

C. Challenges in the application of various approaches

28.12. *Heterogeneous product categories in detailed customs records data.* The main drawback in the use of custom records is that product codes, even at the most disaggregated level for which "unit values" can be calculated, often refer to heterogeneous sets of goods, while extensive direct enquiries of firms aimed at controlling for important price determining characteristics in each individual transaction (e.g., terms of sale, timing of contract, and specific model attributes) are normally not feasible. This implies that an increase or decrease in unit values based on averaging values and quantities from customs records may be due to unidentifiable non-price effects which impair the measurement of pure price changes. This is especially the case for complex products like electronic appliances (computers, cellphones, audio-visual equipment), large industrial machinery, etc., which may have heterogeneous units of quantity and price-determining characteristics even at the most detailed level of the commodity classification. Also, data from customs records are usually unsuitable for capturing average price changes of products that experience substantial technological change.

28.13. *Errors in filling customs declarations.* International experience has shown that large differences between the highest and lowest prices (unit value range) for single commodity codes are often due to errors in filling out the customs declarations themselves. For instance, declarants may have difficulties in choosing the correct commodity code, filling in the correct partner country or reporting the correct unit of quantity. To some extent, this can explain the fact that the distributions of unit values are often skewed even at very fine levels of detail (say, the HS eight-digit level).^[2]

28.14. *Simplification of customs declarations requirements.* The compilation of unit-value indices presupposes the existence of administrative and regulatory procedures whereby importers and exporters are required to provide enough details on their individual transactions through customs records or other specific surveys (e.g., the Intrastat system). However, as national authorities move towards simplification or even elimination of customs documents, the relevance of administrative records for statistical purposes may diminish in relative terms.

28.15. *Incomplete coverage and small sample sizes of price surveys.* Survey-based external trade indices require having an appropriate survey frame from which to select a sample of establishments for collection of information on a set of well-defined commodities whose overall price changes are representative of all transactions taking place. The survey frame should be representative of the target population, that is, of all entities engaged in imports and exports of goods. However, the fact that survey frames based on the statistical business registries normally identify only businesses that engage in regular export and import operations can be a source of concern in cases where a significant fraction of total trade is carried out by casual importers or exporters. Also, sample surveys are usually expensive, and consequently sample size is often limited by budget constraints and also the burden on respondents. Having a small sample size may in turn lead to biased estimates and imputations if not adequately controlled within a well-structured and coherent statistical design. Achieving such control is a difficult task in itself.

28.16. *Trade-off between availability and comparability in specifications of price surveys.* Although, in principle, it is possible to produce a highly detailed definition of the characteristics of the products to be priced through surveys, in practice, there exists a trade-off between the level of detail in the specifications of items and the ability of survey respondents to consistently match these specifications over time. As in the case of elementary unit-value indices based on data from customs records, survey-based price indices may also suffer to some extent from not comparing like with like, especially if the specifications of the product varieties being priced are too loose, and shifts in the relative share of different price-determining characteristics remain unknown. These difficulties are compounded by the fact that the total number of transactions per respondent per period of time may be relatively small, making it necessary to collect average prices over longer periods of time instead of prices for individual transactions.

[2] Note that large variance of unit values can imply erroneous declarations as well as heterogeneity in the commodity composition of individual HS codes.