

**COMMENTS BY THE OECD ON INE'S PROPOSED METHODOLOGICAL IMPROVEMENTS  
TO THE TREATMENT OF CLOTHING AND FOOTWEAR IN THE CHILEAN CONSUMER  
PRICE INDEX**

**OECD STATISTICS DIRECTORATE  
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**Background**

1. During several months in 2013, Chile's Consumer Price Index was the subject of public debate, the central question being whether the CPI was understating inflation. One area that caught public attention was prices of clothing and footwear that saw an ongoing and strong decline since 2009 (-40% between 2009 and 2013). In many other OECD countries, clothing and footwear prices have increased - for example by around 10 % in the European Union over the same time period. In June 2013, the Chilean National Statistical Office INE approached the OECD with the request to provide an external view to the methodological changes that INE envisages bringing to the Chilean CPI. INE supplied the OECD with a description of current practices and changes foreseen. The present note reflects the view of the OECD Statistics Directorate concerning these changes. In formulating these views, the OECD consulted also with CPI specialists from INSEE, the French national statistical office whose quick and informative support has been most helpful and is gratefully acknowledged.

**General observations**

2. Before commenting on the individual improvements envisaged by INE, a few general comments are in place. First, clothing and footwear in Chile represents about **5 percent of household expenditure**, a share that is very much in line with that in other OECD countries. While this is unrelated to the question whether the price change of clothing and footwear is accurately measured or not, it indicates how any possible mis-measurement of clothing and footwear inflation translates on the overall CPI, namely with a coefficient of 0.05<sup>1</sup>. In other words, a bias in the price change of clothing and footwear would have to be rather significant to affect the overall rate of inflation. That said, any systematic bias should of course be corrected.

3. Second, any improvements to the clothing and footwear component of the CPI should best be embedded into a **broader development plan for the Chilean CPI**. Just like clothing and footwear, there are other parts of the CPI that are notoriously difficult to measure *in all countries* such as telecommunication services, computer hardware and software or the treatment of owner-occupied housing

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<sup>1</sup> By way of a simple example: assume that clothing accounts for 5% and all other items of a price account for 95% of expenditure. If both the price of clothing and the price of other items rise by 10%, the overall price index will rise by 10%. If, however, the price of clothing falls by 40%, then the overall price index will rise by 7,5%.

to name but a few. Developments may also concern the expenditure weights underlying aggregation of CPI components that should be updated regularly to avoid any substitution bias in the index. Experience shows that **it is best to conceive developments in different areas of the CPI as a conceptually integrated and transparent process, with roadmaps available to users and consultation processes if required.**

4. Third, **experience in OECD countries shows that modifications to the CPI can take significant time before they are fully implemented.** By way of example, INSEE indicated that CPI changes of some significance typically took about 6 months of methodological groundwork and then one year of testing before implementation. The one-year test period arises in particular when methodological changes appertain to the treatment of seasonal items where test observations need collecting over a complete sequence of seasons. Another national statistical office consulted by the OECD reported that large changes such as the introduction of scanner data from supermarkets as a source for prices took several years to implement, not least because IT systems take time to modify. Generally, **extensive testing** is particularly important in the context of the CPI as the CPI is not normally revised.

5. Fourth, it is of note that an important methodological change to the Chilean CPI already took place in 2009. Until 2009, the index was based on a price comparison between the current month and the same month of the previous year (Annual Moving Index). Since 2009, the index has been based on a price comparison between the current month and the previous month of the current year (Monthly Jevons Index). This modification is in line with the practice of most of the OECD countries and tends to be preferred to the Annual Moving Index because it supplies month-to-month information on price changes. At the same time it makes the treatment of seasonality and of sales much more critical than is the case with an Annual Moving Index. Thus, **while the 2009 change-over in the Chilean CPI was in the right direction, it may also have contributed to some of the price decline afterwards due to imperfect treatment of seasonal items and sales.**

### **Comments on proposed changes**

6. In the short run, INE proposes two major changes (different treatment of fashion goods and new seasonality criteria). These changes are clearly welcome. At the same time, it may be possible to further improve on the imputation techniques for missing prices. These points are considered in turn below.

#### ***Treatment of fashion goods and seasonality criteria***

7. INE's analysis reveals that a key point in the price development of clothing and footwear is the unusually large share of non-comparable items. When existing items disappear and new items appear, a decision has to be made whether the new item is comparable or not. If it is considered non-comparable, it does not enter price comparisons for the month at hand. This may be a source of downward bias because new items tend to be fashionable and their inclusion would raise the price level.

