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Estimating the Underground Economy in Canada, 1992-2008

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Income and Expenditure Accounts Division

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Executive Summary

- This study updates the findings of a previous report published by Statistics Canada for the year 1992 on the size of the underground economy in Canada. It provides estimates for 1992 to 2008. It uses the upper bound methodology employed in the previous study but also draws on tax reassessment data to examine the industrial distribution of underground activity.
- Another term used to describe the underground economy is the non-observed economy (NOE). The underground economy is a subset of the NOE. This study focuses on the underground portion and uses this terminology.
- Estimates of the possible size of the underground economy in this report are based on indicators or upper bounds. As a result, they are not as accurate or reliable as other estimates in the national accounts.
- The study's findings suggest that the underground economy grew less quickly than the total economy in Canada from 1992 to 2008. In 2008, the upper bound estimate of the underground economy (UE) in Canada was \$36 billion. This was an increase of 90% from 1992, the initial year for the period under study. During the same period, nominal gross domestic product (GDP) grew by 128%.
- The upper bound estimate of underground activity was equivalent to 2.2% of GDP in 2008, down from 2.7% in 1992. Some, but not all, underground economic activity is already included in the published GDP estimate.
- The main reason for the slower growth of UE compared to the total economy is that industries traditionally considered to be involved in underground activity are a declining portion of the overall economy and those sectors less impacted by UE are growing more quickly.
- Personal spending on underground goods and services in 2008 was an estimated \$24 billion at an upper limit, equivalent to 2.7% of the total published household expenditure on goods and services.
- Underground activities related to investment in residential and non-residential structures, a component of business gross fixed capital formation accounted for \$10 billion in 2008 at an upper bound.
- Unreported income may be found in any industry, but UE activity is particularly prevalent in retail trade and construction. These sectors accounted for over half of the total UE upper bound estimate.

1.0 Introduction

Gross domestic product (GDP) measures the unduplicated value of goods and services produced in the economy. It does not distinguish as to whether or not this production is concealed to avoid taxes, regulations, prosecution (often referred to as the underground or non-observed economy) or is carried out within a country's legal and administrative framework—both are included in principle.

Even though it is difficult to measure underground economic activity accurately or reliably, when possible, estimates should be included in GDP. It is important to include these estimates to ensure that GDP is exhaustive and that the scope of GDP remains consistent over time. The inclusion of underground activity also ensures international comparability as other countries are measuring this activity and including it in their GDP measures. Over the years, Statistics Canada has undertaken a number of studies which attempt to provide an upper bound estimate of underground economic activity. This is the latest in this series of studies and the first for which a time series has been developed.

Estimates of the size of the underground economy will inherently have a large variance. This is due to the fact that estimates of the underground economy are often based on indicators rather than observed data or transactions.

In 2002, the Organisation for Economic Co-operation and Development (OECD) published a handbook¹ outlining various methods to estimate the underground or non-observed economy. The goal of the handbook was to share a set of best practices in the measurement of the non-observed economy in order to facilitate international comparability. The handbook used the framework of the national accounts, since the accounts are internationally recognized, comparable across countries and measure economic production.

With the most recent update of the System of National Accounts (SNA 2008), recommendations for the measurement of the underground economy have been aligned with the OECD handbook. This study follows the guidelines from the OECD handbook.²

This study serves as an update of the underground economy study published in 1994 as well as an internal study prepared in 2002. The 1994 study covered reference year 1992 while the internal study covered the years 1992 to 1998. The current study extends the coverage creating estimates for the years 1992 to 2008.

The UE estimates presented in this study represent an upper bound estimate of UE activity. Given Canada's GDP already includes some implicit and explicit adjustments³ for UE activity in its measure of GDP, the estimates calculated in this report cannot simply be added to the current measure of GDP to arrive at a measure of GDP including UE activity.

These years were chosen so the start point could correspond to the 1994 study while the end point represented a year for which complete data sources were available.

The results of the study are available for the GDP aggregates of the income, expenditure, and industry accounts as annual series at the national level. All data in this report are based on nominal (current) dollars.

1. "Measuring the Non-Observed Economy: A Handbook" (Organisation for Economic Co-operation and Development, International Monetary Fund, International Labour Organisation and CIS STAT (2002).

2. The SNA 2008 recommendations are still in the process of being implemented into the Canadian accounts.

3. Some underground activity is explicitly adjusted for in the accounts (e.g., contraband tobacco) whereas some is indirectly included (e.g. domestic services). Other activity may be implicitly included in the accounts as the result of other balancing and adjustments made to the accounts.

The report is organized as follows. The next section deals with definition and scope of the study. This is followed by a section on data sources and methodology. The results are presented in section 4 with new underground economy annual estimates and related analysis at a national level. These estimates are presented for the GDP aggregates of the expenditure, income and industry accounts. The report concludes with a summary and recommendation for future work. Included in the appendices are various statistical tables.

2.0 Definition and Scope of the Study

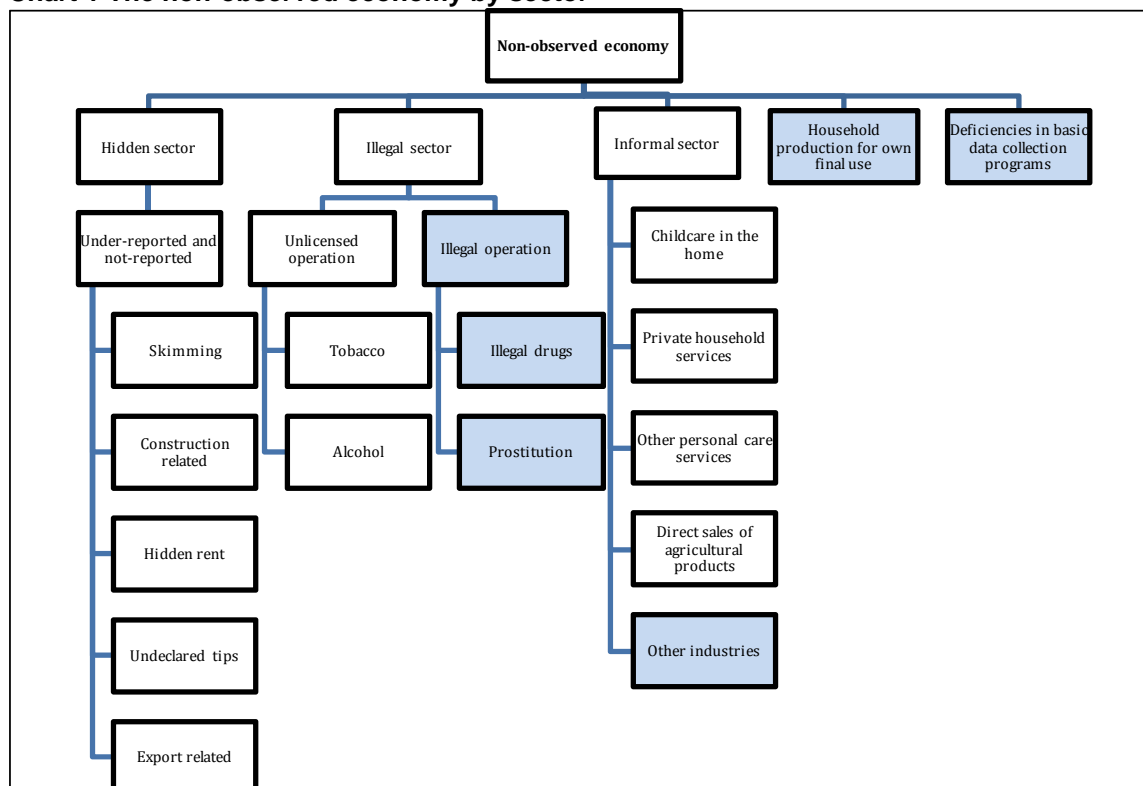
According to the Handbook for the Measurement of the Non-observed Economy, the five groups of activities that are collectively said to comprise the non-observed economy (NOE) are: (1) the hidden or underground sector, (2) the illegal sector, (3) the informal sector, (4) activities undertaken by households for their own final use, and (5) deficiencies in the basic data collection programme.⁴

