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Explaining the supply of home repair and renovation services in the undeclared economy: lessons from Europe

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Abstract

Three competing theories have been used to explain participation in the undeclared economy. A structuralist perspective asserts that workers are pushed into undeclared work because of their "exclusion" from the declared economy. Two alternative theoretical perspectives assert that undeclared operators voluntarily "exit" the declared economy. Neo-liberals depict undeclared workers as rational economic actors and institutional theorists represent them more as social actors who disagree with the formal rules. To evaluate these competing theories in relation to the supply of undeclared home repair and

renovation services, data is reported from a 2019 Eurobarometer survey involving 27,565 face-to-face interviews in 28 European countries. The finding is that 9.4% did so solely due to their exclusion from declared work. 19.8% participated purely for reasons associated with the rational economic actor perspective and 28.6% only for motives associated with the social actor perspective. 42.2% did so for a mixture of motives. Using probit regression analysis, the characteristics of those supplying undeclared home repair and renovation services and doing so for each rationale are revealed. The theoretical outcome is a call to view these perspectives not as competing but complementary. The policy outcome is to reveal the different policy initiatives required to tackle each of the rationales for supplying undeclared home repair and renovation services.

Keywords: informal economy; tax compliance; tax evasion; construction sector; Europe.

Introduction

Construction Management and Economics has recently published numerous articles advancing knowledge on employment and working conditions in the construction industry. These include studies on the gendering of construction work (Bridges et al, 2020; Çınar, 2020; George and Loosemore, 2019), work-life balance (Bowen et al, 2018; Kotera et al., 2020), and wage and labour precarity (Hamid and Tutt, 2019; Onsarigo et al., 2020). However, research on undeclared work has been notable by its absence. This gap needs to be filled. The starting point of this paper is recognition that those supplying home repair and renovation services often operate in the undeclared economy (Cremers et al., 2017; FIEC, 2006, 2020; EFBWW, 2020; Sionneau, 2006; Venturi, 2020;

Williams, 2020). Undeclared work is here defined as paid activities not declared to the authorities for the purpose of evading tax and social security contributions and/or labour laws (European Commission, 2016; OECD, 2017; Williams, 2019a; World Bank, 2019). Three competing theories have been used to explain participation in the undeclared economy. A structuralist perspective asserts that workers are pushed into undeclared work because of their "exclusion" from the declared economy (Davis, 2006; Gallin, 2001; Taiwo, 2013). Two other theories view undeclared operators as wishing to voluntarily "exit" the declared economy. Neo-liberals depict this as a rational economic decision (De Soto, 1989, 2001; Maloney, 2004; Perry and Maloney, 2007) and institutional theorists represent participants more as social actors who do so because they disagree with the formal rules (Cross, 2000; Gerxhani, 2004; Snyder, 2004). The aim of this paper is to evaluate these competing theories in relation to the supply of undeclared home repair and renovation services in 28 European countries.

To do this, the next section reviews the literature on these competing explanations in the wider literature on the undeclared economy. To evaluate them in relation to the supply of undeclared home repair and renovation services, the third section then introduces the data and methods used, namely a probit regression analysis with sample weighting of special Eurobarometer survey 92.1 on undeclared work involving 27,565 interviews undertaken in September 2019. The fourth section reports the findings. Revealing that all explanations prevail to differing extents, and the characteristics of those who advocate each explanation, the fifth and final section draws conclusions and discusses the theoretical and policy implications.

Explaining the supply of home repair and renovation services: contrasting theories

It has been widely recognised that the undeclared work undertaken in the home repair and renovation services sector is a significant proportion of the undeclared economy and that a large proportion of all home repairs and renovations are undertaken as undeclared work. Examining a 2007 Eurobarometer survey, Williams et al. (2011) find that 16% of all undeclared jobs are in the home repair and renovation services sector and that just under one in five (18%) of all undertaking home repair and renovation services reported doing so in the undeclared economy in the year prior to the survey. Analysing the 2013 Eurobarometer survey of undeclared work, meanwhile, Cremers et al. (2017) reveal that 19% of all undeclared jobs are in the home repair and renovation services sector. Given that nearly one-fifth of Europe's undeclared economy is in the home repair and renovations sector, this is an important sector to understand if undeclared work is to be tackled. To explain the supply of home repair and renovation services in the undeclared economy, three competing theories can be used from the wider literature on the undeclared economy. Here, each is reviewed in turn.

Structuralist theory

Structuralist scholars have portrayed the existence of the undeclared economy as resulting from the emergence of a de-regulated global economy (Castells and Portes, 1989; Davis, 2006; Slavnic, 2010). On the one hand, engagement in undeclared work is viewed as arising directly due to employers reducing their costs by sub-contracting to the undeclared economy, such as to wholly unregistered workers and those engage in "bogus self-employment" (Gallin, 2001; Portes and Haller, 2004; Portes and Roberts, 2005). On the other hand, the undeclared economy is depicted as absorbing labour excluded from the

declared economy. Undeclared work is therefore viewed as undertaken by "marginalised" or "excluded" populations who operate undeclared out of economic necessity in the absence of alternative means of livelihood (Arbex et al., 2015; Castells and Portes, 1989; Sassen, 1997). Undeclared work thus exists at the bottom of a hierarchy of employment and such workers are akin to "precarious labour", receiving low wages and operating under poor working conditions (Castells and Portes, 1989; Gallin, 2001). The undeclared economy is thus a source of income for those excluded from the declared economy and social protection benefits (Tokman, 2001).

