The Underground Economy in Canada: Boom or Bust?

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INTRODUCTION

On a recent Saturday afternoon, a truck made its way down the street in Saint John where I live. Going from door to door was the truck’s owner, offering driveway sealing services for $50 cash and no goods and services tax (GST). Professional curiosity prompted me to ask whether cheques were also acceptable. (I pretended to have no cash.) The answer was a very reluctant yes, but the cheque would have to be made out to him personally, not to his business.

All in all, it was typical of the encounters most of us knowingly have with the underground economy. Such experiences, however, do not help us very much in determining just how big the underground economy is. As readers of this journal will know, a considerable debate has gone on in Canada over the last decade about this question. David Giles and Lindsay Tedds’s recent book, Taxes and the Canadian Underground Economy, is one of the most recent contributions to this debate.¹

Giles and Tedds’s study is probably the most ambitious attempt to date to study the Canadian underground economy. It concludes that the underground economy in Canada is about 15 to 16 percent of recorded gross domestic product (GDP). Giles and Tedds contend that this is a broad estimate of both legal and illegal underground activities and of both cash and barter transactions. They do not contend that GDP is understated by this amount; some of the components of so broadly defined an underground economy are deliberately omitted from the national accounts.

In this comment on Giles and Tedds’s study, I shall focus on their method and its results. It is worth stressing, however, that the book contains much more than just a detailed account of Giles and Tedds’s own empirical work, although that account naturally forms its core. It also presents a valuable account of the current state of investigations of the underground economy, not just in Canada, but around the industrialized world. It also draws together the relevant theoretical literature and presents its conclusions in an accessible way.

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Before I turn to Giles and Tedds’s study, a brief review of some aspects of the underground economy debate in Canada in the 1990s might be useful.

**THE UNDERGROUND ECONOMY DEBATE IN THE 1990s**

It seems fair to say that the underground economy burst onto the Canadian scene as a major issue in 1993. Figure 1 shows how the number of articles that use the phrase “underground economy” has varied over the past 20 years in the broad sample of Canadian publications in the Canadian Business and Current Affairs (CBCA) database. It shows a rise in references to the underground economy between 1992 and 1993-1994 that surely bore no relation to any change in the actual underground economy itself in those years. The visibility of tobacco smuggling in 1993 was certainly an important factor in bringing the issue to public attention, but the story of the underground economy had implications for more than just the debate about tobacco taxes.

The prominence of the underground economy issue in the 1990s was, in part, a consequence of its political implications. To some extent, growth in the underground economy may reflect some citizens’ dissatisfaction with the public services received for their taxes and hence with tax rates. Their evasion of tax payments, in turn, lessens governments’ ability to finance public goods and services. As Frey and Schneider rightly note, “[o]pponents of extensive state activity welcome the limits imposed on taxation and regulation and applaud the dynamism and flexibility in the underground sector.” They will typically claim that the tax authorities’ enforcement efforts will prove futile: “the incentive to make money free of tax or government control is too great for such methods to have more than a modest impact. . . . In the end, successful efforts to reduce the underground economy must involve tax reduction, deregulation, privatization and other market-oriented measures.”

This issue was particularly salient in Canada in 1993 and 1994, when the newly elected Liberal government faced the question of how to deal with the large fiscal deficits that had resulted from the deep recession of the early 1990s. The story of a burgeoning underground economy was useful in the “neoconservative” campaign for spending cuts and against tax increases. Later in the 1990s, as growing federal surpluses emerged, the underground economy and stories of “tax rage” remained useful in the campaign to have the surplus spent on tax cuts and not on social programs.

Although Statistics Canada did not take sides on the issue of tax rates, it did wade into the fray in 1994 to defend its estimates of national income and expenditure. The subsequent headline in *The Globe and Mail* read “Boom in Hidden Economy a Bust. Study Debunks Claim That 20 Percent of Commerce Underground.” Department of Finance officials provided supportive arguments in a paper later that year. As figure 1 suggests, these interventions may have had some effect in dampening popular interest in the underground economy.

In a non-partisan role, a variety of academic studies of the underground economy have appeared since the early 1990s, many of them in this journal. Without going
into detail about their results, the different studies have produced estimates that are compatible with different views of the relative size of the underground economy, from relatively small to relatively large.

This underground economy debate remains unresolved, with uneasily coexisting estimates of underground activities that vary by more than 10 percent of GDP. Giles and Tedds have ventured bravely into this contentious territory in their book, and their results suggest that underground activities are substantial.

