Family Ties and Underground Economy

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Abstract

This paper reports empirical evidence supporting the hypothesis that family ties should be listed among the causes of tax evasion. In societies where the power of the family is very high, the quality of public institutions tends to be low. This connection shapes the behavior of taxpayers and generates underground economy. The econometric analysis is based on linear panel data models, and a new dataset that combines data on personal values, social capital, and tax morale, in combination with an index of the shadow economy. The final results show that countries where family ties are stronger also exhibit higher underground economy.

Keywords: family ties, tax evasion, corruption, panel data
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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. Ilgoverno è considerato come qualcosa di estraneo e ostile al popolo.

[Tax morale of Italians is essentially a family morale. Within the family range, each member helps each other with unconscious heroism, accepting as a duty even the biggest sacrifice (…). But the social morale is loose. Government is considered as something extraneous and hostile to the people.]

Gaetano Salvemini, La mentalità degli Italiani, 1928.

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

Luigi Barzini, The Italians, 1964.

1. Introduction

This paper aims to study the role played by family ties in determining the level of underground economy in a country. Political scientists and, more recently, economists, advocate the importance of family ties in explaining social capital, trust in public institutions, political participation, and economic outcomes. Surprisingly, family ties, and the role of the family in shaping values, have not been adequately considered as a key variable of the size of underground economy.

Over the last decade, a growing part of the economic literature on tax evasion has extensively approached individual decisions to comply with tax obligations by exploring the role of taxpayers' ethics and morale, providing robust evidence that tax morale, citizens' ethics, and quality of institutions are important factors in explaining the behavior of taxpayers and the size of the underground economy in a given country.

This paper contributes to this literature by providing empirical evidence of a positive relationship between the strength of family ties and the level of the shadow economy. In particular, we construct a bridge between two fields of literature. First, the literature on family ties and social capital, which advocates that the strength of family ties are negatively correlated with the quality of social capital, trust in public institutions, political participation, and economic outcomes (see, among the others, Banfield (1958), Fukuyama (1995), Putnam (1993), Bisin-Verdier (1998, 2000, 2010), Alesina-Giuliano (2010, 2011)). Second, the literature on tax morale and tax evasion which shows that the level of tax evasion is higher where the level of tax morale and citizens' ethics is lower (consider, for example, Torgler-Schneider (2006, 2009), Torgler (2003, 2004, 2005, 2006, 2007), Alm-Torgler (2006), Feld-Torgler (2007), Frey-Torgler (2007), Lago-Penas-Lago-Penas (2010), Alm-Martinez-Vasquez-Torgler (2006), Alm-Martinez-Vasquez (2007)).

We believe that family ties should be acknowledged as an important cause of the underground economy and tax evasion, because they affect the degree of tax morale. In societies where the power of the family is very high, the quality of public institutions is low; this fact strongly affects the civic values of taxpayers, and therefore shapes their compliance behavior, generating an underground economy.

Our empirical strategy is to use linear panel data models to estimate the relationship between the strength of family ties and the degree of the underground economy. Therefore, we construct a new dataset that combines data on personal values, social capital, and tax morale, with an index of the shadow economy. Variables related to personal values are based on different waves of the World Value Survey and European ValueSurvey, which cover more than 70 countries over almost 20 years, spanning 1990 to 2010. Data on the underground economy are extracted from Schneider (2005), Schneider and Enste (2000, 2002), and Schneider-Buehn and Montenegro (2010). In addition, as a robustness check, we also use data on perceived corruption (CPI index provided by Transparency International), exploiting the high correlation between corruption and tax evasion (seeTorgler-Schneider (2009); Buehn-Schneider (2012)).

To interpret the correlation between family ties and the underground economy, in terms of the causal relationship, we also perform an instrumental variables exercise, using the variables that measure the importance of the role of the mother and role of the father in the family, which were registered in the 1981 European Value Survey, as an instrument for the variables used to measure

the strength of family ties.In general, the power of the family seems to depend strongly on the 'role of the mother' within the family. The different roles of the father and mother within any family should largely explain the 'familial mentality,' which gives rise to weak collective responsibilities and civic involvements (see on this Gambino (1998, 39–50), Simone (2005), Turiello (1887), Bachofen (1949)).

Our econometric analysis provides three key findings. First, we provide the first empirical evidence supporting a causal relationship between family ties and the dimension of the underground economy (i.e., where family ties are stronger, the degree of the underground economy is higher). Second, we provide empirical evidence of a negative relationship between family ties and tax morale. Third, as a robustness check, we confirm that there is also a positive relationship between the strength of family ties and the level of perceived corruption.

Our analysis does not imply any moral judgment on family values; on the contrary, we are aware that family, in many contexts, is a crucial positive factor for economic progress and good life. Our point is very simple: it is important to have the right balance between trust in the family and trust in public institutions. If people use mainly the family to have a relationship with their peers, then the degree of trust is affected, as well as the quality of public institutions and participation in collective life. As a result, one of the main policy implications of our results is that the structure of society is one of the main factors that should be taken into account when designing policies with the aim of reducing tax evasion.

The remainder of the paper is organized into the following sections. In section 2, we briefly review the recent theory of tax evasion and underground economy, and review the main results of the published literature on this matter. In section 3, we outline recent works on tax morale and evasion. In section 4, we review models on the role of the family in transmitting cultural traits and social values. In section 5, we address the issue of family ties and social capital, and explain why we do expect that the role of the family should be crucial in explaining the behavior of taxpayers. In section 6, we identify and analyze the main drivers of family ties; in particular, we address the role of the mother in shaping family ties. The structure of the dataset is defined and described in section 7. In section 8, we present the econometric approach that we use to assess the role of the family and social capital on the underground economy and tax morale, and we describe the main results obtained from empirical estimates. Finally, in section 9, we present the main conclusions, and potential directions for further research. All tables and figures are reported in the Appendix.

2. Tax Evasion and the Underground Economy

Tax evasion has been widely investigated over the last four decades. Most analyses focus on the pioneeristic approach of Allingham-Sandmo (1972), which look 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 behavior. The possible net benefits of a taxpayer are a function of monetary gains that she would derive from tax saving, as a consequence of her dishonest behaviors (tax evasion) and of monetary sanctions, which the taxpayer will have to pay, if detected, with some given probability. It is assumed that the higher the expected punishment, as the product of fines and the probability of detection, the lower the level of tax evasion.

Most of the following works 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. Examples include making the probability of detection endogenous, assuming different forms of individual preferences (in particular, with regard to risk), or approaching the tax game as a repeated game, where certain sub-game perfect/imperfect (Nash) equilibriums 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.). Such indicators include 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 where there is 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 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 caught[2]. More generally, the empirical evidence on the impact of tax auditing and fines on tax evasion and the shadow economy remains ambiguous.[3]

Theoretical models have provided many possible explanations for tax evasion; however, ultimately, none of these models tend to be fully satisfactory. There is no single cause that may explain such differences in tax compliance. The factors that are usually considered include:
a) The level of tax burden/pressure: a higher tax ratio may result in greater tax evasion;
b) The efficiency and effectiveness of tax administration and, in general, of the public sector;
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 of these factors are assumed to play an important role in explaining the different levels of tax evasion in different countries. However, there are some important exceptions and conundrums that still have to be addressed. First, Sweden, Denmark, and, in general, all of the Nordic countries have very high tax pressure but an astonishingly low ratio of tax evasion, according to standard estimates. Second, 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

[1] See, among others, Slemrod-Yitzhaki (2002), Torgler (2003), Braithwaite-Wenzel (2008), Feld-Schmidt-Scnheider (2007).
[2] See Alm-McClelland-Schulze (1992).
[3] Feld- Schmidt-Schenider (2007).

explain this gap in tax evasion with other countries? Is there any political economy lever behind tax evasion? Third, we believe that cultural attitudes and the moral dimension are crucial if one wants to deal with tax evasion, that tax morale really matters. The issues of public ethics and the 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. However, 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 determine whether 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 of tax evasion requires improvement; overall, what we know about tax evasion remains 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. More simply, we are saying that in some cases, detection alone is not sufficient to explain the underground economy and that, perhaps, a different approach may prove useful to effectively 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

Over the last decade, some papers have tried to assess the role of tax morale in explaining the underground economy. Schneider, Torgler, and some other authors[4] have estimated that tax morale plays quite a significant role in determining taxpayers' behavior and their decision for tax evasion.

The main argument is that, together with the classic variables (such as economic growth, the level of education, tax pressure, the level and quality of public expenditure, the policy of prosecution and punishment), a better understanding of the shadow economy also requires to investigate variables, such as "subjective perception, expectations, attitudes and motivations, tax morale or perceived institutional quality."[5] Even if the main structural factors remain fundamental, data and some recent models indicate that it is necessary to extend the analysis to include moral dimension and public ethics: "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, to explain international differences in the size of the underground economy, it is also advisable to focus on individual morale, social norms, and public ethics.

Many papers have investigated whether differences in tax morale across countries tends to reflect considerable variations in the shadow economy and tax evasion. Alm-Togler (2006) addressed the

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

case of Europe and the USA, and found a strong negative correlation between the two variables. Alm-Martinez-Vasquez-Torgler (2006) investigated transition countries, and obtained the same result; specifically, countries with low tax morale show a clear pattern of a larger shadow economy. Torgler-Schneider (2009) considered a large number of countries, and found 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) investigated the role of tax morale in Latin America, and found that it was related to the size of the shadow economy. Torgler (2004) investigated the case of Asian Countries and found that trust in the government and the legal system have a positive effect on tax morale; therefore, implying that this should reduce the size of the shadow economy, with this hypothesis being confirmed by Torgler (2007).

The role of tax morale is important in relation to both tax structure and public spending. In a recent paper, Barone and Mocetti (2011) investigated the determinant of tax morale at the municipal level in Italy. The authors showed that inefficiency in public expenditure (negatively) shapes individual tax morale; in particular, that at the level of Italian municipalities, where public spending is more inefficient, tax morale is lower, even when the authors did not use the EVS (*European Value Survey*) and WVS (*World Value Survey*), but the Survey on Household Income and wealth of the Bank of Italy. Therefore, even when 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 may 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 helps explain the rate of tax compliance and the size of the shadow economy to a substantial extent. Furthermore, in some areas and regions of the world, tax cheating may be attributed to the tax morale of taxpayers.

