Volume Title: International and Interarea Comparisons of Income, Output, and Prices

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Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-33110-5

Volume URL: http://www.nber.org/books/hest99-1

Publication Date: January 1999

Chapter Title: Glossary

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Chapter URL: http://www.nber.org/chapters/c8401

Chapter pages in book: (p. 509 - 515)

Glossary

A modification of the glossary from the Handbook of the International Comparison Programme, United Nations, ser. F, no. 62 ST/ESA./Stat/Ser.F/62 (New York, 1992)

Base-country invariance The index number property that involves the symmetrical treatment of all countries, with the result that the relative index number standings of the countries are not affected by the choice of the reference (numeraire) country.

Basic headings The subdivisions of final expenditure that correspond to the first aggregation of price (or quantity) ratios for individual specifications or items. Basic headings are also referred to as *detailed categories.*

Bills-of-quantity approach The method used to build up the costs of construction projects from the individual modules of activity involved.

Binary comparison A price or quantity comparison between two countries that draws on data only for those two countries. Also called *bilateral comparisons.*

Bridge-country binary comparison A price or quantity comparison between a pair of countries derived from the comparison of each country with a third country. For example, given $I_{j/k}$ and $I_{k/l}$, the bridge-country method of obtaining $I_{j/l}$ is to divide $I_{j/k}$ by $I_{l/k}$, where I is a price or quantity index, and j, k, and l are countries. This is a common way of linking through a *star* country, as in the case of the Group 2 countries in Europe, where Austria has served as the bridge country.

CEP (consumption expenditures of the population) The ICP concept of *consumption* that includes both household expenditures and expenditures of government on such categories as *health* and *education.*

Characteristicity The property whereby the sample of prices or quantities and the weights used in an international comparison conform closely to a representative sample of items and to the weights of each of the countries included in the comparison.

Circularity or transitivity The property of indexes when the price or quantity relation among any two of three countries is the same, whether derived from an original country comparison between them or from the comparison of each country with any third country. In the case of three countries, where I is a price or quantity index and j, k, and l are countries, the circularity test is satisfied if $I_{j/k} = I_{j/l}/I_{k/l}$. When this test is satisfied, there is a unique cardinal scaling of countries with respect to relative quantities and prices.

Comparative price level A comparative price level is defined as the purchasing power parity divided by the exchange rate (see *purchasing power parity*). Expressed another way, the comparative price level for a bundle of goods is its cost in one country as a percentage of the cost of the same bundle in another country when prices in both countries are expressed in a common currency, with the official exchange rate being used for currency conversions.

Country-product-dummy (CPD) method A generalized bridge-country method in which regression analysis is used to obtain transitive price comparisons for each basic heading. The basic data for a given category consist of all the prices available for the various specifications for the entire collection of countries. The basic assumption is that, within a given basic heading for a given country, the price of an item depends in a multiplicative way on a country factor and a price factor to be estimated from the sample of item-country prices in each heading. It follows from this that the logarithms of the prices are regressed against two sets of dummy variables; one set contains a dummy for each specification, the second set a dummy for each country other than the numeraire country. The transitive price comparisons are derived from the coefficients of the country dummies.

Country-reversal test This test is satisfied if, when country i is taken as the base country, the price or quantity index for countries i and j is the reciprocal of the index when country j is the base country. For example, $I_{i/j} \cdot I_{j/i} = 1$, where I is a price or quantity index.

Direct price or quantity comparison Made by comparing for two or more countries the prices or quantities for a representative sample of equivalent commodities (*see also* indirect price or quantity comparison).

ECP European Comparison Programme, the set of ICP comparisons for Europe carried out under the auspices of the Economic Commission for Europe. In the 1980 and 1985 comparisons, the ECP was composed of two parts, the EC countries and a second group, for which Austria served as the center for a set of binary comparisons.

EKS method A multilateral method developed by Eltetö, Köves, and Szulc that computes the *n*th root of the product of all possible Fisher indexes between *n* countries. It has been used at the detailed heading level to obtain heading parities and also at the GDP level. EKS has the properties of base-country invariance and transitivity.

Factor-reversal test The condition that, for any given item, category, or aggregate and for any given pair of countries, the product of the price ratio (or index) and the quantity ratio (or index) be equal to the expenditure ratio.