**The Underground Economy as a Latent Variable**

Underground economic activity is, virtually by definition, not directly observable or reported. There are, however, some potentially observable “causes” of the underground economy. Typically, changes in some tax rates are thought to be one cause, since they alter people’s incentives to evade paying taxes. Changes in people’s opportunities to evade taxes is another cause, one that may be reflected in changes in sectoral employment (such as the growth of sectors in which evasion is easier) or in type of employment (such as shifts from paid employment to self-employment) or in market structure (such as the supplanting of small by “big box” stores). Changes may also occur in people’s attitudes about the morality of cheating on their taxes.

There are also various possible indirect “indicators” of changes in the level of underground activity. Some studies have focused on changes in cash holdings that can be linked statistically to changes in tax rates as an indicator of changes in the underground economy.
A statistical method called a “latent-variable” or “multiple indicators, multiple causes” (MIMIC) model addresses this situation. Figure 2 illustrates this model, in which the “causes” and the “indicators” are observable but the “latent variable” is not. One can infer something about it, however, by estimating a relationship between the observed causes and the observed indicators.

**FIGURE 2 Schematic Representation of a Latent-Variable or MIMIC Model**

Causes $\rightarrow$ latent variable $\rightarrow$ indicators.

Consider a simple example. Suppose we want to study the unobservable “stance of monetary policy.” It is affected by the “causes” that guide the central bank’s decisions, such as measures of inflation, unemployment, foreign trade, and production. The “indicators” of monetary policy are the variables that the central bank’s decisions affect most directly, such as bank reserves and various kinds of interest rates. The causal variables and the indicator variables must correspond closely enough to monetary policy so that the researcher can be confident that monetary policy is indeed what is actually identified in the statistical estimation. The causal variables may “cause” other things as well, but these things should be correlated with the indicators only to the extent that the unobserved “monetary policy” is affected as well.

THE CAUSAL AND INDICATOR VARIABLES IN GILES AND TEDDS’S MODEL

Giles and Tedds argue persuasively that it is possible to regard the underground economy as a latent variable, a method that they and others have used before. Table 1 shows the causal and indicator variables that the central model in their study uses. No clear theoretical model specifies what should be included here, so the selection is somewhat ad hoc.

The statistical estimation identifies the “total number of male holders of multiple jobs” as the most important causal variable. Giles and Tedds say that “[i]t is commonly argued that the self-employed and holders of two or more jobs have both the incentive and the opportunity to participate in the hidden economy by underreporting income.” But exactly how multiple job holders “can use this circumstance to mask some of their income” is not made sufficiently clear. Why the measure is confined to men is also not discussed. It is also not clear how the variable should be measured. Why should it not be expressed as a proportion of the labour force, as unemployment is? Are estimates of the latent variable sensitive to definitional changes of this kind?

It turns out that men with second jobs are often involved in self-employment, and recent research suggests that more than 60 percent of long-term holders of multiple jobs are business owners in at least one of their jobs. If self-employment is the key feature of multiple job holding that is a “cause” of underground activity, it
is not clear why some direct measure of self-employment might not be more appropriate. Indeed, the model already includes income from self-employment.

The use by Giles and Tedds of the nominal Canada-US exchange rate is puzzling. They see it as a reflection of incentives to smuggle goods across the border, but the real exchange rate is a better measure of this factor.17

Giles and Tedds never explain why the share of corporate income taxes in GDP has a role as a causal variable, although they conclude that it plays a greater role than does the indirect tax variable.18 Yet they do not challenge the usual assumption that underground activity by large corporations is negligible. Perhaps the ratio of corporate taxes to GDP has some role as an indicator of the state of the business cycle; it is likely strongly pro-cyclical, rising during expansions (although with a lag as firms carry losses forward) and falling sharply during recessions. Why this consideration should be relevant here, however, is unclear.

Giles and Tedds do discuss the surprising absence among the causal variables of any personal income tax variable. Although they expected variables of this kind “to be among the most significant causal variables,” the three descriptions of personal income taxes that they tried “turned out to have the ‘wrong’ sign.”19 Perhaps, as they argue, the constructed personal income tax variables were inappropriate and some other measure was needed to capture the expected influence of personal income taxes on underground activity. It is also possible, however, that this difficulty reflects some problem with the model itself and what it is measuring.