The scope of this study is limited to selected components of the NOE, most of which can be identified as underground production. The three sectors included in the scope of this study cover market based productive activities carried out in the hidden, illegal, and informal sectors. Some illegal production and all household production for own final use will not be included in the estimates. Statistical issues related to deficiencies in the basic data collection programme will not be addressed either.

The results presented in this study include estimates for underground activities currently included in the published GDP estimates and activities that may not be included. This study does not attempt to separate these two components.

The analytical framework that follows illustrates how the underground economy is classified by sector and activity.

Chart 1 The non-observed economy by sector



Note: The shaded boxes represent the NOE categories that are not included in the scope of the study.

2.1 Hidden Sector

The hidden sector represents hidden production (also referred to as underground production) from UE activities that are unreported. This could be due to under-reporting of revenues (or gross output), or over-

4. "Measuring the Non-Observed Economy: A Handbook" (Organisation for Economic Co-operation and Development, International Monetary Fund, International Labour Organisation and CIS STAT (2002).

reporting of costs (or intermediate inputs) in order to understate profits (or value added) or, most importantly, complete non-reporting, in order to avoid a) payment of value added or other taxes, b) payment of social security contributions, c) having to meet certain legal standards such as minimum wages, maximum hours, safety or health standards, etc. d) complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms. This could also be due to intentionally avoiding the reporting of the entire gross output for the same reasons.

The hidden sector consists of skimming, construction-related activity, hidden rent, undeclared tips and export-related underground activities. They are general skimming across all industries, as well as construction-related estimates, hidden rent, undeclared tips, and export-related estimates. Skimming refers to the underreporting of revenue or over reporting of expense by firms in the economy. The last four areas of estimation are separated from general skimming since they used methods different from the ones used for skimming to calculate underground activity. Estimates of the underground economy include both under-reported and non-reported production.

2.2 Illegal Sector

The illegal sector represents illegal production of goods and services whose production, sale, distribution or mere possession is forbidden by law, as well as productive activities which are usually legal but become illegal when carried out by unauthorized or unlicensed producers.

Unlicensed operation represents those productive activities which are usually legal but become illegal when carried out by unauthorized producers such as illegal manufacturing of wine and smuggling of tobacco. Two such activities that are legal but not authorized are included in this report, the illegal sale of tobacco and alcohol. These activities include estimates for illegal manufacturing, sales and imports (smuggling) of these goods into Canada.

Illegal operation represents production of goods and services whose sale, distribution or mere possession is forbidden by law, such as the production and sale of narcotic drugs. This study does not attempt to measure activity that is forbidden by law. They are excluded from the scope of the study due to the difficulty of obtaining reliable source data in these areas.

2.3 Informal Sector

The informal sector represents informal production activities associated with establishments that are not registered with fiscal or social security authorities. These businesses are not required to register with such authorities (such as the Canada Revenue Agency). As a result, they are generally missing from survey frames of statistical agencies, such as the Business Register (BR) used by Statistics Canada.⁵ These entities include unregistered unincorporated businesses operating legally as informal establishments of the self-employed as well as unregistered unincorporated businesses operating legally as informal establishments with informal employees. There is also missing value added generated by informal jobs held by those working for registered establishments that are not in the informal sector. However, this missing value added would be more appropriately classified as the value added of the hidden sector as opposed to the informal sector.

There are four informal production activities that are included in this study. They are childcare in the home, private household services, other personal care services, and direct sales of agricultural products.

5. The BR is a repository of information reflecting the Canadian business population and exists primarily for the purpose of supplying frames for all economic surveys at Statistics Canada. Canada Revenue Agency's (CRA) Business Number account files, is the source of information for the creation of a universe of all business entities on the BR. Since the primary trigger for the creation of a business entity on the BR, is the CRA administrative source, only businesses with a BN are represented on the BR. For more details, see Definitions and Concepts Used in the Business Register, Business Register Division, Statistics Canada (February 13, 2009).

Although household expenditure on these services is likely captured by the Survey of Household Spending (SHS), and is part of the expenditure based GDP, it is believed that income from these activities could be potentially missing from the income side of GDP

The estimate for direct sales of agricultural products represents undeclared income from individuals selling farm produce such as fruits, vegetables, eggs and honey on road sides or temporary stands directly to consumers. This is different from farm income captured by agricultural surveys. The estimate for this UE activity represents income that is potentially missing from the mixed income component of the retail industry. The expenditure on these products is captured by the SHS and is in the published GDP numbers.

Other industries consisting of firms or establishments operating legally without being registered with the fiscal or social security authorities were not included in this study. Although there is a likelihood that underground activity exists in these industries they have been excluded until further research determines the magnitude of this missing productive activity.

2.4 Sectors Not Included in Study

Household production for own final use is generally outside of the scope of the Canadian System of National Accounts (CSNA) production boundary as well as of this study. This production includes the creation of own-account goods and services. These items are not for sale to others. The labour portion of this production, like maintenance and do it yourself repairs, are excluded from this category (and from GDP production) unless they are significant renovations or extensions to a dwelling. As well, services produced by households are not included within the production boundary (e.g. cleaning, laundry) except for own-account rent, which already has a measurement methodology.

One exception to the own account production is for own-account farm production. This production is included in the CSNA production accounts but not considered in this study.

Deficiencies in the basic data collection program are assumed to be taken care of by other programs in Statistics Canada. The CSNA and its feeder programs within Statistics Canada have developed a wide range of methods and procedures that address these measurement issues. As such, this issue will not be addressed in this study.

