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**Evaluating the internal dualism of the informal sector:
evidence from the European Union**

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Evaluating the internal dualism of the informal sector: evidence from the European Union

Abstract

Purpose

To transcend the **current** debates about whether participation in the informal sector is a result of informal workers “exclusion” or their voluntary “exit” from the formal sector, the aim of this paper is to **propose and** evaluate **the existence of** a dual informal labour market composed of an exit-driven “upper tier” and exclusion-driven “lower-tier” of informal workers.

Methodology

To do this, data from a 2013 Eurobarometer survey involving 27,563 face-to-face interviews across the European Union is reported.

Findings

The finding is that in the European Union, there is a dual informal labour market with those participating in the informal sector due to their exclusion from the formal sector being half the number of those doing so to voluntarily exit the formal sector. Using a logistic regression analysis, the exclusion-driven “lower tier” is identified as significantly more likely to be populated by the unemployed and those living in East-Central Europe and the exit-driven “upper tier” by those with few financial difficulties and living in Nordic nations.

Research implications

The results reveal the need not only to transcend either/or debates about whether participants in the informal sector are universally exclusion- or exit-driven, and to adopt a both/and approach that recognises a dual informal labour market composed of an exit-driven upper tier and exclusion-driven lower tier, but also for wider research on the relative sizes of these two tiers in individual countries and other global regions, along with which groups populate these tiers.

Originality/value

This is the first evaluation of the internal dualism of the informal sector in the European Union.

Keywords: informal economy; shadow economy; dual economy; European Union.

Introduction

The informal sector is now recognised to be an extensive and persistent feature of economies across the world, which is equivalent to some 31% of global GDP (Schneider and Williams, 2013), and 60% of the global workforce having their main employment in the informal sector (Jütting and Laiglesia, 2009). When explaining participation in this burgeoning sphere, commentators have largely adopted either a structuralist perspective that views participants as pushed into working in the informal sector due to their “exclusion” from state benefits and the circuits of the modern economy (Davis, 2006; Gallin, 2001; Taiwo, 2013) or a view that informal workers voluntarily “exit” the formal economy, with neo-liberals depicting this as a

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3 rational economic decision (De Soto, 1989, 2001; Maloney, 2004; Perry and Maloney, 2007)
4 and institutionalists representing them more as social actors (Cross, 2000; Gerxhani, 2004;
5 Snyder, 2004). Rather than depict informal workers as either universally exit- or
6 exclusion-driven, however, the aim of this paper is to **propose and** evaluate the validity of
7 viewing the informal sector as a dual informal labour market composed of an exit-driven
8 “upper tier” and exclusion-driven “lower-tier” of informal workers. Until now, empirical
9 evaluations of whether the informal sector is comprised of such a dual informal labour market
10 are notable by their absence. To start to fill this gap therefore, a survey of participants’
11 reasons for working in the informal sector in the European Union is here reported.
12

