TACKLING UNREGISTERED EMPLOYMENT IN EUROPEAN REGIONS: TOWARDS A VARIEGATED POLICY APPROACH

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Abstract

To tackle participation in unregistered employment, the conventional policy approach has been to deter such work by increasing the penalties and risk of detection. Recently, an alternative preventative approach has emerged that tackles participation in unregistered employment by improving citizens vertical trust (in the state) and horizontal trust (in each other). To evaluate these competing policy approaches across different European regions, Eurobarometer survey data collected in 2019 is analysed. The finding is that in the EU as a whole, the likelihood of participating in unregistered employment is not significantly associated with the perceived penalties and likelihood of being caught, but there is a strong significant association between the likelihood of participating in unregistered employment and the level of vertical and horizontal trust, suggesting the need to moved beyond a deterrence approach. However, one approach does not fit all European regions. A variegated approach is required. In South-East Europe, East-Central Europe and the Nordic nations, it is only horizontal trust that is significantly associated the likelihood of engaging in unregistered employment, whilst in Southern Europe it is vertical trust and the risk of detection. The implications for theory and policy are discussed.

Keywords: informal economy; tax compliance; tax morale; public policy; Southern Europe.

JEL classification:H26, J46, K42, O17, Z18

INTRODUCTION

Across Europe, there has been recognition that unregistered employment,whereby employees have no written contracts or terms of employment, has negative impacts. Unregistered employees have poorer working conditions than those registered due to the absence of a written contract (ILO 2015; Williams and Horodnic 2019) whilst they also negatively impact formal employees who have weakened trade union power and effective collective bargaining, whilstformal businesses witness unfair competition from unscrupulous employers who reduce their labour costs through the use of unregistered employees (OECD 2017; World Bank 2019). Governments, meanwhile, do not collect taxes and social insurance contributions due and as a result, cannot invest in public goods and promote social cohesion (Andrews et al. 2011; ILO 2018; Williams 2014; World Bank 2019). In consequence, tackling unregistered employment is now firmly on the policy agenda of many governments across Europe and beyond (Efendic and Williams 2018; Gashi and Williams 2018; Katnic and Williams 2018; Kosta and Williams 2018;

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Radulovic and Williams 2018; MojsoskaBlazevski and Williams 2018; Williams and Puts 2017). It is also high on the policy agenda of supra-national institutions (European Commission 2016; ILO 2015; OECD 2017; World Bank 2019), exemplified by the creation of the European Platform Tackling Undeclared Work in 2016 (European Commission 2016) and the Western Balkan Network tackling undeclared work in 2020 (Regional Cooperation Council 2020). Therefore, it is important to understandhow unregistered employment can be tackled.

The aim of this paper is to evaluate the competing policy approaches that can be used to tackle unregistered employment. In so doing, knowledge is advanced in three distinct ways. Theoretically, it evaluates the conventional deterrence approach that views them a rational economic actors and increases the penalties and risks of detection, and the emergent preventative approach that views them as social actors and seeks to improve citizens vertical trust (in government) and horizontal trust (in each other). This will uncover that the conventional view of those engaged in unregistered employment as rational economic actors needs to be replaced at a European level with a view of them as social actors lackingvertical trust in governments and horizontal trust in others to operate legitimately. Empirically, meanwhile, new evidence is for the first time reported from data collected in a 2019 Eurobarometer survey on unregistered employment that evaluates the validity of these competing perspectives. Finally, the policy advance is that it reveals how one policy approach does not fit all European regions and that a variegated approach is required which different policy approaches in different European regions.

To achieve this, the next section reviews the literature on the different approaches towards tackling unregistered employment, setting out the contrasting deterrence and preventative policy approaches, along with the literature discussing how they might be combined. The third section then introduces the data and methodology used to evaluate these approaches, namely a probit regression analysis of a 2019 special Eurobarometer survey.The fourth section reports the findings, revealing that in Europe, the likelihood of participating in unregistered employment is not significantly associated with the perceived penalties and likelihood of being caught, but there is a strong significant association with the level of vertical and horizontal trust, In South-East Europe, East-Central Europe and the Nordic nations, however, it is only horizontal trust that is significantly associated the likelihood engaging in unregistered employment, whilst in Southern Europe it is vertical trust and the risk of detection. The fifth and final section then discusses the implications for theory and policy, the limitations of this study and future research needed.

1. POLICY APPROACHES TOWARDS UNREGISTERED EMPLOYMENT: LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

In recent decades, there have been numerous studies of the undeclared economy,which refers to paid work that is not unregistered by, or not declared to, the authorities for tax, social security and/or labour purposes (Khan 2017; Slack et al. 2017; Williams 2017; Williams and Windebank 1998; Windebank and Horodnic 2017), and how this sphere can be tackled (Williams 2019; Williams and Puts 2017). These studies have analysed the magnitude of the undeclared economy (e.g., Williams et al. 2017) and the characteristics of participants (Williams and Horodnic 2017).