3.0 Data Sources and Methodology

The OECD handbook suggests four broad methods for calculating the non-observed economy. They include:

- 1) Upper bound estimation
- 2) Special surveys and other supplementary data
- 3) Data confrontation and discrepancy analysis and
- 4) Macro-model methods

The upper bound method was used in the 1994 Statistics Canada study⁶ on the underground economy. This method examines different types of final expenditures and incomes in the economy, calculating as an upper limit, the highest amount of underground economic activity that is reasonable for each one. A similar method can also be used to examine underground economic activity by industry.

Another method entails the use of special surveys and other supplementary data. Currently, no special surveys on the underground economy are available for Canada. Introduction of new surveys would be costly and time-consuming. However, some other supplementary data is available and provided useful information for this study. An example of this is the survey of household spending that provided information on tobacco and childcare expenditures. Households may report underground expenditures in their total spending, since there is no disincentive to do so. The survey does not distinguish between underground and other spending.

The data confrontation method can be used in some cases to determine if unmeasured economic activity is occurring. For example, cigarette smoking in Canada can be estimated on the basis of cigarette taxes collected. Alternatively, it can be estimated from surveys that ask individuals about their smoking habits. If the former method declines more rapidly than the latter, this may suggest an increase in the prevalence of 'underground' cigarette production, sales or importation.

Macro-model methods are discussed in the OECD handbook but are not recommended as accurate measures of the underground or non-observed economy. The OECD suggests that these methods do not properly measure underground activity and provide very divergent results depending on the assumptions used.

This study used components of each of the first three OECD methods and they will be discussed in turn. The upper bound method was used to create time-series estimates for the economic accounts. Supplementary data was utilized to refine estimates where possible and provide information on industry allocation. Data confrontation provided further indicators of the industrial distribution of the underground economy.

Data sources for the underground economy are difficult to find in most if not all cases. As such, the data sources used for the estimates of the underground economy are indicators rather than true observations of the underlying activities. The main sources of data used in the study are tax data for incorporated businesses (from the T2 form) and unincorporated businesses (from the T1 form). Tax reassessment data from the T2 tax file were also used along with results from Statistics Canada surveys such as the Survey of Household Spending (SHS). More detail will be provided for data sources during the discussion of the methods with which they are used.

6. Statistics Canada (1994) "The Size of the Underground Economy in Canada", Catalogue no. 13-603E No. 2.

3.1 Upper Bound Method

An important aim of this study was to update the work of Gervais (1994), which used the Upper Bound method to calculate underground activity. Upper bound estimates were calculated for various UE activities including skimming and non-reported activity. Informal sector activities (See chart 1) were also measured using an upper bound. The upper bound method generally used T1 and T2 tax data as indicators.

3.1.1 Skimming

One underground activity that used the upper bound method for estimation was skimming, which is when firms under report revenue or over report expenses. Following the assumptions from the previous Statistics Canada study, smaller companies are deemed more likely to skim than larger firms. Sophistication of records, internal controls, use of computerized systems and third party financial review, as well as less prevalent cash transactions deter UE participation in larger companies. Although UE activity is still most likely present in some larger firms, the upper bound method, in theory, is assumed to be high enough to cover this activity. Tax data allows for the sorting of companies by size. Small incorporated and unincorporated companies were defined as those with revenues of less than 2 millions in 1992 dollars.⁷

Revenue data for unincorporated businesses (T1) were used as an indicator for unincorporated business skimming while data from the T2 file were used for incorporated businesses. A consistent time-series of data from the T2 files were available from 1997 to 2008. A consistent series of T1 data were available from 2005 to 2008. In order to push the T1 series back to 1997, IO data for mixed income were used as an indicator. Tax-based SNA output data was used to push both estimates back to 1992. This data was calculated by NAICS-based industries for all years.

The tax-based skimming data for small companies were then switched from an industry basis to a personal expenditure basis, with the use of a final demand matrix contained in the input-output tables. Skimming rates were then applied to the data organized by personal expenditure series (J series). These rates were based on an upper bound method and were similar to the rates used in the previous Statistics Canada study.

Not all expenditure series were considered to have underground activity. Some were given a rate of zero since it was assumed that these activities had little skimming. Imputed rents as well as financial expenditures are examples of these types of expenditure. Table 4 in Appendix A provides a list of skimming rates by expenditure categories. Skimming rates were held constant over time. However, the percentage of skimming for a personal expenditure item could change over time depending upon if the rate of growth of the small companies revenue was growing faster or slower than that of the expenditure item.

Estimates were calculated for expenditure-based series for the years 1997-2008, since these were the years for which consistent industry data were available⁸. Estimates for the period 1992-1996 were derived using skimming rates on the personal expenditure data. The personal expenditure data was then moved to industry space using a final demand matrix for these years.

3.1.2 Non-reported activity

Non-reported activity relates to economic transactions that are not reported to tax authorities. This differs from skimming where revenue is under reported or expenses are inflated. The explicit addition of non-reporting is a departure from the method used in the previous study. Estimates for non-reported

7. The all-items consumer price index was used to adjust for inflation. The year 1992 was the base year (equal to 100) and revenues for the following years were divided by the index to adjust for inflation.

8. Prior to 1997, industry data were available by using the SIC industry classification rather than the currently used, NAICS classification.

underground activity were developed using the same method as skimming and are included in the total UE estimates. However, no separate estimates are available for skimming and non-reported activities due to the quality of the data.

3.1.3 Construction related

The value of underground construction was estimated using several methods. This study used the upper bound method to calculate underground activity for construction. An addition was also made for non-reported activity which set the upper bound rate to 14% of total production. These rates were based on analysis from the various methods used as indicators for underground activity in construction. The estimates represent UE activities in new residential and non-residential construction as well as in alterations and improvements.

Currently an adjustment is made in the CSNA for underground construction. This is a residual calculation that takes the total output calculated in the Input-Output tables and subtracts the output obtained from the T1 tax records, filed by unincorporated businesses. The difference in net income of unincorporated businesses from the IO tables and the tax records is assumed to be the underground portion of the industry.

Other methods were also employed to see if they could yield reasonable estimates. One of these methods used the growth rate of the ratio of intermediate inputs to total output in the construction industry in order to observe the movement of this ratio over the years and determine if differences in movement could be attributed to UE activities. If total inputs rose more quickly than output, it suggested that producers were hiding revenue, or inflating costs, and therefore total underground activity was increasing. If outputs rose faster than inputs, underground activity was decreasing.

One issue with this method was that an initial baseline value for underground activity needed to be established first and then moved forward with the movements between inputs and outputs. Further, the spread between output and inputs could be the result of factors other than underground activity, such as an increase in productivity.

3.1.4 Childcare in the home, private household services and personal care services

Apart from what was estimated to account for skimming by child care centres, additional estimates were developed to account for the non-reported portion of income of home-based child-care services provided by those operating in the informal economy. Similar estimates were also made for private household services and other personal care services and for direct sales of agricultural products.

An upper bound estimate was made for each of these services and added to the UE estimates. These estimates are not available separately due to reasons related to data quality.