A "marginalisation" thesis has therefore prevailed which posits that the undeclared workforce is composed of those marginalised from declared work. This is asserted to include unemployed people (Ahmad and Nobil, 2008; Castree *et al., 200*4; Surdej and Ślęzak, 2009), those with fewer years in full-time education (Slavnic, 2010) and suffering financial difficulties (Katungi *et al., 200*6; Williams, 2004). Undeclared work is also identified as more common in rural areas (Williams, 2004), less affluent regions of individual countries (Kesteloot and Meert, 1999; Williams and Windebank, 2001) and nations with a lower GDP per capita (Schneider and Williams, 2013; Williams, 2015). Examining the 2013 Eurobarometer survey of undeclared work, Williams and Horodnic (2017a) reveal that unemployed people and those with difficulties paying the household bills most of the time are over-represented in the undeclared workforce, but not those with fewer years in full-time education, residing in rural areas and European regions with lower GDP per capita.

In relation to home repair and renovation services, therefore, the structuralist theory would view those marginalised from the declared economy as engaged in such

work. Their motive for doing so is that they conduct such undeclared work out of economic necessity in the absence of alternative means of livelihood.

Neo-liberal theory

In stark contrast to the structuralist perspective, other scholars have argued that undeclared work results from a decision to voluntarily "exit" the declared economy, rather than due to involuntary exclusion. For neo-liberal scholars, the decision to participate in undeclared work and exit the declared economy is viewed as a rational economic decision (Maloney, 2004; Perry and Maloney, 2007). It is a populist rational economic reaction adopted by workers facing state-imposed institutional constraints and burdensome regulations and whose spirit is stifled by high taxes (De Soto, 1989, 2001).

Participating in undeclared work is therefore a rational economic strategy pursued by workers whose spirit is stifled by state-imposed institutional constraints. It is a populist reaction to over-regulation of the economy. As such, participation in undeclared work is claimed to offer benefits not found in declared economy. These include flexible hours, job training, ease of entry to the labour force, opportunity for economic independence, better wages and avoidance of taxes and inefficient government regulation (Maloney, 2004; Packard, 2007). For neo-liberals, this is argued to be due to economic problems with operating on a declared basis, such as complex registration systems, high tax levels, corrupt public officials extracting bribes and burdensome regulations (De Soto, 1989, 2001; Maloney, 2004; Perry and Maloney, 2007).

From this neo-liberal perspective, therefore, the supply of home repair and renovation services in the undeclared economy is explained as voluntary and a rational economic decision. This occurs when workers are confronted by complicated

bureaucracy or red tape for both regular and occasional economic activity, and taxes and/or social security contributions are viewed as too high. It is an escape strategy from the perceived burdensome regulations of the declared economy.

Institutional theory

Another group of scholars view those deciding to exit the declared economy not as rational economic actors but as social actors (Cross, 2000; Gerxhani, 2004; Snyder, 2004). This is argued by a variant of neo-institutionalist scholars who view undeclared work as illegal but socially legitimate activity that arises because formal institutional failings mean that the laws and regulations of a society's formal institutions are not in symmetry with the norms, values and beliefs of the population and constitute a society's informal institutions (Horodnic, 2018; Webb *et al.*, 2009; Williams and Horodnic, 2015).

When there is symmetry between formal and informal institutions, undeclared work only occurs unintentionally such as due to a lack of awareness of the laws and regulations. When there is institutional asymmetry however, the result is higher levels of undeclared work. The greater the degree of asymmetry, the more prevalent is undeclared work (Williams, 2017; Williams et al., 2017c).

From this institutionalist perspective, therefore, the supply of home repair and renovation services in the undeclared economy is explained as voluntary. It is a decision taken by social actors who do not believe in what the state is seeking to achieve. Their values, norms and beliefs do not therefore align with the laws and regulations regarding what is acceptable and legitimate. They might believe for example that intentionally not declaring small secondary income is therefore a perfectly acceptable behaviour. They might also believe that undeclared work is a common practice and part of the accepted

culture in their region or sector, or an accepted and common practice among their friends, neighbours or relatives.

Competing or complementary theories?

Most scholarship on the undeclared economy adopts one or other of these theories. In recent years, however, a small tributary of scholarship on the wider undeclared economy has moved beyond claiming that participation in undeclared work is universally driven by one or other of these theories. As Perry and Maloney (2007: 2) assert, "These two lenses, focusing, respectively, on informality driven by exclusion from state benefits and on voluntary exit decisions resulting from private cost-benefit calculations, are complementary rather than competing analytical frameworks".

Indeed, an examination of the 2013 Eurobarometer survey of undeclared work in the EU reveals that 24% of undeclared workers are purely exclusion driven, 45% purely exit driven and 31% display mixed reasons. This has also identified the groups most likely to engage in each type of work. Using a logistic regression analysis, the structuralist exclusion-driven explanation is identified as significantly more likely to be stated by the unemployed and those living in East-Central Europe and exit-driven explanations by those with few financial difficulties and living in Nordic nations (Williams et al., 2017b). Until now, the contrasting exit-driven perspectives have not been analysed separately.