Compared with the wider undeclared economy, which is largely composed of own-account work conducted on a self-employed basis (Williams and Horodnic 2021), unregistered employment has received much less attention. Only a few studies have evaluated unregistered employment (Hazans 2011; Gashi and Williams 2019; Krasniqi and Williams 2017; Williams and Horodnic 2018; Williams and Kayaoglu 2017). Hazans (2011) and Williams and Kayaoglu (2017)both evaluate its prevalence and distribution. Williams and Kayaoglu (2017) find that in the European Union, 5% of employees report being in unregistered employment in 2013, while Hazans (2011), using European Social Survey data on 30 countries for the period between 2004 and 2009, finds that the proportion of employees without a contract is 2.7% in Nordic countries, 9.5% in Southern Europe, and 5% in Western and East-Central Europe. Williams and Horodnic (2018), reporting a 2015 European Working Conditions Survey based on 43,850 face-to-face interviews, find that 7% (1 in 14) of service industry employees have no written contract of employment across the 35 European countries surveyed, although this varies from 34% in Cyprus to 1% in Sweden. Gashi and Williams (2019), reporting a 2017 large scale national representative survey of 8,533 households in Kosovo, similarly find that 34.6% of all employees are engaged in unregistered employment.

Analysing its distribution, Williams and Kayaoglu (2017) find no significant association between various socio-demographic and socio-economic factors (i.e., gender, age, educational level, and occupational status), although Hazans (2011) finds that unregistered employment is more likely among those with fewer years in education, students, women, and that older and younger employees more likely to work without a contract, and Krasniqiand Williams (2017) examining a 2010 Life in Transition Survey (LiTS) in 35 Eurasian countries reveal that younger age groups, the divorced, and those with fewer years in education, are more likely to be unregistered employed.. In Kosovo, meanwhile, Gashi and Williams (2019)find unregistered employment to be significantly more prevalent among men, younger people, single, widowed or divorced, those with fewer years in education, living in rural areas and in larger households, working in construction and services, part-time employees, with shorter employment duration, lower wages, and those in elementary occupations and craft and related trades. Williams and Horodnic (2018) find that unregistered employment more prevalent among women, younger people, those with fewer years in education, migrants, those living in households unable to make ends meet, those working in smaller businesses, and the hospitality and household service sectors.

Until now, no known studies have evaluated the policy approaches which are effective at tackling unregistered employment. Examining the literature on undeclared work (see Williams and Horodnic 2017), two competing policy approaches exist. First, there is the dominant deterrence approach that treats participants as rational economic actors and seeks to increase the perceived and/or actual penalties and risks of detection. Secondly, there is an alternative preventative approach that treats participants as social actors and seeks to improve vertical trust (in government) and horizontal trust (of citizens in each other). Here, each approach is reviewed.

1.1 Deterrence policy approach

In the deterrence approach seeks to increase the penalties and risks of detection to raise the perceived and/or actual costs of engaging in such activity. It is based on a classic

utilitarian theorisation of participation in which participants are viewed as rational economic actors who weigh up the benefits of participating in the undeclared economy against the expected costs (i.e., the risk of being caught and sanctioned). Given this view of participation as a rational economic decision, state authorities seek to alter the cost/benefit ratio confronting participants by increasing the costs of engaging in undeclared work. The seminal article setting out this approach was by Allingham and Sandmo (1972) who depicted tax non-compliance as occurring when the benefits outweigh the costs and therefore proposed increasesin the penalties and risks of being caught to increase the costs. This was subsequently widely adopted as the dominant policy approach used by governments (Grabiner 2000; Hasseldine and Li 1999; Richardson and Sawyer 2001; Williams and Puts 2017), reflected in "enforcement" authorities, such as tax authorities, labour inspectorates and social insurance institutions, being developed and given the mandate of detecting and punishing participation in undeclared work.

Despite this development and substantial resourcing of enforcement authorities to detect and punish participation in the undeclared economy (Williams 2019), the evidence is far from conclusive that this deters undeclared work. Some scholarship find that increasing the likelihood of detection and/or the penalties reduces participation (Blackwell 2010; Kluge and Libman 2017), and usually that increasing the probability of detection is more effective than increasing penalties (Williams and Horodnic 2017a,b). However, other scholarship reveals that increasing penalties and the probability of being caught has no impact on participation (Hartl et al. 2015; Williams and Franic 2016). Yet others reveal that participation increases because of the breakdown of the social contract between citizens and the state (Hofmann et al. 2017; Kaplanoglou and Rapanos 2015; Murphy 2005, 2008; Murphy and Harris 2007).

Until now, this deterrence approach has not been evaluated in relation to engagement in unregistered employment. In consequence, to evaluate this, the following hypothesis can be tested:

> *Deterrence hypothesis (H1): increasing the perceived penalties and risk of detection reduces the likelihood of engagement in unregistered employment.*
> *H1a: Increasing the perceived penalties reduces the likelihood of engagement in unregistered employment.*
> *H1b: Increasing the perceived risk of detection reduces the likelihood of engagement in unregistered employment.*

1.2 Preventative approach

The origins of a preventative approach lie in the recognition that many citizens do not participate in undeclared work when the benefit/cost ratio strongly suggests that they should if they were truly rational economic actors (Alm et al. 2010; Kirchler 2007; Murphy 2008). Even though it would be a rational economic action to participate, they do not. To explain this a social actor approach has emerged.

