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**TRANSITIONS IN ECONOMY :
PRICE CHANGES IN RUSSIA IN THE TWENTIES**

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ABSTRACT

From 1921 to 1929, Russia experienced two transitions. The first one, with the New Economic Policy (NEP), was a transition from a very centralized economy to a wide market one. The second one went just in the opposite direction, through an increase of the state control and mostly through a price policy. We will develop a descriptive analysis of the retail, wholesale, industrial, agricultural and local price indexes in order to detect some stable relations between them and to characterize those transitions.

The specificity of this paper lies : 1) in the use of data provided by the Conjoncture Institute of Moscow rarely analysed ; 2) in the methods seldom used in macro-econometric studies : the moving average, the smoothing of initial curves, the moving representation of variability...applied here because of the highly variable nature of the data.

**LES TRANSITIONS EN ECONOMIE :
LES CHANGEMENTS DE PRIX EN RUSSIE DANS LES ANNEES VINGT**

RESUME

Entre 1921 et 1929, la Russie a connu deux types de transitions. Le premier survient avec la Nouvelle Politique Economique (NEP) et présente la transition d'une économie de guerre très centralisée vers une économie de marché. Le second est un développement inverse vers un contrôle de plus en plus strict de l'Etat exercé principalement au début à travers la politique des prix.

Nous procédons à une analyse descriptive des prix de détail et de gros, des prix industriels et agricoles, des prix de détail à Moscou, afin de déterminer entre eux certaines relations stables et caractériser à travers ces relations les transitions.

La spécificité de ce travail provient de l'utilisation de données de l'Institut de Conjoncture de Moscou, rarement utilisées, et du recourt aux méthodes peu usitées dans les études macroéconomiques : la moyenne mobile, le lissage de courbes, la présentation mobile de la variabilité et de la corrélation... utilisées ici à cause de la nature erratique des données.

I. INTRODUCTION

The New Economic Policy (NEP) enforced in Russia from 1922 to 1929 is one of the most referenced processes of transition to market economy. The fact that it is one of the few examples of economic liberalization is emphasized. During this period some autonomy was given to the firms, many forms of ownership were restored (including foreign property), many reforms of the monetary and fiscal systems were attempted. The consequences of those policies can be analysed in the hope that we can draw some lesson from them regarding the present situation in USSR although the socio-economic system of present USSR is different in its structure and its organizational methods from those of the early twenties, during the "War Communism" period. The latter was an agrarian economy with family farming as a dominant organizational form. That economy was based on barter with payment in kind, instead of monetary transactions. It was also disorganized by seven years of war and by the famine of 1921. In that respect, a real analogy with the reforms of the eighties cannot be considered at all. Nevertheless some other practical teachings may be drawn from the study of the NEP period. For example, the introduction of a fundamentally different economic policy requires a constant analysis of the results, a rapid detection of the deviations from the original objectives and some flexible mechanisms to adjust the policies.

It is especially difficult to follow the economy in absence of theoretical works about economic transitions and of reliable statistics on previous periods. It is to be noted that these difficulties have been recognized before the beginning of the NEP. The New Economic Policy (Spring 1921) was introduced concurrently with statistical and planning institutions. The "Conjuncture" Institute (a Short Run Forecasting Institute) was created in 1920 and the Planning Institute (Gosplan) in 1921. These institutes published a set of monthly series, significant for this period and including hundreds of indicators. These series may be considered to be of a rather good quality between 1922 and 1927, the period which has been chosen for this study, even if shorter than the official period of the NEP. These institutes also performed a lot of either empirical or theoretical analyses. The latter ones are especially interesting since they try to make classical theories suitable for the specific economic conditions of USSR.

In this paper we are mainly concerned with the empirical aspects of the transition

period. We focus on the evolution of prices using data of the Conjuncture Institute and comments from the Economic Bulletin. Such a descriptive analysis can now be performed in a different way than in the twenties due both to the existence of new statistical techniques, and also to the wider view of this period which is now possible.

An end was put to the Conjuncture Institutes's activities effectively in 1928, the data were no longer available until a recent date and consequently a very small number of empirical studies can have been performed.

Two phases can be distinguished in the NEP economy : the first one from 1922 to 1926 corresponds to the economic liberalization, the second one, after 1926, corresponds to a progressive control of the market by the state. The overall regularity of both phases contrasts with some sharp variations over short periods.

The long term smoothness is due to the coexistence during the whole period of both planified and free sectors and of the corresponding behaviours of these sectors. Some interventions or controls will remain during the liberalization phase and similarly market behaviours may be revealed during the second phase. They will even be persistent enough to justify in 1928-1930 some laws against them. Moreover, some economic variables will evolve jointly, with neither deep modifications of their links after the 1926 breakdown, nor the possibility to explain this stability by the existence of controls.

The short term variability is due to different factors : the important influence of seasonal phenomena on a mainly agricultural economy, the implementation of sequences of reforms (four different fiscal reforms between 1921 and 1924), the speculative stocking and destocking of food, the existence of various, often non-coordinated interventions, which seem to have often been decided in view of economic data of the last previous months, data which are themselves very irregular.

The aim of the following study is to extract from these sets of varying and chaotic data some stable results and statements, without trying in this first step to explain the causes for such stabilities.

We will naturally introduce statistical methods which are different from the classical macroeconometrics ones used to analyse long term behaviours. These statistical methods will be similar to the ones used on financial data which present some analogies with the NEP data : large fluctuations in the short run, existence of underlying factors,

conditional heteroscedasticity and especially the interest in questions concerning the short run. However the limited number of observations will compel us to use only simple methods :

- 1) to smooth the data in order to eliminate fluctuations. Such approach had already been used in the twenties for NEP data by Ignatiev,
- 2) to separate the trend from fluctuations through a joint study of the evolution of means and variabilities,
- 3) to search for dynamically stable relationships through the evolution of correlations between variables.

II. A BRIEF HISTORICAL OVERVIEW

We choose to describe the period in question by basing our study on the analyses of economists less known than the analyses of politicians. We will refer to Kondratieff (1922), Oparine (1922), Shaposhnikoff (1922), Kavalevskaya (1923), Kotzenelenbaum (1923), Pervouchine (1923), Mekler (1922), (1926), Vainshteine (1924), Chayanov (1922), Iurovsky (1923).

1. Fiscal reforms

The "War Communism" economic system continued at the beginning of 1921. In order to supply the cities, transport was militarized and food products were requisitioned. The farmers reduced their production to a subsistence level : the bread ration is diminished by two thirds in towns. More and more revolts were fomented ; Tcheka registered 180 revolts during the winter. The Xth Congress of the Communist Party in March 1921 officially abolished the "War Communism" with its requisitions by setting up a tax in kind. Between 1921 and 1923, the state was to be supplied with eighteen agricultural products in imposed quantities. After May 1923 the tax was due either in kind or in money. And after 1924, the tax was exclusively due in money. The state no longer interfered in production and the quantities were mainly determined by the market. Nevertheless, the indirect intervention of the state continued during the whole NEP period, especially through partial price controls in industry and a destocking of

goods. In particular at the period of so called the "Autumnal Equinox" and in 1926, the state supplied quantities of agricultural products coming from the tax in kind and this additional supply affected prices.