At this point, it is worth considering the possible determinants of tax morale. Possible parameters include: a) historical factors, traditions and heritage tend to matter when 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) 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, in addition to 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, Torgler found that religiosity and tax morale are positively correlated, even though this effect tends to vary somewhat for sub-groups of religion, such as Catholic, Protestant, Jewish, Hindu, Moslem, and Buddhist. However, the author states that these results 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 the 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 students and retired people, for women and married people, but weaker for individuals living together, whereas financial satisfaction increases tax morale. Trustworthiness increases tax morale, while perceived

corruption strongly reduces it. Finally, religiosity tends to increase tax morale; however, this aspect is subject to controversy.

4. Family and transmission of social values

Another stream of research[7] has instead emphasized the models of cultural transmission, in particular the transmission of social status and cultural traits; however, we may also assume the same for public morale, at least for its main components. Starting from the economic models of interdependence of preferences, some authors have argued "children are born naïve, with not well-defined preferences and cultural traits. They acquire preferences through observation, imitation and adoption of cultural models with which they are matched. Children are first matched with their family ('vertical transmission'), and then with the population at large, e.g. teachers, role models, etc. ('oblique transmission'). In other words, parents purposefully attempt at socializing their children to a particular trait.(…) but parents can perceive welfare of their children only through the filter of their own (the parents') preferences. This particular form of myopia ('imperfect empathy') is quite crucial."

Along this line, therefore, one may assume that cultural traits, moral values, and social capital (e.g., trust in institutions) may be essentially transmitted (although not exclusively) by families to their heirs, and that, within a certain equilibrium, these values tend to remain stable, at least within a certain span of time. In fact, the persistence of moral values, the degree of civicness, and social capital in most of developed countries, and in particular in some Italian regions, which were first proved by Putnam to extend across least six centuries, should confirm the stability of moral value within the members of various families, and in some specific social and economic context. Family matters, and matters a great deal. Family shapes the moral values of individual members, in particular the cultural traits of the youngest, and in the end affect public ethos and tax morale. Therefore, the transmission of these cultural values within the same family along different periods of time would also inevitably imply some, more or less pronounced, stability of public morale, social capital, and trustworthiness. We might imagine the existence of different multiple equilibria, some positive, some more negative, within which, however, there is clear difficulty to shift from one to another.

Of course, apart from vertical transmission, there is also some, more or less intense, form of oblique transmission, where the social context (e.g., school, neighborly-ness, etc.) helps to share moral values. In general, we observe strong homogeneity among the various communities, and people's choice to reside in areas where other individuals live that share the same values. We also observe a strong persistence of cultural traits, attitudes, values, and lifestyles among various communities, with some pronounced resilience of cultural traits and heterogeneous values. For example, Orthodox Jewish communities in the United States, but also elsewhere in the world, are a clear example of culture persistence. Outside the US, we have the well-known case of Corsicans, Catalans, Irish Catholics, and Italians, especially in Northern Europe (see Bisin-Verdier, 2010).

More specifically with the case of Italy, in some recent works, Guiso-Sapienza-Zingales (2006, 2007, 2010) and Butler-Giuliano-Guiso (2009) show that social capital tends to persist over the long-term (more than five centuries) and explain the contemporary variation of social capital in Italy, with

[7] See among others, Bisin-Topa (2002), Bisin- Verdier (1998, 2000, 2010).

the experience of free-city-state in the Middle Age. With a different approach based on instrumental variables, Tabellini (2008, 2010) links cross-country variation in measures of trust to the quality of political institutions in the nineteenth century and, therefore, following the seminal works of Banfield (1958) and Putnam (1993), attributes the persistence of institutions to indicators of individual values and beliefs, such as trust and respect for others. Along the same line, some recent literature proves the long-term persistence and long lasting effects of institutions on socio-economic outcomes[8]. Of course, the finding of some significant and robust statistical correlations does not imply casual relationships, and the endogeneity needs addressing.

5. Family ties and the power of the family

The first author who clearly described the importance of family ties was Edward Banfield in 1958[9], as a consequence of his research in the South of Italy. The author depicts family 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," wrote[10]: "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, the State and society function only if they do not directly interfere with the family's supreme interests."

Of course, as Barzini argued, 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

8 See Bisin-Verdier (2010) and Acemoglu-Robinson (2011), North (1990) La Porta-Lopez de Silanes-Shleifer-Vishny (1997).

[9]Banfield (1958).

[10]Barzini (1964, p. 190).

the family has to be acknowledged, therefore, as one of the principal causes of the development of weak and low-quality political institutions.

This characteristic of family ties is the key core of Italian society (but is also a general characteristic of many other countries in Southern Europe[11]and Asia), and has attracted some studies and research projects over the last 30 years. We cannot provide a full account of these books and papers here; instead, we have identified some interesting examples, along with the most significant. A clear reference to this particular structure of the family was identified in the sixteenth century by Guicciardini (1983); at the start of the nineteenth century by Goethe (1983), Stendhal (1956) and Leopardi (1991); and more recently by Turiello (1882–1980), Salvemini (1928), Gramsci (1977), Putnam (1993) and Gambino (1998). The main, common point is that the strength of the family tends to hamper peoples' active participation in collective life.

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; whereby, "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) 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 key finding is, therefore, that amoral familism tends to produce a special and stable social equilibrium, in which people exclusively trust and care 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; therefore, resulting in low civic engagement and low generalized trust, confidence in public life, and the quality of political institutions. 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 completed out of self-interest alone. This kind of familism is predicted to hinder the development of high-quality political institutions, the pursuit of the common good, and participation in public affairs.

However, the importance of the family has also been largely acknowledged in other related contexts. For example, in studies by Bisin and Verdier (2000, 2010) on the cultural transmission and the evolution and persistence of ethnic and religious traits as dynamic properties of cultural transmission and socialization mechanism, the authors argue that these devices are strongly centered on the role of the family.

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

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

In summary, there is clear evidence across extensive literature that:

a) In Southern European countries, the role of the family is very important; however, we must be cautious, as this phenomenon is also true in many other developed and less developed countries;
b) Studies have demonstrated that countries where family matters tend to show less social capital, less participation, weaker political involvement, and a lower degree of trust;
c) Societies that rely heavily on families tend to have a lesser degree of trustworthiness and confidence in public institutions;
d) Family ties are often associated with negative economic performance, reduced rate of investment, and growth;
e) Therefore, we may expect that countries where family ties are strong also tend to have a larger underground economy.

It is important to be clear about the possible implications of family ties. For instance, 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 some evidence, in fact, that happiness and life satisfaction is positively correlated with strong family ties.

However, we believe that the investigation of these implications is worthwhile. In particular, Italy raises the issue of whether the strength of the family could be the main cause of weak political institutions and low social capital. However, a strong correlation does not necessarily imply causality. In other words, this brings up the 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]

When the role of the family is strong, civic duty tends to be low, along with social capital and tax morale, and in the end tax compliance. When family ties are weak, on the other hand, trust in the public sector tends to result in higher tax morale and greater civic duty, while tax evasion is lower.

Therefore, in this paper we investigate whether family ties and 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 study that attempts to address this issue. Our point is very simple: amoral familism, particularly strong family ties, tends to influence the quality of institutions, since the end product is a particular type of civic involvement and political participation. All of this inevitably affects the degree of trust of various specific components of society; therefore, the way that people view public institutions tends to matter.

Strong family ties induce less political participation, less trust in the public sector; hence government action may affect tax morale and the underground economy in some way. If one does not believe in (or trust) public action, why then should one fully comply with taxes?

[13]Alesina-Giuliano (2011).

[14]Barzini (1964, 191). There is also another interesting issue, which was brought up by Fukuyama (1999) and Putnam (1998), on possible links 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 behavior of their follow 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).

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

6. 'Mother' and family ties

There is, however, another interesting issue that we address in this paper. The power of the family in certain societies seems to strongly depend on the 'role of the mother' within the family. The different role of the father and the mother within the family should mostly explain the 'familial mentality,' which gives rise to loose collective responsibilities and civic involvements. Gambino (1998, 39-50) and Simone (2005) but, before them, Turiello (1887) and Bachofen (1949), have argued that Italy, as a '*paese materno*' (maternal country), tends to apply a familist mentality to social and public behaviors. It is important to emphasize that this mentality does not necessarily derive from the family itself, rather from the '*figura femminile, che è quella della donna in quanto "madre di famiglia*" (female figure who is that of the woman as a "family's mother"). It is not the family in a general sense that matters in this case[15], but the role of the "woman-mother" that makes the 'familist mentality,' which is better described as 'mother' or maternal mentality'.

Another interesting example of the key relevance of the family in Italian society comes from Barzini (1958): "Italy has often been defined as nothing more than a mosaic of millions of families, sticking together by blind instinct, like colonies of insects, an organic formation rather than a rational construction of written statutes and moral imperatives […] there is nothing new, surprising or unique. In many countries and among many people, past and present, where legal authority is weak and the law is resented and resisted, the family mainly assures the safety and welfare of individuals. The Chinese, for instance, in their imperial days held the cult of the family more praiseworthy than the love of country and the love of good."

In human history, and in general, different types of families exist. Examples include (1) the nuclear patriarchal large family based on the concept of authority; (2) a family in which the role of the mother is prevalent with respect to that of the father; and (3) an extended family with weak constraints within their members.

The importance of mother mentality is at least true for Italy, and most countries in Southern Europe; however, clear similar characteristics also emerge for China and the Jewish tradition.[16]However, it is, of course, important to stress that this distinction should not be based on the 'biological nature', rather on a 'cultural dimension' and should be identified as the product of a collective mental structure[17]. This 'mother mentality' tends to produce a specific collective attitude, which strengthens the blood ties among family members, implies a low level of civicness, and a reduced degree of trust in other people and public institutions. Of course, one interesting issue may be to assess how much this phenomenon depends on the different role that a father usually has in educating children and transmitting moral values compared to that of the mother

[15] See on this Gambino (1998, 40).

