

FAMILY TIES AND UNDERGROUND ECONOMY

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People who do not trust one another will end up cooperating only under a system of formal rules and regulations, which have to be negotiated, agreed to, litigated, and enforced, sometimes by coercive means. This legal apparatus, serving as a substitute for trust, entails what economists call “transaction costs”. Widespread distrust in a society, in other words, imposes a kind of tax on all forms of economic activity, a tax that high-trust societies do not have to pay.

Francis Fukuyama, *Trust*, 1995.

La morale del popolo italiano è soprattutto una morale familiare. Nell’ambito della cerchia familiare, ogni membro aiuta l’altro con inconscio eroismo, accettando come un dovere anche il più grande sacrificio. [...] Ma la morale sociale è rilassata. Il governo è considerato come qualcosa di estraneo e ostile al popolo.

Gaetano Salvemini, *La mentalità degli Italiani*, 1928.

1 Introduction

The aim of this paper is to try to explain the role that family ties and social capital may actually play in determining the underground economy. In the last decade, a growing part of the economic literature on tax evasion has extensively approached the individual decision to comply with tax obligations by exploring the role of taxpayers' ethics and tax morale. Tax morale, the civic dimension of citizens, the quality of institutions have proved to be important factors in explaining taxpayers' behaviour, the size of the underground economy and some other political economy variables linked to this phenomenon. Surprisingly, family ties, more broadly, the role of the family in shaping values (particularly public ones), have not been adequately considered as a key variable that may affect the shadow economy. In fact, family ties seem rather important in explaining people's morality, the quality of their political participation, their degree of trust in institutions, their country's economic performance and in the end the underground economy and tax evasion.

In section 2 we briefly review the recent theory of tax evasion and underground economy and recall the main results of the empirical literature on this matter. In section 3 we sketch the recent literature on tax morale and evasion. In section 4 we address the issue of family ties and social capital and explain why we expect that the role of the family might be crucial in explaining taxpayers' behaviour. The structure of the dataset is defined in section 5. In the sixth paragraph we discuss the empirical model and the main results of the effects of the role of the family and social capital on the underground economy and tax morale. Finally, in section 7 we present our main conclusions and some hints on possible directions for further research.

2 Explaining Tax Evasion and the Underground Economy

Tax evasion has been widely investigated in last four decades. Most of the analysis is concentrated on the pioneeristic approach of Allingham-Sandmo (1972), which looks at tax evasion as a problem of portfolio choice – essentially, taxpayers will eventually decide to not comply if they estimate a possible monetary gain from cheating behaviour. The possible net benefits for taxpayers are a function of monetary gains deriving from the tax saving, as a consequence of their dishonest behaviours (tax evasion), and of monetary sanctions, which taxpayers will have to pay, if detected, with some given probability. The higher the expected punishment, as the product of fines and the probability of detection, the lower tax evasion is assumed.

Most of the following contributions have tried to enrich the basic model by modeling the tax game that takes place between tax authorities and taxpayers in a more sophisticated way – for example, by making the probability of detection endogenous, by assuming different forms of individual preferences (in particular with regard to risk) or by approaching the tax game as a repeated game, where some sub-game perfect/imperfect (Nash) equilibria are possible.

Most explanations stress the role of the level of taxation, as given by various indicators (total taxes as a % of the GDP, effective tax rates, etc.), the tax mix – given that the various forms of direct and indirect taxes have a different possibility of being evaded – the efficiency of the public sector, the quality of public expenditure, the compliance costs and the complexity of tax system, the tax collection mechanism, and last but not least, tax inspection and the quality and structure of tax controls. The general conclusion is that tax evasion is a very complex phenomenon and that a multidimensional or multidisciplinary approach is required. In general, tax deterrence models do not always fully explain the compliance rate in countries where tax evasion is widespread, as well as the exceptional rate in other countries with a strong degree of trust, public morale and efficiency of public institutions.

Some studies have however shown that the role of tax inspection and deterrence measures in fighting evasion are far from being clear and are often disputed: “fines and tax auditing are unable to explain the actual level of tax compliance as they are too low to provide effective deterrence in most OECD countries”¹. Other authors even suggest that the real enigma of tax evasion is not why tax fines and inspections are so unsuccessful in fighting tax evasion, rather than why people pay taxes honestly, given the rather low level of fines, intensity of controls and the low probability of being caught². More generally, the empirical evidence on the impact of tax auditing and fines on tax evasion and the shadow economy is ambiguous³.

Theoretical models have provided many possible explanations for tax evasion, but in the end none of them tend to be fully satisfactory. There is no a single cause that may explain such differences in tax compliance; the factors usually considered are:

- a) The level of the tax burden/pressure: a higher tax ratio may result in greater tax evasion;
- b) The efficiency and effectiveness of tax administration – and more in general of the public sector;

¹ See, among others, Andreoni et al (1998), Slemrod-Yitzhaki (2002), Torgler (2003), Braithwaite-Wenzel (2006), Feld-Schmidt-Schneider (2008).

² See Alm-McClelland-Schulze (1992).

³ Feld-Schmidt-Schneider (2008).

- c) Tax complexity: a costly and complex tax system may induce people not to comply fully;
- d) The quality of public spending and public services provision – or rather, what people really perceive in this respect;
- e) Tax composition: higher taxes on personal and company incomes should result in more evasion – while property and consumption taxes may prove more robust to tax cheating;
- f) The structure of fines and sanctions and in particular their credibility.

