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Research Article

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Explaining and tackling the informal economy: an evaluation of competing perspectives

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Abstract: This paper provides an evidence-based evaluation of the competing ways of explaining and tackling the informal economy. Conventionally, participants have been viewed as rational economic actors who engage in the informal economy when the benefits outweigh the costs, and thus participation is deterred by increasing the sanctions and/or risks of detection. Recently, however, an alternative social actor approach has emerged viewing participation to result from a lack of vertical trust (i.e., their norms, values and beliefs are not in symmetry with the laws and regulations) and horizontal trust (i.e., they believe many others are non-compliant). Reporting 2,000 face-to-face interviews conducted in Croatia in 2015, only a weak and partial association is found between participation in the informal economy and the perceived level of penalties and risks of detection, but a strong significant association with both the level of vertical and horizontal trust. Those who perceive a larger proportion of the population to be engaged in the informal economy, and those whose norms differ to the laws and regulations, display a significantly greater likelihood of participating in the informal economy. The theoretical and policy implications are then discussed.

Keywords: informal sector; tax morale; tax evasion; institutional theory; Croatia; South-East Europe.

JEL Classification: H26, J46, K42, O17, P37

1 Introduction

The aim of this paper is to evaluate the competing ways of explaining and tackling the informal economy. The conventional dominant explanation for participation in the informal economy has been a rational economic actor approach which views participants as engaging when the pay-off is greater than the expected cost of being caught and punished (Allingham and Sandmo, 1972). To tackle the informal economy, in consequence, the policy approach has been to increase the actual or perceived sanctions and risks of detection.

Since the turn of the millennium, nevertheless, a social actor approach has emerged. Grounded in institutional theory (North, 1990), this views participation in the informal economy to arise when the norms, values and beliefs of citizens (i.e., the informal institutions) are not aligned with the laws and regulations of the formal institutions (Alm et al., 2010; Cummings et al., 2009; Kirchler, 2007; Murphy, 2008; Torgler, 2007; Williams and Horodnic, 2015a,b), and thus there is a lack of what is here termed "vertical trust". Its approach is thus to bring the informal institutions (i.e., the norms, values and beliefs of citizens) into symmetry with the codified laws and regulations of the formal institutions (Alm et al., 2012; Alm and Torgler, 2011; Torgler, 2012; Williams and Horodnic, 2016a,b). In recent years, moreover, this social actor approach has started to view participation in the informal economy as additionally influenced determined by citizens' lack of horizontal trust that others are operating in a compliant manner (Baric, 2016; Williams

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et al., 2017). The intention of this paper is to evaluate these competing ways of explaining and tackling participation in the informal economy.

In the next section, therefore, these rational economic actor and social actor perspectives are reviewed in order to formulate some hypotheses for evaluation. Following this, the third section introduces the data and methodology to evaluate these hypotheses, namely a logit regression analysis of the data from 2,000 face-to-face interviews undertaken in late 2015 in Croatia. The fourth section then reports the results. Finding only a weak and partial association between participation in the informal economy and the perceived level of penalties and risk of detection, but a strong significant association between participation in the informal economy and the level of vertical and horizontal trust, the fifth and final section concludes by discussing the theoretical and policy implications.

Throughout this paper, and mirroring the consensus in the scholarly and policy literature regarding how the informal economy in developed countries should be defined, the informal economy here refers to paid work which is legal in all respects other than it is not declared to the authorities for tax, social security and/or labour law purposes (Aliyev, 2015; Barsoum, 2015; Boels, 2014; European Commission, 2007; Hodosi, 2015; OECD, 2012; Williams, 2014a,b). If it is not legal in all other respects, it is not considered work in the informal economy. If the goods and/or services exchanged are illegal (e.g., selling illegal drugs) for instance, then this is not part of the informal economy work but is the wider criminal economy. If unpaid, meanwhile, it is part of the unpaid subsistence sphere.

2 Competing perspectives towards the informal economy

Since the turn of the millennium, there has been widespread recognition that even if the informal economy is more prevalent in the developing than developed world, such endeavour is extensive and persistent in all global regions (ILO, 2018; Jütting and Laiglesia, 2009; Williams and Schneider, 2016; World Bank, 2019). Indeed, given that 60 per cent of the global workforce has their main employment in the informal economy (Jütting and Laiglesia, 2009), tackling the informal economy has moved near to the top of the policy agendas of most supra-national agencies and many governments across the globe (European Commission, 2007; OECD, 2012; Williams, 2014a, 2017).