13 To commence, a brief review is provided of the competing explanations that view the
14 informal sector to be a product of either exclusion from the circuits of the modern economy or
15 their voluntary exit from the formal sector, followed by a review of the literature that has
16 hypothesised the internal dualism of the informal sector. Secondly, and to begin to evaluate
17 the validity of viewing the informal sector as comprising a dual informal labour market, a
18 survey of European Union citizens regarding their participation in the informal sector and
19 their motives will be outlined and thirdly, the results will be reported. This will reveal that
20 participation is the result of neither purely exit nor purely exclusion but instead, that some
21 conduct such endeavour for exit and others for exclusion rationales, thus revealing the validity
22 of viewing the informal sector as a dual informal labour market. Using a logistic regression
23 analysis, the groups of informal worker significantly more likely to operate in the
24 exclusion-driven “lower tier” and exit-driven “upper tier” in the European Union are then
25 identified. The outcome in the final section is a call for a shift from an either/or to a both/and
26 approach that recognises a dual informal labour market, and for wider research on the relative
27 sizes of these two tiers in nations and other global regions, along with which groups populate
28 these tiers.
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31 To define the informal sector, three types of definitions have been used, namely
32 enterprise-, activity- and job-based definitions (see ILO, 2013). Enterprise-based definitions
33 differentiate between registered and unregistered enterprises. Although relevant in developing
34 countries, this is less relevant in the European Union, since most informal economic activity is
35 conducted by registered enterprises that operate partially in the informal sector (Williams,
36 2009; Williams and Padmore, 2013). Jobs-based definitions, meanwhile, are also less relevant
37 in Europe because the formal/informal jobs binary is brought into question by the existence of
38 formal employees employed by formal employers who received a declared wage but also an
39 additional undeclared (“envelope”) wage (Horodnic, 2016; Williams and Padmore, 2013).
40 Throughout this paper, **therefore**, and reflecting both the Eurobarometer survey and scholarly
41 literature, the informal sector is defined using an **activity-based definition** as those paid
42 activities not declared to the authorities for tax, social security and/or labour law purposes but
43 which are legal in all other respects (Bahmani-Oskooee, 1999; **European Commission, 2007**;
44 OECD, 2012; Williams, 2014). If activities differ in additional ways to work in the formal
45 sector, then this activity is not part of the informal sector. If the goods and/or services traded
46 are illegal (e.g., illegal drugs) for example, then it is part of the wider “criminal” economy
47 rather than the informal sector, **and taken together, this criminal and informal activity is often**
48 **referred to as the non-observed economy (Eurostat, 2014)**. If the activity is unpaid,
49 meanwhile, then it is part of the separate unpaid economy (Dessing, 2004; Gang and
50 Gangopadhyay, 1990; McCrohan and Sugrue, 2001; Quintano and Mazzocchi, 2015;
51 Williams, 2009a; Williams and Round, 2011; Williams and Horodnic, 2016). In practice,
52 however, there are some blurred boundaries, such as when in-kind favours or gifts are
53 involved. In this paper, in-kind favours and gifts are not included since many authorities do
54 not require them to be declared for tax, social security and/or labour law purposes.
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Explaining participation in the informal sector: a product of exit and/or exclusion?

During the twentieth century, the widely-held belief was that economic activity would naturally and inevitably move into the formal sector and that the informal sector was small and gradually disappearing. The continuing existence of the informal sector in modern economies thus represented “under-development”, “traditionalism” and “backwardness” whilst the emergent formal economy represented “development”, “advancement” and “progress” (Bairoch, 1973; Geertz, 1963; Lewis, 1959). Over the past decade or so, however, numerous studies reveal that the informal sector is enduring, extensive and expanding in the global economy (Bose et al, 2012; Carvaial, 2015; ILO, 2013; Jütting and Laiglesia, 2009; Loureriro et al., 2013; Williams, 2014, 2015). To explain this, until now, commentators have largely adopted one of two broad perspectives. Here, each is briefly reviewed in turn

Participation in the informal sector as exclusion-driven

Recognising the widespread persistence and even growth of the informal sector, a group of structuralist commentators have depicted such endeavour as a by-product of the advent of an increasingly de-regulated global economy (Castells and Portes, 1989; Davis, 2006; Slavnic, 2010). On the one hand, the informal sector is seen to directly result from employers reducing costs by sub-contracting production to this realm, such as to people who might have been former employees who now engage in “false self-employment” for one supplier only (Gallin, 2001; Portes and Haller, 2004; Portes and Roberts, 2005). On the other hand, it is viewed as an absorber of surplus labour for those excluded from the formal labour market. Those of no use to capitalism are no longer maintained as a reserve army of labour but, instead, are decanted into the informal sector. Informal work is therefore extensive in excluded populations where the formal sector is weak since its role is to act as a substitute. It is undertaken by those doing so out of necessity as a survival tactic (Arbex et al., 2015; Castells and Portes, 1989; Sassen, 1997).

From this perspective, jobs in the informal sector are seen to exist at the bottom of a hierarchy of types of employment and are akin to “downgraded labour” with its participants receiving few benefits, low wages and with poor working conditions (Castells and Portes, 1989; Gallin, 2001; [European Commission, 2016](#)). The informal sector thus provides income-earning opportunities for those excluded from the formal sector, and is a primary means of maintaining a low cost of living by providing cheaper goods and services than would otherwise be the case (Nelson and Bruijn, 2005; Tokman, 2001).