All these factors surely play an important role in explaining countries' differences in tax evasion. However, there are some important exceptions and puzzles which still have to be addressed. Firstly, Sweden, Denmark and in general all the Nordic countries have a very high tax pressure but an astonishingly low ratio of tax evasion, according to the common estimates. Secondly, why do countries such as Italy, Greece, and Portugal tend to show a very high ratio of tax evasion? Are there any other variables, apart from the structural ones, that may explain this gap in tax evasion with other countries? Is there any political economy lever behind tax evasion?

Thirdly we believe that culture attitudes and the moral dimension are crucial if one wants to deal with tax evasion, that tax morale really matters. The issue of public ethics and tax morale of different people have not been adequately considered in the theoretical approach to tax evasion. Only in the last decade, tax morale has been placed in relation to tax evasion and some empirical investigations have tried to prove the existence of some correlation and causality between the two phenomena. But more evidence is needed.

In this work, we partially adopt a different perspective. The idea of the paper is very simple. We want to use some recent outcomes in political economy literature and try to see if these political economy variables play a significant role in explaining the size of the underground economy in a sample of OECD and non-OECD countries.

The study on tax evasion still has to be improved; overall, what we know about tax evasion is still insufficient. In some countries, tax evasion tends to be very persistent and stable, if not increasing, notwithstanding strong tax detection policies. We are not saying that tax inspection and the deterrent activities implemented by governments are not important or useful. We are more simply saying that in some cases, detection alone is not sufficient to explain the underground economy, and that perhaps a different approach may be usefully considered if one really wants to address the complexity of tax evasion. The theory of social capital may be of some help in this respect.

3. The role of tax morale

In the last decade, some papers have tried to assess the role of tax morale in explaining the underground economy. Schneider, Torgler and some other authors⁴ have estimated that tax morale plays quite a significant role in determining the taxpayers' behaviour and their deciding to evade taxes.

The idea is that, together with the classic and objective variables such as the economic growth, the level of education, tax pressure, the level and the quality of public expenditure, the policy of prosecution and punishment, a better understanding of the shadow economy requires also to investigate other variables such as "subjective perception, expectations, attitudes and motivations, tax morale or perceived institutional quality"⁵. Even if the main structural tax factors remain of course fundamental, the model and data suggest extending the analysis to the moral dimension, public ethics and civic participation: "the violation of social norms is connected with higher costs of being active in the informal sector. Similarly, better institutions provide stronger incentives to behave legally and increase the cost of illegal activities as a consequence of greater institutional accountability"⁶. Therefore, in order to explain international differences in the size of the underground economy, it is wise to focus also on individual morale, social norms and public ethics.

Many papers have investigated whether differences in tax morale across countries tend to reflect considerable variations in the shadow economy and tax evasion. Alm-Togler (2006) address the case of Europe and the US and find a strong negative correlation between the two variables. Alm-Martinez-Vasquez-Togler (2006) deal with transition countries and find the same result: countries with low tax morale show a clear pattern towards a larger shadow economy. Togler-Schneider (2009) consider a large number of countries and do find evidence that a higher degree of a nation's tax morale reduces the size of the shadow economy in that country. Alm-Martinez-Vasquez (2007) and Torgler (2005) investigate the role of tax morale in Latin America and find a relation with the size of the shadow economy. Torgler (2004) investigates the case of Asian Countries and finds that trust in the government and the legal system have a positive effect on tax morale – implying therefore that this should reduce the size of shadow economy – and the same evidences are confirmed in Torgler (2007).

⁴ See among others, Torgler-Schneider (2006, 2009), Torgler (2003, 2004, 2005, 2006, 2007), Alm-Togler (2006), Feld-Togler (2005), Frey-Togler (2007), Lago-Penas-Lago-Penas (2010), Lewis-Carrera-Cullis-Jones (2009), Tsakumis, G.-Curatola, A.-Porcano, T. (2007), Alm-Martinez-Vasquez-Togler (2006), Alm-Martinez-Vasquez (2007) and Halla (2010).

⁵ See Torgler-Schneider (2009).

⁶ Torgler-Schneider (2009).

The role of tax morale is important not only in relation to the tax structure, but also with regard to public spending. In a recent paper Barone and Mocetti (2011) investigate the determinant of tax morale at municipal level in Italy. They show that inefficiency in public expenditure shapes (negatively) individual tax morale; in particular, that at the level of Italian municipalities where public spending is more inefficient, the tax morale results lower - even if they do not use the EVS and the WVS but the Survey on Household Income and wealth of the Bank of Italy. Therefore, also by using a different data set, the relationship between tax morale and the main characteristics of the public sector is largely confirmed. The implication is that an efficient public service provision can promote a “cooperative reaction of taxpayers in the form of a better attitude toward fiscal duties”.

The evidence and econometric estimates show that in most specifications, tax morale is highly significant in explaining the level of the underground economy. Tax morale can help explain the rate of tax compliance and the size of the shadow economy: to a substantial extent, and in some areas and regions of the world, tax cheating may be attributed to the tax morale of taxpayers.

It may be interesting at this point to address what the possible determinants of tax morale might be. Here are some possible hints: a) Historical factors, traditions and heritage should generally matter in shaping public ethics and morale; b) demographic and ethnic status; c) the importance of faith and religion: in general, religiosity is correlated with the shadow economy; d) and of course the role of the family and the strength of family ties.

Lago-Penas-Lago Penas (2010) show that tax morale in European countries varies regularly with socio-demographic characteristics, personal financial experiences, political attitudes and regional GDP but also with some ethnic and linguistic fractionalizations. Torgler (2006) also addresses the role of religion in shaping moral value and tax morale and therefore tax evasion. By using a weighted ordered probit model, he finds that there is a positive correlation between religiosity and tax morale, even if this effect tend to vary somewhat for sub-groups of religion – Catholic, Protestant, Jewish, Hindu, Moslem, Buddhist. But these results, as admitted by the author, should be treated and accepted with caution, given some difficulties with the data.