How, therefore, can undeclared work be explained and tackled? Reviewing the literature, it becomes quickly apparent that two distinct ways of explaining and tackling the informal economy prevail. These are the rational economic actor approach that views participation in the informal economy when the benefits outweigh the costs, and this seeks to tackle the informal economy by ensuring that payoff from informal work is outweighed by the costs, and the social actor approach grounded in a view that the informal economy results from a lack of vertical and horizontal trust. Here, each is considered in turn.

2.1 Rational economic actor perspective

This rational economic actor perspective has its origins in the classical treatises of Cesare Beccaria (Beccaria, 1797) and Jeremy Bentham (Bentham, 1788) that both propound a utilitarian approach towards crime. Citizens are viewed as rational actors who assess the costs and benefits confronting them, and break the law if the expected penalty and probability of being caught is smaller than the benefits gained. This rational actor view of crime was popularised in the late 1960s by Becker (1968). It was then quickly applied to other forms of non-compliance. In the early 1970s, Allingham and Sandmo (1972) argued that tax evasion occurred when the pay-off is greater than the expected cost of being caught and punished, and that the goal of governments was thus to change the cost/benefit ratio facing citizens. This was to be achieved by increasing the actual and/or perceived penalties and risks of detection, and thus costs. This approach was subsequently widely adopted (e.g., Grabiner, 2000; Hasseldine and Li, 1999; Job et al., 2007; Richardson and Sawyer, 2001; Williams, 2017). Indeed, this is also the dominant policy approach in Croatia where the emphasis when tackling the informal economy is on increasing the penalties and risks of detection, so as

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to ensure that the costs outweigh the benefits (Baric, 2016; Baric et al., 2016; Dzhekova and Williams, 2014; Dzhekova et al., 2014; Franic and Williams, 2014a; Williams and Franic, 2016; Williams et al, 2014, 2017).

Despite the dominance of this approach both in Croatia as well as elsewhere, the evidence-base that participants in the informal economy are rational actors, and that increasing the sanctions and risks of detection the informal economy reduces participation, is less than conclusive (Alm et al., 1992, 1995; Slemrod et al., 2001; Varma and Doob, 1998). To evaluate the validity of this rational economic actor perspective, therefore, the following hypothesis can be tested:

Rational economic actor hypothesis (H1): the higher are the perceived penalties and risks of detection, the lower the likelihood of participation in the informal economy, ceteris paribus.
H1a: the higher are the perceived penalties, the lower the likelihood of participation in the informal economy.
H1b: the higher are the perceived risks of detection, the lower the likelihood of participation in the informal economy.

2.2 Social actor perspective

Over the past decade, there has been recognition that many citizens do not participate in the informal economy even when the benefit/cost ratio suggests that they should be doing so (Alm et al., 2010; Kirchler, 2007; Murphy, 2008; Murphy and Harris, 2007). The outcome has been the emergence of a "social actor" approach which argues that many are compliant even when it would be rational for them to be non-compliant because they self-regulate themselves (Alm and Torgler, 2006, 2011; Cummings et al., 2009; McKerchar et al., 2013; Torgler, 2011; Torgler and Schneider, 2007).

This perspective has its roots in the work of Georg von Schanz (1890) who argued that a tax contract exists between the state and its citizens. Some six decades later this was further advanced by the German "Cologne school of tax psychology" which sought to measure this tax contract (see Schmölders, 1952, 1960, 1962; Strümpel, 1969) and viewed the breakdown of this contract as a primary determinant of tax non-compliance (Schmölders, 1960). This social actor approach receded for some decades following the ascendancy of the rational economic actor approach from the 1970s. However, over the past decade, it has begun to re-emerge (Alm et al., 2012; Kirchler, 2007; Torgler, 2007, 2011) and its contemporary theoretical foundations lie in the work of Schneider and Enste (2013). The outcome of its re-emergence is that calls have been made to improve the trust of citizens in the state so as to solidify this tax contract since self-regulation will ensue (Alm and Torgler, 2011; Torgler, 2012; Torgler and Schneider, 2007a, 2007b; Williams, 2014a; Williams, 2017).