This view has received its clearest expression in the scholarship based on a variant of institutional theory (North 1990; Helmke and Levitsky 2004). This asserts that participation in the undeclared economy arises when there is an asymmetry between the

codified laws and regulations of the formal institutions and the socially shared unwritten rules of society (Williams et al. 2015). This asymmetry results in a lack of vertical trust (in formal institutions), which is reflected in the lack of an intrinsic motivation to pay taxes, that can be measured in terms of tax morale (Alm and Torgler 2006 2011; Torgler and Schneider 2007; Torgler 2011). Hence, the goal in this preventative approach is to improve vertical trust so that citizens will voluntarily comply (Kirchler 2007; Torgler 2011). Indeed, studies of participation in undeclared work in different EU member states (Kogler et al. 2013; Williams and Franic 2016; Windebank and Horodnic 2017), European regions (Williams and Horodnic 2015, 2017b), and in the EU as a whole (Williams et al. 2015; Williams and Horodnic 2017a), all confirm that participation in undeclared work is lower when there is higher vertical trust.

More recently, this preventative approach has additionally recognised the benefits of improving not only vertical trust (between the state and citizens) but also horizontal trust between citizens (Baric 2016). The view is that if citizens perceive others to participate in the undeclared economy, they too are more likely to do so. At present, the empirical evidence supporting this view derives largely from laboratory experiments. These display that the willingness to comply depends on perceptions of whether others are also compliant (Traxler 2010). If compliance is perceived as the norm, citizens are more likely to comply (Alm 1999, 2012). However, if it is not viewed as the norm, the likelihood of compliance is higher (Lefebvre et al. 2015; Hallsworth et al. 2017). Participation in the undeclared economy is therefore conditional on the perceived participation of others (Traxler 2010).

Again, this has only so far been evaluated in relation to undeclared work, which is largely composed of own-account work (Williams and Horodnic 2021). To evaluate this preventative approach in relation to unregistered employment, the following hypothesis can be tested:

> *Preventative hypothesis (H2): improving vertical and horizontal trust reduces the likelihood of engagement in unregistered employment.*
> *H2a: improving vertical trust reduces the likelihood of engagement in unregistered employment.*
> *H2b: improving horizontal trust reduces the likelihood of engagement in unregistered employment.*

1.3 Deterrence and preventative approaches: competing perspectives?

Most scholars adopt one or other of these theorisations and resultant policy approaches. However, a small minority of scholars have discussed whether they are mutually exclusive and whether using both approaches concurrently could be more effective. A "slippery slope" policy approach argues that state authorities should concomitantly pursue both a deterrence and preventative approach (Kastlunger et al. 2013; Khurana and Diwan 2014). Indeed, combining them is seen as the most effective way of tackling undeclared work (Kirchler et al. 2008; Muehlbacher et al. 2011; Prinz et al. 2013; Wahl et al. 2010).

However, potentially complex interaction effects may occur when combining these two approaches. For example, increasing penalties and the probability of detection may have different effects at different levels of vertical trust. Increasing penalties may

reduce participation in undeclared work when vertical trust is low but lead to greater participation when vertical trust is high due to the resultant breakdown in the social contract between the state and its citizens (Chang and Lai 2004; Kirchler et al. 2014). Put another way, vertical trust may moderate the effects of increasing penalties and the risk of detection on the likelihood of participation. However, these interaction effects have not so far been discussed in relation to unregistered employment. In consequence, the following hypotheses can be tested:

> *Moderating impacts of vertical trust hypothesis (H3): the impacts of the perceived penalties and risk of detection on the likelihood of engagement in unregistered employment differs by the level of vertical trust.*
> *H3a: the impacts of the perceived penalties on the likelihood of engagement in unregistered employment differs by the level of vertical trust.*
> *H3b: the impacts of the perceived risk of detection on the likelihood of engagement in unregistered employment differs by the level of vertical trust.*
>
> *Moderating impacts of horizontal trust hypothesis (H4): the impacts of the perceived penalties and risk of detection on the likelihood of engagement in unregistered employment differs by the level of horizontal trust.*
> *H4a: the impacts of the perceived penalties on the likelihood of engagement in unregistered employment differs by the level of horizontal trust.*
> *H4b: the impacts of the perceived risk of detection on the likelihood of engagement in unregistered employment differs by the level of horizontal trust.*

2. METHODOLOGY

2.1 Data

To evaluate these policy approaches, data is reported from 27,565 interviews undertaken in September 2019 in 28 European countries (the 27 European Union member states and the UK) in Eurobarometer special survey 92.1. All interviews were conducted in the national language with adults aged 15 years and older. A multi-stage random (probability) sampling methodology was used, which ensured that on the issues of gender, age, region and locality size, both the national and each level of the sample is representative in proportion to its population size.