Participation in the informal sector as exit-driven

For others, participating in the informal sector is the result of a decision to voluntarily “exit” the formal sector, rather than a product of their involuntary exclusion. On the one hand, this is argued from a neo-liberal perspective where informal sector workers are viewed as making a rational economic decision to exit the formal economy (De Soto, 1989, 2001; Maloney, 2004; Perry and Maloney, 2007). Engaging in informal sector is consequently a rational economic strategy pursued by workers whose spirit is stifled by state-imposed institutional constraints. It is a populist reaction to over-regulation. As such, engaging in the informal economy is asserted to offer potential benefits not found in formal economy, including flexible hours, job training, ease of entry to the labour force, opportunity for economic independence, better

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3 wages and avoidance of taxes and inefficient government regulation (Maloney, 2004;
4 Packard, 2007).

5 On the other hand, the view that the informal sector results from a decision to
6 voluntarily exit the formal sector is argued from a post-structuralist perspective where
7 informal sector workers are viewed as social actors (Cross, 2000; Gerxhani, 2004; Snyder,
8 2004). This is inspired by a small tributary of thought deriving from institutional theory which
9 views informal work as illegal but socially legitimate endeavour that arises due to formal
10 institutional failings that result in the codified laws and regulations of formal institutions not
11 being in symmetry with the norms, values and beliefs that constitute the informal institutions
12 (Webb *et al.*, 2009; Williams and Horodnic, 2015). When there is symmetry between formal
13 and informal institutions, informal work only occurs unintentionally such as due to a lack of
14 awareness of the laws and regulations. When there is institutional asymmetry however, the
15 result is more informal work. Indeed, the greater the degree of asymmetry, the greater is the
16 level of informal work (Williams and Shahid, 2016; Williams *et al.*, 2016).
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19 *Beyond exit versus exclusion: the internal dualism of the informal sector*

20
21 For most commentators, these exit and exclusion perspectives have been largely treated as an
22 either/or choice and therefore as mutually exclusive, with the informal sector depicted as
23 taking place according to a single universal “logic” (De Soto, 2001; Snyder, 2004). However,
24 a small literature has sought to transcend this crude depiction of the informal sector as
25 universally caused by exit or universally caused by exclusion. As Perry and Maloney (2007:
26 2) point out, “These two lenses, focusing, respectively, on informality driven by exclusion
27 from state benefits and on voluntary exit decisions resulting from private cost-benefit
28 calculations, are complementary rather than competing analytical frameworks”. Based on this
29 recognition that some engaged in the informal sector may be exit-driven and others
30 exclusion-driven, an internal dualism of the informal sector has been recognised. As Fields
31 (1990, 2005) argues for example, a dual informal labour market exists composed of an
32 exit-driven “upper tier” and an exclusion-driven “lower tier” of informal workers.
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35 Until now, however, although it has been asserted that exit-driven informal workers
36 will be prevalent in developed economies and exclusion-driven informal workers in
37 developing countries (Gerxhani, 2004; Maloney, 2004), empirical evaluations of the ratio of
38 exit-driven to exclusion-driven participants in the informal sector in different populations
39 have been so far notable by their absence. Moreover, although some have argued that
40 exclusion motives will be more prevalent in relatively deprived populations and exit in
41 relatively affluent groups (Gurtoo and Williams, 2009), no empirical evaluations have been
42 conducted of the groups of informal worker significantly more likely to operate in the
43 exclusion-driven “lower tier” and exit-driven “upper tier” are population groups. To start to
44 fill this gap, therefore, a survey of participants’ reasons for working in the informal sector in
45 the European Union is here reported so as to identify firstly, the ratio of exclusion- to
46 exit-driven informal workers and secondly, the groups of informal worker significantly more
47 likely to operate in the exclusion-driven “lower tier” and exit-driven “upper tier” in the
48 European Union.
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51 **Methodology**

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53 To evaluate the validity of conceptualising the informal sector in the European Union as a
54 dual informal labour market along with the ratio of informal workers in the exit-driven “upper
55 tier” and exclusion-driven “lower-tier” and the populations significantly more likely to be
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found in these two tiers, we here report the results of special Eurobarometer survey no. 402, which involved 27,563 face-to-face interviews conducted in April and May 2013 across the 28 member states of the European Union (EU-28). This interviewed individuals aged 15 years and older in the national language based on a multi-stage random (probability) sampling methodology, with the number of interviews varying from 500 in smaller countries to 1,500 in larger nations. The methodology ensures that on the issues of gender, age, region and locality size, each country as well as each level of sample is representative in proportion to its population size. Therefore, for the univariate analysis we employed sample weighting, as recommended in both the wider literature (Solon et al., 2013; Winship and Radbill, 1994) and the Eurobarometer methodology, to obtain meaningful descriptive results. For the multivariate analysis however, debate exists over whether a weighting scheme should be used (Pfefferman, 1993; Solon et al., 2013; Winship and Radbill, 1994). Reflecting the dominant viewpoint, we decided not to use the weighting scheme.