In relation to the provision of undeclared home repair and renovation services, meanwhile, the only study to have analysed the motives of those supplying such services is a descriptive analysis and based on old data. Williams et al. (2011) reveal that in 2007, 60% of those supplying home repair and renovation services were doing so out of choice, 18% were doing so solely due to factors related to their exclusion from declared work.

22% were doing so for reasons associated with both exit and exclusion. No studies have evaluated more contemporary data, evaluated these three competing theories in relation to the reasons for the supply of undeclared home repair and renovation services, or identified the characteristics of those who do so for each of these explanations.

In consequence, new contemporary data is here evaluated to understand three issues. Firstly, who supplies undeclared repair and renovation services. Secondly, the prevalence of the three explanations for supplying undeclared home repairs and renovations. And thirdly, whose motives adhere to each explanation when other variables are held constant.

Research Methods

To evaluate who supplies home repair and renovation services in the undeclared economy and evaluate the competing explanations for why they do so, data from Eurobarometer special survey 92.1 on undeclared work is reported undertaken in September 2019. This involved 27,565 interviews being conducted in 28 European countries (the 27 EU member states and the UK) with adults aged 15 years and older in the national language.

The number of interviews varied from 500 in smaller countries to 1,500 in larger nations. A multi-stage random (probability) sampling method was used. Sampling points were drawn with probability proportional to population size (for total coverage of the country), population density according to the Eurostat NUTS II (or equivalent) and the distribution of the resident population in terms of metropolitan, urban and rural areas. In each selected sampling unit, a starting address was drawn at random and then further addresses using a standard "random route" procedure. For each household, the respondent

was selected using the "closest birthday rule". All interviews were conducted face-to-face in the national language. For data collation, CAPI (computer assisted personal interview) was used.

To analyse firstly, who supplies undeclared home repair and renovation services, secondly, their motives and thirdly, the individual characteristics of those doing so for different motives, the following dependent variables are analysed.

- *Working undeclared:* a dummy variable with value 1 for respondents answering "yes" to the question "Have you yourself carried out any undeclared paid activities in the last 12 months, either on your own account or for an employer?" and who answered the follow-up question "In which sector did you carry out these undeclared activities on your own account or for an employer?" by responding "yes" to "home repairs and renovations", and 0 otherwise.
- *Structuralist-oriented "exclusion" motives:* a dichotomous variable recorded value 1 for persons who reported one or more "exclusion" motives (i.e., the person who acquired it insisted on the non-declaration; you could not find a regular job; it is difficult to live on social welfare benefits; you would lose your social welfare benefits if you declared it; you have no other means of income) and no "exit" motives, and recorded value 0 otherwise.
- *Neo-liberal rational economic actor "exit" motives:* a dichotomous variable recorded value 1 for persons who reported one or more of the following "exit" motives (i.e., bureaucracy or red tape for a regular economic activity is too complicated; bureaucracy or red tape for minor or occasional activities is too complicated; you were able to ask for a higher fee for your work; both parties benefited from it; taxes and\or social security contributions are too high; it was not clear whether the work needed to

be declared) and none of the "exclusion" motives or the other social actor "exit" motives, and recorded value 0 otherwise.

- *Institutionalist-oriented social actor "exit" motives*: a dichotomous variable recorded value 1 for persons who reported one or more of the following "exit" motives (i.e., believe that intentionally not declaring small secondary income is perfectly acceptable; this is common practice in my region or sector; this is a common practice among friends, neighbours or relatives; the state does not do anything for me, so why should I pay taxes) and none of the "exclusion" motives or the other rational economic actor "exit" motives, and recorded value 0 otherwise.
- *"Mixed" motives:* a dichotomous variable recorded value 1 for persons who reported motives from any two sets of either social actor "exit" motives, rational economic actor "exit" motives or "exclusion" motives, and recorded value 0 otherwise

Mirroring previous analyses of the 2007 and 2013 Eurobarometer surveys of undeclared work (Williams and Horodnic, 2017a, 2018), the control variables cover a range of socio-demographic, socio-economic and spatial variables (see Table 1).

INSERT TABLE 1 ABOUT HERE

To analyse the data, probit regression analysis is used because the dependent variables in our empirical models are binary variables. The maximum likelihood method is used to estimate the objective function. The log-likelihood function for the probit model is:

$$lnL_{ij} = y_{ij}\log\{\phi(x_{ij}\beta)\} + (1 - y_{ij})\log\{1 - \phi(x_{ij}\beta)\}$$

where ϕ is the standard cumulative normal distribution function which is numerically maximized with respect to β. Using probit analysis, the following model is adopted:

$$\Pr(y_{ij}^{*} > 0 | \boldsymbol{x}_{ij}) = \Pr(\boldsymbol{x}_{ij}\beta + \varepsilon_{ij} > 0 | \boldsymbol{x}_{ij}) = \phi(\boldsymbol{x}_{ij}\beta)$$

The dependent variable of the model (y_{ij}^{*}) is a latent variable for each individual i in country j, which in the first case represents the supply of undeclared home repair and renovation services (and in the latter cases represents each of the sets of motives) and is linearly related to a set of factors $\mathbf{x}_{ij}$ and a disturbance process ε_{ij}.

