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The pass-through to consumer prices in CIS economies: The role of exchange rates, commodities and other common factors[☆]

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ABSTRACT

This empirical study considers the pass-through of key nominal exchange rates and commodity prices to consumer prices in the Commonwealth of Independent States (CIS), taking into account the effect of idiosyncratic and common factors influencing prices. In order to do that, given the relatively short window of available quarterly observations (1999–2014), we choose heterogeneous panel frameworks and control for cross-sectional dependence. The exchange rate pass-through is found to be relatively high and rapid for CIS countries in the case of the nominal effective exchange rate, but not significant for the bilateral rate with the US dollar. We also show that global factors in combination with financial gaps and commodity prices are important. In the case of large rate swings, the exchange rate pass-through of the bilateral rate with the US dollar becomes significant and similar to that of the nominal effective exchange rate.

1. Introduction

The Commonwealth of Independent States (CIS) countries, a group of twelve former Soviet republics,¹ provides an interesting and topical, but relatively little studied object for examining exchange rate pass-through (ERPT). We concentrate only on seven of them (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Russia, and Ukraine) due to data limitations. During the early 2000s, the CIS countries enjoyed high economic growth combined with relatively high, but slowing inflation. For the most part they maintained inflexible exchange rate policies. Many CIS countries were hit hard by the global financial crisis and since then have experienced substantial fluctuations in their exchange rates followed by rising inflation. Given that some CIS countries recently shifted to inflation targeting in their monetary policy (Armenia in 2008, Georgia in 2010 and Russia in 2014), and several more are planning the shift, policymakers stand to benefit from an improved understanding of the magnitude and timing of effects on prices from exchange rate changes.

The importance of ERPT in CIS inflation trends has been established in a few previous studies, but literature on the topic is still relatively scarce, especially concerning cross-country ERPT analyses. Although there are obvious limitations related to estimates based on historical data during a regime shift or otherwise exceptional event, establishing baseline estimate as solid as possible can in

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¹ Ukraine and Turkmenistan have never been formal members. Georgia canceled its membership in 2008.

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any case help to assess also the current situation. Therefore, our aim is to providing up-to-date estimates for exchange rate pass-through to the consumer price index (CPI) in CIS countries. To accomplish this, we apply a novel methodology and control for a wider range factors than those mentioned in the literature. In particular, we try to disentangle the impact of common global factors and spillovers in CIS consumer price trends.² To our best knowledge, this is the first such study of CIS countries. Due to their geographic proximity, strong economic links and similar institutional legacies, common factors and spillover effects can be expected to play a significant role in CIS ERPTs. As some CIS countries depend on oil and other commodity export income and others rely heavily on imported energy, they all are also highly vulnerable to changes in global commodity prices. As we want to account for the effects of both idiosyncratic and common factors influencing the consumer prices in the CIS economies, the short time span of the available data limits the use of traditional VAR approach. Thus, we use a factor panel framework instead of the traditional VAR approach seen in earlier research.³ For our panel estimation, we use a mean group (MG) estimator augmented in a way that takes into account the heterogeneity in the coefficients across individual countries and also corrects for the presence of cross-sectional dependence (serial correlation in the idiosyncratic errors).

Recent developments in the CIS countries include episodes of strong devaluation, so we also examine for possible asymmetries related to ERPT. As there is currently no similar research in a cross-country setting for the CIS countries, our results provide novel insights into this issue. Moreover, they improve the relevance of our results for the current discussion of ERPT in CIS countries.

We find that exchange rate pass-through is still relatively high and rapid in the CIS countries. When the nominal effective exchange rate index declines by 1%, the consumer price index increases by 0.12–0.13 % over the next quarter. This effect is quite robust across a variety of specifications and time periods. The pass-through effect roughly doubles after two quarters, and rises to about 0.5 % after four quarters.⁴ Common factors and the financial gap also seem to be important in consumer price trends of the CIS countries. Finally, we present evidence of an asymmetrical effect in case of exchange rate *vis-à-vis* the US dollar.

The paper is organized as follows. Section 2 reviews earlier literature on the topic. Our theoretical framework is presented in Section 3. Our empirical methodology and data are described in Section 4. Section 5 provides our estimation results and discussion for the implications of the results. Section 6 concludes.

2. Literature review

Exchange rate pass-through is defined as the elasticity of local currency prices with respect to the exchange rate. It first affects import prices (Stage 1 ERPT), but then can be passed on to producer (Stage 2 ERPT) and consumer prices (ERPT overall). Normally ERPT should decline along this pricing chain. Assuming markets are perfectly competitive, prices fully flexible, and the law of one price holds, ERPT should be complete (i.e. the import price elasticity w.r.t. exchange rate should be one) and immediate. Deviations from the benchmark situation can cause the pass-through to be incomplete (elasticity less than one) or at least gradual.

The most common theoretical framework applied in depicting the frictions related to ERPT comes from the pricing-to-market literature developed by e.g. Krugman (1987), Knetter (1989), and Feenstra et al. (1996). In this framework, exporting firms maximize profits by setting their export prices subject to the competitive conditions they face in foreign markets. With some monopoly power, firms can price discriminate across countries, letting their profit margins rather than foreign currency prices fluctuate in response to changes in exchange rates. Adjusting mark-ups gives firms the possibility to ensure a stable market share. Other frictions that can prevent complete and instantaneous pass-through include trade costs such as transport costs, tariffs, and other trade barriers (Obstfeld and Rogoff, 2000) and price stickiness (Devereux and Yetman, 2002; Burstein et al., 2003).

Empirical studies show ERPT is usually incomplete and gradual. Pass-through is highest for import prices and lowest for consumer prices, which include most non-tradables that are unaffected or are less affected by exchange rate changes. Cross-country variation in pass-through is high. Many studies point to higher ERPT in emerging economies than in advanced economies, although it could be that this only reflects differences in the level of inflation between countries (Aron et al., 2014). In any case, the vast body of empirical literature on ERPT mainly deals with industrialized countries. A survey of literature examining ERPT in emerging markets (Aron et al., 2014), finds quite heterogeneous ERPTs, especially at the country level, and that the comparability of results is hindered by differing methodologies and assumptions used in estimations. The authors suggest that the wide variety of ERPT estimates may be due to methodological deficiencies in earlier research as well as a lack of appropriate control variables. Cross-country studies of CIS countries on the subject are rare. The most relevant results to this study are presented in Table 1. Roughly speaking; we can say ERPT in emerging markets, for a 100% changes in the exchange rate, has been in the range of 5–20 % after one quarter, 20–30 % after four quarters, and 30–50 % over the longer term.

Despite the paucity of papers and varied results of earlier literature on CIS countries in particular, there are indications that the ERPT might be slightly higher for these countries than other emerging markets. The first cross-country comparison that included several CIS countries, Korhonen and Wachtel (2005), estimates VARs for consumer prices in several emerging markets for the period 1999–2004. Their results suggest that exchange rate pass-through is high and relatively rapid in most CIS countries, but there is large heterogeneity among countries. Exchange rate pass-through is also found to be higher in many CIS countries than in other emerging markets, but some of coefficients are of the wrong sign or implausibly high. As these problems seem to be associated mainly with oil-

² The common factors here are key and may be related to global crises or other factors which may influence all the countries and partners (i.e. strong cross-sectional dependence).

³ A VAR setup is provided as a robustness check.

⁴ In the rest of the paper we will report ERPTs to a 100% change in the exchange rate.

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