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Inflation Dynamics in Kazakstan

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Abstract

In January 1992, Kazakstan initiated a reform program to move toward market-determined prices. The price liberalization process was characterized by large relative price shifts and an increase in the overall price level toward those observed in market economies. The paper shows how the piecemeal manner in which prices were liberalized resulted in strong relative price variability over a prolonged period of time, against a background of high inflation. Convergence toward international relative and absolute price levels has progressed but is not complete, with prices for energy and services in particular still below market economy level.

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Summary

With the breakdown of the Soviet Union in late 1991, newly independent Kazakhstan inherited a still largely administered price system. A major price liberalization effort in January 1992 initiated a reform program to move toward market-determined prices. The price liberalization process continued until late 1994, and resulted in strong shifts in relative prices and an increase in the overall price level toward levels in market economies. The liberalization took place against a background of macroeconomic instability and double-digit inflation.

This paper offers a detailed analysis of the price structure and price level dynamics in Kazakhstan during the transition period, and shows the extent to which relative prices have changed and how fast they have converged to market economy levels. The paper highlights the different phases of the stabilization and price liberalization process in Kazakhstan, examines the long-run realignment of domestic relative prices, discusses the dynamics of the realignment of consumer and producer prices across regions and alternative distribution channels, and offers a measure of the movement of the overall price level in Kazakhstan toward levels in neighboring countries.

The paper highlights three characteristics of the price liberalization and convergence process in Kazakhstan. First, the decontrol of prices has been piecemeal, with an initial period of rapid progress followed by phases of stagnation and even reversal. As a result, the realignment of prices was spread out in time and relative price variability remained high over a prolonged period. Second, price liberalization and convergence and macro-stabilization were interrelated. Price reform and convergence progressed only in periods of tight fiscal and monetary policies and macroeconomic stabilization. Third, the process of price liberalization and convergence is not yet complete. Prices of energy products and of many mainly energy-based services are still below the levels in comparable market economies, notwithstanding sharp increases in relative domestic terms.

I. Introduction

With the breakdown of the Soviet Union in late 1991, newly independent Kazakhstan inherited a still largely administered price system. Soon afterwards, the country initiated a reform program to move towards market-determined prices. The price liberalization was characterized by strong shifts in relative prices and an increase in the overall price level towards levels in market economies, against a background of macroeconomic instability and high inflation. This paper offers a detailed analysis of the price structure and price level dynamics in Kazakhstan in the 1991 to mid-1995 period, and highlights the piecemeal manner of the price liberalization and the interaction between stabilization and price reform efforts.¹ The paper is organized as follows. After a section which describes the different phases of the stabilization and price liberalization process, a statistical study of both the long-run and short-run dynamics of prices is presented. A price level comparison to Russia and the Kyrgyz Republic concludes the analysis.

II. Background²

The ambitious dismantling of price controls that began in January 1992 in Kazakhstan resulted in a large price jump followed by high inflation. (Chart 1). Monthly inflation--which peaked at 55 percent in November 1993, and remained solidly in the double digit range until early 1995--was driven by a number of inter-related factors. In contrast to some of the other transition countries, price liberalization in Kazakhstan was conducted in a piecemeal manner in that prices for various goods were freed sequentially rather than all at once. Administered prices were changed frequently and by substantial magnitudes, and the policies governing these changes were often revised. Moreover, failures to maintain tight monetary and credit policies fueled inflation. The sources of inflation in Kazakhstan, however, were not only domestic. The Russian ruble was the sole legal tender in Kazakhstan until November 1993 when the Kazak tenge was introduced. As a result, Russia's failures to maintain monetary discipline during the first two years of the transition played a key role in fueling Kazak inflation. With the introduction of the tenge, the National Bank of Kazakhstan was ultimately able to implement on a sustained basis tight monetary policies, resulting in a declining rate of monthly inflation since late 1994. A more detailed description of Kazakhstan's route to free prices and relatively low monthly inflation is contained in the following sections.

¹The analysis has been facilitated by the technical assistance work from the Fund Statistics Department to bring Kazakhstan's price statistics up to international standards. For a more detailed discussion of data related problems see Koen (1995) and Zieschang (1995).

²For a more detailed discussion of the factors contributing to inflation in Kazakhstan, see IMF (1995), IMF (1993), and IMF (1992).

1. Pre-1991

Before 1991, most prices in the Soviet Union were set according to official price lists. In Kazakstan, the vast majority of prices for consumer goods and services were set administratively, mainly at the Union level. Only such items as wool, shoes, ready-made clothing, and national costumes had prices set at the republic or oblast level. Because adjustments to administered prices were limited and infrequent, retail price inflation remained quite low throughout the 1980s. The retail price index, for example, increased at an average annual rate of only 1.4 percent over the period 1980-90.

With most prices controlled, monetary and inflationary developments were largely disconnected from one another. Monetary policy was conducted at the Union level so as to achieve the quantitative targets of the central plan without regard for inflationary consequences.¹ The price controls effectively contained inflationary pressures--which were building up because of the continued monetization of enterprise deficits--but resulted in shortages and rationing, forced saving, and expansion of black market transactions. As illustrated in Section IV, black market prices could be three to four times higher than official prices.

2. Price reforms in the Soviet Union, 1991

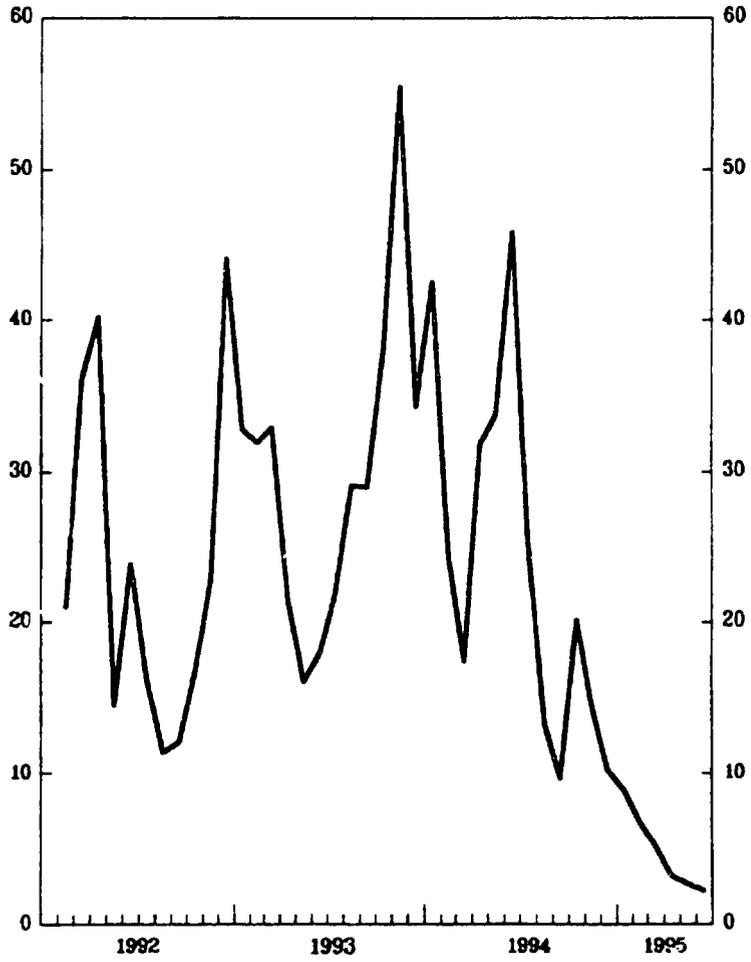
As in the other republics of the Soviet Union, price reform in Kazakstan began in early 1991 with partial price liberalizations and sharp increases in administered prices.² At the retail level, fixed prices were maintained for a majority of consumer goods other than food, which were still mainly set at the Union level, and for most agricultural consumer goods. For other consumer goods, free or regulated prices (prices subject to a maximum profit margin or to an upper limit) were introduced. The partial price liberalization brought about a large discrete increase in retail prices of around 83 percent. Soon after the price reforms were implemented, the growth rate of monetary and credit aggregates started to increase and by the end of 1991, currency in circulation and credit had doubled. With a majority of prices still administratively set, however, and in the absence of further major price adjustments, open inflation remained relatively subdued during the rest of 1991.

¹Targets for total credit growth in each of the republics, including Kazakstan, were decided at the central level, and the National Bank of Kazakstan was a branch of the Union State Bank (Gosbank).

²Price reform at the producer level was introduced in January 1991, and at the retail level in April 1991. The impact of these price reforms can be seen in the inflation numbers for the corresponding months in Appendix Tables A1 (consumer prices) and A4 (producer prices).

**Chart 1. Kazakhstan: Monthly CPI Inflation,
February 1992 - June 1995¹**

(Percent change)



Source: Goskomstat.

¹Inflation in January 1992 was measured to be 212 percent.

3. Price liberalization and tight monetary policy, first half of 1992

Following the break up of the Soviet Union, Kazakstan launched a price liberalization program on January 6, 1992 in which prices for all but a limited list of goods and services were freed. At the producer level, prices for energy products, transportation, and communications remained controlled, although they were increased three- to tenfold. At the retail level, prices of basic food items (bread and flour, dairy products, salt, sugar, vegetable oil, alcoholic beverages),¹ energy products, rents, utilities, and passenger transportation remained controlled. With the exception of rents, these prices were increased three- to fivefold; the smallest increases were applied to food products, diesel and gasoline, and utilities, while larger increases affected coal, fuel oil, and gas. About two-thirds of the 110 percent increase in the retail price index in January 1992 can be attributed to this increase in controlled prices.

As these price reforms were introduced, the National Bank of Kazakstan, and the Central Bank of Russia implemented relatively tight monetary policies during the first half of 1992 to limit the inflationary consequences of the price adjustments. In addition, legislation was introduced to ensure that prices set by monopolies did not result in excess profits;² the minimum wage was increased; and cash benefits for the most vulnerable population groups were increased.

The tight monetary policy kept inflation in check, and by May 1992, monthly inflation at the retail level had declined to less than 15 percent. Throughout this period of disinflation, the price reform process continued. First, administered energy prices were sharply raised--a six- to sevenfold increase for coal, oil, and oil products and an up to twentyfold increase for gas and gas products--to bring them more in line with world market levels.³ Second, prices were further liberalized in a piecemeal fashion: prices for most transportation services other than by railway were freed in

¹The January 6 price liberalization maintained administered prices for only a limited number of bread and dairy products. A week later, the Kazak government partially rolled back the liberalization, bringing most bread and dairy products under regulation.

²The January 1992 decree on price liberalization, and an additional April 1992 decree, envisaged the introduction of legislation regulating monopoly pricing. The legislation, which was introduced in September 1992, identified many products produced by monopolists and instructed an Anti-Monopoly Committee to verify that prices did not result in excessive profits. For a more limited range of products, additional controls could be introduced at the regional level. Enterprises were classified as monopolies if their market share amounted to 35 percent or more of either the national or the regional market. A large proportion of the Kazak enterprises were subject to Anti-Monopoly controls, mostly at the regional level.

³The price for electricity provided to consumers, however, was not changed.

March; prices for alcoholic beverages in May; and, finally, prices for dairy products, sugar, salt, vegetable oil, and matches in July 1992. Retail prices remained regulated at the national level for bread, flour and bakery products, baby food, some energy products (including gasoline, diesel fuel, lighting kerosene, and electricity), and some communications and transportation services; while rents and related charges (heating, water, etc.) and local transportation fees were set by regional authorities. In addition, fees for some health care related services were set administratively; these fees were sharply adjusted in September 1992.

4. Inflation rises and price liberalization stalls, second half of 1992

In the second half of 1992, however, the Central Bank of Russia had relaxed monetary and credit policies, and inflation started to pick up. Average monthly inflation increased to more than 25 percent in the September 1992-September 1993 period. Progress in the area of price liberalization stalled with only marginal reductions in the list of price controlled items.¹ Administered prices were, however, adjusted in successive rounds, so as to avoid their erosion in real terms in the context of high inflation. Prices for energy products and energy-based services were raised in November 1992 and in January and August 1993, with each time a two- to threefold increase. In both September 1992 and September 1993, bread prices were increased fivefold. Despite these large adjustments, however, by the end of September 1993 regulated prices of most energy products and of bread had not returned to their January 1992 level in real terms.

5. Currency reform turmoil and reintroduction of price controls, 1993

The decision of the Central Bank of Russia to recall all pre-1993 Russian ruble notes circulating in Russia at the end of July 1993 effectively separated the Kazak and Russian currency systems. Kazakstan was left without a national currency. After attempts to establish a new monetary union with Russia failed, Kazakstan introduced its own national currency, the tenge, on November 15, 1993. Inflation accelerated in the months prior to the currency reform, fueled by high rates of credit growth, an influx of ruble notes from other states where pre-July 1993 rubles were still circulating, and speculation in anticipation of a change in currency arrangement.

Accompanying the November 15 currency reform were some adjustments to the remaining administered prices.² Prices for energy products increased on average twofold, while prices for bread and for utilities were raised up to four times. At the same time, price controls and temporary profit margin

¹Prices for some medical products and services were liberalized in the last quarter of 1992.

²Increases in administered prices, however, account for only about one tenth of the sharp increases in late 1993 and early 1994.

regulations were introduced on some additional basic consumer products (dairy products, salt, sugar, vegetable oil, eggs, meat, and laundry soap);¹ these additional price controls were lifted in early January 1994.

6. Free prices and low inflation, 1994-95

An initial effort to arrest inflation following the introduction of the tenge failed when the National Bank of Kazakhstan provided financing to clear domestic interenterprise arrears in March 1994. The credits enabled enterprises to purchase foreign currency; as a result, the value of the tenge fell sharply. An inflation-exchange rate depreciation cycle ensued, with monthly inflation reaching 46 percent in June 1994.

In the aftermath of this policy failure, however, the National Bank of Kazakhstan initiated and sustained relatively tight monetary and credit policies. Interest rates became positive in real terms, and the rate of depreciation of the tenge slowed. A trend decline in inflation soon became apparent, with the monthly increase in the CPI declining from more than 10 percent at the end of 1994, to about 5 percent at the end of the first quarter of 1995, and to less than 3 percent at the end of the second quarter (Chart 1).

