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MACROECONOMIC MODEL OF THE SOVIET ECONOMY (IN THE MIDDLE OF 1980s AND IN THE EARLY OF 1990s)

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Lately interest in the Soviet Economy has grown. This interest is in part due to the processes proceeding in the country towards the use of markets. The actual disintegration of the USSR as a unitary superpower can't help affecting the world political and military situation. The growth of crisis has in part resulted in economics from the changing structure in the various Republics and this change doesn't promote world economy stability. At present, the world community jointly with the leadership of the Union and the Republics are trying to improve the deteriorating macroeconomic processes in the former USSR. Why did such a dramatic worsening of the economic situation take place in the USSR? Is it a consequence of mistakes in the choice of macroeconomic strategy? Or is there any rational explanation for these developments?

These questions are principal for us in this paper. The answer to these questions will enable us to map out concrete measures for alleviating this situation and avoiding repetition of mistakes in the future. For an evaluation of the problem, macroeconomic analysis will be used to analyze the commodity markets, money markets, and labor-force markets. The temporal period, which will be analyzed, will cover the last five to six years. However, 1985 became the turning point for macroeconomic development of the Soviet Union because the "acceleration conception" (perestroika) was proclaimed just that year (kohyenyue yckoperue).[1]

In our analysis, the most important macroeconomic parameters, concerning the markets of commodities, money and labor in the USSR are given in Table 1 and 2 for the years 1985 through 1991. The first table deals with internal economic aspects of the development of the national economy. Table 2 deals with external economic aspects. This division is due to the

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[1] Dokumenty i materialy XXXVII sezda KPSS. Doklad M Gorbaeheva - Moskva 1986.

independent role of the external economic sphere in the development of the national economy and the absence of convertibility of the national currency. The most important macroeconomic features of the current Soviet economy are: 1) excess employment without official (until the 1st of July 1991) unemployment and 2) inconvertibility of a ruble.

Let's discuss these two problems in detail. We'll start with excess employment. In our opinion, it has four main causes in the USSR.

The first main cause is military production which doesn't produce commodities directly for consumption by households for food, clothing, etc. or by producers (raw materials, fuel, energy, machinery for investment, and so on). According to the most minimum estimates, 7-8% of all laborers engaged in our national economy are connected with military production (this figure was deduced from the minimum estimation of the share of military production in national economy);[2]

The second cause is a purely Soviet phenomenon - incomplete construction (rezobepwennoe cspouieubesho). A great part of invested resources in the country are used inefficiently, the inclination for gigantic construction-sites to breakdown and not complete the terms of construction and installation and operation of new equipment is clearly observed. A considerable part of resources become immobile. In fact the labor of people connected with this sphere to a great extent presents excess employment, because there is no creation of the real product for consumption (personal and productive).

The estimates of excess employment connected with it have been ranged between 2% and 5% of total employment.[2]

A third cause is a super-standard or parasitic consumption of the ruling class. It's connected with existence of a notorious strata of people in the country who consume

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[2] The author's calculations

disproportionately to their labor contribution to the GNP (considerably more than they produce). In fact, the country spent, and even now spends, a part of its earned foreign currency for the purchase of luxuries in the west, which is primarily distributed to the ruling class. For example, the foreign currency would be earned by sale of oil. Oil is extracted in Tyumen, then it is sold in western markets for dollars; then, a certain part of the profit is spent to import luxury goods. These goods are made available to the ruling class at ruble prices significantly below their import price. In fact, in this situation, the labor of oilmen presents excess employment as well. The estimates of excess employment in the Soviet Republic are different, but they range between 0.5% and 3%.[3]

The fourth cause is the existence of enterprises in the country which spend more than they produce. For example, some mines in Donbass actually spend more energy for production of one ton of coal than the amount of energy which is released while burning this coal in the furnaces of power stations. Thus, the mining employment reduces rather than increases the GNP. The impact of this can be measured in terms of the excess employment. The size of such excess employment in mining is estimated to be 2-3%.[3]

Summing up the four causes of this phenomenon of the Soviet economy, we estimate that excess employment represents 12-18% of all the employed.[3] If this estimate is accurate, the excess employment considerably exceeds the present level of unemployment in many western countries, e.g. in the USA. Naturally, all these people who, strictly speaking, don't produce real products for personal and productive consumption, nevertheless, receive wages allowing them to consume goods. In addition, these activities require raw materials, fuel, and energy and the resources aren't transformed into useful wealth. In the long run, this situation must lead to demand surplus both in the consumer and capital goods market at the current price levels.

[3] The author's calculations

The nation has attempted to cover up this problem at the expense through the use of foreign exchange and international division of labor. But the problem is then reflected on the nation's foreign economic balance, especially when we speak about the balance in convertible currency. Any growth of excess employment results in the growth of the balance deficit and correspondingly brings down the market exchange rate of an inconvertible ruble. It creates a wide gap between official and market exchange rates of the national currency. In other words, it creates some new problems and aggravates the old ones.

Thus, we logically came to the second important problem of the Soviet economy - the problem of the inconvertibility of a ruble.