Giles and Tedds consider the primary indicators of underground activity relative to GDP to be the growth rate of real GDP and nominal currency in circulation.20 Unfortunately, the theoretical relationship between the underground economy’s relative size and the GDP growth rate is ambiguous; it could be either positive or negative.21 As a result, the estimated sign of the relationship gives us no indication of whether one is on the right track or not.

The choice of nominal currency as an indicator variable is puzzling. Giles and Tedds say that “any increase in the amount of currency in circulation may indicate an increase in the hidden economy,”22 but it may also indicate many other things, such as a rise in the price level that is reflected in the nominal income of the self-employed, a causal variable. As an indicator of changes in the relative size of the

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underground economy, would not a variable such as real currency per capita be a more natural choice? Questions of this kind plague any empirical work, as Giles and Tedds clearly appreciate.23

What Is the MIMIC Model Measuring?

What is the “latent variable” that the MIMIC model measures? Giles and Tedds believe that it is output in the hidden economy as a percentage of measured GDP. They rightly state that “[t]his interpretation of the latent variable needs to be considered, and justified, carefully.”24 The justification they put forward, however, really amounts to no more than a re-assertion that this is indeed what the latent variable is. I do not believe that they can be faulted for this; there is really nothing more that they could say.

As Giles and Tedds bluntly state, “there is no way to be absolutely certain that the latent variable being measured is really the hidden economy.”25 It is possible that, whatever it is, it has nothing directly to with the underground economy.26 Giles and Tedds point out that

[an essential and inescapable shortcoming of the MIMIC approach to the hidden economy is this: no one can guarantee that the variable estimated by the MIMIC model is really and truly “the size of the underground economy.” After all, even if one is able to come up with a fairly convincing list of causes and indicators, the underground economy is not likely to be the only economic phenomenon that they cause and indicate.27

Despite this caveat, they state that “we believe that all of the causal variables in our models are in fact determinants of hidden economic output, whatever else they may be, and that it is reasonable to interpret their combined effect as a measure of the underground economy.”28 Ultimately, it is up to the reader to decide how persuasive the connections are between the causal variables and the unobserved variable, and between the unobserved variable and the indicators.

If the latent variable that is measured does have some connection to the underground economy, why is it an index of underground economy output relative to measured GDP? Giles and Tedds say that “[g]iven our particular choices of indicator and causal variables” it is “more reasonable” to interpret it as a measure of output rather than as a measure of inputs into the underground economy, but they do not elaborate.29 Given that the causal variables contain a number of input-related variables (holders of more than one job, self-employment income, the unemployment rate) that are deemed to be relatively important, why may the latent variable not be some measure of aggregate input?

Giles and Tedds then say that “given our choice of variables and our manner of specifying the MIMIC models, one should expect the latent variable to reflect changes in the size of the underground economy relative to the size of the measured economy, rather than the absolute size of the underground economy.”30 The causal and indicator variables, however, are a curious mixture of real and nominal variables
and ratios that seem to have no obvious interpretation. By what criteria can one judge what form the latent variable takes?

This discussion has highlighted the most serious weakness of the latent-variable approach: something is being measured, but there is no way to determine what it really is. If the estimates of the latent variable are related to the underground economy, do they measure inputs or outputs or something else? If what they measure is output, is it the level of real output, real output relative to measured real output, or one of many other possibilities? Does the latent variable measure all underground activity or only some portion of it? Giles and Tedds maintain that it somehow measures everything, from cash-based transactions to skimming of receipts by business owners to barter trade.

There is one further point to make. According to Giles and Tedds, the output of the MIMIC model is only an index. It has to be scaled appropriately. This exercise requires either an assumption about the value of underground activities relative to GDP in a particular year or a separate estimate of this value.

**Converting the MIMIC Model Output to a Measure of Underground Activity Relative to GDP**

Giles and Tedds multiply the results from the MIMIC model by an estimate of the long-run average size of the underground economy that they derived from an estimate of the demand for currency. Currency demand naturally depends in part on the size of the underground economy. Because the underground economy is not observable, a proxy is required to estimate the currency-demand equation. Giles and Tedds simply state, “we have taken hidden output to be a weighted sum of current and past recorded output.” Why this amount is a good proxy for hidden output is not explained, and it is not obvious. After all, statistical estimation of equations for currency demand normally finds some role for variables such as the values from previous periods of things such as interest rates and recorded output. These variables are not typically interpreted as being linked with the underground economy, but the book’s results hinge on this unexplained point.