[16]Woody Allen's movies are in this regard an interesting reference: he frequently has a vision of his mother giving him any kind of advice. On the importance of family in China, see Fukuyama (1995).

[17] See Gambino, 1998, 63.

(i.e., the 'absence' of the father). Table 12 shows some empirical evidence on the opposite role of parents on family ties; the importance of the mother has a positive relationship with the strength of family ties.

The "mammismo," or 'mother culture,' that largely pervades some societies, has been long acknowledged as a key characteristic of the Italian society. This feature may be considered as the tendency to forgive, which comes out as a product of this widespread mother culture. The attitude to provide children with "an immediate and physical protection, with the removal of any possible fatigue or assumption of individual responsibility."[18]

The mother mentality is the opposite of the paternal approach: "the father takes care of external relations, is involved in war and defense activities." The father judges his children, and should provide them with the feeling for rules and order. The mother, instead, lives at home, is extremely protective, tends to justify (all) their children, and is fully dedicated to their development[19]. The mother has a key role in ensuring the species conservation and the perpetuation of the family. Therefore, the asymmetric role of the father and the mother within the family may largely explain the different effects of the family on individuals, which in turn influence economic behavior and civic and cultural values. This maternal mentality (familism) is far from any public morale, and it inevitably damages the growth of any ethics, social accountability, and civicness.

As Salvemini summarized in 1928 "tax morale of Italians is essentially a family morale. Within the family range, each member helps each other with unconscious heroism, accepting as a duty event the worst sacrifice (…). But the social morale is loose. Government is considered as something unrelated and hostile to the people" (Salvemini, 1928). The familist mentality tends to produce a generalized tolerance[20] for their members, which postpones any decisions needed, with adult age; "being a 'figlio di mamma' [mother son], the male-son deserves any justifications and pardon, "in any case.

However, in our work after our FE (*Fixed Effect*) panel estimates, we use the role of the mother and of the father as an instrumental variable to appraise possible causal effects between the underground economy and tax morale.

7. 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 different waves of the WVS (*World Value Survey*) and EVS (*European Value Survey*). These research projects collect national surveys on values concerning a large number of issues: from perceptions of life to family values, from personal beliefs (on religion and civic participation) to political involvement, 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 in every wave. These surveys collect answers to a single questionnaire,

[18] Simone (2005, 84).
[19] In the tradition of the Italian film and theatre there are many perfect examples of the features of very comprehensive mothers who try to defend their heirs and, in particular, to protect and justify "*i devianti*."
[20] Simone (2005, 89).

which is usually made up of 140 questions for less than 400 variables, from a sample of approximately 1,500 people in each country.

Tax morale measures the willingness of people to behave honestly in matters of the public sector domain. Both the World Value Survey and the European Value Survey report a wide range of tax morale issues. In these surveys, tax morale has been measured with 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) cheating on taxes if you have the chance (see Table 1).

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: (…)." The answers are classified from 1 to 10, where 1 is for never justifiable and 10 is for always justifiable.

To measure the strength of family ties, we use three different variables that denote the importance of the family (*importance of family*), the relevance of love and respect for one's own parents (*love parents*), and the duties and responsibilities of parents towards children (*help child*). These variables refer to three different questions. The first collects opinions about the importance of the family, with 1 indicating it is very important and 4 indicating it is less important. In the second question, the respondent agrees with one of two statements: a) "Regardless of what the qualities and faults of one's parents are, one must always love and respect them;" or b) "One does not have the duty to respect and love parents who have not earned it. "The third question asks whether the respondent agrees with one of two statements: a) "It is the parents' duty to do their best for their children even at the expense of their own well-being;" or 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. In general, we obtained good results for the individual questions; however, to be certain about their composite effect, we took the principal component of three variables.

We check the importance of religion in people's life by using a set of two 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 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" (Table 1).

We measure the degree of trust in two dimensions: trust in public institutions and the church, and trust in other people. We survey 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 parliament and the church. Respondents are requested to express their degree of trust in these institutions on a scale that ranges from 1 to 4, where option 1 represents "high trust" and option 4 represents "no trust at all."

We survey 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?" Two alternative answers were possible: a) "most people can be trusted" or b) "you need to be very careful."

To measure the importance of politics in one's own life, we use a variable linked to a question that specifically investigates this subject. Answers to the question range from 1 to 4, where 1 represents very important and 4 represents not important at all. We also use a variable that measures people political orientation on a scale from 1 (left) to 10 (right) (see table 1).

Data on the underground economy are taken from Schneider (2005), Schneider and Enste (2000, 2002), and Schneider-Buehn-Montenegro (2010). These authors define the underground economy in the usual way: "Underground economy, 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 addressing other components of the activities of the shadow economy, such as crime or other types of illegal actions. Finally, we measure the level of corruption by using the Corruption Perception Index (CPI), which is published annually by Transparency International on its website (see Table 1).

Table 1 presents a list of all variables and data sources that we use for the estimates. We use three different waves, both for World Value Survey and for the European Value Survey. For the first Survey, we use the waves of 1989–1993, 1999–2004, and 2005–2008, while for the second Survey, we use those carried out in 1990, 1999, and 2008.

In Table 2, the usual descriptive statistics are summarized, together with the number of observations for each variable. Table 3 lists the countries that were available for each of the three waves, while we show the distribution of the panel structure in Figure 1, where, as a time variable, we consider the year when the interview took place in each country.

In Figure 2, we describe the first variable of family ties, *love parents*, by showing the distribution of its average value in 1990–2010 among the countries that we considered in the econometric estimates. The distribution follows our general expectations, with some South European and developing countries showing a relatively high intensity of family ties (a low numerical value, closer to 1), while the countries of Northern Europe tended to show a high numerical value (low family ties). The same pattern is also confirmed, with some minor change s(for example, Lithuania, Korea, Hong Kong, Estonia), by looking at the distribution of other indicators of the intensity of family ties, as shown by the variable *help child* (Figure 3), which shows an even higher strength of the family bond. The third indicator, the importance of the family (*importance of family*), shows a quite different pattern, and in general, represents a lower value of the intensity of family ties (Figure 4)

Figure 5 shows the size of the underground economy among the sample of countries considered in the econometric estimate, always showing the average value for the period 1990–2007. The data confirm that Switzerland, the US, and Austria (but also, the Netherlands, Great Britain, and New Zealand) show the lowest level of underground economy, while some Developing and East European countries display the highest level.

Figure 6 shows the fitted value line that exists between the variable *love parents* and the shadow economy (as an average for 1990–2007). The negative slope confirms that when the intensity of family ties decreases (a higher numerical value),the size of the shadow economy also decreases. The same negative relationship was confirmed in Figure 7, where we use the variable help child as a measure of family ties. In Figure 8, we present the relationship between the variable *family* and the underground economy; contrary to the two previous variables, the relationship is almost flat. Finally, in Figure 9, we show the distribution of our instrumental variables, "the role of the mother" and "the role of the father" among 14 countries for which data are available. As expected, countries where family ties are more intense tend to show a larger importance in the role of the mother.

Family values and family ties are variables that tend to be strongly persistent across time within the same countries. In fact, these values tend to change very slowly across time, but exhibit huge differences between countries, as known in the history of the humankind. We have clear examples that the family is one of the more lasting institutions (including in old China, Italy, and North Africa), and that its role tends to be persistent and to change very slowly across time. According to our estimates, more than 55% of the variance of family ties in our sample of 110,146 individual observations is explained by a country-fixed effect. The same result has been reported by Bertrand-Schoar (2006) in a paper on the role of the family on the size of firms. In parallel, we interpret "these findings as supportive of the view that family norms have a larger country-level component" rather than individual variations within each country. Therefore, we believe that the best empirical strategy to capture the relationship between tax morale and family ties (variables for which we have individual observations) is to estimate a linear panel data model with the individual data collapsed at the country level to control for a real country-fixed effect[21].

8. Empirical strategy

8.1. The panel structure

To measure the impact of family ties on the level of the shadow economy, when controlling for the other factors that may affect the underground economy, we estimate the following liner panel data model:

$$Y_{it} = \beta_0 + \beta_1 familyties_{it} + \beta_2 fiscal_{it} + \beta_3 politics_{it} + \beta_4 trust_{it} + \beta_5 religion_{it} + \alpha_i + \eta_t + \varepsilon_{it} \quad (1)$$

where i is the country index and t is the year index. The dependent variable Y is our measure of the underground economy, but also in the following specification, tax morale and corruption. Family ties are measured using *"love parents," "help child,"* and "*importance of family.*" Tax morale is measured by using the four previously described variables: *"cheating on taxes,"*

21 In a recent paper, in contrast to the mainstream literature, Ljunge (2013) finds a positive relationship between the strength of family ties and the degree of tax morale. We believe that these surprising results are due to the fact that the author is using individual data and country-dummies as an additional regressor; therefore, "its results are based on within-country variation," ignoring the main component of between-country variation.

"*claiming benefits,*" "*bribe,*" and "*transport.*"[22] In the estimate we use the principal component of tax morale and family ties.

The impact of tax burden is measured using the variable *fiscal,* which corresponds to the ratio between revenue from taxes, social contributions, and other revenues over GDP published by the World Bank. Religion includes two variables: *religion* and *religious person*; trust is measured using three variables: *trust government* and *trust church* 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 (see Table 1 and 2 for a complete description of the variables), and a variable related to the political orientation between left and right. Finally, since we are using a fixed-effect panel data model, α_i is the country fixed effect, which is captured using country dummies, and η_t is the year effect, which is captured using year dummies. The stochastic components ε is assumed, as usual, to be $i.i.d\ (0,\ \sigma)$.

We expect a positive relationship between the level of the shadow economy, tax morale, and the level of the tax burden. We expect the higher the numeric value of cheating on taxes (that is to say, a lower index of tax morale), the higher the value of the underground economy should be. In addition, we expect that the higher the percentage of fiscal revenue over GDP, the larger the size of the shadow economy.