Final products Products purchased for own use and not for resale or for embodiment in a product for resale; those purchased by households, by government, or by business on capital account.

Fisher, or "ideal," index In ICP work, the Fisher index is the geometric mean of two indexes: one, the harmonic mean of price (or quantity) relatives weighted by the numerator country's expenditures; the other, the arithmetic mean weighted by the denominator country's expenditures. (The more usual definition is the geometric mean of the own-weighted and base-country-weighted indexes or Paasche and Laspeyres indexes as defined below under index numbers).

Fixity The practice of fixing the results of an ICP aggregation for a country group when the country group is compared with a larger group. For example, the relation of France and Italy as given by Geary-Khamis or EKS for the twelve European Community countries would be fixed so that, within the OECD, the France-Italy relation would be preserved.

GCF (gross capital formation) The ICP concept of *gross capital formation* includes fixed capital formation, change in stocks, and net exports. Definitions of these three components correspond to SNA concepts, although the SNA does not include net exports in its definition of GCF.

GDP Gross domestic product.

Geary-Khamis (GK) method An aggregation method in which category "international prices" (reflecting relative category values) and country PPPs (depicting relative country price levels) are estimated simultaneously from a

system of linear equations. Has the property of base-country invariance, matrix consistency, and transitivity.

GFCE (government final consumption expenditure) The SNA concept of *government* that includes public expenditures on education, health, and similar categories.

Group I and Group II countries In the development of the ICP European Comparison Program of the Economic Commission for Europe, the participating countries were divided into two groups. Group I involved the countries that were members of the European Communities, an expanding group. Group II centered on Austria and included various Eastern European countries and Finland, with usually these two countries providing the link with the Group I countries so that a full European comparison could be made.

Hedonic methods Use of regression equations to estimate price as a function of various characteristics of products. The resulting equation can be used to then estimate prices in different countries for the identical values of the characteristics and to thereby permit price comparisons.

ICP International Comparison Project or International Comparison Program of the United Nations.

"Ideal" index *See* Fisher, or "ideal," index.

Identity Specifications where the items compared in different countries are as close to identical as possible, as for the same brand name and model.

Imputed parities The use of parities for one or several basic headings as estimates of the parities for other basic headings where similar items are purchased, for example, parities for books purchased by educational institutions imputed from book purchases by consumers.

Index number formula The following are common index formulas that are often used in a time series but that also have their spatial context. The subscript k is over the items for which there are quantities or weights. The subscripts i and j in a time-series context would be earlier and later year. In a spatial context, i is the base country, and j is the other country. The Laspeyres and Paasche price and quantity index number formulas are given in equations (1)–(4) below. The PLS or Paasche-Laspeyres spread is the ratio between either equation (1) and equation (2) or equation (3) and equation (4) below. The Törnqvist price index is also provided as equation (5), where the w's are expenditure weights that sum to one hundred for each country. Finally, the Fisher quantity index is

given in equation (6), where the ideal or Fisher price index would be the same substituting (1) and (2) for (3) and (4).

$$(1) \qquad L^{p}_{j/i} = \sum_{k=1}^{m} p_{jk}q_{ik} \Big/ \sum_{k=1}^{m} p_{ik}q_{ik},$$

$$(2) \qquad P^{p}_{j/i} = \sum_{k=1}^{m} p_{jk}q_{jk} \Big/ \sum_{k=1}^{m} p_{ik}q_{jk},$$

$$(3) \qquad L^{q}_{j/i} = \sum_{k=1}^{m} p_{ik}q_{jk} \Big/ \sum_{k=1}^{m} p_{ik}q_{ik},$$

$$(4) \qquad P^{q}_{j/i} = \sum_{k=1}^{m} p_{jk}q_{jk} \Big/ \sum_{k=1}^{m} p_{jk}q_{ik},$$

$$(5) \qquad \ln T_{j/i} = \sum_{k=1}^{m} [(w_{ik} + w_{jk})/2] \times (\ln p_{jk} - \ln p_{ik}),$$

$$(6) \qquad F^{Q}_{j/i} = \sqrt{L^{q}_{j/i} P^{q}_{j/i}}.$$

Indirect price or quantity comparison A comparison made by dividing the price or quantity ratio into the expenditure ratio. That is, the indirect quantity comparison between country i and country j for commodity k, q_{ik}/q_{jk}, is obtained from $(p_{ik}q_{ik}/p_{jk}q_{jk})/(p_{ik}/p_{jk}) = q_{ik}/q_{jk}$, where the p's are the commodity prices (*see also* Direct price or quantity comparison).