2. Monetary reforms

A rather original, sensible experience intended to regulate the monetary and financial systems in disorder began on November 27th, 1922. The new "Tchervonetz" bank-notes were issued and coexisted with the old soviet paper rouble. The quantity of new banknotes issued was strictly limited. This money was convertible with gold and foreign currency and was in particular used for refunding the credits to the Central Bank and for foreign trade. The other "soviet paper rouble" was used for state budget operations and mainly for tax payments. The two currencies might be exchanged at a time varying rate. However these exchanges were limited to big amounts of money due to the fact that the Tchervonetz was not available in quantity smaller than ten pre-war gold rubles. Very quickly the new banknote appeared as the stronger currency and became the main medium for savings. However some differences may be noted between cities and countryside, the latter ones continuing to hold the soviet paper rouble.

The state first exerted a large influence in order to stop the depreciation of the old currency, but abandoned it under the pressure of two contradictory aspects of the monetary policy : the stabilization of the cost of living and convertibility. The increasing demand for the new money implied a continuous depreciation of the second currency and the Central Bank exercises a large influence in order to curb this depreciation. This situation stopped in 1924, when the soviet rouble was suppressed. At this time, the exchange rate was at fifty thousand million.

The increase of the money in circulation is very large at the beginning of the period.

TABLE I

INCREASE of MONEY IN CIRCULATION (IN %)										
<u>Before suppression of "soviet rouble"</u>				<u>After suppression of "soviet rouble"</u>						
Budget year (1.oct.- 1.oct.)	22/23		23/24	23/24	24/25		25/26		26/27	
	I	II	I	II	I	II	I	II	I	II
increase in %	517	2 046	17 339	59	22	49	5	11	0.2	24

(E.B. N10.1927)

(for statistical data, the year began in October).

The Central Bank took several measures in order to stabilize the exchange rate of foreign currencies. Some of them had unexpected effects, especially in 1923, when the increase of the share of soviet rouble induced a joint depreciation of the two moneys.

These reforms were accompanied by measures concerning the creation of saving banks and the development of credit.

TABLE 2

NUMBER OF BANKS				
YEAR	1923	1924	1925	1926
Dependent on the Central Bank	257	386	447	483
Cooperative Banks	127	268	395	365
Agricultural Fraternities	-	6 774	8 395	8 452
Saving Banks	357	5 284	9 742	14 757

(E.B. N11-12, 1927)

TABLE 3

CENTRAL BANK'S OPERATIONS					
(in million of roubles)					
YEAR	22/23	23/24	24/25	25/26	26/27
Deposit and current accounts	7.06	258.4	519.3	1 053.1	1 312.7
Commercial discounts and loans	99.5	397.0	797.3	1 463.8	1 838.7
Coin, bullion foreign notes and bills	69.6	261.5	326.3	289.7	318.7

(E.B. N11-12, 1927)

3. The autonomy of management

In 1917 about 85 percent of the population was living in the countryside and agriculture continued to be the determinant for the economy of the NEP period. Despite the abolition of serfdom in 1861, the peasants continued to follow ancient traditions, especially the communal use of land. In effect, before 1861, the landlords assigned the land to cultivate, not to individuals but to communities of peasants. This assignment was done taking into account the quality of the land and, was modified yearly. The management rule in agriculture was family farming. Despite the small incomes and the archaic techniques, this production structure remained particularly stable (see Chayanov (1922)). The quantity produced depended on the size of the family, on its needs and on its work ethic.

After 1917 land belongs to peasant committees, and while the production decisions remained a prerogative of agricultural people, there was some attempt to canalize the production. During the "War Communism", it is possible to distinguish three groups of agricultural products : the products of the first group are requisitioned, the ones of the second group have to be sold to the government at fixed prices and only the products of the last group may be sold on the free market. The precise definitions of these groups were not stable during the period (see Malle (1985) for more information). The immediate consequence was a fall in the production of the items of the two first groups.

In industry the state had a dominant position as early as 1917. The Superior Council of National Economy was created in December 1917 on the basis of the war time planning agencies, it organized the management of industry in a centralized way. This council could confiscate, buy or seize any firm or branch in industry or trade. Concurrently, consumption cooperatives under the Soviet control were created on April 16, 1918. The idea was to develop a nonmonetary economy with direct exchanges between the production units (see Varga (1920)). The decentralization of industrial production during the NEP essentially consists in introducing the commercial and financial autonomy of firms, except for some strategic sectors, such as energy and metallurgy. The role of the sixty departments of the Superior Council of National Economy was then simply to exert a global regulation on the firms' activities, in particular by controlling the allocation of investment between sectors and industries.(The

role of Superior Council was specified by the law of November 12, 1923). This management liberalization encouraged the regrouping of the firms with different configurations depending on the sectors and on the regions (see Dobb (1948)). Nevertheless it has to be noted that, even during the NEP, the state fraction of industrial output was never smaller than 70 %.

TABLE 4

THE SHARE OF INDUSTRIAL PRODUCTION IN DIFFERENT SECTORS			
(prices of 1913)			
YEAR	24/25	25/26	26/27
STATE	72.2	74.7	77.1
COOPERATIVE	9.1	9.0	8.8
PRIVATE & FOREIGN	18.7	16.3	14.1

(E.B. N10, 1927)