In our opinion, the reason for the inconvertibility of the ruble is not in the political field but in the economic field. The commodity price system in the Soviet Republic doesn't correspond to the world markets when adjusted for the official or even unofficial exchange rates. For example, if we compare commodity prices of a Republic with the world market prices, we could find commodity groups which are more expensive in this country than in the world market and correspondingly cheaper than the world market at the official exchange rates. Let's assume that there are some commodity groups in the country where the maximum price deviation of these commodities from world prices is two times in both directions; the total maximum deviation in this case is equal to four. If prices are allowed to adjust to there levels internally, the transition to convertibility of the national currency will occur without a national economy collapse (ruin). The availability of a convertible national currency enables us with certain optimism to look into future. We are assuming that there are no dramatic gaps in the quality of the compared commodity groups in the national economy and in the world market.

There are many commodity groups in the USSR where the internal prices are 6-8 times lower than in the world market when adjusted for the official exchange rate. For example, the output of sero-space complex, a considerable part of invested goods, and the national wealth of Russia when expressed in the world market prices is five times more expensive in U.S. dollars than in internal prices or rubles. The price of a Soviet air-bus IL-86 of medium range of flight is 2 mln. rubles in 1991; when adjusted by the official exchange rate, the corresponding western price is $12-20 mln. (dollars).

On the other hand, there is a large group of consumer goods (goods, clothing, footwear, etc.) computers and so on, where internal prices in rubles are 8-10 times higher than in the world market. Thus, the total divergence of prices in the USSR range up to 80 times higher when compared to the world market standards (price distortions). The percentage of national output where these divergences exist is considerable but not accurately measured.

Actually, in neither official exchange rate of a ruble for the U.S. dollar nor the unofficial or black market rate does currency exchange in a way necessary to equate internal commodity prices with external world commodity prices.

The official exchange rate has always been presented as a symbol deprived of real economic sense; the tourist exchange rate tries to approach the one in the black market which in turn isn't determined by all commodities and services, but only a narrow group of commodities connected with computers, audio- and video machines and some others. Even if we admit equity of the so-called tourist exchange rate - 32 rubles per 1 U.S. dollar, it would suggest that the whole Soviet GNP would be equal to only approximately 0.5% of the U.S. GNP. The absurdity of such a calculation is obvious.[4] Nevertheless, the tourist exchange rate is a reality. It is according to this exchange rate that the Soviet people buy currency for trips abroad.

Both problems of the Soviet economy given above can be presented in the form of two graphs. (See Fig. 1 and 2.) The first top right-hand quadrant shows the situation of commodities

[4] In April 1992 exchange rate was $1 = 100 rb.

and money in the market, where - D demand, - S supply, that reflects the excess employment prevalent in many industries and discussed earlier (see Part B). The top left-hand quadrant characterizes a situation in the foreign economic sphere where we can clearly see the connection between the sizes of the deficit of balance in convertible currency and the market exchange rate of a ruble. As can be seen, there is also a gap between the official and market exchange rate of a ruble.

Finally, the bottom left-hand quadrant shows the situation in the labor market and clearly reflects the phenomenon of excess employment and excess labor rent obtained by laborers. (A similar model for the socialist economy was first introduced by A. Solimano).[5] The basis of the second graphic model of the Soviet economy is a well-known Keynesian interpretation of equilibrium and unemployment of the national economy.[6] However, the author suggests that without the foreign economic sphere, such a model cannot reflect realities of the Soviet economy. In this figure, we will introduce the foreign exchange market in the upper right-hand quadrant.

The top right-hand quadrant shows the situation by means of a the tradition IS-LM analysis. The bottom right-hand quadrant shows the production function which corresponds to the situation of macroeconomic equilibrium with no excess employment and current technology (see Part A). The bottom quadrant also introduces a new production function. The bottom left-hand quadrant shows the situation in the labor market connecting supply and demand and equilibrium as the economy is presumed to actually behave.

Finally, the top left-hand quadrant deals with the foreign economic sphere.

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[5] Solimano A. Macroeconomic Adjustment, Stabilization and Growth in Reforming Socialist Economics - World Bank - Wash. Apr. 1990

[6] See in detail Keynes J. The General Theory of Employment, Interest and Money - N.Y. 1936, Harris L. (1981)

In a later paper, we'll analyze the first model in dynamics. In this paper we will provide a static analysis of the first model for the period of time 1985 - 1991. To begin with, let's discuss (analyze) macroeconomic realities of the "acceleration conception" (perestroika). It was an ambitious program initially proclaimed by Gorbachov's government and continued under the current Republic.

It's main goals were:[7]

1) to reconstruct the Soviet national economy on the basis of new technique and technology so that the Soviet output by 1993-1994 would correspond to the world standards.

2) to raise of the living standards of the Soviet people.

