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The Exchange Rate Pass-Through to Export Prices of Final Products: The Role of Imported Intermediates

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In a world of vertical production structure, characterized by the fragmentation of production across economies, trade economists emphasize the role of trade in intermediate goods when determining the patterns of international trade. In fact, the share of foreign content embedded in Korea's exports (that is, a backward participation of global value chains) is 41.7%, the highest share of foreign content of exports in 2011 among G20 and OECD economies, and a near two-fold increase over the last two decades. In particular, the share of foreign value added in manufactured exports is close to 47%. The high share of foreign value added in Korea's exports indicates that the reliance of imported intermediate inputs to product goods and services is relatively high compared to other developed countries.

This significant use of imported inputs by Korean manufacturing industries has a crucial effect on the exchange rate pass-through on exports. With a relatively high share of imported intermediate inputs in exports, the effect of exchange rate fluctuations on export prices of final goods produced domestically using foreign input is in fact ambiguous. The extent to which the changes in exchange rates affect export prices (and thus export competitiveness and export volume) will depend on industries that vary in their degree of reliance on imported intermediates.

For an industry with a low dependence on foreign inputs (or with an absence of use of imported intermediates), local currency depreciation, other things being equal, makes export prices less expensive for the residents of a counterpart country, making exports more competitive, and in turn resulting in an increase in exports of a country facing currency depreciation.

With the rise of Global Value Chains (GVCs), however, the production of final goods relies more and more on intermediate inputs that are imported, so that the exchange rate pass-through has two conflicting effects on export prices. First, changes in an exchange rate will directly affect firms' margins of trade by adjusting their export prices in terms of foreign currency (direct effect). The appreciation of a local currency, for example, forces exporting firms to increase their export prices in terms of foreign currency in order to keep their profit margins. Second, the exchange rate will influence export prices indirectly via the changes in prices of imported intermediate goods (indirect effect). For instance, the depreciation of a local currency enables exporting firms to lower their export prices, and thus to be more competitive, whereas it forces these firms to raise their export prices in response to the relatively higher costs of imported intermediate inputs. As a result, the direct effect of exchange rate fluctuations on the price of final products that are domestically produced using foreign intermediates can be offset by the opposite effect corresponding to the adjustment of intermediate input prices. In light of these facts, a media message like "good news for exporting firms owing to the depreciation of the Korean won" could convey misunderstandings. In particular, export prices in some industries (or products), where the level of reliance on imported intermediates is relatively high, could go even higher despite the depreciation of the Korean won. In line with the growing importance of imported intermediates (i.e. an increase in GVCs participation), the overall effect of changes in exchange rates on exports could be relatively small compared with the last few decades.

We will of course have to rely on an assumption to come up with the indirect effect of changes in exchange rates, as mentioned above. From an economic perspective, the exchange rate pass-through on export prices depends on the substitutability of production inputs. For instance, the relatively high substitutability between foreign and domestic intermediates may mitigate the high costs of foreign intermediates as a result of local currency depreciation by replacing foreign intermediates with domestic intermediate inputs. However, the elasticity of substitution between imported and domestic intermediates appears to be very small, especially in the short term. With a low substitutability of inputs, the exchange rate pass-through on imported intermediates will be reflected in the export prices of final goods. Thus, positive effects on Korean exporting firms following the depreciation of the Korean won will be mitigated by the higher costs of imported intermediates. Similarly, negative effects of the Korean won's appreciation on Korean exporting firms would be expected to be offset by importing intermediates at relatively low prices, and the overall exchange rate pass-through on export prices is determined by the extent to which exchange rate changes are transmitted to the prices of imported intermediate inputs.

In summary, the exchange rate pass-through on export prices would be relatively small when taking into account the significant use of foreign inputs, and its true effectiveness is influenced by both the reliance on imported intermediates and the substitutability between foreign and domestic inputs, which varies across different industries. KIEP