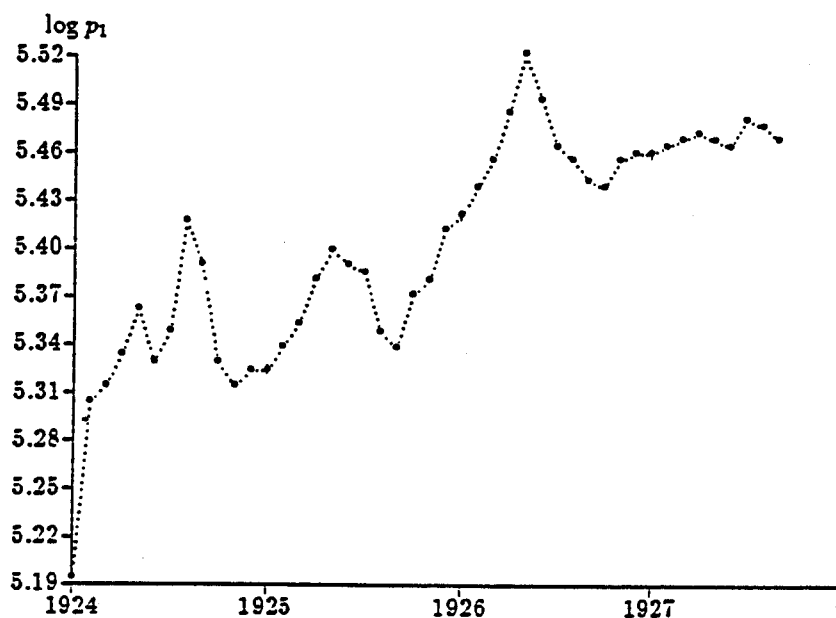
III. PRICE DYNAMICS

1. Analysis of price data

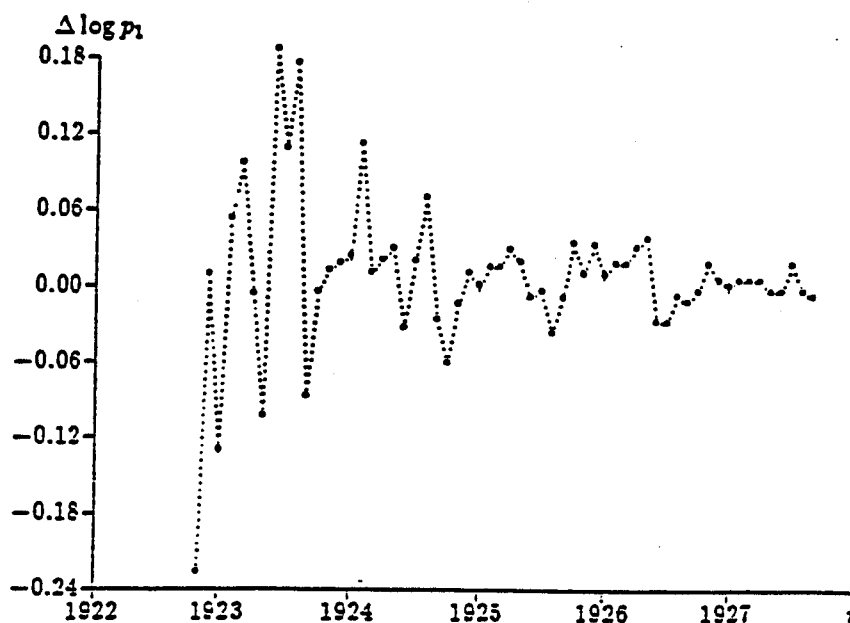
A variety of price data exist concerning this period and they were established by either the Conjuncture Institute or the Gosplan. We consider five of them for our study: the retail price index, the wholesale price index, the industrial price index, the agricultural price index and the retail price index in Moscow (cf. appendix). It is intuitively important to jointly analyze different price indices. For example the comparison of industrial prices and agricultural ones can give us information about the new economic policy of the state. The differences between the evolution of retail prices and wholesale prices may reflect the differences between the price formation in the private sector and in largely state ones. Eventually, we will see the specificity of the regional markets through the analysis of the Moscow index with respect to the global index. All data were collected monthly, but they cannot be analyzed in level over the whole period. Indeed, the modifications of the budget shares were very fast due to the creation of new markets and the increase of trades... and this necessitated updating the weights in the definition of price indices in 1924. Therefore analysis of the rate of

increase are the only pertinent ones for the whole period. The study of a series in levels (see figure 1) clearly exhibits some trends and some cyclical phenomenon, even if the cycles do not seem to be stable. The beginning of a strict control period in 1927 clearly appears through the disappearance of the cycles :

FIGURE 1 - INDEX OF RETAIL PRICES FOR YEARS 1924-1928
(in logarithms)



In fact, we are more interested in short run evolutions and for such a purpose it is better to graph series in rate of increase form. These series are more variable than the previous ones. We find again the cyclical phenomena, but more interesting is the continuous decrease of price volatility and the fact that this volatility tends to zero. This likely reflects an increasing underlying control over the economy.

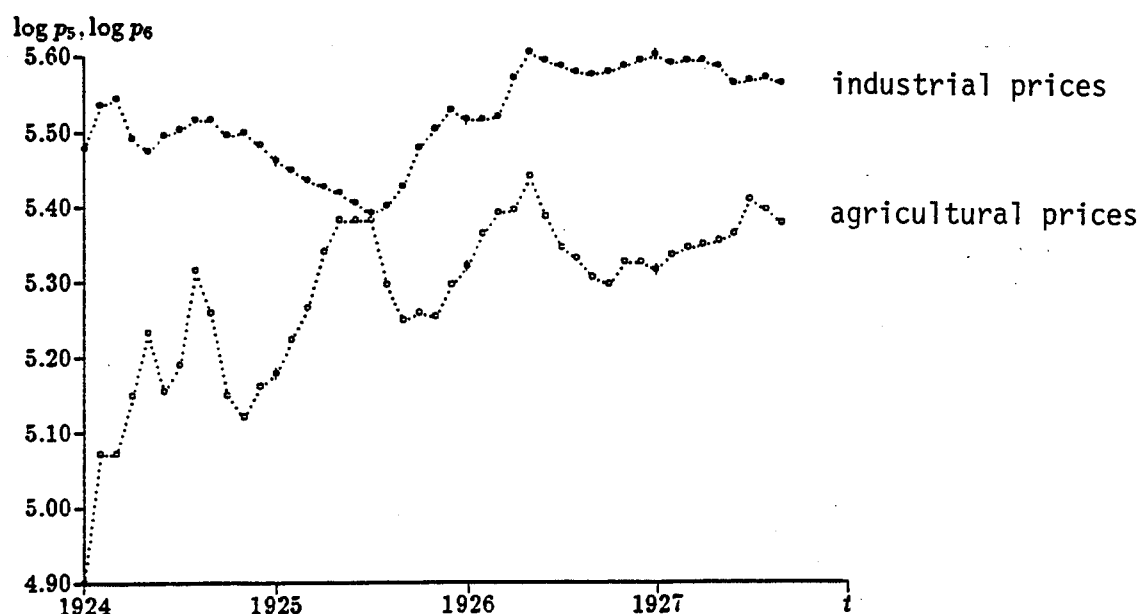
FIGURE 2 - RATE OF INCREASE OF RETAIL PRICES 1922-1928

It is clear that robust results may only be derived after the extraction of the irregular components of the series. In the next subsections, it will be performed by associating to each series : a series of moving averaged values and a series of volatility, which is also computed in moving average fashion.

Finally, it is important already to note a large heterogeneity across the different price series. As an example we give below on a same figure the industrial and agricultural prices, both of which present different trends and cycles.

FIGURE 3 - INDUSTRIAL AND AGRICULTURAL PRICES 1924-1928

(in logarithms)

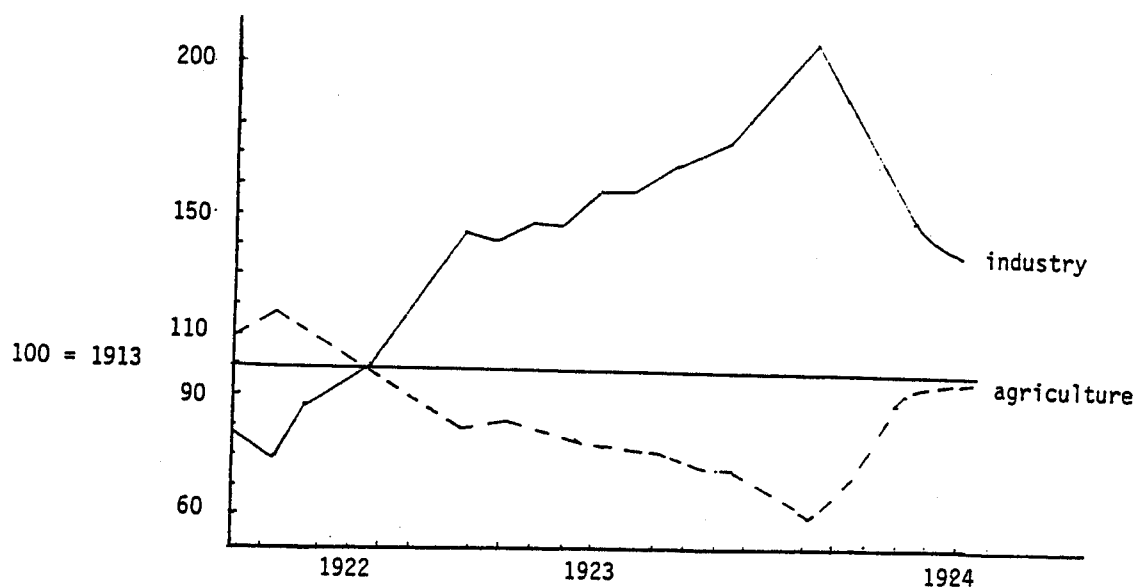


2. The beginning of the New Economic Policy

Inflation was not stopped by the NEP, and price increases even accelerated in 1922. Globally, prices multiplied by a factor of 27 between January and June. Then for some months there is stabilization of the inflation rate, with a beginning of recession in the October 1922 period and a fall in selling for both state and private sectors. However, as mentioned in the previous subsection such a global analysis has a limited interest due to the heterogeneity of the prices.