3.2 Other Methods Using Supplementary Data

Several activities that are considered to have a high level underground activity used methods other than upper bounds to estimate underground activity. These include activities related to tobacco, alcohol, tips and rent. These methods are generally based on the previous Statistics Canada study. Another supplementary source of data used in this study was tax reassessment data.

3.2.1 Tobacco

Estimates for underground activity related to tobacco are already explicitly included in the expenditure estimates of the CSNA. The current method is based on the one used in the earlier Statistics Canada study. Estimates are based on data from the Survey of Household Spending (SHS) which estimates the amount of spending that is incurred by households. Rates of smoking are gleaned from the Canadian

Community Health Survey (CCHS) as a further indicator of the pervasiveness of smoking. This demand data is then compared to the supply of tobacco available in Canada. The supply is equal to domestic production plus imports minus exports. The difference in the demand and supply is considered to be the amount of illegal contraband tobacco that is being consumed in Canada.

3.2.2 Alcohol

The method for measuring underground activity related to alcohol was based on the method from the previous study. The main source of data used for the estimates on underground activities related to alcohol is the Liquor Control Board of Ontario (LCBO) estimates on illegal alcohol trading for the years 1995 to 2008 from its annual report. LCBO's estimates are based on discussions with the RCMP and other sources working on policing the trade of illegal alcohol. After establishing an initial level of illegal alcohol trading for the year 2003, the LCBO projects this forward using the trend of US per capita sales of alcohol compared to the trend of Ontario per capita sales of alcohol. This is based on the assumption that the trends should be the same and if a difference exists, it is considered to be due to the underground economy.

In order to obtain data for Canada, the ratio of the population of Ontario (15 years and older) to the population of Canada was used. The data obtained were split between sales to consumers and sales to licensees and a distinction between wine and spirit was made. The price of illegal alcohol was assumed to be 60% of the legal price. The data used for years 1992-1994 were based on trends in alcohol consumption.

3.2.3 Tips

The calculation of tips follows the method used in the previous study and expands on it. The assumption used in the previous study was that an indicator of the amount of undeclared tips could be the amount of income from services that were not reported (skimming). With this in mind, skimming estimates for services that generally receive tips (this includes meals and alcohol beverage consumed outside the home, accommodation services, haircuts, taxis and other personal care) were multiplied by standard tipping rates for each of these services.

In this study, a further estimate was added to account for tips that would be earned on income reported as well as income that was not reported at all. This new method examined income from occupations where tips contribute a significant portion of total income (e.g. waitresses and bartenders, whose combined total income from employment was about \$3 billion in 2008). Using an upperbound method, it was assumed that half of the total wages in these occupations were earned by tips, and of these tips, half was assumed to not be declared. These assumptions are high but also help to cover income not reported in wages and salaries like unincorporated business income. This new estimate is more than twice as high as what had previously been estimated for this activity. Overall, the new method increased the undeclared income from tipping for all relevant activities (included meals, taxis, hairdresser, and other personal services) to \$1.2 billion. The previous method had a total of \$490 million.

3.2.4 Income from rented dwellings

A special calculation was made for rented dwellings where the income from rent is believed to be underground. Census under coverage estimates were used to calculate the number of dwellings that were hidden from measurement. Of these "hidden" dwellings, only a portion (an upper bound estimate of 50%) was assumed to actually be rented. An average rental value was calculated for each of these dwellings. Data from the SHS and prices from the Consumer Price Index (CPI) were used to calculate the time series of rental values.

3.2.5 Tax re-assessment data

In the past few years, tax reassessment data has become available for use at Statistics Canada. The tax data file used contained various types of reassessments.

Some of the reassessments include changes that are not related to the underground economy, for example changes made by the business itself. For this study, only the reassessments from audits and investigations were used.

Further, within this data, only records that had the expected outcome for the underground economy were kept, meaning those whose income went up or whose expenses went down after the reassessment. In some cases, records had income declining or expenses going up. Since these changes were to the advantage of the taxpayer, it was assumed that these were not instances of underground activity but rather errors on the part of the tax filer. Records where no changes occurred were kept in order to calculate a percentage of changes in revenues and expenses after the reassessment.

The reassessment data that were available to Statistics Canada for the T2 portion (incorporated businesses) of the tax data covered only the years 2005 to 2008. The data for the year 2005 differed considerably from the other years and therefore were not used in this study. Data for 2006 were the most complete since most of the reassessments for this year have been completed. Data for the years 2007 and 2008 had fewer numbers of completed reassessments (particularly 2008) and therefore the total sample of data was smaller and incomplete. The reassessment data were available by industry. However, industry data were variable from year to year since one big reassessment filer in a given industry could change the industry totals considerably. As a result, a three-year average (2006 to 2008) was calculated for each industry. This three-year average, expressed as the percent share of total economic activity within a given industry was then multiplied by the total GDP of that industry to get the impact of UE for the total economy.

The main purpose for this data was to identify industries where skimming occurred and their relative impact compared to other industries. This data was compared to skimming estimates in a data confrontation exercise.

Some caution should be taken when using the UE indicators based on reassessment data for two reasons, which may be partially offsetting. First, the reassessment rates calculated are probably on the high side because the population of filers that are reassessed by CRA are not selected in a random manner. In fact, certain industries and other outliers were targeted for re-assessment. On the other hand, some underground operators may have not filed any tax records and therefore would be completely excluded from this sample. This population would be small and their economic activity would generally be quite small as well. If they are too big, it would be too difficult for them to hide.

3.3 Data Confrontation

The use of various methodologies at times resulted in differing estimates for the same activity or industry. The confrontation of data in this manner generally improves the quality of the data since the estimates are examined for their strengths and weaknesses in the reconciliation process.

The major area of reconciliation was for the industry based data. Two alternate methods were used (upper bound and reassessment) in this study to calculate industry distributions. These methods created differing industrial distributions that needed to be reconciled. One part of the difference resulted from using the assumptions made in the earlier Statistics Canada study. This study assumed that underground activity would essentially only occur in retail and personal services industries. Therefore personal expenditure was the chief areas of activity while business investment and exports were assumed to have few underground transactions.

The reassessment files indicated that nearly all industries appeared to undertake underground activity to some degree. The industrial distribution of the reassessment files also suggested that underground activity could also be found either directly or indirectly in business investment and exports. For example, a manufacturer of a product may buy some of their inputs from an underground source. This product could eventually be purchased either by a household and therefore end up in personal expenditure, or could be bought by a business and be recorded in business investment or be exported. Since the expenditure accounts only register final expenditure, the only way to record the underground activity that occurred in the downstream production process would be to allocate it to the related final expenditure.

The reconciliation process by industry used both the reassessment method and the previous method. This resulted in underground activity in primary and manufacturing industries as well as a large portion in the retail industry. Due to the quality of the reassessment data, its use did not change the overall total underground activity, only the industrial distribution of the data.