Results

This 2019 Eurobarometer survey finds that 3.6% (1 in 28) of the representative sample of European citizens surveyed had undertaken undeclared work in the previous 12 months. Of those conducting undeclared work, 21% has supplied undeclared home repairs and renovations. This means that 0.75% (1 in 134) of all European citizens (circa 3.8 million) had undertaken undeclared home repairs and renovations in the prior 12 months.

Examining these one in 134 providing undeclared home repair and renovation services, 63% undertake this work on an own-account self-employed basis and 9% as waged work for an employer. A further 14% conduct such work as a mixture of both waged employment and own-account work, 7% for a partner or family businesses, whilst 7% do not know or refused to answer. Moreover, examining their overall portfolio of work, 14% of those providing undeclared home repairs and renovations (0.12%, or 1 in

803 of all European citizens) rely solely on supplying undeclared home repairs and renovations for all their income.

Table 2 reports the descriptive statistics on who supplies undeclared home repairs and renovations. It reveals that men are over-represented, as are middle aged groups, and single people. The number of years spent in full-time education appears to make little difference to participation. The self-employed and those not in declared employment, however, are over-represented, as are those having difficulty paying the household bills most of the time. Although there are few differences between urban and rural areas, undeclared work in the home repairs and renovations sector is more concentrated in East-Central Europe and the Nordic nations.

Examining the descriptive statistics on their motives for supplying undeclared home repair and renovation services, meanwhile, the finding is that just 9.4% do so for the exclusion motives proposed by the structuralist perspective (i.e., out of necessity due to their exclusion from other means of livelihood). Some 19.8% do so for reasons associated with the neo-liberal perspective that views voluntarily exit from the declared economy as a rational economic decision and 28.6% for motives associated with the social actor perspective of institutional theory. 42.2% do so for a mixture of motives. These descriptive findings provide tentative evidence that using only one theory to explain the supply of undeclared home repair and renovations will provide only a partial explanation.

These descriptive findings also display the individual characteristics of those doing so for different motives. Those more likely to supply undeclared home repair and renovation services due to their exclusion from other means of livelihood are men, younger age groups, single people and the divorced/separated, with fewer years in full-

time education, who have worked in other countries, have difficulties paying the bills, live in larger urban areas and are more likely to reside in East-Central Europe. Those more likely to cite the rational economic actor voluntary exit motives possess the same characteristics but do not include the divorced/separated and they do not have difficulties paying the bills or live in more urban areas. Those citing social actor institutionalist rationales again display similar characteristics to those doing so for exclusion rationales but again are less likely to have spent fewer years in full-time education, to have difficulties paying the bills and to live in more urban areas.

INSERT TABLE 2 ABOUT HERE

To evaluate whether these descriptive findings remain the same when other variables are introduced and held constant, the marginal effects of a weighted probit regression analysis are reported in Table 3. We used sample weighting in our regressions using EU28 sample weights provided with the dataset. However, unweighted regression results are provided in the Table A1 in Appendix. As it can be seen, weighting improves the statistical significance of some coefficient estimates but in general provide very similar results. In our regressions, we measure who is significantly more likely to supply undeclared home repair and renovation services. We also examine who is significantly more likely to do so for structuralist-oriented exclusion rationales (i.e., out of economic necessity) and the voluntary exit reasons associated with the neo-liberal rational economic actor and institutionalist social actor perspectives.

Starting with who is statistically significantly more likely to supply undeclared home repair and renovation services, men are found to have a 31 percentage points higher

probability of supplying undeclared home repairs and renovations than women, all else being equal. However, there is no significant association between the supply of undeclared home repair and renovation services and age, marital status, employment status, or whether they have difficulties paying the household bills. The only significant associations on years spent in full-time education are that those who have no full-time education have a 21.4 percentage points higher probability of supplying undeclared home repairs and renovations than those who left full-time education at 15 years old or younger. Meanwhile, those living in Southern Europe have a 13 percentage points lower probability of supplying undeclared home repair and renovation services than those residing in Nordic nations. Although this might seem puzzling because undeclared activities are assumed to be more prevalent in Southern European countries than Northern European countries, this is because home repair and renovation activities are proportionally a smaller share of all undeclared work in Southern Europe.

INSERT TABLE 3 ABOUT HERE

Turning to who engages in undeclared repair and renovation services for exclusion motives (i.e., out of economic necessity), as proposed by the structuralist perspective, the finding is that the divorced/separated have a 31.5 percentage points greater probability than the married or remarried. This is perhaps related to the need to keep earnings hidden from the state in order to reduce matrimony payments. Or psychological effects of experiencing this situation might lead people to feel marginalized and disadvantageous so that they blame formal institutions for their undeclared activities. Those with more years in full-time education are also significantly less likely than those who left full-time

education before 15 years old to undertake undeclared repair and renovation services out of economic necessity. For example, those stopping full-time education aged 20 years old or older have a 17.6 percentage points lower probability of doing so than those stopping full-time education at 15 years old or younger. Similarly, those who have difficulties paying the household bills never or almost never have a 30.7 percentage points lower probability of supplying undeclared home repairs and renovations for exclusion rationales than those who have difficulties paying the bills most of the time. Hence, those who are significantly more likely to explain their supply of undeclared home repair and renovation services in terms of exclusion rationales are the divorced or separated, those stopping full-time education at 15 years old or younger or without full-time education and having difficulties paying the household bills most of the time.

