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Price Data Requirements  
for the  
International Comparison Project

(Working Paper prepared by the United Nations Statistical Office)

1. The International Comparison Project has gradually expanded its comparisons of purchasing power parities and real product from ten countries in Phase I, sufficient only for development of methodology, to 34 countries in Phase III which is being completed this year. During the next round of comparisons between 1979 and 1984, the goal of the ICP is to extend full and reduced comparisons to about 80 countries, including as many as possible in ECA. Price comparisons are an essential part of the ICP and particular requirements are discussed below.
2. Prices are compared for final purchases of consumers goods and services, producers durables, construction and government. The prices are for carefully defined specifications chosen from ICP specification manuals for about 1,200 items. It is the national average price of an item that is compared across countries by the ICP. The sampling problems discussed in the Guidelines (No. 59, paras. 73, 74 and 75) for time-to-time indexes must be further amplified for purposes of obtaining national average prices. It is necessary to average prices for the same specification across rural and urban centres using quantity weights. In practice, consumer and producer durable items are mainly sold in a few urban areas so a national average price is not difficult to estimate. For services like rents, food away from home, physician visits and haircuts, and for perishable foods like tomatoes or milk, there are important regional and rural-urban differences to be taken into account. Except for rents, ICP countries have found it possible to make estimates of national average prices on the basis of special price surveys for 30 to 60 items.
3. Countries have usually been able to meet about one-half of ICP requirements for consumer goods prices (200-400 items) from their regular consumer price index collection, one-fourth from small special price surveys, and one-fourth from other sources (other government prices, catalogues, dealers, etc.). In the 1979-84 round of comparisons, it is planned to hold regional ICP meetings where participating countries will choose specifications that will be priced in common, ensuring that enough items overlap the rest of the world so that all regions can be linked. ICP specification manuals for consumer goods are

being revised this year to include more items specific to regions. A number of countries have used ICP items in their own revisions for their consumer price index.

4. In processing the prices, the ICP forms price relatives for each item by dividing the price for each specification by the price in a country chosen as the regional numeraire. Within a detailed category, these price relatives for individual items are aggregated to the category level without the use of weights. The GDP has been divided by the ICP into about 150 detailed expenditure categories, of which 110 are in consumption. Aggregation of categories uses the expenditure weights of two countries in the case of binary comparisons, or of all countries in a region or the world, in the case of multilateral comparisons. The ICP expenditure distribution follows the SNA, except that both private and public expenditures on health and education are treated as one. In the expenditure distribution, only the net foreign balance is considered so separate prices are not required for exports and imports.

5. The amount of expenditure and price detail used in the ICP is large. Half of the 34 countries participating in Phase III are developing countries, including three in Africa. While all these countries were able to meet the ICP data requirements, experiments are planned to determine whether it is feasible to reduce the information sought. This attempt to use reduced information methods is both to extend the coverage to many more developing countries which may find it difficult to provide full information, as well as to reduce the costs of making the estimates for other countries.

6. The most difficult area in consumption for the ICP is house rents. Rents must be related to the physical characteristics (floor area facilities, etc.) of the dwelling units so that price comparisons can be made. Many countries have urban rent surveys for their consumer price survey that can be used for this purpose. However, often rural adjustments are difficult because rural rent data have not been collected. In some countries there is no rural rental market so estimates on the basis of the value of housing must be attempted. Where the urban market for rental accommodation is dominated by public housing,

there are further problems of making adequate rent comparisons. It may be of interest to note that rent, along with autos, is a category for which the ICP has employed regression analysis to facilitate comparisons across countries. From national surveys of rents, a regression equation is estimated explaining rent as a function of variables like floor area or number of rooms, age of dwelling, availability of amenities like electricity, water, plumbing, and the like. A number of common specifications are then set across countries and from each country's rent equation rents are estimated for each. Experiments along similar lines have been carried out for new house construction and certain producer durable items.