Reading this approach through the lens of institutional theory (Baumol and Blinder, 2008; North, 1990), all societies have both formal institutions (i.e., laws and regulations) that define the legal rules of the game, as well as informal institutions, which are the "socially shared rules, usually unwritten, that are created, communicated and enforced outside of officially sanctioned channels" (Helmke and Levitsky, 2004: 727). When the formal institutions (which we here term "state morale") and informal institutions (here termed "civic morale") are not aligned, the level of vertical trust of citizens in the state will be lower and the informal economy more prevalent (Webb *et al.*, 2009; Williams and Horodnic, 2015a, 2017). Indeed, the higher the level of asymmetry, the greater is the level of engagement in the informal economy (Williams et al. 2014). In recent years, moreover, it has been proposed that it is not just the lack of vertical trust (i.e., formal/informal institutional asymmetry) that leads to work in the informal economy, but also the lack of horizontal trust that other citizens are operating in a compliant manner (Baric, 2016; Williams et al., 2017). When citizens perceive that a large majority of citizens are breaking the formal rules of the game, then the argument is that they too decide to do so. Indeed, the lower the level of horizontal trust (i.e., the greater the perceived propensity of other citizens to be non-compliant), the greater will be likelihood that citizens will themselves act in a non-compliant manner. To evaluate the validity of this social actor approach towards explaining and tackling participation in the informal economy, therefore, the following hypothesis can be evaluated:

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Social actor hypothesis (H2): the greater the level of horizontal and vertical trust, the lower is the likelihood of participation in the informal economy.
H2a: the greater is the level of horizontal trust, the lower the likelihood of participation in the informal economy.
H2b: the greater the level of vertical trust, the lower the likelihood of participation in the informal economy.

3 Data and Variables

3.1 Data

To evaluate these hypotheses on explaining and tackling the informal economy, data is here reported from 2,000 face-to-face interviews conducted in Croatia in late 2015. This survey analysed not only attitudes towards the informal economy, but also who purchases and supplies work in the informal economy, and the relationship between participation in the informal economy and the perceived penalties and risk of detection, and level of vertical and horizontal trust. To ensure that the data was a representative national sample, a multi-stage random (probability) sampling methodology was used. This ensured that with the regard to the variables of gender, age, region and locality size, the national level sample, as well as each level of the sample, was representative in proportion to its population size. In every household the "closest birthday" rule was applied to select respondents, while every subsequent address was determined by the standard "random route" procedure.

3.2 Variables

To evaluate whether increasing the perceived penalties and risks of detection, and greater vertical and horizontal trust, reduces the likelihood of participation in the informal economy, the dependent variable used is a dummy variable with a recorded value 1 for those who answered "yes" to the question: "Did you yourself carry out any undeclared paid activities in the last 12 months? Here we mean again activities which you were paid for which were not or not fully reported to the tax authorities."

To evaluate the association between participation in the informal economy and the different approaches towards explaining and tackling the informal economy, four explanatory variables were used. Firstly, to evaluate whether the perceived risk of detection influences the likelihood of participation in the informal economy, a categorical variable was used describing the perceived risk of being detected, with value 0 for a very small, value 1 for fairly small risk, value 2 for fairly high risk and value 3 for very high risk. Secondly, to evaluate how penalties are associated with the likelihood of participation in the informal economy, a categorical variable was used describing the expected sanctions, with value 0 for those asserting that the normal tax or social security contributions would be due, value 1 for those stating that the normal tax or social security contributions due, plus there would be a fine or value 3 for imprisonment.

