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Money, barter, and inflation in Russia

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This paper analyzes relationships among money, barter, and inflation in Russia during the transition period. Following the development of a theoretical framework that introduces barter into a standard macroeconomic model for a small, open economy, we estimate the model using structural cointegration and vector error-correction methods. Our findings suggest that Russian barter resulted partly from output losses, and, to a lesser extent, from the reduction in real money balances. We also find that increases in barter are affected by inefficiencies in the banking sector. Our results imply that increased barter contributed to generating persistent inflation and output decline in Russia. *Journal of Comparative Economics* 32 (2) (2004) 297–314. Sogang University, CPO Box 1142, Seoul 100-611, South Korea; Bank of Finland Institute for Economics in Transition, PO Box 160, FIN-00101 Helsinki, Finland.

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1. Introduction

The transformation of the former Soviet republics and countries in Eastern Europe can be viewed as a transition to a market economy in which money is the universal medium of exchange. Money plays a passive role in centrally planned economies because the allocation of resources for production is driven by planning decisions. Thus, the transition process replaces a plan-based coordination mechanism with a market-based one that should be based on money and price signals. Contrary to this expectation, the Russian economy experienced severe demonetization during 1992 and 1998. Price liberalization in 1992

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appears to have had a positive impact on monetization but reliance on barter increased rapidly in 1994. According to the Russian Economic Barometer (2001), over 50% of industrial transactions measured by volume of total enterprise transactions did not involve money in 1998. Rather, enterprises used monetary surrogates such as barter and inter-enterprise arrears.¹ Interestingly, the demonetization trend reversed suddenly after the financial crisis in the autumn of 1998. By the end of 2000, only about 20% of enterprise transactions were still conducted with monetary surrogates.

Demonetization in Russia differs from classical demonetization occurring during periods of high inflation or hyper-inflation. Demonetization intensified after 1994 as inflationary pressure was subsiding. Following an extremely unstable period at the outset of market reforms, Russia implemented a successful monetary stabilization program in 1995. Nevertheless, as annual inflation fell from 840% in 1993 to 11% in 1997, the share of barter transactions soared from 9% to 42% (Goskomstat, 2001; Russian Economic Barometer, 2001). These observations raise several provocative issues relevant not only to transition economies, but also to market economies.² The macroeconomic causes of the emergence and growth of barter transactions may be related to tightened monetary policy.³ In a slightly different context, Ramey (1992) postulates that a real shock may account for increases in the demand for non-monetary forms of exchange because barter could be used by enterprises having difficulties with production or sales. The Russian experience provides a unique opportunity to test empirically for the causes of barter and the consequences of barter on inflation and output.

In this paper, we analyze money, barter, and inflation in an integrated structural system. Section 2 reviews the related literature on money, barter, and inflation in Russia and offers a brief survey of the key events in the Russian economy during the 1990s. Section 3 develops a model incorporating barter in a standard macroeconomic model of a small, open economy. Section 4 provides the results of empirical analysis based on a long-run cointegration and a short-run error-correction model. Section 5 presents extensions by considering a long-run model that includes a bank-lending channel and by explaining the reversal of the demonetization process after the 1998 financial crisis. Section 6 concludes with some policy implications.

2. Inflation, money, and barter in Russia

The literature contains several explanations of the factors driving Russians to barter. Karpov (1997) and Gaddy and Ickes (1998) emphasize that firms may hide revenues or

¹ Russian barter instruments include the exchange of goods, i.e. pure barter, offsets whereby firms write off mutual debt, and vekseli, which are bills of exchange issued by corporations, banks, or local and regional governments. Nevertheless, pure barter was the dominant form of non-monetary transactions, as Aukutsionek (1998) reports.

² Prendergast and Stole (1996) and Marvasti and Smyth (1999) provide evidence that barter transactions have increased rapidly as well in advanced market economies such as the United States.

³ Meltzer (1960), Brechling and Lipsey (1963), Prendergast and Stole (1996) and Petersen and Rajan (1997) construct theories based on trade credit to support this possibility.

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