As in the case of tax morale, we expect a positive relationship between the level of the shadow economy and the strength of family ties; namely, the stronger the family ties, the higher the level of the underground economy.

Since many variables are available for assessing the role of family ties and tax morale, we performed correlation analyses, which showed that all variables are strongly correlated – see Tables 4a and 4b. Therefore, for the sake of simplicity, to estimate more robust coefficients, we decided to perform the econometric analysis by using the principal component of these variables (family ties and tax morale). In Table 5 and 6, we present the results of the factor analysis on tax morale and family ties. The relatively high value of the eigenvalues allows us to use just one component for both groups of variables in the econometric estimates.

Regarding the variables that refer to the degree of the importance of religion, we used two different indexes. We hypothesized that there might be in general a positive relationship between religion and the underground economy; whereby, when the importance of religion is high, the level of the shadow economy might tend to be greater. However, this is quite a controversial aspect, since one might also assume that stronger religiosity would involve more intense tax morale, an increased feeling for respecting norms and values, and, ultimately, a lower shadow economy.[23]

Finally, regarding the relationship of the variables that compare the shadow economy and the degree of trust in public institutions and other people, it seems reasonable to assume that when the degree of trust is higher, the level of the shadow economy becomes lower.

[22]Tax morale has been measured by 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; and d) cheating on taxes if you have the chance.

[23]Some recent works show a clear negative correlation between religiosity and the underground economy: see, for example, Torgler-Schneider (2009), Heinemann-Schneider (2011), Torgler (2003).

It is important to note that the absence of data for the level of the shadow economy (*ue*) after 2007 prevented us from being able to use the latest data about family ties and other independent variables contained in the 2008 European and World Values surveys. In order not to stop our dataset in 2007, we have forecasted the values of the shadow economy using the fitted values of the following empirical model:

$$ue_{it} = \beta_0 + \alpha_i + \eta_1\, trend + \eta_2\, (trend * \alpha_i) + \varepsilon_{it} \qquad (2)$$

Therefore, for each country *i*, the values for the level of the shadow economy between 2008 and 2010 correspond to:

- $ue2008_i = \beta\hat{}_0 + \alpha\hat{}_i + \eta_1\hat{}\ 2008 + \eta_2\hat{}(2008 * \alpha\hat{}_i)$
- $ue2009_i = \beta\hat{}_0 + \alpha\hat{}_i + \eta_1\hat{}\ 2009 + \eta_2\hat{}\ (2009 * \alpha\hat{}_i)$
- $ue2010_i = \beta\hat{}_0 + \alpha\hat{}_i + \eta_1\hat{}\ 2010 + \eta_2\hat{}\ (2010 * \alpha\hat{}_i)$

To test the robustness of the results with respect to our forecasting analysis, we report, as a primary analysis, the results obtained using observations up to 2007, where only two waves of the World Value Survey and the European Value Survey are included. As reported later, the results are qualitatively the same with either the larger or the shorter version of the dataset.

We also decided that, given the strong negative correlation between tax morale and the level of perceived corruption, we would also use the countries' values of corruption taken by the Transparency International Survey as a dependent variable.

8.2. Results

We provide our econometric analysis by using a *Fixed Effect (FE) liner panel data model*, where the coefficients are estimated using *Within-the-Group* (WG) point estimates. As far as the magnitude of the coefficients is concerned, all variable have been standardized to make them comparable. Finally, to make the results more readable, all variables have been reversed (multiplied by -1). So that, for all variables, the numerical values are in line with the meaning of the variable; hence, their values increase with the intensity of the variable.

In Table 7, we summarize the signs of our expected and estimated results. As shown, we assume a strong positive correlation between family ties and the shadow economy (*ue*), while we also assume that an increase in the level of interest in politics, trust, and religiosity should reduce the size of the *ue*. As expected, we found a negative impact of the interest of politics and trust on *ue*, and a positive effect of family ties on *ue*. In contrast to the mainstream literature, we, unexpectedly, observed a positive correlation between religiosity and the level of the shadow economy.[24]

Moreover, in Table 7, we report also the expected relationship between our main variables and tax morale. As expected we find a negative impact of family ties on tax morale, and a positive effect of trust on tax morale. The results for politics and religion are ambiguous. In conclusion, we

[24]In a work in progress (Marè-Porcelli, 2014), we are aiming to estimate the possible effects of religiosity on trust, tax morale, and the underground economy and the main determinants of the intensity of religion that negatively impact tax morale and the degree of trust.

also report the expected correlation between our main variables and corruption. As expected, we find that family ties have a positive impact on corruption, while trust and religion show a negative impact on corruption. In contrast, the importance of politics presents an ambiguous effect.

Table 8 presents the point estimates of the coefficients of the model in equation (1), where the level of family ties is measured by using the principal component of the variables *help child*, *love parents,* and *the importance of the family*. In particular, with all of the specifications, we observe that, the level of the shadow economy is high when family ties are strong. The magnitude and the statistical significance of the coefficient remain always high; however, it becomes weaker as we increase the number of control variables. As a robustness check, we compute the same estimates in Table 9, by using the forecasted values up to 2010, and we obtained similar results.[25]

In Table 10, we present the panel regression of family ties on tax morale as a check of robustness. In column (1), where we perform a simple OLS without country and year-fixed effect, we observe a strong positive relationship between family ties and tax morale. However, when we introduce the country-fixed effect, the sign of the coefficient become negative, in line with the mainstream literature. This result indicates that "strong family ties imply weak tax morale," although we only obtained statistically significant results in column (6), where we control for the level of trust.

Our results stress two crucial points: the first, as highlighted by Bertand and Schoar (2006), there is a strong negative correlation between trust and family ties;[26] second, we believe that these coefficients are upward biased because of the problem of reverse causality between family ties and tax morale. To address this last issue (as discussed in more detail in the next paragraph), we performed an IV analysis, which showed that the impact of family ties on tax morale is indeed negative and significant.

As a further robustness check, in Table 11 we present the panel regression of family ties on corruption, as defined in the previous paragraph.[27] In all specifications, we obtain the expected positive sign for the relationship between family ties and corruption; in other words, when family ties are stronger, the perceived level of corruption is higher. However, as before, we address the issue of reverse causality by performing an IV analysis (which is discussed in the next paragraph), which shows that the OLS estimate might be downward biased, since the IV regression reports a much stronger positive impact of family ties on corruption[28].

8.3. IV analysis between family ties and the underground economy

To interpret the positive correlation obtained between family ties and the underground economy, in terms of a causal relationship, we perform an instrumental variables exercise using the variables *role of the mother* and *role of the father*, as registered in the 1981 European Value Survey, as instruments for the variables *love parents*, *help child,* and *importance of family.* These variables

[25]In another specification, where we use the variables love parents and help child individually, as a measure of family ties, their impact on the degree of the shadow economy remains positive and statistically very significant.

[26]In fact, in columns (6) of Table 10, where we also used controls for trust, the impact of family ties on tax morale is negative and statistically significant.

[27]The number of countries for which we perform this estimate is slightly lower compared to those for which we have data on family ties and the underground economy, since we could not use data related to the 1990 wave due to the absence of CPI data.

[28]See also Schneider and Buhen (2012), where the possible effect of corruption on tax morale is analyzed.

are only available for 14 countries in our sample,[29] and are time invariant, because the related questions were not replicated in more recent versions of the European Value Survey.

As preliminary evidence for the validity of our instrumental variables exercise, we performed an estimate of the effect of the role of the mother and of the role of the father on family ties. In particular, Table 12 (which, in column 6, presents a first-stage regression) shows that both "the role of the mother" and "the role of the father" exhibit a huge impact on our measures of family ties. Specifically, the mother is positively correlated with family ties, while the father is negatively correlated.[30]

Table 13 compares the results of the OLS and IV regressions of the shadow economy over family ties using the "role of the mother" and the "role of the father" as instruments for family ties. First, the positive impact of family ties on the level of the underground economy is confirmed. Moreover, we cannot reject the null hypothesis that family ties are exogenous. Therefore, we provide some evidence for the existence of a causal relationship between family ties and the dimension of the underground economy.

8.4. IV analysis between family ties and tax morale

Table 14 compares the results of the OLS and IV regressions of tax morale over family ties using the "role of the mother" and the "role of the father" as an instrument for family ties. In this case, we reject the null hypothesis that our measure of family ties is exogenous. Our IV analysis shows that the OLS estimates of the impact of family ties on tax morale are upward biased. In fact, the magnitude of the coefficient ranges from -0.5045 to -3.0906, and remains highly statistically significant. As a result, it is possible to conclude that there is also robust evidence of a negative relationship between the intensity of family ties and the level of tax morale.

8.5. IV analysis between family ties and corruption

Table 15 compares the results of the OLS and IV regressions of corruption over family ties using the "role of the mother" and the "role of the father" as an instrument for family ties. In this case, we also reject the null hypothesis that our measure of family ties is exogenous (as for tax morale). Our IV analysis shows that the OLS estimates of the impact of family ties on the level of corruption were downward biased. In fact, the magnitude of the coefficient ranges from 0.3164 to 1.7365, and remains highly statistically significant. As a result, we can conclude that there is also robust evidence of a positive relationship between the intensity of family ties and the level of perceived corruption.

[29] Malta, Belgium, Italy, Ireland, Great Britain, Iceland, United States, Denmark, France, Canada, Netherlands, Germany.

[30] It is not clear how this familial pattern may be explained. Is the intensity of family ties a product of an excessive role of the mother, or is it due to the absence of the father? We may suppose, in certain circumstances, at least in current modern society, a joint and opposite effect of these characteristics, even if the role of the mother tends to supersede that of the father.

9. Conclusions and policy implications

This paper provides the first empirical evidence supporting the argument that family ties are one of the most important determinants of the underground economy, tax morale, and corruption.

To explain the level of the shadow economy, one must consider both classical fiscal variables (such as tax burden, tax rates, detection policy, and other elements that affect compliance) and subjective values (such as the power of the family, tax morale, and the degree of trust).