Those explaining their supply of undeclared repair and renovation services as a voluntary rational economic decision and based on the economic benefits involved (reflecting the neo-liberal explanation) are significantly more likely to be women and living in large towns, all else equal. For example, those living in a large urban area have a 21 percentage points higher probability of explaining their engagement in undeclared repair and renovation services than those living in rural areas as a voluntary decision based on the economic benefits involved. When we compare exclusion and economic motives, we see that exclusion motives are better explained by the empirical model.

Those who are significantly more likely to explain their supply of undeclared home repair and renovation services as a voluntary decision based on social reasons (e.g., related to discontent with the state) are those living in a large urban area, married and those living in Southern Europe. For example, those living in Southern Europe have a 6.7 percentage points higher probability of explaining their engagement in undeclared repair

and renovation services than those living in Nordic nations as a voluntary decision for social reasons, such as dissatisfaction with the state.

Finally, those who are significantly more likely to explain their supply of undeclared home repair and renovation services as being due to a mix of more than one of these rationales are women, younger than 55 years old, the divorced or separated, those who left full-time education at 15 years old or younger, the self-employed, those who have difficulties paying the household bills most of the time, and living in a large urban area. Given this profile, this group explaining their undeclared work in terms of a mixture of exclusion and exit rationales can very tentatively be asserted to be those who operate undeclared for exclusion reasons and then develop exit motives (i.e., rejecting what the state is attempting to achieve, and perceiving taxes as too high) due to their exclusion from formal work and welfare.

Discussion

Theoretically, therefore, the advance made in this paper is that it provides a theoretically driven evidence-based understanding of the reasons for supplying undeclared home repairs and renovations. Until now, unidimensional singular theories have been predominantly used to explain such undeclared work (e.g., economic necessity due to their exclusion from the declared economy). However, the finding is that no one single theorisation fully explains the supply of undeclared home repairs and renovations. Instead, different theories are required to capture the motives of the full range of suppliers of undeclared home repair and renovation services. This paper, moreover, has identified the characteristics of the individuals who supply undeclared home repairs and renovations

for each of the different theoretically oriented rationales.

Meanwhile, these findings have important implications for tackling undeclared work in the home repair and renovation sector. To tackle undeclared work, the conventional policy approach used by enforcement authorities (i.e., tax and social security authorities and labour inspectorates) has been to increase the costs of engaging in undeclared work by increasing the penalties and risk of detection (OECD, 2017; Williams, 2019b; World Bank, 2019). It is assumed that the suppliers of undeclared work are rational economic actors. By changing the cost/benefit ratio so that the costs outweigh the benefits, undeclared work will cease (Allingham and Sandmo, 1972; Hasseldine and Li, 1999). This paper has revealed the groups most likely to be influenced by such a rational economic actor policy approach. These are (re)married people, the self-employed and those living in Nordic nations. Nevertheless, less than one in five (19.8%) of those who supply undeclared home repairs and renovations do so purely as a rational economic decision. The majority who supply undeclared home repairs and renovations do so for reasons other than purely as a voluntary rational economic decision.

On the one hand, there are suppliers of undeclared home repairs and renovations who do so for the reasons highlighted by the structuralist explanation. To tackle these suppliers, firstly, there is a need to tackle the process of sub-contracting to undeclared suppliers and secondly, the fact that such workers are forced into undeclared employment relationships out of economic necessity due to the absence of other means of livelihood. On the former, there are a range of due diligence in supply chain initiatives in the construction sector that can be used, including reverse supply chain responsibility, limiting the number of sub-contractors in construction chains, and the use of identity cards (Cremers et al., 2017; European Platform Tackling Undeclared Work, 2018, 2019a,b).

On the latter, there is a need to bolster the universality and level of social protection in societies (ILO, 2015) so that citizens do not need to turn out of economic necessity to undeclared work to secure their means of survival.

Meanwhile, to tackle those who supply undeclared home repair and renovation services for social reasons, there is a need to align their values, norms and beliefs regarding the acceptability of undeclared work with the codified laws and regulations. On the one hand, this can be achieved by seeking to change their norms, values and beliefs. This requires education and awareness raising campaigns about the benefits of declared work and costs of undeclared work (e.g., no sick leave, state pension contributions, holiday pay). An example is the European Commission 2020 #EU4FairWork awareness raising campaign which all 27 Member States are fully participating in, as well as the EU-level social partners. As part of this #EU4FairWork campaign, the EU-level social partners in the construction industry, namely the European Federation of Building and Woodworkers (EFBWW) trade union and European Construction Industry Federation (FIEC) employer association are running an awareness raising campaign. Their message "say no to undeclared work" focuses upon the benefits of operating on a declared basis.