To apply the MIMIC model in a convincing way is clearly no easy task. Giles and Tedds have made a bold try, taking into account the best econometric techniques. But problems remain in finding observable causes and indicators that dispel doubts about what is being measured and in interpreting and scaling the results.

**ESTIMATES OF THE UNDERGROUND ECONOMY**

As I noted earlier, the debate about the underground economy in Canada in the 1990s has produced a wide range of claims and estimates. Giles and Tedds are clearly aware that their job is not only to produce their estimates but also to persuade others that the estimates are reasonable. To this end, they explain why their estimates differ so much from those of Statistics Canada and point to other estimates, obtained by other methods, that reach conclusions broadly similar to their own.
The Statistics Canada View

Statistics Canada used 1992 data, judgments of their potential reliability, and some assumptions about the possible or plausible magnitudes of income or spending that could be hidden in concluding that no more than an amount equivalent to 2.7 percent of measured GDP could be missing from the national accounts.35

Statistics Canada assumed that an amount equal to an additional 1 percent of measured GDP consisted of illegal production.36 A comparison of the national accounts with the data collected by the tax authorities suggested that a further 2.5 percentage points of GDP might be hidden from the Canada Customs and Revenue Agency (CCRA). In total, the underground economy could plausibly be no bigger than about 5.2 percent of measured GDP.37 Thus Smith writes that “the size of the underground economy in Canada today could not possibly reach double-digits, as a percentage of GDP, unless its definition were extended to encompass non-market production.”38

Given the reputation of Statistics Canada, any claim that the underground economy is actually in the double digits, as a percentage of GDP, has to address its view. Where might the missing tens of billions be lurking?

To be fair, answering this question is not Giles and Tedds’s primary task, and the great bulk of their book is quite properly taken up with an exposition of their own calculations. But they are aware of the importance of the issue.

They argue that the “weaknesses of the national accounts approach [used by Statistics Canada] are its subjectivity, the narrowness of its coverage, and the fact that it approaches the underground economy from a value-added perspective rather than as a whole.” This approach results in “quite conservative estimates.”39 For example, if a transfer of assets between individuals does not involve value added, it does not contribute to GDP, yet it does constitute an underground activity if taxes are evaded.40

Giles and Tedds believe that illegal activities are much larger than Statistics Canada’s figure of 1 percent of GDP. For example, they cite a range of $5 billion to $17 billion for “funds ... moved illegally in and through Canada each year.”41 The Statistics Canada approach—with its focus on value added—deliberately ignores these flows, on the ground that to include them would amount to a kind of double-counting.42

Giles and Tedds are right in suggesting that the differences among estimates of the size of the underground economy are attributable in part to differences in the definitions of underground activity that the various estimates use. Their discussion focuses almost exclusively on illegal activities. It still leaves a great deal of the difference between their estimate and that of Statistics Canada unexplained. It would be interesting to see these issues explored more fully in the future.

The Results of Other Underground Economy Studies

As part of their argument for the plausibility of their results, Giles and Tedds argue that their results are broadly in line with those for the rest of the OECD and with
others’ results for Canada. They naturally assume that these estimates have been produced in a reliable way. Unfortunately, this is not always the case. The most credible of the other results come from the currency-demand approach and rely on the following kind of calculation:

\[
\text{“tax-induced” currency} \times \text{income velocity of currency} = \text{“tax-induced” hidden economy income.}
\]

“Tax-induced” currency is the amount of extra currency holdings that is attributable to changes in tax rates (rather than changes in things such as interest rates or spending). People hold extra currency either because they make more cash transactions or because they hold more savings in the form of cash. The income velocity of currency is the amount of total income generated by the transactions that a dollar of currency supports. Multiplying one by the other gives an estimate of the total amount of additional hidden economy income that has been induced by the change in taxes.43

Typically, considerable effort is spent on properly estimating an equation to describe currency as a function of tax rates and other variables. The income velocity of currency, however, though equally important, is often selected with barely a word of justification.44

