that of an American citizen. But the structure of food consumption in the two countries is different: in the United States, 37-40% of the calories are of animal origin, while in the USSR this proportion is only 26-27%. (OECD, 1983a, p. 12)

The increase in the consumption of animal products raised the level of demand on Soviet agriculture, since livestock farming demands large rural areas and an increased amount of inputs (made up, in part, of agricultural products used for food for animals).

Thus, as Hedlund (1984, p. 1) put it, on the eve of perestroika, the Soviet government was “under intense pressure not so much for food as for a better diet, especially in terms of increased meat consumption.” And this increase in the use of meat products intensified the pressure on the agricultural system as a whole, as it diminished the space of fertile land that would have to be dedicated to livestock and diverted a growing part of the agricultural production for use as fodder and food animal. The attempt by the Soviet government to try to meet the population’s growing consumption needs led to an increase in the rate of imports of agricultural products as a result of years of poor harvest.

8.6 CONCLUSION

The Soviet rural sector, from 1950 to 1985, achieved substantive increases in terms of total output. However, these increases were achieved at the cost of a growing percentage of national investments. In the 1980s, agriculture was absorbing more than a quarter of all the country’s investments (line “%DI” of table 9.1). This was happening at a time when (due to the decline in overall capital productivity in the economy) the dispute of the different sectors for the reduced resources available for investment was becoming more and more fierce. As agriculture did not respond with an increase in productivity at the height of the increase in investments,¹⁴⁵ it is fair to say that increasing expenditures with this sector were one of the factors weighing on the Soviet economy in the decade prior to perestroika. Expenditure on agriculture, perhaps more directly than defense expenditures, could be conjectured as one of the partial (secondary) explanatory factors of the specific economic slowdown in the pre-perestroika period, as these expenditures reached their peak at exactly that time (unlike expenditures with defense which reached peaks both in phases of rapid and slow economic growth, and therefore it is more difficult to attribute to them the deceleration of specific periods of relative stagnation). If expenditures with the agricultural sector were not the main cause of the economic slowdown in the period prior to perestroika, it can be said that they contributed to aggravate the problematic situation.

¹⁴⁵ Table 9.1 shows that while the share of investments in Soviet agriculture grew significantly since the 1950s, the share of national income generated by agriculture declined. Although this cannot be taken as conclusive by itself, it is quite symptomatic.

9 THE SOVIET NATIONALITIES PROBLEM

9.1 PROBLEM OUTLINE

One of the issues most frequently raised when discussing the disintegrative processes that led to the extinction of the Soviet Union is the problem of nationalities. Especially because the disintegration of the USSR at the end of 1991 seems to have been carried out precisely by the assertion of the existence of independent nations (former republics of the country) that imposed themselves over the federal center of the country. There is a certain consensus among scholars that the question of nationalities played a key role during the course of perestroika, notably after 1988-89 (when the first protracted and openly violent major interethnic conflict emerged in Nagorno-Karabakh). (Carrère d'Encausse, 1995, p. 12; Tishkov, 1997, p. 49)

This work discusses the causes of perestroika, that is, what led Soviet leaders to initiate the processes of economic decentralization and political openness in the USSR in the mid-1980s. If the importance of the role of the nationalities problem is clear in the development of perestroika, we must also analyze the importance of this role in the unleashing of perestroika. That is, to what extent the problem of nationalities was one of the factors that prompted Gorbachev and other Soviet leaders to start reforms in 1985.

This is a controversial point since, prior to 1985, ethnic issues in the USSR were generally not seen as an “explosive” problem of the system. Unlike the economic field, for example — in which deficiencies accumulated in the 1970s and 1980s were pointed out by various Western and Soviet authors as worrying or even alarming — relative calm reigned in the field of ethnicity. On the Soviet side, most scholars worked within the official conception that national problems had been (or were being) resolved by government policies and even that there was a tendency to *sblizhenie* (“rapprochement”, “drawing together”), or even *sliyanie* (“fusion”), of the ethnic groups towards a unified Soviet people (*sovietskii narod*). (Kulichenko, 1981, p. 4; Troitskii, 1984, p. 77; Kozlov, 1988, pp. 218-220) On the Western side, most scholars also analyzed pre-perestroika interethnic relations in the USSR without observing eminently “explosive” tensions.¹⁴⁶ (Azrael, 1978, p. 363; Anderson, 1978, pp. 309 and 332; Bialer, 1980, p. 216; Lapidus, 1983, pp. 32-33; Motyl, 1991, pp. 509-510)

¹⁴⁶ There were exceptions, of course, as we shall see later. Hélène Carrère d'Encausse (1978, p.280), Richard Pipes (1977, p.10) and Zbigniew Brzezinski (1975, p.31) were some of the voices that, before 1985, with greater or lesser vehemence, pointed to the destabilizing potential of certain interethnic tensions in the USSR.

To understand the contradiction between a period of apparent calm in interethnic relations in the period before Gorbachev¹⁴⁷ and the explosion of conflicts in this area, especially after 1988-89, we need to analyze the specificity of some geographic and ethnographic concepts when used in the Soviet context.

The former USSR, at the time of the beginning of perestroika, consisted of 15 republics (the largest of which, the Russian Socialist Soviet Republic, commonly called Russia, alone occupied approximately 76% of the total territory of the country and had 52% of its population). The 1979 census (the last one before the beginning of perestroika) computed data on 109 ethnic groups throughout the USSR. (Goskomstat, 1989-1990, v. 4, Pt. 1, book 1, p. 3) These ethnic groups were divided into three main categories: *natsional'nost'*, *narodnost'* and *inostrannyi men'shinstvo*, translated into English, respectively, as “nationality”, “subnationality” and “foreign minority”. In the population censuses, the most consolidated and largest ethnic groups (over 300,000 people, such as Russians, Ukrainians, Estonians and others) were considered nationalities (*natsional'nosti*); those of less than 300 thousand people were generally considered subnationalities or *narodnosti* (Kalmyks, Eskimos, Chukchi, etc.).¹⁴⁸ Examples of foreign minorities were Koreans, Finns, Czechs and Slovaks.

From the examples above, it may be noted that when the Soviets mentioned the existence of more than 100 nationalities in the USSR, the term *natsional'nost'* was used more freely, sometimes encompassing the other two subcategories as well. The linguistic difficulty becomes more complex when one notices the inexistence in the Russian language of another word for the concept we call “ethnicity.” In Russian, the term *natsional'nost'* often assumes the sense of “ethnicity” as well as “nationality”. It is important to note that nationality in Russia (the USSR and Slavic countries in general) for legal purposes is linked to the line of family descent (*jus sanguinis*) and not necessarily to the place of birth (*jus soli*). In other words, the Soviet Union was a multinational state following the *jus sanguinis* unlike most Western countries, which are nation-states following *jus soli*. In Brazil, for example, the son of a couple of Japanese immigrants born in Brazil, is immediately considered a Brazilian national for legal purposes. In Russia (as in other Slavic countries) this is done in a different way. The Soviet Identity

¹⁴⁷ The fact that most Soviet and Western studies described interethnic relations in the USSR as relatively stable in the period prior to perestroika does not mean that they were completely misguided. The current author, who made 12 trips in the 15 Soviet republics in 1989-92 when he was studying in Moscow, witnessed this type of vision by a large part of the native population. In his travels, the author interviewed Soviets of different nationalities and professions. Urged to report how they would describe the relations between the nationalities of the USSR in the pre-perestroika period, the vast majority of respondents said they were extremely surprised by the open outburst of conflict after 1988-89. The picture described was that most interethnic relations in the USSR remained at a “friendly-to-tolerable” level, and that even in the most visible areas of tension (Balts versus Russians, Armenians versus Azerbaijanis) resentments did not reach explosive levels, remaining relatively under control. In other words, the explosion of interethnic conflicts during perestroika surprised not only politicians and academics but also a large part of the native population of the USSR.

¹⁴⁸ It is important to note that the difference between *natsional'nost'* (“nationality”) and *narodnost'* (“subnationality”) is not a purely mathematical, quantitative matter. *Natsional'nost'* is used by the Russians to describe the ethnic groups that already attained a more advanced and consolidated status, forming a “nation” (*natsiya*) in itself. *Narodnost'* were the ethnic groups that were less consolidated in cultural, territorial and linguistic terms. According to the Soviets, *narodnosti* are ethnic groups “more developed than the tribes, but that have not yet reached the status of nation.” (SES, 1980, p. 872) The Soviet concept of “nation” (*natsiya*) will be discussed later.

Card (*passport*) contained two items: “citizenship” and “nationality.” The first item was always filled out as: “Soviet citizen,” but the item “nationality” was filled in according to the nationality of the father or the mother, regardless of the place of birth.¹⁴⁹ Thus, in the case of a child born in the Republic of Azerbaijan of a Russian father and an Estonian mother, the person would in the future never be classified as an Azerbaijan national, but as Russian or Estonian. The nationality of the parents determined that of the children independently of the place of birth. It is important to keep this in mind when investigating the eruption of ethnic problems in Slavic countries. Unlike nation states, whose *jus soli* concept of nationality ensures a relatively rapid incorporation of immigrants practically since the first generation born in the country, the Slavic concept of *natsional’nost’* keeps alive, for several generations and sometimes indefinitely, elements of the original culture.

Therefore, this condition of the Soviet Union (and Russia today) as a *multinational state* based on *jus sanguinis* is very important to understand the peculiarities of what we call *ethnic* (and the Russians *national*) developments in the history of the USSR.

As it turns out, the concept of nationality in the former Soviet Union differed from the one used in several Western countries: *natsional’nost’* sometimes assumed the meaning of what we call “nationality” and sometimes assumed a significance close to what we call “ethnicity.”

This semantic ambiguity reflects the ambiguous character of the task that the Bolsheviks received as a legacy from tsarism: how to solve the problem of relations between nationalities, without employing the imperialist instruments used until 1917. After all, Lenin (1967-1970, p. 67) himself called the Russian empire a “prison of nationalities.”

The Soviet strategy on the problem was marked by two opposite tendencies. On the one hand, the official Marxist ideology espoused, in its very essence, proletarian internationalism. (KPSS, 1962a, p. 25; KPSS, 1962b, p. 156) The emphasis was placed on class conflict, not conflict between nations. National conflicts were seen as derived from the capitalist contradictions that led to economic and political imperialism.¹⁵⁰

¹⁴⁹ This created situations as the one witnessed by the current author in Moscow. A Soviet acquaintance of his had *German* nationality, although he had always lived in Russia, spoke only Russian, had never been in Germany, etc. He was German because his German ancestors, who migrated to Russia a hundred years before kept marrying among German and choosing to keep the German nationality of one of the spouses.

The result of this *jus sanguinis* is that Dostoevsky’s mother tongue developed two words for citizens born in Russia: *russkii* (pl. *russkie*) and *rossiyan* (pl. *rosssiyane*). *Russkii* designates a person of Russian nationality. *Rossiyan* is any person born in Russia — but not necessarily of Russian nationality (*natsional’nost’*). Citizens in the situation of the “German” (described above) were then *rosssiyane* but not *russkie*.

¹⁵⁰ Although historically the USSR supported the liberation movements and wars of Third World countries, the Soviets never placed national liberation as an end in itself but as a step in the journey of those countries to socialism. It is interesting to note that in the Soviet dictionaries and encyclopedias, the entry “nationalism” (*natsionalizm*) contained only negative definitions of the term. Thus, for example, in S. I. Ozhegov’s dictionary (considered one of the most prestigious and competent Soviet lexicographers), the entry *natsionalizm* gave two definitions::

Nationalism: 1. Bourgeois and petty-bourgeois ideology and policy that starts from the idea of national superiority and confronts one’s own nation with others, subordinating the class interests of workers to the so-called general national interests. 2. Form of psychology of superiority and national antagonisms, narrow national form of thought. (Ozhegov, 1990, p. 396)

(Stalin, 1946-1951b, pp. 291, 303 and 305-307) On the other hand, the Soviets tried to satisfy (as far as possible and always within the Marxist-Leninist paradigm of the party's leading role) the *territoriality* and *cultural needs* inherent in the Soviet definitions of "nation" (*natsiya*) and "nationality" (*natsional'nost'*)¹⁵¹ The Soviet Constitutions of 1924, 1936 and 1977 consolidated the territorial division of the USSR based on ethnic principles.¹⁵² If we take the time of the beginning of perestroika, for example, we will see that the Union (of the Soviet Socialist Republics) was divided into 15 republics.¹⁵³ The republics basically had 3 types of immediate territorial divisions (*oblast'*, *krai* and *okrug*), which in turn were subdivided into several *raiony* ("districts," more or less equivalent to large counties).¹⁵⁴ However, in addition to this common administrative subdivision, the ethnic principle was noted by the existence of autonomous administrative units in places where there were large concentrations of one or more specific ethnic groups. The main types, in increasing order of importance (according to the amount of people of that nationality) were: *avtonomnyi okrug* (= "autonomous area"), *avtonomnaya oblast'* (= "autonomous region"), and *avtonomnaya respublika* (= "autonomous republic"). These autonomous administrative units were a constituent part of the Union republics, but had autonomy to decide their specific form of administration in various spheres, mainly cultural and educational (owning schools and book publishers in their

Thus, in Soviet dictionaries there was never the positive definition of nationalism (often employed in anticolonial literature) as a "combative stance against foreign imperialist interests." This absence reflects the long-standing Bolshevik position that nationalism and national conflicts are historical phenomena of the capitalist era. (Stalin, 1946-1951b, pp. 303 e 305-307)

¹⁵¹ The definitions of "nation" and "nationality" in Soviet dictionaries (up to the eve of perestroika) were influenced by Stalin's essay "Marxism and the National Question" (1913, written on Lenin's order to serve as a basis for party discussions on the national issue). In it, Stalin (1946-1951b, pp. 296-297) defined that "[A] nation is a historically constituted, stable community of people, formed on the basis of a common language, territory, economic life, and psychological make-up manifested in a common culture." He also mentioned that: "It is only when all these characteristics are present together that we have a nation. [...] it is sufficient for a single one of these characteristics to be lacking and the nation ceases to be a nation."

Thus, while insisting on the fact that nations are "products of capitalist development," the essay — which, approved by Lenin, would have a decisive influence on later Bolshevik policies — also emphasized concepts of "territoriality" and "culture" (among others) as correlates necessary to understand the essence of what defines a nation in itself. (Stalin, 1946-1951b, pp. 294-297 and 303) This would be reflected, as we shall see, in the policies for the creation of "autonomous" regions in the country based on ethnic criteria, which would guarantee nationalities their own territory and cultural development. Stalin's formula discussed above would become the classical definition of "nation" in Soviet dictionaries until the 1980s. (BSE, 3rd ed., v. 17, p. 375; SES, 1980, p. 879)

¹⁵² It is important to note that this territorial division of the USSR based on ethnic-national principles — apparently the most "natural" and "logical" — was not unanimously accepted in the party. On the assumption that nations are products of capitalist development, in the early years of the revolution, some party groups felt it necessary to realize a territorial division of the USSR that had no connection with national principles, in order to exactly "break" those remnants of capitalist ways of thinking among the peoples of the USSR (and to begin the existence of a future indivisible Soviet people). As an illustration of these points of view that favored centralism over the law of Soviet "nations," see, for example, the statements by G.L. Pyatakov and L.B. Sunita, recorded in the minutes of the Eighth Congress of the Russian Communist Party (Bolshevik) on March 18-23, 1919. (Rossiiskaya Kommunisticheskaya Partiya [bol'shevikov], 1933, pp. 80-81 and 88-89).

¹⁵³ The 15 constituent republics of the Union were: Russia, Belarus, Ukraine, Armenia, Georgia, Azerbaijan, Moldova, Lithuania, Estonia, Latvia, Kyrgyzstan, Uzbekistan, Kazakhstan, Tajikistan and Turkmenistan.

¹⁵⁴ The word *raion*, in Russian, means "district" (of a city).

own languages etc.), besides having their representatives in the Soviet of Nationalities.¹⁵⁵ Thus, the Soviet authorities sought to provide different nationalities and ethnic groups with a territorial base of their own. On the eve of perestroika, for example, there were 20 autonomous republics, 8 autonomous regions and 10 autonomous areas in the USSR. (SES, 1980, p. 1262) Through the creation of bodies such as the Dagestan Autonomous Soviet Socialist Republic, the Buryat Autonomous Soviet Socialist Republic, the Gorno-Altai Autonomous Oblast and others, many ethnic groups managed to have their own official territorial base for the first time during the Soviet period.

Thus, we note that Soviet policies in relation to ethnic divisions in the country contained a certain duality. On the one hand the official Marxist ideology emphasized proletarian internationalism, criticizing purely nationalist phenomena (without class content) as “remnants of capitalist mentality.” On the other hand the Soviet period, to a certain extent, consolidated and developed the notions of nationality, by means of its territorial division based on ethnic principles (with the existence of autonomous regions based on the same principles, etc.). In sum, by consolidating the notions of territoriality and cultural expression¹⁵⁶ that normally accompany their definitions of nationality, the Soviet period paradoxically “awakened” various nationalist or ethnic tendencies which,

¹⁵⁵ The Supreme Soviet was divided into two chambers of equal powers and number of deputies: the *Soviet of the Union* (elected on the basis of one citizen/one vote) and the *Soviet of Nationalities* (formed on the basis of ethnic representation: 32 representatives for each of the 15 republics of the Union, 11 for each autonomous republic, 5 for each autonomous region and one for each national [*okrug*]). (BSE, 3rd ed., vol. 4, p. 564)

¹⁵⁶ In addition to strengthening ethnic territorial expression, the Soviet government took important steps in the cultural field. While in tsarist times most non-Russian regions did not have their own autonomy, having a unidirectional relationship of subordination to Russia, in the Soviet period the different republics were integrated into the Union with formal legal equality. In addition, the Soviet government, from the outset, promoted a policy of raising the educational level of several ethnic groups that were in unfavorable conditions in this sphere at the time of the 1917 Revolution. Alphabets were created for ethnic groups who had no written language; schools, theaters and other cultural organizations built for this purpose. The party, from the resolutions of the X Congress in 1921, and for the following decades, seriously invested in the policy of *korenizatsiya* (“nativization”) of the party and government cadres, that is, promoted an educational campaign so that natives of each nationality could carry out the administration of their own republics and regions of origin (KPSS, 1983-1989c, p. 366; Conquest, 1967a, p. 50; Tishkov 1997, p. 35). The result was a sharp increase in the educational and professional background of the minor nationalities and a decrease in the differences between the most advanced and the most backward nationalities in those spheres. The fact that, in practice, these measures promoting social and educational advancement of native people and cadres were always subordinated to the priorities of the Communist Party — which prevented manifestations of purely nationalist interests divorced from the official line — does not invalidate the finding that there was a raise in overall cultural level of most nationalities in the Soviet period. Illiteracy was practically eradicated in the 1950s in all nationalities. (TsSU, 1980a, p.18) Moreover, from the 1960s onward, some of the nationalities began to overtake the Russians themselves in educational terms. As was explained in an American symposium on the problem of nationalities, in the mid-1970s the situation of the Russians by ethnicity in the Soviet Union was more or less like this:

Russians are in sixth place in terms of higher education and, in terms of standard of living, are officially third, behind Latvians and Estonians. In fact, it is only the sixth or seventh because the [real] living standards in Georgia, Armenia, and much of Ukraine are certainly superior. (Linden & Simes, 1977, p. 4)

These data are corroborated by the Russian censuses of the time (see, for example, Goskomstat, 1989-1990, v. 4, pt. 2, book 2).

under tsarism, were still non-existent¹⁵⁷ or held in subjection (latent) because of the clearly imperialist and repressive policies adopted at that time. The irony of this (unintentional) side effect of consolidating national traits in the USSR (through territorial autonomy and cultural expression) was noted by scholars in the academic field. The effects of this consolidation were felt mainly in the case of the smaller ethnic groups (*narodnosti*) which, under tsarism, were relegated to an extremely secondary position, receiving little official attention from the center, and that during the Soviet period were not infrequently given opportunities to improve their educational level and to publish in their own languages, in addition to acquiring the aforementioned territorial autonomy.

Obviously, these cultural and territorial benefits did not mean that nationalities had real autonomy of power over the center.¹⁵⁸ Abundantly explored in Western studies

¹⁵⁷ Thus, before 1917, the present Kyrgyz, and even Uzbeks and Kazakhs, did not yet have a national consciousness definitely formed, for many were still nomadic peoples, with a more tribal than national consciousness. Many of the Uzbeks of 1924, for example, would probably still think of themselves as primarily members of a tribe (Barlas, Lokait, etc.), or as inhabitants of a certain locality (“Bukharans”, “Samarkandis”, etc.). (Critchlow, 1991, p.11) The policies of granting territoriality and cultural expression to the various ethnic groups led to the consolidation or even formation of different nationalities within the Soviet period. Bennigsen (1971, p.169) lists, among the nationalities (*natsional'nosti*) and subnationalities (*narodnosti*) that were formed (in terms of their own consolidated national consciousness) within the Soviet period the following: Chuvash, Yakuts, Altai, Gagauz, Uzbeks, Turkmen and Kazakhs.

¹⁵⁸ An example of how real power was not decentralized in terms of nationality was the fact that traditionally the first secretary of the Party Central Committee in each of the 15 Soviet republics was native to the respective republic, but his deputy, not infrequently, was a Russian. There have even been more sporadic occasions when the first secretary of some republics was a Russian, not a native (for example, the Russian Brezhnev in Moldavia and Kazakhstan). (SES, 1980, pp. 169 and 1475)

When urged in the 1970s by Maurice Jackson, a member of the Central Committee of the Communist Party of the United States of America who was travelling through Azerbaijan, to explain why the second secretary of the Azerbaijani CP was a Russian rather than a local, the Soviet interlocutors replied that this question was not important, since it did not matter whether those in the leading positions were Russian or of another nationality and that the most important thing was that the policy followed in the republic be correct from the communist point of view. (Jackson, Maurice in personal communication to the current author in Washington, DC, USA on 06/18/1997)

Not counting the first and second party secretaries, the rest of the administration in the republics was carried out basically by local cadres. This type of relationship was reflected at both the federal and party level as well. Lower and middle classes of power had a more equal distribution among nationalities. The top, where the real maximum power was, tended to have predominance of Russians. (Hough & Fainsod, 1979, p. 457) For example, the Politburo of the Central Committee, which was the Party’s highest power organ, from the 1960s to perestroika had an average of about 70% of Russians in their composition of voting members (although the Russians accounted for only a little more than 50% of the population). (EZH BSE, 1967, p. 37; Hough & Fainsod, 1979, p. 457; Carrère d’Encausse, 1993, p. 10-11) The first Politburo of the Brezhnev era (from 1965 onward) contained 55% of Russians. In the 1970s and 1980s this proportion increased. The Politburo of 1977 had 71% of Russians and the one of 1982, 77%. In 1987, the Gorbachev Politburo maintained the 1982 average (of the 13 voting members, 10 were Russian). (EZH BSE, 1980, p.18; Carrère d’Encausse, 1993, p.10)

The question of the primacy of Russians within the mosaic of Soviet nationalities is extremely complex. The current author was a witness in Russia in the late 1980s that a fairly widespread feeling among ordinary Russians was that they felt economically inferior to many other nationalities. This was reflected in the repetition of phrases such as: “We, Russians, send a lot more money, specialists, resources, to the other nationalities than we receive”; “many of the republics have a higher standard of living than the Russian Republic: the Baltic republics live better, the people of the Caucasus eat much better, eat more fresh fruits and vegetables” etc. These sentiments that the ordinary Russians did not live off the “exploitation” of other nationalities (“quite the contrary”) are echoed in Soviet ethnographic literature and even in some Western writings. (Zaslavsky, 1982, pp. 124-125; Tishkov, 1997, p. 70) Concerning the fact

and even openly decreed by the official ideology of proletarian internationalism, the territorial division of the USSR into ethnic principles and her cultural policy towards ethnicities were seen as a means to facilitate the desired end that was the party's control of the social processes towards a communist society without classes and without divisions and ethnic conflicts. (KPSS, 1983-1989a, p. 105; Lenin, 1967-1970i, p. 164) So much so that, especially since the 1960s, the CPSU began to strongly propagate the theory that a *sblizhenie* ("rapprochement," "drawing together") and even *sliyanie* ("fusion"), of the different peoples that made up the USSR towards the creation of a unique Soviet people was taking place. (KPSS, 1983-1989h, pp. 163-165) Evidence of these trends included, *inter alia*, the absence of conflicts between nationalities, the high rate of interethnic marriages, cultural and educational leveling among nationalities. (KPSS, 1983-1989h, pp. 163-164; Tishkov, 1997, p. 111).