Third and finally, to evaluate the association between participation in the informal economy and the level of vertical trust, an interval variable was used by constructing an asymmetry index based on self-reported attitudes towards the acceptability of participating in the informal economy using a 10-point Likert scale. This asymmetry index provides a measure of the lack of alignment of citizens' norms, values and beliefs with the laws and regulations of the formal institutions, and thus a proxy measure of the degree of citizens' trust in the laws and regulations. Rather than use a single question to assess this asymmetry index, this survey uses a range of questions by asking the following:

> Now I would like to know how you would rate various actions or behaviours. For each of them, please tell me to what extent you find it acceptable or not. Please use the following scale: "1" means that you find it absolutely unacceptable and "10" means that you find it absolutely acceptable: (1) someone receives welfare payments without entitlement; (2) an individual is hired by a household for work and s/he does not declare the payment received to the tax or social security authorities even though it should be declared; (3) A firm is hired by a household for work and it does not declare the payment received to the tax or social security authorities; (4) a firm is hired by another firm for work and it does not declare its activities to

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the tax or social security authorities; (5) a firm hires an individual and all or a part of the wages paid to him/her are not officially declared and (6) someone evades taxes by not declaring or only partially declaring their income.

Collating the responses to these six questions, and giving equal weighting to each response, an aggregate "asymmetry index" is constructed for each individual. The Cronbach's Alpha coefficient of the scale is 0.87 which shows a good internal consistency of the scale (Kline, 2000). The index is represented here in the 10-point Likert scale original format. The lower the index value, the higher is the trust in the formal institutions (i.e., the more aligned are citizens' norms and values with the codified laws and regulations).

Fourth and finally, to evaluate the association between participation in the informal economy and the level of horizontal trust, a categorical variable was used of the citizens' estimated proportion of the population engaged in the informal economy with value 0 for less than 5 per cent, value 1 for 5 to 10 per cent, value 2 for 10 to 20 per cent, value 3 for 20-50 per cent, and value 5 for over 50 per cent.

Drawing upon previous studies evaluating participation in the informal economy in terms of the important socio-demographic, socio-economic and spatial variables influencing the likelihood of engagement (Williams and Horodnic, 2015a,b, 2016a,b; Williams and Padmore, 2013a,b), the control variables selected are:

- *Gender*: a dummy variable with value 0 for women and 1 for men.
- *Age*: an interval variable indicating the exact age of the respondent.
- *Employment status*: a categorical variable with value 0 for employed, value 1 for self-employed, value 2 for retired, value 3 for unemployed, and value 4 for the inactive population (students, disabled, etc).
- *Financial situation*: a categorical variable with value 0 for no money problems, value 1 for just comfortable, value 2 for maintaining, and value 3 for struggling.
- *Type of locality*: a categorical variable with value 0 for rural area or village, value 1 for small or middle-sized town, value 2 for large urban area.
- *Regions*: a categorical variable with value 0 for North Croatia, value 1 for Slavonia, value 2 for Lika and Banovina, value 3 for Istria, Primorje and Gorski Gotar, value 4 for Dalmatia and value 5 for Zagreb and the surrounding region.

Given that there were a considerable number of missing values and inconclusive answers (i.e., refusal and "don't know") across the dependent, explanatory and independent variables, multiple imputation was used to predict the values. This is done using a system of chained equations for each variable with missing values, with 25 imputations simulated for each missing value. Furthermore, population weights are applied based on age and gender to correct for under- and over-representation in the sample.

To evaluate the relationship between participation in the informal economy and the perceived penalties and risk of detection, and the level of vertical and horizontal trust, a logit regression analysis is here conducted. Before analysing the findings, and given the sensitive topic being investigated, the reliability of the data collected in the survey needs to be briefly discussed. In 93% of the interviews, the interviewers reported good or excellent cooperation from the participant when answering the questions, and average cooperation in 6% of cases. Cooperation was found to be poor in only 1% of cases. No evidence was thus identified of reticence on the part of respondents in answering the questions, perhaps reflecting how the informal economy, although formally illegal is widely deemed a socially legitimate endeavour in Croatia. Below, therefore, the results are reported.

4 Findings

Of the 2,000 respondents interviewed in late 2015 in Croatia, 9.2 per cent reported participating in the informal economy in the last 12 months, which is just under 1 in 11. Examining the type of activities in which they had engaged, 21 per cent of these undeclared workers had provided home repair and maintenance services, 10 per cent car repairs, 10 per cent had engaged in domestic cleaning, 9 per cent had sold goods or services associated with their hobby, 9 per cent had sold food produce, 9 per cent tutoring, 8 per cent IT assistance, 7 per cent gardening services, 7 per cent had worked as a waiter or waitress, 6 per cent

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baby-sitting, and 4 per cent had undertaken home removal. A further 35 per cent of respondents reported participating in other activities, displaying the multifarious activities in which participants engage on an informal basis.