It is unlikely that norms, beliefs and values regarding the acceptability of undeclared work will change unless there are also changes that engender greater trust in state institutions. Therefore, there is also a need to modernise state institutions. This can be achieved in three ways. Firstly, by improving perceptions of redistributive justice, namely a belief that they receive the public goods and services they deserve (Kogler et al., 2013). Secondly by improving procedural justice, namely that these institutions are treating them impartially and respectfully (Kogler et al., 2013; Murphy, 2005). And thirdly, by improving procedural fairness, namely the belief that they are paying their fair

share (Molero and Pujol, 2012). The groups more likely to supply undeclared home repairs and renovations for social reasons and who require targeting with these campaigns and state modernisation processes has been here shown. They are those stopping full-time education at 15 years old or younger and those living in Southern Europe.

Conclusions

The starting point of this paper was recognition that there is little contemporary research explaining engagement in undeclared work in the construction sector. Consequently, the aim has been to apply competing explanations for undeclared work more generally to advance understanding of the supply of undeclared home repair and renovation services. To do so, data has been analysed from a 2019 Eurobarometer involving 27,565 face-to-face interviews in 28 European countries.

The finding is that in Europe, 3.55% (one in 28) of all European citizens participate in undeclared work, 21% of whom work in the home repairs and renovations sector. This means that 0.75%, or 1 in 134 (3.8 million), of European citizens provided undeclared home repair and renovation services in the 12 months prior to the survey in September 2019. Indeed, 0.12% of all European citizens, or 1 in 803 (some 638,000 European workers), are reliant solely on the supply of undeclared home repairs and renovations for all their income. Those who supply undeclared home repair and renovation services are more likely to be men, those who left full-time education at 15 years old or younger, and people residing in Nordic nations.

Breaking this down by their rationales for participating in undeclared home repair and renovation services, 9.4% do so for the exclusion motives proposed by the

structuralist perspective. In addition, 19.8% do so for reasons associated with the neo-liberal perspective that views voluntarily exit from the declared economy as a rational economic decision and 28.6% for motives associated with the social actor perspective of institutional theory. 42.2% do so for a mixture of motives.

Those who engage out of economic necessity are significantly more likely to be the divorced or separated, those stopping full-time education at 15 years old or younger and have difficulties paying the household bills most of the time. Those explaining their engagement in undeclared repair and renovation services as a voluntary decision based on the economic benefits involved are significantly more likely to be women and those living in a large urban area. Those doing so as a voluntary decision based on social reasons (e.g., related to discontent with the state) are significantly more likely to be those who are married, those living in a large urban area and those living in Southern Europe.

This study, nevertheless, has its limitations. It has analysed only Europe. There is a need to evaluate whether the prevalence of each of these motives differs when other global regions and individual countries are analysed (e.g., whether structuralist-oriented exclusion motives are more prominent in other global regions in the developing world). There is also a need to conduct a finer-grained analysis, using qualitative research, of the motives for providing home repairs and renovations on an undeclared basis (e.g., examining in a more nuanced manner the reasons for a lack of trust in what the state is seeking to achieve) in future studies.

In sum, if this paper encourages further theoretically-driven evidence-based evaluations in other global regions and individual countries of who supplies undeclared home repair and renovation services, their motives and the individual characteristics of those doing so for different motives, it will have achieved one of its intentions. If it also

leads governments to consider a move away from solely increasing the costs of undeclared work by increasing the penalties and risks of detection when tackling undeclared home repairs and renovations, then its fuller intention will have been achieved.

Disclosure statement

No potential competing interest was reported by the authors.

Data availability statement

The data that support the findings of this study are openly available in GESIS Data Archive, Cologne. ZA7579 Data file Version 2.0.0, at http://doi.org/10.4232/1.13432, European Commission, Brussels (2020): Eurobarometer 92.1 (2019).

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Table 1. Control variables: definitions

Variables	Definition
Gender	A dummy variable with value 0 for females and 1 for males
Age	A categorical variable indicating the age interval of a respondent with value one for those aged 15-24, value 2 for aged 25 to 39, value 3 for aged 40 to 54, and value 5 for those who are aged 55 or above.
Marital status	A categorical variable for the marital status of respondents with value 1 for (re)married, value 2 for single living with a partner, value 3 for single, value 4 for divorced or separated, value 5 for widow, and value 6 for others.
Stopped full-time education	A categorical variable for the education level of respondents. It is equal to 1 if s/he stopped full-time education below age 15, value 2 if stopped between 16-19, value 3 if stopped at an age older than 19, value 4 if s/he still studies, and value 5 if s/he does not have any full-time education.
Employment status	A categorical variable grouping respondent by their employment status with value 1 for self-employed, value 2 for employees and value 3 for not working. .
Difficulties paying bills	A categorical variable for the respondents' difficulties in paying bills with value 1 for almost never/never, value 2 for occasionally, and value 3 for having difficulties most of the time.
Urban/rural	A categorical variable for the area where the respondent lives with value 1 for rural area or village, value 2 for small or middle-sized town, and value 3 for large town.
Southern Europe	A dummy variable equals to 1 if the respondent is from Greece, Spain, Portugal, Cyprus, Italy or Malta
Western Europe	A dummy variable equals to 1 if the respondent is from Belgium, Luxembourg, the Netherlands, Austria, Ireland, the United Kingdom, France or Germany
East-Central Europe	A dummy variable equals to 1 if the respondent is from Latvia, Croatia, Romania, Slovakia, Bulgaria, Hungary, Lithuania, Czech Republic, Estonia, Poland or Slovenia.
Nordic nations	A dummy variable equals to 1 if the respondent is from Denmark, Finland or Sweden.