After all, who was right: those who pointed to a relative calm in interethnic relations in the USSR in the period prior to perestroika, or those few authors who

that, at the leadership level, the Russian nationality generally dominated the upper stratum of the CPSU, this seemed to be more directly connected with the fact that the Russians were by far the largest nationality in the population of the Soviet Union, that the CPSU, a centrally-based party, was originally a Russian party ("Russian Social Democratic Workers' Party"; "Russian Communist Party [Bolshevik]"), that this centralist party had its center in Moscow etc. In other words, the preponderance of the Russian nationality in the higher echelons of the CPSU seemed to be the consequence of a certain centralizing inertia, in which the center was reluctant to take decentralizing measures of power in several fields (and not only in the field of ethnic composition of the ruling strata). One example why the question of power cannot be absolutized on ethnic grounds is the fact that for much of the existence of the USSR, real maximum power was definitely not in Russian hands (Stalin was, after all, a Georgian!). Without denying the preponderance of Russian nationality in the most crucial decision-making strata of the party, we believe that this ethnic preponderance should not be seen as an intentional form of mere nationalist assertion (an end in itself), but as an instrument, a means (somewhat rude and imperfect) to facilitate the tasks of centralizing control of power in a country as ethnically diverse as the USSR. So much so that the manifestation of Russian chauvinistic tendencies was condemned by the party. (KPSS, 1983-1989d, p. 83; Stalin, 1946-1951d, p. 267; Stalin, 1946-1951i, p. 239) A qualified exception to this may have been during World War II when, under the unbearable pressure of the Germans in the initial phase of the war, Stalin appealed to nationalist slogans of "struggle for the mother country" in order to raise the morale of the troops and the rear; and the doctrine of the Russian people as the "elder and experienced brother" within the community of Soviet ethnicities, was echoed in academic and journalistic circles in the period immediately after World War II. (Nechkina, 1951) However, even paternalistic concepts such as the "elder brother" image did not come from purely nationalist sources, but had a class content (regardless of whether we accepted the truth of the arguments or not). Thus Stalin, in a speech at the Twelfth Congress of the Russian Communist Party (Bolshevik) in 1923, attacked an excessive decentralization of power to nationalities in the following terms:

For us, communists, it is clear that the basis of all our effort is the work to strengthen the power of the workers, and only then does the other question come to us. This is a very important question, but one that is subordinated to the first: the national question. They say that we should not offend nationalities. It's very accurate and I agree with that. But to create from this a new theory that it is necessary to place the Russian proletariat in a situation of inequality in relation to the previously oppressed nations does not make sense [...] It is evident that the political base of the dictatorship of the proletariat is constituted primarily by the industrial center, not the periphery, which is basically rural. If we shift our weight to the rural periphery to the detriment of the proletarian regions, a "split" can occur in the system of the dictatorship of the proletariat. This is dangerous, comrades [...] It must be remembered that, in addition to the right of peoples to self-determination, there is the right of the working class to strengthen its power: the former is subordinate to the latter. (Stalin 1946-1951d, pp. 264-265)

indicated that there was a dangerous tension in the relations between nationalities in the same period?

The author who, in the pre-perestroika era, most vehemently posed the problem of nationalities (pointing to its disaggregating potential) was probably the French H  l  ne Carr  re d'Encausse. It is useful to review what she considered the main problems in the ethnic area in the USSR and check how these problematic areas fared during the course of perestroika.

Carr  re d'Encausse, in her most influential book in the period prior to perestroika, *L'Empire   clat  * (1978), worked on two main lines: demographic perspectives and problems with ethnic groups (mainly Muslims) in the USSR. In the book, the author pointed to certain problems between ethnic groups (muffled by the apparent monolithism of the Soviet system) such as: the three Baltic nationalities (Lithuanians, Estonians and Latvians) who, because they had been (re) incorporated in a truculent way in a relatively recent time (during World War II), kept anti-Russia sentiments; the problem of the emigration of the Soviet Jews (who were targeted as victims of a subtle anti-Semitism, which was supposed to permeate not only layers of the population but high echelons of power as well); the question of the revival of a certain embryonic cultural nationalism in Ukraine and Georgia in the 1970s; the problem of the resentment of the nationalities deported *en masse* by Stalin due to collaboration with the Nazis at the time of World War II (besides the Crimean Tatars and Volga Germans, especially studied by d'Encausse in her book, we must also add the Chechens, Ingush, Kalmyks, Karachays, Balkars, and Meskhetian Turks. (Carr  re d'Encausse, 1978, pp. 196-219, 226-233 and 273)

The author also showed other factors that were more subtle and little studied before the 1980s. One of these was revealed by Soviet statistics but not acknowledged by the official ideology of peaceful coexistence among the peoples of the USSR: the growth of the Slavic part of the population had long been lower than that of the Eastern nationalities, especially the Muslim. (Carr  re d'Encausse, 1978, p. 86) From table 10.1 of Appendix 10, we can visualize this process. It shows that all the nationalities that grew the most were Eastern and Muslim (*e.g.*, Kyrgyz, Turkmen, Uzbeks, and Tajik). Then came mainly the non-Muslim peoples of the Caucasus (Georgians and Armenians) and Moldovans. Much lower in the scale we see the Slavs (Russians, Belorussians, Ukrainians) vying for near stagnation in growth with those of the Baltic, with Estonians and Latvians growing near zero in the last decades. Carr  re d'Encausse asserted that, with the low birth rate of the (majority) Slavs, the weight of the "Muslim" population would increase proportionately to the point of affecting the country's political balance, since Islam and other Eastern traditions form a way of life different from that preached by Moscow and was, in the last years, finding resonance as a cultural agglutinant in that region. (Carr  re d'Encausse, 1978, pp. 269-270) This, especially after the convulsions in the Muslim world due to Khomeini's rise in Iran, could lead to a move away from the center and rapprochement with Islamic fundamentalist nations, with unpredictable consequences.¹⁵⁹ Following this trend (see table 10.1 of Appendix 10), at the turn of the century Russians would no longer be the majority (in absolute terms) of the country; in this case, a shift to under the "psychological" barrier of 50% of population, could have political implications in terms of decentralization of power as well.

¹⁵⁹ Concerning the "Muslim problem" in the USSR see Bennigsen & Broxup (1983) and Bennigsen & Wimbush (1985).

The French scholar pointed to another problematic area in relation to the population of the USSR. The relatively low birth rate of the country could lead to an acute labor shortage, which could have very serious consequences for an extensive economy, based on large use of labor, such as the Soviet one. The problem was exacerbated by the fact that, precisely in the regions where the labor shortage was acute, birth rates tended to be low, while in the labor-abundant parts population growth was greater. Worse still: migratory currents generally developed in the sense of “swelling” even more the saturated areas and of abandoning some regions with labor shortages. (Carrère d’Encausse, 1978, pp. 109-114) Thus, for example, there was emigration from the Urals, Siberia and the Far East (regions where there was a shortage of labor), not compensated by immigration to these areas. (*ibid.*, p.110-111) Likewise, Russians and other Slavs tended to emigrate to the Baltic or Central Asia (areas already densely populated or labor-intensive), while the populations of these regions with excessive density or showing a certain excess of labor tended not to emigrate as much as the Slavs. (*ibid.*) Even the northern Caucasus region, which also had a certain excess of labor, but whose population tended to emigrate, ended up having a surplus of migratory movements, since the warm climate attracted residents from other regions. (*ibid.*, p. 111) In other words, the migratory movements of the USSR tended to sharpen the problem of regional imbalances in the allocation of labor.¹⁶⁰

Carrère d’Encausse joined other voices in the West (*e.g.*, Robert Conquest, Richard Pipes, Zbigniew Brzezinski) who pointed to several worrying areas of tension in the ethnic and demographic field of the USSR, even before perestroika.

9.2 A BRIEF HISTORY OF RELATIONS BETWEEN NATIONALITIES IN THE USSR

At this point, before analyzing these problems, we will give a brief historical synopsis of the development of relations between the nationalities of the USSR:¹⁶¹

— The Russian empire was formed between the sixteenth and nineteenth centuries. In the late fifteenth and early sixteenth centuries, the Grand Duchy of Muscovy began to dominate the regions around it where Russian Slavs lived, such as Novgorod (1471) and Pskov (1510). The first Tsar, Ivan IV (“The Terrible”, r. 1547-1584) began the expansion towards “non-Russian” territories. With the conquest of the khanates of Kazan (1552) and Astrakhan (1554-56), he came to dominate the Volga river. Thus, the conquest of the Tartar khanate of Kazan is generally considered the beginning of the construction of the Russian empire, since it marks the first expansion of Moscow beyond the territories

¹⁶⁰ For a Soviet “internal” view of problems with geographical allocation of labor, see Gosplan’s 1983 (formerly secret) report on the distribution of productive forces in the USSR. (TsKhSD, f. 89, op. 41, d. 2, l. 3)

¹⁶¹ The following summary chronology of events is based (*passim*) on the following sources: AN SSSR-I.I., 1966-1980; Novosti Press Agency, 1988; EZH BSE; newspapers Pravda, Izvestiya, Sovetskaya Latvviya, Sovetskaya Litva, Sovetskaya Estoniya, Pravda Ukrainy, Zarya Vostoka, Turkmenskaya Iskra, Pravda Vostoka, Kazakhstanskaya Pravda, Golos Armenii and Vyshka; Carrère d’Encausse, 1993 and 1995; Tishkov, 1997; Fowkes, 1997.

where Slavs had previously lived. The seventeenth century saw the expansion of the empire to Siberia and to the Dnieper River. In the 18th century, Peter the Great (r. 1682-1725) pushed the borders north to the Baltic Sea and incorporated Eastern Ukraine while Catherine the Great (r. 1762-1796) conquered Crimea (in the south, reaching the Black Sea) and divided Poland with Prussia and Austria. In the nineteenth century there was the incorporation of Georgia (1801), Finland (1809), Central Poland (1815), the Caucasus and Central Asia. Thus, of the 15 republics that formed the USSR at the time of perestroika, all had already had their territory incorporated (in whole or in part) to the Russian empire before 1917.

— The USSR, since its inception in 1922, was legally assumed to be a federative multinational state, which proposed to give territorial and cultural expression to its different ethnicities.¹⁶²

— The era of industrialization, and especially forced agricultural collectivization in the 1930s, with its demands for centralization of maximum power in Moscow, created tensions in the ethnic-national field. Forced agricultural collectivization imposed sedentary rules on the rural population with a strong nomadic tendency in Kazakhstan and elsewhere in Central Asia and created tensions among leaders with nationalist tendencies in the republic that was considered the “granary” of the USSR, Ukraine, which suffered greatly with excessive grain requisitions even in times of drought, harvest failure and famine (as in 1932-33).

— The Second World War brought the mass deportation of some small nationalities accused of collaborating with Nazism: Volga Germans, Chechens, Crimean Tatars, Ingush, Kalmyks, Karachays, Balkars and Meskhetian Turks. These nationalities would only be officially rehabilitated from 1957 onward, during the Khrushchevian thaw. During the war, there was a reuse of nationalist slogans (“For the Russian motherland!” etc.) to mobilize the masses in the defense effort. The post-war Stalin period was marked by a certain historical reassessment of the role of the Russians during tsarism. Some academic and journalistic works even emphasized certain positive aspects of the progress that the Russians were supposed to have brought to the more backward peoples of the empire, despite the oppressive role of tsarism.¹⁶³

¹⁶² On December 30, 1922, the Union of Soviet Socialist Republics was created with four republics: Russia, Ukraine, Belarus and Transcaucasia (which included present-day Armenia, Georgia and Azerbaijan). Respectively in 1924 and 1925, the Uzbek Soviet Socialist Republic and the Turkmen Soviet Socialist Republic were incorporated into the Union. The 1936 Soviet Constitution established the existence of 11 republics in the Union: Armenia, Azerbaijan, Georgia, Russia, Belarus, Ukraine, Uzbekistan, Turkmenistan, Tajikistan, Kazakhstan and Kyrgyzstan (the last two were autonomous republics, which in 1936 were elevated to the status of republics of the Union). In 1940, Estonia, Lithuania and Latvia were incorporated into the Union as republics. In that same year, the USSR invaded Bessarabia (which had been taken by Romania in 1918) and this region, merged with the Moldovan autonomous republic, became a republic of the Union, Moldavia. (SES, 1980, p. 1.263)

¹⁶³ For example, in 1951, an essay in the official journal of the Institute of History of the Academy of Sciences of the USSR affirmed:

Tsarism was the prison of peoples: this formula is profoundly true. In this country the elder brother of the people of our country, the great Russian people, also suffered [...]

In assessing the results of the incorporation of peoples to tsarist Russia, historians must pay particular attention to the evidences of exchange among peoples, to the new and positive element which, despite tsarism, the great Russian people introduced into their economic and cultural lives. The task of historians is

— The Khrushchevian thaw of the late 1950s and early 1960s brought about political liberalization and decentralization of the economy, producing a (at least apparent) reduction of tensions in the ethnic field: the nationalities deported during the war were rehabilitated and the vast majority of them brought back to their own territories; the entrance of the USSR into a higher level of development (“mature socialism” in official jargon) lead to an improvement in the population’s standard of living (in relation to the Stalinist period) in the various republics, reducing the possibility of increased ethnic discontent due to economic dissatisfaction. The increase in the level of migration between the republics (among other things, because of campaigns such as the “Virgin Lands” that took migrants from the center to more remote areas) and the number of interethnic marriages lead the official ideology to proclaim the trend toward rapprochement and fusion of the various nationalities.

— During the Brezhnev years (especially since the 1970s) certain uneasy ethnic trends reappeared: the excessive disproportion between the slow growth of the Slav and European populations compared to that of Asian and Muslim nationalities; the problem of Jewish migration to the West; a certain rebirth of nationalist sentiment in some republics (Russia itself, Georgia, Ukraine);¹⁶⁴ anti-corruption campaigns in peripheral republics (Georgia and Uzbekistan)¹⁶⁵ lead to a certain ethnic tension; in 1978, in Georgia, and in 1979 in Tselinograd (Kazakhstan), ethnic incidents occurred.¹⁶⁶

to describe the historical perspective of unity and struggle of the workers of the various peoples under the leadership of their older brother, the Russian people, and subsequently under the hegemony of the proletariat [...] (Nechkina, 1951, pp. 45 and 47)

¹⁶⁴ The removal in 1972 of the first secretary in Ukraine, Petr Shelest, and his replacement by the Ukrainian V. Chtcherbitski (but this time with a Russian second secretary) was seen as a sign of mistrust that Shelest had been condescending to, or even encouraging, a subtle Ukrainian nationalism, which was evidenced by the reaffirmation of the importance of Ukrainian culture in the past, even in the pre-revolutionary period. (Carrère d’Encausse, 1978, pp. 220-221) In Russia, the nationalist renaissance took the form of a search for the preservation of monuments and other cultural landmarks of the past (the Pamyat organization, criticized as being anti-Semitic in the period of perestroika, brought together several groups founded in the late 1970s to preserve these Russian cultural monuments). A (subtle and latent) nationalism seeped into the works of the so-called “rural prose” writers (*e.g.*, Valentin Rasputin, Vasilii Belov) who showed nostalgia for a “pure” Russian rural life that had been disappearing with time.

¹⁶⁵ In the Brezhnev and Andropov era, party leaders detected an increase in the levels of corruption in some republics whose first secretaries were actively (or passively) colluding. The center acted to replace these first secretaries by others in charge of carrying out a “cleaning” in the corrupt picture left by their predecessors. Thus, in 1972, Eduard Shevardnadze replaced Vasili Mjavanadze in Georgia. In late 1983, in the Andropov era, an investigation into the administration (1959-83) of the first secretary Sharaf Rashidov in Uzbekistan was launched. Rashidov had been a favorite of Brezhnev’s for his loyalty to Moscow and for the indicators of economic success of the republic, especially in the production of cotton, its main culture which supplied the entire USSR. From 1984 to 1986 purges were made among the party cadres, as corruption and favoritism seemed to be really widespread to the highest echelon (not only in financial terms, of misappropriation of public property, but of falsification of economic growth statistics, especially of cotton production, which had been lower than what had been announced to the center). In 1986, Rashidov was posthumously (he had died shortly after the initiation of the investigations) convicted. (Ligachev, 1996, pp. 210-219)

These anticorruption campaigns in the republics, although based on real events, also had an unpleasant side effect in the ethnic field. In some republics there was a feeling that their nationalities were seen as deeply bogged down in corruption and that in order to get out of this situation they would need the “surveillance” of the Moscow center. This was felt mainly in the Caucasus and Central Asian republics, where traditionally stronger community and family ties were frequently seen by the center as facilitators of

— Despite the “uncomfortable” tendencies noted above, Gorbachev assumed the post of General Secretary of the CPSU in 1985 with an ethnic situation apparently quite stable in terms of multinational status. The critical Gorbachev — who broke a tradition of “rosy” descriptions of Soviet reality by General Secretaries — acknowledged in his report to the 1986 XXVII CPSU Congress deficiencies of the USSR in several areas, but when it came down to the ethnic field, he changed the tone somewhat. He described the ethnic sphere as one in which the USSR had achieved exemplary progress despite warning about the necessity of vigilance in order to prevent “remnants” of “narrow and chauvinistic nationalism” from developing.¹⁶⁷

an atmosphere of favoritism and even corruption. As favoritism and corruption were not a monopoly of these republics, being found practically in the entire Soviet system, these anticorruption campaigns created a strange climate between center and periphery. The center, suspicious of the loss of control of what happened in some republics, tended to tighten a “paternalistic” vigilance while the periphery sometimes had the feeling of being used as a “scapegoat.” (Carrère d'Encausse, 1993, pp. 21 and 23-24)

¹⁶⁶ In 1979, a student demonstration in the town of Tselinograd in Kazakhstan protested against rumors that the region would be turned into an autonomous territory to welcome the Volga (Soviet) Germans who had been deported by Stalin at the time of World War II. In addition, it would be interesting to note the existence of a nationalist protest in Georgia. In April 1978, there was a public demonstration in Tbilisi against the deletion of the clause in the Constitution of the Republic of Georgia which determined that Georgian was the official language of the republic (the Georgian Constitution was being reformulated in 1978, in line with the promulgation of the new Soviet Constitution of 1977). With the popular mobilization, the idea was abandoned and the clause maintained in the new Georgian Constitution.

¹⁶⁷ Presenting the political report of the Central Committee at the XXVII CPSU Congress, Gorbachev stated:

The foundation for solving the nationalities problem in our country was laid by the Great October Socialist Revolution. Relying on Lenin's doctrine and on the gains of socialism, the Communist Party has done enormous transformative work in this area. Its results are an outstanding achievement of socialism which has enriched world civilization. National oppression and inequality of all types and forms have been done away with once and for all [...] The Soviet people is a qualitatively new social and international community cemented by the same economic interests, ideology and political goals

However, our achievements must not create the impression that there are no problems in the national processes. Contradictions are inherent in any kind of development, and are unavoidable in this sphere as well. The main thing is to see their emergent aspects and facets, to search for and give prompt and correct answers to the problems prompted by life. This is all the more important because the tendencies towards national isolation, localism, and parasitism still persist and make themselves felt quite painfully at times. [...]

We are legitimately proud of the achievements of the multinational Soviet socialist culture. By drawing on the wealth of national forms and characteristics, it is developing into a unique phenomenon in world culture. However, the healthy interest in all that is valuable in each national culture must by no means degenerate into attempts to isolate oneself from the objective process by which national cultures interact and come closer together. This applies, among other things, to certain works of literature and art and scholarly writings in which, under the guise of national originality, attempts are made to depict in idyllic tones reactionary nationalist and religious survivals contrary to our ideology, the socialist way of life, and our scientific world outlook. (KPSS, 1986, v. 1, pp. 75-76)

Thus, in general, Gorbachev saw the field of interethnic relations as a sphere in which the Soviet government had been quite successful, being able to set an example to the world (unlike other spheres, especially the economy, which was criticized in the report for specific shortcomings). The problems which the General Secretary saw as unresolved in the national field, he attributed to the natural development of

— In 1988-89 the first official violent interethnic conflicts began to explode in the USSR.¹⁶⁸ The first major landmark, which awakened the country from its “dogmatic slumber” in the ethnic field, was the conflict between Armenians and Azerbaijanis in the Nagorno-Karabakh region. The violence of the Sumgait program in February 1988, early in the dispute, shocked the population of the USSR as a whole.¹⁶⁹ The precedent of

historical processes (“contradictions” as a normal part of development or narrow-minded “survivals” of culture and religion). In short, the field of ethnic-national relations was not one of Gorbachev’s major concerns at the outset of perestroika.

This position of the Soviet leader was not merely a matter of official self-indulgent rhetoric with the progress made in the ethnic field. The General Secretary did indeed believe that, in the sphere of relations between nationalities, there was a generally quiet atmosphere, whose “hottest” points could be resolved within the limits of the regime. Gorbachev, probably like most Russians, would only realize that something new, and worrying, was taking place in the ethnic field a few years later. Indeed, the General Secretary of the CPSU realized the level of seriousness of interethnic tensions only after the first openly violent interethnic conflicts erupted in the later period of perestroika (*i.e.*, after the start of armed disputes between Armenians and Azerbaijanis over Nagorno-Karabakh in 1988-89). This late awareness of the seriousness of interethnic problems was later admitted by Gorbachev himself at a private meeting in Washington in 1992. In May of that year, the Library of Congress chief librarian James Billington organized a breakfast with the former Soviet leader and a select group, composed mainly of American scholars. Having stated that the most complicated and most surprising question during the perestroika era had been that of nationalistic separatism, Gorbachev was asked when he had become aware of this (that is, of the seriousness to such an extent of this problem). The surprising answer was, “In the fall or winter of 1990.” (Personal communication to the current author by two participants in the meeting with Gorbachev: Professor Harley Balzer, at Georgetown University on 30 June 1997, and Professor Blair Ruble, at Kennan Institute, Washington, DC, USA on 21 July 1997; episode also cited in Remnick, 1997, p.17)

This response perplexed his American listeners, since late 1990 represents more than a year after the outbreak of the first armed interethnic conflicts in Nagorno-Karabakh! Gorbachev’s testimony reinforces the hypothesis (as stated earlier, evidenced by the personal experience of the current author during his stay in the USSR and also shared by several Russian ethnographic writers, even those critic of the Soviet regime, such as Valery Tishkov) that the irruption of interethnic conflicts in 1988-89 caught most Russians by surprise. (Tishkov, 1997, pp. 46-47)

For an account of Gorbachev’s lack of sensitivity and experience with the nationalities problem when he took over the CPSU secretariat in 1985, see Carrère d’Encausse (1993, pp. 6-13, esp. p. 12).

¹⁶⁸ It is important to note that as early as 1986 there was a serious incident that augured the overtly violent ethnic problems of 1988-89. On 17 and 18 December 1986 there were public protests in the streets of Alma-Ata, capital of Kazakhstan. A crowd, composed mostly of young people and students, protested against the replacement of the first secretary in that republic, Dinmukhamed A. Kunaev (a Kazakh) by Gennadi Kolbin (a Russian). In the police clash with the demonstrators, at least two people were killed and a large number injured. This was the first major public protest that resulted in death in the USSR since the protests in the Russian city of Novocherkassk against an increase in the price of meat and butter in 1962 (on this incident of Novocherkassk, see the secret reports of the KGB at the time, recently declassified in the Russian archives, especially TsKhSD, f. 89, op. 6, d. 16). The ethnic balance of power was a sensitive issue in Kazakhstan, as Kazakhs were in minority in the republic (36% of the population against 41% of Russians) as a result of constant immigration.

¹⁶⁹ The Nagorno-Karabakh autonomous region (*avtonomnaya oblast’*) was a constituent part of the Soviet republic of Azerbaijan, but the vast majority of its population was Armenian. The region had been a matter of historical dispute, as it was part of the route used by nomadic Azerbaijani shepherds. Although 95% of the population at the time was made up of Armenians, the Soviet government in 1923 placed Karabakh as part of Azerbaijan. This situation was uncomfortable for the Armenians. Mainly from 1965 onward, petitions were made to the central government by the inhabitants of Karabakh for the transfer of the region to Armenia, but without success. With the beginning of perestroika, this movement gained momentum. On February 11, 1988, demonstrations took place in Stepanakert, the capital of Karabakh, and later in Yerevan, the capital of Armenia. A petition calling for the unification of Karabakh to Armenia was sent to Moscow and rejected. On February 20, the Nagorno-Karabakh Soviet — where, reflecting roughly the proportion of

widespread violence would spread to other regions. On the “Black Sunday” of 9 April 1989 in the Georgian capital Tbilisi, government troops violently suppressed a demonstration in support for people on hunger strike for the independence of the republic, causing more than twenty deaths and about two hundred wounded. The event would leave indelible resentment in the local population, increasing the sympathy with the separatists. In the Fergana valley in Uzbekistan, in the first half of June 1989, Uzbeks held a pogrom against the Turkish Meskhetian minority. On June 17-21, 1989, in the oil city of Novyi Uzen (Kazakhstan) violent street demonstrations took place, during which Kazakhs clashed with immigrant workers from other republics (Dagestan, Chechnya, Ingushetia and Ossetia). In the Osh region (Kyrgyz Republic) in the summer of 1990, a

the general population of the *oblast'*, the Armenians were a majority against the Azerbaijanis — voted for the incorporation of the region into Armenia and formed the Karabakh Committee to organize the work of the separatist movement. Tensions increased in the days ahead as Stepanakert and Yerevan put pressure on Gorbachev to acknowledge the decision of the local Soviet. On February 28, official reports that two Azerbaijanis were killed in clashes with Armenians near the town of Agdan (right next to Nagorno-Karabakh) provoked an indiscriminate attack on Armenians living in Sumgait, a suburb of Baku, the capital of Azerbaijan. In the two days of the Sumgait massacre, more than thirty people died and hundreds were injured. Federal troops were sent to the region. On March 23, 1988, the Supreme Soviet of the USSR adopted a resolution condemning the unilateral decision taken by the Karabakh Soviet and the functioning of the Karabakh Committee, accused of irresponsible separatism. On June 15, the Supreme Soviet of Armenia passed a resolution in favor of the incorporation of Karabakh to the republic. The escalation of tension and sporadic violence increased, with an impasse between the position of the Armenians on one side and that of Moscow and Azerbaijan on the other (against the change in Karabakh status). On 7 December 1988 a major earthquake caused destruction in northeastern Armenia and left tens of thousands dead. On January 12, 1989, federal intervention was ordered in Nagorno-Karabakh. The region's administration was temporarily transferred to the federal government, with the proclamation of a state of emergency. The question of Karabakh and the position of Moscow, unable to resolve the issue in practice, fomented nationalistic dissatisfaction. In September 1989, Azerbaijan started a railroad blockade against Armenia. The conflict began to assume contours of civil war between the two republics. Moscow ordered Azerbaijan to dismantle the blockade. Upon refusal, federal troops took control of the Azerbaijani rail system in early October. Although the blocking problem had been solved, the situation remained tense. In November 1989, a popular front was formed in Armenia (Armenian National Movement). In view of this lack of progress in the negotiations, on November 28, the Supreme Soviet of the USSR decided to end the period of federal intervention in Nagorno-Karabakh. The situation then “returned to zero”, since if, on the one hand Nagorno-Karabakh was again subordinated to Azerbaijan (with explicit recommendations for the maintenance of its status as *avtonomnaya oblast'*, or “autonomous region”), on the other hand the local government was in the hands of the Karabakh Soviet (mostly Armenian and anti-Azerbaijan). On December 1, 1989, Armenia declared that the enclave was part of the “unified Armenian republic” and on February 11, 1990 announced that federal laws would only be valid in Armenian territory if they did not contradict local laws. To restore order, especially after a pogrom suffered by Armenians in Azerbaijan on January 13, 1990, federal troops invaded and occupied Baku under Azerbaijani resistance. The occupation and the state of emergency proclaimed in the city (on January 19) would be marked by numerous armed conflicts that left dozens of fatal victims. On August 5, 1990, a former high commissioner of the Karabakh Committee, Levon Ter-Petrosian, was elected president of Armenia. Later, during his presidency, Yerevan would change its position somewhat, requiring Armenia's annexation of Karabakh to support the “self-determination” of the Armenians of Karabakh. All of 1990 and the first half of 1991 would be marked by the impasse of positions and skirmishes (occasionally with large numbers of victims) around Karabakh. On November 26, 1991 Azerbaijan decided to officially abolish the status of Nagorno-Karabakh as an autonomous region (*avtonomnaya oblast'*). In contrast, the Armenian authorities in Karabakh decided to self-proclaim a republic in December, including filing a request to join the CIS. Thus, at the end of 1991, at the time of the dissolution of the Soviet Union, the conflict around Nagorno-Karabakh continued indefinitely.