Only 13 per cent of this work in the informal economy was conducted as waged employment for businesses. The vast bulk (81 per cent) of work in the informal economy was conducted on a self-employed basis, with 51 per cent conducted for friends, colleagues or acquaintances, 2 per cent for relatives, 6 per cent for neighbours, and the remaining 22 per cent on a self-employed basis for people previously unknown to them. Some 6 per cent either refused to answer, or did not know. The important finding, therefore, is that the majority (59 per cent) of all informal work in Croatia is conducted for close social relations. This is a similar proportion to the finding in previous studies in the EU28 as a whole (Williams, 2014).

Which population groups, therefore, are more likely to participate in the informal economy? And is participation in the informal economy associated with respondents' perceptions of the level of penalties and risks of detection, as well as their perceptions of the propensity of others to participate in the informal economy (i.e., their level of horizontal trust) and whether their norms, values and beliefs are in symmetry with the laws and regulations (i.e., their level of vertical trust)?

Table 1 reports the descriptive statistics. In terms of socio-demographic characteristics, this reveals that men are more likely to participate in the informal economy than women (12.9 per cent compared with 5.9 per cent), as are younger age groups markedly more likely to do so, and those who are single or cohabiting, and those living in larger households. These reflect previous findings in the wider European Union (Williams and Horodnic, 2017). Turning to socio-economic characteristics, it is also the case that the unemployed are particularly more likely to participate in the informal economy. There is also what appears to be a U-shaped curve regarding participation with regard to both their financial situation and net income from formal employment. Those at the two ends of these continua are more likely to participate in the informal economy than those in the middle. That is both those struggling financially as well as those with no money problems display a greater propensity to participate in the informal economy, as do those with no income from formal employment and those with higher formal incomes, which is similar to the situation in other transition economies (see Ferrer-i-Carbonell and Gërxhani, 2011). Examining the spatial variations, participation in the informal economy appears to be more prevalent in rural areas and villages than in more urban areas, and more prevalent in some regions (i.e., Slavonia and Istria, Primorje and Gorski Kotar, and North Croatia) than the rest of the country.

Investigating the association between participation in the informal economy and the perceptions of the risk of detection, no discernible trend is apparent, and so far as sanctions are concerned, there appears to be a slightly greater likelihood that those who perceive the sanctions as lower are more likely to participate in the informal economy. There does, however, appear to be clear relationship between participation in the informal economy and the level of trust. On the one hand, those who perceive the rest of the population to be more likely to participate in the informal economy are themselves more likely to do so, reflecting that where "horizontal trust" is low (i.e., trust in other citizens to operate legitimately), participation in the informal economy is more likely. On the other hand, there also appears to be a close association between participation in the informal economy and a lack of vertical trust (i.e., the degree to which the norms, values and beliefs of citizens are not in symmetry with the laws and regulations). The lower is the alignment between citizen morale and state morale, the higher is the propensity to participate in the informal economy.

To evaluate whether there is a statistically significant association between participation in the informal economy and these explanatory variables when the control variables are introduced and held constant, as well as whether any of these control variables are significantly associated with participation in the informal economy, Table 2 reports the results of a logit regression analysis. Marital status, household size and net income were omitted due to multicollinearity issues. Starting with the control variables and thus which groups should be perhaps targeted by inspectors seeking to tackle participation in undeclared work, the results reveal that women are significantly less likely than men to participate in the informal economy, but that age is not significantly associated with the likelihood of engaging in such work. A plausible reason is that other characteristics affect the propensity to participate in the informal economy which in turn is dependent on age, such as the level of vertical trust. Employment status, however, is significantly associated with participation in the informal economy. Unemployed and self-employed individuals are significantly

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more likely to participate in the informal economy. The propensity to participate in the informal economy, however, is not conditional upon their self-assessed financial position. There is, however, a significant association with the type of community inhabited. Those living in a rural area or village are significantly more likely to participate in the informal economy than those in more urban areas, but there is no significant correlation between participation and the region one inhabits. These results largely confirm many previous studies on undeclared work in both South-East European and the European Union (Williams and Franic, 2016; Williams and Horodnic, 2015a,c, 2016b,c; Williams and Kayaoglu, 2017; Williams et al., 2014).