8. One way to **reduce the share of non-comparable items** is to accept fashion as a price-determining characteristic. This means that two items of footwear or clothing can be considered comparable even if some of their physical characteristics (fashion attributes) are not identical, as long as both are considered fashion items. A fashionable skirt could thus be compared with another fashionable skirt, despite differences in attributes. The **OECD supports this improvement.** Indeed, this applies more broadly to the treatment of quality change and to INE's medium-term plans to move towards a 'checklist' approach which is also a very welcome development that should help to systematise product characteristics and reduce ambiguity for price collectors.

9. The second improvement proposed by INE is to define *ex ante* the **seasonality** associated with the collection period for the seasonal varieties. Autumn-Winter will thus run from February through July of

each year, and Spring-Summer will correspond to August through January. **Ex-ante determination of seasons is clearly a move in the right direction** as it allows a better distinction between periods in and periods out of season for purposes of price collection.

### *Imputation method*

10. INE's monthly price data on clothing and footwear reveals an interesting pattern in that prices do not seem to hike up after the end-of-season sales, as would typically be expected. Prices in the month that follow the season are often imputed prices because the original item has become unavailable and the newly available item may be considered non-comparable (although the frequency of occurrence of non-comparability may change with the new way of dealing with fashion) and is not used in the present month. INE may wish to test different ways of carrying out its **imputations for missing observations**. INE's current practice is to impute the price *change* of reference items, either of the same establishment, regional products or similar<sup>2</sup>. What matters here is that this form of imputation reflects normal price *changes* but does not necessarily take the imputed price back to its normal *level*. It has therefore been customary in statistical offices to employ a two-tier procedure for imputations. This is referred to in the International Consumer Price Index Manual (paragraph 10.83) as '*Return to normal then impute*' and more extensively described in a 2009 European Regulation on the Treatment of Seasonal Products in the Consumer Price Index<sup>3</sup> that recommends imputation through 'counter seasonal' estimates:

*"[...] 'counter-seasonal estimation' means the estimation of a price for a product-offer of a product that is out-of-season so that*  
— *in the first month of the out-of-season period, the estimated price is equal to a typical price observed in the previous in-season period, and,*  
— *from the second month, the estimated price is equal to the estimated price for the preceding month, adjusted by the change in observed prices on average over all seasonal products<sup>4</sup> that are in-season in the same subdivision of COICOP/HICP 4."*

11. The imputation procedure from the second month corresponds broadly to INE practice but the imputation procedure for the first month is different. By adjusting the price *level* for seasonal products in the first month after their disappearance, the resulting price *change* (typically up after an end-of-sales or end-of-season month) is likely to be larger than if a normal price change of reference items were imputed.

### *Conclusions*

12. Without doubt, the pricing of clothing and footwear counts among the trickiest areas of the CPI and the features of the clothing market create problems for price index compilers. Chile is not an exception in this case. Seasonality is combined with the fact that (unlike, say for vegetables) items do not return in the following year. Dealing with non-replacement of items requires imputations and sophisticated judgements on comparability.

13. Over the past years, INE has introduced improvements to the CPI in this area and more improvements are ahead. **The OECD supports the improvements envisaged by INE with regard to the**

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<sup>2</sup> INE has a hierarchy of reference price changes for imputation with 7 levels.

<sup>3</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:103:0006:0009:EN:PDF>

<sup>4</sup> The alternative, second-best solution recommended in the Regulation is an 'all-seasonal estimation': again, in the first month of the out-of-season period, the estimated price is equal to a typical price observed in the previous in-season period, and, from the second month, the estimated price is equal to the estimated price for the preceding month, adjusted by the change in observed prices *on average over all available products* in the same subdivision of COICOP/HICP.

**treatment of fashion items and seasonality. In addition, we suggest testing an alternative method for imputation of missing items that has become standard practice in many OECD countries. The OECD is equally supportive of the longer-term plans in the area of footwear and clothing such as adopting a checklist approach and considering hedonic methods.**

14. **We strongly recommend that these changes be part of a broader, well-communicated plan of CPI developments.** International best practice suggests that sufficient time needs to be taken to prepare, test and review new methods and their results before full implementation.