Uzbek-Kyrgyz conflict erupted with more than 100 dead.¹⁷⁰ Broadly speaking, it may be said that 1989 was the year of the emergence of serious ethnic conflicts, which shocked the Soviets to become aware of the problems in this sphere. The Nagorno-Karabakh dispute in 1989 turned into an open conflict between the republics of Armenia and Azerbaijan. The year of 1989 marked the definitive take-off of openly nationalist movements and the beginning of the generalization of interethnic violence. At the forefront of the nationalist movements were the Baltic republics (especially Lithuania and Estonia) from where national grassroots fronts began to coordinate and unify the action of groups and informal organizations that had been forming since the beginning of perestroika. From the Baltics, the strategy of formation of popular fronts spread to other republics (Georgia, Ukraine, Moldavia etc.).¹⁷¹ In the Baltic republics (the most advanced

¹⁷⁰ The Osh *oblast'* in the Kyrgyz Republic (on the border with Uzbekistan) had a multiethnic population with Kyrgyz (56%) and Uzbeks (26%) as the largest groups. Uzbeks accused the region's administration of not maintaining the traditional proportional balance between nationalities according to their percentage in the population. The economic crisis of perestroika exacerbated the mood between Kyrgyz and Uzbeks in the struggle for jobs and improvement in the standard of living of each population. In the week of June 4 to 10, 1990, ethnic conflicts between the two nationalities exploded in the Osh region and neighborhoods. The cause seems to have been Uzbek revolt when they learned of a decision by local authorities to use the land of a Uzbek collective farm that had been occupied by Kyrgyz people to build housing for Kyrgyz people. The week of ethnic clashes, crimes and deaths ended with 120 Uzbeks, 50 Kyrgyz and a Russian killed and more than 5,000 registered crimes (robberies, murders, looting, rapes, etc.).

¹⁷¹ The first popular front was the one of Lithuania (called *Saiudis*), in its capital, Vilnius, on June 3, 1988. In Tallinn, on October 1, 1988, the Estonian popular front was formed and in Riga, on October 8, the popular front of Latvia was created. On May 13 and 14, 1989, the Baltic Council was created to coordinate the actions of these three organizations. From the Baltics, this strategy of popular fronts spread to several other republics. Popular fronts were officially established in Belorussia (on 19 October 1988) and Moldavia (20 May 1989); in Georgia and Azerbaijan (July 1989), in Ukraine (the so-called RUKH, on 8 September); in Armenia (the Armenian National Movement, on 4 November). The creation of popular fronts, because of its great representativeness, posed a problem to the sections of the Communist Party in the republics: either to support the linguistic, ecological and decentralization demands of the new movements (at the risk of increasing nationalist fervor) or to act against the fronts and risk alienation from the population sympathetic to those demands. In most republics, the local Communist Parties were critically or openly against the popular fronts. In the Baltic, however, the situation was different. The communist parties of Lithuania and Estonia, after a reticent start, even supported some nationalist platforms (the Lithuanian Communist Party, led by Brazauskas on 12/23/89, would even declare its own independence from the CPSU). In Latvia (whose population contained only 54% of Latvians and 33% of Russians), the local CP remained initially more subordinate to Moscow, but, as in the other two Baltic republics, the popular front was relatively free to propagate its ideas. Later the Latvian CP would also take a course independent of the center. In the Baltic and other republics, the local Russian population formed the so-called *interfront*, or internationalist fronts, which opposed nationalist and separatist claims.

Until the first half of 1989 (and much of the second half, in some republics) informal groups (*neformal'nye ob"edineniya*), and later the popular fronts, concentrated heavily on linguistic and ecological demands and demands for greater decentralization of decision-making power in favor of the republics in internal affairs. The exception was the Baltic republics, where the process was more developed. Based on the argument that their annexation by the USSR had been based on the German-Soviet secret pact of 1939 and therefore had no legal validity, the Supreme Soviets of the Baltic republics proclaimed their sovereignty: Estonia (on 11/16/88), Lithuania (on 5/18/89) and Latvia (on 7/28/89). Great momentum for the prestige of this movement had been the victory of nationalist candidates from the three fronts in the March 1989 elections to the Congress of People's Deputies. In these elections, considered the first relatively free since the creation of the USSR — although the CPSU was still the only party registered, alternative individual candidates could also be registered — nationalist candidates or candidates sympathetic to the ideas of nationalist groups won the majority of seats reserved for the republics of the Baltic Sea.

In addition to the Baltic republics, some nationalist movements from other republics were able to elect candidates (but far from the majority) in the March 1989 Congress of People's Deputies, notably Moldavia and Ukraine. However, apart from the Baltic republics, most of the nationalist movements in the first half of 1989 (and, for many, in the second half as well) were still at the stage of linguistic, ecological and autonomy demands. The linguistic question, in particular, became a catalyst for nationalist sentiments. In several republics, laws were passed making the local language the only official language for internal affairs (*i.e.*, official documents, traffic notifications etc. would all be written in the official language of the republic). This type of linguistic law was passed, among others, in Estonia (1/18/89), Lithuania (1/25/89), Latvia (5/5/89) and Moldavia (9/1/89), then spreading to other republics.

The year of 1990 marked a radicalization of positions. In the Baltic republics (with Lithuania at the forefront of the process), the main slogan goes from *sovereignty* (a somewhat vague term which in the beginning in practice represented that local laws would have priority over the laws of the USSR while negotiating the terms of a new relationship between the republics and the Union) to *independence* and *secession*. In the other republics (with Georgia, Moldavia, Armenia and Azerbaijan in the lead), the discussion evolved from a nationalist policy that emphasized cultural and linguistic elements to the discussion of *sovereignty* and (almost immediately thereafter) *independence*. The Lithuanian parliament declared the independence of the republic on March 11, 1990. On May 4, the Supreme Soviet of Latvia issued a statement in the same vein. Estonia took a different path. The two "parallel" parliaments that had been operating since 1990 (the Republic's regular Supreme Soviet on March 30, 1990, and the Estonian Congress, elected independently of the Soviet laws on March 12, 1990), both adopted the position that the Estonian state that existed legally was the same as that of the independent republic of the treaty signed by Lenin in Tartu in 1920 and that its annexation to the USSR had been done illegally, based on the secret protocols of the Molotov-Ribbentrop pact of 1939. Therefore, not even a declaration of independence was required, since legally the 1940 occupation had no legal basis: it would only be left to negotiate with Gorbachev the details of the return to the legal *status quo* of pre-1939 Estonia. Georgia declared its independence on April 9, 1991, on the two-year anniversary of the massacre of demonstrators by Soviet troops in Tbilisi. Most of the other republics declared their independence immediately after the coup attempt of August 1991.

March 1990 also marked the Soviet elections for local parliaments in the republics. As a result, on May 29, Yeltsin was elected chairman of the Supreme Soviet of the Russian republic, with the platform of "total sovereignty" for Russia. On March 13, 1990, the post of President of the USSR was created, for which Gorbachev was appointed. On June 11, 1990, Russia declared its sovereignty *vis-à-vis* the USSR (and finally, on October 31, 1990, the last of the 15 republics that had not yet taken this step, Kyrgyzstan did the same).

In 1990, most of the autonomous republics that existed within the framework of the 15 constituent republics of the USSR (and even some of the autonomous regions) declared their own sovereignty (with a view mainly to autonomous resource allocation). This created several conflicts with the republics of the Union, which did not accept this sovereignty in its territory. Thus, Georgia repressed the internal nationalisms of Abkhazia and Ossetia; the region of Transdniestre (mostly populated by Russians) and the Gagauz minority to the south rebelled in Moldavia; the Russians would later have problems with the Chechens in their territory, etc. Thus, by the second half (autumn) of 1990, the situation in the USSR was becoming alarming and with unpredictable consequences. Realizing that the situation was becoming unmanageable, Gorbachev agreed to a plan for a new Union treaty that would pass most of the responsibilities and rights to the republics, but would keep some essential functions as the center's responsibility (defense, central bank and single currency, federal legislation, etc.). Gorbachev (unsuccessfully) submitted three successive proposals for this treaty of the Union (one on November 23, 1990, the other on March 9, 1991, and the third on June 18, 1991) — each version made more and more concessions to the republics. During this period a referendum was held in the USSR (boycotted by the three Baltic republics plus Armenia, Georgia and Moldavia) on March 17, 1991, consulting the population if they wished to preserve the Soviet Union or not, with a majority (76.4% of voters) in favor of maintaining the Union. On April 23, 1991, in the Moscow suburb of Novo-Ogaryovo, Gorbachev and most of the leaders of the republics attempted a preliminary agreement for the formation of a "union of sovereign states." The details would be handled by republican leaders themselves rather than imposed by the center. On June 12, 1991 Boris Yeltsin was elected to the newly created post of President of Russia. The situation came to a standstill, with the republics refusing to accept Gorbachev's successive proposals for a new Union treaty.

in this process) 1989 marked the proclamation of the sovereignty of one's republic over the Union. In the other republics (notably Moldavia, Georgia, Azerbaijan and Ukraine) the year of 1989 was still marked by a nationalism which focused on cultural aspects (mainly linguistic questions of assertion of the national language) and on the struggle for a greater decentralization of power to the republics. The year of 1990 marked a radicalization of the process: the Baltic republics moved from the slogans of *sovereignty* to *independence* and *secession*, and the others moved from *cultural* and *linguistic* claims to those of *sovereignty* (almost immediately thereafter, with debates on independence and secession). The year 1990 was also marked by the escalation and spread of ethnic conflicts in several republics, through the appearance of a complicating factor: several autonomous republics and autonomous regions, which existed within the framework of the 15 constituent republics of the USSR, also required their sovereignty in relation to the latter.¹⁷² The first half of 1991 was marked by the radicalization and intensification of pressure from the republics for total autonomy from the center and refusal to accept the terms of Gorbachev's proposals for a new Union treaty. In the midst of the impasse created in a context of growing and generalized ethnic conflicts, came the frustrated attempt of the August 1991 putsch, which, in moving away from Gorbachev, aimed at strengthening the dying Union through the repression of nationalist movements by force.

Finally, after prolonged and exasperating negotiations throughout the summer, a new Union treaty, created from the formula discussed in Novo-Ogaryovo, was ready to be signed on August 20, 1991 by representatives of Russia, Byelorussia, Kazakhstan, Tajikistan and Uzbekistan. The treaty would leave the republics with broad powers, including mechanisms to facilitate secession for those which so wished. However, on the eve of the signing of the treaty, on August 19, there was a putsch attempt in which Gennady Yanayev (Vice-President of the USSR), Vladimir Kryuchkov (KGB chief), Valentin Pavlov (prime minister) Boris Pugo (interior minister), Dimitri Yazov (army minister), Anatoly Lukyanov (president of the Supreme Soviet) and others tried to depose Gorbachev and preserve the integrity of the USSR by force of arms. With the putsch's failure at the end of three days, Gorbachev returned to Moscow on August 23. However, demoralized, he could not prevent the republics from acting on their own. Some of them declared their independence unilaterally shortly after the putsch attempt: Moldova (8/27/91), Byelorussia (8/25/91), Azerbaijan (8/30/91), Uzbekistan (08/31/91), Tajikistan (9/9/91), Armenia (9/23/91). The Supreme Soviet of Ukraine, on August 24, adopted a resolution for Ukrainian independence, to be confirmed by a popular referendum scheduled for December 1. Estonia (on 8/20/91) and Latvia (on 8/21/91) also reconfirmed on these dates their declarations of independence, now with an immediate validity. The CPSU, accused of taking part in the August putsch attempt, had its legal existence suspended by the Supreme Soviet on 8/29/91. On October 18, an agreement was signed in Alma-Ata to form a "community" — the word "union" was avoided — between the former republics. The treaty, however, was signed by only 8 of the republics (it also contained Gorbachev's signature). In view of the dilemma that was becoming impossible to reach the consensus of all the republics, in Minsk, on December 8, the heads of state of Russia, Byelorussia and Ukraine declared that their republics were withdrawing unilaterally from the USSR, initiating the formation of a Commonwealth of Independent States among them and inviting other republics to join them. In Alma-Ata, on December 21, the republics of the USSR (minus the three Baltic states, already independent, and Georgia, which was in internal civil war) officially signed the creation of SNG (*Sodruzhestvo Nezavisimikh Gosudarstv* or "Commonwealth of Independent States", CIS). On December 25, Gorbachev announced his personal resignation as president of the USSR, passing the "nuclear button" to Yeltsin. On December 26, 30 deputies of the Soviet parliament "voted" for the official dissolution of the USSR and approved the Alma-Ata treaty (creator of the CIS), before deciding on the self-extinction of the legislative body of which they are part.

¹⁷² In this way, the autonomous republic of Abkhazia and the autonomous region of South Ossetia were demanding their independence from Georgia. In Moldavia, autonomist movements took shape in the region of Transdnistrie (populated mostly by ethnic Russians) and among the Gagauz population (who lived in the south of the republic).

With the failure of the putsch, in the second half of 1991 the country was practically adrift, waiting for an agreement to concretize the transformation of the USSR into some form of confederation of sovereign or independent states. The impasse was broken by the unilateral declaration of the Slavic Republics (Russia, Byelorussia and Ukraine) on 8 December 1991 that they were withdrawing from the USSR and forming a Commonwealth of Independent States into which the other republics were invited. With the other republics — minus the three Baltic states and Georgia, which was in civil war — later joining this group and officially creating the CIS on 21 December, the USSR ceased to exist in practice. Gorbachev resigned from the post of President on 25 December and the “official” abolition of the USSR was signed by a small group of 30 deputies of the Soviet parliament on 12/26/91.

9.3 CONCLUSION

After what was said above, the question remains. After all, were there strong (“explosive”) interethnic tensions in pre-perestroika USSR? Was the situation with the problem of nationalities one of the determinants for perestroika?

The answer to the second question, in our view, is *no*. Among the factors that most strongly led the Soviet leadership to start perestroika in 1985 was not the problem of nationalities. When analyzing the 1985-86 party texts, we do not see a critical analysis and a sense of urgency for solving ethnic problems (unlike other areas, especially economic ones, where criticisms were formulated along with affirmations of the need for change as soon as possible). Mentions of “narrow nationalism,” especially in the areas of culture and religion, were mitigated by definitions such as “remnants from the past” that could be solved by the system itself, without radical changes. Gorbachev was one of those who had this vision at the time. As we saw earlier, he even admitted that he only became aware that ethnic problems could be a danger to the very existence of the USSR in 1990.

However, this answer to the second question in the first paragraph does not give us any support for the first question (“Were there serious interethnic tensions in the USSR before perestroika?”). After all, the fact that Soviet leaders did not perceive the pre-perestroika interethnic situation as alarming or worrying does not mean that there were not problems.

Our analysis leads us to believe that: (1) the “national question” had not been satisfactorily resolved in the pre-perestroika USSR (there were interethnic tensions, to a greater or lesser extent in some points), but (2) interethnic tensions did not have enough momentum at that time to launch a disintegrating or centrifugal process in the Soviet Union and that (3) the national processes, in their later salient role, served as conduits of popular dissatisfaction from other areas which found in nationalist movements their most efficient platform.

Let us consider the parts of the statement above.

First of all, we would like to express our disagreement with the many interpretations, very common in the West, that the problem of nationalities in the USSR was being exacerbated in the Soviet period by a policy of “repression” (cultural, political,

etc.) of ethnic minorities. (Smal-Stock, 1960; Armstrong, 1968) We even believe that the opposite may have occurred: a number of ethnic minorities (mainly small ones but not only) may have found their form of national expression in the Soviet period.

To understand the statement above, one must keep in mind that the USSR did not expand the Russian empire. Of the 15 Soviet republics, all had been part of the Russian empire before the Bolsheviks took power.¹⁷³ The *status quo* of the many nationalities of the former Russian empire did not worsen in the Soviet period: on the contrary, it improved because colonies became part of a multinational state. In this multinational state, not only there was (formal) legal equality between the republics, but in the field of national cultural expression the situation was far more favorable than under tsarism. For this reason, it is difficult to analyze an escalation in interethnic tensions in the Soviet period (for example, under Brezhnev) by explaining that the national situation itself had worsened under the Soviet regime, with the adoption of more repressive measures and so on. We emphasize the national situation itself (of nations as nations) as opposed to the (economic, political, social) condition of the populations of each constituent nation of the USSR, because these are two different categories. This difference will become vital to understand the disintegrative processes at the end of perestroika, as we shall see later.

Thus, if we do not agree with writers such as Smal-stock and Armstrong, who saw the “national problem” in the USSR sharpened by policies of repression, we agree with Tishkov (1997, p. 234) when he says that, on the contrary, taking the totality of the ethnic groups of the USSR into consideration, it was in the Soviet period that a significant part of them found their more sophisticated forms of national expression.¹⁷⁴ Ironically, these national expressions, generated (or at least fortified) during the Soviet period,¹⁷⁵ may have served as a basis for strengthening self-assertion tendencies where there were none before, by raising expectations, demands, and so on.

¹⁷³ It is important to note that the three Baltic republics (Lithuania, Latvia and Estonia) and part of Moldavia had a period of independence between the First and Second World Wars being reincorporated during the period of World War II. During the period of the Russian civil war (1917-21) independence movements came to have control of the republics of the Caucasus (Georgia, Armenia and Azerbaijan).

¹⁷⁴ According to Tishkov (1997, p. 234):

It is true. A strong unitary political regime carefully controlled political processes and sought to micromanage interethnic relations. But despite the many crimes committed by the Soviet government against ethnic groups, huge amounts of resources were also transferred to comprehensive programs aimed at supporting “national cultures” [...] The cultural mosaic was extensively documented, academically described, and staged in the repertoires of numerous peripheral and central theaters, operas, museums and groups of dance and folk music. It was precisely this Soviet policy of nurturing local cultures, facilitated by the professional elite of intellectuals and administrators, which provided a powerful material and symbolic basis for the localized nationalism that would later challenge the identities of common culture and citizenship of the Soviet Union.

¹⁷⁵ Thus, the Soviet system had different effects on the smaller or less consolidated nationalities of the pre-revolutionary period (such as Yakuts, Uzbeks, Turkmen, Kazakhs, Gagauz, etc.) and on the larger nationalities which were already well established in the pre-revolutionary period (as in Armenia, Georgia, Lithuania, etc.). In the latter case, one could argue that there was at least a partial repression of these national cultures in the USSR. However, even in these cases, the question is controversial: after all, it is quite debatable to consider that cultures in Armenia, Georgia, Lithuania, etc., during the Soviet period were more suppressed than in the tsarist period.

However, such an increase in expectations occurred within the Soviet regime, from its own policies, and could be resolved within it. It is our position that interethnic relations, even on the eve of perestroika, were still within the limits of the “resolvable” within the system. We base our position on several points: 1) on the perception of Soviet leaders who, as we have seen, in the field of nationalities, unlike other spheres, did not see reason for alarmism until the late years of perestroika (KPSS, 1986, pp. 75-76; Andropov 1990, p.14); 2) on the perception of almost all Soviet ethnologists and analysts of the issue, in addition to the majority of specialized Western observers who did not view, prior to perestroika, the national question as having a potential for causing immediate or short-term disintegration of the USSR. (Azrael, 1978; Bialer, 1980; Zaslavsky, 1982; Lapidus, 1983; Troitskii, 1984; Kulichenko, 1984; Kozlov, 1988; Motyl, 1991); 3) on our interviews and personal contacts with Soviet citizens of different nationalities in 12 of the 15 Soviet republics during the period we were pursuing our master’s degree in the USSR at the time of perestroika. (Segrillo, 1992)

Obviously, we are not saying here that there were no problems in the ethnic area. A multinational state (inherited from an imperial structure), composed of more than 100 different nationalities, could not have a completely stress-free structure (especially within the concept of nationality based on *jus sanguinis*, which perpetuates the maintenance and reproduction of ethnic differences). The most obvious cases were the three nationalities of the Baltics and the nationalities deported *en masse* by Stalin during World War II. The three republics of the Baltic region (Lithuania, Estonia and Latvia) because they had been reinstated relatively recently, at the time of World War II (they had been independent in the period between the two great wars): they were those in which nationalist tensions were greater. Likewise, among nationalities deported by force, abruptly and violently, it was only natural that serious resentments remained for a long time. However, even among these nationalities, qualifications must be made. If, on the one hand, there were deportations of these entire nationalities during the war years, it is equally true that in 1957 (in a process that lasted for the following years), these deportations were officially condemned by the Soviet regime itself, the nationalities were rehabilitated and all (with the exception of the Crimean Tatars, Volga Germans and Meskhetian Turks) had their own territories re-established.¹⁷⁶ Since the 1960s, these deported nationalities were reincorporated into the normal life of the country, schools with national languages created, party cadres educated, etc. This long period of reintegration represented a lot in terms of diluting much of the feelings of bitterness, humiliation, and low self-esteem in the immediate post-deportation period. Not that there were no marks of the ignominious deportations, but at the end of the 1970s and beginning of the 1980s, the Karachays, Kalmyks, Chechens etc. were already much more reintegrated into the normal life of the country. (Tishkov, 1997, p. 164) Even in the most serious case in the period immediately prior to perestroika, which were the Baltic republics, the memory of the Russians as a troop of occupation was mingled with a popular feeling of a certain resignation with the

¹⁷⁶ Most of the nationalities deported by Stalin during World War II were rehabilitated in 1957. The Volga Germans, Crimean Tatars and Meskhetian Turks were officially rehabilitated in the 1960s. By a decree of the Presidium of the Supreme Soviet of 1/9/57, confirmed by Supreme Soviet law of 2/11/57, the Balkars, Chechens, Ingush, Kalmyks and Karachays were not only rehabilitated but again granted territorial autonomy. (VS SSSR, 1957, p. 134) The Volga Germans, Crimean Tatars and Meskhetian Turks were rehabilitated by decrees of the Presidium of the Supreme Soviet respectively of 8/29/64, 9/5/67 and 5/30/68. (VS SSSR, 1964, p. 931; VS SSSR, 1967, p. 531-532; VS SSSR, 1968, p. 311-312)

duration (more than 40 years) and the natural longing of a large part of the population to ascend the social scale within the Soviet system itself. (Carrère d'Encausse, 1978, p. 273)

Even in the case of Armenians and Azerbaijanis, despite the historical rivalries of the tsarist period among the peoples of the Caucasus, several observers also indicated the existence of a large “silent majority” of the population that more or less assimilated into the situation of components of the Soviet multinational state. (Dashdamirov, Zhvaniya & Mravyan, 1984) Reports of former Nagorno-Karabakh villagers denoted how the explosive escalation of the conflict caught them by surprise, since interethnic relations between Armenians and Azerbaijanis were relatively reasonable until then, with examples of peaceful and even friendly coexistence between members of the two nationalities, especially in mixed schools attended by children of both nationalities.¹⁷⁷ (Tishkov, 1997, p. 136)

All of the above is not to deny the existence of areas of tension within the Soviet ethnic structure in the pre-perestroika era. We just want to emphasize that the level of these tensions would not be enough to explain, by itself, the explosion of violent conflicts in the final years of perestroika. However, how to reconcile a situation of relative calm in the field of interethnic relations in the period prior to 1985 and an explosion of conflicts in this field a few years later?

