The Underground Economy in Times of Crisis: An Analysis of Undeclared Work in Europe

Mónica Pérez-Magro
Universidad de Huelva
monica.perez.magro@gmail.com
José María Millán-Tapia
Universidad de Huelva
jose.millan@dege.uhu.es
Ana Millán-Tapia
Universidad Pablo de Olavide
amillan@upo.es
Concepción Román-Díaz
Universidad de Huelva
concepcion.roman@dege.uhu.es

Keywords: Underground economy, undeclared work, EU-28, Eurobarometer, Heckman Probit.

INTRODUCTION

The average size of the shadow economy of the 28 European Union countries in the year 2016 was 17.9% of the official GDP (about €2.36 trillion). In Spain, this figure was 17.9% (about €2 billion), which is nearly half of the total yearly public expenditure (about €4.72 billion) in the same period. The fact that many public budget lines have suffered relevant decreases in Spain since 2007 further emphasizes the importance of these figures. Therefore, disclosing the shadow economy is revealed as a key challenge in alleviating the negative consequences for society regarding these budget reductions.

Indeed, the informal economy attracts both the interest of scholars and policy makers, who are concerned with determining its size and causes, and developing appropriate instruments that can encourage its formalization. Attaining those objectives is, however, notoriously challenging as it requires the estimation of economic activity that is deliberately hidden from official transactions. Hence, the emergence of new contributions to these field are crucial.

Activities within the shadow economy typically fall into two categories that remain common across Europe. The first is *undeclared work*, which accounts for roughly two-thirds of the shadow economy and includes wages that workers and businesses do not

Revista de Estudios Andaluces, vol. 34, núm. 1 (2017) pp. 453-501. e-ISSN: 2340-2776
http://dx.doi.org/10.12795/rea.2017.i34.16

declare to the government to avoid taxes or documentation. The other one-third comes from *underreporting*, which is when businesses –primarily those that deal heavily in cash– report only part of their income to avoid some of the tax burden (Schneider, F., 2013).

OBJECTIVES

This study aims to analyse undeclared work as a key portion of the shadow economy in the EU-28, with a special focus on its (i) incidence, (ii) dynamics, (iii) structure, (iv) differences across countries, and (v) underlying determinants.

METHODS

Data and sample

We used microdata drawn from special Eurobarometers 284 and 402, which are designed to explore undeclared work phenomenon in the years 2007 and 2013. This survey covers the EU-28 general population's personal experiences of undeclared work in terms of their knowledge, participation (as a supplier and/or customer), motives and perceptions. In contrast to *indirect* methods of measuring the shadow economy (e.g., discrepancy between the official and actual labour force, currency demand approach, electricity consumption method, or MIMIC approach), *direct* survey-based methods rely on information directly provided by the population. The final dataset, after removing cases with missing data for any of the relevant variables, yields nearly 45,000 observations.

Dependent variables

Direct surveys tend to measure only the lower limit of the phenomenon, since not everyone is willing to (fully) admit their own involvement in undeclared work. Taking this into consideration, we aim to approach undeclared work in a progressive way and from different perspectives. In this regard, the following 5 indicators are used as our dependent variables in 5 different empirical models:

I. *Respondents' average assessment of irregular and individualistic behaviours*: 7 different behaviour (e.g., someone receives welfare payments without entitlement; someone uses public transport without a valid ticket, someone evades taxes by not or only partially declaring income, etc.) are assessed using the following scale: 1 = absolutely unacceptable, … , 10 = absolutely acceptable. The average assessment is calculated as a mean of the assessment of the 7 proposed behaviours. This variable can be interpreted a proxy of the respondents' *tax morality*, which is considered one of the main determinants of the hidden economy.

Revista de Estudios Andaluces, vol. 34, núm. 1 (2017) pp. 453-501. e-ISSN: 2340-2776
http://dx.doi.org/10.12795/rea.2017.i34.16

II. *Respondents' knowledge of anyone who carries out undeclared work* (0 = No, 1 = Yes).
III. *Whether respondents have paid for goods or services where they had good reason to believe that undeclared work was involved in the last 12 months (e.g., because there was no invoice or VAT receipt)* (0 = No, 1 = Yes).
IV. *Whether dependent employees have been paid envelope wages in the last 12 months* (0 = No, 1 = Yes).
V. *Whether respondents have undertaken paid undeclared work in the last 12 months* (0 = No, 1 = Yes).

Please note that our indicators II, IV and V are aimed at capturing the *supply* of undeclared work, whereas indicator III is intended to capture its *demand*.

Independent variables
The following variables are used as our main predictors or covariates:

I. *Respondents' average assessment of irregular and individualistic behaviours*. Our tax morality indicator is only used as a covariate when estimating our indicators of supply (indicators II, IV and V) and demand (indicator III).
II. *Respondents' assessment the risk of being detected undertaking paid undeclared work in his/her country* (1 = very small, 4 = very high).
III. *Four occupation dummies*: (i) self-employed (reference category); (ii) paid employee; (iii) unemployed; and (iv) inactive.
IV. Year of the interview (0 = 2007; 1= 2013).

Some control variables, such as the respondents' gender, age, terminal education age, household size, town size and country of residence, are also used.