3.4 Other Calculations

3.4.1 Industry estimates

Estimates for underground activity organized by industry were initially calculated for the years 1997 to 2008. This time period reflects the availability of consistent data from the Input-Output Accounts. These years all use the NAICS industries as opposed to the SIC system used previously. This matched the structure of the tax data which were also based on the NAICS system. Estimates for the years 1992 to 1996 were estimated using IO tables.

An estimate was made to provide more detailed information for the retail industry (at a three digit NAICS level). The estimates were based on T1 and T2 tax data. Upper bound skimming and non-reporting rates were multiplied times revenue for small operators. The shares for each of these three digit industries were than calculated and multiplied times the total retail trade estimate for skimming and non-reporting. Further, a portion of the contraband tobacco, contraband spirits and illegally manufactured wine estimates were added to the retail industry since these sales would have been part of retail trade if not done illegally.

3.4.2 Income estimates

Income estimates were created based on expenditure and industry estimates. Since much of the data were based on tax records (T1 and T2), the net income from the underground activity could be separated into incorporated and unincorporated business incomes using these sources. Other expenditure items (like tips), were allocated to wages and salaries.

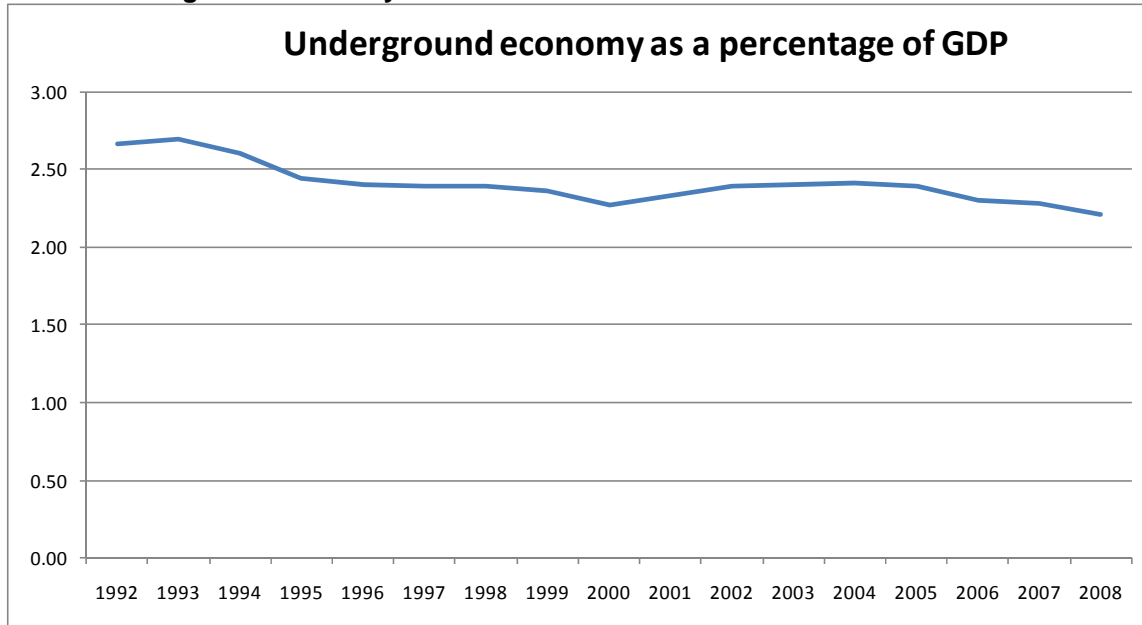
4.0 Results

In 2008, total underground activity in Canada, was estimated at \$36 billion at an upper bound. A separate estimate of what is included in the published GDP estimate and what is not included is not available. This was an increase of 90% from 1992, the initial year for the period under study. During the same period, nominal GDP grew by 128%.

The main reason for the slower growth of UE is the fact that some of the expenditures in which underground activity is most prevalent are becoming a smaller portion of the total economy. Other reasons may also be causing the slower growth in UE in the economy. For example, the movement away from cash transactions to electronic payments makes it more difficult for establishments to keep transactions underground. This study does not attempt to measure this trend or its impact on UE activity.

The upper bound estimate of underground activity was equivalent to 2.2% of GDP in 2008, down from 2.7% in 1992. Some, but not all, underground economic activity is already included in the published GDP estimate.

Chart 2 Underground economy relative to the size of GDP



4.1 UE Activities in Expenditure-based GDP

Household expenditure accounted for 68% of UE activities in 2008. Business gross fixed capital formation accounted for another 29%, exports 5.3%, and imports -2.7%.

4.1.1 Personal expenditure on consumer goods and services

UE activities related to personal expenditure represent those expenditures on goods and services supplied by firms that practiced skimming (under reporting of their revenue), contraband tobacco, illegally manufactured wine and spirits, undeclared rental income and tips.

In 2008, total underground activity in personal expenditure (\$24 billion) was equivalent to 2.7% of the published personal expenditure estimate at an upper bound, down from 3.4% in 1992. From 1992 to 2008, households spending on underground personal expenditure increased 75%, less than the 119% increase for total personal expenditure.

The slower growth in UE activity is the result of lower spending in activities that have high levels of UE activity. For example, spending on childcare, tobacco, and food and beverages has not increased as quickly as total personal spending. These are spending categories that have high levels of underground activity.

Skimming and non-reporting

In 2008, skimming and non-reported UE in personal expenditure were worth \$18 billion. A higher share (62%) of UE from skimming and non-reporting was associated with services as opposed to expenditure on goods (38%). The proportion is mainly a reflection of the underlying assumptions of the methodology where the rates for expenditures on services were kept higher than the rates for expenditure on goods.

Illegal tobacco

Personal expenditure on illegal tobacco was estimated at \$2.6 billion in 2008 accounting for 7.3% of total UE activities. The share of illegal tobacco in UE has been generally moving upward since 2002.

Starting from 1997, the estimates for contraband tobacco have been explicitly included in the published GDP numbers. As a result, the published official GDP estimates for personal expenditure on tobacco products already include this estimate for illegal tobacco as well as estimates for legal expenditure on tobacco products.

Illegal alcohol

Personal expenditure on the purchase of illegally manufactured wine and smuggled spirits in 2008 was \$1.3 billion, accounting for 3.6% of UE activities. The relative contribution of this UE category to total underground activity has declined significantly over the years, falling from 9% of UE down to approximately 4% in the mid and late 2000s.

Hidden rent

Households spent an estimated \$0.8 billion on underground rental of residential units, in 2008, up from \$0.5 billion in 1992.

Undeclared tips

The amount of undeclared tips paid out by consumers in 2008 was estimated at \$1.3 billion. These were tips paid out by consumers on recreational services, personal care, taxis and restaurant and accommodation services. Over half of the total amount originated from restaurant and accommodation services.

Households' expenditure on undeclared tips as a percentage of UE remained stable throughout the period ranging from 3.5% to 3.9%.