The key, in our view, lies in the fact that these interethnic conflicts served as conduits for transmission (and amplification) of contradictions (dissatisfactions etc.) from other areas, especially the *economic* one.

Before explaining how this happened at the time of the outbreak of the first violent ethnic conflicts in 1988-89, it would be interesting to recall the background of this situation, in which, prior to perestroika, motivations from the economic area intervened in the ethnic sphere, stirring rivalries between nationalities. A clear example of this was the anti-corruption campaigns in the republics of Georgia and Uzbekistan. The revelation of widespread corruption and favoritism in the republics of Georgia (in 1972) and Uzbekistan (in 1984-86) led the central government to determine a broad campaign to combat such practices in those republics, including purges of sections of the party to dismantle the small “mafias” that were forming. However, these anti-corruption campaigns had an undesirable side effect: many of the natives considered Moscow’s meddling as a form of discrimination against a whole nation, accused of being “incorrigibly corrupted.” (Carrère d'Encausse, 1993, p. 21) This led to an instinctive nationalist reaction: since corruption was not a “privilege” of these nationalities, they understandably felt discriminated against.¹⁷⁸ (*ibid.*) In other words, a policy initially guided by economic objectives (ending corruption in those republics to put an end to waste, misappropriation of funds and government material, falsification of economic statistics, etc.) ended up having repercussions in the field of nationalist feelings.

¹⁷⁷The author also heard testimonies in this regard from members of the Armenian and Azerbaijani community in Moscow in 1990.

¹⁷⁸ For an internal view of the Central Committee of the CPSU on the situation of fighting corruption, embezzlement of state funds and speculation on the eve of perestroika (1983-4), see TsKhSD, f. 5, op. 90, d. 67, 68 and 69. These folders contain originally classified reports (declassified in 1995) from the Central Committees of the Republican CPs and the secretaries of *obkom* and *kraikom* on the situation of combating the above-mentioned crimes in their areas of activity and included statistical data.

Likewise, in the period of perestroika itself, the contradictions and dissatisfactions in the economic field reflected and sharpened the contradictions in the field of problems among nationalities.

Let us take the case of the intensification of popular sentiments among Russians and inhabitants of the Caucasus region (Georgians, Armenians, Azerbaijanis, Chechens, etc.). We cited this example, as we witnessed this process of changing popular attitudes *vis-à-vis* different ethnicities. Before perestroika, the image of the inhabitants of Georgia or Chechenya, for example, among the Muscovites was one of hospitable people. The seaside resorts of the Black Sea were frequented by Russians on holidays, who returned to their cities enchanted with the traditional hospitality of the inhabitants of the Caucasus.¹⁷⁹ That is, despite (or perhaps because of) geographical distance, one of the strongest images of the Caucasus among most Muscovites, before and at the beginning of perestroika, was that of great hospitality *vis-à-vis* visitors. However, after the onset of perestroika, this image was radically altered. In 1989-90, the basic image of Caucasus inhabitants among Muscovites and other inhabitants of large cities in Russia was that of exploitative (in trade) and even criminal. What was the reason for this transformation? After the start of perestroika, “cooperatives” were allowed to carry out small services and retail trade. Fresh agricultural products from the sunny Caucasus, mainly fruits and vegetables, which were once distributed through government channels, began to be distributed in the large Russian cities by small semiprivate structures operating in the free market. These cooperatives (in reality, private structures) sold products of superior quality (but at prices well above those of the official stores) at the cities’ free markets. True “mafias” were then formed by traders from the Caucasus (mainly Georgians, Armenians and Azerbaijanis) who came to dominate the free markets of Moscow for fruits and vegetables. This led the Muscovite population to create a strong “antipathy” for the Caucasus nationalities because of their experience with these “speculators” (as they were called). The situation worsened during the perestroika process when, in addition to the retail distribution, criminal structures began to form in Moscow. Several of these organizations were erected on an ethnic basis.¹⁸⁰ From this moment onward, a true ethnic barrier of hatred and prejudice was created between Russians and the Caucasus natives in the capital and in other big cities of Russia. At the time of the Chechen war, the image of the Chechens as “thieves” was already strongly marked in the popular imagination. Thus, economic motivations between “consumers” and “exploiters” extrapolated to the ethnic field in Moscow, with “Caucasians” being seen as the “controllers of the city’s free markets” or “*mafiosi* of shadowy businesses.”

Many of the strongest ethnic conflicts of the period of perestroika had economic motivations behind them. In the Nagorno-Karabakh conflict (between Armenians and Azerbaijanis), we should note that before 1917, Karabakh (where the Armenians were always the majority) was part of the route of nomadic Azerbaijani herders who used the

¹⁷⁹ The author witnessed and received the hospitality of the Georgians in person during his stay in Georgia. The inhabitants of the Caucasus form a more traditional society, more “rural” than the cosmopolitan urban Russians. This is reflected in their gregarious behavior. Extreme hospitality to visitors is a constant feature of almost all local cultures.

¹⁸⁰ According to data from the Ministry of the Interior of the Russian Federation (see table 10.2 of Appendix 10), at the time of the dissolution of the USSR, the Moscow mafias specialized in the exchange of dollars and illegal exports; the Azerbaijani mafia, in the transportation of drugs; the Georgian mafia, in hotel extortion; the tartar mafia of Kazan, in gambling etc.

region's mountain pastures in the summer and then migrated in the winter to the steppes of Mil'sko-Karabakh, between Nagorno-Karabakh and the Kura and Araks rivers. (Tishkov, 1997, pp. 75-76) Although the collectivization of the 1930s brought with it sedentarization of the Azeris and other nomadic peoples of Central Asia, grazing and cattle raising were less affected in this sense: in the 1980's, on the eve of the conflict, the Azerbaijani chabans still used the Karabakh route (crossing it in spring and autumn, accompanied by their families) to transport the *kolkhozy* herds. Azerbaijanis of rural origin were among the most opposed to the transfer of Karabakh to Armenia. (*ibid.*)

Similarly, in the Osh region (Kyrgyzstan), there was traditionally a dispute between Kyrgyz and Uzbekistan for the use of the best pasture land and nomadic pastoralist routes. (Tishkov, 1997, p. 76) In the case of the massacre of Meskhetian Turks by Uzbeks in Fergana, Hélène Carrère d'Encausse drew attention to the fact that the Meskhetian Turk minority in Uzbekistan, was generally better positioned in terms of employment than the Uzbeks. (Carrère d'Encausse, 1993, p. 103) This generated a certain envy among the Uzbeks. (*ibid.*) During the severe economic crisis of perestroika, these tensions in Osh and Fergana turned into violence. This type of phenomenon was repeated in most situations of ethnic conflict: in times of crisis and dispute over jobs and economic opportunities there was a tendency to engage in ethnic disputes between "us" and "them" with other peoples (a common phenomenon in the world in general, as seen in the resurgence of racist-fascist animosities in Germany and other European countries due to the problem of unemployment). The case of the unrest in the oil city of Novyi Uzen (Kazakhstan) in 1989, when the Kazakhs were forced to fight for the expulsion of immigrant workers of other nationalities, is emblematic of this channeling to ethnic lines of economic problems.

The very ecological demands that marked the birth and initial consolidation of many nationalist movements of the USSR at the time of perestroika (in the Baltics, Armenia, among several Siberian and Arctic peoples, such as Yakuts, Buryats, etc.) can be seen from an economic prism, not only because they marked the apparent failure of the current industrial model but also because the main slogan to restore the ecological security of these nationalities was the decentralization of decision-making power over resources and investments in favor of the republics and regions. (Tishkov, 1997, p. 70)

What we want to point out with the above examples is that it was not the purely ethnic animosities in the pre-perestroika period that were responsible for the explosion of interethnic violence later, but rather the economic disruptions that led to a deepening of interethnic tensions of previous historical periods not satisfactorily resolved during the course of perestroika.¹⁸¹ From the moment that centrifugal forces in the economic field began to develop and the politico-economic power (previously concentrated primarily in the CPSU) began to be disputed by several other currents, the sphere of nationalities became a fertile catalyst of this power struggle. When perestroika reached the anarchic stage, in which the hegemony of the CPSU and the legitimacy of the Soviet regime began to be questioned and attacked, the nationalist banner served as one of the most effective

¹⁸¹ Thus, Motyl (1991, p. 509), in a somewhat more radical position than ours, wrote about ethnic relations at the end of perestroika.

[...] Gorbachev's efforts to transform the Soviet Union, in fact, produced their own centrifugal forces that threaten to subvert it. In other words, perestroika not so much liberated latent forces that were waiting for an opportunity to take over as it created them [...]

and direct means to achieve these ends. Consciously or unconsciously, the nationalist “card” was used more and more intensively by the forces interested in the destruction of the old regime. Not that there was no substrate of interethnic tensions behind these movements, but these tensions were used as catalysts of the popular dissatisfactions in the economic area (mainly the rapid deterioration of the standard of living during the years of perestroika). That is, in the final phase of perestroika, there was an ideological use of nationalism to justify processes and interests coming from other areas (for example, the introduction of market relations, the end of CPSU hegemony, etc.). In a country such as the USSR, where popular consciousness — for better or worse, after more than 70 years of actually existing socialism — was relatively impregnated with anti-capitalist values, the mere propagation of capitalism as a solution to the Soviet crisis would find greater resistance.¹⁸² Thus, the nationalist ‘card’ was a way of accelerating the disintegrative processes of the old system, using a concept that could be close to the popular imagination (at least locally).

A symbolic parallel can be drawn between the use of the nationalist “card” in the USSR during perestroika and the American ideology of “democracy” and “human rights” so often used to justify U.S. imperialist attitudes in several regions of the world during the Cold War. To justify intrusions of the CIA and other organs of the American government in internal affairs of other countries based on the (real) American desire to expand its area of influence and economic domination would not be a strategy capable of capturing the popular imagination, either abroad or even domestically. Therefore, the ideological mantle of dissemination of “democracy” and “human rights” in the world was used to justify American interventions in different areas and countries. This is very clear in an analysis of the contradictions of these interventions. The CIA tried to overthrow Fidel Castro “to establish democracy” in Cuba. Meanwhile, the CIA (and the U.S. government) supported dictatorial governments (post-1964 Brazil, Pinochet’s Chile, etc.) in Latin America (governments that allowed the expansion of American businesses in their countries). The U.S. government condemned the “closed” frontiers of the USSR and received fugitives or exiles from the Soviet regime, but the ideology of “free transit” between peoples did not prevent the Americans from denying visas to most Mexicans and poor Latin-Americans wishing to enter the country (fearing they would stay to work illegally). This ideological strategy of camouflaging economic interests with noble ideals worked quite well. Much of the U.S. population and even many in the neocolonized countries assimilated, to a greater or lesser extent, the ideology that the United States was the “champion and guardian of democracy” and responsible for its defense and dissemination in the world.

But these more intentional aspects of the ideological use of the nationalist “card” are only one facet of the problem in the Soviet case. Indeed, the roots of the possibility of such use must be sought in the fact that the formation of national consciousness and strong national states is intrinsically linked to capitalist development. The development of centralized and strong national states was in fact one of the characteristics and conditions

¹⁸² Evidence of this is the fact that it was only in the last two years of perestroika that the word “capitalism” was overtly used to describe the direction of the processes in progress (even by the democrats’ and Yeltsin’s camp). The euphemism used until near the end of perestroika was “market relations,” a term that is not so directly linked to capitalism, since market relations theoretically existed in the Soviet NEP period under Lenin and the market itself appeared long before capitalism.

for the development of capitalism and the expansion of trade that accompanied it. That is why national consciousness becomes extremely and intrinsically rooted among the inhabitants of countries where capitalist relations flourish. Just as tribal or feudal consciousness predominated in the past, most inhabitants of capitalist countries cannot even imagine themselves outside a national frame of reference. However, if national consciousness is characteristic of capitalism, a change in the mode of production for socialism should bring change toward an internationalist consciousness. (Marx & Engels, 1961-1971c, p. 479; Lenin, 1967-1970g, p.354) The USSR was then in this transitional situation. As we have argued elsewhere in this work, we do not share the opinion of those who considered that the Soviet Union had already fully entered the socialist phase. In this case, the national problems should have already been resolved. Trotskii (1936, pp. 287-288) considered that the USSR was a transitional society between capitalism and socialism and therefore affected by a combined series of factors characteristic of the two systems, the ultimate result of which could be an advance of the system towards socialism or a regression to capitalism. Perestroika ultimately proved to be a return to capitalism. It was natural, then, to expect that elements of nationalist consciousness should accompany this process.

These interactions with socialism-capitalism and internationalism-nationalism should not be analyzed only in the period of perestroika. Throughout the period of existence of the USSR these interactions were at play. In our study, we analyzed the differences between the 1930s and the decades of 1960 and thereafter. From the 1930s to the 1960s, the Fordist production regime was the most advanced in the world, and many of its central principles (centralism, hierarchy, rigidity, etc.) were also principles of the Soviet “proto-socialist” mode of production. However, after the 1960s, new paradigms of flexible production (notably Toyotism) began to emerge as the most advanced on a worldwide scale. Its principles (flexibility, emphasis on horizontal information flows, emphasis on quality, etc.) were antagonistic to principles of the Soviet mode of production. In this period, the Soviet system lost much of its dynamism and ended up stagnating. We can see a historical parallel between the moments in which the Soviet system was more dynamic (it seemed to actually be moving toward socialist hegemony domestically and abroad) and an increase of internationalism as an ideology that was imposed within the USSR. Despite all the excesses and repressions of Stalin, the process of rapprochement and internationalization (sovietization) of nationalities deepened in those years, peaking around 1960 under Khrushchev. The 1961 CPSU program — which envisaged communism in twenty years’ time, and also emphasized that nationalities were coming together and mingling into a common *homo sovieticus* — was not a mere ideological fantasy of the leaders of the USSR. The constant migrations between the republics (especially during industrialization, the campaign of virgin lands, etc.), the elevation of the cultural level of minority nationalities, interethnic marriages, all led to the existence of a trend toward greater homogenization among cultures. However, after the mid-1960s and early 1970s, with increasing economic hardship, the Soviet system was stuck. The slowdown in the economy forced the leadership to carry out a series of economic experiments that, if deeply analyzed, revealed, in fact, the use of certain successful market (“capitalist”) mechanisms (decision-making decentralization to the level of the companies, profit as one of the indicators of success, etc.). In other words, the new phase of the world economy from the 1960s onward, with its new paradigms of

production, was not favorable to the Soviet system and sharpened the contradictions of this transition regime between capitalism and socialism: the inexorable advance of the system towards socialism did not seem so certain anymore. This was revealed in the ethnic-national sphere as well. Western observers began to notice signs of rebirth of incipient nationalist sentiments in the Brezhnev period. Some of these observers captured this difference in attitudes between the Khrushchevian period (at least until 1961) and the later Brezhnevian period. (Carrère d'Encausse, 1995, pp. 35-36)

In sum, we consider that the process of reappearance of nationalist phenomena in the USSR must be seen, not isolated in itself, but in coordination with other processes that occurred (mainly in the economic sphere) and that represented the oscillations of the Soviet mode of production in its complicated transition between capitalism and socialism. The authors who analyze the ethnic problems of the USSR *per se*, regardless of the conditions of the mode of production in which they operated, confuse “the last drop of water” that spills the bucket, with the deeper processes that led to the elevation of the water level in the bucket. The fact that nationalist processes, in practice, capped off the physical disintegration of the USSR may confound analysts and keep them at the lowest level of the process. This can be illustrated by taking the example of the French specialist Hélène Carrère d'Encausse. She was (deservedly) considered a “prophet” of the nationalist explosion of perestroika. In her main book of the pre-1985 period, *L'Empire Éclaté* (1978), she pointed to the ethnic problems that the USSR would later face on a more serious scale. However, she autonomized the national question, making it an independent variable among the vectors that affected the system — hence the title of one of her first post-perestroika books, *The End of the Soviet Empire: the triumph of nations* or, in French, *Gloire des Nations*). However, this autonomization or absolutization of the national consciousness can lead to confusion of the external phenomenon with the internal processes, of the form with the content. An analysis, starting off from the absolutization of national processes, is inaccurate. If we look closely at her pre-perestroika book *L'Empire Éclaté*, we will find that, Hélène d'Encausse was not able to correctly predict *which* of the national problems would really prove to be the most urgent issues at the time of perestroika. Several of the problems pointed out as the most serious by d'Encausse did not reveal themselves as the ones responsible for the disintegration of the USSR; on the other hand, national problems that were less emphasized by the author developed with greater speed and became more worrisome during perestroika. This is because these national issues were linked to other economic processes. If these national problems were really so autonomous, it would be less difficult to predict the individual developments of each. Thus, for example, in the chapter of *L'Empire Éclaté* devoted to the most serious ethnic-national problems in the USSR (“*L'Intégration en Crise*”), d'Encausse (1978, pp. 195-224) pointed to four problems: (1) the question of the two nationalities (Volga Germans and Crimean Tatars) deported *en masse* by Stalin during World War II and never returned to their places of origin; 2) the problem of the Jews in the USSR; 3) the renaissance of Georgian nationalism; 4) the also resurgent Ukrainian nationalism. Moreover, in her book, d'Encausse strongly emphasized the development of a growing Islamic consciousness among the peoples of Central Asia. When we compare this picture with the problems that really became more explosive in the period of perestroika, we see a certain mismatch. During perestroika, fundamental importance had the dispute for Nagorno-Karabakh between Armenia and Azerbaijan. Ethnic outbreaks

also occurred in the Fergana valley (between Uzbeks and Meskhes), the Osh region (between Uzbeks and Kyrgyz) and the conflict between the Abkhazians and Ossetian minorities and the Georgian majority in the Republic of Georgia. The Baltic countries, which initiated the entire process of independence of the republics, also played a key role. That is to say, Hélène d'Encausse was correct that there would be ethnic problems in the USSR in the future and described quite well the range of "hot spots" or problematic areas. But if the national processes really had an existence of their own, it should be possible to foresee at least some general tendencies of development: where this process would be stronger etc. It is precisely here that d'Encausse's analysis reveals its deficiencies: the ethnic processes that developed after perestroika do not seem to have developed from their internal contradictions and motivations, but from external aspects. Some of the processes described by d'Encausse as more advanced, or as emerging problems, were not the ones that proved most urgent during perestroika and vice versa. Thus, the problem of the Jews and the two nationalities deprived of territory (Tartars and Germans), despite having marked their presence during perestroika, were not among the most urgent — if one had to choose the most serious problems among the deported nationalities after perestroika, one probably would point out the Chechens, who had not only been rehabilitated, but had regained their own territory. Nationalisms in Georgia and Ukraine actually played an important role in perestroika but were eclipsed, at least initially, by the problems between the nationalisms of Armenia and Azerbaijan. In fact, the problem of historical rivalries between the three Caucasus nationalities (Armenia, Georgia and Azerbaijan) was not even analyzed by d'Encausse in her 1978 book (perhaps because they were supposed to have been supplanted during the Soviet period). The problem of Islam as a cultural agglutinator of the peoples of Central Asia (pan-Islamism), so emphasized by d'Encausse, did not play such a vital role during perestroika — actually the Central Asian Muslim republics were the last ones to declare independence from the USSR, and did so individually, not in a coordinated ("Islamic") manner. Indeed, the notion of possible pan-Islamism among the Central Asian republics was greatly eclipsed by the Muslim ethnic clashes between them during perestroika (program in Fergana of the Uzbeks against the Meskhes, enhanced rivalry between Uzbeks and Tajiks, shocks between Kyrgyz and Uzbeks in Osh etc.). D'Encausse's chief mistake in calculating *L'Empire Éclaté* might have been in relation to the Baltics. In her book, the French author mentions that in the three Baltic republics (Estonia, Lithuania and Latvia), (re) annexed into the USSR relatively recently (during the Second World War), anti-Soviet sentiments were more "fresh," with the memories of a different society still imbued within part of the popular memory. However, in *L'Empire Éclaté*, d'Encausse did not explore this route intensively, since she considered that migration of other nationalities (especially Russians) into the region and the low population growth rate of those Baltic nationalities created a danger of even ethnic disappearance in demographic terms. In view of the fundamental role that the Baltic republics played in the initiation and development of the independence movements during perestroika, an error of calculation of the author in this area is evident.¹⁸³

¹⁸³ Here, quoted in extenso, is the passage written by d'Encausse in her conclusions on the Baltic republics in the Soviet national context prior to perestroika:

A second group is composed of nationalities that have a high degree of national consciousness, but condemned by circumstances to fragility, or even

The observations above are not intended to diminish the merit of d'Encausse in pointing out the existence of ethnic-national problems in the USSR even before perestroika. We want to draw attention to the fact that the dynamics of ethnic-national movements in the USSR did not follow their own "autonomous" development path, and was rather linked to other factors of the economic transformations that the Soviet mode of production and society went through in the 1970s and 1980s.¹⁸⁴ This is why it was difficult to predict the form that this dynamic would take in the future, starting from a position that absolutizes national (nationalist) processes over considerations of economic transformation and class struggle. The end result of perestroika is not a mere "Triumph of the Nations" over any other considerations. The "Gloire des Nations" in this context represents a setback to nationalist processes characteristic of the capitalist epoch, a setback that is a consequence and not a cause of the other (mainly) economic processes

extinction. This is especially the case with the Baltic nations, particularly Estonians and Latvians. In spite of the strength of their national feelings, despite everything that historically and culturally distinguishes them from the other peoples of the USSR, these nationalities are moving toward assimilation, not toward physical extinction. The possible disappearance of nations with such strong personalities is a historical tragedy of which every Baltic national is aware. However, no one seems to be able to stop this. Face to face with fate, the Baltic nationalities do not seem capable of forming at least one Baltic bloc. Each becomes more fragile by isolating itself in its particular case and in the things that separate them historically from one another. This isolation and retraction in itself increases the extreme vulnerability of this part of the USSR, which, from any point of view adopted, is the most modern, the most impregnated of foreign influences, the least sovietized. And yet, apparently, none of this prevents the Baltic peoples' journey towards their annihilation as nations. (Carrère d'Encausse, 1978, p. 273)

¹⁸⁴ Thus, taking these aspects into account, Zaslavsky's (1982, pp. 124-125) analysis of the perspectives of ethnic relations in the USSR in the early 1980s (*i.e.*, before perestroika) seems to have been on target about the hottest spots in this sphere. He wrote:

The general deterioration of the economic situation has a direct effect on ethnic relations in the Soviet Union. Thus during the 1960s and 1970s the central administration was forced by the rapid population growth of Central Asia to invest heavily in those republics to create new jobs, social services and schools in order to avoid a further increase in existing *per capita* income inequalities between the different regions of the country. Although politically justifiable, such investments obviously have little productive value: under present economic conditions they are unlikely to continue. Leadership is more likely to direct investments to regions that guarantee maximum return. It should not be forgotten that *per capita* productivity in Estonia, Latvia and RSFSR is three times higher than in the Central Asian republics [...]

Inflation and the growing importance of markets also influence relations between nationalities [...] Some groups among the populations of the national republics are the primary producers of meat, wool, vegetables and even textiles (if we consider the development of these industries in the periphery and the relative weakness of state control over their activities). The Russian population sees itself as increasingly dependent on a market whose prices are constantly rising and which is dominated by representatives of the southern republics. The Russian workers who compare their incomes with those of the "merchant peoples" of the South, feel envy and irritation. This causes considerable bitterness in relations, on an interpersonal level, between Russians and other ethnic groups.

that the Soviet regime passed through in its struggle to assert itself in the transition between capitalism and socialism.¹⁸⁵

¹⁸⁵ The same line of thought leads us to reject the view of those scholars (*e.g.*, Linden & Simes, 1977, p. 4) who see nationalist processes as “irrational,” not following any logic (*a priori* or historical) and therefore this being the reason why this is a sphere in which it is difficult to make predictions.

10 THE NOMENKLATURA AS EXPLOITATIVE CLASS? PERESTROIKA AS REBELLION OF THE EXPLOITED MASSES?

The publication of M. Voslenskii's book *Nomenklatura* in 1980 caused sensation in the West and popularized the term in its title. In this work, the author, himself an *émigré* who had been a member of the upper ranks in the USSR, described from his inside experience how he saw the functioning of the ruling classes of Soviet power in terms of class exploitation. The term *nomenklatura* in Soviet bureaucratic language refers to the fact that the CPSU maintained internal, classified and hierarchical lists with the names of the people who hold leading positions in the country or who are held in reserve for these posts. Approval for any level of these lists was carefully controlled by the corresponding party bodies immediately superior to the post in question.¹⁸⁶ (Voslenskii, 1980, pp. 70-71) Voslenskii's book popularized the term *nomenklatura* as a synonym for the leading bureaucratic layer of the Soviet Union in the West.