The main policy implications of our results is that the structure of society represents one of the key factors that should be taken into account when designing policies aimed to reduce tax evasion. We believe that, away from any value judgment, it is important to assume the correct balance between trust in the family and trust in public institutions. Moral values are made of and shaped by the quality of public institutions and the intensity of family ties. These values largely affect tax morale, the size of the underground economy, and corruption.

In conclusion, our analysis shows that different types of family structures (nuclear, atomistic, etc.) are very important, and tend to have evident economic, moral, and social implications. The general intermediate structure of a society is weakened when the family is the only source of personal relations and trust. This phenomenon negatively affects political and civic involvements, and hence tax morale, which in turns produces a higher level of underground economy and corruption that ultimately worsen the quality of institutions.

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Appendix – Tables and Figures

Table 1.*Description, source, and availability of variables*

Variable	Description	Source	Availability
Dependent variables (Shadow economy, tax morale, corruption)			
ue	Shadow economy (% of GDP)	Schneider et al. (2000, 2002, 2005, 2010)	1990-2007
cpiindex	Corruption Perception Index (1=high corruption, 10=low corruption)	Transparency International	1995-2010
tax_morale	Principal component among "claiming", "cheating," "bribe," and "transport"	World Value Survey; European Value Survey	1990-2010
claiming	"do you justify: claiming state benefits" (1=never, 10=always)		
cheating	"do you justify: cheating on tax" (1=never, 10=always)		
bribe	"do you justify: accepting a bribe" (1=never, 10=always)		
transport	"do you justify: avoiding fare on public transport" (1=never, 10=always)		
Family ties			
fties_pca	Principal component among "family," "loveparents", and "helpchild"	World Value Survey; European Value Survey	1990-2010
family	"how important is family in your life" (1=very important, 4=not at all important)		
love parents	"love and respect parents" (1=agree, 2=disagree)		
help child	"parents should sacrifice own wellbeing for their children" (1=agree, 2=disagree)		
role_mother	"relationship between you and your mother" (1=very close, 3=not very close)	European Value Survey	1981
role_father	"relationship between you and your father" (1=very close, 3=not very close)		
Control variables			
Fiscal	Cash receipts from taxes, social contributions, and other revenues such as fines, fees, rent, and income from property or sales (% of GDP)	World Bank, revenue data	1990-2010
Religion	"how important is religion in your life" (1=very important, 4=not at all important)	World Value Survey; European Value Survey	
religiouspersonv114	"are you a religious person" (1=religious person, 3=convinced atheist)		
Trustcc	"how much confidence do you have in church" (1=a great deal, 4=none at all)		
trustpeoplev62	"people can be trusted" (1=agree, 2=disagree)		
trustparliav211x	"how much confidence you have in the parliament" (1=a great deal, 4=none at all)		
Imppolitics	"how important is politics in your life" (1=very important, 4=not at all important)		
lr	political view: left-right (1=left, 10=right)		

Table 2. *Descriptive statistics*

Variable	Mean	Std. Dev.	Min	Max	Obs
Dependent variables (Shadow economy, tax morale, corruption)					
ue	29.22	14.38	6.60	72.50	623
cpiindex	5.35	2.31	1.50	10.00	610
tax_morale	0.07	1.01	-2.04	5.12	711
claiming	1.99	0.53	1.18	4.78	718
cheating	1.97	0.44	1.00	4.08	718
bribe	1.56	0.35	1.02	3.36	728
transport	2.04	0.47	1.09	4.46	711
Family ties					
fties_pca	-0.03	0.95	-1.79	2.47	693
family	1.14	0.09	1.01	1.47	730
love parents	1.23	0.16	1.03	1.72	693
help child	1.35	0.18	1.03	1.80	693
role_mother	1.57	0.11	1.39	1.77	197
role_father	1.79	0.13	1.46	1.97	197
Control variables					
fiscal	26.47	9.87	7.48	78.47	1029
religionx	2.11	0.60	1.02	3.19	730
religiouspersonv114	1.32	0.20	1.01	2.01	716
trustcc	2.16	0.47	1.12	2.97	705
trustpeoplev62	1.70	0.16	1.24	1.96	746
trustparliav211x	2.69	0.34	1.65	3.50	701
imppolitics	2.73	0.26	2.00	3.25	730
lr	5.57	0.52	3.59	7.56	717

Table 3.*Countries for each wave (stars identify outlier countries excluded from the regressions)*

Wave 1990	Wave 2000		Wave 2008	
Argentina	Albania	Morocco	Albania	Korea (South)
Austria	Algeria	Netherlands**	Andorra	Latvia
Belarus*	Argentina	Nigeria	Argentina	Lithuania***
Belgium	Austria	Pakistan	Armenia	Luxembourg
Brazil	Bangladesh	Peru	Australia***	Macedonia
Bulgaria	Belarus*	Philippines	Austria	Malaysia
Canada	Belgium	Poland	Azerbaijan	Mali
Chile	Bosnia Herzeg.	Portugal	Belarus*	Malta
China*	Bulgaria	Puerto Rico	Belgium	Mexico
Czech Republic*	Canada	Romania	Bosnia Herzeg	Moldova
Denmark	Chile	Russian Federation	Brazil***	Morocco
Estonia	China*	Saudi Arabia	Bulgaria	Netherlands
Finland	Croatia	Singapore	Burkina Faso	New Zealand
France	Czech Republic*	Slovak Republic	Canada	Norway
Germany*	Denmark	Slovenia	Chile	Peru
Great Britain	Egypt	South Africa	China*	Poland***
Hungary	Estonia	Spain	Colombia	Portugal
Iceland	Finland	Sweden	Croatia	Romania***
India	France	Tanzania	Czech Republic*	Russian Federation
Ireland	Germany*	Turkey	Denmark	Rwanda
Italy	Great Britain	Uganda	Egypt	Slovak Republic
Japan	Greece	Ukraine	Estonia	Slovenia
Korea (South)	Hungary	United States	Ethiopia	South Africa
Latvia	Iceland	Venezuela	Finland	Spain
Lithuania	India	Viet Nam	France	Sweden
Malta	Indonesia	Zimbabwe	Georgia	Switzerland
Mexico	Iran		Germany*	Taiwan
Netherlands	Iraq		Ghana	Thailand
Nigeria	Ireland		Great Britain	Trinidad and Tobago
Norway	Israel		Greece***	Turkey
Poland	Italy		Guatemala	Ukraine***
Portugal	Japan		Hong Kong	United States
Romania	Jordan		Hungary	Uruguay
Russian Federation	Korea (South)		Iceland***	Viet Nam
Slovak Republic	Kyrgyzstan		India	Zambia
Slovenia	Latvia**		Indonesia	
South Africa	Lithuania		Iran	
Spain	Luxembourg		Iraq	
Sweden	Macedonia		Ireland	
Switzerland	Malta		Italy	
Turkey	Mexico		Japan	
United States	Moldova		Jordan	

** = General outliers; ** = Shadow economy outliers; *** = Tax morale outliers.*

Table 4a.*Family ties variables, correlation matrix (country means, all waves).*

	family - "how important is family in your life" (1=very important, 4=not at all important)	loveparents - "love and respect parents" (1=agree, 2=disagree)	helpchild - "parents should sacrifice own wellbeing for their children" (1=agree, 2=disagree)
family - "how important is family in your life" (1=very important, 4=not at all important)	1		
loveparents - "love and respect parents" (1=agree, 2=disagree)	0.3154 *p-value = (0.000)*	1	
helpchild - "parents should sacrifice own wellbeing for their children" (1=agree, 2=disagree)	0.5024 *p-value = (0.000)*	0.4610 *p-value = (0.000)*	1

Table 4b.*Tax morale variables, correlation matrix (country means, all waves).*

	claiming - "do you justify: claiming state benefits" (1=never, 10=always)	cheating - "do you justify: cheating on tax" (1=never, 10=always)	bribe - "do you justify: accepting a bribe" (1=never, 10=always)	transport - "do you justify: avoiding fare on public transport" (1=never, 10=always)
claiming - "do you justify: claiming state benefits" (1=never, 10=always)	1			
cheating - "do you justify: cheating on tax" (1=never, 10=always)	0.539 *p-value* = (0.000)	1		
bribe - "do you justify: accepting a bribe" (1=never, 10=always)	0.5831 *p-value = (0.000)*	0.6348 *p-value = (0.000)*	1	
transport - "do you justify: avoiding fare on public transport" (1=never, 10=always)	0.653 *p-value = (0.000)*	0.6929 *p-value = (0.000)*	0.7034 *p-value = (0.000)*	1

Table 5 *Factor analysis of tax morale*

```
. factor claiming cheating bribe transport, pcf
(obs=1292)

Factor analysis/correlation                       Number of obs    =      1292
    Method: principal-component factors           Retained factors =         1
    Rotation: (unrotated)                         Number of params =         4
```

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	2.90616	2.43503	0.7265	0.7265
Factor2	0.47113	0.11283	0.1178	0.8443
Factor3	0.35830	0.09390	0.0896	0.9339
Factor4	0.26441	.	0.0661	1.0000

LR test: independent vs. saturated: chi2(6) = 2634.40 Prob>chi2 = 0.0000

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
claiming	0.8078	0.3475
cheating	0.8408	0.2931
bribe	0.8591	0.2620
transport	0.8993	0.1913

Table 6 *Factor analysis of family ties*

```
. factor family helpchild loveparents, pcf
(obs=1235)
```

Factor analysis/correlation — Number of obs = **1235**
Method: principal-component factors — Retained factors = **1**
Rotation: (unrotated) — Number of params = **3**

Factor	Eigenvalue	Difference	Proportion	Cumulative
Factor1	**1.85723**	**1.17057**	**0.6191**	**0.6191**
Factor2	**0.68665**	**0.23054**	**0.2289**	**0.8480**
Factor3	**0.45612**	**.**	**0.1520**	**1.0000**

LR test: independent vs. saturated: chi2(**3**) = **668.18** Prob>chi2 = **0.0000**

Factor loadings (pattern matrix) and unique variances

Variable	Factor1	Uniqueness
family	**0.7690**	**0.4086**
helpchild	**0.8482**	**0.2805**
loveparents	**0.7391**	**0.4537**

Table 7

Expected and estimated results

	Family ties	Politics	Trust	Religion
Shadow Economy	+	-	-	-
	YES	YES	YES	NO

	Family ties	Politics	Trust	Religion
Tax morale	-	+	+	-
	YES	?	YES	?