Let's ask a question:

"Were there any opportunities in the middle of 80s for actually realizing such immense (far-reaching) plans?" As a whole, on the basis of analysis of Tables 1 and 2 for 1985-1986, one can say that the Soviet economy in the middle of 80s was responding to the changing regulation. Real GNP, for example, was still growing although not by much and other macroeconomic parameters were still favorable. If the correct macroeconomic policies were adopted, the system had the possibility of moving to a long-term equilibrium where the excess employment would be reduced and there could be created conditions for transition to internal convertibility.

However, different macroeconomic policies were adopted. In Figure 3, the changes of the macroeconomic situation in the USSR as a result of realization of "acceleration conception" (perestroika) are shown.

During this period, a great number of new construction sites were developed where the supply of operating enterprises with expensive machinery couldn't help increasing the excess employment because we were not able to efficiently use the resources envisaged for them. In

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[7] Ibid. (1) Doklad N. Ryzkova

the middle of 80s, policymakers did not consider policies which would curtail military output. As for the ruling class, it perceived the goal of raising living standards to mean increasing its own living standard. The ruling class pursued this goal by increasing in the West the purchases of expensive consumer goods i.e. luxuries. Finally, the number of unprofitable enterprises was not reduced. These enterprises continued the utilization of obsolete equipment in many of their production activities and thus reduced overall labor productivity.

The increase of excess employment was a direct result of the foreign deficit balance in convertible currency. These deficits have continued to grow while the market exchange rates of a ruble have continued to fall. This excess employment has caused a dramatic growth of unsatisfied demand. This is an inevitable consequence of the macroeconomic decision adopted in 1985. But the growth of unsatisfied demand, along with the deregulation of financial and monetary markets, has eroded labor discipline and labor productivity. As labor productivity has fallen, the economy has forced a reduction of commodity supplies i.e. in absolute fall of production we see at present (See Table 1).

Thus, we can state that the present crisis in the USSR has been caused by macroeconomic mistakes made in 1985 when the "acceleration conception" was first adopted. Political and other problems have just aggravated the situation.

However, in the middle of 80s, a different macroeconomic policy in the USSR was possible (Fig. 4). First of all, the policy would have to reduce the impact of two most important negative trends (the increase of excess employment and the fall of the market exchange rate of a ruble). A policy could be developed to reduce excess employment by impacting on its four most important causes.

The policy could have cut military production, reduced the volume of incomplete construction caused by overly ambitious invested projects, bring down super-standard (parasitic) consumption of the ruling class and eliminate unprofitable enterprises with the adoption of cost pricing.

In the middle of 80s, this policy could have provided a solution to the country's problems at a lower public cost. The point is that by this time the county had accumulated a great number of consumer goods which had not yet been allocated. Suffice it to say that the reserves in trade made up more than 70% of the annual output of these goods. Hence, there was an opportunity of reducing prices on consumer goods. In the long run, this would have resulted in the reduction of real price distortions (compared to those in the world) and would bring our economy nearer to more or less smooth transition to internal convertibility of a ruble. The policy would diminish the expenditures on imports of consumers goods. It would reduce the deficit of dollar balance and increase the market exchange rate of a ruble (the gap with the official exchange rate would be reduced). Together with the reducing measures of excess employment (above) it would result in the changes in our model (a movement to D 1990 in Fig. 4).

In the long-term period all these measures should have resulted in the increase of commodity supply. One can't put aside a social psychological aspect of the proposed actions as well. The situation of the working people could have really improved if psychological climate in the society had changed.

The Soviet people would have been prepared more decisive market reforms in the future. However, now this version is no more than a possible alternative which, unfortunately, didn't become a reality.

The present situation in the economy is characterized not only by the situation without equilibrium (having no equilibrium) but also by the loss of regulation system. That is why some traditional policies don't work readily. Extraordinary and strict measures are needed. It's quite easy to deduce them from the macroeconomic model of the Soviet national economy mentioned above. (Fig. 5.) These policies are:

1) Real employment reduction first of all at the expense of closure of enterprises which are unprofitable in real prices and in the long run they plunder but don't create a product,

2) Real demand reduction (or real reduction of the demand). It should be achieved by means of transition to free prices and reduction of real wages. (That is why turning loose prices and wages at the same time put forward by the Russian President B. Eltayn will hardly bring fast and essential results). It can just result in the hyperinflation spiral. These measures look like the Polish shock-therapy.

Unfortunately, our society doesn't have any other real opportunity of restriction of the system regulation and the way to the equilibrium of the national economy. Such strict (even cruel) actions can lead to the following changes in the model (Fig. 5.).

The main question for the nations of the USSR is not the question of what to do (it is obvious) but the question of how to do it. Will our Union and Russian leaders have enough political will to take extreme and unpopular actions, or will they go on putting off the decisive but life-saving measures dooming the society to pay a higher price for restoration of the regulation system and its equilibrium and on a very low level (below the level of the middle of 80s)?