The face-to-face interview schedule adopted a gradual approach to the more sensitive questions, firstly asking questions about the participants' attitudes towards the informal sector and having established rapport, questions on their purchase of goods and services in the informal sector along with their reasons for doing so and finally, questions on their participation as workers in the informal sector. Participants were first asked 'Apart from a regular employment, have you yourself carried out any undeclared paid activities in the last 12 months?'. If so, they were asked "What were the reasons for doing these activities undeclared?" among the following: The person(s) who acquired it insisted on the non-declaration; 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 could not find a regular job; 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; Working undeclared is common practice in your region or sector of activity so there is no real alternative; The State does not do anything for you, so why should you pay taxes; It is difficult to live on social welfare benefits; You have no other means of income."

To analyse firstly, who works in the informal sector and secondly, the individual characteristics of those selecting different motives for working in the informal sector, a logistic regression analysis provides a suitable technique. The following variables are analysed.

Dependent variables:

- *Working undeclared:* a dichotomous variable recorded value 1 for persons who answered "yes" to the question "Apart from a regular employment, have you yourself carried out any undeclared paid activities in the last 12 months?", and recorded value 0 otherwise.
- *'Exit' motives for participating in the informal sector*– a dichotomous variable recorded value 1 for persons who reported at least one "exit" motive for working in the informal sector (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; the State does not do anything for you, so why should you pay taxes) and none of the 'exclusion' motives, and recorded value 0 otherwise.
- *'Exclusion' motives for participating in the informal sector:* a dichotomous variable recorded value 1 for persons who reported at least one "exclusion" motive (i.e., the person who acquired it insisted on the non-declaration; you could not find a regular job; working undeclared is common practice in your region or sector of activity so there is no real

alternative; it is difficult to live on social welfare benefits; you have no other means of income) and none of the ‘exit’ motives, and recorded value 0 otherwise.

- *‘Mixed’ motives for participating in the informal sector*: a dichotomous variable recorded value 1 for persons who reported at least one “exit” motive and at least one “exclusion” motive, and recorded value 0 otherwise.

Independent variables:

- *Tax morality*: constructed index of self-reported tolerance towards tax non-compliance, where 1 represents higher tax morale and 10 lower tax morale.
- *Gender*: a dummy variable with value 0 for females and 1 for males.
- *Age*: a continuous variable indicating the exact age of a respondent.
- *Marital status*: a categorical variable for the marital status of the respondent with value 1 for married/ remarried individuals or living with partner, value 2 for singles, value 3 for those separated or divorced, and value 4 for widowed and for other form of marital status.
- *Occupation*: a categorical variable grouping respondents by their occupation with value 1 for unemployed, value 2 for self-employed, value 3 for managers, value 4 for other white collars, value 5 for manual workers, value 6 for house persons, value 7 for retired individuals, and value 8 for students.
- *Difficulties paying bills*: a categorical variable for the respondent difficulties in paying bills with value 1 for having difficulties most of the time, value 2 for occasionally, and value 3 for almost never/ never.
- *People 15+ years in own household*: a categorical variable for people 15+ years in respondent’s household (including the respondent) with value 1 for one person, value 2 for two persons, value 3 for 3 persons or more.
- *Children*: a dummy variable for the presence of children up to 14 years old in the household with value 0 for individuals with no children and value 1 for those having children.
- *Area*: 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.
- *Region*: a categorical variable for the region where the respondent lives with value 1 for East-Central Europe, value 2 for Western Europe, value 3 for Southern Europe, and value 4 for Nordic Nations.

We kept in the analysis only the individuals for which data on each and every independent variable is available.

Before reporting the results, nevertheless, the reliability of the data needs to be briefly discussed, especially given the sensitive subject matter involved. The finding is that in 93% of the interviews conducted, the interviewers reported good or excellent cooperation from the participant and in 7% of the cases the cooperation was average. Cooperation was asserted to be bad in only 1% of cases. Given this, attention can turn to an analysis of the results.