	Family ties	Politics	Trust	Religion
Corruption	+	-	-	-
	YES	?	YES	YES

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Table 8 *FE Panel data model (WG estimator) point estimates of the impact of* ***family ties on the shadow economy.*** *All variables are standardized and their values increase with the intensity of the variable, years 1990–2007.*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc - family ties	0.2639***	0.0788***	0.0407***	0.0368***	0.0411***	0.0409***	0.0312*	0.0287*
	(0.0358)	(0.0149)	(0.0121)	(0.0131)	(0.0131)	(0.0144)	(0.0161)	(0.0148)
Revenue from taxes,				0.0560*	0.0593*	0.0603*	0.0589*	0.0608*
social contributions, and other revenues				(0.0304)	(0.0324)	(0.0326)	(0.0312)	(0.0332)
Religion							0.0212	0.0766*
							(0.0354)	(0.0446)
Religious person							0.0391	0.0487*
							(0.0258)	(0.0260)
Trust people						0.0105		0.0137
						(0.0100)		(0.0095)
Trust parliament						0.0071		0.0074
						(0.0112)		(0.0130)
Trust church						0.0003		-0.0673**
						(0.0237)		(0.0258)
Importance of politics					0.0091			-0.0055
					(0.0120)			(0.0112)
Political orientation (from right to left)					0.0075			0.0115
					(0.0078)			(0.0099)
Country FE	NO	YES	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	YES	YES	YES	YES	YES
Estimator	OLS	WG	WG	WG	WG	WG	WG	WG
Observations	480	480	480	480	451	454	472	446
Number countries		61	61	61	58	58	60	57
R-squared	0.0901	0.0523	0.5737	0.5967	0.5967	0.5988	0.5981	0.6005

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 9 *FE Panel data model (WG estimator) point estimates of the impact of* ***family ties on shadow economy****. All variables are standardized and their values increase with the intensity of the variable, years 1990–2010.*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc - family ties	0.3080***	0.0886***	0.0267**	0.0242*	0.0286**	0.0184	0.0024	-0.0037
	(0.0342)	(0.0254)	(0.0132)	(0.0123)	(0.0122)	(0.0119)	(0.0159)	(0.0169)
Revenue from taxes,				0.0577**	0.0550*	0.0586*	0.0594**	0.0560*
social contributions, and other revenues				(0.0288)	(0.0301)	(0.0300)	(0.0274)	(0.0292)
Religion							0.014	0.0959*
							(0.0376)	(0.0523)
Religious person							0.0930***	0.0980***
							(0.0307)	(0.0280)
Trust people						-0.0053		0.0065
						(0.0110)		(0.0093)
Trust parliament						0.0072		0.0042
						(0.0117)		(0.0115)
Trust church						0.0324		-0.0563*
						(0.0297)		(0.0335)
Importance of politics					-0.0282**			-0.0351**
					(0.0136)			(0.0146)
Political orientation (from right to left)					0.0126			0.0096
					(0.0100)			(0.0105)
Country FE	NO	YES	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	YES	YES	YES	YES	YES
Estimator	OLS	WG	WG	WG	WG	WG	WG	WG
Observations	615	615	615	615	583	584	604	576
Number countries		64	64	64	63	62	63	62
R-squared	0.1068	0.0722	0.6445	0.6626	0.6742	0.6688	0.686	0.7011

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 10 *FE Panel data model (WG estimator) point estimates of the* ***impact of family ties on tax morale (principal component)****. All variables are standardized and their values increase with the intensity of the variable.*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc - family ties	0.1370***	-0.2027	-0.2763	-0.2796	-0.2225	-0.3672*	-0.4027	-0.2448
	(0.0398)	(0.1978)	(0.1947)	(0.1996)	(0.2053)	(0.1901)	(0.2646)	(0.2235)
Revenue from taxes,				0.0424	0.0225	0.1041	0.1689	0.1682
social contributions, and other revenues				(0.1878)	(0.1917)	(0.1747)	(0.1737)	(0.1589)
Religion							0.1135	-0.45
							(0.5580)	(0.8835)
Religious person							0.4052	0.4025
							(0.4446)	(0.6164)
Trust people						0.2165		0.2641*
						(0.1428)		(0.1332)
Trust parliament						-0.0638		-0.226
						(0.1586)		(0.1374)
Trust church						0.4612**		0.4416
						(0.2179)		(0.3166)
Importance of politics					-0.1516			-0.1979
					(0.1657)			(0.1677)
Political orientation (from right to left)					0.3028			0.1746
					(0.1887)			(0.2400)
Country FE	NO	YES	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	YES	YES	YES	YES	YES
Estimator	OLS	WG	WG	WG	WG	WG	WG	WG
Observations	669	669	669	669	628	638	649	612
Number countries		64	64	64	63	62	63	62
R-squared	0.0187	0.0111	0.1575	0.1577	0.198	0.2163	0.1796	0.2575

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 11 *FE Panel data model (WG estimator) point estimates of the* ***impact of family ties on corruption (CPI)****. All variables are standardized and their values increase with the intensity of the variable.*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
pc - family ties	0.4362***	0.0397	0.0534	0.0567	0.037	0.0832*	0.0951	0.0822
	(0.0391)	(0.0407)	(0.0446)	(0.0455)	(0.0433)	(0.0439)	(0.0591)	(0.0644)
Revenue from taxes,				-0.0565	-0.0353	-0.0553	-0.0537	-0.0415
social contributions, and other revenues				(0.0618)	(0.0591)	(0.0600)	(0.0591)	(0.0581)
Religion							0.2308	0.2163
							(0.2295)	(0.2440)
Religious person							-0.3576***	-0.2708*
							(0.1172)	(0.1480)
Trust people						-0.0015		0.0142
						(0.0524)		(0.0501)
Trust parliament						-0.0783*		-0.0555
						(0.0437)		(0.0425)
Trust church						-0.1406*		-0.0479
						(0.0761)		(0.0937)
Importance of politics					0.0730*			0.0239
					(0.0432)			(0.0541)
Political orientation (from right to left)					-0.0401			-0.0358
					(0.0602)			(0.0548)
Country FE	NO	YES	YES	YES	YES	YES	YES	YES
Year FE	NO	NO	YES	YES	YES	YES	YES	YES
Estimator	OLS	WG	WG	WG	WG	WG	WG	WG
Observations	462	462	462	462	456	457	462	451
Number countries		55	55	55	55	54	55	54
R-squared	0.1732	0.0034	0.0556	0.0597	0.1022	0.0767	0.106	0.1281

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 12 *OLS point estimates of the impact of the role of the mother and the role of the father on family ties,* ***first stage regression****. All variables are standardized and their values increase with the intensity of the variable.*

	(1)	(2)	(3)	(4)	(5)	(6)
Importance of the role of the mother	0.4481**	0.3323***	0.2386	0.3191***	0.3611***	0.2383***
	(0.1737)	(0.1262)	(0.1516)	(0.0805)	(0.0867)	(0.0652)
Importance of the role of the father	-0.3517*	0.2764**	-0.4465***	-0.3616***	-0.4544***	-0.2467***
	(0.1795)	(0.1337)	(0.1192)	(0.0752)	(0.1544)	(0.0775)
Revenue from taxes,		-0.8565***				-0.265***
social contributions, and other revenues		(0.1098)				(0.0838)
Religion			1.4592***			0.6537***
			(0.0819)			(0.1179)
Religious person			-0.6402***			-0.7564***
			(0.0803)			(0.0742)
Trust people				0.6769***		0.2019***
				(0.0309)		(0.0584)
Trust parliament				-0.9040***		-0.1886***
				(0.0905)		(0.0565)
Trust church				0.5542***		0.7025***
				(0.0439)		(0.089)
Importance of politics					-0.6696***	-0.4755***
					(0.0592)	(0.0532)
Political orientation (from right to left)					0.9174***	0.0853
					(0.1615)	(0.1593)
Year FE	YES	YES	YES	YES	YES	YES
Estimator	OLS	OLS	OLS	OLS	OLS	OLS
Observations	119	119	119	119	119	119
Number countries	14	14	14	14	14	14
F(18, 100) =						553.44
R-squared	0.1018	0.4409	0.5752	0.8213	0.6301	0.9552

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 13 *OLS and 2SLS point estimates of the impact of family ties on the shadow economy using the variable* ***role of the mother and role of the father as instruments for family ties.*** *All variables are standardized and their values increase with the intensity of the variable.*

	(1)	(2)
pc - family ties	0.3881***	0.6889***
	(0.0742)	(0.2404)
Year FE	YES	YES
Control variables	YES	YES
Estimator	OLS	2SLS
Observations	119	119
Number countries	14	14
Ho: Family ties are exogenous, F(1, 100)		(p = 0.1683)
R-squared	0.8068	

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 14 *OLS and 2SLS point estimates of the impact of family ties on tax morale using the variable* ***role of the mother and role of the father as instruments for family ties****. All variables are standardized and their values increase with the intensity of the variable.*

	(1)	(2)
pc - family ties	-0.5045***	-3.0906***
	(0.1334)	(0.7956)
Year FE	YES	YES
Control variables	YES	YES
Estimator	OLS	2SLS
Observations	119	119
Number countries	14	14
Ho: Family ties are exogenous, F(1, 99)		(p = 0.0000)
R-squared	0.8075	

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Table 15 *OLS and 2SLS point estimates of the impact of family ties on corruption using the variable* ***role of the mother and role of the father as instruments for family ties****. All variables are standardized and their values increase with the intensity of the variable.*

	(1)	(2)
pc - family ties	0.3164***	1.7365***
	(0.1022)	(0.5253)
Year FE	YES	YES
Control variables	YES	YES
Estimator	OLS	2SLS
Observations	119	119
Number countries	14	14
Ho: Family ties are exogenous, F(1, 99)		(p = 0.0000)
R-squared	0.8729	