For example, Friedrich Schneider, one of the most prominent investigators of the underground economies in Europe, whose estimates Giles and Tedds cite in support of their own, writes that “without knowledge about the velocity of currency in the shadow economy, one has to accept the assumption of currency velocity in both sectors to be the same.”45 This assumption ignores the fact that the velocity of currency is less in the underground economy than it is in the regular economy.46 Schneider, like many others before him, then proceeds to use the velocity of M1 (a monetary aggregate consisting of currency plus demand deposits).47 This approach assumes that the velocity of the cash component of M1 is the same as the velocity of the demand-deposit component, even though it is known to be less.48 The velocity of M1 for Canada lies between 15 and 20. Yet what actual evidence there is about the income velocity of currency suggests that it lies in the range of 2 to 4.49 Given this range, Schneider’s estimate for the Canadian underground economy in 1996 of about 15 percent of official GDP would instead be 2 to 4 percent of GDP.50

Researchers should acknowledge the uncertainty about the appropriate velocity to use and provide a range of estimates. If we consider the real range of uncertainty for the velocity of currency, it is not clear that other studies lend any support to Giles and Tedds’s results.

**CONCLUDING REMARKS**

In principle, a MIMIC approach to the underground economy makes sense. It remains an open question, however, whether it is possible to implement this approach in a convincing way. A key difficulty is finding causes and indicators that are linked tightly enough to assure us that the latent variable is indeed connected
with the underground economy. Reasonable people will undoubtedly differ about
whether Giles and Tedds have succeeded in this case. Given the limitations of the
data available and the inherent limitations of the approach, I believe that they have
probably done the most careful and thorough job possible. As the researchers who
have wrestled with the problems of implementing the approach, they are no doubt
more keenly aware than anyone else of its limitations, as the passages I have quoted
earlier show.

If the latent variable is connected with the underground economy, there is no
clear way to see how it should be interpreted. Is it an index of some real inputs or
real outputs, or is it a ratio of inputs or outputs to other variables, such as the labour
force or real GDP?

If the results that emerged from this modelling approach coincided with the
results from well-established and reliable alternative methods, perhaps these questions
would be less troubling. In fact, however, there is a scarcity of reliable alternative
aggregate underground economy results with which to compare Giles and Tedds’s
estimates.

If the view that there is a large underground economy is to prove persuasive, its
proponents will have to explain, at some point, how Statistics Canada’s judgment is
wrong. This is not to say that Statistics Canada’s position is necessarily right.
Nevertheless, the results of aggregate calculations, whether obtained from a MIMIC
model or a currency-demand model or by some other method, resemble the results
obtained by “the person who wanted to measure a girl’s height by the length of her
skirt,” as Vito Tanzi, the author of an early influential study of the US underground
economy, jokingly put the matter some 20 years ago. Ultimately, if calculations of
this kind are to settle the issue, they must be supported by detailed microeconomic
evidence.

Perhaps evidence of this kind already exists but has not yet been adequately
examined. Perhaps evidence will appear on the basis of new sources of information,
such as the results of audits and other enforcement actions that the CCRA initiated
in the 1990s to crack down on tax evasion. As Spiro has suggested, random sampling,
“such as that carried out in the United States by the Internal Revenue Service,
would be highly desirable in Canada.”

Other sources of microeconomic evidence may also emerge. An interesting exam-
ple is Schuetze’s recent study of tax evasion among the self-employed. He detects
hidden income by comparing the spending patterns of the self-employed (as re-
ported on the family expenditure survey) with those of wage and salary earners.

In the meantime, Giles and Tedds’s very substantial effort has served its purpose
well. It has provided what is probably the best attempt possible to implement the
MIMIC model in the Canadian case. In doing this, it has contributed to the under-
ground economy debate in Canada, which has been dominated by studies that use
the monetary approaches. The most significant shortcomings in Giles and Tedds’s
study are not the fault of the authors. They simply reflect the limitations of the
data and of the technique itself, about which the authors are both fully aware and
admirably frank.
NOTES


2 *Canadian Business and Current Affairs* (Toronto: Micromedia) (CD-ROM and online database). I have excluded articles that refer only to the underground economy in other countries. Where possible, I have also excluded articles that were reprinted in another publication. From 1997, the CBCA database is split into separate “Business” and “Reference” databases; I have not double-counted duplicate entries. I have counted separately reports of the same event that are carried by more than one publication (for example, the 1999 auditor general’s report, which dealt in part with Revenue Canada’s efforts to deal with tax evasion). The database includes both widely read publications, such as some newspapers and magazines, and smaller-circulation specialist publications such as the *Canadian Tax Journal*. The lower values for earlier years may be attributable in part to the likelihood that the number of publications in the database has increased over the years.


