

Oana Simona HUDEA
University of Bucharest, Romania

METHODS TO QUANTIFY THE UNDERGROUND ECONOMY

Review
Article

Keywords

*Underground economy,
Informal labour market,
Officially unreported incomes,
Informal economy quantification,
Quantitative methods*

JEL Classification

E20, E26, J46, O17

Abstract

The underground economy issue has raised in time miscellaneous discussions, it representing a large interest problem that affects the nations all over the world, without exception and, thereby, the well-being of stand-alone individuals. Although also treated in some previous works of the author, this topic in herein approached from a different perspective, namely the one related to distinct methods to be used in order to capture, by quantification, this undesirable economic form. Such methods, empirically tested or just imposed, based on arguments, by the researchers having launched the same, are rendered while considering their pluses and minuses in revealing, with a reasonable accuracy, the level of the above-mentioned informal economy.

INTRODUCTION

Setting the context of the underground economy, also designated herein as the informal economy, identifying its causes and effects, as well as the measures to be taken so as to efficiently deal with it have generated multiple approaches, more or less coherent, but, all of them, clearly directed towards a more thorough understanding of the same, providing, step by step, additional knowledge in the matter.

When coming about simply generating ideas or expressing opinions, the problems might look easier, the arguments brought by researchers being, often, enough to convince the audience about the veracity of the stated beliefs.

However, when trying to go forward and to turn qualitative pieces of information into quantitative ones, either related to the identification of the target indicator volume / level or to the right extent of the measures to be taken, things start becoming more complicated. And such complexity increases even more in uncertainty specific circumstances, as are the ones surrounding the underground economy issue.

Without necessarily focussing on empirically tested methods recommended for quantifying such form of economy, we undertake in this paper to make a brief review of the modalities considered by some specialists in the matter, in their attempt to understand the dimension of this phenomenon, revealing, at the same time, some advantages and disadvantages generated by their use.

In order to clearly render it, we decided to split our presentation into two parts, distinguished from each other on the basis of the types of methods used for quantifying the underground economy: methods based on qualitative data, in section 2, versus methods based on quantitative data, in section 3. Naturally, the paper ends with Conclusions, resuming the main issues revealed by the present study.

METHODS FOR QUANTIFYING THE UNDERGROUND ECONOMY BASED ON QUALITATIVE DATA

In a world increasingly based on a quantitative approach, researchers belonging rather to social and/or humanist sciences had to find solutions so as to adapt their studies to the new requirements imposed by the real life.

The issue mainly consisted in identifying manners of quantitatively treating sometimes non-parametric data, be they nominal, ordinal or even scale data – usually obtained based on questionnaires – in terms of absolute and/or relative frequencies or in terms of correlations between related variables, providing the possibility to choose, for the latter, depending

on the case, from a series of specific coefficients like Spearman, Kendall, Contingency or Goodman and Kruskal, among many others.

A welldefined questionnaire may lead to an increased efficiency in getting the desired size of the target indicator, but in some cases, as the ones related to the underground economy, certainly involving the breach of existing official or morale laws, even clearly and comprehensively formulated questions can generate inaccurate answers.

If we add to this the fact that, most of the times, the questions will not be so direct so as to get a yes or no answer as concerns the practising of underground economy related activities or a value of the incomes generated by it and not publicly declared, it is obvious that a set of indirect, more circumventing questions should be asked in order to achieve the established goal. This, certainly, also involves a subsequent resorting to a quantitative analysis so as to reach, at the end, the wanted outcome.

Clearly, this does not exclude the rare cases when direct questions are addressed and straight answers are provided, representing nothing else but numbers and/or values that can be directly used in sizing the level of the underground economy, thereby turning the survey itself into a direct method for its estimation.

Yet, another problem raised by questionnaire-grounded surveys, on which a subsequent consistent analysis should be based, is not necessarily the fact that we deal with samples and not with the entire population, therefore being subject to non-representativeness related issues, but the fact that we will mainly address our questions to people envisaging the household economic agent and not the firm, public administration or insurance and financial institution ones – the latter being, normally, significantly less probable to provide right answers to such questions.

