

Latest Developments in the Canadian Economic Accounts

Methodology for measuring the underground economy by province and territory



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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^P preliminary
- ^r revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

Published by authority of the Minister responsible for Statistics Canada

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Methodology for measuring the underground economy by province and territory

Introduction

Estimates of the underground economy (UE) by province and territory were first published on April 29, 2015, for the period 2007 to 2012. Data for Canada are also available for 2012 and estimates for the period 2007 to 2011, previously published in January 2014, have been revised.

The UE can be defined as consisting of market-based economic activities, whether legal or illegal, that escape measurement due to their hidden, illegal, or informal nature. The objective of measuring the underground economy is to provide information on the extent of underground economic activity in Canada, the sources of these activities and the impact of these activities on the measurement of published gross domestic product (GDP).

The objective of this technical note is to explain how the methodology employed to derive upper-bound estimates of the UE for the provinces and territories differs from that used to derive national estimates. A comprehensive description of the methodology developed to measure the underground economy in Canada is available in the publication [The Underground Economy in Canada, 1992 to 2011](#), published January 30, 2014.

Readers should be mindful of a number of caveats¹ associated with the methodology employed to derive the provincial and territorial UE estimates. First, the methodology is designed to give upper bound estimates. In order to derive these upper bounds, assumptions were made to estimate the maximum potential underground activity beyond what is already included in GDP using standard methods. Second, by its very nature, it is difficult to obtain information on UE activities so the estimation necessarily relies on assumptions, weak indicative information and various indirect methods. In an identical approach to that used for the estimation of the UE at the national level, the scope of the work is limited to market based productive activities carried out in selected sectors of the hidden, illegal, and informal sectors of the economy. For the most part, the methodology and data sources are also similar to those used in the compilation of the national estimates.

Methodology used in provincial-territorial study

Skimming

The phenomenon known as 'skimming' occurs when legitimate businesses overstate their expenses or fail to declare part of their business income. The methodology used to derive national estimates was also used at the provincial and territorial level; that is the application of upper bound skimming rates to tax revenues for small businesses (defined as having revenues not exceeding \$2 million). The skimming rates were derived based on results of audits conducted by the Canada Revenue Agency on incorporated business over many years.²

Tobacco

The Canadian System of Macroeconomic Accounts has been including explicit estimates of tobacco smuggling for 25 years. The methodology for obtaining provincial and territorial estimates consists of allocating the total national volume of consumed tobacco by province and territory using data from the Canadian Tobacco Use Monitoring Survey.³ The consumption of contraband tobacco is then calculated residually for each province and territory by comparing among other things, the total volume consumed to the quantity derived from tax sources on tobacco products.

Alcohol

The provincial and territorial estimates for the illegal manufacturing of wine and the smuggling of spirits are calculated using the exact same methodology that is used for deriving the national estimates. It is based on LCBO estimates of illegal sales in Ontario weighted by the adult population of each province and territory. Unfortunately at this time no other sources on estimates of illegal sales exist. As well, the illegal re-sale of legal liquor is not estimated as part of the UE. As new data sources become available, they will be incorporated in future studies.

Rent, rooming and boarding

At the national level, the process of estimating rents paid for dwellings rented on the black market begins with the number of missed dwellings. There are three sources of information on the number of households in Canada: the Census of Population, the Survey of Household Spending (SHS), and the Business Special Surveys and Technology Statistics (BSSTS) Division.

To determine the upper limit for rented dwellings, we used the higher of the census count of households adjusted for under-coverage and the estimate from the SHS.

The number of missed households was estimated by subtracting the BSSTS estimates used in the economic accounts from the upper-limit estimates. The number of missed renter households was estimated with the ratio of missed renter households to total missed households from the 1991 Census.

To calculate the understatement of rents due to underground transactions, the number of purposely hidden rented dwellings is simply deemed equal to half of the estimated number of missed renter households. The stock of hidden rented dwellings is multiplied by an average rent, which is set, as an upper limit, at 90% of the average space rent to reflect the fact that these dwellings are small apartments usually rented below the market rate.

However, as the Census under coverage rates for provinces and territories are fairly volatile, the number of missed households by province and territory were estimated using a slightly different methodology. The national estimate of missed households was disaggregated to a provincial and territorial level using split factors from the 1991 and 1996 Censuses of Population. From that, half of these households were deemed as being purposely hidden.

Rooming and boarding hidden revenues were estimated using the same methodology as that used at the national level.

Tips

The Canadian methodology for calculating unreported tips was replicated at the provincial and territorial level. Essentially, fixed tipping rates were applied to provincial and territorial estimates of skimming in the accommodation, taxi and food services industries.

Gross fixed capital formation

Gross fixed capital formation includes tangible or intangible assets which are produced as outputs from production processes and which are themselves used repeatedly or continuously in other production processes for more than one year. For the purpose of measuring underground transactions only investment in residential construction and major renovation are in scope. For the most part the national methodology was replicated at the provincial and territorial level as most data sources provided the required detail. The exception was the ratio of construction materials to output which was not available for the territories; the national proportion was used instead.

Conclusion

The methodology and the data sources used to derive upper-bound estimates of the underground activity for each of the provinces and territories are similar to those used in the compilation of the national estimates.

The estimates make use of strong, but plausible, assumptions on the potential magnitude of UE activity in the economy; however caution must be used as the estimates presented give an upper bound.

Future work will explore new sources to improve estimates of illegal alcohol and the illegal re-sale of legal liquor.

Notes

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- 1 These caveats are identical to those used to estimate national UE.
 - 2 Recently Statistics Canada has secured access to the tax audited files for the unincorporated businesses as well. Information from these files will be analysed to determine their suitability for improving estimates of skimming.
 - 3 The survey has been conducted by Statistics Canada for Health Canada since 1999.
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