Summarizing the main results, in general, tax morale tends to rise with age, is lower for self-employed and unemployed, for upper-class individuals, and is also positively correlated with education. National pride increases tax morale. Tax morale is stronger for student and retired, for women and married people, but weaker for individuals living together; and financial satisfaction increases tax morale.

Trustworthiness increases tax morale while perceived corruption strongly reduce it. Finally, but this is a quite controversial aspect, religiosity tends to increase tax morale.

4 Family ties and the power of the family

The purpose of our paper is twofold:

a) to confirm the role of tax morale in explaining public attitudes (public ethics) and the degree of trust in public institutions; and therefore in determining tax evasion and the underground economy.

b) to investigate an idea first developed by political scientists and researchers in the late '60s and early '70s, on the importance of family ties in explaining social capital, trust in public institutions (and therefore their quality), political participation and economic outcomes – and, lastly, the underground economy.

The first author who clearly described such a pattern was Edward Banfield in 1958⁷ as a consequence of his research in the South of Italy. He depicts it as “amoral familism”, a situation in which there is “inability of the villagers to act together for their common good or, indeed, for any end transcending the immediate, material interest of the nuclear family. This inability to concert activity beyond the immediate family arises from an ethos – that of ‘amoral familism [...] [according to which people] maximize the material, short run advantage of the nuclear family; and assume that all others will do likewise” (p. 9).

Therefore, “in a society of amoral familists, no one will further the interest of the group or community except as it is to his private advantage to do so” (p. 83). In this society, it is very difficult to build and maintain public organizations given the selfish attitude of individuals who rely exclusively on family. “The inducements which lead people to contribute their activity to organizations are to an important degree unselfish (e.g., identification with the purpose of the organization) and they are often non-material. Moreover, it is a condition of successful organization that members have some trust in each other and some loyalty to the organization”(87).

In a similar vein, in 1964 Luigi Barzini, in an extraordinary book on “The Italians,” wrote⁸: “the first source of power is the family. [...] Scholars have always recognized the Italian family as the only fundamental institution in the country, a spontaneous creation of the national genius, adapted through the centuries to changing conditions, the real foundation of whichever social order prevails. In fact, the law,

⁷ Banfield (1958).

⁸ Barzini (1964, 190).

the State and society function only if they do not directly interfere with the family's supreme interests".

Of course, as Barzini argues, this aspect is not new, unique or so surprising since in many other countries and among other people, "where legal authority is weak and the law is resented and resisted, the safety and welfare of the individual are mainly assured by the family". There is however an important difference between the Italian case and those of other people who use the family as their private lifeboat: in Italy, it is not simply "a way of life, a spontaneous condition of society, a natural development: it is also the deliberate product of man's will, the fruit of his choice; it has been assiduously cultivated and strengthened down the centuries". The strength of the family has to be acknowledged therefore as one of the principal causes of the development of weak and low-quality political institutions.

This character of family ties as the key core of Italian society – but more in general of many other countries in Southern Europe⁹ and Asia – has attracted a huge number of studies and research projects since a long time. We cannot give here a full account of these books and papers, but we just want to give some interesting examples. We can begin with many remarkable instances: from Guicciardini (1983) in the sixteenth century, Goethe (1983), Stendhal (1956) and Leopardi (1991), at the beginning of the nineteenth century; from Turiello (1882-1980), Salvemini (1928) and Gramsci (1977) to Putnam (1993) and Gambino (1998) in the last century. The main, common point is that the strength of the family tends to hamper an active participation of people to collective life.

There is here however another interesting aspect that we cannot address in this paper but it worth mentioning. The fact that, in general, the power of the family seems strongly depends on the 'role of the mother' within the family. The different role of the father and the mother within the family should largely explain the 'familial mentality' which gives rise to weak collective responsibilities and civic involvements. Gambino (1998, 39-50) and Simone (2005) but much before Turiello (1887) and Bachofen (1949), have argued that Italy, as a '*paese materno*', tends to apply to social and public behaviours a familist mentality. But it is important to emphasize that this mentality not derive necessarily from the family in itself, rather from the '*figura femminile, che è quella della donna in quanto "madre di famiglia"*'. It is not the family in a general sense that matters in this case¹⁰, but the role of the

⁹ And, of course, according to Barzini, Putnam and other authors, also countries in South America and Asia (China, for example).

¹⁰ In fact, in the human history are existed, and it may in general exist, different kind of families, such as patriarchal family strongly linked to the concept of authority – or one in which the role of the mother is more balanced with respect to that of the father. See on this Gambino (1998, 40).

“woman-mother” which makes the ‘familist mentality’ better described as ‘mother’ (or maternity) mentality’¹¹.

Reduced participation in public life has also been studied recently in the US by Robert Putnam (2000), who argues that since 1950, the USA has experienced a strong decline in social capital – “all the forms of in-person social intercourse upon which Americans used to found and enrich the fabric of their social lives”. The reduction in the degree of active civil engagement and political involvement worsens the quality of democracy. In a similar vein, Francis Fukuyama (1995, 98) argues in a book dedicated to the analysis of trust and social capital that “though it may seem a stretch to compare Italy with the Confucian culture of Hong-Kong and Taiwan, the nature of social capital is similar in certain respects. In parts of Italy and in the Chinese cases, family bonds tend to be stronger than other kinds of social bonds not based on kinship, while the strength and number of intermediate associations between state and individual has been relatively low, reflecting a pervasive distrust of people outside the family. The consequences for industrial structure are similar: private sector firms tend to be relatively small and family-controlled, while large-scale enterprises need the support of the state to be viable”.