Estimation methods
Two different analyses are part of this study. The analysis of the underlying determinants of our proxy of tax morality (indicator I) is conducted using linear regression models. To explore the determinant of our indicators of both supply (indicators II, IV and V) and demand (indicator III) of undeclared work, binary discrete choice models (*Probit* models) are applied. The correction for the non-response bias (i.e., the refusal rate is expected to be higher for those undertaking undeclared work) is addressed with *Heckman* selection models (*Heckman Probit* models).

RESULTS

First, we observe how the more acceptable the respondent considers irregular and individualistic behaviours, the higher the likelihood is that he or she is involved in both the supply (indicators II, IV and V) and demand (indicator III) of undeclared work.

Revista de Estudios Andaluces, vol. 34, núm. 1 (2017) pp. 453-501. e-ISSN: 2340-2776
http://dx.doi.org/10.12795/rea.2017.i34.16

Second, we also observe how the more the respondent perceives the risk of being detected undertaking paid undeclared work, the lower the likelihood that he or she is involved in both the supply (only indicators II and V) and demand (indicator III) of undeclared work and the more unacceptable the respondent considers irregular and individualistic behaviours (indicator I).

Third, our results confirm the categories of self-employed and unemployed as groups with a higher likelihood of being involved in both supply (only indicators II and V) and demand (indicator III) of undeclared work and a better assessment of irregular and individualistic behaviours (indicator I).

Fourth, our results show how the supply of undeclared work was lower in 2013 than in 2007, whereas the demand for undeclared work was higher in 2013 than in 2007. In other words, our results reveal procyclical and countercyclical behaviour of the supply and demand of the undeclared work, respectively.

Finally, there seems to be significant variability in our results across countries.

DISCUSSION / CONCLUSIONS

Our results stress the importance of (i) the individual assessment of irregular and individualistic behaviours; (ii) the perceived risk of being detected undertaking paid undeclared work; (iii) the occupation; and (iv) the aggregated conditions as determinants of undeclared work. In light of these results, some discussion seems in order, and several conclusions seem to emerge.

First, the importance of the acceptability degree of irregular and individualistic behaviours is consistent with existing empirical evidence and confirms the importance of social norms and tax honesty as key determinants of undeclared work (Van Eck, R. and Kazemier, B., 1988; Torgler, B. and Schneider, F., 2009; Feld, L.P. and Larsen, C., 2012). This is why both (i) effective communication of the value that public services taxpayers receive in exchange for their taxes and (ii) public awareness-raising campaigns to end these tax avoidance and tax evasion practices are deemed necessary.

Second, the relevance of the perceived risk of being detected undertaking paid undeclared work is particularly interesting since the theory suggests an unambiguous relationship between deterrence and the size of the shadow economy (Feld, L.P. and Schneider, F., 2010; Schneider, F. and Williams, C.C., 2013). In this line, the scarce existing empirical evidence indicates that the levels of fines and punishment do not exert a negative influence on the shadow economy, whereas the subjectively perceived risk of detection has a robust and significant negative impact (Van Eck, R. and Kazemier, B., 1988; Pedersen, S., 2003; Feld, L.P. and Larsen, C., 2012). Therefore, the effectiveness

Revista de Estudios Andaluces, vol. 34, núm. 1 (2017) pp. 453-501. e-ISSN: 2340-2776
http://dx.doi.org/10.12795/rea.2017.i34.16

of inspections and punishment seems to be jeopardised in the absence of effective communication of these measures to the society.

Third, the greater involvement in undeclared work (and better assessment of irregular and individualistic behaviours) of both self-employed and unemployed individuals is consistent with the existing empirical evidence (Portes, A. and Haller, W., 2005; Feld, L.P. and Schneider, F., 2010; Schneider, F. and Williams, C.C., 2013; Webb, J.W. *et al*., 2013). These results suggest these groups should be targeted for stricter controls as well as awareness training and information campaigns about the benefits of formalisation, such as increasing their credibility as business people or formal workers and opening up business or job opportunities.

Fourth, the procyclical character of the supply of undeclared work may be explained by the contraction (expansion) of economic activity during boost (boom) cycles. The countercyclical behaviour of the demand of undeclared goods and services, however, may be due to the financial constraints that many households face during recessionary periods (Schneider, F., 2015; Portillo Navarro, M.J. *et al*., 2017).

Finally, cross-country differences in terms of employment protection legislation, taxing frameworks, administrative obligations, or simply cultural differences (Alm, J. *et al*., 1995; Hofstede, G., 2003; Riahi-Belkaoui, A., 2004; Alm, J. and Torgler, B., 2006; Galindo Calvo, P., 2006; Richardson, G., 2006) are expected (at least to a certain extent) to explain international divergences in undeclared work. Consequently, an appropriate and effective design and implementation of measures aimed at tackling the shadow economy and, in particular, enabling the formalization of undeclared work, should seek the optimal combination of information, deterrence and awareness for each economy (*one size does not fit all*).

Revista de Estudios Andaluces, vol. 34, núm. 1 (2017) pp. 453-501. e-ISSN: 2340-2776
http://dx.doi.org/10.12795/rea.2017.i34.16