Results

Do participants work in the informal sector due to exclusion rationales or due to exit rationales? Table 1 reveals that 24% of participants do so for purely exclusion rationales, 45% for purely exit reasons and 31% for a mixture of both exclusion and exit rationales. Participants, therefore, do not engage in the informal sector purely for either exit or exclusion rationales. Rather, there is an internal dualism of the informal sector, with some engaged in the informal sector being exit-driven, others exclusion-driven and yet others driven by a mixture of both motives. In the European Union as a whole, those participating in the

informal sector for purely exclusion rationales are half the number of those doing so for purely exit rationales.

INSERT TABLE 1 ABOUT HERE

It is important to recognise, however, that the weight given to exit and exclusion is not uniform across the EU-28. To see this, member states are here grouped into four EU regions: Western Europe (Belgium, Germany, France, Ireland, Luxembourg, Netherlands, Austria and the UK); Eastern and Central Europe (Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Croatia, Poland, Romania, Slovenia and Slovakia); Southern Europe (Cyprus, Greece, Spain, Italy, Malta and Portugal), and the Nordic countries (Denmark, Finland; Sweden). Table 1 reveals that exclusion rationales are more common in Southern Europe and East-Central Europe but less common in Nordic nations and Western Europe. Indeed, in Southern Europe, there is a 2:1 ratio of those purely exclusion-driven compared with those purely exit-driven, whilst the inverse is the case in Nordic nations where a 6.8:1 ratio exists between those purely exit-driven and those purely exclusion-driven, whilst this is 3.6:1 in Western Europe. The relative sizes of the exit-driven upper tier and exclusion-driven lower tier, therefore, significantly vary in different European regions.

To analyse firstly, who works in the informal sector in the European Union and secondly, the characteristics of the informal workers who operate in the exit-driven upper tier and exclusion-driven lower tier, Table 2 reports the results of a logistic regression analysis. Starting with who participates in the informal sector in the EU28, model 1 shows that men, younger citizens and those holding a lower tax morality are significantly more likely to do so. Compared with unemployed people, those in employment (but not those in self-employment) are less likely to work in the informal sector, and so too are those not facing difficulties in paying bills less likely to work informally compared with those who face such difficulties most of the time, and those living in larger households. **This is in line with previous studies analysing informal workers (Williams and Padmore, 2013; Williams, 2014; Williams and Horodnic 2015, 2016).** Compared with those living in East-Central Europe, those living in Southern Europe are less likely to work in the informal sector, although those living in Nordic nations are more likely to work in the informal sector. Previous studies reveal that although participation rates are higher in Nordic nations, much of the informal work small-scale one-off activity conducted for close social relations, whilst in Southern and East-Central Europe, informal work is more commonly waged work conducted on a recurrent basis (Williams and Horodnic, 2016).

Turning to the characteristics of the informal workers who operate in the exit-driven upper tier and exclusion-driven lower tier, model 2 reveals that those participating in the exit-driven “upper tier” are significantly more likely to be those who never or almost never have difficulties in paying bills and those living in Nordic nations. Participants who are statistically less likely to engage in the informal sector due to voluntary exit rationales are the unemployed, those single and living with partners, and those living in Southern Europe. Meanwhile, and as model 3 displays, those participating in the exclusion-driven “lower tier” are significantly more likely to be unemployed people rather than the employed and self-employed, and that compared with those living in East-Central Europe, those living in Nordic nations are significantly less likely to participate in the informal sector for involuntary exclusion rationales.

Those significantly less likely to cite a combination of exclusion and exit rationales, moreover, and as model 4 reveals, are the self-employed, managers, white collars, manual workers, retired persons and students, and so too are those who never or almost never face

difficulties in paying bills. Meanwhile, those single and living with partners are more likely to cite these mixed reasons compared with those who are married and/or remarried. No statistically significant difference exists between EU regions, however, in the propensity to cite mixed rationales for engaging in the informal sector.

Conclusions

To evaluate whether a dual informal labour market exists composed of an exit-driven “upper tier” and exclusion-driven “lower-tier” of informal workers, this paper has reported data from a 2013 Eurobarometer survey involving 27,563 face-to-face interviews across the European Union. The finding is that in the European Union, such a dual informal labour market exists with those in the exclusion-driven lower tier being half the number of those in the exit-driven upper tier, although the ratio of exit- to exclusion-driven informal workers significantly varies in different European regions. In Southern Europe, there is a 2:1 ratio of those purely exclusion-driven compared with those purely exit-driven, whilst conversely, in Nordic nations and Western Europe, a 6.8:1 ratio and 3.6: 1 ratio respectively exists between those purely exit-driven and those purely exclusion-driven. Reporting a logistic regression analysis for the European Union as a whole, moreover, the exclusion-driven “lower tier” is identified as significantly more likely to be populated by the unemployed and those living in East-Central Europe and the exit-driven “upper tier” by those with few financial difficulties and living in Nordic nations.