After 1920 all commodities depreciated with respect to wheat, but after April 1922, this trend reversed (see figure 4). Suddenly, agricultural prices fell by 22 % in six months and industrial prices increased by 31 %. For this September 1922 is a key point in the history of Russian prices called the Autumnal Equinox : both agricultural and industrial prices recovered their pre-war levels. It is likely that such a result was one of the objectives at the beginning of the NEP and that this equality was obtained consciously. (see Gattrell and Davies, p.152, in Davies (1990)).

**FIGURE 4 - THE "SCISSORS" PHENOMENON AND THE "AUTUMNAL EQUINOX"
OF RUSSIAN PRICES**



cf. Dobb (1949) p.164 based on figures in Strumilin)

Rival interpretations have been proposed for this reversal. Kondratieff (1922) and Kovalevskaya (1923) inclined towards short run causes. The 1922 harvest was rather good compared to the 1921 one, and agricultural prices decreased. Simultaneously, the industry partly destroyed during the war could not increase its production. Facing an increase of demand, the industrial prices rose.

Pervouchine (1923) suggested a very different and more precise explanation. He analysed the prices of commodities at a more disaggregated level and took into account the state interventions on the market. According to him, three periods might be distinguished in 1922 : January-May, May-September, September-January. During the first subperiod, starvation was widespread and the values of textiles and gold decreased compared to the value of wheat. From May to September, nutrition problems declined and the population was able to spend more on industrial commodities : the prices of wheat and gold decreased compared to the price of textiles. Finally, during the last period, demand was transferred to gold and the relative prices of wheat and textiles diminished.

Moreover, a fall of the price movement is due to state intervention. The state supplied to the market a large quantity of wheat obtained from the tax in kind and from the purchase at fixed price corresponding to the previous years (see also Vainshteine (1927) for a similar analysis).

Pervouchine also proposed another explanation for the increase in industrial prices. Instead of being a consequence of a relative lack of products, it might be due to the increase of production costs. The profit margin was small since the firms didn't try to plough back their profits and there was little stock when costs increased. The increase of industrial prices could simply reflect the increase of the costs.

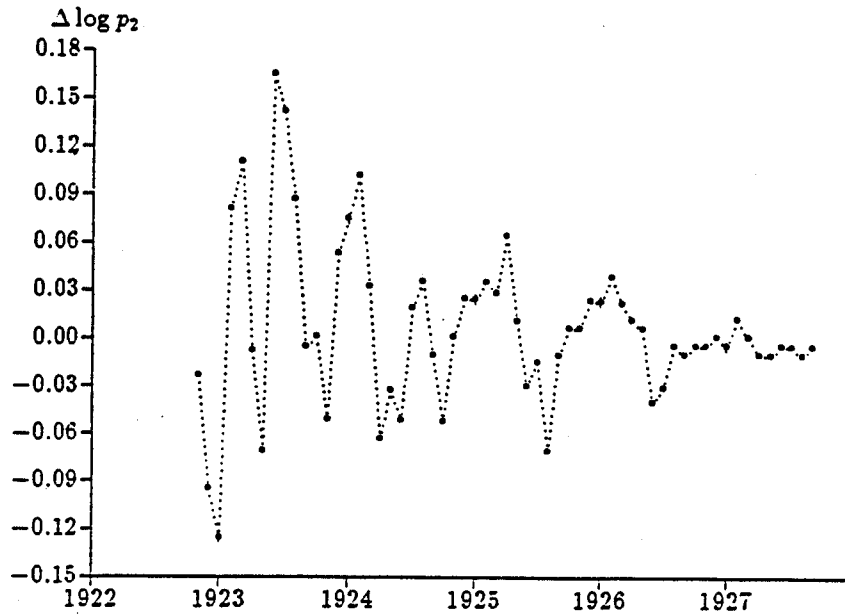
Such relative evolutions of agricultural and industrial prices would continue until the end of 1923. Then, there was a crisis of supply of industrial commodities and a breakpoint in the price dynamics. That deficiency was an argument for many reforms and in particular for the money and tax reforms of 1924.

3. Regularities and breaking points in the prices dynamics

i) The series

As previously mentioned, the raw series have a highly variable character. Nevertheless, some useful information may be extracted for the period of analysis. This information is of several types. Let us consider an example, the wholesale price index (p_t) and the associated rate of increase $\log p_t - \log p_{t-1}$ (see figure 5).

FIGURE 5 - RATE OF INCREASE OF WHOLESALE PRICES ($\log p_t - \log p_{t-1}$)
1922-1928



We observe an increasing trend till mid-1923, and then the middle run dynamic is slightly decreasing until 1926 and remains approximately constant after this date.

Moreover, some cycles appear, but their characteristics differ during the period. Their periodicity is close to six months until the end of 1924, then to 12 months until the end of 1926 and finally, the cycles disappear after this date due to the existence of a strict control. Finally we observe a continuous decrease of the variability.