During this period of stabilization, and for the first time since mid-1992, new measures to reduce the scope of price controls were also introduced on a gradual basis starting from the second quarter of 1994. After April 1994, prices for crude oil and oil products were set by producers, subject to fixed maximum profit margins.² These margins were abolished in December 1994, thereby freeing prices completely.³ In addition, administered prices for energy products other than coal and oil and communication and transportation fees were increased in May 1994; prices for bread, bakery products, and flour were first administratively adjusted in July and then fully liberalized in October 1994. By the end of 1994, the only prices administered at the national level were producer prices for electricity, natural gas, and thermal energy; and consumer prices for gas, electricity, and telephone services. These prices, with the exception of gas and electricity prices at the producer level,⁴ were not adjusted in the October 1994-June 1995 period. Rents, utilities fees (heating, water), and local transportation fares are still set administratively at the regional (oblast) level, with regular adjustments to reflect cost increases. In many

¹As noted previously, prices for most of these products had been liberalized in the second wave of the 1992 price reforms.

²A similar system of price setting whereby producers were subject to a maximum profit margin was introduced for coal in May 1994.

³More general profit margin controls in the oil sector, based upon the Anti-Monopoly legislation, were eliminated in the second quarter of 1995.

⁴In the first half of 1995, electricity prices at the producer level were reduced, so as to give customers an incentive to pay off arrears to suppliers.

instances, however, regional authorities delay adjustments and then increase prices by large and uncoordinated amounts.¹

III. Long-Run Trends

The piecemeal nature of Kazakhstan's price liberalization and the frequent adjustments to administered prices have resulted in dramatic and repeated shifts in the structure of relative prices in Kazakhstan during the transition to a market economy. Overall, prices of goods initially increased more rapidly than prices of household services such as rent, water, and electricity (Chart 2).² However, by late 1992, prices of services began to increase more rapidly. This disparity in price increases is starkly apparent across individual goods and services on an annual as well as a cumulative basis over the period of transition.³ For example, during 1990-94 goods prices overall increased by a factor of 5,450 but the price of detergent increased by a factor of 21,155, whereas the price of wool fabrics increased by only a factor of 1,703. Similarly, prices of services increased overall by a factor of 10,815 with the price of laundry services increasing by a factor of 60,631, and the price of savings bank services by only 18.

Examining the behavior of administered prices provides additional perspective on how relative prices have shifted during the period of transition. The behavior of two administered prices is illustrated in Chart 3, showing the evolution of the price of bread and household electricity since December 1991.⁴ Nominal prices have been adjusted by the Kazak government on an infrequent basis but by large amounts, accounting for the observed "saw-tooth" pattern characterizing real price developments. The increase in cost-recovery ratios for household electricity in mid-1994 and the elimination of most subsidies for bread in late 1994 translated into large and permanent upward adjustments in their relative price levels.

Although examples of individual commodities provide vivid illustrations of the range of relative price movements, they do not convey a sense of the extent of the overall movement in the price structure. One measure of the overall magnitude of relative price shifts that have occurred since 1991, is the correlation between price structures over time. As free prices adjust to market forces, and other controlled prices are adjusted, the correlation

¹During the first six months of 1995, prices were raised more than fourteenfold for housing, more than sixfold for water and tenfold for heating in the region with the highest price adjustment, while they were kept constant or even lowered in at least one other region.

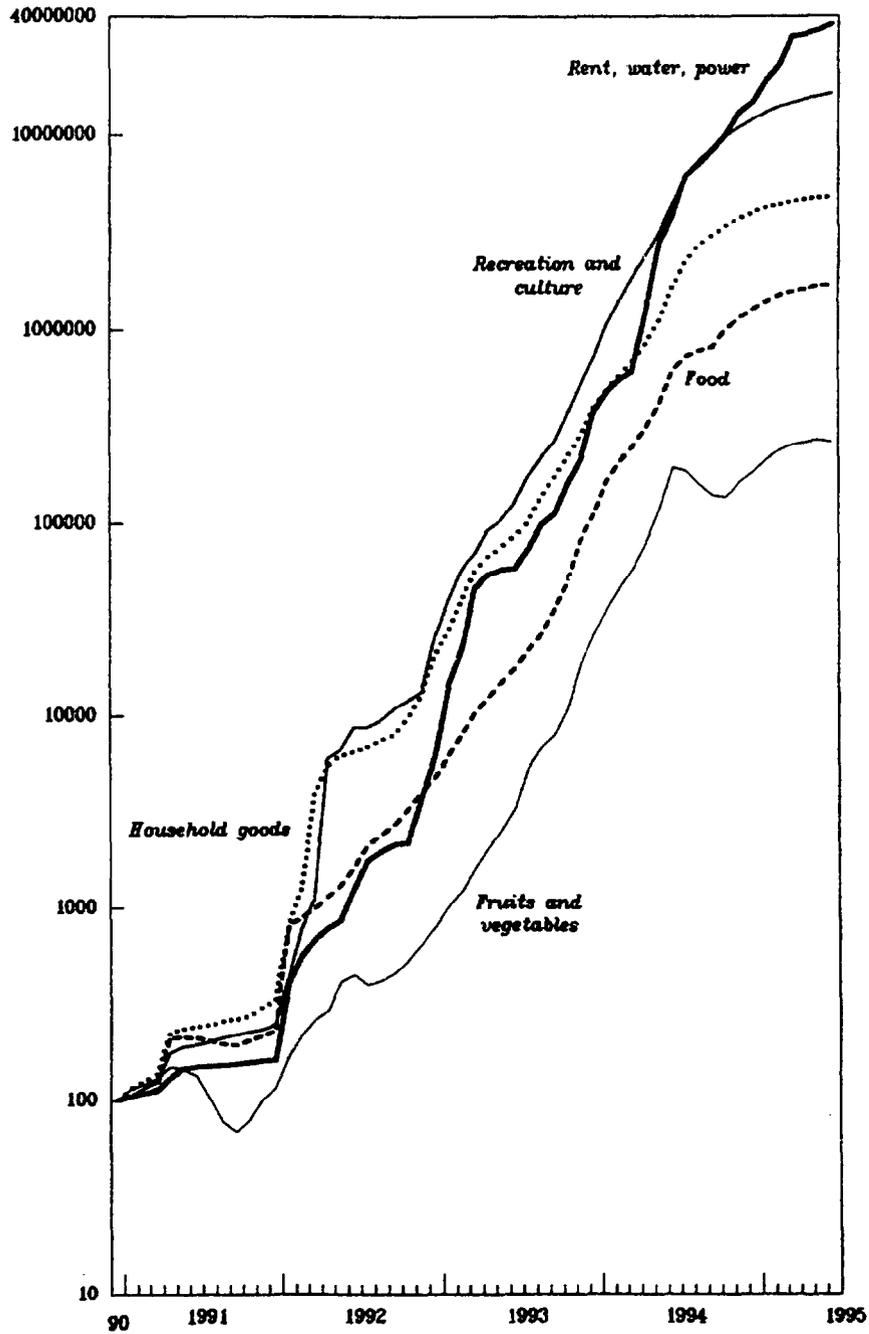
²The underlying data for Chart 2 as well as data on other food and non-food groupings are contained in Table A1 of the Statistical Appendix.

³See Table A2 in the Statistical Appendix for data on annual and cumulative inflation rates for various goods and services.

⁴Similar patterns exist for other administered prices.

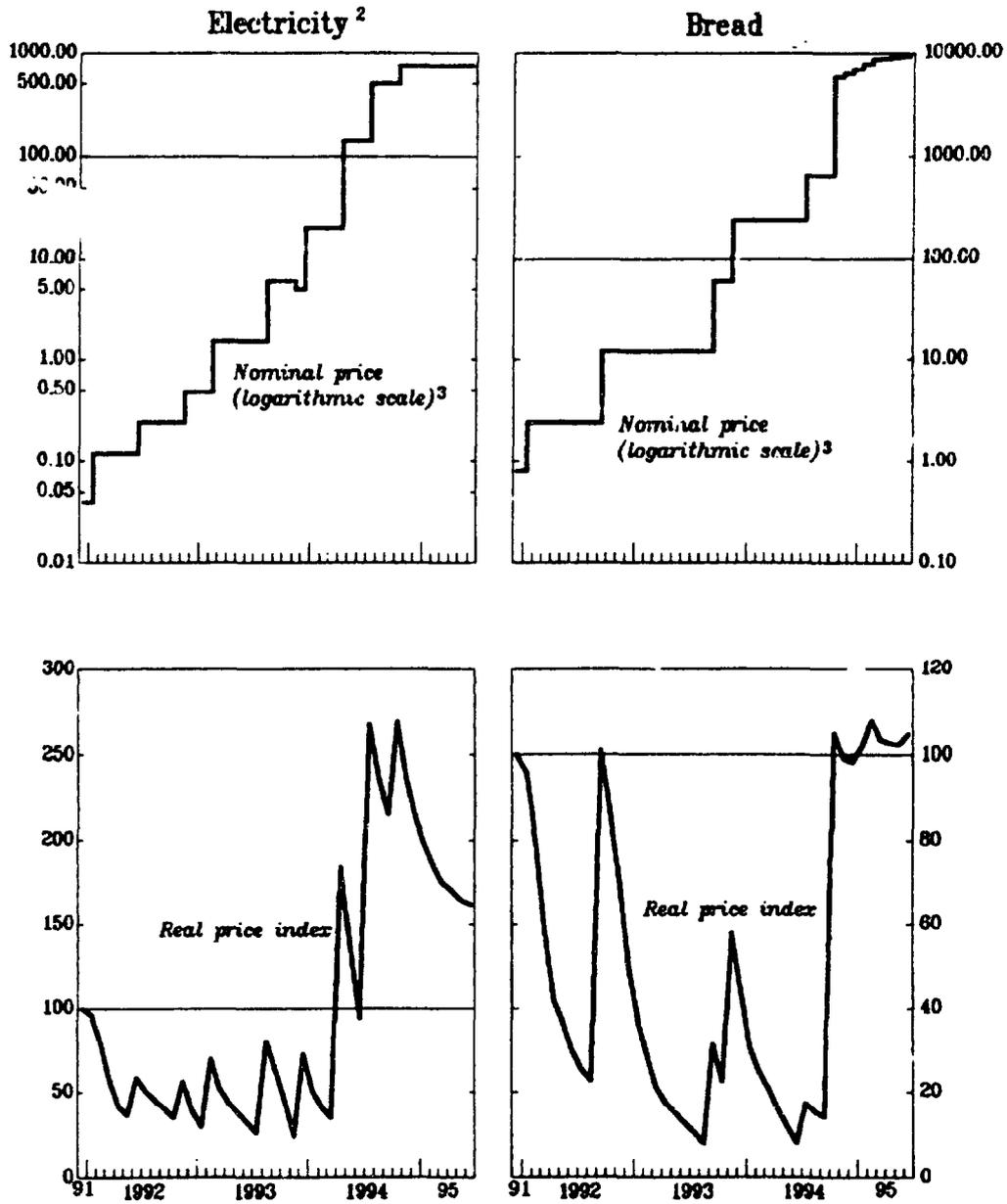
**Chart 2. Kazakstan: Price Levels,
December 1990 - June 1995**

(December 1990 = 100; Logarithmic scale)



Source: Goskomstat; and authors' calculations.

Chart 3. Kazakhstan: Nominal and Real Price of Electricity and Bread, December 1991 - June 1995¹



Source: Goskomstat.

¹Overall CPI is used as a deflator.

²Price per Kwh, household rate.

³In rubles through November 1993. From December 1993, the price in tenge is multiplied by 500 to express it in the same unit.

with the pre-transition price structure should diminish over time. Cross-period correlations for a set of 79 food prices from January 1991 to January 1995 are presented in the top panel of Table 1. Relative prices changed steadily over this four-year period, reflecting the piecemeal manner in which prices were liberalized in Kazakhstan. In contrast, a similar analysis conducted for Russia indicates that the largest change in relative prices took place in 1992, as a result of the comprehensive price liberalization of January 1992.¹

To provide some further perspective on the magnitude of the shift in relative prices in Kazakhstan, cross-period correlations for a set of similar U.S. food prices over the period 1990-94 are also presented in the bottom panel of Table 1. For the United States, the correlation in relative price structure remained at 0.99, suggesting that relative prices in a market economy remain relatively constant, and thereby underscores the extent to which relative prices have shifted in Kazakhstan.

It should be noted that these cross-period correlations, as a measure of the shift in relative prices, suffer from two shortcomings. First, the sample includes only food items which behaved relatively differently over time than did non-food goods, particularly services. Second, the sample is small and unweighted and therefore might produce misleading results.

IV. The Dynamics of Open Inflation

As prices move toward their equilibrium levels, price increases across goods, sectors, regions, and outlet channels are likely to become more synchronized. The massive shifts in relative prices are no longer necessary and, instead, prices tend to rise in accordance with overall inflation. In this section, an analysis of disaggregated data on the consumer price index, producer price index, and across regions demonstrates that prices in Kazakhstan are, indeed, becoming more synchronized.

1. Consumer price inflation

An alternative way of measuring the changes in relative prices is to examine the behavior of relative price variability and its relationship to the overall rate of inflation. From a theoretical perspective, the relationship between these two variables could be positive, negative, or unstable. Empirical evidence from a number of industrialized, developing, and transition countries has provided conflicting results.² Relative price variability can be described as a weighted variance of inflation rates:

¹De Masi and Koen (1995).

²See for example, Fischer (1982), Blejer (1983), Goel and Ram (1993), Reinsdorf (1994), and De Masi and Koen (1995).

Table 1. Cross-Correlations of Food Prices:
Kazakstan and the United States

	April 1991	January 1992	February 1992	March 1992	January 1993	January 1994	January 1995
<u>Kazakstan¹</u>							
January 1991	0.95	0.87	0.88	0.86	0.77	0.75	0.64
April 1991	1.00	0.92	0.93	0.92	0.87	0.82	0.76
January 1992	...	1.00	0.99	0.98	0.83	0.83	0.75
February 1992	...	...	1.00	0.99	0.85	0.84	0.76
March 1992	...	...	...	1.00	0.88	0.86	0.77
January 1993	...	...	...	...	1.00	0.88	0.81
January 1994	...	...	...	...	...	1.00	0.86
		July 1991	July 1992	July 1993	July 1994		
<u>United States²</u>							
July 1990		0.99	0.99	0.99	0.99		0.99
July 1991		1.00	0.99	0.99	0.99		0.99
July 1992		...	1.00	0.99	0.99		0.99
July 1993		...	...	1.00	0.99		0.99

Sources: For Kazakstan, Goskomstat; and authors' calculations. For the U.S., U.S. Bureau of Labor Statistics, *CPI Monthly Detailed Report*, various issues; and authors' calculations.