4.1.2 Business gross fixed capital formation – construction of residential structures

Construction-related

In 2008, UE in construction accounted for \$10 billion of the underground economy. It's the second most important component of UE, after skimming, accounting for 29% of UE activities. This share has generally been growing over the period of the study. It was in the 24% range in the early 1990s.

4.1.3 Exports

Export related UE activities accounted for \$1.9 billion in 2008. These activities represented 5.3% of total UE activity.

4.1.4 Imports

Contraband spirits and tobacco

UE imports consist of two estimates, one for contraband spirits and another for contraband tobacco. The estimated upper bound value of contraband spirits and tobacco smuggled into Canada in 2008 was just under \$1 billion. Illegal imports of tobacco and alcohol have displayed different trends over the period of study. Tobacco imports have generally been increasing, particularly in the last few years of the study period. Alcohol imports, on the other hand, have been more stable over time.

4.2 UE Activities in Income-based GDP

Corporations made an estimated \$17 billion on underground activity in 2008 at an upper bound. Corporate profit before taxes had the highest share (48%) of UE activities. It was followed by net income of non-farm unincorporated business including rent (29%) and wages, salaries and supplementary labour income (22%).

4.2.1 Corporation profits before taxes

Construction-related

The underground income of corporations involved in construction activities in 2008, was worth an estimated \$8.4 billion at an upper bound.

Skimming and non-reporting

In 2008, skimming by corporations and estimates for non-filers were worth a combined \$6.7 billion at an upper bound.

4.2.2 Net Income of non-farm unincorporated business, including rent

UE activities attributed to net income of unincorporated business (NUIB) in 2008 were worth \$10 billion. This represented 29% of total UE. Skimming, construction, and contraband tobacco had the largest impacts on this estimate.

Undeclared income from contraband spirits, illegally manufactured wine, licensee mark-up on illegal alcohol and undeclared rental income together accounted for \$1.7 billion, in 2008.

4.2.3 Wages, salaries and supplementary labour income

In 2008, total UE attributed to wages, salaries and supplementary labour income amounted to \$8.0 billion at an upper bound and was equivalent to 1.0% of the published estimates of wages, salaries and supplementary labour income. It represented 22% of the total UE on the income side of GDP. Over 80% of the amount attributed to wages, salaries and supplementary labour income, originated from skimming and non-reported income. Undeclared tips accounted for 16% of the estimate.

4.3 UE Activities in Industry-based GDP

In 2008, the three most significant sectors in terms of UE activity were construction (30%), retail trade (16%) and accommodation and food services (12%). These three sectors together accounted for nearly 60% of total value added of UE activities.

In 2008, UE activities in the construction industry accounted for \$11 billion, at an upper bound. This was all attributed to skimming (underreporting of income) or not reporting income at all by those working in both residential and non-residential construction industries.

In 2008, UE in retail trade accounted for \$5.7 billion, at an upper bound. Just over half of this was attributable to skimming by retail outlets. The sales of illegal wine and spirits as well as illegal tobacco accounted for the remaining balance.

UE activities in service industries other than retail trade, accounted for \$16 billion in 2008, at an upper bound. The services industry estimate represents underreporting and non-reporting of income by firms in service industries plus undeclared income from child-care services, undeclared tips from recreational services, restaurants and accommodation services, as well as undeclared income from rent, room and board.

5.0 Conclusion

This study has presented updated estimates of the underground economy covering the time period 1992 to 2008. The estimates provide some indication of the extent of UE activity affecting the macroeconomic aggregates in each of the three GDP accounts, income-based, expenditure-based, and industry-based.

It is important to note that there is no direct data source for what is being measured. The results are to be interpreted as indicators developed on reasonable assumptions and methodologies. The data are upper bound estimates of underground activity.

Due to the nature of the subject, there are always issues for future consideration. The coverage could be expanded to areas that were not addressed in this study due to lack of reliable data. Tax reassessment data could continue to be examined for more detailed information on industrial distributions of underground activity. As such, this report remains a preliminary investigation of UE and further investigation and development is still required to provide a clearer picture of the underground economy in Canada.

Appendix A

Statistical tables

Table 1 Underground economy, by expenditure-based GDP components

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
	Current dollars (in millions)																
Personal expenditure on consumer goods and services	13,862	14,815	14,999	14,882	14,963	15,330	15,959	16,520	17,213	18,115	19,477	20,394	21,557	22,793	23,075	23,882	24,315
Government current expenditure on goods and services	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Government gross fixed capital formation	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Government investment in inventories	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Business gross fixed capital formation	4,599	4,624	4,971	4,710	4,883	5,439	5,525	6,159	6,571	6,988	7,414	8,056	8,721	9,280	9,637	10,242	10,449
Residential structures	4,599	4,624	4,971	4,710	4,883	5,439	5,525	6,159	6,571	6,988	7,414	8,056	8,721	9,280	9,637	10,242	10,449
Non-residential structures and equipment	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Business investment in inventories	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Exports of goods and services	788	818	867	918	952	1,006	1,057	1,140	1,252	1,316	1,376	1,455	1,556	1,656	1,755	1,864	1,892
Exports of goods	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Exports of services	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Deduct: imports of goods and services	-420	-424	-504	-475	-448	-386	-374	-326	-276	-242	-347	-375	-368	-605	-778	-885	-970
Imports of goods	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Imports of services	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gross domestic product (GDP) at market prices	18,828	19,832	20,332	20,034	20,350	21,389	22,167	23,494	24,760	26,177	27,920	29,531	31,466	33,124	33,689	35,104	35,687
Final domestic demand	18,461	19,439	19,969	19,591	19,846	20,770	21,484	22,679	23,784	25,102	26,891	28,450	30,278	32,073	32,712	34,125	34,764

Source: Statistics Canada, Income and Expenditure Accounts Division, 2010, special tabulation