These findings thus display the need to transcend the existing either/or debates about whether participants in the informal sector are exclusion- or exit-driven. Instead, there is a need to adopt a both/and approach that recognises the existence of internal dualism within the informal sector; a dual informal labour market exists composed of an exit-driven upper tier and exclusion-driven lower tier. What is now required is for wider research to be conducted on the relative sizes of these two tiers in other global regions, along with which groups populate these tiers. In sum, if this paper thus stimulates a move beyond the current either/or debates and the advent of a both/and approach that recognises the internal dualism within the informal sector, then one of the intentions of this paper will have been achieved. If this then results in wider research to identify the relative size of the two tiers of the dual informal labour market in particular nations and other global regions, along with the groups populating these tiers, then it will have achieved its fuller intention. **The tentative suggestion of this study is that wealthier population groups (i.e. which in Europe refers to those living in more affluent EU regions and having fewer or no financial difficulties) are more likely to be involved in informal work out of choice (i.e., exit motives) whilst other population groups are involved in informal work as a coping strategy (i.e., exclusion motives).** What is for certain, however, is that it can no longer be argued that the informal sector is either purely a necessity-driven realm for excluded populations or that it is purely a result of a desire to exit a burdensome and over-regulated formal sector.

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Table 1. Table 1 Reasons European workers engage in the informal economy: by EU region (N = 1,048)

Region	Motives (%)		
	Exit	Exclusion	Mixed
EU28	45	24	31
East-Central Europe	41	26	33
Western Europe	55	15	30
Southern Europe	22	43	35
Nordic nations	68	10	22

Note: We kept in the analysis the individuals for which data on each and every independent variable is available.

Table 2. Logistic regression of the odds and reasons for participating in the informal sector in the European Union

	Undeclared work				Motives:											
					Exit			Exclusion			Mixed					
	β		se(β)	Exp(β)	β	se(β)	Exp(β)	β	se(β)	Exp(β)	β	se(β)	Exp(β)			
Tax morality	0.368	***	0.019	1.445	0.034	0.037	1.034	-0.070	0.052	0.933	0.023	0.027	1.023			
Gender (Female)																
Male	0.719	***	0.115	2.053	0.229	0.181	1.257	-0.040	0.177	0.961	-0.225	0.152	0.798			
Age (exact age)	-0.025	***	0.005	0.975	0.005	0.011	1.005	0.001	0.009	1.001	-0.005	0.009	0.995			
Marital status ([Re-]Married)																
Single with partner	0.176		0.137	1.193	-0.503	**	0.232	0.605	-0.068	0.282	0.934	0.573	**	0.262	1.773	
Single	-0.041		0.171	0.960	-0.209		0.273	0.812	0.034	0.284	1.035	0.253		0.250	1.288	
Divorced/ Separated/ Widowed/ Other	0.161		0.113	1.174	-0.076		0.275	0.927	0.110	0.298	1.117	0.034		0.242	1.035	
Occupation (Unemployed)																
Self-employed	-0.069		0.137	0.934	1.606	***	0.296	4.984	-1.281	***	0.441	0.278	-0.423	*	0.233	0.655
Managers	-0.690	***	0.206	0.502	2.607	***	0.380	13.56	-1.383	***	0.521	0.251	-1.646	***	0.245	0.193
Other white collars	-0.762	***	0.209	0.467	1.992	***	0.339	7.332	-1.399	***	0.462	0.247	-0.847	***	0.291	0.429
Manual workers	-0.543	***	0.121	0.581	2.074	***	0.293	7.955	-0.946	***	0.247	0.388	-1.169	***	0.214	0.311
House persons	-0.440	***	0.170	0.644	0.801	**	0.401	2.228	-0.100		0.290	0.905	-0.425		0.259	0.654
Retired	-1.083	***	0.175	0.339	1.291	***	0.333	3.635	-0.514		0.337	0.598	-0.614	*	0.372	0.541
Students	-0.530	***	0.201	0.589	1.720	***	0.407	5.585	-0.482		0.362	0.617	-1.051	***	0.335	0.350
Difficulties paying bills (Most of the time)																
From time to time	-0.547	***	0.099	0.579	0.214		0.210	1.238	0.005		0.238	1.005	-0.169		0.203	0.844
Almost never/ never	-0.868	***	0.155	0.420	0.995	***	0.214	2.705	-0.338		0.286	0.713	-0.833	***	0.233	0.435
People 15+ years in own household (One)																
Two	-0.307	**	0.131	0.735	0.109		0.220	1.115	-0.085		0.251	0.918	-0.027		0.201	0.973
Three or more	-0.253	**	0.122	0.776	-0.012		0.247	0.988	-0.083		0.244	0.920	0.114		0.251	1.121
Children (No children)																
Having children	-0.104		0.097	0.901	0.139		0.176	1.149	0.165		0.293	1.180	-0.282		0.207	0.754
Area (Rural area or village)																
Small or middle sized town	-0.151		0.096	0.860	0.151		0.193	1.163	-0.133		0.218	0.876	-0.049		0.186	0.952
Large town	-0.195	*	0.108	0.823	0.314		0.207	1.369	-0.264		0.208	0.768	-0.127		0.208	0.881
Region (East-Central Europe)																
Western Europe	-0.088		0.262	0.916	-0.051		0.269	0.950	-0.400		0.309	0.671	0.327		0.271	1.387
Southern Europe	-0.801	***	0.281	0.449	-0.515	*	0.272	0.598	0.633	*	0.331	1.883	-0.216		0.266	0.806
Nordic nations	0.728	**	0.338	2.071	0.550	**	0.263	1.734	-1.075	***	0.311	0.341	-0.031		0.285	0.969
Constant	-1.970	***	0.358	0.139	-2.522	***	0.617	0.080	-0.238		0.593	0.788	0.372		0.535	1.451