Table 2. Descriptive statistics of participation in undeclared home repair and renovation services and motives in Europe

Variable	% engaged in undeclared home repairs and renovations	% of citizens surveyed	Reasons for engaging in undeclared home repairs and renovations (%)			
			Exclusion from declared work	Exit as rational economic decision	Exit for social reasons	Mixed motives
Socio-demographic variables						
Gender						
Men	91.7	45.3	89.7	90.9	91.7	87.7
Women	8.3	54.7	10.3	9.1	8.3	12.3
Age						
15-24	9.9	8.7	10.3	10.4	9.5	10.5
25-39	31.8	20.1	33.3	29.2	35.7	36.8
40-54	31.8	23.8	34.6	33.8	28.0	35.1
55+	26.5	47.3	21.8	26.6	26.8	17.5
Marital status						
(Re)Married	36.4	52.4	26.9	41.6	37.6	31.6
Single living with partner	25.2	12.1	21.8	22.0	23.6	19.3
Single	24.0	16.9	29.5	24.0	25.5	29.8
Divorced or separated	11.2	8.0	20.5	7.8	10.8	19.3
Widow	2.9	10.1	1.3	3.9	1.9	0
Stopped Full-time Education						
15-	11.2	13.5	23.1	9.7	12.1	26.3
16-19	52.5	43.9	50.0	51.9	51.6	43.9
20+	28.5	35.5	17.9	29.2	28.7	17.5
Still studying	4.1	6.2	3.7	4.6	4.3	5.3
No full-time education	1.2	0.9	1.3	2.0	1.3	1.7
Socio-economic characteristics						
Employment status						
Self-employed	12.8	6.9	9.0	16.2	13.4	12.3
Employed	51.7	43.5	37.2	55.2	51.6	38.6
Not working	35.5	49.6	53.8	28.6	35.0	49.1
Difficulties paying bills						
Most of time	19.4	7.6	37.2	17.5	19.1	42.1
From time to time	29.8	24.0	38.5	29.2	29.3	35.1
Almost never/never	50.4	68.4	23.1	53.3	51.6	22.8
Spatial characteristics						
Urban/rural						
Rural area or village	34.7	34.3	25.64	33.8	35.0	21.1
Small or medium sized town	39.3	37.2	41.0	39.0	35.0	40.3
Large town	26.0	28.5	33.3	27.3	29.9	38.6
EU region						
Southern	11.2	18.4	12.8	11.0	13.4	14.0
Western	24.8	30.1	25.6	23.4	22.9	24.6
East-Central	47.9	40.3	56.4	46.1	49.0	54.4
Nordic nations	16.1	11.2	5.1	19.5	14.6	7.0
All (%)	0.75	100.0	9.4	19.8	28.6	42.2
Number of Observation	242	27,100	21	43	43	57

***Source*:** Authors' calculations based on the 2019 Eurobarometer 92.1 survey

Table 3. Marginal effects of the probit regressions for participating in undeclared home repair and renovation services and their motives, Europe 2019 (*Weighted Regressions*)

	Undeclared repair and renovation services			Motives											
				Exclusion			Exit: rational economic actor			Exit: social actor			Mixed		
	dy/dx		se	dy/dx		se	dy/dx		se	dy/dx		se	dy/dx		se
Socio-demographic variables															
Gender (RC: women)															
Men	.307	***	.057	-.074		.094	-.351	**	.155	-.232		.157	-.207	**	.095
Age (RC: 15-24)															
25-39	.037		.065	.078		.113	.190		.157	-.062		.172	.005		.127
40-54	.048		.072	-.017		.136	.127		.169	-.034		.197	-.114		.142
55+	.020		.083	-.137		.137	.150		.191	-.008		.200	-.305	*	.169
Marital status (RC: (Re)married)															
Single living with partner	.033		.056	.017		.072	.053		.106	-.192	*	.118	-.078		.074
Single	-.029		.056	.103		.085	.021		.123	-.018		.136	.031		.108
Divorced or separated	-.040		.068	.315	***	.082	.006		.157	-.233	**	.127	.286	***	.108
Widow	.105		.102	.185		.195	.312		.260	.057		.267	-		-
Stopped Full-time Education (RC: 15-)															
16-19	.117	*	.069	-.176	**	.075	-.130		.154	.058		.142	-.194	**	.096
20+	.042		.076	-.303	***	.088	.107		.170	-.047		.157	-.382	***	.116
Still studying	-.104		.116	-.240		.153	.290		.251	.021		.242	-.238		.175
No full-time education	.214	*	.116	-.279		.185	-		-	.220		.334	-.165		.177
Socio-economic characteristics															
Employment status (RC: self-employed)															
Employed	.031		.061	-.118		.089	-.062		.145	-.014		.137	-.165	*	.096
Not working	.055		.067	.053		.106	-.243		.153	-.022		.143	-.090		.109
Difficulty paying bills (RC: most of time)															
From time to time	.029		.053	-.140	**	.070	-.005		.122	.121		.112	-.144	**	.071
Almost never/never	-.046		.051	-.307	***	.070	.002		.125	.146		.123	-.222	***	.080
Spatial characteristics															
Urban/rural (RC: Rural area or village)															
Small or medium sized town	-.016		.044	-.073		.066	.098		.094	-.001		.099	.041		.091
Large town	.024		.055	.050		.083	.212	**	.102	.294	**	.120	.186	*	.098
EU region (RC: Nordic countries)															