Besides, there are cases when we encounter voluntary reply based sample surveys (Isachsen et al., 1982), restricting even more the number of individuals approached in this respect.

Therefore, the non-representativeness aspect should be seriously considered both when choosing the quantitative instruments to use (methods specific to non-parametric data should be applied for scale variables with non-normal distribution or based on reduced size samples), as well as when making statements about the questionnaire-based results.

Finally, a last issue mentioned in here, among the large range of inconveniences generated by this way of determining the underground economy dimension, concerns the psychological, social, educational or cultural differences between individuals, more sharply visible when talking about international analyses (Pedersen, 2003, Renooy et al., 2004, Feld and Larsen, 2009 or Haiguer et al., 2013), this seriously raising a

challenge in finding at least an acceptable common pattern for the performed survey in order to obtain consistent results, therefore avoiding the outlining of the discrepancies between the said individuals perceptions, level of understanding, awareness and so on.

However, despite of the “flaws” arising from such qualitative approach, subsequently, more or less directly, turned into quantitative outputs, that Schneider and Buehn (2016) characterised in their study as generating lower-bound estimates in comparison with alternative approaches, this remains one of the most at hand instruments, being largely used in dealing with such universal issue.

As the case may be, this survey-based approach might finally help in getting some valuable pieces of information (Mogensen et al., 1995 or Pederson, 2003).

METHODS FOR QUANTIFYING THE UNDERGROUND ECONOMY BASED ON QUANTITATIVE DATA

If the most commonly used method for identifying the size of the underground economy, consisting in surveys, is usually based on qualitative data, having, most often, to be subsequently subject to a highly specific quantitative approach, the more objective and, sometimes, more accurate ones, without ignoring their weaknesses, are deemed to be those based on statistically collected data, corresponding to well defined macroeconomic indicators.

Therefore, we deal, this time, with a sort of analysis starting from a macroeconomic perspective, having in mind to identify what happens at microeconomic level, and not with a reverse direction of analysis, as in the case of the previous section.

Such instruments, namely the macroeconomic level related ones, usually based on numbers and values, are rather indirect, with the entitled organisms collecting, grouping and centralising specific data, given generally accepted indicators, acting as intermediaries for those trying to provide, to the related authorities in force, correct measurement / assessment results concerning the underground economy size.

Going forward, deeper, into the “mystery” of these instruments, we might reveal several elements, thoroughly structured by Schneider and Buehn (2016), considering the existing literature in the matter, acting as proxies for the informal economy dimension.

Among such proxies, the following deserve to be mentioned: the gap between gross incomes and gross expenses at national level, as registered in the related accounting books (Peterson, 1982, O’Higgins, 1989 or Smith, 1985), the gap between the number of national individuals being officially

employed and those effectively rendering activities without visible remuneration (Del Boca, 1981, O’Neill, 1983, Thomas, 1992, Williams, 2009 or Williams and Lansky, 2013) or the gap generated by the evolutionary trend distinctive moments of the demand for currency (Tanzi, 1980 or Tanzi, 1983), just to specify the most relevant items. Besides, a rather strange indicator in the matter, physical by nature, is represented by the gap between consecutive levels of electrical power consumption, either regarded considering just the household economic agent (Lackó, 1998, Lackó 1999 or Lackó 2000) or all economic agents as a whole (Kaufmann and Kaliberda, 1996), deemed to truly reflect, at parity, the economic activity growth and, thereby, to turn into a proxy for sizing the underground economy.

As specified at the beginning of the paper, both positive and negative issues related to such approach might be revealed.

A significant difference as for the aspects treated in section 2 is that the macroeconomic statistics are more comprehensive, thus eliminating the inconveniences generated by the microeconomic origin survey related incomprehensibility issues. More than that, we have at our disposal the possibility of choosing among various such macroeconomic indicators, or, as the case may be, of resorting to multiple indicators at a time, trying to take the best of them.

However, irrespective of their number, the missing elements characterising the same might weight so much as to deeply distort the final informational package, providing useless or even misleading underground economy assessment results, as we can see hereinafter.