Voslenskii characterized the *nomenklatura* as a "class" differentiated from the others, not a mere social stratum. Let us consider his argument:

Lenin [(1967-1970h, p. 15)] gave this definition of class: "Classes are large groups of people differing from each other by the place they occupy in a historically determined system of social production, by their relation (in most cases fixed and formulated in law) to the means of production, by their role in the social organisation of labour, and, consequently, by the dimensions of the share of social wealth of which they dispose and the mode of

¹⁸⁶ *Nomenklatura* is a Russian word of Latin origin: in Latin, it means "list of names." (Prohkorov *et al.*, 1980, p. 909) In Russian, in the general political sense, the word refers to the "list of posts [positions] that any institution has the formal right to name or confirm. For example, a ministry has its *nomenklatura*, as do the municipal Soviet, various high-level trade union organizations, and so on." (Hough & Fainsod, 1979, p. 664) Practically this same definition is found in a book on statutes of the CPSU published by the official Soviet publisher of political literature, Gospolitizdat:

It is customary to call *nomenklatura* the list of career posts that the party organs have the obligation to keep under their constant supervision. [For example] In the *nomenklatura* of the regional committee of the party the regional leaders are included; in district party committees, the heads of district institutions. In practice, this means that communists who are leaders of organizations and institutions, before naming someone to a position of responsibility, must present this person for confirmation by the party's corresponding body. This procedure is valid not only for appointment but also for removal from office. Without permission from the party body, communists who are leaders of organizations and institutions cannot remove anyone from any permanent position in the *nomenklatura* of that body. (Bugaev & Leibzon, 1962, pp. 154-155)

acquiring it. Classes are groups of people one of which can appropriate the labour of another owing to the different places they occupy in a definite system of social economy.” [...] Does the group of [Soviet] “leaders”, as it is named in the USSR, fit Lenin’s definition? Yes, the “leaders” constitute a large group of people, distinguished from other groups in Soviet society by their (preponderant) place in the social production system, by their relation to the means of production (the right to dispose of them), by their (directing) role in the social organization of work and the (important) part of the social wealth that they appropriate. (Voslenskii, 1980, p. 35)

Theories about the bureaucratic degeneration of the Soviet Union were set forth by several authors: Trotsky, Ernest Mandel, Rudolf Bahro, Bruno Rizzi, Milovan Djilas, Ota Sik, Andrei Amalrik, Charles Bettelheim and others. The controversy varied in considering the bureaucracy as a distinct class or just a social stratum.

Rizzi (1985, p. 67), Djilas (1957, pp. 37-41), Amalrik (1970, p.43), Sik (1981, p.159) and Bettelheim (1974-1983, v. 3, pp. 210-211) were among those who considered the bureaucracy a distinct social class. Trotsky considered it a social “stratum.”

This “social class versus stratum” discussion was epitomized in Trotsky’s famous intellectual dispute with the Italian Bruno Rizzi. In his 1939 book *The Bureaucratization of the World*, Rizzi was one of the pioneers in launching the idea that Fascism and Stalinism were different faces of the same system, which he called *bureaucratic collectivism*. And he considered that the Soviet bureaucracy had become a distinct class exploitative of the proletariat in that country. According to him:

In Soviet society, exploiters do not appropriate capital gains directly, as the capitalist does when he pockets the dividends of his enterprise, but indirectly, through the state, which pockets the global amount of national surplus value, and then distributes to its functionaries. (Rizzi, 1985, p. 75)

Trotsky considered the bureaucracy a “social stratum,” a “parasitic excrescence,” but denied that it constituted a social “class”:

Classes are characterized by their position in the social system of economy, and primarily by their relation to the means of production [...] The attempt to represent the Soviet bureaucracy as a class of “state capitalists” will obviously not withstand criticism. The bureaucracy has neither stock nor bonds. It is recruited, supplemented, and renewed in the manner of an administrative hierarchy, independently of any special property relations of its own. The individual bureaucrat cannot transmit to his heirs his rights in the exploitation of the state apparatus. The bureaucracy enjoys its privileges in the form of an abuse of power [...] One may argue that the big bureaucrat cares little what are the prevailing forms of

property, provided only they guarantee him the necessary income. This argument ignores not only the instability of the bureaucrat's own rights but also the question of his descendants [...] Privileges have only half their worth, if they cannot be transmitted to one's children. But the right of testament is inseparable from the right of property. It is not enough to be the director of a trust; it is necessary to be a stockholder (Trotsky, 1936, p. 280, 282, 286 e 287)

Bettelheim (1976, p. 26) used the concept of "state capitalism" to describe the Soviet Union. He argued that, despite the ideological mantle, the model of capital accumulation in the USSR followed a logic that was essentially capitalist, withdrawing surplus value from the workers to favor a separate class (the Soviet equivalent of the capitalist "bourgeoisie"), and a national project that had nothing to do with the interests of those exploited. (Bettelheim, 1974-1983, v. 3, pp. 210-211 and 221-223).

Trotsky, however, did not consider the Soviet Union capitalist but rather a "society stagnated in the transition [... between capitalism and socialism] (as a result of the defeat of proletarian revolutions in the most advanced countries)." (Fernandes, 1991, p. 260)

Bahro, Wittfogel and other authors who Robert Kurz (1993, pp. 55-58) called "Orientalists" sought to "explain Bolshevik statism through the tradition of Asian despotism with a modernization regime based on the war economy." (Haddad, 1993, p. 56).

As we have seen, there were many theories that implied the existence of a distinct social class — or at least a "stratum" — in the USSR. Where there are exploiters and exploited, there will be social struggle. If this exploitation reached too high levels, such as those exposed by some of the authors above, then it would be possible that this struggle could take the form of social upheavals that would jeopardize the existence of the Soviet regime itself.

Is this then the case with perestroika? Had it been an example of how the exploited masses "rebelled" against their exploiters?

A situation similar to that of the "nationalities question" seems to us to happen here. We do not understand that perestroika began as a movement of the "exploited." On the contrary, it was, in its earliest stages, a movement from top to bottom. There was a political decision of the CPSU to start the "reconstruction" that took the Soviet average citizen "by surprise." So much so that the initial reaction of many Russians, upon first hearing Gorbachev announcing the changes in 1985, was skeptical. (Gorbachev, 1987c, p. 62) After all, if the Khrushchev, Kosygin and Andropov reforms did not manage to go far, why would this Gorbachev one be able to?

So the first announcement of the reforms came "from the top" at the CPSU plenary meeting in April 1985, a month after Gorbachev was elected General Secretary. Their implementation was an act of political will of the currents aligned with Gorbachev and faced much resistance, inside and outside the party. (Gorbachev, 1987c, pp. 70-71, 85)

But once the process unfolded, especially from late 1988 onward, it began to escape the party's control. The decentralization of power following the introduction of the market economy had, in fact, sparked an "uprising" against the party's attempts to hold

the reins of the process. The Communists began to be persecuted and crushed in various republics, the “shadow economy” (informal, clandestine or criminal black market) irresistibly asserted itself, satellite countries revolted, and finally in mid-1991 the masses took to the streets to expel the nationalist-communist authors of the August putsch attempt of that year.

On the subject of the causes of perestroika, in our view, it was not an “uprising” of the exploited classes that caused perestroika (since it was a top-down party initiative). But once the process started, these dissatisfactions of the masses (as well as the previously exposed problems among nationalities) acted as accelerators of the disintegrative processes.

11 FINAL THOUGHTS

The present work analyzes the main causes of perestroika, that is, what led the Soviet leaders to launch such a radical reform process in the mid-1980s. As we have seen from the analysis of the documents published at the time, the main concern was the economic slowdown of the previous two decades and the growing technological gap with the West that created a series of undesirable side effects (such as the difficulty in maintaining the raising of the population's standard of living in a context of almost stagnation of the economy) and which made it urgent that "something had to be done" otherwise the Soviet Union would eventually become a second-class power.

Our second step after this finding was to analyze, then, what had led to this slowdown in the country's economic and technological growth. Western economists had long pointed to the Soviet economic model as inefficient. The fact that there was no private property and market competition, according to them, led to waste, disinterest in work, attitude of "what belongs to everybody belongs to nobody" in relation to state property etc. However, these explanations, typical of Western economics textbooks, could not explain the specific economic slowdown of the two decades before perestroika, since this state of affairs practically always existed in the USSR from the time of the first five-year plans onward — and the Soviet Union had experienced high rates of economic growth in the 1930s, 1940s and 1950s. In other words, there was something new (exogenous) in the air that caused the slowdown specifically in the decades prior to perestroika. As we discussed earlier, this "something new" was the deepening of the Third Technological Revolution in the world economy.

At the time of the Third Technological Revolution new organizational patterns of industrial production emerged, based on *flexibility*, more *horizontal* flows of information and command, and emphasis on *quality*. Finding themselves in permanent economic competition with the West, the USSR — whose *rigid* system of *vertical* flows of information and command and emphasis on *quantity* and economies of scale fitted relatively well into the rules dictated by Western Fordism in the 1930s, 1940s, 1950s and part of the 1960s — failed to adapt to these basic principles of the new industrial paradigms of the world economy without undermining the pillars of its own (proto-socialist) system.

We consider this the central dilemma of the Soviet leaders and the main reason why it became necessary, and even inevitable (Gorbachev, 1987c, p. 18) that urgent reformulation measures be taken in the mid-1980s when the relative stagnation of the economy was reaching pre-crisis levels in some areas.

The fact that we consider this the central and main aspect of the story, obviously does not imply that we consider this the only vector acting on the system. It is not a question of reducing everything to mere economism. There were, of course, other factors

(political, social, etc.) that influenced the situation. However, we consider it important to highlight the centrality of the economic causes because without it we could arrive at erroneous conclusions about the process of unleashing perestroika, confusing form and content and cause and effect. It is important to analyze other political and social factors that influenced the Soviet leaders in their decision-making process at the outset of perestroika, but we have to look at these other factors *in conjunction with* our central explanation, *i.e.*, with the new variables introduced in the USSR-West economic competition at the time of the Third Technological Revolution. It would be as if a bundle of several vectors was acting on the system. At the core of this beam (coordinating the main direction of the movement) would be our central explanation. Other vectors would be in the periphery, also affecting the movement of the beam, but within certain limits imposed by the main core.

Thus, in the present work, we want to expose the heart of the question of why it became necessary, almost inevitable, the launching of perestroika in the mid-1980s. So we focused on the economic-technological aspect that we consider central. Fascinating research — which would represent the writing of another large academic work — would be to try to link all these other vectors (political, social, and even other diverse economic vectors) to explain their relations between them and with the economic “core” described in this work.

Another reason why we consider it important to “isolate” these factors specifically related to the transformations of the time of the Third Technological Revolution as cardinal causes is to distinguish between the factors that had affected the USSR for a long time and those that came to act exactly in the decades prior to perestroika. It is relevant to make this distinction, since the USSR, as a state created in a revolutionary way, had always been under pressure from several factors that were acting to “force” the system (*i.e.*, to require changes in it). As an example, we can mention pressures and propaganda from capitalist countries demanding political openness in the USSR, high military spending that could “deplete” a civilian economy, etc. Traditionally, many of these factors alone were not strong enough to actually force radical changes in the system. But in a context of “depletion” of the possibilities of the production system caused by the inability to adapt to the new, more advanced patterns of the world economy, these other “peripheral” factors could magnify the problematicity of the situation and accelerate the process of the need for change. However, in order not to confuse the periphery with the center, the form with the content, one must always keep in mind which were the most essential aspects of the question.¹⁸⁷

¹⁸⁷ An example of this would be the very interesting explanation given by Moshe Lewin in his book *The Gorbachev Phenomenon*. In this work, M. Lewin placed the question of urbanization (in the broadest sense, with all the social implications of it) as central in order to understand the need for perestroika in the mid-1980s. According to him, the immense modernizing transformations in the USSR from an initially agrarian society to an industrial-urban society in the second half of the century led to a tremendous hiatus between the more educated, sophisticated and demanding “new” Soviet population and the possibilities offered by the Soviet state, which remained closed and rigid. (Lewin, 1988, pp. 178-179) By the mid-1980s, this hiatus was assuming threatening proportions for regime stability.

We consider it a great merit for M. Lewin to draw attention to these truly serious problems brought about by the process of urbanization and modernization in the USSR. However, placing it as the central problem that led to the need for perestroika in the country means, in our view, to confuse the hierarchy of the main vectors of the issue. The complications caused by urbanization were really a factor of pressure in the system, but without the main causes pointed out by us, they would not have enough autonomous force

Another final observation that we think is important to draw attention to. Much of our analysis of the new organizational paradigms that emerged in industry in the period of the Third Technological Revolution, *i.e.*, the paradigms that Piore & Sabel (1984) called “flexible specialization,” was based on the most famous and influential of them: Toyotism. In view of Japan’s current vicissitudes in the world economy, the inevitable question may arise: “But is the famous Japanese model of development not currently in crisis?”

Here it is very important to establish the difference between Toyotism and the “Japanese model” (expression that can have several connotations). Toyotism, as we understand it, is a new *microeconomic* industrial paradigm, the strongest representative of the “flexible specialization” patterns that emerged at the time of the Third Technological Revolution, whose geographical origin is Japan. At the time of the Third Technological Revolution, Toyotism so effectively proved to be the most advanced of the industrial paradigms that led traditional Fordist industries to study it and try to copy a number of the techniques of “flexible specialization.” Overwhelmed by Japanese superiority in the 1970s and 1980s, Western Fordist industries (especially in the more strategic industries such as the automotive industry, electronics, etc.) were only able to improve their competitiveness in the 1990s *through the adoption of various techniques of “flexible specialization.”* At present, rare is the big company that does not employ at least some of the new methods of Just-in-Time, Total Quality Control, quality circles, flexible methods of production etc. *Flexibility* is currently the key word in the global industry. The clearest example of this is the American auto industry. Ford, Chrysler and GM (Saturn project) sent observers to Japanese factories during the 1980s and started employing many flexible methods in their factories. The very fact that in the mid-1990s Toyota’s productivity leadership relative to these Western factories diminished represents the very victory of Toyotism, that is, the recognition of its superiority through the dissemination of its techniques (which, of course, would eventually lead competitors to “narrow the gap”).

to provoke a rupture in the system in the 1980s. Firstly, because the pre-prerestroika urban transformations were by no means the most traumatic within the history of the Soviet Union. What society changed in this sense between, say, the mid-1960s and 1980s, was nothing compared, for example, with the transformations that occurred between the 1920s and 1950s (with forced collectivization, heavy industrialization, increase in educational levels, etc.). If the Soviet regime (weaker at that time) was able to withstand the violent transformations of the 1930s and 1940s, it is difficult to assume that it would not be able to do the same in the 1960s, 1970s and 1980s, when it was already much stronger and the transformations were relatively not so radical. Moreover, many countries of the world have undergone processes of urbanization and industrialization without necessarily undergoing rupture of the social fabric or revolutions in their mode of production. It seems to us that, *ceteris paribus*, the Soviet state in the mid-1980s was strong enough to absorb, in a general way, the impact of the transformations of the 1970s and 1980s.

We are not denying here the seriousness of the problems indicated by M. Lewin. However, it is necessary to establish a hierarchy in the centrality of the main factors that led the Soviet leaders to launch perestroika. The problem of urbanization, even in the broad sense as in Lewin (1988), could not in itself explain the urgent need for system reforms in the mid-1980s. The complication brought about by urbanization was one of the factors weighing on the Soviet system, but it has to be seen in conjunction with the more central causes. That is to say, these more central causes that we have shown can explain much of the problems that led the Soviet leaders to launch perestroika, even without taking into account the issue of urbanization. The problem of urbanization, without being examined in conjunction with these other main causes, cannot explain the (need for the) launching of perestroika.

Thus, Toyotism and the methods of “flexible specialization” were precisely the “flagships” of innovation at the time of the Third Technological Revolution. The so-called “Japanese model” depletion refers to Japan’s macroeconomic problems in the 1990s, mainly from its financial sector (problems of excessive capitalization, speculation and “bubbles” in the financial sector, loose regulation of the banking sector, currency difficulties, etc.). In fact, a good part of these problems are also linked to the country’s supercapitalization and “financialisation,” that is, to the transition from an eminently “producer” country — in which capital is linked more directly to production — to a country that, grown far above the internal possibilities of its market, begins to invest its excess capital in the financial sector both at home and abroad. Arrighi (1994, pp. 345 and 352-353) drew attention to the fact that several leading powers of the past (*e.g.*, Great Britain) have also gone through this phase of “financialization.”

In short, here too, in order not to confuse the part with the whole, or the periphery with the core, it is important to separate what is Toyotism (an industrial microeconomic paradigm that emerged geographically in Japan) and the Japanese model (the financial component of which has involved the system in macroeconomic stagnation in the 1990s).

As a conclusion to all of the above, it is clear that the full understanding of the process of perestroika involves an analysis of the interconnection between various factors, macro and microeconomic, national (internal of the USSR) and international, etc. The phenomenon of the “globalization” of the world economy, although often seen as something that accelerated mainly from the 1970s onward and inside the capitalist countries, may actually only reveal the external face of deeper processes that affected — more than is normally perceived — the camp of actually existing socialist countries.

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NOTE: we use the standard form of referencing archival sources in Russia, ordered as follows: 1) (name of the) archive (in an abbreviated form) -> 2) *f.* (= *fond*, “fonds” or “collection” or “record group”) -> 3) *op.* (= *opis*, “series”, “record series”) -> 3) *d.* (= *delo*, “file”) -> 4) *l.* (= *list*, “page”). Example: TsKhSD, f. 89, op. 41, d. 2, l. 3.

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342 p.

13 APPENDICES

13.1 APPENDIX 1: CPSU, POWER STRUCTURE AND ECONOMY IN THE USSR ON THE EVE OF PERESTROIKA

Article 2 of the 1977 Soviet Constitution stated:

“All power in the USSR belongs to the people.

The people exercise state power through Soviets of People’s Deputies, which constitute the political foundation of the USSR.

All other state bodies are under the control of, and accountable to, the Soviets of People’s Deputies.”¹⁸⁸

However, Article 6 of the same Constitution, which discussed the role of the Communist Party leadership, stated the following:

“The leading and guiding force of the Soviet society and the nucleus of its political system, of all state organisations and public organisations, is the Communist Party of the Soviet Union. The CPSU exists for the people and serves the people.

The Communist Party, armed with Marxism-Leninism, determines the general perspectives of the development of society and the course of the domestic and foreign policy of the USSR, directs the great constructive work of the Soviet people, and imparts a planned, systematic and theoretically substantiated character to their struggle for the victory of communism.

All party organisations shall function within the framework of the Constitution of the USSR.”

Thus, in the USSR there was a certain duality, under which power emanated from the people, but it was *a priori* understood that the CPSU would have a leading position in the exercise of this power. Several observers criticized that, in practice, the role of the CPSU was predominant, while the Soviets merely discussed and approved the policies outlined by the actual decision-making structures of the party. (Ginsburgs & Pomorski, 1979, pp. 9-10)

The Soviets (Councils) existed at national and regional level. The main Council (Soviet) was that of the Union.

SUPREME SOVIET:

“The highest body of state authority of the USSR shall be the Supreme Soviet of the USSR”. (Article 108).¹⁸⁹ Elected by citizens over eighteen years old on the basis of universal and secret ballot (art. 95), unlike most Western parliaments, the Supreme Soviet

¹⁸⁸ The full original text of the Soviet Constitution of 1977 can be found in VS SSSR (1981) and Feldbrugge (1979).

¹⁸⁹ The Supreme Soviet was divided into two chambers, equal in formal powers and number of deputies: the Soviet of the Union and the Soviet of Nationalities. The Soviet of the Union was formed on the basis of one citizen/one vote (with representatives individually elected from each electoral district of 300,000 people). The Soviet of Nationalities consisted of ethnic representation: 32 members for each of the 15 republics of the Union, 11 for each autonomous republic, five from each autonomous region (*avtonomnaya oblast'*) and 1 from each autonomous area (*avtonomnyi okrug*). (BSE, 3rd ed., Vol. 4, p. 564)

(approximately 1,500 non-professional members, who continued exercising their original professions concurrently) did not maintain permanent sessions. It convened up to 2 times a year (art. 112) to debate and vote the most important laws (five-year plans, for example). The Supreme Soviet elected a Presidium of approximately 40 members who worked permanently in the period when the Supreme Soviet was not in session (articles 119 and 120). This Presidium was accountable and subordinate to the Supreme Soviet, but it had the power to enact certain decrees (called *ukazy* or “edicts”) during the intervals between sessions of the latter (article 121). *Ukazy* by the Presidium must necessarily be later confirmed in the regular sessions of the Supreme Soviet. (BSE, 3rd ed., vol. 4, p. 564)

This tendency of the great Soviet authority bodies (formally decisory) to have a *Presidium* (or something similar), composed of an elected minority who can act on behalf of the majority while it is not in session, is one explanation of how power in the USSR could be exercised by party elites, despite the democratic character of the constitution. Thus, within the CPSU itself, the Central Committee (307 voting members in 1986), elected in party congresses (and meeting generally 2 or 3 times a year), also had its permanent core, the Politburo (about 14 voting members), which represented the true *locus* of the highest power in the Soviet Union, in the opinion of various authoritative authors. (Fainsod & Hough, 1979, p. 466)

COUNCIL OF MINISTERS:

The Supreme Soviet elected the Council of Ministers of the USSR, *i.e.*, the “cabinet” of ministers which, according to the Constitution, constituted the executive government power (article 129).

“The Council of Ministers of the USSR, *i.e.* the Government of the USSR, is the highest executive and administrative body of state authority of the USSR” (article 128).

The Council of Ministers was accountable to and subordinate to the Supreme Soviet (article 130). The President of the Council of Ministers was often described as the prime minister of the USSR by the Western press.

Thus, formally, the legislative and executive functions in the USSR were linked respectively to the Supreme Soviet (and local Soviets) and the Council of Ministers. However, article 6 of the 1977 constitution, not only guaranteed the single-party system but also gave the CPSU the leading role in the political leadership in the country. Backed by these powers guaranteed by the Constitution, the Communist Party created a structure through which, *in practice*, it controlled and guided the activity of legislative and executive Soviet bodies. (Feldbrugge, Berg & Simons, 1985, p. 152)

THE CPSU, ITS INTERNAL STRUCTURE AND ITS RELATIONSHIP WITH THE NATIONAL ECONOMY:

According to the statutes of the CPSU,¹⁹⁰ “The supreme organ of the Communist Party of the Soviet Union is the Party Congress” that must “be convened by the Central Committee at least once in four years” (article 31 of the statute). The Party “Congress

¹⁹⁰ A translation into English of the Statute of the Communist Party of the Soviet Union can be seen in *Basic Laws on the Structure of the Soviet State*, edited by H. Berman and J. Quigley Jr.

elects the Central Committee” (article 33). The number of CC members “is determined by the Party Congress” (article 34). The XXVI Congress in 1981 elected 319 voting members, for example. (EZH BSE, 1982, p. 13) “Between congresses, the Central Committee [...] directs the activities of the Party” (article 35 of the statute). However, the Central Committee did not remain in permanent session. In general, the CC met two or three times a year for a few days. (EZH BSE, 1982, p 14; Feldbrugge, Berg & Simons, 1985, p. 151) “The Central Committee [...] elects a **Presidium** to direct the work of the CC between plenary meetings and a **Secretariat** to direct current work, chiefly the selection of cadres and the verification of the fulfilment of Party decisions” (article 38 of the statute). Thus, in times when the CC was not in session, the Politburo¹⁹¹ was the body that actually made the most important party decisions. As in the case of the Supreme Soviet and its Presidium, this structure (made up of a larger body — formally powerful but which met only for a short time — and lower instances — which in between the meetings of the former really dominated the scene) allowed for the concentration of power in the hands of a minority. Many Western and Soviet observers agree that the real center of power in the USSR was located in the Politburo. (Hough & Fainsod, 1979, p. 466) The Secretariat, which in 1984 consisted of 9 departments plus the post of **General Secretary**¹⁹² (who was traditionally also a Politburo member), took care of the daily management of the party and was responsible for monitoring the implementation in practice of the strategic decisions taken by the Politburo. (BSE, 3rd ed, vol 23, p. 183; Feldbrugge, Berg & Simons, 1985, p. 151).

The **Politburo** elected during the 1981 XXVI Congress had 14 full members and 8 candidate members and met at least once a week. (EZH BSE, 1982, p. 13; Feldbrugge, Berg & Simons, 1985, p. 151) The real power of the Politburo was not immediately clear from a reading of the of the country’s constitution or of the party’s documents. However, an examination of the functioning *in practice* of the various governing bodies of the USSR points to the crucial role of the Politburo. According to the Soviet (later *émigré*) jurist O. Ioffe, no important Soviet law could in practice be passed against the designs of the Politburo: all important legislation was previously scrutinized by it. (Ioffe & Maggs, 1983, p. 105)

Due to the scheme of “concentric circles” of delegated power, it was easy, for example, in the early 1980s, for the 14 members of the Politburo to “collude” with the (approximately) 40 members of the Presidium of the Supreme Soviet and basically prepare the stage for the larger instances of the Central Committee and the Supreme Soviet to only ratify major decisions previously taken by them. The Politburo also implemented its decisions through decrees (*postanovleniya*) of the Central Committee. If the measures affected not only the internal life of the party but also the country’s economy as a whole, there were often issued joint decrees of the CPSU and the Council of Ministers of the USSR — under article 133 of the Constitution, the Council of Ministers was authorized to issue decrees of a federal character. (Antonyuk *et al.*, 1983, pp. 405-435)

¹⁹¹ Between 1952 and 1966, the *Politburo* was renamed *Presidium* (of the Central Committee of the party). (BSE, 3rd ed., vol. 20, p. 215)

¹⁹² The General Secretary was renamed *First Secretary* between 1953 and 1966. (BSE, 3rd ed., vol. 23, p. 183)

In order to assume its role of control (“leadership and guidance”) of Soviet society, guaranteed by Article 6 of the Constitution, the Communist Party held a “parallel control” of state bodies: as the government was divided into ministries (along production lines) and regional instances, the CPSU “mirrored” this structure. Thus, in every district, city and region, the party had, respectively, its district committee (*raikom*) city committee (*gorkom*) and regional committee (*obkom* or *Kraikom*) (articles 41 and 42 of the CPSU statute). The Central Committee also had a permanent staff (*apparat*), divided into departments (*otdely*). In the economic field, this *apparat* of the CC — which operated under the supervision of the party secretariat — was in charge of monitoring the work of ministries and state economic committees. (Hough & Fainsod, 1979, pp. 410-417) In addition, party nuclei (*pervichnye partorganizatsii*, literally “primary party organizations”) were created in the workplaces of the party members (factories, state and collective farms, army units, educational establishments etc.) — where there were at least three members of the party (article 53 of the CPSU Statute). The fact that the CPSU had millions of members (about 17 in the early 1980s) allowed this work of “duplication” and “parallel control” of state structures. (Antonyuk *et al.*, 1983, p. 437)

Thus, not only the government but also the economy was constantly supervised by the party. Secretaries of *obkomy*, *gorkomy* and *raikomy* (respectively, regional, municipal and district party committees) were responsible for the control and supervision of the performance of the enterprises in the areas under their jurisdiction. (PERVYI, 1986, p. 1) In each firm, the basic nuclei (*pervichnyi partorganizatsii*) of the party helped to “control” (*kontrol’*) management activities, as provided in article 60 of the CPSU statute (the word *kontrol’* in Russian has not the meaning of managing directly but rather to monitor, supervise). It is important to note that several decrees (*postanovleniya*) of the Central Committee and other resolutions of the party reiterated that party bodies should avoid interfering unnecessarily in the daily routine activities of enterprises — which should be left to the administration, according to the principle of *edinonachalie* or “responsibility of one person”. (KPSS, 1983-1989b, p 247-248; KPSS, 1983-1989e) According to an article published in one of the official magazines of the Central Committee, “the party leader [*rukovodit*] the economic life of the country, but does not manage [*upravlyaet*] the economy directly.”¹⁹³ (Slepov, 1951, p. 47)

In addition to the “external” parallel control, the party was present “internally” on the other levels of government and the economy through the fact that most of the government officials were also party members. Thus, for example, in the Gorbachevian Politburo were included the “prime minister” (*i.e.*, the president of the Council of Ministers, N.I. Ryzhkov), the chairman of the Supreme Soviet Presidium (A.A.