Table 1

	1985	1986	1987	1988	1989	1990	1991
1. GNP (bl. rb. current prices)	777	799	825	875	924	1000	1800
2. Increase to prev. year bl rb	+17.5	+22	+26	+50	+49	+76	+800
3. % change	102.3	103.3	102.9	106.1	105.6	108.2	180.0
GNP in comparable prices							
1985 = 100							
1991 = 73.8							
4. NMP (bl rb comparable prices)	578.5	587.4	599.6	630.8	656.8	632.5	535.9
5. Change (bl rb)	+9.1	+8.9	12.2	+30.2	+26.0	-26.3	-94.6
6. % change	101.6	102.3	101.6	104.4	102.5	96.0	85.0
7. GNP (constant pr bl rb)*	777	778.0	766.5	755.6	704.7		
Consumer	422	426.8	390.6	382.2	370.5		
Gross investment	248	260.2	275.0	254.6	237.6		
Government exp.	107	111.0	101.0	118.8	96.6		
8. Money supply (% change to pr. year)							
Soft money	6.0	6.1	7.8	13.6	19.5	21.5	93.5
Deposits	6.8	7.6	15.7	15.4	14.3	13.4	
Long-time deposits	7.5	8.5	14.7	14.1	14.8	15.3	110.0
9. % Inflation GNP*	3.6	2.7	4.8	7.6	13.2	26.6	112.7
10. % Consumer inflation	5.7	6.2	7.3	8.4	11.0	23.1	783.8
11. Inflation (off. dates)	-	-	-	-	7.5	19.0	140.0
12. Off. index of consumer prices	...	102	101.3	100.6	102.0	104.8	
13. External common debt (Gov't)	141.6	161.7	184.1	311.8	398.2	628.0	1065.8
14. % GNP	18.2	20.3	22.3	35.6	42.8	62.8	59.2
15. Change bl rb per year	20.0	20.1	22.3	127.7	86.4	229.8	485.6
16. Ratio increase -							
Debt to increase GNP	1.14	0.91	0.86	2.55	1.76	3.02	0.61
17. Deficit of federal bud. bl rb.	-13.8	-45.5	-52.5	-80.6	-80.8	-58.0	-200-240
18. % GNP	1.79	5.69	6.36	9.21	8.74	5.8	12-14
19. % wage change	2.4	2.9	3.7	8.3	9.4	10.0	70.0
20. % change money income	3.7	3.6	3.9	9.2	13.1	17.3	89.8
21. Ratio increase -							
Wage to increase GNP	1.001	0.88	1.28	1.51	1.68	1.22	0.875
22. Ratio increase -							
Money incomes to GNP	1.014	1.09	1.35	1.67	2.34	2.11	1.12
23. Money incomes of peoples (bl rb)	420.1						1242.2
24. Money expenditures of peoples (bl rb)	395.7						960.9
25. 23 - 24	24.4						281.3
26. % money incomes	5.8						22.6
27. % GNP	3.14						16.18
28. Employment (ml peoples)	130.3						130.4
29. Labour productivity per 1 employee							
1985 = 100	100						73.7
30. Real investment -							
% change to prior year	-1.7	+4.9	+5.7	-7.4	-6.7	-20.0	-25.0

* The author's calculations

Source: Narodnoe chozystvo SSSR v 1990. -Moskva 1991, Ekonomika i gizn 1990, No. 6, p. 15; 1991, No. 5, p. 10; 1992, No. 6, p. 13-16; Kommersant 1990, No. 42, p. 22; 1992, No. 1, p. 11; No. 4, p. 8; A Study of the Soviet Economy - IMF, The World Bank, DECD, European Bank for Reconstruction & Development - 1991, v 1-3.

Table 2

		1985	1986	1987	1988	1989	1990	1991
1.	Overall debt	28.9	31.4	39.2	43.0	54.0	60.0	65.0 70.2
2.	Short-term debt	6.9	7.4	8.6	11.2	17.7	27.8	33.4
3.	Payment for debt (debt service)	...	7.8	8.8	8.2	9.4	13.4	16.9
4.	% to export in $	...	27.7	26.5	23.1	24.2	40.0	53.1
5.	Currency reserves (without gold)	12.9	14.7	14.1	15.3	14.7	5.1	2.6
6.	Ratio 3:5	...	53.1	62.4	53.6	63.9	262.7	650.0
7.	Assets in western banks	13.1	14.9	14.4	14.4	14.3	16.0	19.1
8.	Gold sales	...	4.0	3.5	3.8	3.7	3.6	3.8
9.	Current account balance	...	0.6	-2.3	-0.7	-3.7	-14.3	45.9 51.1
	Change currency reserves	...	-1.8	0.6	-1.2	0.6	9.6	2.5
	Currency shortage	...	-1.2	-1.7	-1.9	-3.1	-4.7	-13.5
10.	Net debt = 1 - 7	15.8	16.5	25.1	28.6	39.7	44.0	45.9 51.1
11.	Debt another countries to the USSR (bl. $)	...	18.5	22.9	25.2	28.6	...	...
12.	Trade condition	...	-10.5	-2.0	-9.0	+1.1	...	...

Source: Ekonomika i gizn 1990, No. 6, p. 15; 1992 No. 6 p. 11; Argumentry i facty 1991 No. 23; Rodina 1989, No. 10; Delovye ludy, 1992 No. 1, p. 56-57.