¹Based on sample of 79 food prices.

²Based on sample of 56 food prices.

$$V = \sum_{i=1}^n \omega_i \left[\pi_i - \sum_{i=1}^n \omega_i \pi_i \right]^2 \quad (1)$$

where

$$\sum_{i=1}^n \omega_i = 1,$$

where ω_i and π_i denote the weight and monthly percent change in price associated with item i .

Chart 4 shows this measure of relative consumer price variability for food (v^{food}), nonfood goods (v^{nonfood}) and paid services (v^{services}).¹ The inflation rates shown are weighted averages of the inflation rates of the individual goods in each of these three categories. Several lessons can be drawn from this chart. First, with the exceptions of August and December 1993,² relative price variability for food is consistently higher--on average about 40 times higher--than for nonfood goods. This result was also found for Russia, France, and the United States, and perhaps reflects the extent to which seasonal factors are more important for food prices.³

Second, relative price variability for services is also consistently higher than for nonfood goods. The sharp spikes in v^{services} are typically related to substantial adjustments in administered services prices, and provide indirect evidence of movements in prices towards cost recovery. For example, about 90 percent of the relative price variability of services in January 1993 is attributable to the 452 percent increase in rental prices for housing occurring that month. Similarly, about three-fourths of the increase of v^{services} in May 1994 is attributable to the 478 percent increase in water prices. A similar measure of relative price variability

¹Using 1992 consumer price index weights, v^{food} was based on 38 food categories, v^{nonfood} on 15, and v^{services} on 10. Altogether these 63 items accounted for about three-fourths of the CPI. Table A3 of the Statistical Appendix contains the price data used in these calculations.

²As noted in Section II, in December 1993 price controls had been reintroduced on a number of basic food items. This might explain why in this month the relative price variability of food fell below that of nonfood items.

³See De Masi and Koen (1995).

for the United States was constructed to provide a basis for comparison.¹ Even by 1995 when the level of $v_{services}$ in Kazakstan had fallen significantly, it was still at least 80 times greater than the level in the United States. In the United States, the level of $v_{services}$ is much smaller than v_{food} and $v_{nonfood}$, whereas in Kazakstan, $v_{services}$ is consistently higher than $v_{nonfood}$, and frequently higher than v_{food} .

Third, by early 1995, v_{food} and $v_{nonfood}$ had dropped considerably, suggesting that many of these prices may have moved closer to "equilibrium" levels, and that the massive shifts in relative prices were over. In contrast, $v_{services}$ remains much higher, reflecting the shifts in services prices that are still occurring as prices for various public utilities are brought up to levels which are consistent with cost recovery.

Fourth, there is a strong positive relationship between inflation and relative price variability, as confirmed in the regressions contained in Table 2.² Adding a change in inflation variable to the independent variables does not contribute significantly to explaining relative price variability.

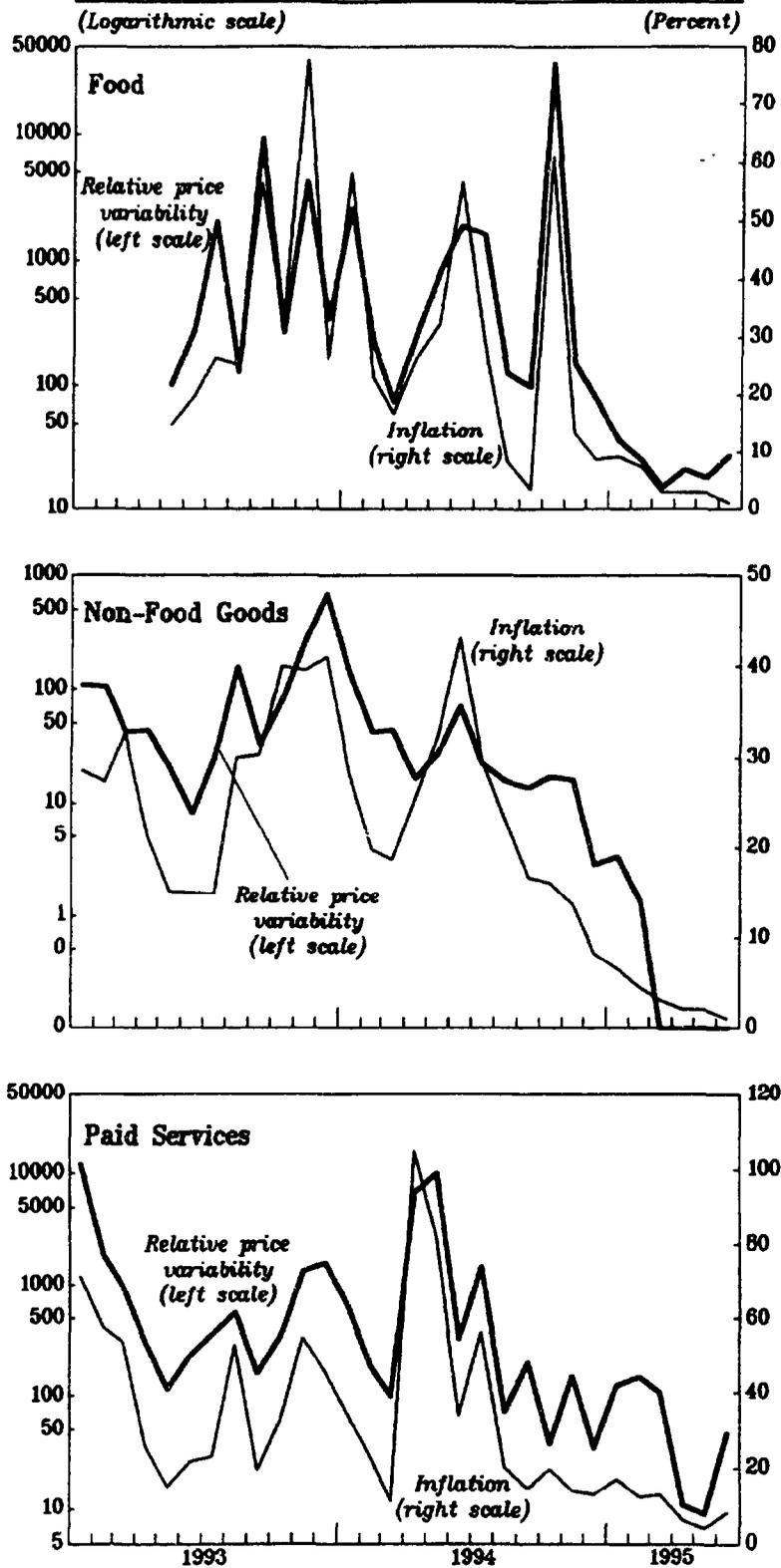
De Masi and Koen (1995) constructed similar measures of relative price variability for Russia, France, and the United States, and found that relative price variability in Russia during 1993 was more than 20 times larger on average than in France and the United States. A comparison between Russia and Kazakstan reveals some interesting insights (Table 3). v_{food} in Kazakstan is consistently higher than in Russia; on average v_{food} in Kazakstan is about 15 times higher than in Russia. In contrast, $v_{nonfood}$ in Kazakstan is higher in 8 of the 12 comparable months of data by an average factor of about 10, and smaller in 4 months by an average factor of about 0.4.

Higher relative price variability in Kazakstan probably reflects the way in which price liberalization was carried out. In Russia, the January 1992 price liberalization was comprehensive, whereas in Kazakstan it was conducted on a piecemeal basis. It is not surprising that gradual liberalization would result in higher levels of relative price variability. As discussed above, relative price variability for both Russia and Kazakstan is positively correlated with inflation.

¹Monthly values for $v_{services}$ were calculated for the United States for the period November 1993-October 1994, based on a set of 51 services (using price indices from the monthly *CPI Detailed Report* and 1993 weights from the bulletin on the *Relative Importance of Components in the Consumer Price Index*, both published by the U.S. Bureau of Labor Statistics).

²The results for v_{food} and $v_{nonfood}$ are very similar to the ones obtained for Russia in De Masi and Koen (1995).

Chart 4. Kazakhstan: Relative Price Variability and Inflation for Food, Non-Food Goods, and Paid Services, January 1993 - June 1995¹



Source: Goskomstat; and authors' calculations.

¹Monthly inflation rates in percent.

Table 2. Kazakhstan: Consumer Price Inflation and Relative Price Variability, Regression Results, January 1993-June 1995

(t-statistics in parentheses)

Dependent Variable: Variability ¹	Regressors			R ²	Durbin Watson	AR(1) Correction (Rho)
	Constant	Inflation	Change in Inflation			
<u>(May 1993-June 1995)</u>						
<u>Food</u>						
(1)	3.4 (12.1)	0.1 (10.1)	...	0.80	1.55	...
(2)	3.3 (9.5)	0.1 (7.8)	-- (0.3)	0.79	1.51	...
<u>(January 1993-June 1995)</u>						
<u>Nonfood goods</u>						
(3)	-0.3 (-0.8)	0.1 (9.7)	...	0.76	0.80	...
(4)	0.3 (0.3)	0.1 (4.1)	...	0.86	...	0.8 (6.3)
(5)	-0.4 (-1.1)	0.1 (9.2)	-- (-0.4)	0.77	0.68	...
(6)	-- (--)	0.1 (4.4)	-- (-0.6)	0.88	...	0.8 (5.4)
<u>(January 1993-June 1995)</u>						
<u>Services</u>						
(7)	3.6 (15.6)	0.1 (11.5)	...	0.82	1.94	...
(8)	3.4 (14.4)	0.1 (11.2)	-- (-2.2)	0.83	2.01	...

¹Log of the variable as defined in equation (1).

Table 3. Relative Price Variability:
Kazakstan Compared to Russia, 1993¹

	Food	Nonfood
January	n/a	1.7
February	n/a	2.1
March	n/a	1.4
April	n/a	1.6
May	2.1	0.8
June	1.5	0.1
July	13.7	0.3
August	1.2	3.9
September	55.1	0.5
October	2.9	1.7
November	40.2	8.3
December	5.5	61.9

Sources: De Masi and Koen (1995); and authors' calculations.

¹Calculated as the level of relative price variability for Kazakstan divided by the level for Russia.

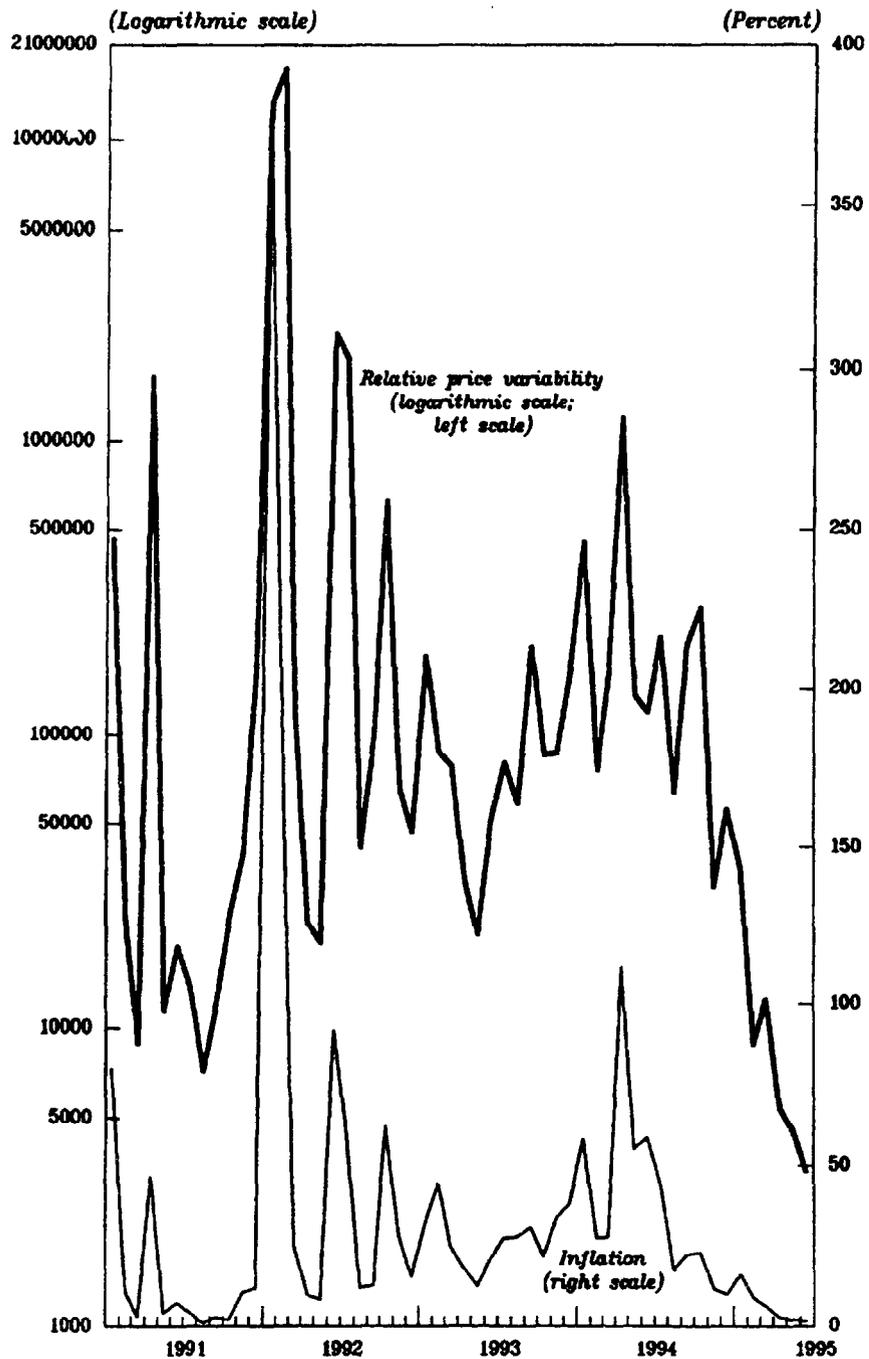
2. Producer price inflation

Relative producer prices have also shifted considerably during the transition. Therefore, questions of whether the frequency of producer price adjustments have increased or if price increases have become more synchronized are particularly relevant.¹ Disaggregated producer price data for 76 sectors were used to construct a measure of relative producer price variability (V^{prod}) and producer price inflation over the period January 1991 to June 1995 (Chart 5).²

¹Unlike consumer prices, producer prices can be paid on a noncash basis with considerable delays thereby complicating the meaning of these prices.