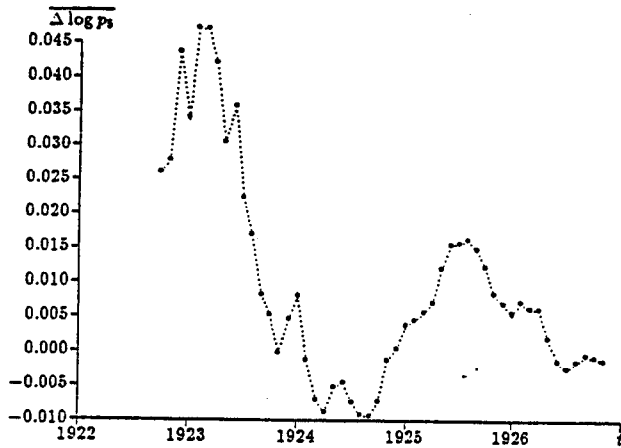
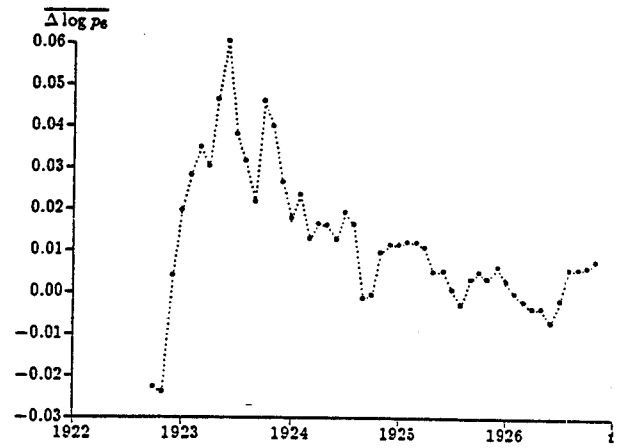
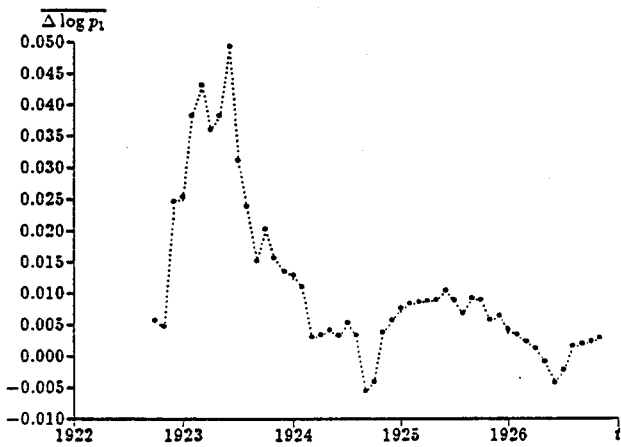
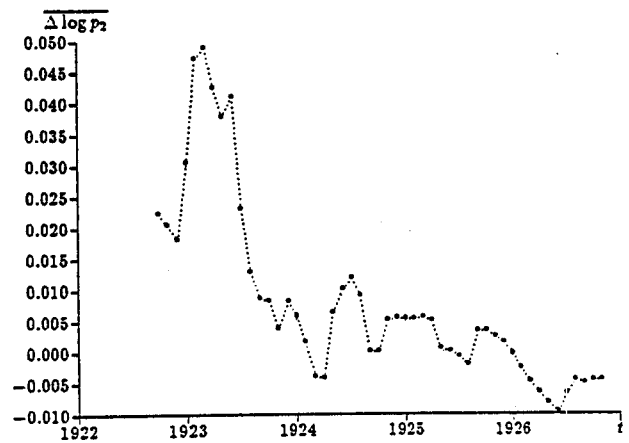
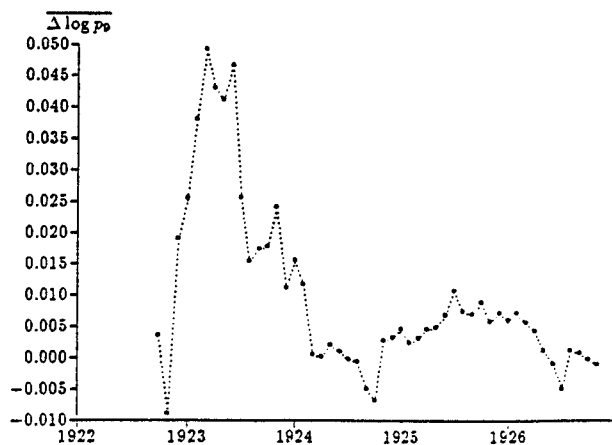
Several breakpoints can be detected either on the trends or on the cycles, at the end of 1923, of 1924 and of 1926. We may also note that some other series such as the variability series seem to be less sensitive to the existing reforms or interventions.

In order to better see these phenomena we will systematically smooth the series over twelve months, for both the initial series and their variances.

ii) Price trends

The trends are analysed by the average change of prices, evaluated throughout six months around each date. The breakdowns previously mentioned continue to be observed, but their magnitude depends heavily on the price index which is considered (see figure 6 below).

The end of 1923 is a turning point for all the series and corresponds to a general decrease of hyperinflation. At the end of 1924 we may observe a period of stabilization for both general and Moscow retail prices and for wholesale prices too : the growth rates are close to zero. The effect on industrial prices is also visible through the unexpected slowing down of their decrease. By contrast, the agricultural prices are not affected. It seems that price controls began at that moment on some markets but not on all ones. Generalized control was only achieved in 1926, stabilization being reached in a monotone way for agricultural prices and after many fluctuations for industrial products.

FIGURE 6 - TRENDS6.1 - Industrial prices6.2 - Agricultural prices6.3 - Retail prices6.4 - Wholesale prices6.5 - Retail prices in Moscow

iii) Prices variability

A similar analysis may be performed from the smoothed data of variances. The curves on figure 7 represent a moving average of the variance of $\log p_t - \log p_{t-1}$ computed using six months of data around the current date.

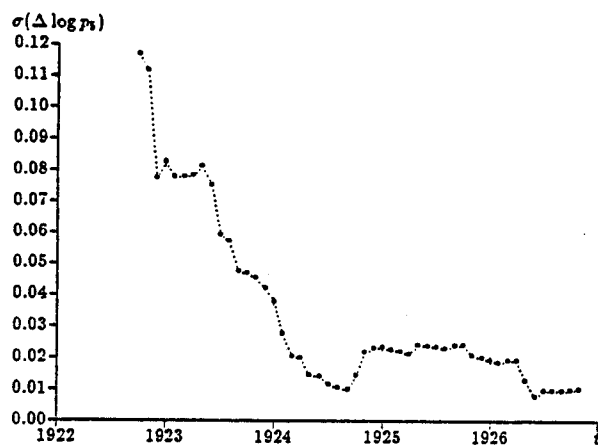
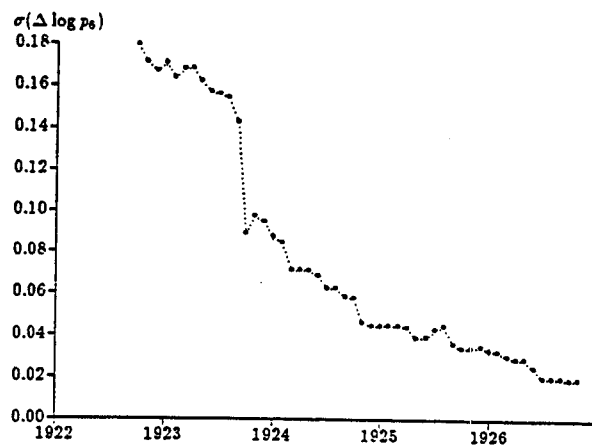
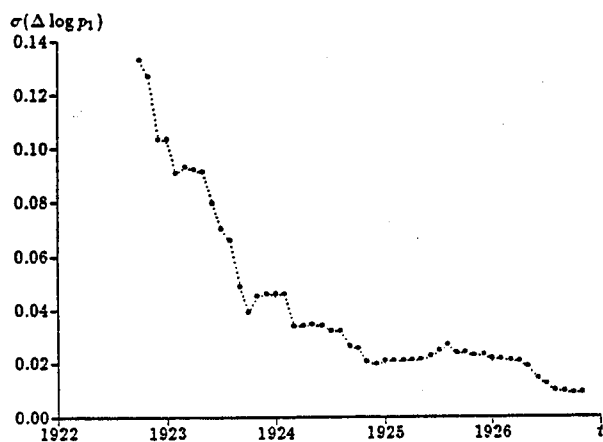
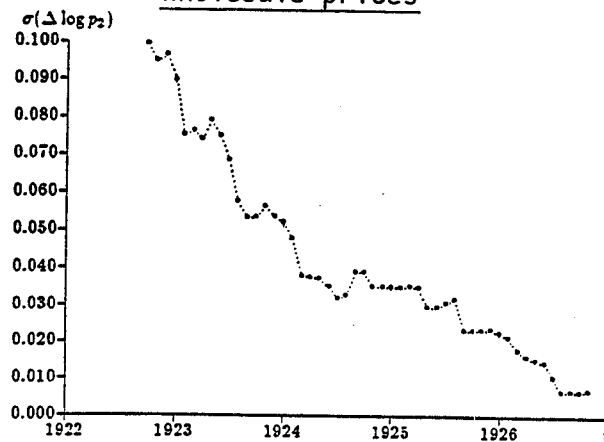
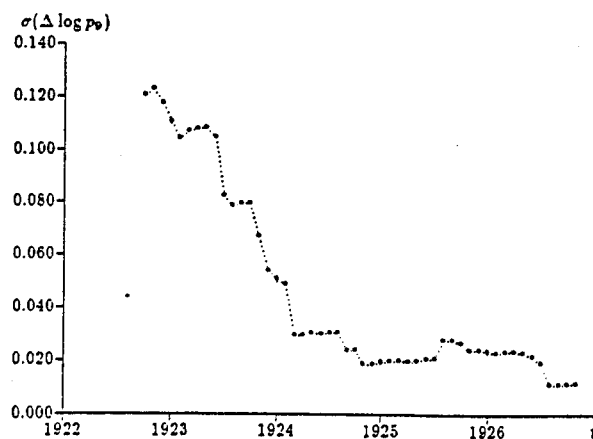
The volatility of all prices decreases significantly throughout the period. In 1923 there was an abrupt abatement which had no durable consequences however for the general dynamic. On the contrary, the 1924 money reform appears to affect greatly the dynamics since it modifies the speed of the volatility decrease. The speed modification is not very important for agricultural and wholesale prices. But after 1924 the volatility for the other three series is almost constant. At the end of the observation period, the variability of all the prices is about the same: between 1 % or 2 % of inflation per year, which is quite low.