Fig.1

Macroeconomic model of the Soviet economy (1)

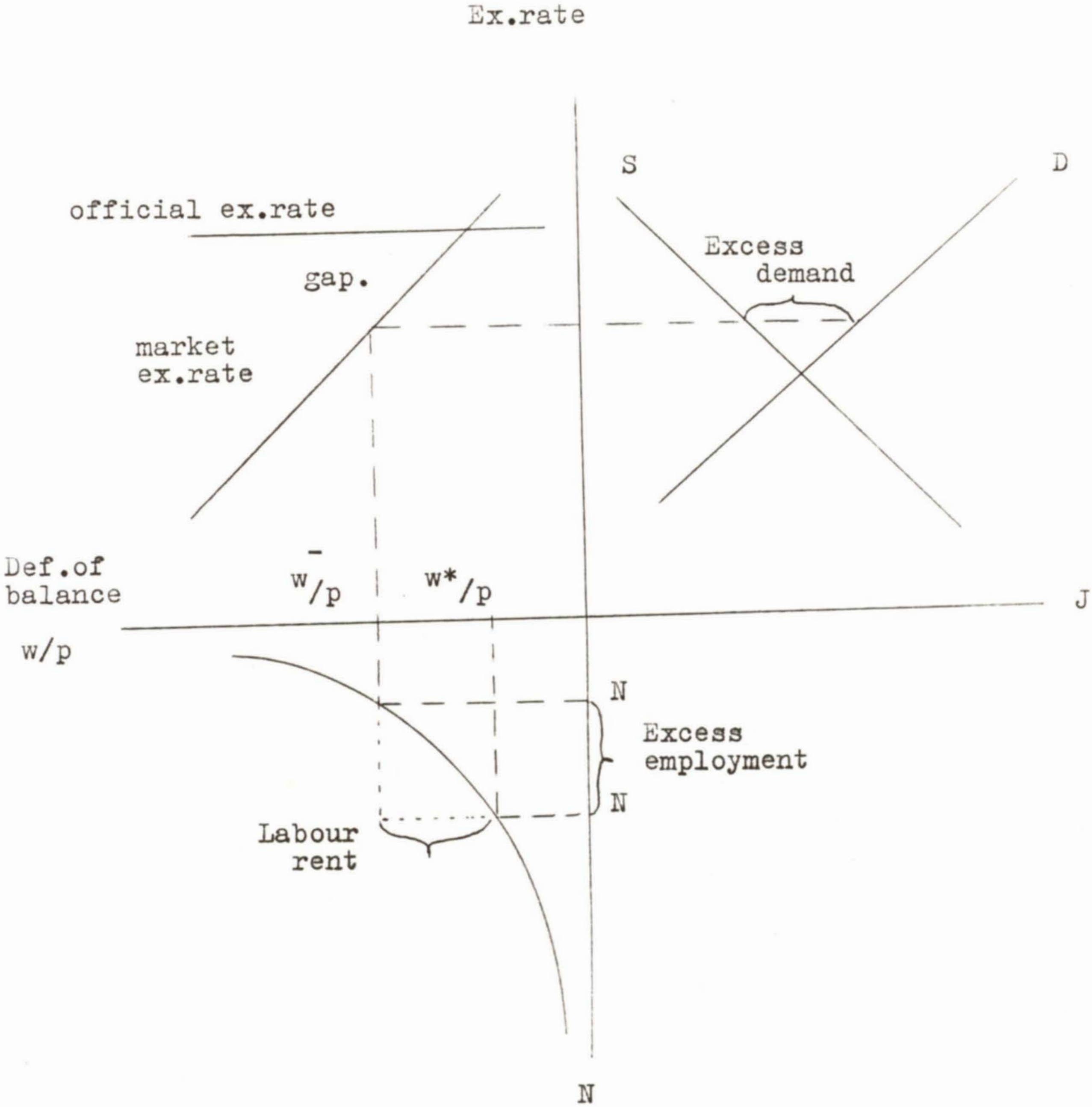
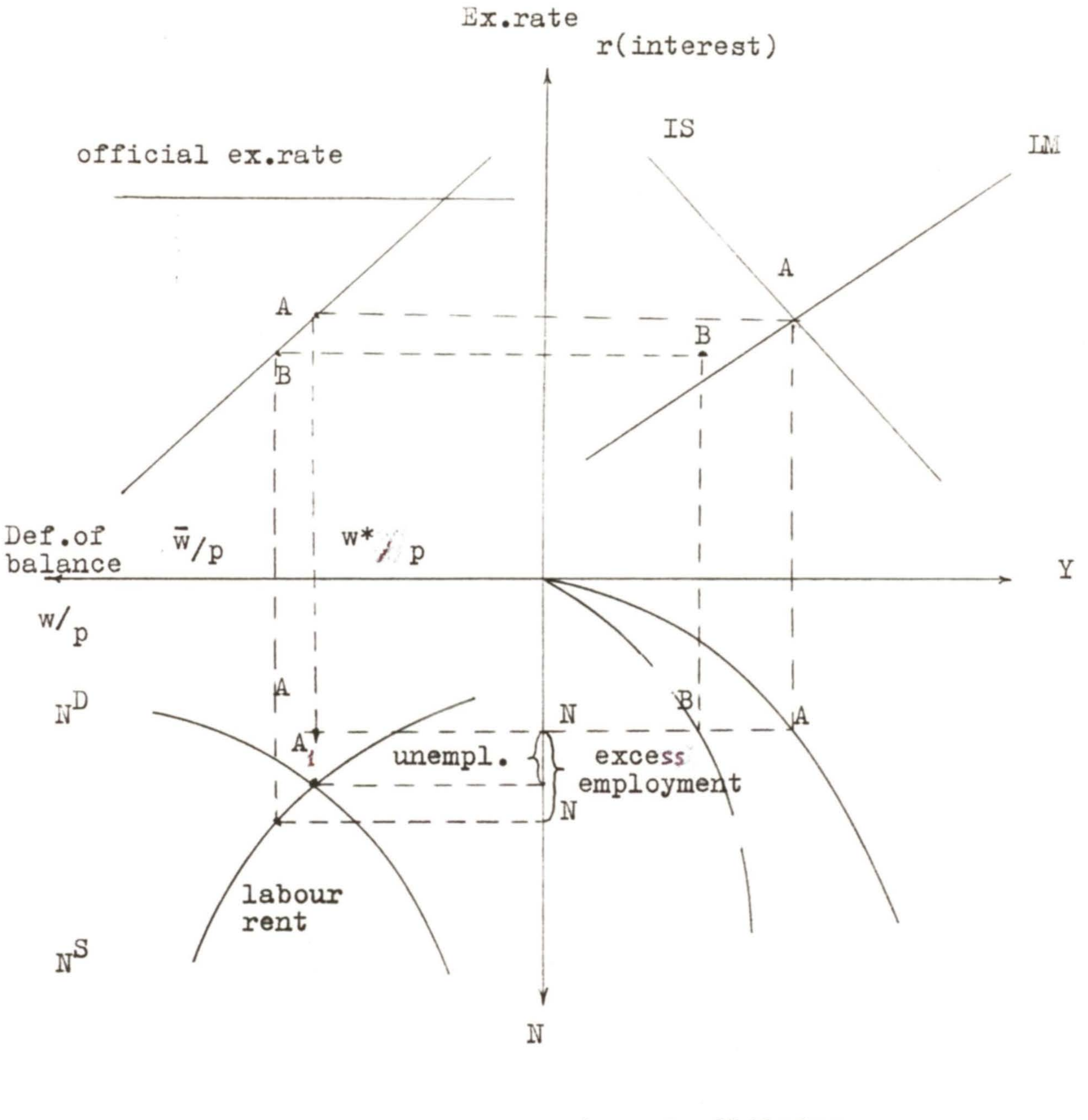