In this paper, the results are analysed for all 28 European countries and five European regions to evaluate whether different policy approaches apply in each region. These are the Nordic region (Denmark, Finland, Sweden), Western Europe (Belgium, Luxembourg, Netherlands, Austria, Ireland, United Kingdom, France, Germany), East-Central Europe (Czechia, Estonia, Latvia, Lithuania, Poland and Slovakia), Southern Europe (Italy, Malta, Spain and Portugal) and South-East Europe (Bulgaria, Croatia, Cyprus, Greece, Hungary, Romania and Slovenia).

2.2 Variables

To evaluate whether engagement in unregistered employment is associated with the perceived level of penalties and risk of detection, and vertical and horizontal trust, the

dependent variable is a dummy variable with value 1 for respondents who when asked "Which of the following situations apply to you", answered "yes" to the statement "You are employed without a formal written contract", and value 0 otherwise.

To evaluate the deterrence and preventative policy approaches, four explanatory variables are used. First, the relationship between the perceived level of penalty and engagement in unregistered employment uses a dummy variable describing the penalties perceived to result from engagement in unregistered employment with value 0 for normal tax or social security contributions due and value 1 for normal tax or social security contributions due, plus a fine or prison. Second, the relationship between the risk of detection and engagement in unregistered employment uses a dummy variable for the perceived risk of detection with value 0 for a very small or fairly small risk and value 1 for a fairly high or very high risk.

Third, the relationship between engagement in unregistered employment and vertical trust uses tax morale as a measure of vertical trust because a lack of trust in formal institutions is manifested in a low tax morale (Alm and Torgler 2006), so it is a proxy measure. Participants were asked to rate the acceptability of participating in six types of undeclared work using a 10-point Likert scale (where 1 means absolutely unacceptable and 10 means absolutely acceptable), namely: an individual is hired by a household and s/he does not declare the payment received to the tax or social security authorities even though it should be declared; a firm is hired by a household and it does not declare the payment received to the tax or social security authorities; a firm is hired by another firm and it does not declare its activities to the tax or social security authorities; a firm hires an individual and all or a part of the wages paid to him/her are not officially declared; someone receives welfare payments without entitlement (not available in the 2019 survey), and someone evades taxes by not declaring or only partially declaring their income. An aggregate tax morale index for each respondent was constructed by collating their responses to the six (five in 2019) questions. The index is represented in the original 10-point Likert scale format, meaning that the lower the index value, the higher is their tax morale. The Cronbach's Alpha coefficient of the scale which shows a good internal consistency of the scale (Kline 2000) is 0.9317.

Fourth and finally, the relationship between engagement in unregistered employment and horizontal trust is derived from the question, "Do you personally know any people who work without declaring their income or part of their income to tax or social security institutions?" This proxy measure of horizontal trust has been used in previous studies of undeclared work (Stefanov et al. 2017; Horodnic and Williams 2020). A dummy variable is used for horizontal trust with value 1 for those who know someone who undertakes undeclared work and 0 otherwise. Those answering value 1, "yes", means that they perceive others to participate and therefore have lower horizontal trust.

Meanwhile, and in line with past studies evaluating participation in undeclared work (Williams and Horodnic 2015, 2017a), the control variables selected are gender, age, marital status, number of adults in household, children, difficulties paying bills, and urban/rural area (see Table 1).

Table 1. Variables used in the analysis: definitions

Variables	Definition
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 grouping respondent by their marital status with value 1 for (re)married, value 2 for single living with a partner, value 3 for single, value 4 for divorced/separated, value 5 for widow
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
Financial difficulties	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
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

2.3 Analytical Methods

Probit regression analysis is used for testing hypothesis about the relationship between a categorical dependent variable and one or more categorical or continuous independent variables (Greene 2018). The log-likelihood function for probit is:

$$lnL = \sum_{j \in S} w_j \, ln\emptyset(x_j\beta) + \sum_{j \notin S} w_j \, ln\{1 - \emptyset(x_j\beta)\}$$

where the symbol $\emptyset$ is the cumulative normal and w_j represents the optional weights. lnL is maximized (Greene 2018). Using probit analysis, the following model is adopted:

$$\Pr(\mathcal{Y}_j \neq 0 | x_j) = \phi(x_j\beta)$$

The dependent variable of the model $(\mathcal{Y}_j)$ is binary, unregistered employment, which represents engagement in unregistered employment, x represents the explanatory variables including the control variables, which are expected sanction, detection risk, level of vertical trust, level of horizontal trust, gender, age, marital status, people 15+ years in own household, children, difficulties paying bills, and area (see Table 1 for a description of the variables).

3. FINDINGS

As Table 2 reveals, 2.4% of the European citizens surveyed in 2019 reported engaging in unregistered employment in the 12 months prior to the survey, and this ranged from 1.5% in East-Central Europe through to 2% in South-East Europe, 2.1% in Western Europe and 2.3% in the Nordic nations and 5.8% in Southern Europe. These figures, it should be

noted, are participation rates in unregistered employment of all citizens. They are not a measure of the size of the undeclared economy.

