Volume Title: Commodity Prices and Markets, East Asia Seminar on Economics, Volume 20

Volume Author/Editor: Takatoshi Ito and Andrew K. Rose, editors

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-38689-9
ISBN13: 978-0-226-38689-8

Volume URL: http://www.nber.org/books/ito_09-1

Conference Date: June 26-27, 2009

Publication Date: February 2011

Chapter Title: Comment on "Pass-Through of Oil Prices to Japanese Domestic Prices"

Chapter Authors: Donghyun Park

Chapter URL: http://www.nber.org/chapters/c11882

Chapter pages in book: (190 - 194)

interpretations based on careful empirical examinations that are conducted over time and along the downstream of various products, using VAR, TVP-VAR, and I-O table analyses. This chapter has a huge potential to serve as material for policy discussions. Here I would like to add one suggestion for future work, probably for a completely new paper.

The authors could enrich the chapter, for example, with more in-depth analysis on Japanese firms' reaction to a supply shock based on figure 5.5. This figure shows very interesting facts: the responses of CPI-G(M) (CPI for manufacturing good) to an oil price shock at the end of sample period of 2009 are larger than responses of other intermediate products' prices. On the surface, this is not consistent with a presumption of a declining pass-through rate along with the product downstream. Usually, the pass-through rate from oil price shocks becomes smaller as weights of nonoil components (intermediate goods and nonoil items) in a price index become larger. And it is apparent in figure 5.5 that, until 2008, the pass-through rate becomes smaller for a price index of downstream products. However, only for 2009 estimations, the pass-through rate of CPI-G(M) shows a bigger jump than that of other "upper" stream price indices. Why? One possible story is the Calvo pricing; prices have been adjusted first at the retail sales level because of the uncertainty in the oil price movement in early 2009. It was unpredictable at that time how long the oil price surge would continue and to which extent the price would increase, so manufacturing industry/retail sectors did not incorporate this external shock into their prices for a while, otherwise they would lose price competitiveness (given that other firms and shops did not raise prices). However, as the oil price hike continued, these shops and firms had incurred losses and, finally, attempted to absorb this external shock by price changes. This drastic price change could have been reflected more sharply in the retail levels. So, one of the extensions of this chapter could draw implications about Japanese oil-related companies' behavior by examining reactions to an unperceived and (believed) temporally oil price shock—probably by passing it on to consumers.

Comment Donghyun Park

I read this chapter with a great deal of interest because in 2008 I wrote a joint paper on the pass-through of the global oil and food price shocks to domestic consumer prices in nine countries in developing Asia: namely, China, India, Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand, and

Donghyun Park is principal economist in the Economics and Research Department at the Asian Development Bank.

Vietnam (Jongwanich and Park 2008). We estimated a vector autoregression (VAR) model and applied a recursive Cholesky orthogonalization to identify the primitive shock in the VAR. This approach is used to model the dynamic interrelationship between the price variables in the distribution chain. The ordering and choice of variables is motivated by the idea that prices are revised at each of three different stages (i.e., imports, production, and consumption) which together make up a stylized distribution chain of goods. The model controls for external shocks and aggregate demand pressures. The model was based on McCarthy (1999), Bhundia (2002), and Duma (2008), but was extended to include food prices.

The central finding of our paper was that in developing Asia the pass-through of global food and oil price shocks to domestic prices has been limited. While there are differences across countries, the clear overall pattern is that consumers bear the cost of only a relatively small part of the increase in global food and oil prices. Our analysis implies that the various obstacles to pass-through have been strong enough in the case of developing Asian countries to seriously dilute the impact of global commodity prices on domestic inflation. In particular, the fuel and food subsidies provided by many Asian governments create a sizable wedge between global market prices and domestic prices. Furthermore, our results suggest that Asian producers are reluctant to pass on higher input costs to consumers, at least in the short run. In short, government policy and producer behavior can explain the limited pass-through in Asia.

Turning to Shioji's and Uchino's chapter itself, I thought the it was well-organized, well-written, and rigorous in terms of its empirical methodology. In particular, the major strength of the chapter is that it uses two types of analyses that complement each other very well to answer two central questions—whether there has been a significant change in the extent to which oil prices are passed through to domestic prices and, if so, what is the underlying driver of that change. First, the authors estimate a VAR model to evaluate how the pass-through rate of oil prices has evolved over time and further estimate a time-varying parameter VAR (TVP-VAR) model. The issue of central interest is whether the pass-through of oil prices to domestic prices has declined over time, and the authors' evidence clearly indicates that it has. Second, the authors look at predictions from input-output tables to study how the changing cost structure of Japanese firms affects the decline in the pass-through. A comparison of the TVP-VAR results and the I-O analysis results indicates that structural change in the cost structure explains much of the decline in the pass-through. The changing cost structure is, in turn, due primarily to the cost of lower oil prices rather than a shift from oil-intensive technology to a less oil-intensive technology.

Another major contribution of the chapter is that, in terms of the underlying sources behind the decline in the pass-through of oil prices to domestic prices, it disentangles the responsiveness of the prices of oil-related products

to oil prices from increases in the share of nonoil-related products. To do so, the authors collect price data on highly oil-intensive products and examine the responsiveness of their prices to oil prices. For example, if the prices of the oil-intensive products do not respond at all to oil prices, then a higher share of nonoil-related products is likely to explain the decline in the pass-through. Plastic is a classic example of an industry that uses oil as a raw material. An additional advantage of plastic exploited by the authors is that it involves several stages of production, from crude oil to intermediate petrochemical goods to final plastic goods. Oil intensity declines with each additional stage of processing, so pass-through should be greater for products from earlier stages than later stages, and this is indeed what the evidence suggests. At a broader level, the evidence indicates that the pass-through for oil-intensive products has declined over time, just as it has for aggregate prices. This implies that the lower pass-through of aggregate prices is driven to a large extent by lower pass-through of oil-intensive products rather than smaller share of oil-related products.