Fig.2

Macroeconomic Model of the Soviet economy (2)



A - equilibrium

B - real.situation

A_1- equilibrium without unemployment (full employment)

Effects of Acceleration conception
on macroeconomic realities of
the Soviet economy

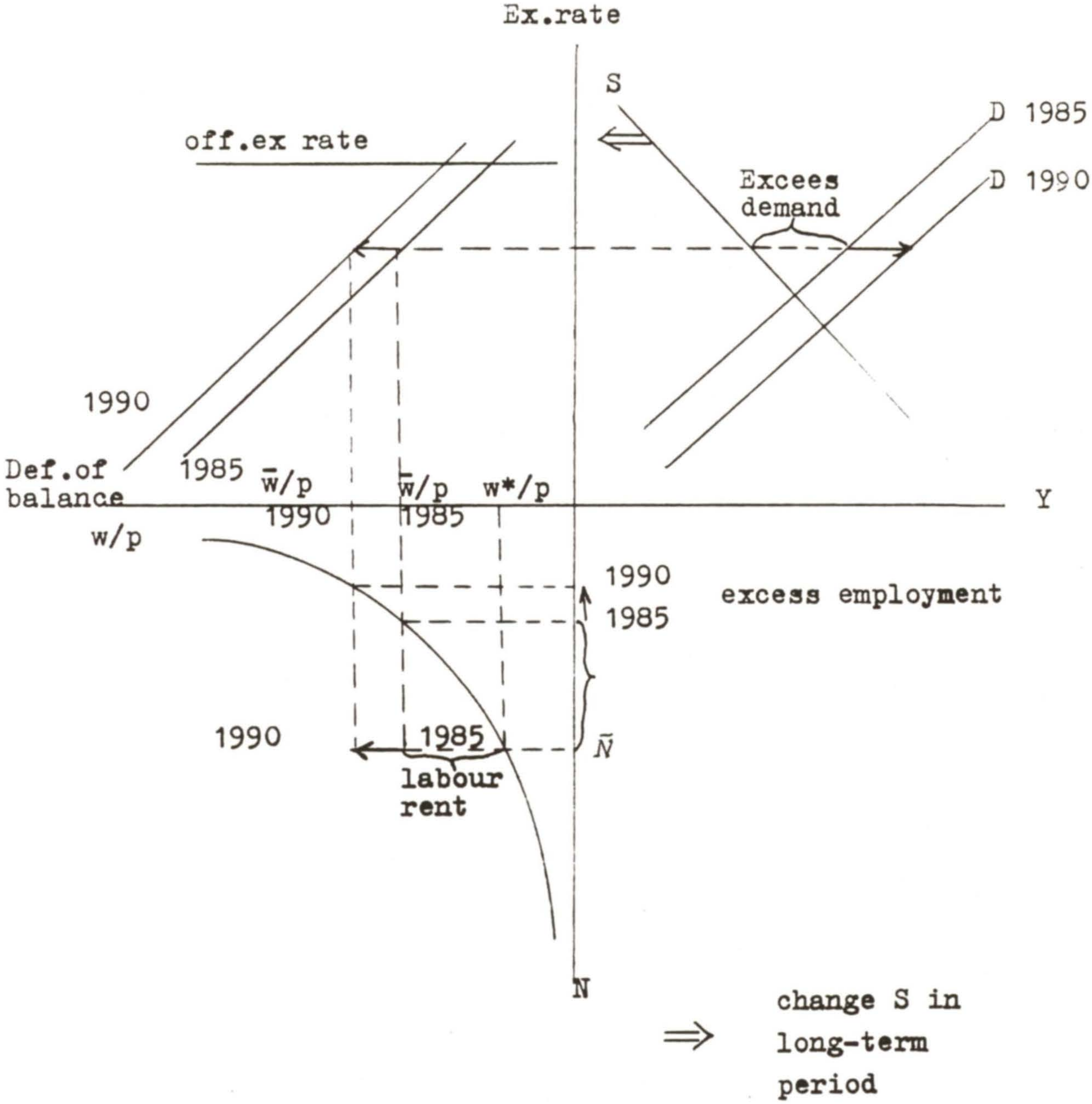
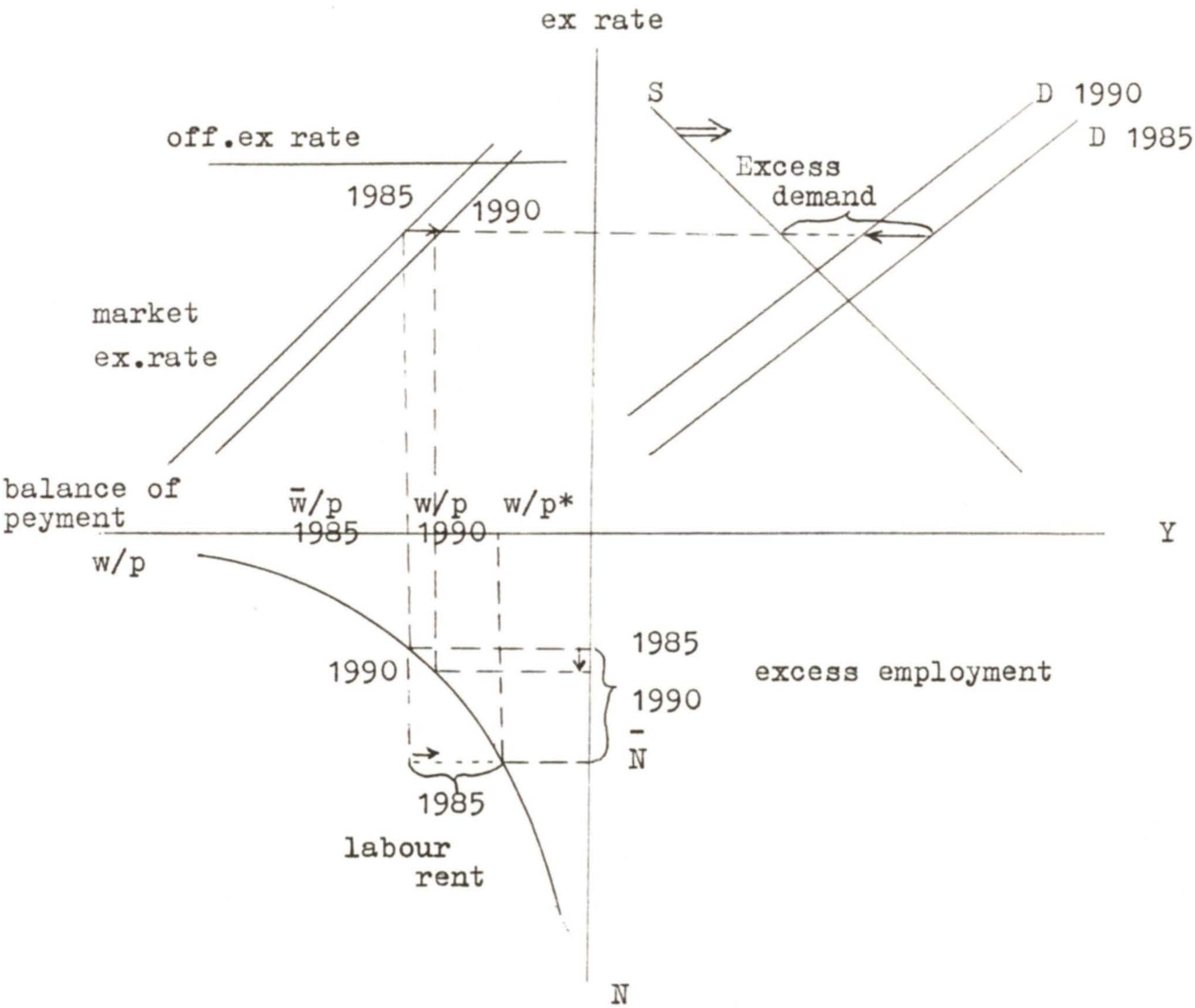