¹⁹³According to the article,

This means that if any [governmental] department or economic body is doing a bad job and cannot perform the tasks it set out, [the party authorities] should not replace or disfigure it, but strengthen it helping make it able to meet its obligations. (Slepov, 1951, p. 49)

Thus, the ideal framework sought by the party was that the party bodies should “exercise leadership and control of the economy,” not “over” the competent government economic bodies, but rather “through” them. (*ibid.*, pp. 48-49) However, in reality, this sensible and balanced behavior was not always achieved. Even party official publications contained complaints and descriptions of various situations in which party instances sinned by lack or excess: they either interfered in minutiae of routine operation of enterprises or government economic agencies or neglected their due political control of the way the economic work was being conducted. (*Ibid.*, pp. 50-51)

Gromyko), and other ministers. (Novosti Press Agency, 1988, pp. 72 and 74). Through this party-state structure, many problems had already been discussed and resolved in the Politburo before being placed under discussion in government or Congress. This party-state structure was also replicated at other subfederal levels (republican, regional etc.).

Last but not least, by the *nomenklatura* system,¹⁹⁴ the appointment of personnel to all major positions of responsibility in the conduct of the national economy (from ministers to local senior government officials and company managers) had to receive approval and official “confirmation” by the corresponding party committee (or other analogous party body). (Bugaev & Leibzon, 1962, pp. 154-155; Hough & Fainsod, 1979, pp. 430-432; Feldbrugge, Berg & Simons, 1985, p. 152) Each party committee (at district, regional and national level) had a list of posts under their jurisdiction for “confirmation.” Although theoretically the party only “confirmed” the appointment made by government authorities, in practice the approval of the party was a *sine qua non* condition for the appointment and removal of personnel in positions of responsibility. (Bugaev & Leibzon, 1962, p. 155; Hough & Fainsod, 1979, p. 431) An evidence of this is the existence of cases where factory directors were removed by pressure from first secretaries of local party committees. (Kuptsov, 1984, p. 6) The *nomenklatura* system provided firm control of the CPSU over the government and the economy.

¹⁹⁴ *Nomenklatura* is a Russian word of Latin origin. In Latin, it means “list of names.” (Prohkorov *et al.*, 1980, p 909.) In Russian, in the political sense, the word refers to a “list of jobs [positions] that any institution has the formal right to appoint or confirm. For example, a ministry has its *nomenklatura*, as well as the municipal Soviet, various senior-level trade union organizations, and so on.” (Hough & Fainsod, 1979, p. 644) Virtually this same definition is found in a book about the CPSU statutes published by the official Soviet publisher of political literature, Gospolitizdat:

It is customary to call *nomenklatura* the list of career positions that the party organs have the duty to keep under constant supervision. [For example] In the *nomenklatura* of the regional party committee are included regional leaders; in the district party committees, the leaders of district institutions. In practice, this means that the communists who are leaders of organizations and institutions, before appointing someone to a position of responsibility, must provide that person to confirmation by the corresponding party organ. This procedure is valid not only for the appointment but also for the removal from office. Without permission of the party organ, the communists who are leaders of organizations and institutions cannot remove anyone from any position in the *nomenklatura* of that body. (Bugaev & Leibzon, 1962, pp. 154-155)

13.2 APPENDIX 2: GROWTH TRENDS IN THE SOVIET ECONOMY IN DIFFERENT DECADES (official Soviet statistics)

Table 2.1: Average annual growth rates of the Net Material Product of the USSR, according to official Soviet statistics.*

| | | | | | | |
|-----------|-----------------|-----------|-----------|-----------|-----------|-----------|
| 1928-1940 | 1941-1950 ** | 1951-1960 | 1961-1970 | 1971-1975 | 1976-1980 | 1981-1985 |
| 14.3% | 6.3% | 10.3% | 7.2% | 5.7% | 4.3% | 3.2% |

* Growth in average annual percentage of the Net Material Product (NMP) according to calculations by the TsSU (Central Statistics Administration) of the USSR, published in the Statistical Yearbook *Narodnoe Khozyaistvo*. Net Material Product is the term used by the United Nations to designate what the Soviets called National Income Produced (*Proizvedennyi Natsional'nyi Dokhod*). Unlike Western calculations of Gross National Product (GNP), the Net Material Product includes only the production of material goods, excluding the service sector.

** The 1940s averaged atypical growth due to World War II (with extreme negative and positive rates in its several years of destruction and economic recovery). On this, see details in table 3.2.

For alternative statistics (Western and Russian) of the growth rates of the Soviet economy, see Appendix 3.

SOURCES:

Narkhoz, 1988, p. 8 and Table 3.1 of Appendix 3.

13.3 APPENDIX 3: ECONOMIC GROWTH RATES (USSR, USA AND JAPAN)

Table 3.1: Growth rates of the Soviet, American and Japanese economies according to various sources

| | | | | | | | | | |
|---|----------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| NMP * of the USSR average annual% (Official - Narkhoz) | 1928- 1940 | 1941- 1950 | 1951- 1960 | 1961- 1965 | 1966- 1970 | 1971- 1975 | 1976- 1980 | 1981- 1985 | 1928- 1985 |
| | 14.3% | 6.3% | 10.3% | 6.5% | 7.8% | 5.7% | 4.3% | 3.2% | 8.4% |
| NMP U.S. average annual% (Narkhoz) | | | | | | 1971- 1975 | 1976- 1980 | 1981- 1985 | |
| | | | | | | 2.2% | 3.4% | 2.4% | |
| GNP of the USSR average annual% (Official - Narkhoz) | | | | | 1966- 1970 | 1971- 1975 | 1976- 1980 | 1981- 1985 | |
| | | | | | 7.6% | 6.2% | 4.8% | 3.6% | |
| GNP of the USSR average annual% (Ofer-CIA- Bergson) ** | 1928- 1940 | 1940- 1950 | 1950- 1960 | 1961- 1965 | 1966- 1970 | 1971- 1975 | 1976- 1980 | 1981- 1985 | 1928- 1985 |
| | 5.8% (9.7%) | 2.2% (1.8%) | 5.7% | 5.0% | 5.2% | 3.7% | 2.7% | 2.0% | 4.2% |
| GNP/GDP U.S. average annual% (CIA- B. of the Census) | 1928- 1940 | 1928- 1950 | 1951- 1960 | 1961- 1965 | 1966- 1970 | 1971- 1975 | 1975- 1980 | 1981- 1985 | |
| | 1.5% | 2.9% | 2.7% | 4.8% | 2.8% | 3.0% | 3.4% | 3.0% | |
| GNP of the USSR average annual% (CIA) | | | | 1961- 1965 | 1966- 1970 | 1971- 1975 | 1976- 1980 | 1981- 1985 | |
| | | | | 4.9% | 5.1% | 3.1% | 2.2% | 1.8% | |
| Japan's GDP average annual% (CIA) | | | | 1961- 1965 | 1966- 1970 | 1971- 1975 | 1975- 1980 | 1981- 1985 | |
| | | | | 10.1% | 11% | 4.3% | 5.0% | 3.9% | |
| NMP USSR average annual% (Khanin) | 1929- 1941 | 1942- 1950 | 1951- 1960 | 1961- 1965 | 1966- 1970 | 1971- 1975 | 1976- 1980 | 1981- 1985 | 1929- 1987 |
| | 3.2% | 1.6% | 7.2% | 4.4% | 4.1% | 3.2% | 1.0% | 0.6% | 3.3% |
| NMP USSR Absolute growth index (1913 = 1) (Bolotin - IMEMO) | 1913 | 1920 | 1929 | 1938 | 1950 | 1986 | | | |
| | 1 | 0.35 | 1.10 | 2.20 | 3.65 | 19.00 | | | |
| U.S. NMP Absolute growth index (1913 = 1) (Bolotin - IMEMO) | 1913 | 1920 | 1929 | 1938 | 1950 | 1986 | | | |
| | 1 | 0.85 | 1.20 | 1.35 | 1.50 | 4.70 | | | |
| Japan NMP Absolute growth index (1913 = 1) (Bolotin - IMEMO) | 1913 | 1920 | 1929 | 1938 | 1950 | 1986 | | | |
| | 1 | 1.15 | 1.75 | 2.30 | 2.00 | 20.00 | | | |

Notes:

* NMP (Net Material Product): term used in the West to describe what the Soviets called *Proizvedennyi Natsional'nyi Dokhod* ("National Income Produced"). Unlike the Western GNP (Gross National Product), NMP only encompasses the production of material goods (excluding the area of services). From 1988 onward, the Soviets began to calculate the USSR GNP in the statistical yearbook NARKHOZ (*Narodnoe Khozyaistvo SSSR*).

** Period 1928-1950 from OFER (based on BERGSON) calculated in ruble factor cost of 1937. The numbers in parenthesis are alternative BERGSON (1961, pp. 216-217 and 271) estimates which "blend" the 1928, 1937 and 1950 factor costs into a composite index, taking 1937 as the base year and performing the comparison of any given year with the base year in terms of values (specific weights for goods and

services) of the given year. 1950-85 period from OFER, based on CIA (1950-1980 in 1970 factor cost and 1980-1985 in 1982 factor cost). Aggregation 1928-85 by OFER alone.

SOURCES:

Lines “NMP of the USSR (official Narkhoz)” and “GNP of the USSR (official – Narkhoz)”: Narkhoz 1988, p. 8 and Table 3.2 of Appendix 3 (at constant prices as explained in Narkhoz 1988, p. 698: years 1929-50 at 1926-27 prices, 1951-55 at 1951 prices, 1956-58 at 1956 prices, 1959-65 at 1958 prices, 1966-75 at 1965 prices, 1976-85 at 1973 prices; for the years 1986 onward Narkhoz used 1983 constant prices).

Line “NMP U.S.”: Narkhoz 1988, p. 680.

Line GNP USSR (Ofer): see notes (the asterisks) above. Sources: Ofer, 1987, p. 1,778; Bergson, 1961, pp. 271 and 217; JEC, 1982, p. 15; CIA, Handbook of Economic Statistics, 1986, p. 39.

Lines “GNP USSR (CIA)” and “GDP Japan (CIA)”: CIA Handbook of Economic Statistics, 1988, p. 33 (USSR in 1982 ruble factor cost; Japan at 1987 constant dollars and purchasing power parity)

Line “GNP/GDP U.S. - CIA and U.S. Bureau of Census”: years 1928-60 (GNP) from U.S. Bureau of the Census, *Historical Statistics of the United States, Colonial Times to 1970*, p. 226 (in constant 1958 dollars). Years 1961-85 (GDP) CIA, Economic Handbook of Statistics, 1988, p. 33 (in constant 1987 dollars)

Line NMP USSR (Khanin): Khanin, 1988, p. 85 (calculated from the growth rate of the volume of physical production of key products, as per Khanin, 1988, p. 84)

Lines NMP USSR, Japan and U.S. (Bolotin): Bolotin, 1987, p. 149 (at 1980 constant dollars and purchasing power parity)

COMMENT:

Soviet official statistics published in the Statistical Yearbook *Narodnoe Khozyaistvo SSSR* were accused in the West of exaggerating the economic growth of the USSR, among other things, by not taking into account the “hidden inflation” costs caused by distortions in the administrative (*i.e.*, non-market) price system established by the government and for using unrealistic constant prices of 1926/7 to calculate the long 1928-50 period.¹⁹⁵(Ericson, 1988, p. 7) Thus, judging solely by the official statistics, the Net

¹⁹⁵ Indeed, the Soviet practice of using constant prices of the fiscal year 1926-7 for the long period 1928-1950, in an economy in a structural process of modernization and industrialization, leads to statistical distortions. According to the so-called “Gerschenkron effect” in calculations of growth of an economy in the process of industrialization, the employment of older years as the base-year price leads to an “upward bias” (higher growth rates), whereas the use of later base-years leads to a “downward bias” of the values of the growth rates. (Gerschenkron, 1951, p. 47-58) This is partly due to the fact that with time there is a tendency for price reduction in the new industrial products that gradually occupy ever larger a share of the modern economy. These products start to have an increasing weight in the total of goods in the given society and, if measured by the prices of the years of the beginning of industrialization (when industrial products were more expensive), there will be a tendency to “inflate” the total value of goods produced in the country in later years when the same products do not cost so much anymore. The opposite is true if we use later years to calculate the growth of the economy in the years of early industrialization. The degree of statistical distortion was calculated by Bergson (1961, pp. 217 and 271) in a study of the Rand Corporation. Using the same methodology, Bergson calculated that if we use the 1928 ruble factor cost, Soviet GNP grew at an average annual rate of 11.9% between 1928 and 1937. However, if we use the 1950 ruble factor cost, the average annual growth of GDP over the same period will be 5.4%. To somewhat escape this “inescapable” dilemma, Bergson (1961, pp. 216-217) created an alternative methodology for the period from 1928 to 1950: he used a composite index of the cost of production factors of selected years (1928,

Material Product of the USSR (National Income Produced) grew by a factor of 88.23 from 1928 to 1985. (*Ibid.*, p. 14) Western statistics (CIA, Ofer, Bergson etc.) lower this figure, pointing to a growth by a factor of 10.96. (*Ibid.*)

With the beginning of perestroika, the Soviet economists began to revise the official figures published by TsSU (*Tsentral'noe Statisticheskoe Upravlenie*, the “Central Statistical Administration”).¹⁹⁶ A team from IMEMO (Institute of World Economy and International Relations) in Moscow, under the supervision of B. Bolotin, published statistical series recalculating aspects of the economic growth in the USSR and other countries in the period from 1913 to 1987. Soviet National income in the period 1929-1986, according to these calculations, had increased by a factor of 17. However, other Soviet economists (G. Khanin and V. Selyunin) presented the most extreme alternative calculations of the time: their growth rate was lower than the figures published by the CIA. According to them, if we account for unofficial inflation in production costs and for methodological errors in official Soviet statistics, the national income of the USSR grew by only a factor of 6.6 from 1929 to 1985. (Khanin, 1988, p. 84)

It is important to note that in all of the above statistical tables (even in Khanin and Selyunin's), the economic growth of the USSR in the period from 1928 to 1985 was higher than that of the USA. As Khanin himself wrote:

"The national income of the USSR grew by a factor of 6.9 from 1929 to 1987. In comparison, the U.S. grew by a factor of 6.1 during this period [...]" (Khanin, 1988, p. 86)

Khanin and Selyunin's figures aroused controversy.

[...] Korolev and Adamov said that if Khanin and Selyunin were right, the Soviet Union would still be at its 1928 level in comparison to the U.S., that is, with only 10% of U.S. national income, which is clearly an absurd. But this claim seems to be based on a “trick.” Abram Bergson calculated that the real Soviet national income in 1929 was about 20% of the U.S., so that, with American national income being approximately 4.3 times higher than in 1928, the USSR was able to progress even at Khanin and Selyunin's rates. What actually can be adduced from Khanin and Selyunin's findings is that the size of the current Soviet economy is about one-third of the U.S., which is a reasonable number to anyone living in the Soviet Union. However, by the official statistics, a 90-fold growth, starting from a 10% U.S. base, would make the Soviet national income currently [1988] about twice as large as that of the U.S. (Ericson, 1988, p. 32).

1937 and 1950) with 1937 as the base year, in which the comparison of each given year in relation to the base year (1937) was made in values for each given year (instead of using the values of the base year). In this case, he calculated that the Soviet GNP grew at an annual average of 9.7% in the period 1928-1940.

¹⁹⁶ The TsSU was reorganized and renamed Goskomstat (*Gosudarstvennyi Komitet CCCP po Statistike*, “USSR State Committee for Statistics”) in 1987.

According to the calculations by Bolotin and the IMEMO team, the USSR economy, in terms of national income produced (NMP, which excludes the service sector), was about 65% of the U.S. in 1986. (Bolotin, 1987, p. 148) The CIA estimated that the GDP (including the service sector) of the USSR in 1985 represented 54% compared to that of the U.S., while TsSU (the “Central Statistics Administration” of the Soviet government) said that, in terms of GDP, the level of the USSR was 56% that of the U.S. in the same year. (CIA, *Handbook of Economic Statistics*, 1991, p. 36)

Table 3.2 Annual economic growth of the USSR according to Soviet official statistics: annual growth rates (in percentage) of the National Income (Net Material Product), 1928-1990.

| | | | | | | | | | | | | | |
|------|------|-------|------|------|------|-------|-------|-------|------|------|------|------|------|
| year | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 |
| rate | 8.2 | 16.0 | 21.0 | 16.8 | 11.3 | 6.5 | 15.2 | 19.2 | 29.3 | 12.0 | 8.9 | 9.5 | 11.6 |
| year | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 |
| rate | -8 | -28.3 | 12.1 | 18.9 | -5.7 | -6 | 19.1 | 24.1 | 18 | 20.1 | 12.2 | 10.9 | 9.8 |
| year | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 |
| rate | 12.0 | 11.9 | 11.4 | 6.7 | 12.6 | 7.4 | 7.7 | 6.9 | 5.6 | 4.1 | 9.4 | 6.8 | 8.0 |
| year | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 |
| rate | 8.7 | 8.3 | 4.7 | 9.1 | 5.6 | 3.9 | 8.9 | 5.4 | 4.5 | 5.2 | 4.5 | 5.1 | 2.2 |
| year | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | | |
| rate | 3.9 | 3.3 | 4.0 | 4.2 | 2.9 | 1.6 * | 2.3 * | 1.6 * | 4.4 | 2.5 | -4 | | |
| | | | | | | (3.5) | (4.1) | (2.3) | | | | | |

* The official statistical yearbook of the USSR (*Narodnoe Khozyaistvo* or *Narkkhoz* for short) initially gave, for the years 1985, 1986 and 1987, respectively, the rates 3.5%, 4.1% and 2.3%. From Narkhoz 1988 onward, a downward revision of the rates for these three years were set at, respectively, 1.6%, 2.3% and 1.6%. The official explanation given in Narkhoz 1988, page 7, was that until 1988 the assessment of those years had excluded the fall in income from the “production, sale [and taxation] of alcohol” (mainly due to the current Gorbachevian anti-alcohol campaign).

SOURCES:

years 1929-38, calculated from BSE, 2nd ed., vol. 29, p. 302; years 1939-40 calculated from Zaleski, 1980, pp. 578-579; years 1941-1945 calculated from Narkhoz za 70 let, page 43; 1946-1950 calculated from Narkhoz 1964, p. 87; 1950-1963 calculated from Narkhoz 1964, p. 575; 1964-1971 calculated from Narkhoz 1972, p. 531; 1972-1976 calculated from Narkhoz za 60 let, p. 485; 1977-1984 from Narkhoz to let za 70, p. 58; 1986-1990 from Narkhoz 1990, p. 7.

13.4 APPENDIX 4: PRODUCTIVITY INDICES (USSR, USA, JAPAN)

Table 4.1: labor productivity index in the USSR, the USA and Japan, 1913-1986; general*, industry and agriculture.

(Production per employed worker: average of the Industrialized Capitalist Countries [ICC] = 100)

| | 1913 | 1920 | 1929 | 1938 | 1950 | 1986 |
|-------------------|------|------|------|------|------|------|
| ICC | 100 | 100 | 100 | 100 | 100 | 100 |
| USSR general * | 23 | 9 | 19 | 29 | 40 | 41 |
| U.S. General * | 175 | 185 | 180 | 175 | 240 | 145 |
| Japan general * | 35 | 45 | 50 | 50 | 33 | 85 |
| USSR industry | 25 | 7 | 20 | 34 | 36 | 58 |
| U.S. industry | 145 | 170 | 160 | 145 | 180 | 130 |
| Japan industry | 15 | 25 | 30 | 45 | 20 | 90 |
| USSR agriculture | 26 | 16 | 27 | 28 | 25 | 20 |
| U.S. agriculture | 175 | 180 | 180 | 200 | 325 | 200 |
| Japan agriculture | 35 | 37 | 37 | 36 | 35 | 37 |

* "Labor productivity in general" is what the Soviets called "social productivity of labor" (*obshchestvennaya proizvoditel'nost' truda*) which was obtained by dividing the national income by the number of workers employed in the material production sector. Note that the Soviet Marxist concept of national income, unlike the Western concept, encompassed only material production, excluding the service sector.

SOURCE: Bolotin (1987, No. 12, pp. 144, 146 and 148.).

Table 4.2: Labor productivity growth in the USSR, USA and Japan, 1920-1986 (in general*, in industry and in agriculture)

(Output per employed worker) (1913 = 1)

| | 1920 | 1929 | 1938 | 1950 | 1986 |
|-------------------|------|------|------|------|-------|
| USSR General * | 0.35 | 1.05 | 1.85 | 3.20 | 11.15 |
| U.S. general * | 1.00 | 1.30 | 1.45 | 2.50 | 5.15 |
| Japan general * | 1.15 | 1.65 | 2.00 | 1.55 | 14.75 |
| | | | | | |
| USSR industry | 0.25 | 0.90 | 1.50 | 2.00 | 8.70 |
| U.S. industry | 0.95 | 1.30 | 1.10 | 1.80 | 3.45 |
| Japan industry | 1.35 | 2.10 | 3.10 | 1.85 | 20,65 |
| | | | | | |
| USSR agriculture | 0.65 | 1.20 | 1.45 | 1.55 | 5.50 |
| U.S. agriculture | 1.20 | 1.30 | 1.70 | 3.25 | 9.00 |
| Japan agriculture | 1.15 | 1.25 | 1.40 | 1.65 | 7.75 |

* "Labor productivity in general" is what the Soviets called "social productivity of labor" (*obshchestvennaya proizvoditel'nost' truda*) which was obtained by dividing the national income by the number of workers employed in the material production sector. Note that the Soviet Marxist concept of national income, unlike the Western concept, encompassed only material production, excluding the service sector.

SOURCE: Bolotin, 1987 no. 12, pp. 144, 146 and 148.

Table 4.3: Average annual growth of labor productivity in the USSR, 1928-1985 (different estimates).

| | 1928-1940 | 1950-60 | 1961-1965 | 1966-1970 | 1971-1975 | 1976-1980 | 1981-1985 |
|-----------------------------|-----------|---------|-----------|-----------|-----------|-----------|-----------|
| USSR: labor (Narkhoz) | | | | 6.8 | 4.5 | 3.3 | 2.7 |
| USSR: industry (Narkhoz) | | | | 5.8 | 6.0 | 3.2 | 3.0 |
| USSR: Agriculture (Narkhoz) | | | | 5.4 | 4.0 | 2.6 | 1.5 |
| USSR: labor (Ofer) | 2.4 | 4.4 | | 3.4 | 2.0 | 1.4 | 1.3 |

SOURCES:

Narkhoz 1988, p. 62. Productivity defined as national income produced per employed worker. Since the concept of Soviet national income included only material production (excluding the tertiary sector, or services), "labor productivity in general" (line 1) was obtained by dividing the national income by the number of workers employed in the production of material goods.

Ofer, 1987, p. 1778. Labor productivity in Ofer is obtained by calculating the GDP per man-hour (of work).

13.5 APPENDIX 5: INTENSIVE AND EXTENSIVE GROWTH FACTORS IN THE SOVIET ECONOMY

Table 5.1: Western calculations of extensive and intensive growth sources in the USSR, 1928-1985 (average annual growth rates)

| | 1928 1985 | 1928 1940 | 1940 1950 | 1950 1960 | 1960 1970 | 1970 1975 | 1975 1980 | 1980 1985 |
|---------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| GNP | 4.2 | 5.8 | 2.2 | 5.7 | 5.2 | 3.7 | 2.6 | 2.0 |
| Total factor productivity | 1.1 | 1.7 | 1.6 | 1.6 | 1.5 | 0 | -0.4 | -0.5 |
| Factors of production combined: | 3.2 | 4.0 | 0.6 | 4.0 | 3.7 | 3.7 | 3.0 | 2.5 |
| Labor | 1.8 | 3.3 | 0.7 | 1.2 | 1.7 | 1.7 | 1.2 | 0.7 |
| Capital | 6.9 | 9.0 | 0.4 | 9.5 | 8.0 | 7.9 | 6.8 | 6.3 |
| Land | 0.8 | 1.6 | -1.3 | 3.3 | 0.2 | 1.0 | -0.1 | -0.1 |

SOURCE: Ofer, 1987, p. 1778.