Southern	-.131	**	.061	-.061	.101	-.107	.177	.067	*	.164	-.131	.109
Western	-.050		.049	.080	.076	-.154	.123	-.162		.133	-.073	.099
East-Central	-.042		.047	.022	.083	-.121	.135	-.018		.147	-.075	.090
N			960		237		236			239		232
Pseudo R^2			0.1885		0.4420		0.1713			0.1539		0.3714
χ^2			70.32		69.11		32.61			24.11		51.62
p>			0.0000		0.0000		0.0507			0.3416		0.0002

Notes: Statistically significant at *** p<0.01, ** p<0.05, * p<0.1 (robust standard errors in parentheses). All coefficients are compared to the reference category, shown in brackets. We kept in the analysis the individuals for which data on each and every independent variable is available. When the models are regressed with clustering the standard errors by country, the direction of the associations and the significances do not change for the independent variables discussed in the paper (with p<0.05 or p <0.01).

Source: Authors' calculations based on the 2019 Eurobarometer 92.1 survey.

Table A1. Marginal effects of the probit regressions for participating in undeclared home repair and renovation services and their motives, Europe 2019 (*Unweighted Regressions*)

	Undeclared repair and renovation services		Motives									
			Exclusion		Exit: rational economic actor		Exit: social actor		Mixed			
	dy/dx	se	dy/dx	se	dy/dx	se	dy/dx	se	dy/dx	se		
Socio-demographic variables												
Gender (RC: women)												
Men	.381 ***	.034	-.052	.089	-.042	.101	.024	.104	-.083	.088		
Age (RC: 15-24)												
25-39	.032	.051	.023	.098	-.056	.118	.162	.135	.032	.115		
40-54	.054	.053	.055	.108	.045	.127	.003	.139	.011	.125		
55+	.006	.059	-.094	.113	.022	.136	.096	.144	-.144	.133		
Marital status (RC: (Re)married)												
Single living with partner	.042	.036	.012	.067	-.151 **	.076	-.072	.080	-.072	.059		
Single	-.002	.038	.089	.076	-.043	.089	.033	.097	.032	.072		
Divorced or separated	.017	.044	.198 **	.093	-.211 **	.099	.018	.105	.161 *	.087		
Widow	.053	.077	-.141	.281	.341	.225	-.250	.163	-	-		
Stopped Full-time Education (RC: 15-)												
16-19	.006	.047	-.143 *	.082	-.024	.107	-.177 *	.109	-.212 ***	.074		
20+	-.081	.051	-.192 *	.098	-.044	.119	-.108	.124	-.241 ***	.093		
Still studying	-.220 ***	.081	-.220 *	.136	.172	.213	.114	.261	-.160	.144		
No full-time education	-.029	.121	-.060	.234	-	-	-.059	.241	-.065	.187		
Socio-economic characteristics												
Employment status (RC: self-employed)												
Employed	.046	039	-.091	.086	-.152	.116	-.015	.098	-.136 *	.081		
Not working	.052	.046	.128	.094	-.348 ***	.117	-.027	.111	-.021	.090		
Difficulty paying bills (RC: most of time)												
From time to time	-.050	.042	-.083	.071	.022	.091	.075	.092	-.111 *	.060		
Almost never/never	-.058	.042	-.201 ***	.072	-.036	.090	.130	.095	-.185 ***	.066		
Spatial characteristics												
Urban/rural (RC: Rural area or village)												
Small or medium sized town	.006	.029	.033	.062	.049	.070	-.053	.073	.062	.067		
Large town	.010	.033	.092	.070	.055	.074	.123	.085	.142 **	.069		
EU region (RC: Nordic countries)												

Southern	-.104	*	.054	.130	.120	-.183	.122	.221	*	.134	.039	.113
Western	-.083	*	.043	.136	.107	-.194	*	.105	.037	.105	.022	.103
East-Central	-.027		.041	.146	.106	-.128	.103	.113		.100	.042	.101
N			960		239		236			239		232
Pseudo R^2			0.2023		0.2338		0.0949			0.0734		0.2364
χ^2			148.43		55.23		26.60			22.57		42.64
p>			0.0000		0.0003		0.2270			0.6026		0.0076

Notes: Statistically significant at *** p<0.01, ** p<0.05, * p<0.1 (robust standard errors in parentheses). All coefficients are compared to the reference category, shown in brackets. We kept in the analysis the individuals for which data on each and every independent variable is available. When the models are regressed with clustering the standard errors by country, the direction of the associations and the significances do not change for the independent variables discussed in the paper (with p<0.05 or p <0.01).

Source: Authors' calculations based on the 2019 Eurobarometer 92.1 survey.