Fig.4

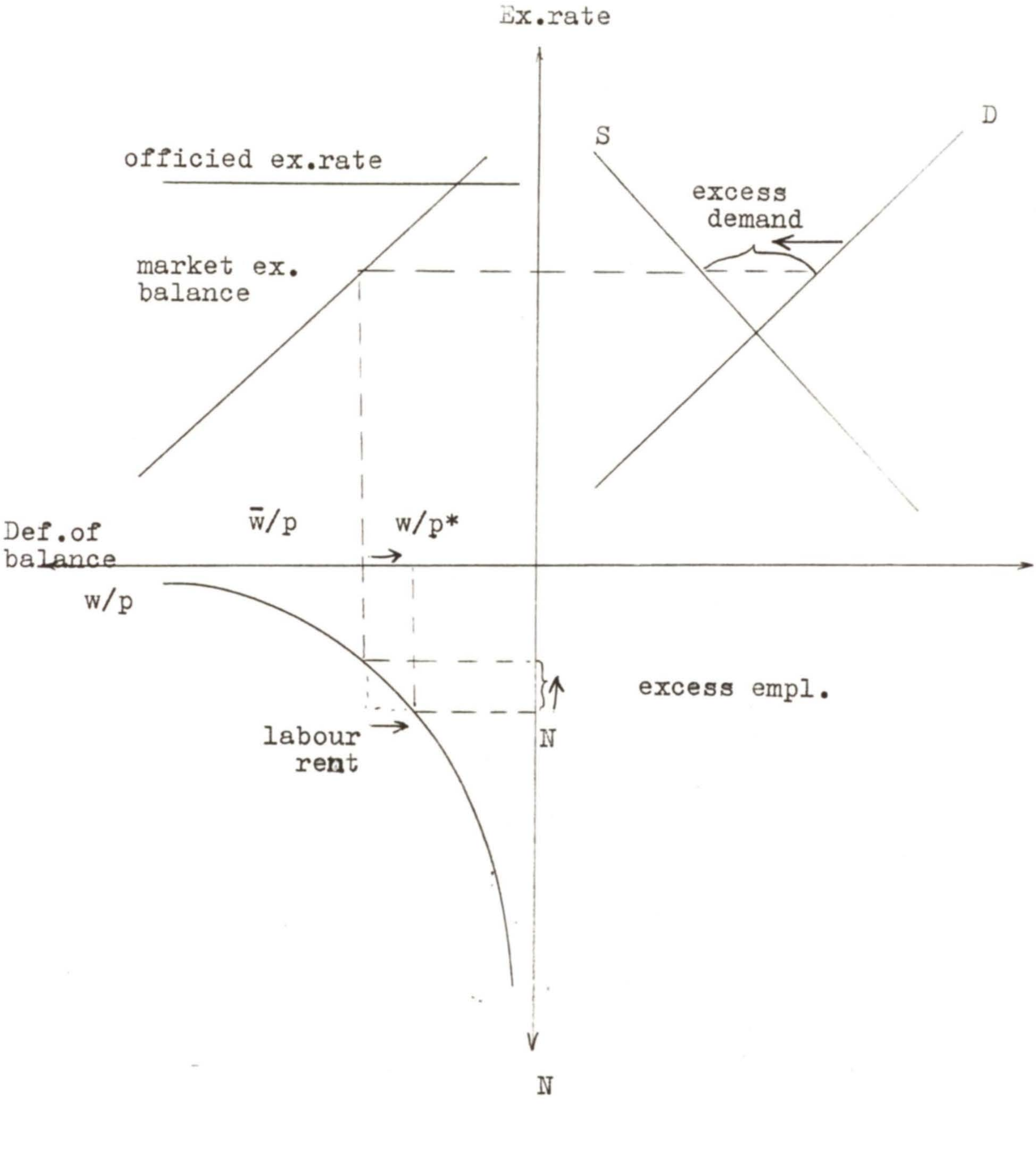
An alternative version of the development of macroeconomic situation in the USSR



change S in
⟹ long-term
period

Fig.5

A possible version of actions of overcoming negative trends in the national economy at the beginning of 1990



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