Who, therefore, engages in unregistered employment, and do those engaging in unregistered employment have different perceptions than those who do not regarding the perceived penalties and risks of detection, and vertical and horizontal trust? As Table 2 reveals, those not engaging in unregistered employment are more likely to perceive the penalty as higher than those engaging in unregistered employment in Europe as a whole and South-East Europe and the Nordic nations, but not the other European regions. However, those not engaging in unregistered employment are less likely to perceive the risk of detection as high than those engaging in unregistered employment in Europe as a whole and in Western Europe, South-East Europe, East-Central Europe and the Nordic nations. These descriptive statistics, therefore, do not provide universal support for the deterrence policy approach that the likelihood of engagement in unregistered employment is lower when the perceived penalties and risk of detection are higher.

Those engaging in unregistered employment have a lower tax morale compared with those not engaging in unregistered employment both in Europe as whole as well as all regions (except in Southern Europe). On horizontal trust, those not engaging in unregistered employment have a much higher level of horizontal trust than those engaging in unregistered employment (again except in Southern Europe).

Turning briefly to the descriptive results regarding who engages in unregistered employment, the finding is that across Europe, those over-represented include men, single people, multiple adult households, with no children, living in a rural area or village and who most of the time have difficulties paying the household bills. However, differences exist in who engages in unregistered employment in different European regions, suggesting that the target groups

Table 2. Descriptive statistics for those engaging and not engaging in unregistered employment in Europe: by European region

	Europe		Western		Southern		South-East		East-Central		Nordic	
Unregistered worker	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Unregistered employment (%)	2.4	97.6	2.1	97.9	5.8	94.2	2.0	98.0	1.5	98.5	2.3	97.7
Expected sanctions (%)												
Tax or social security contributions due	26	28	25	19	28	25	21	31	47	43	8	16
Tax or social security contributions + fine or prison	74	72	75	81	72	75	79	69	53	57	92	84
Detection risk (%)												
Very small/ Fairly small	52	54	47	53	67	54	42	50	40	52	64	71
Fairly high/ Very high	48	46	53	47	33	46	58	50	60	48	36	29
Tax morality – vertical trust (mean)	2.74	2.51	3.35	2.48	1.78	2.05	2.64	2.60	3.16	2.92	3.25	2.05
Know anyone												

who works undeclared-horizontal trust (%)											
Yes	51	42	47	37	42	49	63	47	50	39	68	46
No	49	58	53	63	58	51	37	53	50	61	32	54
Gender (%)											
Female	49	53	47	52	57	50	49	53	60	58	28	49
Male	51	47	53	48	43	50	51	47	40	42	72	51
Age (mean)	43	44	42	44	41	44	41	42	44	44	48	45
Marital Status (%)											
Re(Married)	54	55	50	51	49	58	65	63	73	53	40	50
Single living with partner	15	17	22	20	13	15	12	14	7	16	20	21
Single	20	16	18	18	32	19	14	14	7	14	20	17
Divorced/Separeted	7	9	7	8	3	7	7	7	7	12	16	10
Widow	3	2	2	2	3	2	2	1	3	4	4	1
Other	1	1	2	1	-	-	-	1	3	1	-	1
People 15+ years in own household											
One	16	18	23	21	7	15	7	11	13	20	36	24
Two	52	53	52	54	51	49	49	51	67	54	44	58
Three and More	32	29	25	25	42	36	44	38	20	26	20	18
Children (%)											
No children	67	64	48	63	72	67	72	64	77	67	80	62
Having children	33	36	52	37	28	33	28	36	23	33	20	38
Area (%)											
Rural area or village	39	30	32	33	60	32	33	32	23	31	36	21
Small or middle-sized town	30	38	32	38	22	43	21	30	43	35	44	51
Large town	31	32	36	29	18	25	46	38	34	34	30	28
Difficulties paying bills (%)											
Most of the time	12	5	8	4	12	7	16	10	23	4	4	1
From time to time	36	25	34	20	33	37	65	37	20	21	16	6
Almost never/never	52	70	58	76	55	56	19	53	57	75	80	93

Source: author's calculations based on special Eurobarometer 92.1 survey

To analyse if these descriptive results remain valid when other variables are introduced and held constant, Table 3 reports probit estimates of the likelihood of engaging in unregistered employment in Europe as a whole and each European region. Examining who engages in unregistered employment, men are not significantly more likely than women in Europe as a whole and all European regions (except in Nordic nations where they are significantly more likely). Age is not significantly correlated with engagement in both Europe as a whole and all European regions. Neither is marital status or the number of adults in a household, except in East-Central Europe where married people are more likely to engage in unregistered employment and in Southern Europe where multiple adult households are more likely to engage in unregistered employment. Having children is not significantly correlated with engagement in unregistered employment, except in Western Europe where people with children are more likely to engage in unregistered employment and in East-Central and Nordic countries where they are less likely. Those having difficulties paying their bills most of the time are

significantly more likely to engage in unregistered employment in Europe as a whole and all European regions. Citizens in larger urban areas are significantly less likely to engage in unregistered employment compared with those in rural areas or villages in Europe as a whole, and in Southern Europe and Nordic nations, but elsewhere there are no significant differences.