The punch line is therefore that amoral familism tends to produce a special and stable social equilibrium in which people trust and care exclusively about their immediate family, “expect everybody else to behave in that way, and therefore (rationally) do not trust non-family members and do not expect to be trusted outside the family” (Alesina-Giuliano, 2011)¹². The ‘power of the family’ on individuals tends to affect their degree of political participation, resulting therefore in low civic engagement and in a low generalized trust and confidence in public life, the quality of political institutions and parties. Being convinced that politics is a private matter, people will not have the incentive to become engaged in political and public activities, except when this is done only out of self-interest. This kind of familism should hinder the development of high-quality political institutions, the pursuit of the common good and participation in public affairs.

To summarize, clear evidences can therefore be found in a vast literature that:

¹¹ This is at least true for Italy and countries of Southern Europe. It is important to stress however that this distinction has not to be based of course on the ‘biological nature’, rather on a ‘cultural dimension’ and being identified as the product of a collective mental structure (see on this Gambino, 1998, 63). This ‘mother mentality’ has produced a collective mentality of a particular nature which has implied a low civic participation and a reduced degree of trust in other people and public institutions.

¹² Alesina-Giuliano (2011) but see also Alesina-Giuliano (2010).

- a. in Southern European countries, the role of the family is very important – but we need to be cautious, since this is also true in many other developed and less developed countries.
- b. studies have demonstrated that countries where the family matters tend to show less social capital, less participation, less political involvement, a lower degree of trust.
- c. societies which rely heavily on families tend to have a lesser degree of trustworthiness and less confidence in public institutions;
- d. the role of family ties is often associated with negative economic performance, modest rate of growth, reduced investment and so on;
- e. all things considered, we may therefore expect countries where families ties are strong tend also to have a larger underground economy.

We want to be clear about the possible implications of family ties: we are not saying that family ties are always bad.... “Strong or weak family ties are neither “bad” nor “good” but they lead to different organizations of the family”¹³ and have different economic, moral and social implications. There is also evidence, in fact, that confirms that happiness and life satisfaction may be positively correlated with strong family ties.

However, we believe is worthwhile investigating these implications. In particular, the case of Italy raises the issue of whether the strength of the family is the principal cause of the existence of weak political institutions and low social capital. But to get a strong correlation does not necessarily imply causality. In other words, this brings up a complex problem of reverse causality: “do political institutions flourish only where the family is weak, or is it the other way around? Does the family become self-sufficient only where the political institutions are not strong enough?”¹⁴.

Where the role of the family is strong, civic duty tends to be low, so as social capital and tax morale, as well as at last tax compliance. Where family ties are weak, on the other hand, trust in the public sector tends to result higher, tax morale and civic duty greater, and tax evasion lower.

¹³ Alesina-Giuliano (2011).

¹⁴ Barzini (1964, 191). There is also another interesting issue here, which was brought up by Fukuyama (1999) and Putnam (1998), concerning the possible link between family ties and maternal mentality with the role of Catholic Church: “Italians in the South were much less likely to read newspapers, belong to unions, vote and otherwise take part in the political life of their communities than others. Moreover, people in the South expressed a much lower degree of social trust and confidence in the law-abiding behaviour of their fellow citizens. [...] Italian Catholicism correlates negatively with civic-mindedness: when measured by indexes like attendance at mass, religious marriage, rejection of divorce, and so on, it grows stronger the farther south one moves, and civic-mindedness grows weaker” (Fukuyama 1995, 100).

Therefore, in this paper we want to investigate whether family ties, the power of the family, affect the degree and the size of the underground economy. To the best of our knowledge, this is the first attempt in addressing this issue. Our point is very simple: amoral familism, in particular strong family ties, tend to produce not only different outcomes on the quality of public institutions, but also a particular type of civic involvement and a different degree of political participation. All this inevitably affects the degree of trust that characterizes one specific society, therefore how people consider public institutions and public matters.

Strong family ties induce less participation, less trust in the public sector and government action and in the same way they may affect tax morale and the degree of tax evasion. If one does not believe in or trust public action, why then should fully comply with taxes?

In this paper, we provide evidence that strong family ties are inversely related to the underground economy, generalized trust and civic engagement. By reducing the degree of social capital, family ties affect tax morale negatively and the dimension of the underground economy positively.

5 Data description

The dataset combines data on personal values and social capital with an index of the shadow economy. Variables related to personal values are based on the last waves of World Value Survey and European Value Survey, both conducted in 2008. These research projects collect national surveys on values concerning a lot of issues: from perceptions of life to family values, from personal beliefs (religion and civic participation) to political participation, from national identity to public morale. The level of coverage changes every time, both with regard to the number of countries involved and the issues surveyed; however, a certain number of topics are investigated using the same questions on every wave. These surveys collect answers to a single questionnaire, which is usually made up of 140 questions for less than 400 variables, from a sample of approximately 1,500 people for each country. In order to elaborate our estimate, we extract the mean values of the variables we use in the specification for each single country from the dataset.¹⁵

¹⁵ We provide data from World Value Survey for the following countries: Andorra, Argentina, Australia, Brazil, Burkina Faso, Canada, Chile, China, Colombia, Egypt, Ethiopia, Ghana, Guatemala, Hong Kong, India, Indonesia, Iran, Iraq, Japan, Jordan, Malaysia, Mali, Mexico, Morocco, New Zealand, Perù, Rwanda, South Africa, S. Korea, Taiwan, Thailand, Trinidad and Tobago, Uruguay, Usa, Vietnam, Zambia. We provided data from European Value Survey for the following countries: Albania, Azerbaijan, Austria, Armenia, Belgium, Bosnia, Belarus, Bulgaria, Croatia, Cyprus, Cze Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Moldova,

Tax morale measures the willingness of people to behave honestly in matters of the public sector domain. Both World Value Survey and European Value Survey report a wide range of tax morale issues. In the surveys, tax morale has been measured in different dimensions such as a) claiming state benefits which you are not entitled to; b) accepting bribes in the course of one's duties; c) avoiding payment of tickets on public transport; d) and finally, cheating on taxes if you have the chance – the variable we essentially use in our estimate.