5 For an account of the link between monetary policy, macroeconomic conditions, and government finances, see Lars Osberg and Pierre Fortin, eds., *Unnecessary Debts* (Toronto: Lorimer, 1996).


11 The example is taken from William H. Greene, Econometric Analysis (New York: Macmillan, 1990), 536-37.


13 See the discussion in Giles and Tedds, supra note 1, at 125-31.

14 Ibid., at 126.

15 Ibid., at 15.


17 In this case, the real exchange rate would be the number of Canadian dollars required to buy a US dollar multiplied by the ratio of a US price index to a Canadian price index. For example, an appreciation of the Canadian dollar might be offset if inflation were higher in the United States than in Canada. A Canadian who bought the cheaper US dollars would find that more of them were required to buy a good in the United States, so the net effect would be that American goods had not become cheaper than Canadian goods. The nominal and real exchange rates are likely strongly correlated, so perhaps it makes little practical difference which is used. But a real exchange rate is clearly preferable to a nominal one, and it is easy to calculate.

18 Supra note 1, at 127.

19 Ibid., at 126.

20 The indicator actually used was the change in the natural log of real GDP, which is the GDP growth rate. Table 1 does not indicate the transformations to the variables that were made to ensure that all variables were stationary before regression analysis took place. Similarly, the indicator for currency that is used is the difference between annual changes in currency in circulation. If $C_t$ is currency in circulation in year $t$, this is $[(C_{t+1} - C_t) - (C_t - C_{t-1})]$. These transformations, although necessary, make the intuitive interpretation of the model difficult. See supra note 1, at 128-29.

21 Ibid., at 145-46.

22 Ibid., at 125.

23 Ibid., at 238.

24 Ibid., at 116.

25 Ibid., at 86 (emphasis in the original). Giles and Tedds correctly observe that uncertainty about what is really being measured is a problem that arises “to one degree or another” in all of the approaches that try to measure the aggregate size of the underground economy.

26 This was the contention of Helberger and Knebel about the findings of Frey and Weck-Hannemann’s original study (supra note 12) based on the latent-variable or MIMIC approach. See Christof Helberger and Helmut Knebel, “How Big Is the Shadow Economy? A Re-Analysis of the Unobserved-Variable Approach of B.S. Frey and H. Weck-Hannemann” (1988) vol. 32, no. 4 European Economic Review 965-76. Giles and Tedds cite this study and discuss the extent to which its critique of the latent-variable approach does and does not apply to their work, supra note 1, at 101-3.
Giles and Tedds claim that the latent variable is a broader measure than just output or value added. Thus transactions that do not add to GDP but that do evade tax liabilities, such as capital gains taxes, are part of the underground economy. Supra note 1, at 89.

As Deirdre N. McCloskey argues in Knowledge and Persuasion in Economics (Cambridge, UK: Cambridge University Press, 1994) and elsewhere, economists and anyone else involved in systematic inquiry are also necessarily persuaders.

Smith, supra note 7, at 3.21. Behind this result is an assumption that in many sectors of the economy—the public sector, the sectors dominated by large enterprises—the underground economy is virtually non-existent. In some other sectors, however, there is considerable scope for hiding income. So the estimate includes the possibility that by “skimming” receipts small businesses in some sectors “may be hiding well over 50 percent of their net income” (ibid., at 3.23).

Giles and Tedds mention inheritances in this context, but in Canada there are no inheritance taxes to evade. Ibid., at 89 and 92. Theft and extortion, however, do fit into this category.


47 The value is typically calculated by dividing the official measure of gross national expenditures by M1, where M1 is adjusted downward by the amount of currency that is estimated to be in the underground economy to get what is often termed legal M1.


49 Klovland, supra note 44, at 435. The results of Fougère, supra note 10, provide further evidence, suggesting a range of 2 to 3.

50 The underground economy estimates would be overstated by a factor of between 3.5 (that is, 15/4) to 10 (20/2). An estimate of 15 percent of GDP, divided by these values, gives 1.5 percent to 4.3 percent. Schneider, supra note 45, at 19, table 2, reports his Canadian estimate.


53 He estimates that, on average, hidden income accounts for between 11 and 23 percent of these households’ income. Since only part of household income consists of self-employment income, the understatement of self-employment income is higher. Schuetze, supra note 10, at 233.