Turning to the hypotheses regarding whether engagement in unregistered employment is significantly associated with the perceived penalties and risk of detection, and vertical and horizontal trust, as well as the interaction effects, Table 3 presents the results. The first finding is that there is no association between the perceived penalties and participation in unregistered employment in Europe as whole and all European regions (refuting H1a). Similarly, there is no significant association between the perceived risk of detection and engagement in unregistered employment in Europe as a whole (refuting H1b), except in Southern Europe where a significant relationship exists. The greater the perceived risk of detection, the less likely are Southern European citizens to engage in unregistered employment.

However, there is a significant association between vertical trust and engagement in unregistered employment in Europe as a whole (confirming H2a). breaking this down by European region, however, this is only significant in Southern Europe. The higher the vertical trust, measured in terms of tax morale, the lower is the likelihood of engagement in unregistered employment. Similarly, there is a significant association between horizontal trust and engagement in unregistered employment (confirming H2b). The greater the trust in others to be compliant, the significantly lower is the likelihood of engagement in unregistered employment. This is the case in Europe as a whole, and in South-East Europe, East-Central Europe and the Nordic nations (but not Western and Southern Europe).

Table 3. Probit estimates of likelihood of engagement in unregistered employment: by European region

	Europe	Western Europe	Southern Europe	South East Europe	East Central Europe	Nordic
Gender (RC: women)						
Men	0.0564	0.0757	-0.1513	0.0720	-0.0935	0.3947**
	(0.0577)	(0.1107)	(0.1321)	(0.1254)	(0.1365)	(0.1871)
Age	-0.0023	-0.0000	-0.0034	-0.0104	-0.0118	0.0073
	(0.0030)	(0.0054)	(0.0067)	(0.0074)	(0.0087)	(0.0092)
Marital Status (RC: married)						
Single living with a partner& single	-0.0144	0.0505	0.1605	-0.2448	-0.5002*	0.0447
	(0.0724)	(0.1251)	(0.1748)	(0.1802)	(0.2687)	(0.2275)
Divorced or separated& widow	0.0400	-0.1684	0.2072	-0.0514	-0.3531*	-0.0658
	(0.0917)	(0.2089)	(0.2009)	(0.2121)	(0.1945)	(0.4929)
Adults in household (RC: One)						
Two	0.0913	-0.2311	0.5738**	0.1069	0.0261	-0.2559
	(0.1097)	(0.2229)	(0.2743)	(0.2693)	(0.2211)	(0.4994)
Three and more	0.0871	-0.2219	0.4996*	0.1949	-0.2822	-0.1471
	(0.1079)	(0.2286)	(0.2674)	(0.2677)	(0.2552)	(0.4907)
Children (RC: no children)						
Have children	-0.0764	0.2452**	-0.1488	-0.2683	-0.4473**	-0.4129*
	(0.0681)	(0.1167)	(0.1617)	(0.1709)	(0.2198)	(0.2468)

Financial difficulties (RC: most of the time)						
From time to time	-0.2192**	-0.1785	-0.2960	0.0172	-0.8699***	-1.2976*
	(0.1054)	(0.2356)	(0.2418)	(0.1867)	(0.2558)	(0.7101)
Almost never/ never	-0.4869***	-0.3981*	-0.3953*	-0.6345***	-0.8915***	-1.5698**
	(0.0993)	(0.2271)	(0.2217)	(0.2096)	(0.2135)	(0.6428)
Area (RC: rural area or village)						
Small or middle-sized town	-0.2090***	-0.0853	-0.6717***	-0.1998	0.1774	-0.5865***
	(0.0693)	(0.1353)	(0.1582)	(0.1732)	(0.1826)	(0.2245)
Large town	-0.1235*	0.1209	-0.4884***	0.0304	0.0497	-0.4507*
	(0.0706)	(0.1346)	(0.1696)	(0.1489)	(0.2132)	(0.2596)
Expected sanctions (RC: tax or social security contributions due)	-0.0384	0.1435	-0.2634	0.5968	-0.2242	-0.3855
	(0.1311)	(0.2871)	(0.2535)	(0.3903)	(0.2958)	(0.4478)
Detection risk (RC: very small/ Fairly small)	-0.1027	0.1093	-0.7240***	0.5096	0.1965	-0.0893
	(0.1116)	(0.2157)	(0.2650)	(0.3250)	(0.3340)	(0.3772)
Vertical Trust	-0.0540*	0.0847	-0.2444**	-0.0443	-0.0685	0.0862
	(0.0325)	(0.0542)	(0.0998)	(0.0806)	(0.0631)	(0.1417)
Horizontal Trust	0.2100*	0.3162	-0.1452	1.1017***	0.4905**	-3.9921***
	(0.1233)	(0.2509)	(0.2803)	(0.3886)	(0.2490)	(0.4374)
Interactions						
Sanction x Tax morale	0.0451	-0.0512	0.2154**	-0.0147	0.0810	0.0774
	(0.0336)	(0.0623)	(0.0927)	(0.0785)	(0.0707)	(0.1470)
Detection x Tax morale	0.0680**	0.0560	0.0834	0.0735	0.0722	0.0311
	(0.0308)	(0.0574)	(0.0897)	(0.0745)	(0.0732)	(0.0835)
Sanction x Horizontal Trust	-0.0681	-0.0529	-0.4398	-0.4491	-0.1563	4.3546***
	(0.1318)	(0.2658)	(0.2987)	(0.3355)	(0.2981)	(0.4985)
Detection x Horizontal Trust	-0.0852	-0.3534	0.6806**	-0.8075**	-0.4586	0.4768
	(0.1185)	(0.2471)	(0.2742)	(0.3314)	(0.3186)	(0.3646)
Constant	-1.4963***	-2.1089***	-0.5730	-2.3206***	-0.6809	-0.6483
	(0.2623)	(0.4694)	(0.6202)	(0.6924)	(0.6092)	(1.1375)
Observations	9,161	2,825	1,039	2,197	2,021	1,079
Pseudo R^2	0.0294	0.0545	0.1124	0.1018	0.1159	0.1915
Log pseudolikelihood	-992.7578	-271.0082	-203.5507	-190.1757	-134.2729	-96.0767
χ^2	65.60	30.14	52.45	48.85	47.23	854.34
p>	0.0000	0.0500	0.0001	0.0002	0.0003	0.0000