People have been asked to express their opinion according to the following scale: "Please tell me whether you think the following statements can always be justified, never justified or something in between: cheating on taxes if you have the chance". The answers are classified from 1 to 10, where 1 is for never justifiable and 10 for always justifiable. Since the highest share of replies lies in the first three options, we recoded the variable to a 1-4 points scale in order to reduce variability. The new variable therefore varies from 1 (always justifiable) to 4 (never justifiable), and the new value of 1 collects answers from 4 to 10 of the original scale.

To measure the strength of family ties we used 2 different variables that measure the relevance of the love and respect for one's own parents and the duties and responsibilities of parents towards children. These variables refer to two different questions: the first asks whether the respondent agrees with one of the two statements: a. "Regardless of what the qualities and faults of one's parents are, one must always love and respect them"; b. "One does not have the duty to respect and love parents who have not earned it".

The second question asks whether the respondent agrees with one of the two statements: a. "It is the parents' duty to do their best for their children even at the expense of their own well-being"; b. "Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children".

The first option for both questions takes the value of 1, while the second alternative takes the value of 2. As anticipated, the questionnaires from the World Value Survey and the European Value Survey are not always identical. In fact, the last waves of the European Value Survey report the answers to these questions while, on the contrary, they were not asked in the last World Value Survey. For this last group of countries, we decided to use the answers from the wave of 2003 .

Montenegro, Netherland, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, Macedonia, Great Britain, Kosovo.

We checked the importance of religion in people's life by using a set of three different variables. The first variable is linked to the question that investigates whether the respondent considers himself to be a religious person: "Independently of whether you attend Church services, do you consider yourself to be a religious person" (religious person). Answers vary from 1 to 3, where option 1 represents "a religious person", option 2 represents "a non-religious person" and option 3 represents "an atheist". The second variable surveys the level of trust in the church (trust church). Respondents are requested to express their degree of trust using a scale which varies from 1 to 4, where option 1 represents a high degree of trust and option 4 represents no trust at all. The last variable checks the importance of religion in one's own life (religion). The variable refers to the following question: "... indicate how important religion is in your life". The answers range from 1 to 4, where option 1 represents "very important" and option 4 represents "Not important at all".

We measured the degree of trust in 2 dimensions: trust in public institutions and trust in other people. We surveyed the first dimension of trust by using a set of two different variables which are based on the answers to the questions that investigate the level of trust in the following institutions: the government and parliament. Respondents are requested to express their degree of trust in these institutions on a scale that varies from 1 to 4, where option 1 represents high trust and option 4 represents no trust at all.

We surveyed the degree of trust in other people by using a variable based on the following question: "Generally speaking, can most people be trusted or do you (the respondent) need to be very careful in dealing with people?". Answers can be one of two alternatives: a. "most people can be trusted" and b. "you need to be very careful".

To measure the importance of politics in one's own life, we used a variable linked to a question that investigates exactly this subject – as for the questions before, the importance of politics. Answers to the question range from 1 to 4, where 1 represents very important and 4 represents not important at all.

Finally, data on underground economics is taken from Schneider (2005), Schneider and Enste (2000, 2002) and Schneider-Buehn and Montenegro (2010). In these papers, the authors define the underground economy in the usual way: "Underground economics, in fact, includes all market-based legal production of goods and services deliberately concealed from public authorities in order to avoid the payment of taxes or welfare contributions, meeting some legal requirements regarding the labor market or complying with administrative commitments". In this

way, the authors avoid dealing with other components of shadow economy activities such as crime or other types of illegal actions.

6 Econometric analysis

6.1 Main results

Figure 1 and 2 report the first raw evidence of the relationship between the data on the level of shadow economy (ue) and family ties. In particular, Figure 1 shows the relationship between ue and family ties measured using the variable *love parents* where 1 means strong family ties and 2 weak family ties. Therefore, the negative correlation reported in the picture is in line with our expectations that when family ties are strong the level of shadow economy is high.

Similarly, in Figure 2 we show the relationship between ue and family ties measured using the variable *help child* (again 1 means strong family ties and 2 weak family ties). As before we the expected negative correlation, i.e when family ties are strong the level of shadow economy is high.

In order to measured in a more precise way the impact of family ties on the level of the shadow economy, controlling for other factors that may affect the underground economy, we estimate the following empirical model:

$$ue_i = \beta_0 + \beta_1 familyties_i + \beta_2 taxmorale_i + \beta_3 religion_i + \beta_4 trust_i + \beta_5 politics_i + \varepsilon_i$$

where i is the country index; family ties are measured using alternatively “love parents” and “help child”; tax morale is measured using the variable “cheating on taxes” described above; religion includes three variable (religion, trust church, and religious person); trust is measured using three variables: trust government and trust parliament related to the confidence in public institutions, and trust people related to the confidence in other citizens; finally, politics is measured in terms of the importance of politics in people’s life. The stochastic components ε is assumed, as usual, i.i.d $(0, \sigma)$.