As regards the gap between gross incomes and gross expenses at national level, the main menacing problem is the one concerning their miscellaneous components, susceptible to cause, on their collection, aggregation and/or computing, even when looking optimistically as to the relative correct capturing of the same, with insignificant errors or omissions, overall rolling, sometimes synergic negative effects in such respect.

The same problem of errors or omissions is also encountered as concerns the gap between the number of national individuals being officially employed and those effectively rendering activities without visible remuneration, but from a distinctive perspective, this time the main cause thereof being the lack of coherent means at hand in correctly and completely capturing the related information or in the sometimes encountered duality as for the official-unofficial labour provided. Besides, if such gap is analysed in time, the labour market participation rate oscillations associated with the underground economy size trend could be, in fact, influenced, by some other ignored important factors, as well.

The gap generated by the evolutionary trend distinctive moments of the demand for currency has encountered, without exception, counter-arguments in being considered a highly viable indicator for approximating the informal economy size. The problematic elements in here are related to the fact that a modification of the demand for currency, under the fiscal impact or under the influence of other assimilated issues, not always considered, does not necessary originate in informal economic activities, it being also subject to other factors, like the change in the level of high liquidity deposits, for instance, or to the fact that not all economic illegal/unreported activities are carried out by using cash (Isachsen and Strøm, 1985).

Concerning the gap between consecutive levels of electrical power consumption, the technological progress, determining, in time, a more efficient use of the same, therefore variations not connected to the informal economic activities, the electrical power alternatives used to carry out different activities, or other such elements, question the reliability of such indicator.

As a common negative aspect, this approach provides what Schneider and Buehn (2016) identify as upper-bound estimates, issue mainly related to the superposition of information generative redundant results and, thereby, to the occurrence of deviations from the right output.

The main concern of getting incorrect, incomplete or, overall, misleading results is that this finally and decisively affects the macroeconomic policy decisions undertaken by the entitled bodies in order to keep the underground economy under control (Hudea, 2017)

Leaving aside the above-mentioned inconvenients, and looking from a distinct angle, the data provided by statistics, usually parametric as type, allow for different econometric approaches, their complex analysis resulting not just in the rendering of frequencies or correlations between variables, as in the case of qualitative data, but also in a deepened research, in terms of regressions or forecasts.

CONCLUSIONS

The purpose of this paper was to make a brief incursion into the sphere of the main methods available for quantifying the underground economy and, thereby, for placing at the disposal of pertinent macroeconomic entities, with authority in the matter, pieces of information, as much as possible correct and complete, so as to allow the same to act in the right direction with maximum efficiency.

Unfortunately, there are no exact means for getting an indubitable exact result as for the extension of the economic informal activities. Irrespective if we are talking about qualitative data, mainly obtained

via surveys, or about quantitative ones, usually emerging from statistical approaches, both of them subsequently processed so as to get the desired final indicators, we encounter several negative aspects, succinctly mentioned above, which should be considered.

However, the foundation has been laid down in this respect and several well-grounded steps have been taken related herewith, the improvement in a visibly consistent way of such effort outcomes, for providing a significantly more accurate output, being just a matter of time.