Robust standard errors in parentheses.*** p<0.01, ** p<0.05, * p<0.1
Source: author's calculations based on special Eurobarometer 92.1 survey

Table 3 also examines whether vertical and horizontal trust moderate the impacts of penalties and risk of detection on the likelihood of engagement in unregistered employment. The impact of penalties on the likelihood of engagement in unregistered employment does not vary by the level of vertical trust (refuting H3a). The impact of risk of detection on the likelihood of engagement in unregistered employment does not vary by the level of vertical trust (refuting H3b), except in Southern Europe. The greater the vertical trust, the less likely is the greater risk of detection likely to reduce engagement in unregistered employment, possibly because those with higher vertical trust view this as the state breaking the social contract with them.

Meanwhile, the impacts of the level of penalties on the likelihood of engagement in unregistered employment work does not significantly vary by the level of horizontal trust (refuting H4a). The exception is in the Nordic nations where the greater the horizontal trust, the less likely are penalties to reduce engagement in unregistered employment. Finally, the impacts of the risk of detection on the likelihood of engagement in unregistered employment work does not significantly vary by the level of horizontal trust (refuting H4b), except in Southern and South-East Europe, where the greater the horizontal trust, the less and more likely is a greater risk of detection to reduce engagement in unregistered employment respectively.

5. DISCUSSION AND CONCLUSIONS

This paper has evaluated the validity of the deterrence policy approach that increases the penalties and the risk of detection, and the preventative approach that seeks to improve vertical and horizontal trust, to tackle unregistered employment. Reporting data from a 2019 Eurobarometer survey, the deterrence approach of increasing penalties and the risk of detection has been shown to be not significantly associated with reducing engagement in unregistered employment in Europe and all European regions (except for increasing risk detection in Southern Europe). However, a significant association has been shown to exist between engagement in unregistered employment and the level of vertical and horizontal trust in Europe. The greater the level of vertical and horizontal trust, the lower is the likelihood of engagement in unregistered employment. Some interaction effects have also been shown to exist but not in a consistent manner across European regions. Table 4 summarises the findings regarding the hypotheses. Here, the theoretical and policy implications are considered.

Table 4. Summary findings of hypotheses

Hypothesis R = Reject A = Accept	Euro pe	West ern Euro pe	South ern Europ e	Sout h East Euro pe	East Cent ral Euro pe	Nor dic
Deterrence hypothesis (H1):						
H1a: Increasing penalties reduces unregistered employment.	R	R	R	R	R	R
H1b: Increasing risk of detection reduces unregistered employment	R	R	A	R	R	R
Preventative hypothesis (H2):						
H2a: Improving vertical trust reduces unregistered employment.	A	R	A	R	R	R
H2b: Improving horizontal trust reduces unregistered employment.	A	R	R	A	A	A
Moderating impacts of vertical trust hypothesis (H3):						
*H3a:*the impacts of penalties on unregistered employment differs by the level of vertical trust.	R	R	A	R	R	R
H3b: the impacts of risk of detection on unregistered employment differs by the level of vertical trust.	R	A	R	R	R	R
Moderating impacts of horizontal trust hypothesis (H4):						
H4a: the impacts of penalties on unregistered	R	R	R	R	R	A

employment differs by the level of horizontal trust.						
H4b: the impacts of risk of detection on unregistered employment differs by the level of horizontal trust.	R	R	A	R	R	R