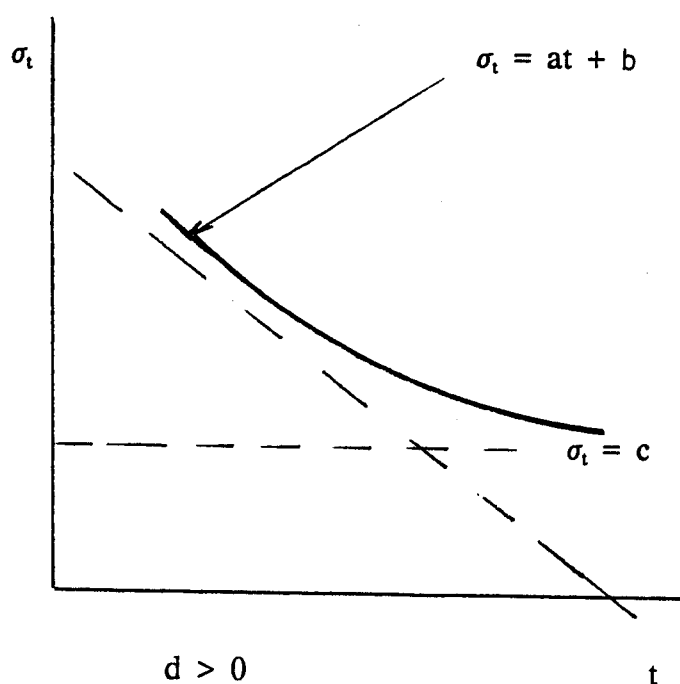
The curves giving the price variabilities over the period are hyperbolic ones:

$$(\sigma_t - a) (\sigma_t - c) = d,$$

where $\sigma_t = a + b$ gives the asymptote at the beginning of the period, and

$\sigma_t = c$ gives the horizontal asymptote at the end of the period. The parameter d measures the speed of transition from one regime (the first asymptote) to another one (the second asymptote) ; the smaller d is, the quicker is the transition. A negative value of that parameter means that the limit value c is attained from underneath the asymptote.

FIGURE 7 - VOLATILITY**7.1 - Industrial prices****7.2 - Agricultural prices****7.3 - Retail prices****7.4 - Wholesale prices****7.5 - Retail prices in Moscow**



In the table below we give the estimated evolutions for the different indexes.

TABLE 5

ESTIMATED PARAMETERS OF THE VARIANCE PROCESS			
PRICE	FIRST ASYMPTOTE	SECOND ASYMPTOTE	d VALUE
INDUSTRIAL	$- 0.002t + 0.081$	0.01	0.0002
AGRICULTURAL	$- 0.0085t + 0.17$	0	- 0.609
RETAIL	$- 0.0036t + 0.096$	0	- 0.219
WHOLESALE	$- 0.002t + 0.086$	0	- 0.079
MOSCOW	$- 0.005t + 0.115$	0	- 0.303

Note that industrial and wholesale price indexes have similar asymptotes. Industrial prices, which are more controlled than wholesale prices, reach the second asymptote more rapidly.

iv) Average-variability space

The breaks appearing in trends and volatility curves exist for all markets, but they are rather different. It may be interesting to analyse the joint impact of the reforms, or of the interventions on these two characteristics of the evolutions of prices. For this purpose, we introduce average-variability representations, in which the average price modifications are on the y axis and the price variability on the x axis. Each point of such a curve corresponds to a given date and because of the decrease in variance over the period, the time increases when x decreases. For example, an increase of the curve parallel to the average axis corresponds to a subperiod of inflation rise with stable volatility. Figure 8 gives the average -variability representations for the different price indexes.

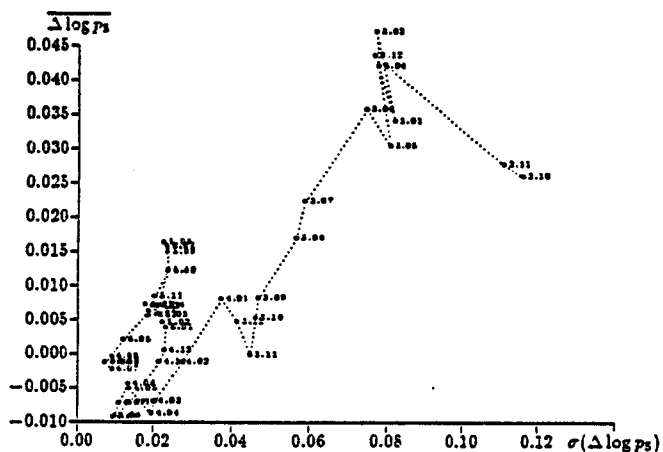
The most important shock to agricultural and industrial prices was in 1923, when the inflation phase with constant volatility becomes a phase of simultaneous decrease of both characteristics. This 1923 transition period is a period of contrasts, especially for industrial goods markets for which the new regime is attained after some chaotic adjustments.

The same kind of remark applies for 1926, when the increased control cannot directly realize its influence both on trends and on variabilities.