REFERENCES

- [1] Del Boca, D. (1981). Parallel economy and allocation of time, *Micros (Quarterly Journal of Microeconomics)*, 4, 13–18.
- [2] Feld, L. P., & Larsen, C. (2009). *Undeclared Work in Germany 2001–2007 – Impact of Deterrence, Tax Policy, and Social Norms: An Analysis Based on Survey Data*, Springer, Berlin.
- [3] Haigner, S., Jenewein, S., Schneider F., & Wakolbinger, F (2013). Driving Forces of Informal Labour Supply and Demand in Germany, *International Labour Review*, 152(3-4), 507–524.
- [4] Hudea (Caraman), O.S. (2017). How to manage Underground Economy-related Issues, *Manager Journal*, 25, 99-109.
- [5] Isachsen, A.J., Klovland, J., & Strom, S. (1982). The hidden economy in Norway, in: *Tanzi, V. (ed.), The Underground Economy in the United States and Abroad*, DC Heath, Lexington Books, Lexington, MA, 209–231.
- [6] Isachsen, A.J., & S. Strøm (1985). The Size and Growth of the Hidden Economy in Norway, *Review of Income and Wealth*, 31(1), 21–38.
- [7] Kaufmann, D., & Kaliberda, A. (1996). Integrating the unofficial economy into the dynamics of post socialist economies: a framework of analyses and evidence, in: Kaminski, B. (ed.), *Economic Transition in Russia and the New States of Eurasia*. M.E. Sharpe, London, 81–120.
- [8] Lackó, M. (1998). The Hidden Economies of Visegrad Countries in International Comparison: A Household Electricity Approach, in: *Halpern, L. and Ch. Wyplosz (eds.), Hungary: Towards a Market Economy*, Cambridge (Mass.), Cambridge University Press.
- [9] Lackó, M. (1999). Electricity Intensity and the Unrecorded Economy in Post-Socialist Countries, in: *Feige, E. and K. Ott (eds.), Underground Economies in Transition*, Ashgate Publishing Company.

- [10] Lackó, M. (2000). Hidden Economy – an Unknown Quantity? Comparative Analysis of Hidden Economies in Transition Economies, 1989–95, *Economics of Transition*, 8(1), 117–149.
- [11] Mogensen, G.V., Kvist, H.K., Kfrmendi, E., & Pedersen, S. (1995). The Shadow Economy in Denmark 1994: Measurement and Results, *The Copenhagen Rockwool Foundation Research Unit Study no. 3*.
- [12] O’Higgins, M. (1989). Assessing the underground economy in the United Kingdom, in: Feige, E.L. (ed.), *The Underground Economies: Tax Evasion and Information Distortion*, Cambridge University Press, Cambridge, UK, 175–195.
- [13] O’Neill, D.M. (1983). Growth of the underground economy 1950–81: some evidence from the current population survey, *Study for the Joint Economic Committee, U.S. Congress Joint Committee Print, U.S. Gov. Printing Office, Washington, DC*, 98–122.
- [14] Pedersen, S. (2003). The Shadow Economy in Germany, Great Britain and Scandinavia: A Measurement Based on Questionnaire Service, *The Copenhagen Rockwool Foundation Research Unit Study no. 10*.
- [15] Petersen, H.G. (1982). Size of the public sector, economic growth and the informal economy: development trends in the Federal Republic of Germany, *Review of Income and Wealth*, 28, 191–215.
- [16] Renooy, P., Ivarsson, S., van der Wusten-Gritsai, O., & Meijer, E. (2004). Undeclared Work in an Enlarged Union – An Analysis of Undeclared Work: An In-Depth Study of Specific Items, *European Commission, Brussels*.
- [17] Schneider, F., & Buehn, A. (2016). Estimating the Size of the Shadow Economy: Methods, Problems and Open Questions, *Institute for the Study of Labor Discussion Paper Series no. 9820*.
- [18] Smith, J.D. (1985). Market motives in the informal economy, in: Gaertner, W. and A. Wenig (eds.), *The Economics of the Shadow Economy*, Springer, Heidelberg, 161–177.
- [19] Tanzi, V. (1980). The underground economy in the United States: estimates and implications, *Banca Nazionale del Lavoro*, 135, 427–453.
- [20] Tanzi, V. (1983). The underground economy in the United States: annual estimates, 1930–1980, *IMF Staff Papers*, 30, 283–305.
- [21] Thomas, J. J. (1992). *Informal Economic Activity*, LSE, Handbooks in Economics, Harvester Wheatsheaf, London.
- [22] Williams, C.C. (2009). Formal and informal employment in Europe: Beyond dualistic representations, *European Urban and Regional Studies*, 16(2), 147–159.
- [23] Williams, C.C., & Lansky, M.A. (2013). Informal employment in developed and developing economies: Perspectives and policy responses, *International Labour Review*, 152 (3–4), 355–380.