Table 1 Participation in informal economy in Croatia: % of surveyed individuals

		Yes	No	Refusal	DK
Gender	Male	12.9	84.4	2.3	0.4
	Female	5.8	92.5	0.8	0.9
Age	15 - 24	14.0	84.2	0.7	1.1
	25 - 34	10.9	85.9	2.5	0.7
	35 - 44	10.9	85.7	2.5	0.9
	45 - 54	11.7	86.8	1.5	0.0
	55 - 64	6.5	91.8	1.1	0.6
	65+	3.1	95.0	1.2	0.7
Marital status	(Re)Married	7.2	90.5	1.8	0.5
	Cohabiting	19.6	75.7	4.0	0.7
	Single	11.5	86.7	1.0	0.8
	Divorced	8.4	90.5	0.0	1.1
	Widowed	4.2	95.0	0.0	0.8
Household size	One	8.3	90.2	0.8	0.7
	Two	6.0	91.9	1.7	0.4
	Three	10.2	87.7	1.8	0.3
	Four or more	11.8	85.4	1.7	1.1
Occupation	Dependent employee	8.6	88.3	2.4	0.7
	Self-employed	11.3	87.5	1.2	0.0
	Unemployed	17.8	80.3	1.4	0.5
	Retired	4.6	93.9	0.9	0.6
	Inactive (students. disabled. etc.)	10.9	87.3	0.8	1.0
Financial situation	Struggling	11.1	87.1	1.1	0.7
	Maintaining	7.7	90.0	1.6	0.7
	Just comfortable	8.3	89.1	2.1	0.5
	No money problems	14.4	81.4	4.2	0.0
Net income from formal work	0	14.1	84.8	0.8	0.3
	1-2,500	9.5	89.5	0.6	0.4
	2,501-5,000	7.7	90.1	1.4	0.8
	5,001-7,500	8.1	90.8	1.1	0.0
	7,501-10,000	4.0	96.0	0.0	0.0
	10,001-15,000	15.2	84.8	0.0	0.0
	More than 15,000	0.0	100.0	0.0	0.0
Type of community	Rural area or village	10.6	87.3	1.4	0.7
	Small or middle sized town	9.1	88.0	2.1	0.8
	Large town	7.0	91.6	1.0	0.4
Region	Zagreb	7.5	90.6	1.0	0.9
	North Croatia	10.2	88.0	0.9	0.9
	Slavonia	12.8	86.4	0.8	0.0
	Lika and Banovina	6.0	91.6	1.4	1.0
	Istria. Primorje and Gorski Kotar	12.2	85.0	2.8	0.0
	Dalmatia	6.9	89.6	2.7	0.8
Perceived detection risk	Very small	9.6	88.1	1.6	0.7
	Fairly small	9.7	88.5	1.5	0.3
	Fairly high	7.3	90.6	1.1	1.0
	Very high	10.6	88.8	0.0	0.6

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		Yes	No	Refusal	DK
Expected sanctions	Tax + contributions	10.1	88.1	1.6	0.2
	Tax + contributions + fine	8.1	90.4	1.2	0.3
	Prison	6.4	91.9	0.0	1.7
Estimated share of population engaged in informal economy	Less than 5%	1.9	95.1	3.0	0.0
	5 to 10%	4.5	93.9	0.6	1.0
	10 to 20%	7.3	91.0	1.2	0.5
	20 to 50%	11.3	86.9	1.4	0.4
	50% or more	14.7	81.1	3.9	0.3
Vertical asymmetry index	<2	7.2	91.3	1.0	0.5
	2-4	11.4	85.6	2.1	0.9
	4-6	15.8	78.7	4.7	0.8
	6-8	16.8	81.0	2.2	0.0
	8-10	14.1	85.9	0.0	0.0
Total		9.2	88.6	1.6	0.6

Source: Author's own calculations based on the representative survey of 2,000 individuals in Croatia

Table 2. Logit model of propensity to participate in the informal economy in Croatia