²Ideally, enterprise specific data should be used for examining producer price setting behavior. Although sectoral data are used in this analysis, in most cases they are based on information provided by a relatively small--about five--number of enterprises in a particular sector. Producer price data used in computing V^{prod} , as well as annual data for 1989 and 1990 are contained in Table A4 of the Statistical Appendix.

Chart 5. Kazakhstan: Relative Producer Price Variability and Inflation, January 1991 - June 1995¹



Source: Goskomstat; and authors' calculations.

¹ Monthly inflation rates in percent.

Early in the transition, and particularly at the beginning of 1992, V^{prod} exhibited considerable volatility reflecting significant shifts in enterprise pricing during the first round of price liberalization. Even so, enormous price increases in particular industries accounted in some cases for a large proportion of the V^{prod} spikes. For example, in January 1992, 45 percent of price variability is accounted for by the 5,697 percent increase in the price of asbestos; in February 1992, 90 percent is accounted for by a 1,525 percent increase in the price of ferrous metals. However, by mid-1994, apparently a regime change occurred with inflation declining quite steadily to low levels, and also V^{prod} dropping off sharply. Over time and in a low inflation environment, price adjustments become more synchronized as prices move toward "equilibrium" levels. V^{prod} is also highly positively correlated with overall inflation, as is clear from Chart 5 and confirmed by regression results similar to those reported in Table 2.

3. Regional inflation

Further evidence of shifts in relative prices can be found by examining the dispersion of prices across regions. As price liberalization proceeds, local subsidies or other local price controls that differed substantially across regions under central planning are likely to diminish over time. Based on disaggregated inflation data for 20 regions in Kazakhstan, the average coefficients of variation were computed for food, nonfood goods, and paid services (Chart 6).¹ For all three categories, the average coefficients of variation tend to fall over time, indicating a convergence of regional inflation rates as local price controls and subsidies are abolished. The regional price dispersion for paid services has been consistently above that for food and nonfood goods, most likely reflecting local subsidization. Paid services have also exhibited the sharpest decrease in regional price dispersion.

More detailed evidence on regional differences in prices for essential services is contained in Table 4. Based on this more limited sample of regions, price increases for rents and utilities tend to be nonsynchronous across regions. In contrast, other utility prices such as electricity and telephone service are set centrally. Overall, since early 1994, the share of housing services in household budgets has increased, corresponding to a much more rapid growth in rents and utilities prices.

4. Official versus market prices

An alternative way to measure price convergence is to examine the evolution of the margin between market prices and prices in state retail outlets. As price liberalization proceeds, this margin is expected to disappear. Based upon a limited sample of commodities taken at the end of 1990, black market prices for food items were on average three times higher

¹Underlying data used to compute the average coefficients of variation are contained in Table A5 of the Statistical Appendix.

Table 4. Kazakhstan: Rents and utilities prices in percent of the level in Almaty 1/

	Jan. 1, 1992	June 1, 1992	Nov. 1, 1992	Feb. 1, 1993	Feb. 1, 1994	Feb. 1, 1995
Ust-Kamenogorsk						
Rent	132	132	132	167	200	283
Heating	100	100	100	100	100	600
Hot water	33	66	66	66	67	444
Cold water and sewage	40	40	40	40	39	99
Gas	260	186	126	126	175	120
Radio-socket	100	100	100	100	100	103
Antenna	100	100	100	100	100	100
Electricity	100	100	100	100	100	100
Telephone	100	100	100	100	100	100
All	99	119	104	111	114	128
Karaganda						
Rent	132	132	132	4	550	291
Heating	150	150	150	150	133	190
Hot water	54	107	107	107	113	570
Cold water and sewage	146	146	146	146	139	85
Gas	267	190	142	141	234	145
Radio-socket	100	100	100	100	100	103
Antenna	100	100	100	100	100	100
Electricity	100	100	100	100	100	100
Telephone	100	100	100	100	100	100
All	117	136	121	109	149	124
Kustanay						
Rent	132	132	6000	200	200	377
Heating	244	244	244	244	233	583
Hot water	47	94	93	94	97	743
Cold water and sewage	220	220	220	55	217	80
Gas	100	100	100	100	100	23
Radio-socket	100	100	100	100	100	103
Antenna	100	100	100	100	100	100
Electricity	100	100	100	100	100	100
Telephone	100	100	100	100	100	100
All	120	128	214	137	118	113
Semipalatinsk						
Rent	132	132	132	88	400	1225
Heating	233	233	233	233	233	533
Hot water	63	126	126	126	127	1359
Cold water and sewage	110	110	110	110	111	37
Gas	260	186	133	133	245	218
Radio-socket	100	100	100	100	100	103
Antenna	100	100	100	100	100	100
Electricity	100	100	100	100	100	100
Telephone	100	100	100	100	100	100
All	130	148	129	134	150	192
<i>Memorandum item:</i>						
Rents plus utilities in Almaty in percent of average wage 2/	6.6	4.3	5.1	8.5	7.1	22.7

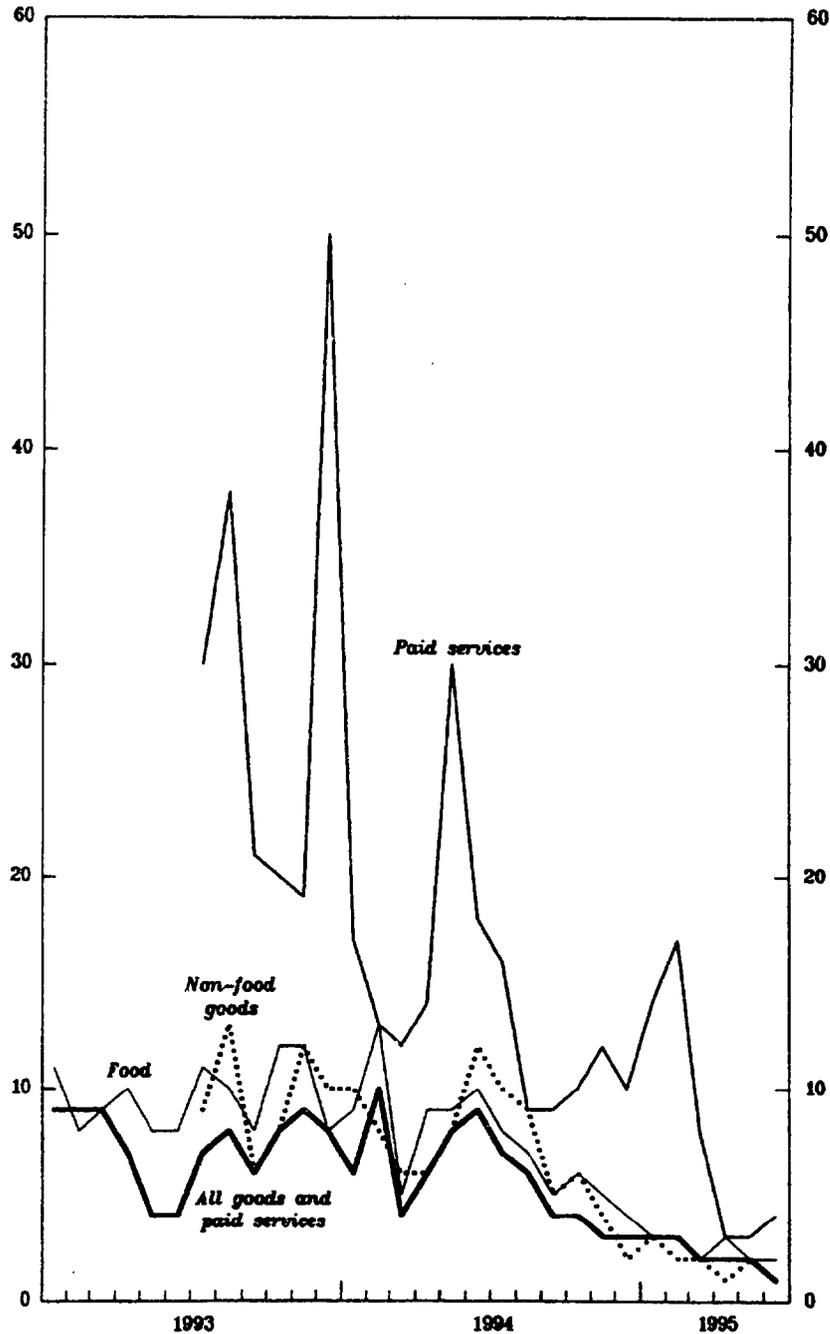
Sources: Goskomstat; and authors' calculations.

1/ Based on rates for a three-room apartment of 64 square meters for a family of four.

2/ National average wage.

Chart 6. Kazakhstan: Coefficient of Variation of Regional Consumer Price Inflation Rates, January 1993 - June 1995¹

(In percent)



Source: Goskomstat.

¹Coefficient of variation based on data from 20 regions in Kazakhstan: Akmolinskaya, Aktuibinskaya, Almatinskaya, Atyraskaya, East-Kazakhstan, Zhambilskaya, Zhezkazghanskaya, West-Kazakhstan, Karagandinskaya, Kyzyl-Ordinskaya, Kokchetavskaya, Kostanayskaya, Manghitauskaya, Pavlodarskaya, North-Kazakhstan, Semipalatinskaya, Tallykorgansdaya, Turgayskaya, South-Kazakhstan, and Almaty-city.

than the official prices, while nonfood products could be four times more expensive (Table 5). From 1992, Goskomstat data on a basket of 8 staples (beef, vegetable oil, milk, eggs, potatoes, fresh cabbage, onions, and carrots) indicate that market prices were still 30-40 percent higher than state outlet prices during the period January 1992 to mid-1993. The temporary reintroduction of price controls at the time of the currency reform in November 1993 raised the margin to more than 160 percent by the end of the month. By the end of December 1993, the price difference had dropped to less than 80 percent, and, following the removal of the temporary controls, by April 1994 it had returned to its pre-currency reform level of around 20 percent. By Summer 1994, the market premium had virtually disappeared, and prices in state outlets and in the market have remained more or less in line from then on.

V. Price Level Comparison to Russia and the Kyrgyz Republic

A final issue we consider is the extent to which prices in Kazakhstan have converged to levels observed in Russia and in the neighboring Kyrgyz Republic. Table 6 shows the prices in Almaty, the capital of Kazakhstan, of a basket of food and nonfood goods and that of its food component alone as a percentage of the price of the same assortment in Moscow and in Bishkek, the capitals of Russia and the Kyrgyz Republic, respectively. It appears that in March 1992, shortly after the liberalization measures of early 1992, prices in Almaty and in Bishkek were virtually the same, and well below those recorded in Moscow. This discrepancy presumably reflected a lag in the removal of price subsidies and the traditional higher price level in the capital of the former USSR. Subsequently, and with the exception of April 1994, the price level has been higher in Almaty than in Bishkek and lower than in Moscow. The gap with respect to Moscow, however, became narrower during 1994 and 1995.¹

Based upon an alternative basket of 19 staples analyzed in De Masi and Koen (1995), by end-1994, the price of the basket in Kazakhstan stood at around the level on average across Russian cities and at about 30 percent of the U.S. level.

¹The April 1994 observation is an outlier; the tenge had depreciated sharply following the clearing of interenterprise arrears and domestic goods prices had not yet caught up with the exchange rate drop.

Table 5. Kazakstan: Ratio of Black Market to State Outlet Prices, December 1990

Food products

Meat	390 - 500
Tea	200 - 330
Coffee	200 - 420
Vodka	280 - 330
Cognac	170 - 240
Wine	200 - 250
Champagne	180 - 380

Clothing

Woman winter coat	200 - 400
Night underwear	200 - 400
Man winter shoes	200 - 700
Woman winter boots	200 - 770
Woman slippers	220 - 570

Cars

Vaz	330 - 670
Muscovite	260 - 420
Zaz	210 - 600
Gaz	300 - 600

Source: Goskomstat, Report on the Socio-Economic Situation in Kazakstan in 1990.

Table 6. Comparison of Goods Prices in Almaty, Moscow, and Bishkek

(Almaty price in percent of price in Moscow or Bishkek)

	March 1992	October 1992	April 1993	December 1993	April 1994	October 1994	April 1995
<u>Food and non-food goods basket</u>							
Bishkek	99	97	113	116	77	146	130
Moscow	62	70	81	78	30	96	90
<u>Food basket</u>							
Bishkek	95	108	113	110	74	140	121
Moscow	58	71	81	78	30	89	85
<u>Memorandum item:</u>							
Kazak wage in percent of Russian wage	67	76	75	63	33	78	94

VI. Conclusions

The analysis of price movements in Kazakhstan during the transition process has illustrated how the country's relative prices and overall price level have moved closer to those in market economies, while price variability and regional price dispersion have diminished. Three characteristics of the price liberalization and convergence process in Kazakhstan can be highlighted.

First, the decontrol of prices has been piecemeal, with an initial period of rapid progress followed by phases of stagnation and even reversal. The last series of price liberalization measures was taken nearly three years after the major January 1992 price decontrol. The piecemeal manner in which prices were liberalized in Kazakhstan is reflected in a steady change of relative prices and a high level of relative price variability over a prolonged period of time.

Second, price liberalization and convergence and macroeconomic stabilization were inter-related, as illustrated by four key episodes. Price reform stalled when more expansionary fiscal and monetary policies were adopted from the second half of 1992 on. A partial rollback of price decontrols was among the measures introduced to stabilize the new currency after its introduction in late 1993. The convergence of Kazak prices towards market-determined levels was reversed when the exchange rate sharply depreciated in early 1994 following a credit expansion to clear interenterprise arrears. Finally, price reform resumed against the background of tighter monetary policies and a downwards trend in inflation from the Spring of 1994 on.

Third, the process of price liberalization and convergence is not yet completed. Prices of energy products and of many, mainly energy-based, services in Kazakhstan are still below the levels in industrialized market economies, notwithstanding sharp increases in relative domestic terms. The relative price of services will continue to increase substantially in the coming years. As prices of services are adjusted at the regional level in a non-synchronized manner, regional price dispersion for services will remain high. More generally, the domestic overall price level in Kazakhstan is still below the level prevailing in industrialized countries.