Theoretically, the contribution of this paper is to show that the conventional deterrence policy approach based on the rational economic actor approach, and used by enforcement authorities across Europe, is not supported by the evidence. There is generally no significant association between increasing the penalties and risk of detection and reducing the likelihood of engagement in unregistered employment. The tentative suggestion is that engagement in unregistered employment is not a rational economic decision. Rather, this study reveals that those engaging in unregistered employment are social actors. There is a significant association between the likelihood of engagement in unregistered employment and the level of vertical and horizontal trust. When there is higher vertical and horizontal trust, the likelihood of engagement in unregistered employment is lower. The outcome is a call at the European level for the deterrence approach based on the theorisation of rational economic actors to be replaced by the preventative approach based on the notion that participants are social actors responding to their level of vertical trust (in government) and horizontal trust (in others). Examining whether there are any interaction effects, the only significant one at a European level is that the impacts of the perceived risk of detection on the likelihood of engagement in unregistered employment differs by the level of vertical trust. When vertical trust is higher, the impacts of increasing the perceived risk of detection is lower on the likelihood of engagement in unregistered employment. The important additional finding, however, is that these results are not replicated across all European regions. In South-East Europe, East-Central Europe and the Nordic nations, it is only horizontal trust that is significantly associated the likelihood of engaging in unregistered employment, whilst in Southern Europe it is vertical trust and the risk of detection.

These findings have important implications for policy. Conventionally, European governments have relied on the deterrence approach of increasing the penalties and risk of detection to tackle unregistered employment (Williams 2019; Williams and Puts 2017). Less attention has been given to improving vertical and horizontal trust. This study reveals that at a European level, there is a need to put less emphasis on deterrence policy measures and to develop tools for improving vertical and horizontal trust.

To improve vertical trust, two options are available. The low trust of citizens in government is a result of the asymmetry between the laws, codes and regulations and the norms, beliefs and values of citizens (North 1990; Helmke and Levitsky 2004). To address low vertical trust, in consequence, one can change either the formal institutions or citizens norms, beliefs and values. Firstly, therefore, norms, values and beliefs can be altered by making unregistered employment unacceptable and extolling the virtues of engaging in registered employment. This can be achieved using education and awareness raising campaigns. These ccan raise awareness about the benefits of registered employment, such as providing information on how taxes are spent (including tailored letters using tax returns to show the amount of their taxes spent on different public goods and services), using "your taxes are paying for this" banners in hositalis, on ambulances and fire engines, and on construction projects built with public funds. The above analysis clearly displays that the population groups who should be

targeted by such campaigns are those with difficulties paying the bills and living in rural areas and villages. Secondly, howeverm, citizens' views can be aligned better with the state by changing the formal institutions. Previous research shows that this happens when citizens believe that state authorities treat them in a respectful, impartial and responsible manner (Murphy 2005), that they pay their fair share compared with others (Molero and Pujol 2012) and that they receive the public goods and services they deserve for their taxes paid (Kirchgässner 2011).

Meanwhile, and to improve horizontal trust, European governments need to stop publishing data on the magnitude of unregistered employment because this has a negative effect on horizontal trust. Instead, campaign messages must convey to citizens the very high level of compliance across society as a whole and especially in the communities to which the citizens targeted view themselves as belonging. Previous research displays that such messages are most effective when they reveal the high compliance in the populations close to the citizen targeted, such as in their local area, occupation and/or industry (Hallsworth et al. 2017).

Nevertheless, it is important to recognise that policy approaches to improve tax morale are best targeted at citizens of Southern Europe, whilst policy measures to improve horizontal trust are best targeted at citizens of South-East Europe, East-Central Europe and the Nordic nations. In addition, this study also reveals that pursuing measures to improve the perceived risk of detection (e.g., improved workplace inspections, data mining, matching and sharing, identity cards, registration prior to starting work) are an effective means of preventing unregistered employment in Southern Europe. In Southern Europe, these policy initiatives to improve tax morale and the perceived risk of detection can be targeted at those most likely to engage in unregistered employment, namely those with difficulties paying the bills most of the time, living in multiple adult households in a rural area or village. Policies to improve horizontal trust, meanwhile, if they are to be targeted at those most likely to engage in unregistered employment, need to target those who most of the time have difficulties paying the bills (a proxy indicator for the poor) in South-East Europe, the married with no children, who most of the time have difficulties paying the bills in East-Central Europe, and men, with no children, with difficulties paying the bills most of the time, living in a rural area or village in Nordic nations.

Despite these theoretical and policy advances being made in this paper, there are nevertheless some limitations which have implications for the future research required. Firstly, this is a survey of citizens who take unregistered employment. It does not evaluate employers who employ unregistered workers. Research is therefore in future required on which policy approaches are most effective from the viewpoint of stopping employers employing unregistered workers. It might be that the policy approaches required will be different. Until such employer research is undertaken, however, this cannot be known. The policy measures discussed in this paper therefore are those required to reduce the supply of citizens to enter unregistered employment. They are not necessarily the policies which will stop the demand from employers for unregistered employees. Secondly, there is a need to replicate the existing research in these European countries (the 27 member states of the European Union and the UK) in other regions and countries, such as the Western Balkans, East Asia, and Middle East and Africa, to see if there are the same findings.

In summary, if the outcome of this paper is that governments in European economies recognize the need to transcend the conventional universal deterrence approach and to recognize that variegated approaches are required, often including measures to improve vertical and horizontal trust, then one intention of this paper will have been fulfilled. If further evaluations of these policy approaches are conducted in other European and global regions and countries, then this paper will have achieved its wider ambition.

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