As we have seen above, we used the variable “cheating on taxes” when there is the chance of doing so. We expect a negative relationship between the level of the shadow economy and the tax morale index, in the sense that the lower the numeric value of cheating on taxes – that is to say, a lower index of tax morale – the higher the value of underground economy should be.

As anticipated, we use two different measures of family ties: the children's duty and responsibilities toward parents (love parents) and the parents' duty and responsibilities towards children (help child). As in the case of tax morale, we expect the existence of an inverse relationship between the level of shadow economy and the strength of family ties: high levels of underground economy should be associated with strong family ties. Since in the variables of family ties we use, high values mean weak family ties, we expect a negative sign of the coefficient.

As regards the variables that refer to the degree of importance of religion, we used 3 different indexes. We think that between religion and the underground economy there might be in general an inverse relationship, in the sense that where the importance of religion is high, the level of shadow economy might tend to be greater. On the basis of the behaviour of our variables, it should be reasonable to expect a negative sign in the coefficients.

Finally, as regards the behaviour of the variables that compare the shadow economy and the degree of trust in public institutions and other people, it seems reasonable for us to assume that when the degree of trust tends to be higher, the level of the shadow economy should be lower. Since for our variables lower numeric values mean an increased degree of trust, and conversely high values mean a lower one, we expect a positive sign in the coefficients.

Table 1 reports the results obtained using love-parents as a measure of family ties. In line with our expectations the impact of love-parents on the degree of the shadow economy is negative and statistically significant at 1% significance level in almost all specifications and using robust standard errors. The effect of tax morale (cheating on taxes) exhibits the negative coefficient that we expected, and is always significant at 1%. The impact of the importance of religion presents the expected negative sign in two of the three variables. All the variables used to measure the degree of trust show the expected positive sign. Finally, the variable used to capture the impact of the importance of politics is not significant. The values of R^2 are high in all specifications. As far as the magnitude of the coefficient is concerned, in order to make them comparable, all variable have been standardized. Therefore it is possible to conclude that the impact of family ties on the level of shadow economy is stronger than the impact of tax morale.

Table 2 reports the results obtained using help-child as a measure of family ties. The estimated coefficients confirm essentially the general results observed in table 1. In particular, the impact of help-child and tax morale (cheating on taxes) on the degree of the shadow economy is negative and statistically significant. The only differences

can be observed in relation to the coefficient of the variable “religious person”, which is now positive and statistically significant in column (F), and for the impact of the variable “trust people” that, in this case, is positive and statistically significant in line with our expectations. The values of R^2 are, again, very high in every specification. Differently from table 1 the impact of family ties on the level of shadow economy is similar to the impact of tax morale. In conclusion it is important to stress that the impact of love-parentes is more than doubled than the impact of help-child on the level of shadow economy. This last result suggests that love-parentes captures the relationship between the power of the family and the degree of underground economy in a better way.¹⁶

6.2 Robustness checks

As a robustness check, we have tried to test and explain the determining factors of tax morale. To that end we used the following econometric model:

$$taxmorale_i = \gamma_0 + \gamma_1 familyties_i + \gamma_2 religion_i + \gamma_3 trust_i + \gamma_4 politics_i + \phi_i$$

The meaning of the variables is the same as those used in the previous estimates. The stochastic components ϕ is assumed, as usual, i.i.d (0, σ).

Given the behaviour of both family ties variables (strong family ties correspond to lower numeric values while weak family ties correspond to higher values), we expect a positive relation between the values of tax morale and those of family ties.

In the case of religious indexes (religion, trust church and religious person), we expect an inverse relationship between tax morale and the relevance of religion. However, based on the behaviour of the three variables (higher values are associated to less importance of religion and conversely, lower values represent a massive importance) we expect a positive sign of the coefficients.

As regard the variables that refer to the degree of trust toward institutions (trust government, and trust parliament) and other people (trust people) there seems to be an inverse relation with the levels of tax morale. In fact the higher tax morale the lower the numeric value of trust – meaning that people trust more. Therefore, when the degree of trust increases it is reasonable to expect negative signs of the coefficients – that is to say a higher tax morale.

¹⁶ The sample size shrinks from 83 to 46 mainly because of the presence of missing values on some of the variables, and marginally because of the presence of some outliers.

Finally, the impact of the importance of politics is expected to be positive on tax morale. Since the lower the numeric value of the variable the higher the importance of politics, the coefficient should be negative.

In tables 3 and 4 we report our estimates. Also in this case, we use the two measures of family ties: the children's duty and responsibilities toward parents (love-parents), and the parents' duty and responsibilities towards children (help-child). The estimated coefficients are always in line with our expectations with the exception of the variable "religion".¹⁷

7 Conclusions and policy implications

This paper provided for the first time robust empirical evidence supporting the idea that family ties are one of the most important determinants of the level of underground economy.

Therefore, in order to explain the degree of shadow economy, one needs to consider not only the classical variables related to the structure of the tax system: such as the tax burden, the impact tax rate, the detection policy, and other elements that affect the compliance, but also subjective values such as the power of the family, tax morale and the degree of general trust.

One of the main policy implications of this result is that the structure of the society is one of the main factors that should be taken into account when designing policies aiming at reducing tax evasion. In other words we believe that, away from any moral judgment on the role of the family, the degree of family ties imply different roles of the family with evident economic, moral and social implications.