7. Producer durable pricing for ICP purposes often involves items like earth moving equipment, lathes, pumps, etc. which may not usually be included in a wholesale price index. After becoming familiar with the ICP specification manual, a number of ICP countries have adopted some of these items for use in their wholesale price index. Once the specifications are in hand, prices for producer durable items are often easy to collect because only a few dealers handle them and price variation is small.
8. Comparisons of construction prices have been particularly difficult partly because construction materials, standards, and practices vary across and within countries. ICP has grouped construction into the broad categories of residential and other construction (roads, etc.).
9. For residential construction, it has been possible to specify a number of houses, some quite simple, and apartment buildings for which ICP countries have been able to estimate construction cost per square meter, often from government sources. While some countries do not require heating in their homes, and others do, adjustments can usually be made for such differences.
10. Non-residential construction includes warehouses, schools, office buildings, hotels, and the like, often difficult to specify in a simple way. For this reason the ICP is moving away from the practice of comparing prices of whole structures. Following the practices in Canada, U.K. and the Federal Republic of Germany, the ICP will begin pricing components of whole

structures, like pouring a cement floor, electric work of a fixed amount, installation of plumbing, etc. By weighting these components, which may number 25-40 in total, a cost per square meter for different types of buildings can be established.

11. By pricing components of construction each year, one can obtain time-to-time indexes of construction costs without costly surveys of whole structures. Further, using base year weights for the components, it is possible to estimate costs of different buildings each year for ICP purposes. The advantage of this method of place-to-place and time-to-time construction cost estimates over methods depending on material and labour input prices is that it takes account of productivity changes.

12. Non-building construction, like roads, can be compared as whole units (e.g. a kilometer of road of given specifications built on a specified type of terrain) or components, like grading or rolling. In the future the ICP will be moving more towards using components of the final product for comparisons. Weights of components in final product must be obtained, though often average weights are known by public works departments or large construction firms. Each country will have to provide estimates for the importance of the different components in different types of construction.

13. Comparisons of government expenditures are divided between those on commodities and those for compensation of employees. In the ICP, price comparisons in other sectors have been used to approximate purchases of government commodities. In Latin America many direct price comparisons have been made for government commodity purchases and in the future the ICP will add some of these items to its specification manuals.

14. For some categories, like education and government, direct price comparisons of output are not possible, so other methods of comparisons must be sought. Government compensation of employees is assumed to produce output proportional to the number of personnel at each of several levels of training. In particular, the ICP compares salaries for certain occupations, like surveyors, card puncher, electrician, truck driver, public health physician, etc., where it is assumed that productivity of a given occupation is the same in all countries,

perhaps as modified by the amount of capital per worker. In education, attempts have been made to base price comparisons on teachers' salaries, as well as to make quantity comparisons based on the numbers of teachers. When quantity comparisons are made between numbers of teachers between countries, the purchasing power parity is derived by dividing the expenditure ratio between any two countries by the quantity ratio. In the case of medicine, use of direct quantity comparisons of medical personnel and hospital bed days have also been used to derive purchasing power parities, while at the same time efforts have continued to also use direct price comparisons for medical service.

15. Many of the price requirements of the ICP are not met in the normal price collection of countries, but most of the additional work can lend itself to the improvement of price statistics within a country. In addition, the ICP requirements focus on regional price differences within countries, which may be an important analytic piece of information for policy and planning purposes. Finally, the ICP provides countries with a comparison of their price structure with those of other countries (for example, the share of investment in GDP is usually overstated in national prices in developing countries compared to its share at international prices), which is a valuable set of data for policy purposes. In the future it is expected that price requirements for the ICP and for other international purposes will continue to come closer to meeting those for national purposes.

16. To illustrate this last point, in future ICP work it is intended to produce annual estimates of purchasing power parities (PPPs). This involves extrapolating base year PPPs, usually at a level of 30 summary or 150 detailed categories of GDP, by relative price changes in numeraire and given country. These price changes are based on national time-to-time price indexes or implicit deflators. In some cases, it has been possible to compare the results of such extrapolations with subsequent new detailed price comparisons between the two countries. In general the results of these two approaches have not been as close as would be desired, and this is an area of ICP work receiving substantial study at the Statistical Office, and also at ECLA and at the Statistical Office of the European Community. The study of why national time-to-time price indexes and place-to-place price comparisons at two points in time do not closely correspond is a priority area of work which should point the way for improvements in the field of price statistics.