International dollars Dollars with the same purchasing power over total U.S. GDP as the U.S. dollar in a given year but with a purchasing power over subaggregates and over detailed categories determined by average international prices rather than by U.S. relative prices. Regional comparisons often use other *numeraire* currencies, as the Hong Kong dollar in ESCAP, or a composite, like the ECU in the Common Market.

International price In the Geary-Khamis system, the international price of basic heading i is defined as a quantity-weighted average of the purchasing power–adjusted parities at the basic heading level across the n countries.

Matrix consistency The property that makes it possible to have correct country-to-country quantity relations for each detailed category and, at the same time, to obtain the correct country-to-country quantity relations for any desired aggregation of categories simply by summing the quantities for the included categories. This requires that the quantities be stated in value terms so that (1) the values for any category are directly comparable between countries and (2) the values for any country are directly comparable between categories.

Multilateral comparison A price or quantity comparison of more than two countries simultaneously that produces consistent relations among all pairs; that is, one that satisfies the circular test or the transitivity requirement.

Net foreign balance Difference between exports and imports of goods and services. Also referred to as *net exports.*

Nominal expenditures Expenditures in national currencies converted to a common currency at exchange rates.

Numeraire Usually the currency unit of one country is chosen as numeraire for expressing real expenditures and PPPs. The CPD, EKS, and Geary-Khamis procedures are all invariant as to which country is the numeraire or base. The numeraire may also be the average of a group, as has been the case in the European Community and the African comparisons.

Own weights The weights of the numerator country; that is, the weights of country j in the index I_{jlk}. The term is used, for example, to refer to the weights of the country other than the United States in a binary comparison in which the United States is the base country, k.

PFC (public final consumption expenditure) The ICP concept of *government* that excludes public expenditures for education, health, and similar categories.

PFCE (private final consumption expenditure) The SNA concept of *consumption* that excludes public expenditures on education, health, and similar categories.

PLS (Paasche-Laspeyres spread) The ratio of an index using own-country weights in a binary comparison to an index using base-country weights (*see also* index numbers).

PPP *See* purchasing power parity.

Purchasing power parity (PPP) The number of currency units required to buy goods equivalent to what can be bought with one unit of the currency of the base country or with one unit of the common currency of a group of countries. Also referred to as a *purchasing power standard.* The PPP may be calculated over all of GDP but also at levels of aggregation, such as capital formation.

Quality adjustment Term used to refer to adjustment of prices of items so that they represent a common quality.

Quantity index The quantity per capita of a category or aggregate of goods in one country expressed as a percentage of the quantity per capita in another country.

Quantity ratio The quantity of a particular commodity in one country as a proportion of the quantity of the same commodity in another country.

Real product or real quantity The final product or quantity in two or more countries that is valued at common prices and, therefore, valued in comparable terms internationally.

Regionalization The practice of building up world ICP comparisons on the basis of comparisons carried out in various country groupings like the European Community or the Economic and Social Commission for Asia and the Pacific.

Representativeness A term used to describe how characteristic a particular item is of the types of goods and services included in a basic heading. Also *representativity.*

SNA The UN system of national accounts.

Specification A description of an item for which a price comparison is to be made. The description is designed to ensure that goods of equivalent quality are compared. The terms *item* and *specification* are used interchangeably.

Starred (*) items The practice of assigning or not assigning an asterisk to items according whether the particular good or service is important or not in the country in that basic heading. Starred items are considered important in the basic heading and may be considered an extreme form of weighting. They are used in the following way in European Community and OECD comparisons. In each possible binary comparison within a basic heading, items are included in the Laspeyres comparison only if starred for the base country and in the Paasche comparison only if starred for the other country. Thus, prices of items that are not considered important or representative in either country are not included in that binary comparison.

Transitivity requirements *See* circularity or transitivity.

Unit value When the expenditures or value of production of an item is divided by the quantity, the result is termed a *unit value.* The more narrowly defined the quantity, the closer is a unit value to the price of a specification.