Table A2. Kazakhstan: Inflation Rates for Goods and Services, 1991-94 1/

(Year averages, in percent except for cumulative increase)

	1991	1992	1993	1994	Cumulative 1994/90 (times)
All Goods	94.9	839	1,197	2,198	5,458
Food goods	94.6	1,017	1,179	2,246	6,525
Meat and meat products	114.8	1,155	1,236	1,989	7,523
Fish and fish products	114.6	1,100	1,456	2,831	11,788
Butter	112.8	1,755	937	2,351	10,034
Vegetable oil	63.1	1,225	2,806	2,123	13,906
Margarin and margarin products	111.0	1,792	1,678	2,175	16,143
Milk and milk products	96.8	953	1,963	2,699	11,963
Cheese	88.2	1,628	1,562	2,266	12,782
Eggs	96.2	961	1,055	3,006	7,467
Sugar	117.8	1,380	2,723	2,012	19,217
Partices	120.5	1,599	1,132	2,051	9,926
Tea	119.1	792	1,673	1,298	4,845
Flour	176.5	753	1,142	2,024	6,224
Bread and bread products	121.3	464	712	2,784	2,923
Grains and beans	145.8	575	973	1,545	2,930
Miscellaneous products	167.8	1,329	1,085	2,139	10,147
Potatoes	222.6	674	1,306	3,015	10,941
Vegetables	225.2	580	1,739	2,608	11,888
Fruits, berries, and melons	127.9	636	1,576	2,388	6,982
Alcoholic drinks	41.2	1,371	1,011	2,272	5,473
Non-food Goods	95.1	667	1,230	2,130	4,434
Cotton fabrics	97.2	1,190	811	1,891	4,613
Wool fabrics and shawls	116.6	518	616	1,676	1,703
Silk fabrics	109.3	648	868	2,398	3,788
Linen fabrics	136.0	714	794	2,306	4,134
Clothing and underwear	110.0	665	965	1,658	3,805
Fur and fur products	121.6	580	989	2,131	3,658
Knitwear	110.8	731	1,019	1,804	3,734
Socks and stockings products	82.7	921	992	2,208	4,702
Leather, textile and composite footwear	86.1	822	1,213	1,881	4,461
Industrial soap	114.5	1,406	2,108	2,775	20,505
Synthetic detergents	66.7	1,854	1,665	3,581	21,160
Toilet soap	72.2	957	1,909	3,409	12,838
Perfume and cosmetic products	70.6	712	1,303	2,262	4,590
Haberdashery products	82.3	612	1,201	2,009	3,561
Tobacco products	74.0	1,137	1,732	1,652	6,908
Sporting goods	85.8	450	972	3,250	3,670
Radio products	78.2	507	1,556	1,767	3,342
Furniture	105.5	960	1,736	1,718	7,263
Rugs and rug products	118.8	627	1,384	1,462	4,160
Porcelain ware	93.7	819	1,269	1,942	4,977
Glassware	88.2	988	1,356	1,806	5,683
Clocks	65.3	775	1,318	1,799	3,896
Electronic goods	90.5	1,498	2,011	1,534	10,580
Bicycles and motorcycles	83.6	958	1,495	2,559	8,236
Construction materials	97.2	1,013	1,382	2,391	8,100
Jewelry	162.7	383	1,388	2,487	4,624
Cars	65.2	1,419	2,654	1,819	13,270
Paid services	59.1	853	1,839	3,581	10,815
Everyday services	108.1	882	1,887	2,443	10,324
Shoe repairs	123.2	913	2,309	2,196	13,537
Individual stitching of shoes	123.9	1,062	1,290	1,718	6,572
Repairs of sewn articles	154.3	675	1,464	2,392	7,681
Individual stitching of sewn articles	111.1	817	1,837	1,921	7,575
Individual stitching and limiting of knitwear	120.1	828	1,301	1,890	5,680
Repairs of household appliances	107.5	1,139	2,308	2,432	15,999
Repair of furniture	103.7	925	1,707	2,066	8,173
Dry cleaning and dyeing	117.0	1,262	2,004	2,964	19,053
Laundry services	108.1	2,060	2,740	4,651	60,631
House repairs	103.0	1,007	3,395	1,455	12,210
Photographic services	83.5	685	1,863	3,108	9,071
Bathroom and shower services	112.1	1,384	2,238	3,851	29,871
Hairdresser services	129.9	803	1,694	2,557	9,899
Hairstyling and hairdressing	5.1	646	1,880	6,824	9,763
Rents	1.9	1	6,535	15,929	10,945
Payments for housing services (housing construction cooperatives)	-0.4	210	1,572	3,779	2,085
Hotels	73.6	2,201	1,564	2,413	16,786
Dormitories	0.5	1,136	2,533	4,273	14,298
Electricity	0.8	498	1,760	9,002	10,282
Water	9.9	492	12	3,097	233
Gas	0.5	1,899	1,928	6,512	26,943
Central heating	1.1	402	1,223	3,580	2,469
Hot water	1.6	523	1,101	3,067	2,405
Sewers	5.6	512	1,028	3,288	2,470
Trash collection	13.6	635	2,701	7,266	17,238
Culture	71.5	438	1,385	4,816	6,732
Cinema	87.4	508	1,261	4,558	7,217
Videos	17.5	785	1,219	4,640	5,914
Theater	34.5	132	1,235	4,680	1,994
Concert	45.2	252	2,780	3,623	5,370
Circus	32.2	317	1,813	9,053	9,647
Museums and exhibits	54.9	294	1,463	6,402	6,285
Passenger transportation	63.2	870	1,939	3,666	12,158
Car	71.3	819	1,742	4,020	11,942
Trolley	130.7	470	1,918	8,026	11,942
Rail	38.4	482	1,518	6,575	8,494
Tram	134.4	538	1,098	8,662	15,714
Air	53.1	1,929	2,515	2,433	28,567
Communication	31.1	844	737	3,397	3,622
Mail	32.8	1,966	1,832	497	1,855
Telegraph	21.2	922	273	6,583	3,892
Long-distance telegraph	18.1	544	548	4,346	2,190
Urban and rural telephone	67.6	732	1,083	3,972	6,723
Radio	0.0	567	759	3,026	1,791
Legal and banking services	1.7	152	(57)	213	3
Notarial services	0.4	8	(83) 2/	168	0
Legal consultations	26.7	172	675	5,489	1,489
Savings banks services	1.7	31	87	611	18
Kindergarten services	0.0	674	2,560	3,164	6,716
Tourism and excursions	48.7	980	1,806	3,657	12,042
Health resorts	112.9	1,838	2,141	2,257	12,796
Health care services	65.5	1,161	2,265	4,467	22,544

Source: Goshomstat Yearbooks, various issues.

1/ Goods sold in retail trade and city markets.

2/ The price of notarial services was reduced by Presidential decree in 1993.

Table A3. Kazakhstan: Changes in Average Prices for Selected Goods and Services, January 1993 – June 1995

(In percent compared to previous month)

	1993												1994												1995					
	Jan.	Feb.	Mar.	Apr.	May	Jun	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun
Foodstuffs	-	-	-	-	17.8	18.7	23.7	25.4	31.8	37.1	67.8	32.8	32.2	26.0	16.7	28.2	28.6	48.8	18.4	7.3	4.3	23.1	13.8	10.8	8.4	7.8	4.2	3.4	3.1	1.7
Beef	-	-	-	-	24.2	20.2	12.4	23.5	28.5	35.7	57.8	3.8	84.5	30.6	10.9	22.9	41.6	28.6	23.1	5.5	1.5	6.3	4.9	4.6	11.6	11.5	8.2	10.1	15.2	5.3
Lamb	-	-	-	-	18.5	21.8	11.7	31.1	28.0	21.4	40.8	8.7	88.5	33.3	10.6	23.2	30.5	35.3	33.9	6.4	2.1	6.7	5.0	3.2	8.3	6.4	7.8	9.8	13.1	6.7
Pork	-	-	-	-	28.6	15.8	15.0	33.5	33.8	20.6	84.0	5.3	74.9	28.0	10.8	19.1	48.7	27.0	21.6	7.9	7.6	5.4	7.5	4.2	10.1	11.4	5.3	5.7	10.2	9.2
Poultry	-	-	-	-	18.7	13.3	13.2	42.4	28.5	35.5	56.1	18.5	101.3	33.9	16.6	18.7	28.2	21.7	26.9	14.0	8.4	10.0	7.5	7.6	12.4	7.0	4.0	5.3	4.4	3.3
Boiled sausage	-	-	-	-	28.2	9.3	13.6	27.6	37.1	32.9	24.5	18.1	123.7	22.5	10.9	31.5	21.8	35.3	31.6	18.6	4.7	7.6	8.2	2.9	6.4	8.2	5.5	5.6	2.7	3.8
Semi-smoked sausage	-	-	-	-	34.6	12.4	15.0	25.2	43.2	36.8	30.1	17.9	100.2	19.0	11.9	37.3	28.9	40.7	22.3	18.0	6.4	10.5	8.8	2.7	6.2	6.5	5.2	5.4	3.6	3.9
Roast fish	-	-	-	-	17.0	26.0	17.4	11.5	22.3	35.3	37.1	31.9	31.1	33.3	31.7	31.7	27.6	21.9	13.3	23.1	5.3	7.5	4.8	13.1	3.5	2.2	1.8	1.4	1.4	1.4
Smoked or salted fish	-	-	-	-	25.9	14.3	9.9	12.9	14.9	32.2	55.4	51.0	42.0	17.8	32.7	20.9	37.5	12.5	26.1	11.9	11.6	10.5	9.7	12.3	16.0	6.8	2.7	2.4	3.8	2.2
Butter	-	-	-	-	12.5	23.4	8.1	17.9	23.6	37.3	41.4	26.2	94.7	45.2	21.7	28.2	33.9	36.0	8.9	5.6	7.3	11.4	17.4	27.3	30.3	16.0	5.7	0.0	-1.9	-3.5
Vegetable oil	-	-	-	-	32.8	19.5	11.6	28.0	53.8	47.8	48.8	46.2	52.7	16.9	8.8	9.0	17.2	41.9	9.6	14.1	20.9	31.5	18.8	4.2	3.3	1.2	0.7	0.3	0.6	-0.5
Margarine	-	-	-	-	22.5	14.2	10.7	15.1	40.2	28.0	26.9	55.1	88.6	27.5	8.2	5.5	6.1	28.5	15.0	10.4	18.6	24.3	16.9	27.4	12.5	5.9	2.8	0.5	-1.0	-1.6
Milk	-	-	-	-	9.9	32.6	11.9	11.3	24.5	45.1	63.6	11.9	171.8	41.4	14.2	35.0	18.9	41.7	23.5	4.5	-0.7	12.5	35.3	28.9	18.5	12.2	5.2	0.0	-0.6	-3.1
Sour cream	-	-	-	-	18.8	27.2	11.3	18.2	38.8	26.8	60.7	17.1	147.0	45.1	4.5	38.2	20.3	31.8	18.0	7.3	7.1	17.7	16.7	28.4	16.3	11.4	16.2	1.4	-0.8	-2.3
Cottage cheese	-	-	-	-	20.4	17.5	13.7	18.1	12.1	37.7	35.3	18.9	172.0	45.0	15.2	58.3	20.1	53.3	18.8	5.2	7.5	21.4	18.1	28.3	8.6	4.9	3.8	0.5	6.9	-2.4
Cheese	-	-	-	-	9.5	16.0	28.8	17.6	21.6	31.3	43.3	31.4	88.8	29.3	11.3	37.5	27.9	35.6	19.6	5.3	7.3	11.2	9.8	14.6	16.7	13.7	6.2	9.0	5.6	4.9
Eggs	-	-	-	-	7.6	12.0	14.4	14.5	18.3	33.3	78.2	22.2	177.5	44.9	21.8	33.8	13.1	16.2	17.0	6.5	16.5	54.8	23.6	11.0	1.3	-2.6	-4.2	-2.3	-4.3	-
Sugar	-	-	-	-	8.2	3.4	27.1	30.0	28.3	61.6	78.1	12.6	52.5	21.1	21.8	21.2	28.4	7.7	11.8	1.3	2.0	6.0	10.8	8.1	8.9	12.0	4.0	1.0	0.2	0.6
Cocoa	-	-	-	-	22.5	20.9	9.5	27.6	28.9	78.4	68.6	40.9	13.8	13.3	10.0	12.8	23.8	48.2	28.4	18.5	9.8	8.9	17.2	15.1	11.9	6.4	3.0	1.1	1.6	0.3
Tea	-	-	-	-	10.5	3.3	5.1	15.9	7.3	31.0	38.7	27.9	26.4	10.7	26.6	20.8	34.0	47.8	29.5	22.0	11.6	7.2	5.0	4.3	4.4	4.8	2.6	2.3	0.8	2.4
Salt	-	-	-	-	7.6	32.9	8.8	23.0	18.1	25.1	16.2	-6.9	22.6	17.9	28.6	23.1	200.6	186.5	55.9	46.5	4.7	17.1	8.4	13.5	9.5	7.4	6.0	6.0	4.9	3.3
Vodka	-	-	-	-	8.6	27.5	17.4	25.6	41.4	46.3	98.7	44.2	11.7	4.2	12.1	17.3	27.7	17.8	9.8	4.7	7.3	8.1	7.7	2.1	1.8	0.9	-1.8	0.9	0.4	0.7
Portners	-	-	-	-	12.4	22.9	50.6	38.4	27.8	10.6	47.8	68.0	26.3	31.3	18.2	43.5	28.6	57.4	24.5	-12.3	-16.8	-6.1	18.9	18.0	15.5	13.3	4.7	1.9	-0.1	4.6
Oleum	-	-	-	-	8.3	77.6	204.6	40.3	28.3	17.6	37.9	23.7	15.9	17.6	24.8	54.1	120.1	148.8	-5.5	-15.1	-13.3	-14.7	1.2	-2.6	7.6	3.1	1.1	-1.0	2.0	-0.2
Fresh cabbage	-	-	-	-	48.1	4.9	18.1	47.3	-4.5	3.4	78.4	62.4	48.7	42.5	26.5	88.2	28.1	8.1	-3.4	6.0	-31.3	-3.1	38.6	11.2	18.9	20.3	6.0	22.2	9.9	-8.2
Wheat flour	-	-	-	-	5.2	11.3	10.5	24.3	30.5	66.5	24.9	15.9	33.4	35.8	35.0	33.9	36.8	55.4	42.3	18.0	15.6	31.2	24.9	8.4	-4.0	4.7	2.1	1.8	2.0	2.8
Rice	-	-	-	-	9.0	7.6	12.1	17.9	23.9	21.8	68.8	44.9	24.8	22.4	21.6	9.4	27.2	33.1	36.5	27.6	21.9	27.3	38.6	14.2	7.9	9.2	1.5	1.9	1.6	2.0
Semolina	-	-	-	-	9.8	1.3	3.5	1.4	288.8	15.7	88.2	36.1	7.5	26.5	16.1	7.8	24.4	23.4	73.2	26.4	10.5	58.8	53.3	48.2	15.8	17.3	10.0	8.2	4.4	7.5
Buckwheat	-	-	-	-	3.6	9.6	11.4	13.3	64.6	48.9	56.3	38.2	58.8	43.1	18.3	12.2	11.6	19.5	17.2	15.7	10.7	9.9	17.4	11.5	8.1	4.3	6.5	3.6	1.1	4.5
Oatmeal	-	-	-	-	7.7	3.6	9.4	7.5	23.8	6.8	85.3	22.8	3.2	19.8	21.6	24.8	15.0	28.4	43.8	30.2	17.9	38.3	27.7	18.3	12.5	11.9	3.6	20.2	1.3	5.0
Rye or barley	-	-	-	-	9.9	11.3	11.0	8.2	11.4	6.2	53.5	46.4	77.4	35.3	17.0	18.2	22.0	22.5	42.5	188.6	28.7	11.2	13.9	13.4	14.6	11.9	6.9	12.2	3.0	10.3
Millet	-	-	-	-	11.0	6.7	8.7	0.2	186.3	8.9	88.2	80.5	8.1	10.8	6.8	1.8	10.8	20.8	64.3	31.2	13.2	68.7	38.4	56.0	26.5	11.2	15.0	14.5	10.8	9.7
Rye and rye/wheat flour bread	-	-	-	-	4.6	4.6	2.7	2.4	388.8	10.0	238.8	0.0	1.7	3.8	0.0	0.0	0.0	188.4	6.0	0.4	821.3	-1.3	6.2	13.0	14.9	0.0	-0.3	1.0	4.1	3.5
Bread from superior wheat	-	-	-	-	6.5	4.0	3.5	4.0	397.6	13.3	285.2	1.2	1.7	3.8	3.7	6.9	0.5	0.8	208.1	6.5	1.3	612.8	6.8	2.2	10.3	13.7	0.2	2.5	0.8	3.1
Bread from first grade wheat	-	-	-	-	0.0	0.0	0.0	0.0	388.8	8.0	388.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	137.7	4.1	0.8	788.8	8.3	9.2	12.0	12.7	0.9	2.3	2.4	4.7
Spice cakes	-	-	-	-	14.8	14.7	17.6	19.0	41.0	27.6	44.7	58.0	28.9	27.5	33.3	25.6	19.2	30.7	31.2	26.2	5.5	13.2	21.4	17.7	5.5	7.5	4.9	2.5	1.0	2.1
Regular biscuits	-	-	-	-	24.8	14.5	9.6	19.8	27.9	36.1	56.2	58.5	35.7	21.6	12.4	18.8	24.0	48.6	28.0	9.5	7.9	17.4	18.4	15.8	7.5	10.5	4.2	2.3	2.7	1.6
Cakes and tarts	-	-	-	-	20.0	28.0	16.3	16.7	37.4	38.0	46.4	55.5	34.5	51.2	28.0	33.0	16.9	21.4	16.7	28.2	12.7	16.1	24.4	18.7	14.4	5.4	4.3	5.6	0.5	-0.1
Meatmeal products	-	-	-	-	13.8	12.4	28.4	23.3	23.2	18.8	28.5	25.6	47.6	35.4	37.9	22.8	37.1	63.4	40.9	32.7	16.4	9.4	31.7	8.4	4.9	6.5	3.3	1.5	2.7	0.5
Non-food goods	32.7	32.2	33.6	31.5	12.0	9.4	15.4	30.7	28.9	38.1	38.1	35.4	28.1	28.5	19.6	25.5	32.2	30.4	22.5	16.6	16.0	13.6	8.2	6.4	4.4	3.4	2.3	1.8	1.3	
Clothes	23.3	21.8	33.8	22.3	15.1	16.7	11.6	27.4	30.4	44.7	38.2	31.1	27.5	18.5	17.1	24.5	32.3	38.9	28.2	25.0	18.8	18.2	17.0	9.4	7.1	4.3	3.3	2.0	1.5	1.0
Fabrics	15.0	20.6	29.0	24.1	14.9	6.5	10.5	13.0	18.8	33.4	40.8	38.5	27.6	21.0	18.6	24.2	44.7	40.6	29.7	20.6	16.1	14.1	14.3	10.3	6.7	4.5	4.1	2.7	2.2	1.7
Watch	17.4	22.3	22.9	28.2	6.7	12.0	7.3	14.3	22.0	53.4	26.2	46.8	28.4	21.4	14.3	52.0	30.8	34.8	18.7	24.1	15.1	8.8	14.7	8.0	10.0	4.8	3.7	2.7	1.8	1.2
Footwear, including repair	23.8	27.7	25.2	17.5	18.5	16.1	17.6	28.1	42.7	44.0	32.9	19.1	22.0	13.8	13.0	27.5	37.3	61.6	26.3	20.2	20.0	14.7	11.4	7.0	5.4	3.3	3.8	2.1	2.8	1.8
Furniture and carpets	34.9	33.8	30.8	24.4	13.0	16.8	18.4	77.3	26.1	24.0	27.7	31.6	21.6	16.8	14.6	26.8	25.8	43.8	27.0	18.2	10.2	9.8	9.7	7.9	6.2	5.8	3.7	3.1	2.1	1.1
Linen	30.6	35.0	38.5	28.2	10.1	13.0	13.3	26.6	25.9	48.4																				