¹⁷ The sample size shrinks from 83 to 53 mainly because of the presence of missing values on some of the variables, and marginally because of the presence of some outliers.

7 Appendix

FIGURE 1. Relationship between shadow economy and family ties measured using the variable love-parents.

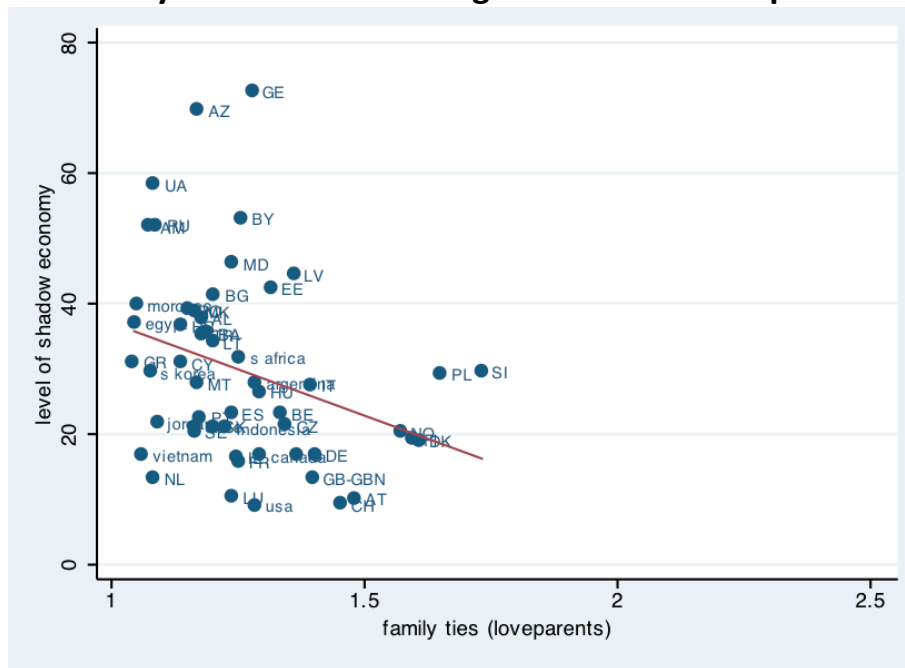


FIGURE 2. Relationship between shadow economy and family ties measured using the variable help-child.

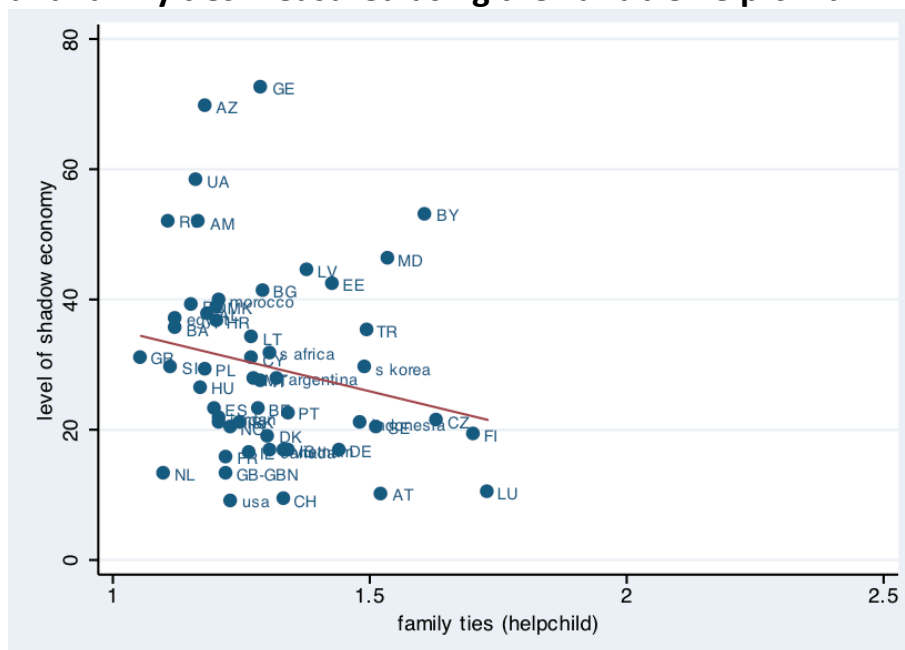


Table 1. OLS point estimates of the impact of *love parents* on *shadow economy* (all variables are standardized).

	(A)	(B)	(C)	(D)	(E)	(F)
love parents	-0.4841*** (0.1248)	-0.5252*** (0.1149)	-0.4220*** (0.1229)	-0.4902*** (0.1326)	-0.4747*** (0.1462)	-0.3902** (0.1479)
cheating on taxes	-0.3172*** (0.0860)	-0.3589*** (0.0957)	-0.2957*** (0.0867)	-0.3061*** (0.0859)	-0.3176*** (0.0860)	-0.3225*** (0.1032)
religion	0.8755*** (0.2443)	0.9005*** (0.2471)	0.9404*** (0.2597)	0.9214*** (0.2944)	0.8783*** (0.2421)	1.1852*** (0.3103)
trust church	-1.4458*** (0.2839)	-1.4760*** (0.2808)	-1.4547*** (0.2906)	-1.4229*** (0.2793)	-1.4373*** (0.3119)	-1.4727*** (0.3059)
trust government	0.4235*** (0.0942)	0.5056*** (0.1103)	0.3817*** (0.0982)	0.4045*** (0.1063)	0.3745 (0.2878)	0.3435 (0.2798)
Importance of politics		-0.1699 (0.1586)				-0.3341 (0.1987)
trust people			0.101 (0.1253)			0.2714* (0.1554)
religious person				-0.0648 (0.1536)		-0.1135 (0.1505)
trust parliament					0.0562 (0.2882)	0.1093 (0.3103)
Constant	-0.3157*** (0.1032)	-0.3165*** (0.1005)	-0.2918*** (0.1051)	-0.3222*** (0.1059)	-0.3092*** (0.1125)	-0.2518** (0.1112)
Observations	46	46	46	46	46	46
R-squared	0.6327	0.6466	0.6374	0.6338	0.6332	0.6759

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 2. OLS point estimates of the impact of *help child* on *shadow economy* (all variables are standardized).