	β_1	Standard error
Female	-1.070***	0.192
Age	-0.014	0.008
Occupation (RC: Unemployed)		
Dependent employee	-0.637*	0.248
Self-employed	-0.644	0.503
Retired	-1.164**	0.361
Inactive (students, disabled, etc.)	-0.660*	0.326
Financial situation (RC: Struggling)		
Maintaining	-0.272	0.221
Just comfortable	-0.373	0.261
No money problems	0.661	0.724
Estimated share of population engaged in UW (RC: More than 50%)		
Less than 5%	-3.055**	1.107
5 to 10%	-1.647***	0.465
10 to 20%	-0.873**	0.315
20 to 50%	-0.425	0.240
Perceived detection risk (RC: Very small)		
Fairly small	-0.264	0.232
Fairly high	-0.591*	0.287
Very high	-0.163	0.327
Expected sanctions (RC: Tax + social security contributions due)		
Tax + contributions + fine	-0.456*	0.217
Prison	-1.197	0.626
Tax morale	0.193***	0.045
Type of community (RC: Rural area or village)		
Small or middle sized town	-0.427	0.222
Large town	-0.784**	0.286
Region (RC: Zagreb and surroundings)		
North Croatia	-0.139	0.329
Slavonia	0.074	0.315
Lika and Banovina	-0.719	0.485
Istria, Primorje and Gorski Kotar	0.103	0.316
Dalmatia	-0.477	0.318
Const	0.623	0.510
Number of observations	2,000	
Number of imputations	25	
Prob > F	0.000	
Pseudo R^2	0.154	
Area under ROC	0.780	

Significance: *p<0.05, **p<0.01, ***p<0.001

Source: Author's own calculations based on the representative survey of 2,000 individuals in Croatia

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Turning to the explanatory variables, the logit model confirms that there is only a weak significant relationship between participation in the informal economy and the level of penalties. Those perceiving the penalty as being that one will have to pay the due plus a fine, are significantly less likely to participate in the informal economy than those who believe that the penalty is that one will have to pay the normal tax and social contributions owed. Those perceiving the sanction to be a prison, however, are not significantly less likely to engage in the informal economy than those who believe that the penalty is that one will have to pay the normal tax and social contributions owed. This, therefore, only partially and weakly confirms H1a. Turning to whether there is an association between participation in the informal economy and the perceived risk of detection, the finding is again that there is a weak statistically significant relationship. Those who perceive the risk of detection as "fairly high" are significantly less likely to participate in the informal economy than those who perceived the risk of detection as "very small". However, there is no statistically significant difference in participation in the informal economy and those perceiving the risk as "fairly small" or "very high" and those perceiving the risk as "very small". This, therefore, again only partially and weakly confirms H1b.

Examining the social actor perspective, however, a strong significant relationship is identified between participation in the informal economy and not only the extent of horizontal trust but also the degree of vertical trust. There is a strong significant difference between the likelihood of participation in the informal economy of those who perceive more than 50 per cent of the population and those who perceive small proportions to participate in the informal economy. Those perceiving more than 50 per cent to engage in the informal economy are significantly more likely to participate in the informal economy themselves than those who perceived less than 5 per cent to do so, those who perceive 5-10 per cent to do so, and those who perceived 10-20 per cent to do so. Horizontal trust, therefore, plays a strong and significant role in determining participation in the informal economy, strongly confirming H2a.

It is also the case that there is strong significant relationship between the level of vertical trust and participation in the informal economy. The greater is the degree of asymmetry between citizens' norms, values and beliefs regarding the acceptability of working in the informal economy, and the laws and regulations, the greater is the likelihood of participating in the informal economy. This, therefore, strongly confirms H2b.

5 Discussion and Conclusions

This survey has evaluated the effectiveness of the conventional rational economic actor approach which explains participation in the informal economy in terms of the benefits outweighing the costs and this seeks to tackle the informal economy by increasing the perceived penalties and risks of detection, and the social actor approach which explains the informal economy in terms of the level of vertical and horizontal trust and tackles it by improving these. The finding is that this study of Croatia only partially and weakly confirms H1 that the likelihood of participation in the informal economy is influenced by the penalties and risks of detection, but finds a strong significant relationship between the likelihood of participation in the informal economy and the level of horizontal and vertical trust, thus confirming H2.