I would now like to make a few constructive suggestions for improving the chapter. First, while I realize that the central objective is to analyze the evolution of oil price pass-through over time, a discussion of the pass-through coefficients themselves would be useful and interesting. As it stands, the chapter fails to provide any interpretation or discussion about the magnitude of the estimated pass-through coefficients. In particular, are the estimated pass-through coefficients in Japan relatively high or low in the international context? That is, are those coefficients higher or lower than the coefficients for other countries reported in the literature? In particular, is the pass-through higher or lower than in other countries? A comparison with other developed countries, in particular the United States, and other oil-importing Asian countries would be especially illuminating. To the extent that the pass-through in Japan is noticeably high or low in the international context, a discussion of the underlying explanation would be instructive. My conjecture is that Japan's pass-through is relatively low due to superior efficiency in use of oil.

Second, the chapter would do well to provide a more in-depth discussion of the impact of government policies on the pass-through. In the case of developing Asia, the presence of sizable government subsidies goes a long way toward explaining the limited pass-through of global oil prices to domestic consumer prices, even in the face of oil shocks which has led to sharp escalation of oil prices. The authors rightfully point out that in the case of Japan the tax system exerts a major negative impact on the pass-through of oil prices to domestic prices, but the authors can perhaps provide some quantitative estimates of the reduction in the pass-through due to the tax system. Also, some discussion of the differential impact of the tax system on producer prices and consumer prices is warranted. Some oil-related

products (e.g., gasoline), may be used primarily by consumers, while others may be used primarily by producers, so that taxes on such products will have a bigger impact on the pass-through to consumer prices.

Third, at a general level, it would be better to distinguish more clearly between aggregate producer prices and aggregate consumer prices in the discussion of results. In our analysis of pass-through in developing Asia, we find that pass-through is significantly higher for producer prices than for consumer prices. This suggests that producers are reluctant to pass on higher oil prices to consumers when they view such higher prices as temporary. In fact, along with government subsidies for consumers, the failure of producers to pass on higher costs to producers is one of the two major reasons for the low pass-through to consumer prices. The study would benefit from exploring the extent to which Japanese producers pass on higher oil prices to consumers.

Fourth, the VAR model used in the empirical analysis fails to adequately control for the other determinants of inflation. Oil prices are certainly a potentially significant determinant of inflation but there are many other potential determinants. In particular, aggregate demand pressures arising from expansionary monetary policy and other demand shocks are not controlled for in the model. The omission of other inflation drivers may compromise the robustness of the main finding—a decline in the oil price pass-through over time. In our analysis of developing Asia, we proxy aggregate demand by the output gap, which is the gap between actual and potential output or the level of output consistent with nonaccelerating inflation. Actual output is real GDP while potential output is proxied by the trend of real GDP, derived from the Hodrick-Prescott filter. Inflation may be subdued due to weak aggregate demand even though oil prices are rising, and this would show up as low pass-through even though there may be no change in the pass-through.

Lastly—and this is the biggest concern I have with the chapter—I am not clear about how the I-O analysis by the authors enables us to conclude that the underlying driver behind the lower pass-through of oil prices is the cheaper price of oil itself rather than substitution between oil-intensive technology and less oil-intensive technology. For one, the authors need to elaborate upon how the striking contrast between panels (A) and (B) of figure 5.9—that is, the nominal I-O table predicts sharp decline in price responsiveness over time whereas the real I-O table does not show such tendency—illustrates that changes in the cost structure were largely due to lower oil prices rather than real substitution away from the use of oil. Intuitively, given Japan's position as a leader in green technology and environmental protection, it is difficult to believe that such substitution did not play a major role in the declining pass-through. Efficiency in the use of oil—that is, the amount of oil required to produce 1 unit of output—would

provide a simple robustness check on the chapter's interpretation of the contrast between panels (A) and (B) of figure 5.9. In particular, a substantial improvement in the efficiency of oil use over time would imply that structural shifts such as the rising share of services in GDP and the shift toward greener technology within manufacturing played a major role in the shift toward a less oil-intensive structure.

Overall, the chapter is a major contribution to the oil price pass-through literature. It is the most rigorous and comprehensive analysis of the extent of the pass-through in Japan at both the aggregate and sector levels. The analysis is enriched by the use of data from both upstream and downstream oil-related products. Nevertheless, it would be further strengthened from incorporating my relatively minor suggestions for improvement.

References

Bhundia, A. 2002. An empirical investigation of exchange rate pass-through in South Africa. IMF Working Paper no. WP/02/165. Washington, DC: International Monetary Fund.

Duma, N. 2008. Pass-through of external shocks to inflation in Sri Lanka. IMF Working Paper no. WP/08/78. Washington, DC: International Monetary Fund.

Jongwanich, J., and D. Park. 2008. Inflation in developing Asia: Demand-pull or cost-push? Economics and Research Department (ERD) Working Paper Series no. 121. Asian Development Bank, September.

McCarthy, J. 1999. Pass-through of exchange rates and import prices to domestic inflation in some industrialized economies. BIS Working Paper no. 79. Basel: Bank for International Settlements.