Table A4. Kazakhstan: Monthly Producer Price Inflation in Industry, 1989-1995

	1989	1990	Jan 91	Feb 91	Mar 91	Apr 91	May 91	June 91	July 91	Aug 91	Sept 91	Oct 91	Nov 91	Dec 91	Jan 92	Feb 92	Mar 92	Apr 92	May 92	June 92	July 92	Aug 92	Sept 92	Oct 92	Nov 92	Dec 92	
Oil extraction	0.0	0.0	76.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	436.4	0.0	0.0	0.0	0.0	104.5	554.0	0.0	0.9	134.3	34.2	13.5	
Oil refining	-0.3	0.3	117.9	1.0	-0.6	0.6	-0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	313.7	154.4	11.2	6.1	6.1	491.2	0.0	0.0	0.0	213.2	82.5	24.2	
Natural gas extraction	0.0	0.0	150.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	200.0	0.0	0.0	0.0	0.0	0.0	0.0	153.3	0.0	0.0	0.0	0.0	
Extraction of coal	NA	-1.3	163.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	441.6	0.0	0.0	0.0	0.9	280.0	0.0	3.9	0.0	205.0	39.7	0.0	
Processing of coal	NA	1.5	143.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	461.5	0.0	0.0	0.0	0.6	290.0	0.0	10.4	0.0	0.0	10.6	0.0	
Extraction of ore	NA	0.6	23.2	49.7	0.9	3.1	-0.8	26.9	17.8	7.6	0.1	2.2	-0.1	-3.4	173.8	36.4	10.5	27.7	6.2	-2.6	57.9	27.1	9.8	-6.7	61.0	-14.0	
Production of ferrous metals	NA	6.9	64.2	27.8	-2.7	1.7	-2.2	3.1	4.9	0.8	0.2	0.9	1.1	7.0	18.9	1525.7	80.3	-6.0	6.6	3.5	0.0	6.0	1.6	-3.7	11.6	18.1	
Electro ferrous alloys	NA	0.0	79.2	10.5	-2.0	-5.3	-1.9	6.0	4.5	-2.3	-0.1	-4.5	2.1	-3.4	493.8	73.5	94.8	1.2	1.5	190.0	12.2	-2.0	3.5	9.3	29.7	4.6	
Lead and zinc	NA	0.0	228.0	24.7	7.5	-2.3	2.4	37.9	7.9	-6.8	1.9	-8.7	36.5	-2.2	783.4	71.0	0.0	6.0	0.0	26.6	39.8	0.0	0.0	60.0	0.0	0.0	
Basic chemicals	NA	-0.9	64.8	-0.6	0.3	-9.9	0.1	-0.5	0.8	-1.7	-1.7	2.4	61.1	54.6	833.6	89.0	29.4	33.0	27.4	25.2	83.1	63.4	18.3	3.0	27.1	9.5	
Fibers and filaments	NA	12.0	74.5	0.8	0.9	-0.7	0.5	-0.9	0.6	-1.0	-0.5	79.6	-3.6	2.7	101.0	33.7	1.1	43.4	0.0	-2.9	145.3	0.0	-5.6	0.0	0.0	16.0	
Synthetic resins and plastics	NA	0.0	57.7	1.7	0.0	0.0	0.0	0.0	30.0	30.3	0.0	0.0	0.0	0.0	663.2	0.0	33.3	50.0	91.3	0.0	0.0	29.3	20.0	44.2	0.0	50.0	
Plastics, glass - fibers	NA	-1.1	49.4	0.0	0.0	26.1	0.7	0.7	0.0	0.7	0.6	90.8	22.7	5.7	1410.6	12.9	0.0	0.4	15.7	1.8	0.0	0.2	2.3	2.4	5.8	0.9	
Varnishing - dyes	NA	13.0	80.1	17.2	11.1	8.8	6.8	1.6	0.0	-0.4	17.2	24.9	24.4	18.6	678.2	-1.7	16.8	0.0	0.0	73.2	0.0	0.0	-0.8	134.7	133.9		
Synthetic rubber	NA	0.0	133.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.6	0.0	0.0	0.0	382.4	102.0	-0.6	29.5	0.7	13.9	34.7	15.7	-16.3	-5.3	-11.9	56.8	
Basic organic synthetic products	NA	8.9	30.7	6.5	9.4	57.7	-0.3	5.2	-10.0	-4.2	4.6	3.6	3.2	6.2	252.2	75.3	109.6	58.7	16.6	-1.9	21.8	11.6	-2.2	31.2	29.7	12.8	
Tires	NA	0.0	90.7	0.0	0.0	0.0	9.7	0.0	0.0	0.0	-3.0	54.9	54.9	301.8	0.0	-5.9	4.1	40.9	16.3	58.8	39.5	-2.8	23.6	109.0	13.3		
Rubber and asbestos	NA	17.0	77.7	15.8	0.0	9.8	0.0	-2.1	0.0	0.4	-0.7	0.0	0.0	0.0	1618.2	0.0	-2.9	0.0	0.0	0.0	0.0	42.3	0.0	0.0	59.2	-7.4	
Metallurgical engineering	NA	1.7	29.4	13.9	8.6	-13.9	-0.7	2.3	2.3	12.2	-5.8	-5.8	16.0	15.2	0.0	423.5	56.7	11.2	-4.4	17.9	17.8	4.4	41.9	0.5	33.8	-3.3	
Fit and mining engineering	NA	7.6	116.7	0.0	27.4	27.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	82.8	16.8	0.3	19.9	0.0	0.0	25.0	0.0	0.0	0.0	0.0	107.0	
Electro technical	NA	4.1	7.2	10.1	13.9	-2.3	5.6	1.1	5.8	1.5	0.6	0.0	0.0	0.0	30.6	570.4	116.8	1.2	-1.4	40.9	0.4	4.7	-1.8	64.7	1.2	0.2	16.8
Chemical and oil machinery	NA	7.6	33.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2355.1	122.5	86.1	67.0	5.9	0.0	18.8	1.4	1.4	48.4	30.2	21.0	
Machinist tools	NA	27.6	41.6	1.3	0.0	8.3	0.4	2.1	-13.1	0.0	2.4	11.9	10.8	10.2	1640.0	57.8	109.5	23.7	4.3	5.6	351.4	11.3	0.0	11.2	0.1	13.8	
Tools	NA	NA	NA	0.0	0.0	0.0	6.8	0.0	0.0	0.0	58.6	0.0	0.0	0.0	71.8	172.0	0.0	0.0	0.0	36.5	0.0	0.0	0.0	0.0	0.0	100.6	
Cars	NA	0.0	0.0	-0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.4	0.0	0.0	633.0	0.0	0.0	57.7	0.0	0.0	67.9	0.0	0.0	10.0	72.7	
Tractors and agricultural machinery	NA	0.9	73.6	6.0	1.3	-3.0	6.0	0.4	2.3	4.1	-1.7	2.9	40.1	39.1	262.7	214.5	3.5	8.3	-2.5	4.4	3.0	37.2	-2.6	38.7	36.9	30.6	
Road construction engineering	NA	6.1	59.6	19.0	0.6	0.7	17.6	3.4	1.6	0.0	-6.8	-0.9	33.6	21.7	148.1	116.1	4.5	3.5	0.0	0.0	0.5	35.9	39.3	36.5	37.6	35.9	
Timber	NA	5.3	26.3	8.8	0.1	2.4	0.1	2.3	-7.7	39.0	1.1	44.4	4.2	2.7	582.6	116.4	31.9	7.4	-2.4	25.9	7.6	-0.1	0.0	3.1	24.9	21.3	
Wood - processing	NA	3.6	26.7	1.2	10.7	5.5	1.9	12.5	26.9	13.3	-0.2	9.1	19.6	12.1	331.9	93.4	53.9	17.4	1.5	3.0	5.1	6.0	19.9	23.1	22.1	53.2	
Sawing production	NA	4.4	30.5	16.4	-0.4	1.1	6.7	2.7	52.0	40.2	3.2	32.9	0.0	-4.7	999.6	129.1	-3.0	40.6	-5.0	20.3	2.5	3.6	-2.9	2.6	53.4	62.0	
Wooden construction details	NA	0.1	26.4	0.1	20.3	-5.6	2.0	74.0	99.1	7.2	0.9	-1.4	12.6	17.0	547.8	17.7	39.2	12.2	6.7	-8.6	3.6	-9.4	17.1	22.6	1.9	89.7	
Production and repair of wooden products	NA	9.3	150.9	0.0	0.0	0.0	0.0	0.0	-13.9	0.0	0.0	8.7	0.0	0.0	-5.8	799.6	15.2	-1.5	1.6	0.0	9.0	0.0	0.0	6.0	0.0	139.4	
Furniture	NA	3.7	8.9	-3.4	12.8	10.2	0.5	1.2	3.8	7.0	-1.6	4.0	29.4	17.3	95.6	48.4	79.4	12.6	2.3	0.4	6.0	11.0	29.7	31.8	18.7	34.3	
Pulp, wood mass paper and paperboard	NA	-1.4	13.2	8.5	0.0	83.6	0.0	0.0	0.0	0.0	24.5	12.1	19.6	0.0	446.5	33.0	-6.1	2.9	1.5	0.0	106.1	-19.5	-0.6	-5.0	0.0	0.0	
Cement	NA	0.1	89.8	38.4	1.1	0.0	0.0	1.6	1.5	0.7	16.1	0.8	3.1	99.9	330.3	9.1	79.0	2.5	0.0	0.0	27.6	29.9	-3.3	0.0	20.3	71.7	
Asbestos and cement items	NA	0.1	134.3	0.1	2.5	0.0	6.4	0.0	0.0	0.0	81.1	3.5	9.4	16.0	298.5	96.9	32.6	22.2	0.5	-1.5	1.2	21.3	1.2	1.6	11.5	28.8	
Soft roofing and hydroinsulating mat	NA	1.4	135.9	-3.7	-1.9	2.5	8.9	-11.9	21.8	5.4	1.1	7.9	0.8	45.8	64.4	64.4	0.0	0.0	0.0	475.5	30.6	11.2	15.5	97.5	28.7	-1.6	
Ferro-concrete and concrete	NA	1.9	40.1	1.9	9.5	0.3	0.0	5.8	18.6	0.4	5.7	5.0	3.8	23.3	256.1	57.9	25.0	17.4	8.8	62.5	13.2	11.3	3.9	23.2	21.2	31.7	
Walls materials	NA	5.6	62.1	78.7	1.1	-1.2	1.0	1.7	0.9	-0.7	2.8	-1.5	0.0	59.1	183.1	53.0	34.8	14.5	28.4	27.3	-1.2	7.2	47.3	0.9	12.0	5.2	
Ceramics	NA	1.7	116.6	0.0	0.0	10.6	0.0	0.0	86.4	0.0	0.0	0.0	0.0	0.0	102.0	201.6	0.0	43.6	0.0	0.0	40.0	0.0	0.0	1.8	27.9	30.0	0.0
Non-ore building materials	NA	1.4	73.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	665.0	1.9	3.6	9.5	30.9	0.2	47.5	42.2	30.5	17.6	10.3	10.8	
Porous fillings	NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.5	0.0	0.0	52.9	18.9	1.9	140.8	2.5	3.9	2.3	3.6	133.1	
Asbestos	NA	2.7	106.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	597.0	0.0	0.0	0.0	54.7	0.0	0.0	0.0	0.0	74.7	0.0	14.9	8.8
Glass	NA	NA	NA	0.0	374.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	204.0	200.0	0.0	0.0	0.0	100.0	33.4	0.0	0.0	0.0	0.0	0.0	0.0
Cotton - cleaning	NA	0.0	212.0	0.0	0.0	0.1	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	150.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.6	10.9
Wood initial processing	NA	2.0	155.8	-2.1	-2.3	-14.9	15.6	9.1	122.4	-0.1	-4.1	-2.3	0.5	-0.8	126.3	-2.2	41.5	-1.1	0.0	48.9	0.0	0.0	18.6	4.6	1.9	-0.6	
Cotton	NA	1.6	36.9	-1.3	9.0	87.1	0.7	0.3	5.5	-7.9	5.0	1.8	0.8	70.3	194.5	1.0	133.1	10.3	2.7	-2.2	-0.1	7.1	-0.4	0.0	32.8	0.7	
Wool	NA	1.8	43.1	17.4	1.0	83.3	2.3	0.6	-0.2	62.3	28.8	2.1	0.1	2.6	193.7	85.9	0.5	-0.6	-0.2	0.5	-0.1	0.0	1.9	3.1	9.7	35.2	
Silk	NA	0.0	121.5	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	31.9	0.0	787.1	11.5	0.0	0.0	0.1	49.8	49.8	25.0	0.0	0.4	0.0	0.0	
Non-woven materials	NA	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.7	11.9	0.0	0.0	200.0	-1.0	19.7	0.0	11.6	13.3	88.3	59.1	30.3	46.9	0.0	0.0	
Knitwear	NA	1.7	44.5	1.2	7.7	9.7	14.6	38.3	1.9	1.7	13.5	4.9	-3.4	1.8	310.5	8.8	58.4	20.9	5.6	17.1	3.2	17.6	9.7	1.8	27.2	13.4	
Felting	NA	7.0	27.5	26.7	6.9	136.0	5.4	3.4	-8.2	0.0	-2.7	5.0	31.7	0.1	NA	-2.5	-1.6	30.8	0.5	0.0	0.0	44.4	2.7	9.4	34.3	-3.5	