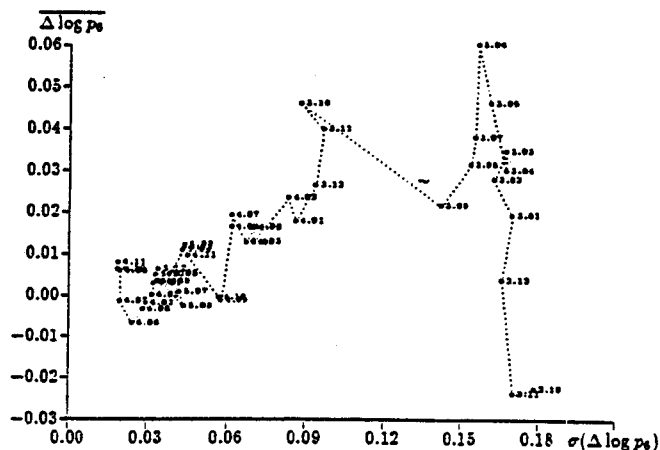
Finally, when average variability graphs of general and Moscow retail prices are displayed in the same space, one can note their joint evolution on the whole period (Figure 9).

FIGURE 8 - AVERAGE - VARIABILITY SPACES

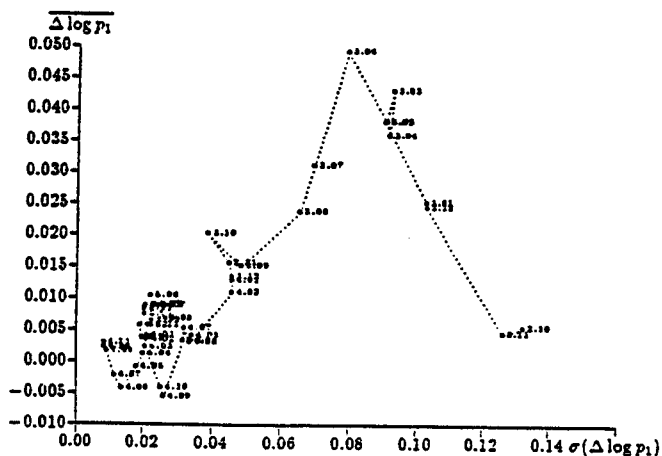
8.1 - Industrial prices



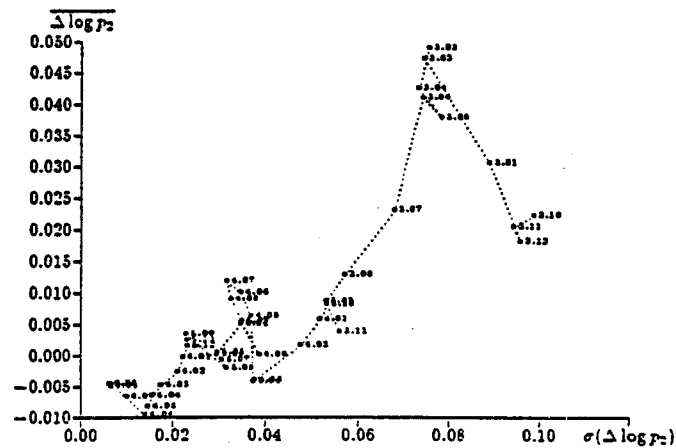
8.2 - Agricultural prices



8.3 - Retail prices



8.4 - Wholesale prices



8.5 - Retail prices in Moscow

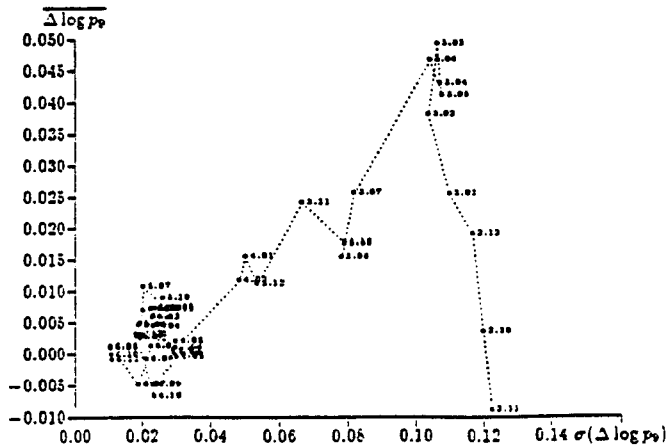
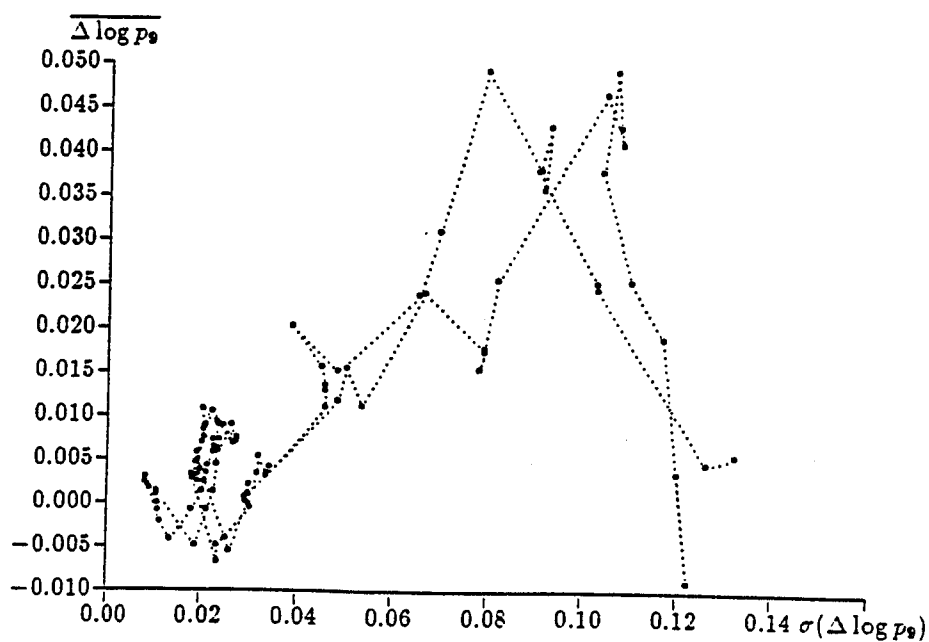