The theoretical advance made in this paper, therefore, is that it reveals the need, at a minimum, for the rational economic actor explanation to be supplemented by a social actor explanation that views participation in the informal economy to result from a low level of vertical and horizontal trust. Viewed through the lens of institutional theory, in consequence, when the norms, values and beliefs of citizens do not adhere to those of the state in terms of the codified laws and regulations, there is a greater likelihood of them participating in the informal economy. Importantly, moreover, this paper reveals for the first time that it is not just the level of vertical trust that is important, but also the degree of horizontal trust. When citizens perceive that a larger proportion of the population are engaged in the informal economy, they are strongly and significantly more likely to participate in the informal economy. In future research, therefore, there is a need to evaluate not only the level of vertical trust, as has been the case in the tax morale literature (Alm et al., 2012; Kirchler, 2007; Torgler, 2007, 2011), but also the level of horizontal trust so as to evaluate whether

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this is also so strongly significant elsewhere.

Turning to the policy implications, the finding of this study is that even if increasing the perceived or actual level of penalties and risk of detection confronting citizens has a partial if weak association with the likelihood of engaging in the informal economy, the currently widely used deterrence approach needs at a very minimum to be complemented by a social actor policy approach that seeks to improve the level of horizontal and vertical trust. What policy measures are therefore required in order to achieve this?

On the one hand, policy measures are required to alter the norms, values and beliefs regarding not only the extensiveness of the informal economy so as to improve horizontal trust, but also the acceptability of participation in order to reduce the asymmetry between citizens' beliefs and the laws and regulations, and thus vertical trust. This requires marketing and education campaigns to raise awareness about both the limited extent of participation as well as the benefits of formality and costs of operating in the informal economy. For example, if the media publicise the notion that the informal economy is an extensive phenomenon, then this is likely to further reduce the level of horizontal trust, and lead to a further growth in the informal economy. Media publicity, therefore, needs to avoid exaggerated claims about the scale of the informal economy so as to garner attention because this may unintentionally cause the further growth of this sphere. There is also a need to design campaigns to educate citizens about the benefits of formality, including the benefits of taxation in terms of the public goods and services received for taxes paid, and costs of informality. This will help create greater adherence to the laws and regulations of the formal institutions and reduce the non-alignment of citizens' norms, values and beliefs. Such measures might include introducing into school education, such as the civics curriculum, the issue of working formally and the benefits of paying taxes owed, through to sending letters to taxpayers about how their taxes are being spent, to putting up signs in schools, hospitals and roads for instance, stating "paid for by your taxes".

On the other hand, changes are also needed in the formal institutions, especially in a country such as Croatia where formal institutional deficiencies result in a lack of trust in government (Williams et al., 2017). This requires changes in both the processes and products of formal institutions. Firstly, and to tackle the lack of vertical trust, the process of formal institutions need modernising so as to improve the quality of governance. This includes pursuing improvements in the view of citizens that: the state authorities treat them in a respectful, impartial and responsible manner (Murphy, 2005); they pay their fair share compared with others (Molero and Pujol, 2012), and they receive the goods and services they deserve for the taxes they pay (McGee, 2005). Secondly, however, changes in the products of formal institutions are also required, by which is here meant the policy initiatives to tackle macro-level economic and social conditions. As previous empirical studies elsewhere reveal, this includes policy initiatives to increase the level of expenditure on active labour market policies to support vulnerable groups, and the level of expenditure on social protection (Autio and Fu, 2015; Horodnic, 2016; Thai and Turkina, 2014; Williams and Horodnic, 20156a,b; Williams and Kayaoglu, 2017), both of which are strongly associated with participation in the informal economy since these policy measures reduce the need for marginalised citizens to operate in the informal economy as a survival strategy.

These findings about the need for greater emphasis on a social actor approach when explaining and tackling participation in the informal economy, however, are based on one dataset in one country and thus must remain very tentative. Further evaluations in other countries of these competing perspectives are required. If this paper stimulates such evaluations in a broader array of countries of these rival approaches towards explaining and tackling the informal economy, then it will have fulfilled one of its intentions. If this then encourages governments to consider alternative policy approaches other than simply deterring engagement in the informal economy by increasing the penalties and risks of detection, then it will have fulfilled its wider intention.

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