Comments:

Extensive economic growth is based on the use of larger amounts of factors of production (labor, capital, land and raw materials). Intensive growth is based on a more efficient (more “productive”) use of the same amount of factors of production. Total Factor Productivity (TFP) is the residue of economic growth that cannot be explained by the quantitative increase in factors of production used. That is, it is assumed that total factor productivity reflects the pure contribution of *technical progress* for economic growth. Thus the sum of the growth rate of the item “Combined Factors of Production” (extensive part of economic growth) with the item “Total Factor Productivity” (intensive component) gives us the grand total of the GNP growth rate in table 5.1.

Labor, capital and land have different relative weights in their sum in “Combined Factors of Production” to compensate for the different costs and profitability of each factor (for more details on the methodology used in the calculations, see Ofer, 1987, p. 1779 and 1785).

13.6 APPENDIX 6: PRICE AND WAGE INDICES IN THE USSR, USA AND JAPAN

Table 6.1: average nominal salary in the USSR, in rubles, 1960-1986.

| 1960 | 1970 | 1980 | 1985 | index 1960-1985 nominal wages 1960 = 100 | index 1960-1986 real wages * 1960 = 100 |
|------|-------|-------|-------|--|---|
| 80.6 | 122.0 | 168.9 | 190.1 | 235 | 210 |

* The growth rate of real wages equals the growth rate of nominal wages minus the official inflation.

SOURCE: Narkhoz za 70 let, pp. 431 and 441.

Table 6.2: Consumer Price Index (CIA calculations; 1980 = 1)

| | 1960 | 1970 | 1975 | 1980 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| USSR | 77 | 84 | 92 | 100 | 109 | 109 | 112 | 117 | 119 | 123 | 131 | 149 |
| USA | 36 | 47 | 66 | 100 | 121 | 126 | 131 | 133 | 138 | 144 | 150 | 159 |
| Japan | 24 | 42 | 73 | 100 | 110 | 112 | 115 | 116 | 116 | 117 | 119 | 123 |

SOURCE: CIA Handbook of Economic Statistics, 1988, p. 39 and 1991, p. 42.

13.7 APPENDIX 7: TOYOTISM, FORDISM AND MACROECONOMIC GROWTH COMPARED (JAPAN, U.S. AND OTHER COUNTRIES DURING THE THIRD TECHNOLOGICAL REVOLUTION)

Table 7.1: Comparison of GDP per capita in Japan, USA and Germany (1950-1988) (in dollars, converted at the official exchange rates).

| Year | Japan | USA | West Germany |
|------|--------|--------|--------------|
| 1950 | 131 | 1,895 | 468 |
| 1955 | 273 | 2,446 | 825 |
| 1960 | 468 | 2,852 | 1,302 |
| 1965 | 919 | 3,629 | 1,942 |
| 1970 | 1,948 | 4,952 | 3,041 |
| 1975 | 4,475 | 7,401 | 6,784 |
| 1980 | 9,103 | 11,996 | 13,296 |
| 1985 | 11,098 | 16,760 | 10,355 |
| 1988 | 19,905 | 18,570 | 18,373 |

Source: Tsuru, 1993, p. 182.

COMMENT:

In 1993, the *per capita* Gross Domestic Product (GDP) of Japan, USA and Germany in U.S. dollars at official exchange rates were, respectively, \$33,612, \$24,302 and \$23,537. (OECD, 1995a, p. 14) But the Japanese advantage has to be qualified. If instead of official exchange rates, we utilize PPP (Purchasing Power Parity) calculations — which use the prices of one country to uniformly value the goods and services of all countries in order to prevent the distortions caused by exchange rate fluctuation — we obtain, for the three countries the following respective results: \$20,279, \$24,302 and \$18,506. (*Ibid.*, p. 18) In other words, in 1993, the United States still lead in productivity (measured as GDP per capita) as a whole (encompassing industry, services and agriculture). The American advantage comes not from spurts of high economic growth (the so-called “economic miracles”) but rather from a persistently long period of moderate economic growth for more than two centuries (Maddison, 1991, pp. 49-51) This steady growth for such a long time (combined with relatively little damage, and even overproduction, during the two world wars) enabled an “isolated” lead ahead of other countries in the second half of the twentieth century. However, since the Second World War, while the United States remained at moderate growth rates (with a tendency to stagnation from the 1970s onward), Japan was the fastest growing country (both in terms of the economy as a whole, and in terms of per capita productivity) in the period of the Third Technological Revolution up to the end of the 1980’s.

The great test of superiority of an economic model over another is the productivity *per capita* (output per employed worker) or, what is technically more accurate (due to differences in working hours and holidays etc.), output per hours worked. The United States is still the leader in terms of productivity, but because of the

Japanese superiority in terms of productivity growth rates, the gap between the two countries narrowed rapidly in the post-war period (Japan is a leader in absolute productivity in some areas, such as automotive, electronics industry and equipment, *i.e.*, exactly the fields most directly affected by Toyotism).

Below is a table of productivity growth rates *per capita* in several countries in different periods:

Table 7.2: productivity growth phases (GDP per hour worked), 1870-1987 (compound annual average growth rate).

| | 1870-1913 | 1913-1950 | 1950-1973 | 1973-1987 | 1870-1987 |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Japan | 1.9 | 1.8 | 7.6 | 3.5 | 3.2 |
| USA | 1.9 | 2.4 | 2.5 | 1.0 | 2.1 |
| Germany | 1.9 | 1.0 | 5.9 | 2.6 | 2.5 |
| UK | 1.2 | 1.6 | 3.2 | 2.3 | 1.9 |
| Australia | 1.1 | 1.5 | 2.7 | 1.8 | 1.6 |
| Austria | 1.8 | 0.9 | 5.9 | 2.7 | 2.4 |
| Belgium | 1.2 | 1.4 | 4.4 | 3.0 | 2.1 |
| Canada | 2.3 | 2.4 | 2.9 | 1.8 | 2.4 |
| Denmark | 1.9 | 1.6 | 4.1 | 1.6 | 2.2 |
| Finland | 1.8 | 2.3 | 5.2 | 2.2 | 2.7 |
| France | 1.6 | 1.9 | 5.0 | 3.2 | 2.6 |
| Italy | 1.7 | 2.0 | 5.8 | 2.6 | 2.7 |
| Netherlands | 1.3 | 1.3 | 4.8 | 2.4 | 2.1 |
| Norway | 1.6 | 2.5 | 4.2 | 3.5 | 2.6 |
| Sweden | 1.7 | 2.8 | 4.4 | 1.6 | 2.6 |
| Switzerland | 1.5 | 2.7 | 3.3 | 1.2 | 2.2 |
| arithmetic mean | 1.7 | 1.9 | 4.5 | 2.3 | 2.4 |

Source: Madison, 1991, p. 51.

Table 7.3: Comparative productivity levels (GDP per hour worked relative to the leading country)

1820-1890 UK = 100 / 1913-1987 United States = 100

| | 1820 | 1870 | 1890 | 1913 | 1929 | 1938 | 1950 | 1960 | 1973 | 1987 |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| USA | 83 | 96 | 99 | 100 |
| Japan | 31 | 18 | 20 | 18 | 22 | 23 | 15 | 20 | 46 | 61 |
| Germany | 62 | 48 | 53 | 50 | 42 | 46 | 30 | 46 | 64 | 80 |
| France | 80 | 54 | 53 | 48 | 48 | 54 | 40 | 49 | 70 | 94 |
| Italy | 58 | 39 | 35 | 37 | 35 | 40 | 31 | 38 | 64 | 79 |
| UK | 100 | 100 | 100 | 78 | 67 | 64 | 57 | 56 | 67 | 80 |
| Canada | | 62 | 63 | 75 | 66 | 58 | 75 | 79 | 83 | 92 |
| Austria | 66 | 49 | 53 | 48 | 37 | 33 | 27 | 38 | 59 | 74 |
| Belgium | 72 | 79 | 80 | 61 | 55 | 53 | 42 | 45 | 64 | 86 |
| Denmark | 66 | 57 | 59 | 58 | 59 | 54 | 43 | 46 | 63 | 68 |
| Finland | 49 | 33 | 32 | 33 | 32 | 33 | 31 | 36 | 57 | 67 |
| Netherlands | 99 | 85 | 87 | 69 | 74 | 64 | 46 | 54 | 77 | 92 |
| Norway | 59 | 46 | 48 | 43 | 45 | 50 | 43 | 52 | 64 | 90 |
| Sweden | 58 | 45 | 46 | 44 | 38 | 43 | 49 | 54 | 76 | 82 |
| Switzerland | | 60 | 61 | 51 | 57 | 55 | 56 | 59 | 67 | 68 |
| Australia | 90 | 127 | 99 | 93 | 77 | 75 | 67 | 69 | 70 | 78 |

NOTE:

1. The United Kingdom was the leader in productivity until about 1890. After that, the leader was the USA.
2. The data for 1820 were calculated extrapolating backwards the 1870 data, using the growth of real GDP per capita.

Source: OECD, 1996a, vol. 2, p. 32.

COMMENT:

Japan, starting out from the lowest postwar comparative productivity level of all the above countries (index 15 in 1950 according to table 7.3), was the one with the highest rates of productivity growth, both in the period 1950-73 and in 1973-1987 (respectively, 7.6% and 3.5% annually, according to table 7.2), well ahead of the others. In particular, the Japanese model was the one that best resisted the vicissitudes of the crisis of the 1970's, which put the future of the Fordist-based accumulation regime in check. (Lieptz, 1986, pp. 17-18) Writing about this crisis, Lipietz (*ibid.*, p. 26) pointed out that:

According to the French Center for Perspective Studies and International Information (C.E.P.I.I. 1984), only one country [Japan], through radical innovations in labor organization, showed, in the late

1970s, a reversal of the unfavorable trends in terms of productivity growth and movements in the organic composition of capital (although not at the same level as in the favorable 1960s).

The result of this is that the West, starting in the mid-1970s, set out to copy many characteristics (mainly microeconomic) of the Japanese paradigm. Most large Western companies adopted flexible techniques in their operation (Just-in-Time, Total Quality Control, Quality Circles, Zero Inventories, etc.).

In terms of productivity, in the industries most affected by the Toyotist techniques — *i.e.*, the transportation industry (including automobile), machine production and electrical engineering — Japanese productivity (per hour worked) is already the first in the world, with 17% above the runner-up, the USA.¹⁹⁷ (Nasar, 1992, p. D19, c. 4) Productivity in the service sector in Japan is relatively low, which greatly diminishes its overall average.

It is important to note that we analyze the developments of Toyotism and Japan at the time of the Third Technological Revolution. This Mandelian period of about 50 years,¹⁹⁸ which began after World War II (1945), should end in the early or mid-1990s. And there are indeed signs that the economy of the advanced capitalist countries slowly began to recover in the 1990s from the long wave of stagnation of the 1970s and 1980s.¹⁹⁹ On the other hand, Japan has shown less dynamic macroeconomic growth rates

¹⁹⁷ An article in *The New York Times* of 10/13/92 reproduced the results of a survey by the McKinsey Global Institute on productivity rates in several countries:

In 1990, the full-time American worker produced \$49,600 in goods and services per year. At purchasing power parity, the French worker produced \$47,000, the German \$44,200, the Japanese \$38,200, the British \$37,100. (Nasar, 1992, p.D1, c.6) In the total manufacturing industries, Japan and Germany are tied at 80 percent of the U.S. level, although Japan has already surpassed the U.S. in machinery manufacturing, electrical engineering and transportation equipment industries (Japan, 117 percent and Germany, 80 percent). The productivity of Japan is greatly diminished due to its low productivity in the service sector (*ibid.*, P. D1, c. 6 and D19, c. 4)

¹⁹⁸ See the explanation of Mandel's theory of long waves of economic activity, which guides the present work, in the chapter dedicated to the study of "Technological Revolutions."

¹⁹⁹ The recovery in the United States began after 1991 and in Europe in general after 1993. It was thereafter (after having hit rock bottom) that the annual GDP growth rates of these countries slowly began to rise again. However, since the period since then is small, and recovery is slow, not vigorous, it is necessary to confirm later whether this trend will be long-term.

The following table shows the percentage growth rates of the Gross Domestic Product of the USA, Europe and Japan in the 1990s, taken from the OECD *Main Economic Indicators*:

Table 1.9 – GDP growth, 1990-1996 (USA, OECD-Europe and Japan)

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 |
|--------------|------|------|------|------|------|------|------|
| USA | 0.9 | -0.7 | 2.1 | 3.0 | 4.1 | 2.0 | 2.4 |
| OECD-Europe* | 2.8 | 1.1 | 0.9 | -0.3 | 2.6 | 2.5 | 1.7 |
| Japan | 5.6 | 4.5 | 1.3 | 0.1 | 0.6 | 0.9 | 3.6 |

* OECD-Europe = OECD European countries.

Sources: year 1990 from MEI (*Main Economic Indicators*), Dec. 1991, p. 174; year 1991 from MEI, Dec. 1992, p. 174; year 1992 from MEI, Dec. 1993, p. 196; year 1993 from MEI, Dec. 1994, p. 210; year 1994 from MEI, Dec. 1995, p. 200; year 1995 from MEI, Sept. 1996, p. 200; year 1996 from MEI, Sept. 1997, p. 225.

at the beginning of this new decade and new period. This is due to the fact that, after having grown into the second largest GNP in the world, Japan is experiencing a phenomenon common to other leading powers of the past (such as England and the United States), which is reflected in more moderate rates of growth and a growing financialization of its system: the excess capital created during the period of the “economic miracle” surpasses the absorptive capacity of the system and this capital, then, without obtaining its valorization by purely productive (industrial) means, launches itself into financial or speculative markets.²⁰⁰ This more moderate growth of Japan in the 1990s does not invalidate our thesis about Toyotism as the most advanced industrial production paradigm of the Third Technology Revolution era because: (1) Japan’s current accommodation at lower industrial growth rates, as demonstrated by Arrighi,²⁰¹ corresponds to the natural stage of an “excessively rich” country and to the difficulties of valorization of the accumulated capital; 2) Toyotism, not only proved its superiority in the 1970s and 1980s but also the big Western industrial companies entered the 1990s adopting (or attempting to adopt) Toyotist techniques (or other forms of “flexible specialization”) in order to regain competitiveness. Nowadays almost all major global companies adopt “flexible” techniques. The first half of the 1990s still does not allow us to foresee what the future hegemonic production paradigms will be in this new (“post-Third Technological Revolution”) phase, but the “flexible” paradigms have left an indelible mark.

²⁰⁰ For an excellent study of the phenomenon of “financialization” as the final stage of leading industrial countries, see the book *The Long Twentieth Century* by Giovanni Arrighi.

²⁰¹ Arrighi (1994, pp. 345 and 352-353) and in personal communication to the current author, at the Economics department of Universidade Federal Fluminense (Brazil), on June 17, 1996.

13.8 APPENDIX 8: SOVIET MILITARY SPENDING

Table 8.1: Soviet military spending, various estimates, from 1950 to 1985
(billion rubles)

| year | Soviet official (Current prices) | SIPRI 1979 (Current prices) | SIPRI 1980's (current prices) | Lee 1 (Current prices) | Lee 2 (1970 rubles) | CIA 1 1970 rubles (average) | CIA 2 1970 rubles (min./max.) |
|------|----------------------------------|-----------------------------|-------------------------------|------------------------|---------------------|-----------------------------|-------------------------------|
| 1950 | 8.3 | | 17.1 | | | | |
| 1951 | 9.4 | | | | | 26.0 | 19-33 |
| 1952 | 10.9 | | | | | 26.5 | 20-33 |
| 1953 | 10.8 | | | | | 24.5 | 19-30 |
| 1954 | 10.2 | | | | | 25.5 | 20-31 |
| 1955 | 10.7 | | 23.3 | 14.0 | | 30.0 | 24-36 |
| 1956 | 9.7 | | | 12.5 | | 28.5 | 23-34 |
| 1957 | 9.1 | | | 12.5 | | 25.5 | 21-30 |
| 1958 | 9.4 | 17.0 | | 13.5 | | 26.0 | 22-30 |
| 1959 | 9.4 | 18.4 | | 15.0 | | 25.5 | 22-29 |
| 1960 | 9.3 | 18.3 | 21.8 | 16.0 | | 27.0 | 23-31 |
| 1961 | 11.6 | 22.8 | | 18.5 | | 30.0 | 26-34 |
| 1962 | 12.6 | 24.9 | | 21.0 | | 33.5 | 29-38 |
| 1963 | 13.9 | 27.3 | | 23.0 | | 35.0 | 31-39 |
| 1964 | 13.3 | 26.1 | | 24.5 | | 38.0 | 34-42 |
| 1965 | 12.8 | 25.1 | 30.0 | 26.0 | | 39.0 | 35-43 |
| 1966 | 13.4 | 26.3 | | 28.0 | 29.2 | 40.0 | 36-44 |
| 1967 | 14.5 | 28.5 | | 32.5 | 33.0 | 43.0 | 39-47 |
| 1968 | 16.7 | 32.4 | | 38.5 | 38.5 | 46.0 | 42-50 |
| 1969 | 17.7 | 34.6 | | 42.0 | 42.2 | 47.5 | 43-52 |
| 1970 | 17.9 | 35.2 | 42.0 | 46.0 | 46.5 | 48.5 | 44-53 |
| 1971 | 17.9 | 35.7 | 42.7 | | 52.0 | 59.5 | 45-54 |
| 1972 | 17.9 | 36.3 | 43.3 | | 56.5 | 51.0 | 46-56 |
| 1973 | 17.9 | 36.9 | 44.0 | | 63.5 | 53.0 | 48-58 |
| 1974 | 17.7 | 37.4 | 44.7 | | 69.0 | 56.5 | 51-62 |
| 1975 | 17.4 | 38.0 | 45.4 | | 77.0 | 59.0 | 53-65 |
| 1976 | 17.4 | 38.5 | 46.0 | | 83.5 | 62.5 | 56-69 |
| 1977 | 17.2 | 39.1 | 46.7 | | 89.0 | 63.0 | 56-70 |
| 1978 | 17.2 | 39.7 | 47.4 | | 98.0 | 64.5 | 57-72 |
| 1979 | 17.2 | | 48.0 | | 107.0 | 67.0 | 59-75 |
| 1980 | 17.1 | | 48.7 | | 117.0 | 70.5 | 62-79 |
| 1981 | 17.1 | | 49.5 | | | | |
| 1982 | 17.1 | | 50.2 | | | | |
| 1983 | 17.1 | | | | | | |
| 1984 | 17.1 | | | | | | |
| 1985 | 19.1 | | | | | | |

Source (table adapted with modifications and additions from Becker, 1985, p. 4.):

Column "Soviet Official" (= allocation of the item *Oborona* ["Defense"] in the official annual budget of the USSR): years 1958-85, Narkhoz of each year; 1950, 1953, 1955 and 1956, Narkhoz 1958, p. 900; 1951 and 1952, Moorsteen & Powell, 1966, p. 630; 1954, Plotnikov, 1954, p. 531; 1957, Minfin 1962, p. 19.

Column "SIPRI 1979": SIPRI Yearbook, 1979, pp. 38-39.

Column "SIPRI 1980's": SIPRI Yearbook 1980 (p. 25), 1981 (p. 102), 1982 (p. 146) and 1983 (p. 167).

Column “Lee current prices”: Lee, 1977, p. 97 (1975 projection)

Column “Lee 1970 rubles”: U.S. House of Representatives, 1980, p. 22 (rounded numbers are averages of Lee data).

Column “CIA 1”: rounded average of the data provided in column “Cia 2”.

Column “CIA 2”: figures represent minimum and maximum estimates of the USSR's defense spending for each year, calculated by the CIA in JEC, 1982, p. 123. Variations represent narrower or broader definitions of the concept of “defense spending” (including, or not, part of aerospace research, spending on internal security etc.).

Table 8.2: Military spending as percentage of GNP from 1950 to 1985, various estimates.

| year | USSR official NMP% | USSR SIPRI 1979 | USSR SIPRI 1980-81 | USSR SIPRI 1982-83 | USSR LEE current prices | USSR LEE 1970 rubles | USSR CIA 1 1970 rubles | USSR CIA 2 Current prices | USSR CIA 3 1970 rubles (Average of CIA 4) | USSR CIA 4 1970 rubles (min./max.) | USA SIPRI % GDP |
|------|--------------------|-----------------|--------------------|--------------------|-------------------------|----------------------|------------------------|---------------------------|---|------------------------------------|-----------------|
| 1950 | 15.0 | | | | | | | | | | 5.1 |
| 1951 | | | | | | | | | 19.0 | 13.9 to 24.0 | |
| 1952 | | | | | | | | | 18.2 | 13.7 to 22.6 | 13.6 |
| 1953 | 14.6 | | | | | | | | 16.0 | 12.4 to 19.6 | 13.4 |
| 1954 | | | | | | | | | 15.9 | 12.4 to 19.3 | 11.6 |
| 1955 | 11.5 | | | | 11.5 | | | | 17.2 | 13.7 to 20.6 | 10.0 |
| 1956 | 9.4 | | | | 9.5 | | | | 15.1 | 12.2 to 18.0 | 9.8 |
| 1957 | 8.3 | | | | 8.5 | | | | 13.0 | 10.7 to 15.3 | 9.9 |
| 1958 | 7.3 | 11 | | | 8.5 | | | | 12.3 | 10.4 to 14.2 | 10.0 |
| 1959 | 6.9 | 11.2 | | | 8.5 | | | | 11.4 | 9.8 to 13.0 | 9.4 |
| 1960 | 6.4 | 10.4 | 12.4 | | 9.0 | | | | 11.6 | 9.9 to 13.3 | 8.9 |
| 1961 | 7.6 | 12.3 | | | 9.5 | | | | 12.3 | 10.6 to 13.9 | 9.1 |
| 1962 | 7.6 | 12.5 | | | 10.5 | | | | 13.2 | 11.4 to 14.9 | 9.3 |
| 1963 | 8.2 | 13.4 | | | 10.5 | | | | 13.9 | 12.3 to 15.5 | 8.8 |
| 1964 | 7.3 | 11.9 | | | 10.0 | | | | 13.6 | 12.2 to 15.0 | 8.0 |
| 1965 | 6.6 | 10.7 | 12.8 | | 10.0 | | 11-13 | | 13.2 | 11.8 to 14.5 | 7.5 |
| 1966 | 6.5 | 10.5 | | | 10.0 | 11 | 11-13 | | 12.8 | 11.5 to 14.1 | 8.4 |
| 1967 | 6.4 | 10.5 | | | 10.5 | 11.5 | 11-13 | | 13.2 | 12.0 to 14.4 | 9.4 |
| 1968 | 6.8 | 11 | | | 12.0 | 12.3 | 11-13 | | 13.6 | 12.1 to 15.0 | 9.2 |
| 1969 | 6.8 | 10.9 | | | 12.0 | 12.8 | 11-13 | | 13.4 | 12.1 to 14.6 | 8.6 |
| 1970 | 6.2 | 10 | 12 | | 11.5 | 12.9 | 11-13 | 12-14 | 12.6 | 11.4 to 13.8 | 7.8 |
| 1971 | 5.9 | 9.7 | 9.7 | | | 13.6 | 11-13 | | 12.5 | 11.3 to 13.6 | 6.9 |
| 1972 | 5.7 | 9.6 | 9.6 | 11.4 | | 13.7 | 11-13 | | 12.6 | 11.3 to 13.8 | 6.6 |
| 1973 | 5.3 | 9.0 | 9 | 10.8 | | 14.5 | 11-13 | | 12.2 | 11.0 to 13.3 | 6.0 |
| 1974 | 5.0 | 8.7 | 8.7 | 10.4 | | 14.8 | 11-13 | | 12.5 | 11.3 to 13.7 | 6.1 |
| 1975 | 4.8 | 8.6 | 10.3 | 10.3 | 14.5 | 15.5 | 11-13 | | 12.8 | 11.5 to 14.1 | 6.0 |
| 1976 | 4.5 | 8.3 | 9.9 | 9.9 | | | 11-13 | | 13.0 | 11.6 to 14.3 | 5.4 |
| 1977 | 4.2 | 8.0 | 9.6 | 9.5 | | | 11-13 | | 12.7 | 11.3 to 14.1 | 5.3 |
| 1978 | 4.0 | | 9.4 | 9.2 | | | 12-14 | | 12.6 | 11.1 to 14.0 | 5.1 |
| 1979 | 3.9 | | | 9 | | | 12-14 | | 13.0 | 11.4 to 14.5 | 5.1 |
| 1980 | 3.7 (2.8) | | | 8.8 | | 18 | 12-14 | 15-17 | 13.4 | 11.8 to 15.0 | 5.6 |
| 1981 | 3.5 | | | 8.7 | | | 12-14 | 15-17 | | | 5.8 |
| 1982 | 3.3 | | | | | | 12-14 | 15-17 | | | 6.5 |
| 1983 | 3.1 | | | | | | 12-14 | 15-17 | | | 6.7 |
| 1984 | 3.0 | | | | | | | 15-17 | | | 6.5 |
| 1985 | 3.3 (2.5) | | | | | | | 15-17 | | | 6.6 |
| 1986 | 3.2 (2.5) | | | | | | | 15-17 | | | 6.7 |
| 1987 | 3.4 (2.4) | | | | | | | 15-17 | | | 6.4 |
| 1988 | 3.2 (2.3) | | | | | | | 15-17 | | | 6.0 |
| 1989 | 11.2 (8.0) | | | | | | | 15-17 | | | |
| 1990 | 9.9 (6.9) | | | | | | | | | | |

Source: table adapted with modifications and additions from Becker, 1985, p. 13.