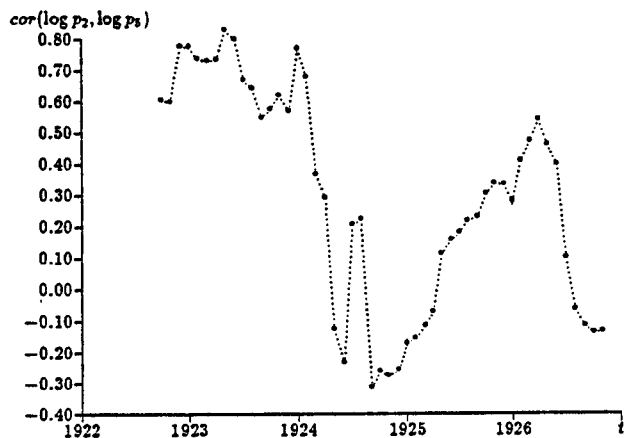
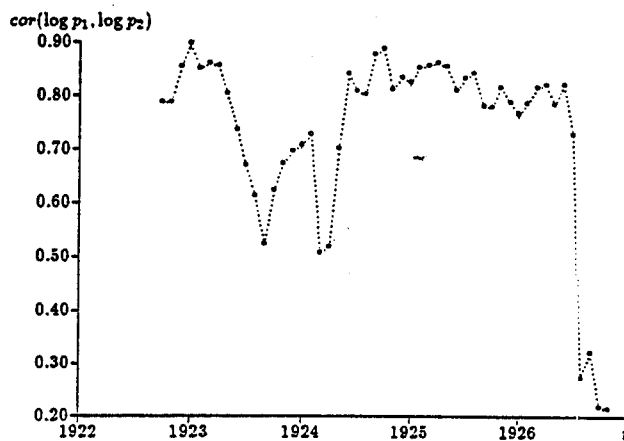
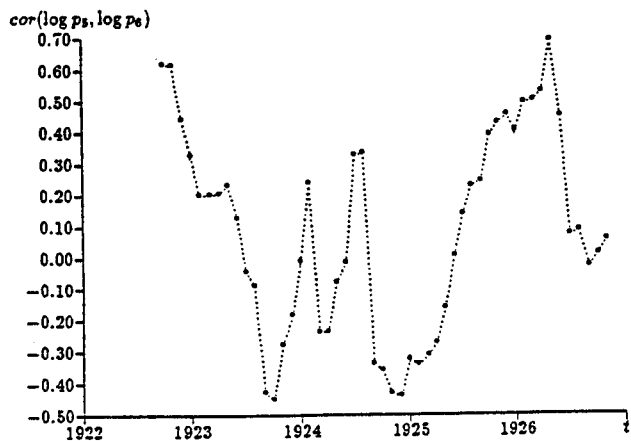
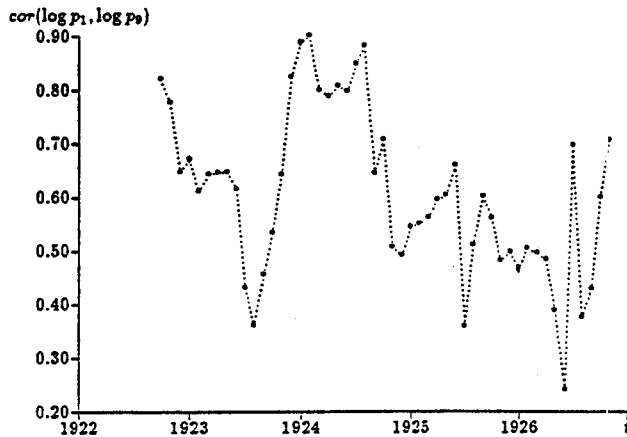
FIGURE 9
AVERAGE - VARIABILITY SPACE OF GENERAL AND MOSCOW RETAIL PRICES



v) Correlations

The previous remark about retail prices on different markets suggests that several prices may have joint dynamics (or might have been jointly controlled).

However, such links are still middle-run ones. We shall now analyse short-term links between series, by considering their moving correlations computed on twelve successive months. We have only retained some of the possible correlations in order to examine the links between industry and agriculture, state and free markets, and to study the regional disparities. The graphs of correlation curves are given in figure 10.

FIGURE 10 - CORRELATIONS10.1 - Industrial and wholesale prices10.2 - Wholesale and retail prices10.3 - Industrial and agricultural prices10.4 - General and Moscow retail prices

Wholesale and industrial prices are highly correlated until October 1924 (the correlation coefficient is approximately equal to 0.7).

During this year, the correlation decreased and the link between the two series even became inverted (-0.4 in March 1925), then the correlation increased again regularly and became positive after the control phase.

The link between wholesale and retail prices is uniformly high over the whole period : it is around 0.8 and 0.9 with a decrease at 0.5-0.6 in 1923-1924. It is relatively stable and this link was destroyed only at the moment of strict control in 1927.

Except during the subperiods of large control (beginning and end of the period), industrial and agricultural prices evolve independently. Their correlation curve is fairly variable, but as expected, with a decrease of correlation till 1924 (diminution of control) and a reincrease after 1924 (rise of control). These results suggest that the minimal control of prices existed at most only during one year in the middle of the NEP period.

Finally concerning the possible regional disparities, the correlation curves between the general retail price index and the Moscow retail prices index indicates a high link with a tendency to diminish between mid-1925 and mid-1926. That result may seem surprising since the state intervened a lot on regional markets during this period with the objective of stabilizing prices and quantities. However, these interventions were more or less successful depending on the regions, and the observed decrease likely reflects the wide heterogeneity in the levels of controls, several regions setting up an economic resistance to the control process.

IV. CONCLUDING REMARKS

The transition in Russian economy in the twenties may be observed through the price dynamic. It is possible owing to high quality statistical studies performed by the Conjuncture Institute of Moscow, which existed between 1920 and 1927.

The above analysis is essentially a descriptive one and concerns historical events and price dynamics. For prices, it seemed desirable to eliminate chaotical fluctuations by smoothing data and to distinguish two components in the price dynamics : trend and variability. Such methods were used as early as in 1925 by Ignatiev. In this paper, we use their up-to-date version for the treatment of short-run dynamics.

Different monthly prices (wholesale, retail, industrial, agricultural and retail in Moscow) are used to compare the evolution of markets. Some of these prices were more controlled than other ones. The year 1922-23, when liberalization began with the New Economic Policy, was a period of large inflation and of price disturbances. The end of it, after 1926, was a period of price stabilization. The monetary and fiscal reforms modified the cycles and trends, but could not rule them out as long as the market existed. The desired stability of prices came only with the disappearance of market, but induced distortions in production structures, as might be seen from a similar analysis of the quantity curves.

It would be useful to complete this descriptive study by a more explanatory one. Such a further development may follow two different directions. The first one consists in introducing some additional economic characteristics such as the quantity of money, the quantity produced and to compare their evolution with those of the prices. It is clear that this extension will require that we take into account the heterogeneity already encountered for the prices and therefore to introduce some disaggregation on goods for example. Moreover, a preliminary look at the quantity data shows that the erratic character of the series also exist for quantities.(Gourieroux-Peaucelle (1991)).

The second development consists in explaining why such distortions and heterogeneity is observed during these transitions towards and away from the market economy and why the controls were partly inefficient.

APPENDIX**Explanatory note to the Index numbers of prices**

Base year - 1913. Data compiled on the first of each month.

P₁ : Retail (Conjuncture Institute)

Since April 1924, formula used - the weighed geometric mean of prices - relatives for 35 commodities of the 40 largest towns of USSR. Prior to April 1924 - the index numbers computed by the Conjuncture Institute - unweighted arithmetic mean of prices for 15 commodities in USSR, mechanically changed in absolute value according to the old and new indices of May 1924.

P₅ : Retail (Conjuncture Institute) of Industrial commodities

P₆ : Retail (Conjuncture Institute) of Agricultural commodities

P₂ : Wholesale (State Planning Commission - Gosplan).

The average geometric mean of price-relatives for 69 commodities of 62 towns of the European part of USSR.

P₉ : Index of retail prices in Moscow (Conjuncture Institute) - weighed geometric mean of prices - relatives for 60 commodities.

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