Robust standard errors in parentheses, * significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1 *Panel structure*

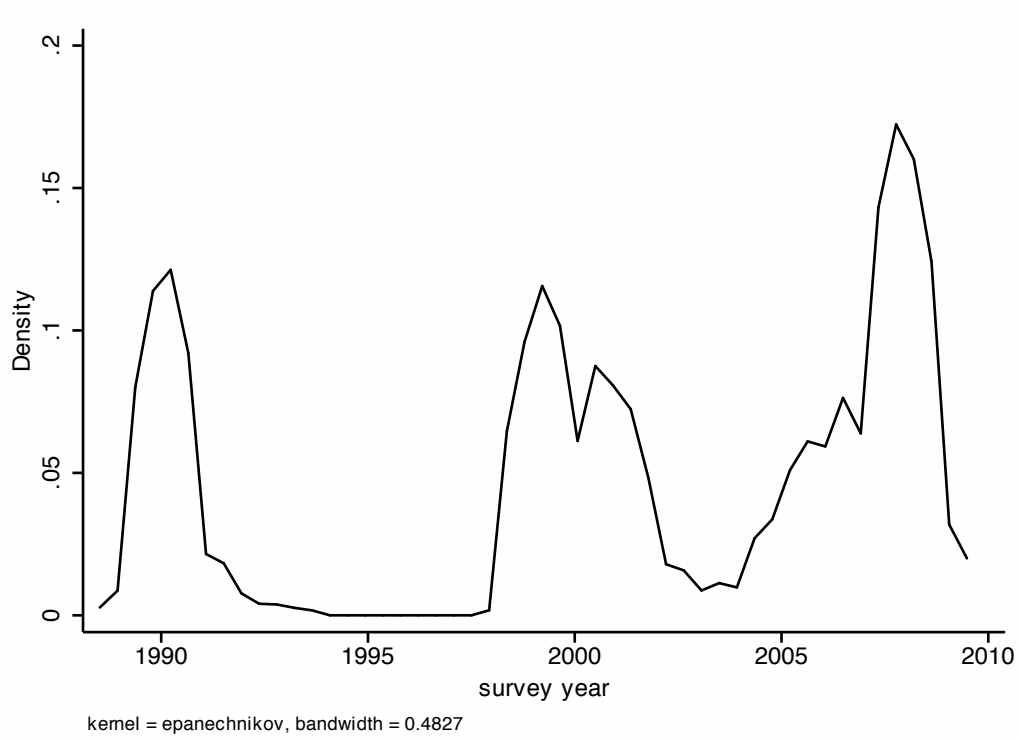

Figure 2 *Variable love parents (original measure of scale, 1 = high family ties), average 1990–2010.*

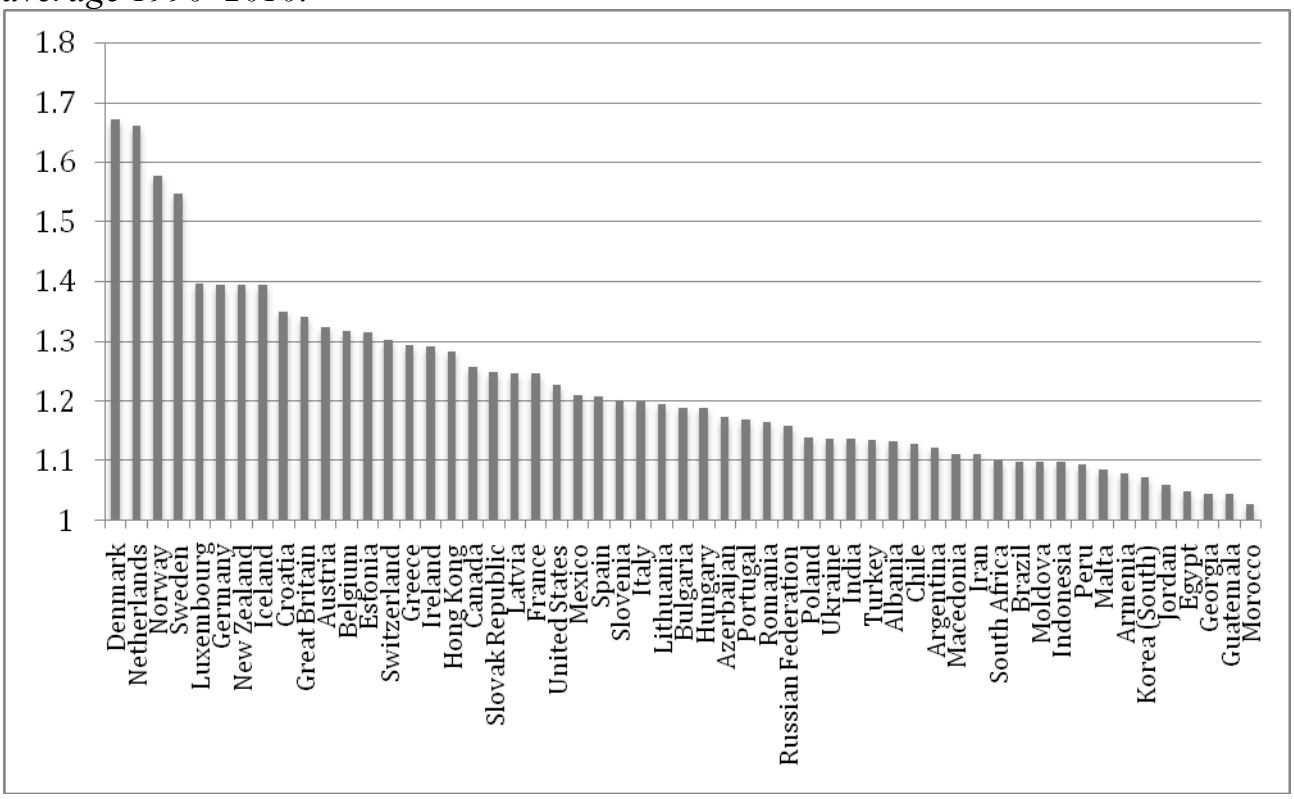

Figure 3 *Variable help child (original measure of scale, 1 = high family ties), average 1990–2010.*

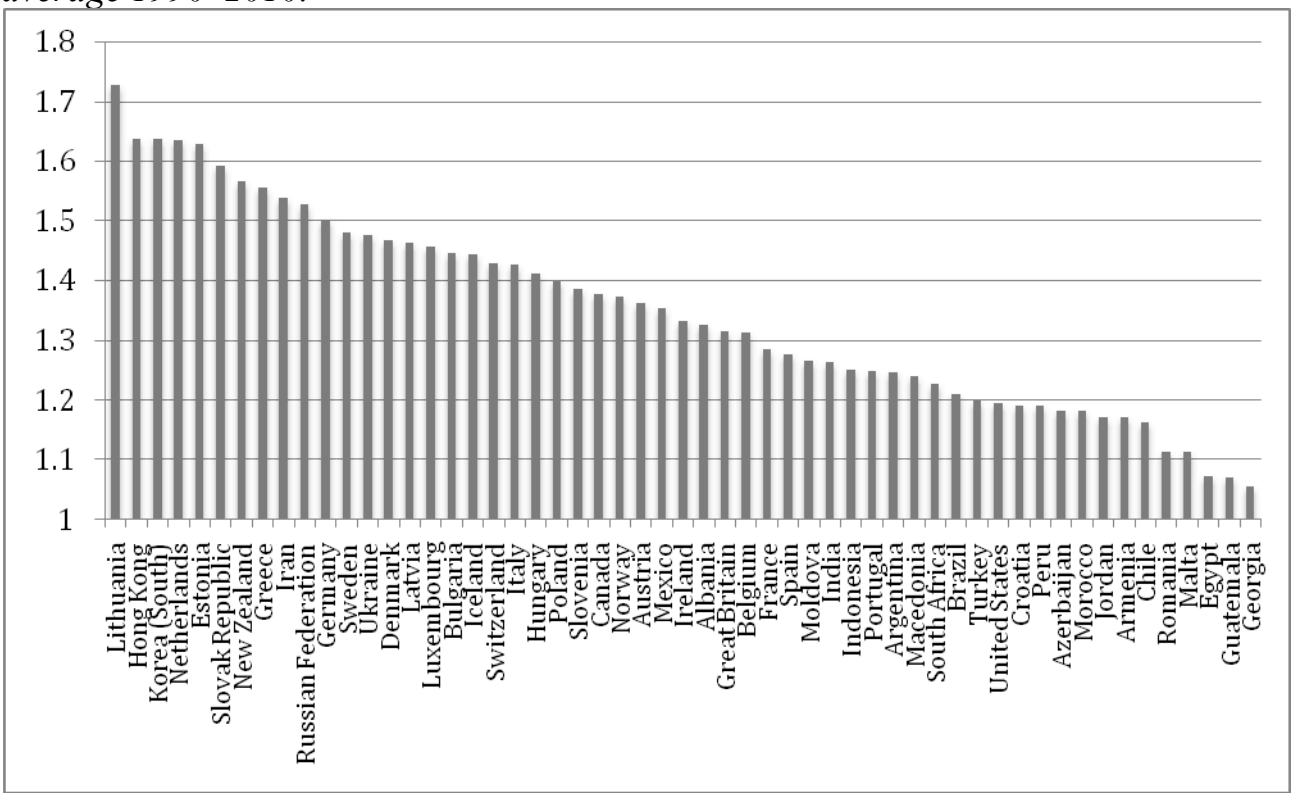

Figure 4 *Variable importance of family (original measure of scale, 1 = high family ties), average 1990–2010.*