Column “USSR Official NMP” (= value of the item *oborona* [“defense”] in the Soviet official budget as a percentage of Net Material Product; values in parentheses after 1980, representing % of GNP): 1958-90 from Narkhoz of each year. 1950, 1953, 1955, 1956 calculated from Narkhoz 1958, p. 900 and Yearbook of National Accounts Statistics, 1960, p. 263. Year 1957 calculated from Minfin, 1962, p. 19 and Yearbook of

National Accounts Statistics, 1960, p. 263. The Soviet concept of national income produced (= Net Material Product) includes only material production, excluding services. Beginning in 1988, the statistical yearbook *Narodnoe Khozyaistvo* also began to publish estimates of GNP (Gross National Product, which includes services) of the country, from which the percentages of GNP in parentheses were taken. Until 1988, when the actual defense expenditures of the USSR were a state secret, the budget item “defense” covered only the maintenance (salary, etc.) of the armed forces (excluding arms production, research, etc.). With Gorbachev’s (1990, p. 2) revelations of the USSR’s actual military expenditures (“defense expenditures [in the 1980s] were as high as 18 percent of the NMP”), the notable increase in official percentages for 1989 and 1990 is due to the fact that, in those years, military expenditures began to be totally brought under the heading “defense” of the official budget of the USSR (and not dispersed into other budgetary items, like “science” and “industry”, as before).

Columns “USSR-SIPRI” (various assessments of Soviet military spending at market prices by SIPRI): SIPRI 1979 from SIPRI Yearbook 1979, pp. 38-39; SIPRI 1980-81 from SIPRI Yearbook 1980, p. 29 and 1981, p. 166; SIPRI 1982-1983 from SIPRI Yearbook 1982, p. 150 and 1983, p. 171.

Column “Lee current prices”: Lee, 1977, p. 98.

Column “Lee 1970 rubles”: U.S. House of Representatives, 1980, p. 22 (year 1980 from United States Senate, 1980, p. 9)

Columns CIA (various CIA assessments, all at factor cost):

Column “CIA 1”: JEC, 1984, p. 214 and the testimony of CIA Director Stansfield Turner in JEC, 1981, p. 137 that “[... USSR] defense spending accounted for 11-13% of GDP between 1965 and 1978; a roughly constant proportion. But, since the economy has not grown as quickly, this proportion rose to 12-14% [since 1978].”

Column “CIA 2” (after review of previous CIA figures because of the 1982 price reform in the USSR): JEC, 1988, p. 124 and JEC, 1990, p. 60.

Column “CIA 3”: The average between the minimum and maximum figures in column “CIA 4”.

Column “CIA 4”: Calculated from JEC, 1982, pp. 123 and 52-54. The figures represent minimum and maximum estimates of the USSR’s defense spending for each year, calculated by the CIA. Variations represent narrower or broader definitions of the concept of “defense spending” (including or not part of aerospace research, spending on internal security etc.).

Column “USA-SIPRI” (percentage of U.S. GDP employed in military spending): year 1950 from SIPRI Yearbook 1980, p. 29; years 1952-72 from SIPRI Yearbook 1974, pp. 208-209; years 1973-75 from SIPRI Yearbook 1981, p. 166; years 1976-85 from SIPRI Yearbook 1986, p. 243; years 1986-88 from SIPRI Yearbook 1989, p. 188.

Table 8.3: Military spending in constant and current prices (in billions of US dollars), according to calculations by SIPRI (S.) and USACDA (U.).

| year | 1950 X | 1955 X | 1960 X | 1965 X | 1970 X | 1975 X | 1979 X | 1979 XX | 1980 XX | 1985 XX | 1985 XXX | % 1985 |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|-------------|-----------|
| USA (S.) | 39.5 | 98.2 | 100.0 | 107.2 | 130.9 | 110.2 | 110.1 | 138.8 | 144.0 | 204.9 | 266.6 | 30.9 |
| NATO (S) | 67.4 | 142.6 | 150.4 | 168.0 | 193.9 | 184.9 | 191.8 | 248.2 | 256.3 | 327.7 | | 49.4 |
| USSR (S.) | 37.7 | 51.2 | 48.0 | 65.9 | 92.5 | 99.8 | 105.7 | 129.9 | 131.8 | 146.2 | | 22 |
| WP (S.) | 40.7 | 54.2 | 51.4 | 71.3 | 100.8 | 110.3 | 118.0 | 142.3 | 144.3 | 160.1 | | 24.1 |
| World (S.) | | | | | | | | 561.8 | 567.0 | 663.1 | | 100 |
| USA (U.) | | | | | 128.8 | 108.5 | 112.3 | | 144.0 | | 265.8 | 27.6 |
| NATO (U.) | | | | | 192.4 | 183.3 | 195.2 | | 188.9 | | 409.2 | 42.5 |
| USSR (U.) | | | | | 127.8 | 151.4 | 166.7 | | 198.2 | | 277.2 | 28.8 |
| WP (U.) | | | | | 150.0 | 178.1 | 193.6 | | 233.3 | | 329.7 | 34.2 |
| World (U.) | | | | | 425.4 | 474.7 | 521.4 | | 719.0 | | 963.4 | 100 |

Source: SIPRI Yearbook 1980, p. 21 and SIPRI Yearbook 1986, pp. 231 and 238; WMEAT 1970-1979, pp. 43, 46, 76 and 81 and WMEAT 1989, pp. 31, 35, 65 and 69 (data rounded to the first decimal place, when necessary)

NOTE:

1. SIPRI = Stockholm International Peace Research Institute. USACDA = United States Arms Control and Disarmament Agency. WMEAT = World Military Expenditures and Arms Transfers (annual publication of USACDA). To evaluate the military spending of the communist countries, USACDA uses CIA data, whereas SIPRI uses (Soviet and Western) official publications complemented by independent evaluation through other primary and secondary sources. For other countries, both agencies use official publications of NATO and the countries involved. The military spending concept follows NATO's descriptive model.

2. Years X in 1978 constant dollars and exchange rates. Years XX in 1980 constant dollars and exchange rates. Year XXX in 1985 current dollars and exchange rates. For communist countries, both agencies use purchasing power parity calculations instead of official exchange rates. Due to the use of different base years for constant dollars (1978 e1980; plus the current 1985 dollars), the horizontal line comparison is only advisable for periods using the same-year dollar base. The vertical comparison (in columns) is always possible. The statistical discrepancy caused by the use of different base years can be observed by contrasting the columns 1979XX and 1979X or 1985XX and 1985XXX.

3. "WP" represents Warsaw Pact countries, including the USSR. NATO total includes the USA. Due to the well-known difficulties in calculating the "real" military expenditures of the Soviet Union, the data for that country and the WP should be viewed as largely approximative, with great margin for error.

Table 8.4: Average annual percentage growth of military spending in the postwar period, different estimates.

| | 1950- 1955 | 1955- 1960 | 1960- 1965 | 1965- 1970 | 1970- 1975 | 1975 1980 | 1980 1985 |
|--------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|
| USA (SIPRI) | | | | 4.7 | -2.2 | 0.2 | 7.4 |
| USSR (SIPRI) | | | | 7 | 1.5 | 1.5 | |
| USSR (CIA) | | | | | 4 | 2 | 2 |
| USSR (Ofer) | | -2.1 | 6.1 | | 3.8 | 2.6 | 2.2 |

SOURCES:

SIPRI: Years 1965-70 from SIPRI Yearbook 1969/70, p. 28 (in constant 1960 dollars); years 1970-80 from SIPRI Yearbook 1981, p. 150 (in constant 1978 dollars). Years 1980-85 (USA) from SIPRI Yearbook 1986, p. 212 (in constant 1980 dollars). Figures for the USSR at purchasing power parity.

CIA: years 1970-85 from JEC, 1989, pp. 103-104 (in 1982 rubles)

Ofer: Ofer, 1987, p. 1778.

Table 8.5: Soviet military spending as percentage of GNP/NMP before the Second World War.

| | 1928 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Bergson % GNP | 1.6 | | | | | | 6.7 | | | 14.5 | | | | 39.8 | |
| JEC 1957 % GNP | 2.8 | | | | | | 9.0 | | | 17.5 | | | | 35.8 | |
| Davies % NMP | 4.1 | 9.0 | | | | | | | | 19.0 | | | | | |
| Harrison % NMP | | | | | | | | | | 17.0 | 28.0 | 61.0 | 61.0 | 53.0 | |
| Official % budget | 10.0 | 3.4 | 3.4 | 9.0 | 11.1 | 16.1 | 16.4 | 18.7 | 25.6 | 32.6 | 43.3 | 59.3 | 59.5 | 52.2 | 42.9 |
| Official Gosk. % NMP | | | | | | | | | | 11 | | 40 | 44 | 35 | 25 |

Sources:

Line “Bergson”: Bergson, 1961, p. 149 (in % of GDP, in 1950 ruble factor cost)

Line “JEC 1957”: JEC 1957, p. 127 (in % of GNP, in current rubles)

Line “Davies”: Davies, 1993, p. 602 (percentage of Net Material Product, in current rubles)

Line “Harrison”: Harrison, 1996, p. 126 (in % of GDP, in 1937 ruble factor cost)

Line “Official % budget” (percentage of the Soviet budget officially allocated to defense): calculated from Plotnikov, 1954. (at current prices: years 1928-32, page 132; years 1933-37, pp. 206 and 215; years 1938-40, p. 260; years 1941-45, pp. 324. Note: the year 1928 on this line is equivalent to Plotnikov’s financial year 1928-29).

Line “Official Gosk. % NMP” (= percentage of Net Material Product spent on defense, according to calculations by Goskomstat, the new Soviet Union’s statistical service in the period of perestroika) *apud* Harrison, 1996, p. 29-30.

Table 8.6: Average annual growth percentages of the USSR’s defense spending before the Second World War, Western estimates.

| | 1928-1937 | 1937-1940 |
|---------|-----------|-----------|
| Bergson | 29.2% | 38.5% |
| Ofer | 26.6% | |

SOURCES:

Bergson (1961, p. 217) (in 1937 ruble factor cost)

Ofer (1987, p. 1778) (in 1950 ruble factor cost).

13.9 APPENDIX 9: AGRICULTURE IN THE USSR

Table 9.1: USSR, annual averages of the portion of investments (fixed capital) in agriculture and portion of national income generated by agriculture, expressed as a percentage and in rubles.

| | 1918-40 | | 1956-59 | 1961-65 | 1966-70 | 1971-75 | 1976-80 | 1981-85 |
|------|---------|--|---------|---------|---------|---------|---------|---------|
| %PDI | 11.3% | | 13.9% | 15.2% | 16.7% | 19.8% | 20.0% | 18.5% |
| %DII | | | | 20% | 24% | 27% | 28% | 27% |
| %NI | | | | 21.6% | 21.8% | 18.9% | 16.6% | 17.9% |
| PDI | | | | 42.3 | 66.7 | 111.2 | 143.2 | 156.2 |
| DII | | | | 56.9 | 96.2 | 152.8 | 199.6 | 227.2 |
| NI | | | | 206.5 | 301.5 | 348.2 | 380.9 | 483.7 |

NOTE:

%PDI = Percentage of Productive (*i.e.*, directly related to production) Direct Investment in agriculture in relation to the total of the country's investments in the given period.

%DII = Percentage of Direct (productive and non-productive) and Indirect Investment in agriculture in relation to the total investments in the country in the designated period. It includes spending on agricultural research institutes, rural housing, etc.

%NI = Percentage of (Soviet) National Income generated by agriculture in the given period.

PDI = %PDI expressed in billions of constant 1983 rubles (total of the given period).

DII = %DII expressed in billions of constant 1983 rubles (total of the given period).

NI = %NI expressed in billions of constant 1983 rubles (total of the given period).

Sources:

Lines “%PDI”, “% DII”, “PDI” and “DII”: Narkhoz za 70 let, pp. 275 and 328-329.

Line “%NI”: at current prices, from the section “*Natsional'nyi Dokhod po Otrashlyam Narodnogo Khozyaistva*” of Narkhoz of each year (added and divided by the number of years of each period to obtain the annual average representative of the period as a whole).

Line “NI”: calculated from **Line “%NI”** of this table and Bolotin, 1987, n. 11, p. 147, who gives us the total national income for each period. Since **line “%NI”** is given in “national income produced” [*proizvedennyi natsional'nyi dokhod*] and Bolotin presents his data in terms of “national income used” [*ispol'zovanniy natsional'nyi dokhod*], the current author adapted Bolotin's numbers in terms of national income produced. This was done by calculating the annual difference between the two given in Narkhoz of each year and adding this difference to Bolotin's figures.

Table 9.2: Index of gross and marketed agricultural production; USSR, 1913-1945; 1913 = 100.

| year | 1913 | 1917 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1945 |
|------|------|------|------|------|------|---------------------|------|------|------|------|----------------------|------|------|------|------|----------------------|------|------|------|------|----------------------|------|------|------|
| GCP | 100 | 81 | 64 | 55 | 75 | 84 | 82 | 107 | 114 | 113 | 117 | 116 | 126 | 126 | 125 | 121 | 125 | 138 | 118 | 150 | 120 | 125 | 155 | 93 |
| MCP | 100 | | | | | 38 (annual average) | | | | | 109 (annual average) | | | | | 152 (annual average) | | | | | 174 (annual average) | 122 | | |
| GLP | 100 | 100 | 72 | 67 | 73 | 88 | 104 | 121 | 127 | 134 | 137 | 129 | 100 | 93 | 75 | 65 | 72 | 86 | 96 | 109 | 120 | 119 | 114 | 72 |
| MLP | 100 | | | | | | | | | | 88 (annual average) | | | | | 92 (annual average) | | | | | 174 (annual average) | 58 | | |
| GAP | 100 | 88 | 67 | 60 | 75 | 86 | 90 | 112 | 118 | 121 | 124 | 121 | 117 | 114 | 107 | 101 | 106 | 119 | 109 | 134 | 120 | 121 | 141 | 86 |
| MAP | 100 | | | | | | | | | | 100 (annual average) | | | | | 125 (annual average) | | | | | 147 (annual average) | 94 | | |

GCP = Gross Crop Production

MCP = Marketed Crop Production

GLP = Gross Livestock Production

MLP = Marketed Livestock Production

GAP = Gross Agricultural Production (= GCP + GLP)

MAP = Marketed Agricultural Production (= MCP + MLP)

NOTE: marketed production (*tovarnaya produkcsiya*) refers to the part of the production sold out of the countryside. Years 1917 to 1940 are compared with 1913 in the territory occupied by the USSR's borders in early 1939. Year 1945 in comparison to 1913 within the territory occupied by the borders of the USSR after the war.

SOURCE: Sel'khoz 1960, pp. 23 and 79. Marketed crop production (MCP) of years 1923-27 from Narkhoz 1958, p. 351, and refers only to production of cereals in the period as compared to the 1913 crop of cereals.

Table 9.3: The Stalin/Nemchinov table of gross and marketed grain production before the First World War (1913) and at the end of NEP (1926-7) in the territory of the USSR.²⁰²

| Before the war: | gross grain production | | marketed grain production | | Marketed grain as % of gross grain production |
|-----------------------------|------------------------|------|---------------------------|------|---|
| | millions of poods | % | millions of poods | % | |
| 1. Landlords | 600 | 12.0 | 281.6 | 21.6 | 47.0 |
| 2. Kulaks | 1,900 | 38.0 | 650.0 | 50.0 | 34.0 |
| 3. Middle and poor peasants | 2,500 | 50.0 | 369.0 | 28.4 | 14.7 |
| Total | 5,000 | 100 | 1,300.6 | 100 | 26.0 |

| After the First War (1926-7) | Gross grain production | | marketed grain production | | Marketed grain as % of gross grain production |
|-------------------------------------|------------------------|------|---------------------------|------|---|
| | millions of poods | % | millions of poods | % | |
| 1. State farms and collective farms | 80.0 | 1.7 | 37.8 | 6.0 | 47.2 |
| 2. Kulaks | 617.0 | 13.0 | 126.0 | 20.0 | 20.0 |
| 3. Middle and poor peasants | 4052.0 | 85.3 | 466.2 | 74.0 | 11.2 |
| Total | 4749.0 | 100 | 630.0 | 100 | 13.3 |

NOTE: 1 pood = 16.38 kilos. % = percentage (of). Marketed production (*tovarnaya produktsiya*) refers to the production sold outside countryside. Kulaks = affluent peasants.

SOURCE: Stalin, 1946-1951a, p. 85

²⁰² We have inserted this table, based on statistical data by V.S. Nemchinov, and first reported by Stalin in 1928, because of the impact it had in the debates about agricultural policy in the final period of NEP (“New Economic Policy”), when collectivization of agriculture was being discussed. Stalin used it to demonstrate that the small-scale agriculture of NEP was failing to deliver further increases in the amount of marketed grain. For a discussion on the validity of the data in the Stalin/Nemchinov table, read the controversy between Karcz (1967) and Davies (1970).

Table 9.4: Total Production of cereals (TP), production of cereals Per Hectare (PH) and net agricultural output Per Agricultural Worker (PAW) in several countries, 1969-1986.

| | 1961-65 average TP | 1969-71 average TP | 1979-81 average TP | 1985 TP | 1969-71 average PH | 1979-81 average PH | 1985 PH | 1913 PAW | 1950 PAW | 1986 PAW |
|-------|--------------------|--------------------|--------------------|---------|--------------------|--------------------|---------|----------|----------|----------|
| USSR | 112.9 | 169.3 | 170.5 | 182.2 | 1.5 | 1.4 | 1.6 | 1.0 | 1.6 | 5.5 |
| USA | 169.1 | 209.9 | 301.3 | 347.4 | 3.5 | 4.1 | 4.8 | 6.1 | 19.6 | 54.7 |
| FRG * | 14.7 | 19.1 | 22.9 | 25.9 | 3.7 | 4.4 | 5.3 | 3.1 | 5.3 | 31.1 |
| GDR * | 5.8 | 7.0 | 9.1 | 11.6 | 3.0 | 3.6 | 4.6 | na | na | na |
| Japan | 19.5 | 17.6 | 14.3 | 15.9 | 5.0 | 5.2 | 5.8 | 1.3 | 2.1 | 10.1 |

* FRG = Federal Republic of Germany; GDR = German Democratic Republic; na = not available
 NOTE: Total production (TP) given in millions of metric tons; Production per Hectare (PH) in tons per hectare; PAW in thousands of 1980 dollars (at purchasing power parity).
 SOURCES: TP and PH from FAO Yearbook 1975, pp. 57-59, FAO Yearbook 1979, pp. 93-95 and FAO Yearbook 1987, pp. 113-115; PAW from Bolotin, 1987, n. 12, p. 147.

Table 9.5: Total net agricultural Production growth index (TP) and net agricultural production Per Agricultural Worker (PAW) in several countries (1913 = 1).

| | 1920 | 1929 | 1938 | 1950 | 1986 |
|----------------------|------|------|------|------|------|
| TP - USSR | 0.70 | 1.30 | 1.45 | 1.45 | 3.85 |
| TP - USA | 1.15 | 1.25 | 1.30 | 1.70 | 2.50 |
| TP - Western Europe | 1.05 | 1.15 | 1.20 | 1.30 | 2.20 |
| PAW - USSR | 0.65 | 1.20 | 1.45 | 1.55 | 5.50 |
| PAW - USA | 1.20 | 1.30 | 1.70 | 3.25 | 9.00 |
| PAW - Western Europe | 1.10 | 1.25 | 1.40 | 1.55 | 7.45 |

NOTE: Net production (= gross output minus part of production used as inputs in agriculture itself).
 SOURCE: Bolotin, 1987, n. 11, p. 155 and no. 12, p. 148.

Table 9.6: USSR, structure of investments (fixed capital) by sectors of the economy (average annual percentage of the total), 1918-1955.

| | 1918-28 * | 1928-32 * | 1933-37 | 1938-1941 * | 1941-45 * | 1946-1950 | 1951-55 |
|-----------------------------------|-----------|-----------|---------|-------------|-----------|-----------|---------|
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Industry | 15.8 | 39.1 | 38.0 | 35.5 | 44.6 | 41.0 | 43.5 |
| Agriculture | 3.1 | 16.1 | 12.6 | 11.4 | 9.7 | 12.8 | 15.5 |
| Transportation and communications | 9.7 | 16.8 | 19.3 | 17.5 | 14.7 | 11.8 | 8.6 |
| Housing construction | 67.5 | 16.1 | 13.1 | 17.5 | 16.0 | 19.9 | 19.8 |
| Other buildings | 3.9 | 11.9 | 17.0 | 18.1 | 15.0 | 14.5 | 12.6 |

* 1918-28 does not include the fourth quarter of 1928; 1928-32 begins in the fourth quarter of 1928, which marks the effective beginning of the First Five-Year Plan; 1938-41 includes only the first half of 1941 until the German invasion in World War II; 1941-45 begins in July 1941.

Note:

“**Other buildings**” = Other forms of construction in non-productive sectors (cultural, educational, trade, hospitals, government buildings etc.)

Please note: “Industry”, “Agriculture” and “Transportation/Communications” include only productive direct investment (*i.e.*, investment directly related to material production). Non-productive investments (*i.e.*, according to Soviet methodology, investments linked to non-material production, such as schools, housing, etc.) are not included in those items but rather in the items “Housing Construction” and “Other Buildings”.

Source: Narkhoz 1961, pp. 540-541.

13.10 APPENDIX 10: NATIONALITIES IN THE USSR

Table 10.1 Population of titular nationalities of the 15 republics of the USSR according to the censuses of 1959, 1970, 1979 and 1989.

| Nationality | population 1959 (millions) | population 1970 (millions) | population 1979 (millions) | population 1989 (millions) | % of total USSR in 1959 | % of total USSR in 1989 | % growth 1959-89 |
|---------------|----------------------------|----------------------------|----------------------------|----------------------------|-------------------------|-------------------------|------------------|
| Azerbaijanis | 2.940 | 4.380 | 5.477 | 6.770 | 1.4 | 2.4 | 332.3 |
| Tajiks | 1.397 | 2.136 | 2.898 | 4.215 | 0.7 | 1.5 | 301.7 |
| Uzbeks | 6.015 | 9.195 | 12.456 | 16.698 | 2.9 | 5.8 | 277.6 |
| Turkmen | 1.002 | 1.525 | 2.028 | 2.729 | 0.5 | 1.0 | 272.4 |
| Kyrgyz | 0.969 | 1.452 | 1.906 | 2.529 | 0.5 | 0.9 | 261.0 |
| Kazakhs | 3.622 | 5.299 | 6.556 | 8.136 | 1.7 | 2.8 | 224.6 |
| Armenians | 2.784 | 3.559 | 4.151 | 4.623 | 1.3 | 1.6 | 165.9 |
| Moldovans | 2.214 | 2.698 | 2.968 | 3.352 | 1.1 | 1.2 | 151.4 |
| Georgians | 2.692 | 3.245 | 3.571 | 3.981 | 1.3 | 1.4 | 147.9 |
| Lithuanians | 2.326 | 2.665 | 2.851 | 3.067 | 1.1 | 1.1 | 131.9 |
| Russians | 114.114 | 129.015 | 137.397 | 145.155 | 54.6 | 50.8 | 127.2 |
| Byelorussians | 7.913 | 9.052 | 9.463 | 10.036 | 3.8 | 3.5 | 126.8 |
| Ukrainians | 37.253 | 40.753 | 42.345 | 44.186 | 17.8 | 15.5 | 118.6 |
| Latvians | 1.400 | 1.430 | 1.439 | 1.459 | 0.7 | 0.5 | 104.2 |
| Estonians | 989 | 1.007 | 1.020 | 1.027 | 0.5 | 0.4 | 103.8 |

Note: Titular Nationalities = nationalities which give their names to a Union Republic.

Source: Goskomstat, 1989-1990, vol. 4 pt. 1, Book 3, p. 187; SKSNG, 1991-1993, vol. 7, pt. 1, p. 10.

Table 10.2: Some of the main criminal organizations in activity in Moscow in 1992, according to estimates of the Interior Ministry of the Russian Federation.

| Group | Members (approximately) | Main activities | origin |
|----------------------|-------------------------|---|------------------------------|
| Chechen mafia | 800 | corruption, extortion, illegal export | Chechnya |
| Lyuberetskaya Bratva | 350 | extortion and prostitution | Lyubertsy district of Moscow |
| Solntsevskaya gang | 300 | extortion and prostitution | Solntsevo District of Moscow |
| Podolskaya gang | 250 | extortion and prostitution | Podolsk |
| Azerbaijani mafia | 200 | transportation of drugs; food markets | Azerbaijan |
| Georgian mafia | (?) | extortion, mainly of hotels; machine repair shops | Georgia |
| Dagestani mafia | 200 | theft | Dagestan |
| Kazan phenomenon | 60 | gambling, nightclubs, bars, restaurants | Kazan (capital of Tatarstan) |

Source: Costa, 1993, p. 22 c. 2, 3 and 4.