Table 2 Underground economy, by income-based GDP components

	Current dollars (in millions)																
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Wages, salaries and supplementary labour income	4,624	4,783	5,028	5,110	5,264	5,440	5,634	5,948	6,275	6,726	7,023	7,347	7,665	7,733	7,682	7,986	8,023
Corporation profits before taxes	8,441	8,636	9,170	9,101	9,408	10,073	10,352	11,288	12,021	12,773	13,434	14,330	15,177	15,695	16,008	16,862	17,019
Skimming	3,893	4,038	4,238	4,332	4,463	4,619	4,776	5,051	5,329	5,713	5,967	6,242	6,506	6,547	6,491	6,733	6,745
Construction	3,761	3,781	4,065	3,851	3,993	4,448	4,518	5,097	5,440	5,743	6,090	6,632	7,116	7,493	7,762	8,265	8,382
Exports	788	818	867	918	952	1,006	1,057	1,140	1,252	1,316	1,376	1,455	1,556	1,656	1,755	1,864	1,892
Government business enterprise profits before taxes	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Interest and miscellaneous investment income	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Accrued net income of farm operators from farm production	88	90	91	99	111	96	104	108	108	114	110	115	128	110	104	118	147
Net income of non-farm unincorporated business, including rent	5,675	6,324	6,044	5,724	5,567	5,781	6,078	6,149	6,355	6,564	7,354	7,740	8,496	9,586	9,895	10,138	10,498
Skimming	2,789	2,918	3,036	3,006	3,072	3,144	3,159	3,319	3,584	3,779	3,958	4,117	4,347	4,605	4,645	4,704	4,737
Construction	838	843	906	859	890	992	1,007	1,062	1,131	1,245	1,323	1,424	1,605	1,788	1,875	1,977	2,067
Contraband tobacco	364	796	305	223	29	225	530	433	418	371	838	906	1,249	1,764	1,889	1,792	1,978
Contraband spirits	361	365	445	416	389	327	307	284	238	210	223	234	227	267	281	338	348
Illegally manufactured wine	444	526	428	389	364	306	287	266	222	197	209	219	212	250	263	316	326
Licensee mark-ups on illegal alcohol	431	412	443	336	314	264	248	230	192	170	180	189	183	216	227	273	281
Rent, room and board	448	465	481	495	509	523	539	554	570	592	623	651	673	696	715	739	762
Inventory valuation adjustment	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Taxes less subsidies, on factors of production	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Net domestic product at basic prices	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Taxes less subsidies, on products	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Capital consumption allowances	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Statistical discrepancy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gross domestic product at market prices	18,828	19,832	20,332	20,034	20,350	21,389	22,167	23,494	24,760	26,177	27,920	29,531	31,466	33,124	33,689	35,104	35,687

Source: Statistics Canada, Income and Expenditure Accounts Division, 2010, special tabulation

Table 3 Underground economy by industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
North American Industry Classification System (NAICS) ^{1,2}	Current dollars (in millions)																
Crop and animal production [1A]	201	205	209	226	251	225	242	255	261	274	269	283	312	283	278	310	364
Forestry and logging [113]	20	25	27	32	31	32	34	32	33	30	34	31	35	35	33	31	25
Fishing, hunting and trapping [114]	32	32	36	41	34	26	25	31	32	32	34	35	34	33	28	30	27
Support activities for agriculture and forestry [115]	30	31	33	36	38	25	27	30	31	32	33	35	35	36	37	39	38
Oil and gas extraction [211]	132	144	157	155	191	189	153	207	369	363	329	442	509	650	652	672	873
Mining (except oil and gas) [212]	82	79	86	99	97	98	99	102	114	114	116	124	147	171	199	221	237
Support activities for mining and oil and gas extraction [213]	15	19	26	27	34	41	38	33	46	52	50	57	67	79	101	102	108
Utilities [22]	53	55	56	59	61	64	63	64	67	69	70	75	74	80	80	84	84
Construction [230]	4,678	4,705	5,057	4,801	4,978	5,540	5,631	6,273	6,696	7,119	7,551	8,202	8,876	9,446	9,813	10,429	10,639
Food manufacturing [311]	16	16	17	17	17	18	19	20	20	22	22	23	24	25	26	27	28
Beverage and tobacco product manufacturing [312]	292	399	289	272	234	269	336	319	324	318	441	472	554	719	793	811	869
Textile and textile product mills [31A]	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Clothing manufacturing [315]	2	2	2	2	2	3	3	3	3	3	3	3	3	2	2	2	1
Leather and allied product manufacturing [316]	2	2	3	2	2	2	2	2	3	2	2	2	2	1	1	1	1
Wood product manufacturing [321]	10	15	20	17	18	21	21	28	28	26	28	27	33	29	26	22	18
Paper manufacturing [322]	11	12	15	27	23	20	21	21	27	25	22	20	21	21	20	18	18
Printing and related support activities [323]	13	13	13	14	15	15	16	17	20	23	22	21	22	22	22	22	21
Petroleum and coal products manufacturing [324]	6	6	7	8	7	8	8	9	12	20	16	18	21	22	22	32	40
Chemical manufacturing [325]	30	31	35	42	40	39	36	37	40	41	45	46	44	42	43	41	42
Plastics and rubber products manufacturing [326]	15	17	19	20	23	24	25	27	31	32	34	34	34	35	33	33	31
Non-metallic mineral product manufacturing [327]	3	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	7
Primary metal manufacturing [331]	60	64	70	78	79	85	90	95	105	101	109	111	124	130	141	149	155
Fabricated metal product manufacturing [332]	24	24	27	32	34	40	43	48	60	58	61	60	62	64	66	68	68
Machinery manufacturing [333]	32	37	42	51	53	59	62	65	74	75	73	72	76	78	82	84	85
Computer and electronic product manufacturing [334]	10	11	12	13	13	15	16	22	23	13	12	13	14	15	14	14	14
Electrical equipment, appliance and component manufacturing [335]	11	11	12	12	13	14	15	15	18	18	16	13	15	15	14	15	15
Transportation equipment manufacturing [336]	41	47	57	65	65	67	73	102	100	91	96	91	82	78	72	71	59

Table 3 Underground economy by industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Furniture and related product manufacturing [337]	4	4	5	5	5	6	7	8	10	11	11	10	11	11	10	10	10
Miscellaneous manufacturing [339]	4	4	5	5	5	6	7	7	8	8	10	10	11	10	11	11	12
Wholesale trade [41]	541	558	602	648	676	727	759	809	864	906	940	1,000	1,081	1,162	1,249	1,316	1,364
Retail trade [4A]	4,313	4,854	4,583	4,368	4,233	4,304	4,538	4,536	4,517	4,759	5,327	5,544	5,892	6,181	5,907	5,884	5,655
Truck transportation [484]	106	113	126	138	137	146	159	165	177	194	198	203	217	240	260	264	276
Transit and ground passenger transportation [485]	115	116	125	126	132	133	129	133	138	139	151	159	175	184	196	206	223
Pipeline transportation [486]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Air, rail, water and scenic and sightseeing transportation and support activities for transportation	144	149	161	160	161	184	188	0	0	0	0	0	0	0	0	0	0
Air transportation [4810]	0	0	0	0	0	0	0	12	12	10	10	8	8	10	11	12	13
Rail transportation [4820]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Water transportation [4830]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Scenic and sightseeing transportation and support activities for transportation [48B0]	0	0	0	0	0	0	0	171	177	195	207	224	224	242	264	278	295
Postal service and couriers and messengers [49A]	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Warehousing and storage [493]	12	12	14	16	16	17	18	19	21	22	23	25	31	30	35	36	39
Motion picture and sound recording industries [512]	42	50	52	56	59	69	86	95	101	104	116	114	120	124	133	136	137
Broadcasting and telecommunications [513]	10	10	10	10	11	11	11	12	13	13	14	15	16	17	18	18	19
Publishing industries, information services and data processing services [51A]	16	16	16	16	17	32	36	39	40	43	46	48	55	57	59	63	62
Finance, insurance, real estate and rental and leasing [5A0]	189	197	208	216	226	242	252	264	278	293	305	318	337	353	376	400	413
Professional, scientific and technical services [541]	493	519	557	591	621	715	799	871	993	1,049	1,097	1,165	1,234	1,319	1,421	1,541	1,630
Administrative and support services [561]	444	475	497	557	608	555	606	685	748	823	897	957	1,040	1,134	1,216	1,295	1,365
Waste management and remediation services [562]	9	10	11	12	12	7	7	7	8	9	11	12	13	15	17	18	18
Educational services [61]	119	122	124	124	126	125	128	132	138	144	152	159	167	176	192	196	203
Hospitals [6220]	41	42	41	40	40	40	41	43	46	50	52	56	58	60	64	70	76
Health care services (except hospitals) and social assistance [62A0]	1,340	1,380	1,436	1,444	1,472	1,495	1,528	1,595	1,689	1,820	1,908	2,017	2,108	2,150	2,162	2,271	2,333
Arts, entertainment and recreation [71]	248	251	269	278	302	335	343	372	406	436	466	490	523	533	567	595	614
Accommodation and food services [72]	2,822	2,873	3,011	2,935	2,958	2,977	3,059	3,169	3,255	3,394	3,552	3,639	3,769	3,869	3,884	4,069	4,101
Repair and maintenance [811]	1,524	1,584	1,638	1,610	1,637	1,743	1,762	1,856	1,908	2,079	2,176	2,251	2,320	2,264	2,109	2,097	1,938

