Conference on Remuneration Statistics

eurostat

Structure

Title What is equi-characteristicity and why is it important for spatial cost-of-living comparisons?

Author and Speaker Ian DENNIS

Expertise Senior Expert, Team Leader remuneration statistics for administrative purposes, Eurostat (Statistical Office of the European Union)

Contacts ian.dennis@ec.europa.eu

Abstract The paper identifies the potential bias from using survey items lists which are representative only of one location, and highlights the high quality solution implemented in the calculation of Eurostat correction coefficients.

Keywords Remuneration, Cost-Of-Living, Equi-Characteristicity, Item List, Quality Framework

Luxembourg

9-10
December 2019
European Convention Center Luxembourg

Introduction and statement of the problem

Taking *comparability* for granted, a binary Fisher-type parity can be regarded as a geometric average of prices for products whose *representativity* can be categorised in three ways: "type (1)" items which are representative in both countries, "type (2)" items which are more representative in reference country, "type (3)" items which are more representative in comparison country.

The use of separate consumption expenditure weighting structures for the reference and comparison locations, which is defining feature of the Fisher approach, is a necessary but not sufficient solution. It is also a requirement to examine the item descriptions for which prices are recorded. For the context of this discussion, outlet-type is considered a component of item description.

To the extent that less-representative items might be relatively more expensive locally than more-representative items, there is a potential bias in the resulting Fisher index if the items for which prices are recorded are not equally characteristic of both locations.

For example, suppose the list for a given category includes 14 items altogether, comprising 4 items of representativity type (1), 8 items of type (2) and 2 items of type (3). It is clear that the list for the category is twice as representative for the reference location with 4+8=12 items, as it is for the comparison location with 4+2=6 items. In the given example, there is an upwards bias because the average price of the 14 items measured in the reference location is likely to be relatively lower than the "true" overall average, whereas the average price of the 14 items measured in the comparison location is likely to be relatively higher than the "true" overall local average. Thus the ratio between the two locations will be misstated.

Of course, if the absolute number of items is small, there can be practical difficulties to apply solutions such as calibrating the number of items of representativity types (1), (2) and (3). Excluding items of types (2) and (3) in the foregoing example would mean relying just on the 4 items of type (1). Scaling back the influence of items of type (2) by either arbitrarily excluding some of those 8 items to leave just 2 items (ie. the same number as for type (3)), or applying an adjustment factor to achieve equivalent impact, is considered sub-optimal because it involves a loss of information.

Mitigating solution in the European Comparison Programme

For this reason, an immense effort is made during the item definition phase in the European Comparison Programme. Each survey in the rolling cycle contains around 300-500 item definitions – with the total list comprising around 2,000-2,500 items.

The elaboration and implementation of the item definitions list for each survey takes 6-12 months, and involves extensive preparatory research and analysis inputs from participating Member State national statistics offices and Eurostat. Particularly for fast-evolving areas of consumption such as fashion and electronics, where demand-led and/or supply-led pressures generate rapid change, the most recently updated survey list can share little content with the corresponding list from the previous survey of the same type which was established three years earlier.

Use of specific brand and model item definitions can help achieve comparability, perhaps clustered into high/low/medium consumer perceptions of quality. However many item definitions are generic, in order to achieve necessary degree of representativity. Only those parameters are included in item definitions which are considered to have an impact on the price. A detailed classification of outlet types has been developed to distinguish impact of different service components and environmental factors. A full description of the drafting process is included in the European Comparison Programme manual. Essentially, there are four steps: (a) basic headings are selected to represent broad consumption categories; (b) product groups are then selected to represent the basic heading; (c) items are then selected to represent the product group; (d) specific item descriptions are then elaborated. All of this is done using the best-available market research information.

For example, if market research indicates alcohol is consumed in the ratio 60%:40% wine/beer, this will indicate the relative priorities to be given when drafting definitions. If subsidiary research indicates wines are consumed in the ratio 75%:20%:5% still/sparkling/fortified, this will indicate the proportions with which definitions are to be elaborated. If sub-subsidiary research indicates sparkling wines are consumed in the ratio 90%:10% champagne/other, it is possible effort will solely focus on champagnes. If sub-sub-subsidiary research indicates champagnes are sold in bottle size ratio 95%:5% 75cl/other, attention may solely concentrate on 75cl bottles. If sub-sub-sub-subsidiary research indicates brand market shares in the ratio 80%:20% Moët&Chandon/others, then this may justify a single brand-and-model definition. This analysis is done iteratively at individual country level and multilaterally.

In consequence of this intensive effort, experience over time suggests that a "core list" of type (1) items typically comprises around 75-80% of the total list.

Subsequently, during fieldwork price data collection, a specific effort is made by Belgian and other Member State national statistical offices to cover items on the list which are not nationally representative, in order to facilitate comparisons with other countries.

Conclusions

In the light of the foregoing, Eurostat remains satisfied that European Comparison Programme data allows calculation of high quality correction coefficients.

At the same time, it can be argued that cost-of-living statistics which do not adequately reflect item representativity in both the reference and comparison locations presents an inferior picture of the situation.

References

· Dennis, I (2016), "Methodology manual: Calculation of Intra-EU correction coefficients in accordance with the EU staff regulations", Eurostat, docA6465/14/59rev3, 2016
· Dennis, I (2017), "Methodology manual: Calculation of Extra-EU correction coefficients in accordance with the EU staff regulations", Eurostat, docA6465/14/60rev3, 2017
· Dennis, I (2019), "100 years of theory: why a fixed-basket approach is less appropriate for international cost-of-living comparisons", Conference of Remuneration Statistics, 2019
· Eurostat (2012), "Methodological manual: Purchasing Power Parities", Eurostat, KS-RA-12-023-EN-N