Table A4. Kazakhstan: Monthly Producer Price Inflation in Industry, 1989-1995 (concluded)

	Mar 89	Apr 89	May 89	June 89	July 89	Aug 89	Sep 89	Oct 89	Nov 89	Dec 89	Jan 90	Feb 90	Mar 90	Apr 90	May 90	June 90	July 90	Aug 90	Sep 90	Oct 90	Nov 90	Dec 90	Jan 91	Feb 91	Mar 91	Apr 91	May 91	June 91	July 91	Aug 91	Sep 91	Oct 91	Nov 91	Dec 91	Jan 92	Feb 92	Mar 92	Apr 92	May 92	June 92							
Oil extraction	0.0	-0.2	0.0	0.0	2.8	78.3	0.9	6.5	71.0	0.0	0.4	6.2	0.0	465.2	40.1	25.5	89.5	0.3	0.0	14.0	0.0	0.1	71.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	71.9	0.0	0.0	0.0	0.0	0.0	0.0						
Oil refining	-2.7	18.4	-2.5	1.0	74.3	1.1	24.6	8.7	46.8	25.0	112.4	28.0	9.4	132.2	38.7	25.8	125.5	0.0	2.7	5.6	0.1	25.1	2.3	-2.3	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
Natural gas extraction	163.2	0.0	0.0	0.0	0.0	0.0	160.0	0.0	54.6	18.2	129.9	92.2	61.9	159.0	41.3	11.8	6.3	66.4	1.2	15.0	0.0	0.0	25.0	0.0	-1.3	15.7	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Extraction of coal	0.0	0.0	4.2	0.0	76.1	27.2	0.0	24.3	31.1	4.5	102.0	0.0	0.0	171.2	30.4	90.2	43.4	5.1	21.2	31.3	0.0	0.0	25.1	2.8	0.0	0.0	-4.8	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Processing of coal	0.0	0.0	0.0	0.0	35.5	26.2	0.0	0.0	72.7	0.0	0.0	336.4	0.0	0.0	247.3	77.5	72.9	23.3	22.9	0.0	0.0	70.6	0.0	0.0	22.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Extraction of ore	74.0	10.0	5.0	-3.6	13.9	21.5	54.3	22.7	13.6	134.7	24.9	33.6	14.5	45.4	30.9	88.2	45.4	1.5	4.3	0.2	1.0	4.1	4.6	7.7	3.9	-0.9	5.4	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Production of ferrous metals	17.7	11.6	13.4	41.2	30.1	22.1	10.8	18.3	6.5	34.7	31.9	2.1	24.6	39.5	134.7	89.0	35.5	6.3	4.8	4.9	12.3	4.9	1.5	20.5	1.4	1.9	-2.5	-7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
Electrometallurgy	37.3	15.0	-1.8	22.9	1.6	53.0	4.4	13.6	5.6	137.6	4.3	33.0	24.8	30.9	136.8	83.4	-15.1	19.4	192.4	-15.0	37.5	-17.2	23.5	12.1	46.8	-11.0	-11.8	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
L and zinc	6.5	11.9	0.0	64.2	-0.6	0.6	51.9	0.3	-0.1	36.2	23.2	76.6	44.1	130.2	22.6	36.3	19.5	-6.1	4.6	0.8	2.9	0.2	1.8	19.7	22.8	0.6	3.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Basic chemicals	65.1	22.8	12.1	16.5	25.8	21.4	-3.2	14.1	43.8	77.2	53.1	17.9	67.3	32.1	49.3	41.5	30.5	16.7	9.6	9.8	2.5	8.3	10.9	6.9	4.7	4.7	15.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Fibers and filaments	7.6	38.9	0.0	39.5	0.0	17.1	13.6	0.0	74.0	0.0	58.4	0.0	172.4	0.0	159.7	101.9	10.2	26.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Synthetic resins and plastics	37.4	46.0	15.4	2.2	0.0	39.8	0.0	0.0	114.7	31.3	0.0	8.8	55.7	8.7	16.2	178.7	97.7	63.7	-19.0	-21.4	29.0	27.7	16.3	16.0	6.8	19.1	7.8	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Plastics, glass-fibers	32.8	22.0	5.4	-7.9	84.2	1.3	42.8	-10.1	26.9	43.0	0.1	19.5	66.4	104.7	76.5	37.8	0.1	37.6	20.1	13.2	0.0	18.5	0.4	1.1	0.0	0.0	0.8	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Yarns and textiles	114.7	76.3	16.4	9.0	0.0	41.4	109.2	6.7	0.0	28.7	2.6	0.0	243.3	46.3	15.6	88.5	85.1	5.0	0.0	27.4	0.0	41.3	0.0	0.0	0.0	0.0	36.5	42.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Synthetic rubber	10.3	9.6	36.4	19.8	17.3	39.4	38.1	23.8	3.1	90.7	21.7	17.9	36.0	36.7	62.5	77.9	29.0	12.1	39.0	18.4	3.3	2.2	2.1	0.0	12.1	7.5	-8.6	-3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Basic organic synthetic products	16.7	25.1	71.5	-1.5	0.6	12.2	14.3	1.9	9.3	14.6	-0.1	34.7	0.2	188.6	108.4	34.0	35.5	26.7	4.2	7.3	11.0	14.1	20.0	5.9	0.0	0.0	5.7	-0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Tires	40.3	121.4	0.0	-3.5	-12.3	13.5	0.0	45.6	8.8	29.5	4.5	0.0	20.5	85.0	0.0	117.3	0.0	0.0	180.2	84.3	0.0	0.0	8.4	1.5	0.8	80.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Rubber and asbestos	45.2	33.9	-9.3	0.0	0.0	137.5	0.0	0.0	73.9	72.6	11.8	100.0	0.0	70.0	3.5	148.9	37.4	0.0	1.6	25.1	1.5	0.0	0.0	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Metallurgical engineering	37.3	15.9	12.1	-6.8	75.9	71.4	0.5	23.2	79.5	0.5	111.5	0.0	136.9	36.4	106.3	0.6	0.0	0.0	16.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Mining engineering	22.5	54.9	0.0	39.5	19.5	0.0	0.0	-13.8	131.7	0.0	3.8	102.8	3.9	0.0	126.4	0.0	0.0	19.3	0.0	89.1	5.1	20.9	0.0	0.0	0.0	0.0	0.0	51.8	10.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Chemical	14.2	53.2	30.1	0.0	38.6	12.4	2.4	21.8	45.4	85.4	28.7	22.6	66.7	87.1	63.9	28.4	37.4	43.5	11.1	5.9	8.5	11.7	-3.7	9.3	0.1	11.0	2.8	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Electromachinery	63.4	0.0	32.3	23.9	70.3	7.5	23.2	4.7	9.7	8.6	80.8	0.0	23.9	155.0	1.4	0.0	0.0	136.4	30.0	25.8	56.2	29.7	0.0	92.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Mechanics	33.5	31.2	3.7	5.3	46.2	25.4	135.2	0.0	11.4	10.4	12.3	18.1	32.9	46.0	120.0	12.1	64.1	0.0	31.4	24.8	23.4	0.0	0.0	73.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Tools	50.4	37.2	0.0	54.1	48.2	12.2	76.7	0.0	6.2	39.1	163.2	0.0	0.0	49.7	69.2	18.8	6.7	0.0	41.0	5.8	0.0	0.0	41.4	11.2	1.9	1.0	1.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cars	0.0	161.6	67.1	6.0	46.9	0.0	92.3	48.2	0.0	107.1	0.0	20.8	0.0	0.0	30.0	0.0	209.5	0.0	23.7	0.0	0.0	0.0	12.5	4.6	4.0	2.5	2.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tractors and agricultural machinery	66.6	29.3	37.9	14.4	30.0	40.0	28.7	23.5	0.1	28.9	33.4	26.4	90.4	6.1	41.6	165.2	12.9	14.9	1.3	1.7	-6.9	32.8	8.3	9.0	13.6	2.3	1.4	-6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Road construction engineering	30.7	14.1	36.6	11.8	11.5	43.2	36.7	26.7	1.0	24.7	62.0	23.7	146.3	39.9	31.3	33.1	38.6	7.2	-1.0	9.4	7.2	16.0	6.3	6.1	2.2	3.3	1.3	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Timber	28.8	18.8	43.4	38.5	30.7	140.8	54.1	3.4	57.7	11.5	107.7	11.9	17.0	33.5	50.6	60.7	5.8	17.4	18.3	33.5	28.9	0.0	10.1	6.7	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Wood processing	27.9	31.7	33.3	40.6	21.1	62.5	19.8	31.2	29.2	18.3	29.4	33.7	23.6	33.3	40.1	38.7	34.1	20.1	17.0	28.3	19.7	20.8	2.2	7.5	3.5	3.6	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Sawing production	39.7	32.1	37.3	45.1	13.2	154.2	19.7	5.4	11.5	14.9	21.1	24.2	11.8	25.2	38.5	79.3	21.1	2.8	19.7	72.2	44.0	8.1	0.0	1.1	3.8	0.9	0.6	-9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wooden construction details	36.5	20.9	65.2	72.8	22.3	57.5	7.2	24.5	11.4	26.7	17.7	21.5	35.1	18.0	31.9	89.1	60.3	45.1	30.3	1.7	28.7	19.0	0.0	8.1	0.0	0.0	0.0	1.1	0.0																		