Table 3 Underground economy by industry

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Religious, grant-making, civic, and professional and similar organizations [813]	25	25	26	27	29	36	38	41	44	48	53	56	59	63	66	71	74
Personal and laundry services and private households [81A]	449	463	482	500	510	542	564	587	625	666	704	731	767	802	854	907	948
Federal government public administration [911]	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Provincial and territorial public administration [912]	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Local, municipal and regional public administration [913]	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Total, underground economy	18,828	19,832	20,332	20,034	20,350	21,389	22,167	23,494	24,760	26,177	27,920	29,531	31,466	33,124	33,689	35,104	35,687

Source: Statistics Canada, Income and Expenditure Accounts Division, 2010, special tabulation

1. The alphanumeric codes appearing in square brackets besides each industry title represent the identification code of the NAICS-based classification for use with the Canadian System of National Accounts (SNA-NAICS). The identification scheme uses a two-digit code to represent industries at the Small (S) level of aggregation. A three-digit code is used to represent industries at the Medium (M) level of aggregation and a four-digit code is used to represent industries at the Historical-Link (L) level of aggregation. In most cases, the alphanumeric identification code is identical to the NAICS codes the industry represents. In some cases, however, the identification code represents a combination of NAICS industries, whose definition can easily be obtained by referring to the full classification provided in the Survey or Program Details Record 1401.

2. The input-output tables are built around three classification systems, namely the Input-Output Industry Classification (IOIC) for industries, the Input-Output Commodity Classification (IOCC) for commodities and the Input-Output Final Demand Classification (IOFDC) for final demand. Each classification has four level of hierarchy, consisting of the "W" (working) level, the "L" (historical-link) level, the "M" (medium) level and the "S" (small) level. The Input-Output Industry Classification (IOIC) is based on the industrial standard of the day, which is currently the North American Industry Classification System (NAICS) 2002. The IOIC uses a coding scheme that resembles NAICS, but is modified to reflect the hierarchical structure and organization of the IOIC. The NAICS definition of the IOIC classes as well as its hierarchical structure can be found in "Input-Output Classification" at the following link: <http://www.statcan.gc.ca/imdb-bmdi/1401-eng.htm>. The hierarchical structure of the Input-Output Commodity Classification (IOCC) and the Input-Output Final Demand Classification (IOFDC) can be found at the same link.

Table 4: Rates of underground activity by personal expenditure category, 2008

Personal expenditure category		Personal spending including taxes	Underground activity	Percent relative to spending
		dollars		%
PSG1	Food, beverages and tobacco			
	PS01 Food and non-alcoholic beverages	78,868	1,675	2.1
	PS02 Alcoholic beverages bought in stores	17,454	1,302	7.5
	PS03 Tobacco products	13,436	2,600	19.4
PSG2	Clothing and footwear			
	PS04 Men's and boys' clothing	11,501	235	2.0
	PS05 Women's, girls' and infant's clothing	18,612	383	2.1
	PS06 Footwear	5,393	120	2.2
PSG3	Rent, fuel and power			
	PS07 Imputed rent	124,571	0	0.0
	PS08 Paid rent	41,403	871	2.1
	PS09 Other shelter expenses	8,032	19	0.2
	PS10 Electricity	15,553	0	0.0
	PS11 Natural gas	7,962	0	0.0
	PS12 Other fuels	4,598	272	5.9
PSG4	Furniture, furnishings and household equipment and maintenance			
	PS13 Furniture, carpets and other floor coverings	11,817	237	2.0
	PS14 Household appliances	12,891	365	2.8
	PS15 Semi-durable household furnishings	20,708	557	2.7
	PS16 Non-durable household supplies	14,268	514	3.6
	PS17 Domestic and child care services	6,797	1,704	25.1
	PS18 Other household services	5,854	264	4.5
PSG5	Medical care and health services			
	PS19 Medical care	22,778	463	2.0
	PS20 Hospital care and the like	2,380	0	0.0
	PS21 Other medical care expenses	6,315	0	0.0
	PS22 Pharmaceutical products and medical goods	19,116	289	1.5
PSG6	Transportation and communications			
	PS23 New and used (net) motor vehicles	46,327	205	0.4
	PS24 Motor vehicle parts and repairs	18,297	1,604	8.8
	PS25 Motor fuels and lubricants	36,078	453	1.3
	PS26 Other auto related services	9,458	86	0.9
	PS27 Purchased transportation	16,747	508	3.0
	PS28 Communications	19,463	0	0.0
PSG7	Recreation, entertainment, education and cultural services			
	PS29 Recreation, sporting and camping equipment	32,618	726	2.2
	PS30 Reading and entertainment supplies	14,054	531	3.8
	PS31 Recreational services	35,012	1,226	3.5
	PS32 Education and cultural services	12,780	233	1.8
PSG8	Miscellaneous goods and services			
	PS33 Personal effects not elsewhere classified	4,650	272	5.8
	PS34 Personal care	18,327	1,597	8.7
	PS35 Restaurants and accommodation services	58,519	4,338	7.4
	PS36 Financial and legal services	62,753	668	1.1
	PS37 Operating expenses of non-profit organizations	22,163	0	0.0
PSG9	Net expenditure abroad			
	PS38 Net expenditure abroad	13,644	0	0.0
Total		891,197	24,315	2.7

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