	(A)	(B)	(C)	(D)	(E)	(F)
help child	-0.2391* (0.1358)	-0.2458* (0.1408)	-0.2476** (0.1192)	-0.3534** (0.1417)	-0.2455* (0.1323)	-0.4049*** (0.1114)
cheating on taxes	-0.2708** (0.1287)	-0.2967** (0.1286)	-0.2255* (0.1253)	-0.3291*** (0.1144)	-0.2697** (0.1277)	-0.3444*** (0.1100)
religion	0.6803** (0.2801)	0.6928** (0.2859)	0.8930*** (0.2734)	0.5474* (0.3173)	0.6951** (0.2740)	0.9979*** (0.2894)
trust church	-1.2750*** (0.2973)	-1.2915*** (0.2999)	-1.3059*** (0.3004)	-1.3891*** (0.2843)	-1.2589*** (0.3246)	-1.5453*** (0.3037)
trust government	0.2957*** (0.1003)	0.3446*** (0.1254)	0.2086** (0.0989)	0.3673*** (0.1139)	0.1931 (0.2871)	0.4849* (0.2702)
Importance of politics		-0.1098 (0.1588)				-0.4200** (0.1641)
trust people			0.2568** (0.1091)			0.5239*** (0.1153)
religious person				0.2747 (0.1871)		0.3102* (0.1618)
trust parliament					0.1186 (0.3146)	-0.1144 (0.3163)
Constant	-0.2771** (0.1136)	-0.2700** (0.1162)	-0.2477** (0.1054)	-0.2699** (0.1140)	-0.2695** (0.1211)	-0.1893* (0.0992)
Observations	46	46	46	46	46	46
R-squared	0.5393	0.5459	0.5797	0.5536	0.5417	0.661

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 3. OLS point estimates of the impact of *love parents* on *cheating on taxes* (all variables are standardized).

	(A)	(B)	(C)	(D)	(E)	(F)
love parents	0.2618** (0.0995)	0.2333** (0.1083)	0.2582** (0.0975)	0.2462** (0.0954)	0.2610** (0.1005)	0.2233** (0.1050)
religion	-0.8632*** (0.2418)	-0.8201*** (0.2474)	-0.8797*** (0.2602)	-1.0283*** (0.2352)	-0.8558*** (0.2528)	-0.9420*** (0.2979)
trust church	0.4324* (0.2325)	0.4017* (0.2347)	0.4361* (0.2351)	0.2201 (0.2601)	0.4373* (0.2325)	0.1956 (0.2731)
trust government	-0.2324* (0.1159)	-0.1831 (0.1143)	-0.2237* (0.1267)	-0.1191 (0.1391)	-0.289 (0.1997)	-0.1482 (0.2492)
Importance of politics		-0.0999 (0.1061)				-0.101 (0.1406)
trust people			-0.0225 (0.1101)			0.0392 (0.1435)
religious person				0.4045* (0.2198)		0.3895 (0.2330)
trust parliament					0.0671 (0.2112)	0.0706 (0.2398)
Constant	0.2632** (0.1001)	0.2717*** (0.1006)	0.2611** (0.1041)	0.3270*** (0.0955)	0.2682** (0.1010)	0.3421*** (0.1005)
Observations	53	53	53	53	53	53
R-squared	0.3389	0.3468	0.3393	0.3822	0.3401	0.3892

Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.

Table 4. OLS point estimates of the impact of *help child* on *cheating on taxes* (all variables are standardized).

	(A)	(B)	(C)	(D)	(E)	(F)
help child	0.2593** (0.1009)	0.2358** (0.1016)	0.2646** (0.1008)	0.2042* (0.1173)	0.2583** (0.1043)	0.1825 (0.1238)
religion	-0.8890*** (0.2493)	-0.8326*** (0.2524)	-0.9595*** (0.2573)	-0.9974*** (0.2656)	-0.8872*** (0.2572)	-0.9413*** (0.3043)
trust church	0.4658* (0.2395)	0.4171* (0.2439)	0.4723* (0.2361)	0.3258 (0.2617)	0.4672* (0.2414)	0.2982 (0.2705)
trust government	-0.166 (0.1118)	-0.1072 (0.1163)	-0.1274 (0.1272)	-0.102 (0.1418)	-0.1791 (0.2052)	-0.1081 (0.2433)
Importance of politics		-0.129 (0.1058)				-0.1202 (0.1339)
trust people			-0.0919 (0.1182)			-0.0174 (0.1517)
religious person				0.2924 (0.2533)		0.2714 (0.2581)
trust parliament					0.0152 (0.2132)	0.0735 (0.2348)
Constant	0.2749*** (0.0976)	0.2853*** (0.0983)	0.2674** (0.1027)	0.3172*** (0.0944)	0.2760*** (0.0979)	0.3276*** (0.1041)
Observations	53	53	53	53	53	53
R-squared	0.3363	0.3504	0.3435	0.3559	0.3363	0.3693

*Robust standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%.*

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