Table A5. Kazakhstan: Regional CPI Inflation Rates, January 1993 - June 1995

	1993												1994												1995						
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	
OVERALL CPI	32.9	31.9	33.0	21.4	16.1	17.9	21.8	29.1	29.0	38.2	55.5	34.4	42.6	24.2	17.4	31.8	33.8	45.9	25.4	13.3	9.6	20.1	14.2	10.2	8.9	6.7	5.1	3.2	2.7	2.3	
National average	32.9	31.9	33.0	21.4	16.1	17.9	21.8	29.1	29.0	38.2	55.5	34.4	42.6	24.2	17.4	31.8	33.8	45.9	25.4	13.3	9.6	20.1	14.2	10.2	8.9	6.7	5.1	3.2	2.7	2.3	
By region:																															
Almatinskaya	23.5	29.3	24.4	25.7	23.8	21.4	26.8	20.3	27.3	32.2	64.5	19.6	40.4	16.4	20.2	34.4	29.1	29.6	31.9	14.5	5.6	18.5	12.9	14.0	9.1	8.0	2.6	2.8	2.9	0.8	
Aktobinskaya	44.4	25.3	29.3	22.4	19.8	19.8	20.8	34.4	31.9	31.8	57.5	34.4	47.5	23.1	19.1	29.3	30.4	57.4	29.4	16.7	6.1	13.2	10.3	8.8	6.6	4.1	3.9	3.7	2.7	3.6	
Almatinskaya	27.4	22.6	49.2	16.5	12.9	26.7	33.2	24.6	32.7	37.7	51.2	53.7	35.9	29.5	17.8	28.3	36.6	40.0	23.6	11.4	9.7	24.3	10.1	6.5	9.3	6.6	4.3	5.0	1.4	2.3	
Astana	38.8	33.1	25.3	21.5	13.2	25.8	5.4	37.0	33.0	31.8	47.7	49.9	50.0	21.6	15.9	20.4	40.7	29.8	21.9	17.5	11.9	25.1	10.0	13.0	11.4	10.1	7.1	5.0	5.8	3.2	
East - Kazakhstan	29.7	39.4	23.1	9.2	23.1	21.0	16.1	45.6	30.2	22.2	40.3	32.0	51.8	18.3	26.4	45.5	21.0	48.0	12.1	11.1	5.2	31.5	20.3	7.8	6.6	3.4	3.6	3.6	2.2	1.2	
Zhambilkulskaya	31.4	24.5	21.9	19.5	13.5	15.8	16.9	35.2	20.0	29.1	33.7	35.0	40.1	14.2	24.0	26.5	58.3	42.0	14.5	4.2	7.2	16.5	16.3	5.9	9.8	6.2	3.1	2.3	1.2	2.9	
Zharkayskaya	16.4	35.1	19.7	26.3	21.3	11.2	31.6	13.7	22.6	30.8	53.2	38.1	58.4	41.5	26.1	27.7	26.9	22.6	50.2	35.5	19.4	28.3	14.4	7.9	12.0	4.2	-0.9	0.9	0.4	2.7	
West - Kazakhstan	22.4	40.5	28.5	17.0	18.0	27.7	12.1	14.2	38.1	49.5	64.5	29.8	53.2	27.8	19.5	30.9	47.0	44.7	23.3	11.8	14.8	19.4	10.0	12.2	11.5	6.5	3.3	0.3	1.9	3.5	
Karagandinskaya	22.2	29.3	28.7	17.9	18.8	16.5	15.5	22.9	30.3	47.8	49.1	22.2	44.8	18.1	12.6	28.4	21.7	59.9	21.0	9.5	6.4	20.2	12.4	11.5	6.1	6.1	6.2	2.8	2.1	1.7	
Kyrgi - Ordinskaya	41.3	29.4	27.7	14.9	17.9	16.1	20.3	17.0	42.9	29.9	66.7	36.4	42.1	26.0	19.4	34.5	32.4	46.2	34.3	8.8	14.5	28.6	17.2	10.5	6.6	9.6	5.4	8.0	5.2	1.9	
Kolobayskaya	63.3	38.5	20.9	23.3	12.9	12.1	32.4	15.6	45.8	27.4	62.7	30.4	59.7	13.0	11.8	42.7	51.2	37.6	25.5	9.2	-10.3	24.1	13.1	12.7	8.4	7.1	3.6	1.6	1.7	1.4	
Kostanayskaya	46.8	23.6	49.7	16.2	8.5	25.3	20.3	38.7	28.7	35.4	60.2	48.0	28.0	15.5	11.2	43.4	28.1	27.4	48.6	9.3	11.8	14.9	16.2	9.1	8.4	7.2	3.9	4.0	2.1	2.5	
Mangistauskaya	29.6	60.5	39.2	23.6	19.5	19.3	20.2	47.3	26.8	40.4	29.8	32.2	32.5	65.8	10.6	24.2	54.1	41.6	27.1	11.0	-1.1	20.6	6.7	3.4	6.8	17.3	3.7	3.5	2.0	2.2	
Pavlodarskaya	41.1	36.1	27.5	23.0	8.8	13.7	17.9	18.2	27.6	52.5	47.5	34.9	38.1	21.3	16.7	17.1	31.2	74.9	18.3	8.6	9.9	15.1	17.4	7.4	7.3	7.0	4.2	2.6	3.1	1.8	
North - Kazakhstan	13.6	54.3	34.0	6.3	14.6	14.3	27.9	20.8	20.4	45.0	75.1	41.5	45.3	14.7	16.8	46.3	28.5	47.0	27.8	16.6	7.7	13.1	11.8	10.3	8.8	4.1	4.8	2.7	2.8	1.9	
Semipalatinskaya	43.2	23.0	27.4	46.0	18.0	10.4	38.5	30.5	32.9	69.0	37.7	38.6	46.6	22.6	20.5	23.1	39.2	62.2	18.7	11.5	7.2	13.8	10.8	19.2	6.3	7.5	4.9	3.9	8.3	-1.2	
Taldykorganskaya	49.2	48.0	28.7	27.5	17.8	8.4	17.2	30.4	22.6	37.7	36.3	39.0	37.8	30.2	20.1	26.2	34.5	61.1	25.3	9.4	13.3	23.0	19.7	8.8	11.3	8.3	2.3	3.0	3.2	2.5	
Turgayskaya	46.0	9.0	24.1	39.0	9.4	22.5	22.6	23.0	51.6	42.9	58.3	65.5	49.6	15.2	17.3	27.9	41.5	45.0	35.8	31.9	14.8	17.4	11.5	10.9	12.1	1.7	3.0	2.1	1.6	0.4	
South - Kazakhstan	34.8	21.3	71.4	26.1	5.1	22.4	35.6	44.9	26.2	20.1	55.3	30.0	34.3	20.3	11.7	37.9	49.4	47.4	24.0	13.8	15.2	15.6	13.3	9.0	17.8	8.2	3.3	6.1	0.4	0.6	
Ustary - city	32.6	28.0	40.9	23.6	21.3	17.8	19.1	28.3	25.2	42.1	85.0	34.4	38.3	38.1	15.8	32.9	38.5	42.4	23.6	14.9	9.4	18.9	15.3	12.2	9.9	8.0	6.1	3.8	1.9	3.0	
FOOD	30.3	30.1	28.0	20.6	17.6	19.7	23.7	25.4	31.8	37.4	67.6	32.6	52.2	26.0	16.7	29.2	29.6	49.8	18.4	7.3	4.3	23.1	13.8	10.8	9.4	7.8	4.2	3.4	3.1	1.6	
National average	30.3	30.1	28.0	20.6	17.6	19.7	23.7	25.4	31.8	37.4	67.6	32.6	52.2	26.0	16.7	29.2	29.6	49.8	18.4	7.3	4.3	23.1	13.8	10.8	9.4	7.8	4.2	3.4	3.1	1.6	
By region:																															
Almatinskaya	18.2	22.2	11.9	28.3	34.8	24.0	39.0	12.6	26.5	25.3	79.9	19.0	49.2	17.9	23.6	35.4	20.6	30.4	28.8	7.5	-1.7	24.0	16.0	18.4	9.6	9.7	2.2	2.4	3.2	0.8	
Aktobinskaya	67.3	28.7	27.1	25.4	11.6	22.4	17.5	17.3	41.8	32.5	70.6	26.3	52.3	19.2	19.7	34.5	30.1	67.1	11.0	11.9	0.3	15.4	9.3	8.9	7.9	4.6	2.0	3.7	2.8	3.7	
Almatinskaya	25.0	21.4	39.2	17.1	7.2	25.1	9.2	49.9	36.8	41.6	65.1	56.3	50.9	36.3	11.3	22.5	37.9	38.2	22.0	7.9	5.8	25.2	12.7	7.9	9.1	9.1	5.4	6.2	0.7	2.8	
Astana	30.3	34.8	18.1	14.4	16.7	38.1	9.2	48.6	29.9	30.0	68.4	48.2	62.7	25.9	19.5	15.2	43.4	30.6	15.4	15.3	7.4	26.6	12.9	13.7	9.4	9.4	9.3	5.5	3.4	3.8	
East - Kazakhstan	36.6	50.5	22.3	6.8	22.6	27.3	16.2	41.6	35.8	20.2	44.3	21.9	72.1	18.4	27.2	49.0	12.0	63.0	9.0	4.9	1.6	35.9	21.5	5.2	4.7	3.8	3.7	4.0	2.4	-0.5	
Zhambilkulskaya	34.7	19.2	30.4	14.2	13.4	17.7	14.3	32.6	21.3	25.4	34.7	44.0	55.2	13.7	30.3	22.2	65.0	37.6	7.8	-1.4	5.5	22.6	20.3	5.2	12.9	9.6	3.5	2.9	1.1	1.2	
Zharkayskaya	16.9	32.6	13.8	37.2	25.3	9.0	19.4	10.1	29.7	34.4	72.3	42.2	63.3	46.7	21.0	17.0	24.9	21.2	40.3	16.9	8.9	31.1	5.0	3.2	13.8	6.6	-1.4	0.9	1.4	3.3	
West - Kazakhstan	22.3	41.6	21.9	24.1	17.8	17.9	12.4	7.3	38.3	52.2	66.2	32.9	59.7	19.4	17.6	32.1	51.8	42.7	19.8	2.9	12.5	21.4	9.4	15.5	9.5	6.3	1.8	-1.1	2.6	5.2	
Karagandinskaya	24.7	31.5	32.2	16.4	21.8	14.4	15.3	21.5	33.4	31.2	67.9	19.4	63.6	18.5	12.8	24.5	19.4	62.8	15.2	5.9	3.5	21.5	13.2	12.9	6.0	6.8	6.5	3.2	2.6	1.2	
Kyrgi - Ordinskaya	27.7	36.4	24.8	7.3	12.6	13.4	25.0	10.1	32.9	33.5	108.5	30.0	41.2	27.8	21.0	29.6	33.6	48.2	17.4	6.2	9.8	30.4	14.4	4.3	7.8	13.4	6.1	9.8	7.2	2.0	
Kolobayskaya	71.5	38.0	8.1	35.5	10.2	16.5	46.0	10.4	59.2	25.2	79.1	30.1	71.3	11.6	11.6	49.7	26.9	38.7	25.0	3.0	6.2	33.7	12.1	14.4	10.0	6.5	3.0	0.3	1.8	-0.2	
Kostanayskaya	24.3	25.5	53.2	3.3	6.8	35.5	18.2	30.1	32.0	42.6	76.1	40.7	23.5	19.5	12.2	51.2	23.5	26.4	43.9	0.4	7.2	9.8	4.8	16.9	10.2	8.4	4.6	3.5	2.1	2.8	
Mangistauskaya	27.3	47.0	34.3	24.8	15.8	11.1	12.2	18.1	26.5	69.0	48.2	33.0	24.9	85.6	7.2	22.6	50.0	53.1	30.9	7.0	-9.2	24.3	1.0	1.9	5.9	13.1	3.0	2.3	1.6	1.7	
Pavlodarskaya	32.0	30.4	25.6	24.4	10.1	19.9	11.1	18.8	33.5	54.3	56.6	22.3	50.2	24.6	15.6	13.3	27.7	76.6	10	6.2	2.3	21.5	19.8	5.6	9.3	6.3	4.1	2.4	2.6	0.6	
North - Kazakhstan	12.7	27.6	54.4	1.5	22.1	15.8	26.4	22.5	17.2	64.9	72.1	38.4	42.2	15.7	12.8	48.0	28.8	41.6	23.3	16.7	5.6	10.5	18.1	9.9	10.0	5.6	4.1	1.1	2.3	1.5	
Semipalatinskaya	37.2	18.2	30.4	35.7	26.2	14.8	51.8	28.8	40.4	79.3	32.8	35.0	62.4	30.8	18.9	19.3	32.3	76.9	7.1	6.8	3.6	17.9	10.4	18.1	7.2	9.1	5.8	4.7	10.3	-3.2	
Taldykorganskaya	33.2	29.0	22.4	44.9	29.7	28.8	14.9	32.2	24.9	39.2	42.3	47.2	51.0	34.1	18.8	18.5	36.2	59.4	14.8	-3.4	14.1	29.4	17.7	10.7	13.7	10.4	2.9	3.9	4.4	0.8	
Turgayskaya	50.9	3.3	25.9	25.7	6.9	32.3	25.1	22.0	57.1	42.4	84.6	20.8	75.1	13.7	16.1	15.1	38.9	52.3	20.9</												

References

- Blejer, Mario, "On the Anatomy of Inflation: The Variability of Relative Commodity Prices in Argentina," *Journal of Money, Credit, and Banking*, Vol. 15 (November 1983), pp. 469-482.
- De Masi, Paula, and Vincent Koen, "Relative Price Convergence in Russia," IMF Working Paper 95/54 (Washington: International Monetary Fund, May 1995).
- Fischer, Stanley, "Relative Price Variability and Inflation in the United States and Germany," *European Economic Review*, Vol. 18 (June 1982), pp. 171-96.
- Goel, Rajeev D., and Rati Ram, "Inflation and Relative Price Variability: The Effect of Commodity Aggregation," *Applied Economics*, Vol. 25 (May 1993), pp. 703-9.
- International Monetary Fund, *Kazakstan: Economic Review*, Washington, No. 18, April 1995.
- International Monetary Fund, *Kazakstan: Economic Review*, Washington, No. 5, June 1993.
- International Monetary Fund, *Kazakstan: Economic Review*, Washington, May 1992.
- Koen, Vincent, "Price Measurement and Mismeasurement in Central Asia," IMF Working Paper 95/82 (Washington: International Monetary Fund, August 1995).
- Reinsdorf, Marshall, "New Evidence on the Relation Between Inflation and Price Dispersion," *American Economic Review*, Vol. 84 (June 1994), pp. 720-31.
- Zieschang, Kimberly D., "Methodologies of Price Indices in Transition Countries," IMF Working Paper 95/106 (Washington: International Monetary Fund, November 1995).