	N	24,699	1,048	1,048	1,048
	Pseudo R ²	0.1552	0.1708	0.0901	0.0808
	Log pseudolikelihood	-3663.7412	-602.3078	-463.5027	-594.2514
	χ^2	17210.12	1780.54	419.88	1260.49
	p>	0.0000	0.0000	0.0000	0.0000

Notes:

Significant at *** p<0.01, ** p<0.05, * p<0.1 (robust standard errors in parentheses). All coefficients are compared to the benchmark 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 ran without clustering the individuals 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).**

Appendix

Table A1. Variables used in the analysis: definitions and descriptive statistics

Variables	Definition	Mode or mean		Min/ Max
		N = 24,699	N = 1,048	
<i>Dependent variables</i>				
Supply of undeclared work	Dummy variable of undeclared paid activities carry out in the last 12 months, apart from a regular employment	Not engaged in undeclared work (96,6%)	-	0 / 1
Exit	Dummy variable of “exit” motive which led to undeclared paid activities	-	“Exit” motive not mentioned (54%)	0 / 1
Exclusion	Dummy variable of “exclusion” motive which led to undeclared paid activities	-	“Exclusion” motive not mentioned (76%)	0 / 1
Mixed	Dummy variable of “mixed” motives which led to undeclared paid activities	-	“Mixed” motives not mentioned (69%)	0 / 1
<i>Independent variables</i>				
Tax morality	Constructed index of self-reported tolerance towards tax non-compliance	2.3	3.6	1 / 10
Gender	Dummy for the gender of the respondent	Female (52%)	Male (61%)	0 / 1
Age	Respondent exact age	47 years	36 years	15 / 98 15 / 91
Marital status	Respondent marital status in categories	(Re-)Married/ (53%)	Single (34%)	1 / 4
Occupation	Respondent occupation in categories	Retired (25%)	Manual workers (24%)	1 / 8
Difficulties paying bills	Respondent difficulties in paying bills in categories	Almost never/ never (60%)	Almost never/ never (41%)	1 / 3
People 15+ years in own household	People 15+ years in respondent’s household (including the respondent) in categories	Two (48%)	Three or more (38%)	1 / 3
Children	Dummy for the presence of children (up to 14 years old) in the household	No children (72%)	No children (67%)	0 / 1
Area	Size of the area where the respondent lives in categories	Small or middle sized town (41%)	Small or middle sized town (39%)	1 / 3
Region	Region where the respondent lives in categories	Western Europe (49%)	Western Europe (46%)	1 / 4