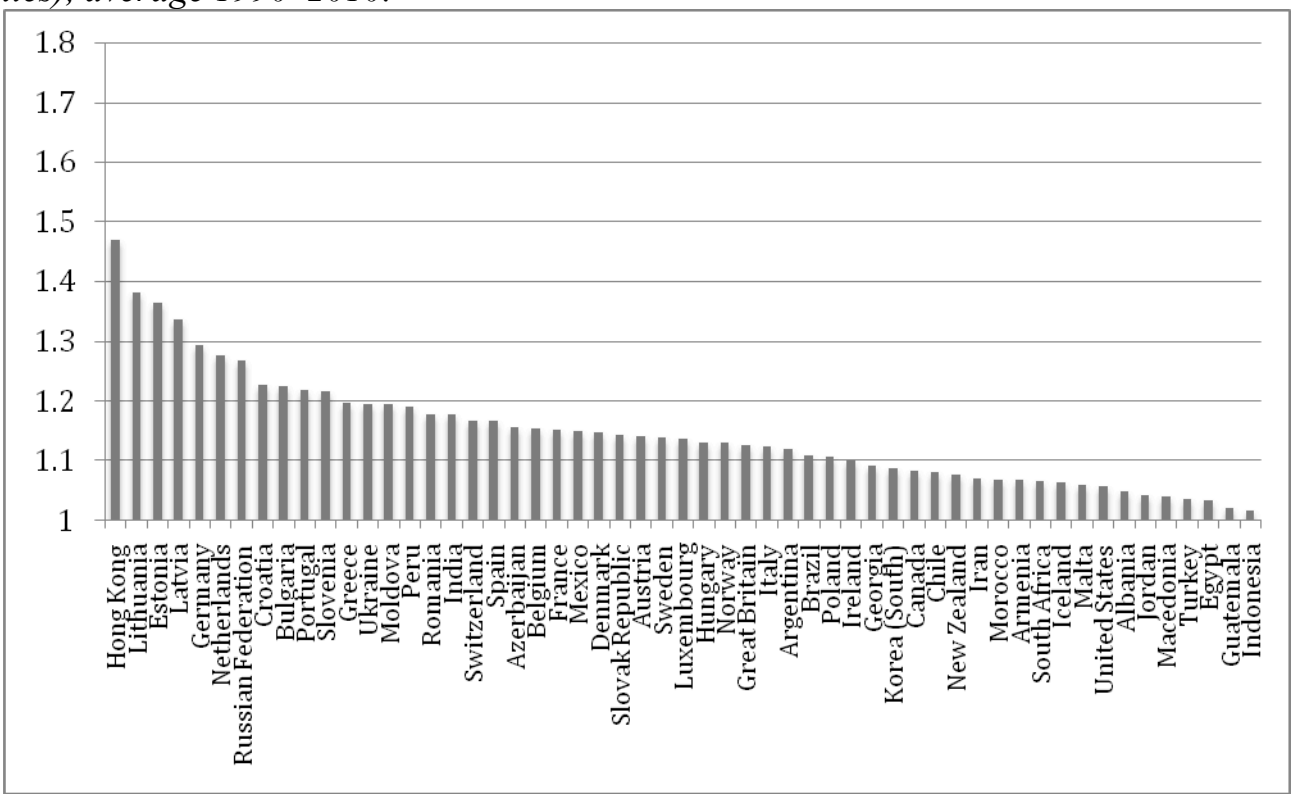

Figure 5 *Variable shadow economy, average 1990–2007.*

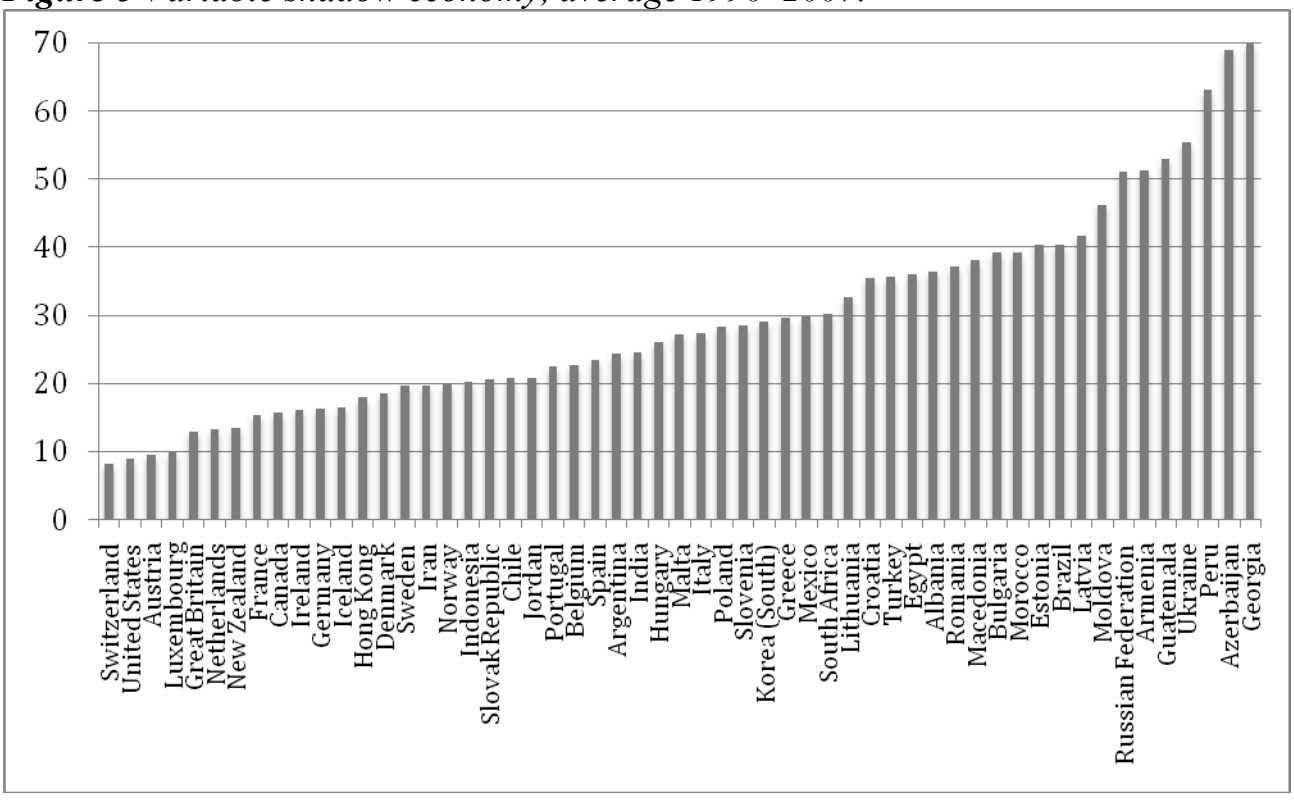

Figure 6 *Relationship between love parents and the shadow economy (original measure of scale, 1 = high family ties), average 1990–2007.*

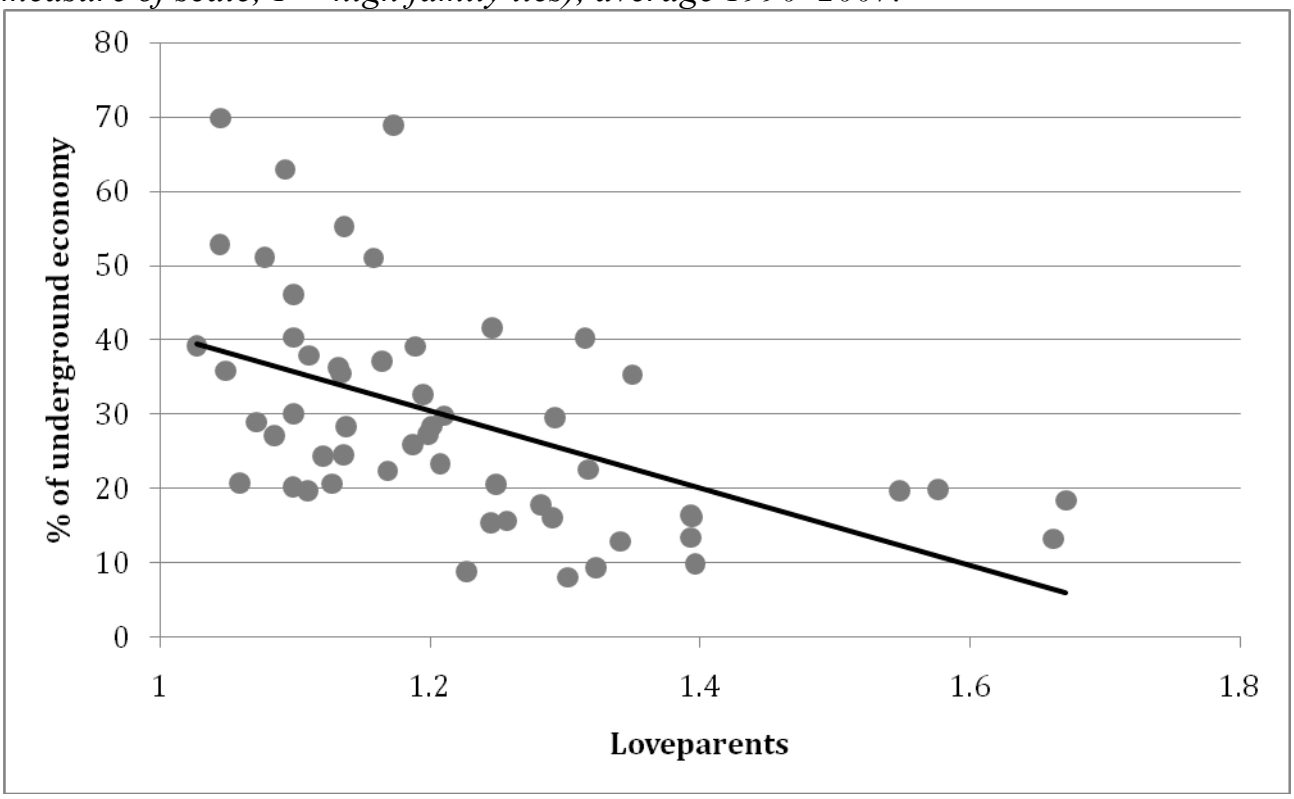

Figure 7 *Relationship between help child and the shadow economy (original measure of scale, 1 = high family ties), average 1990–2007.*

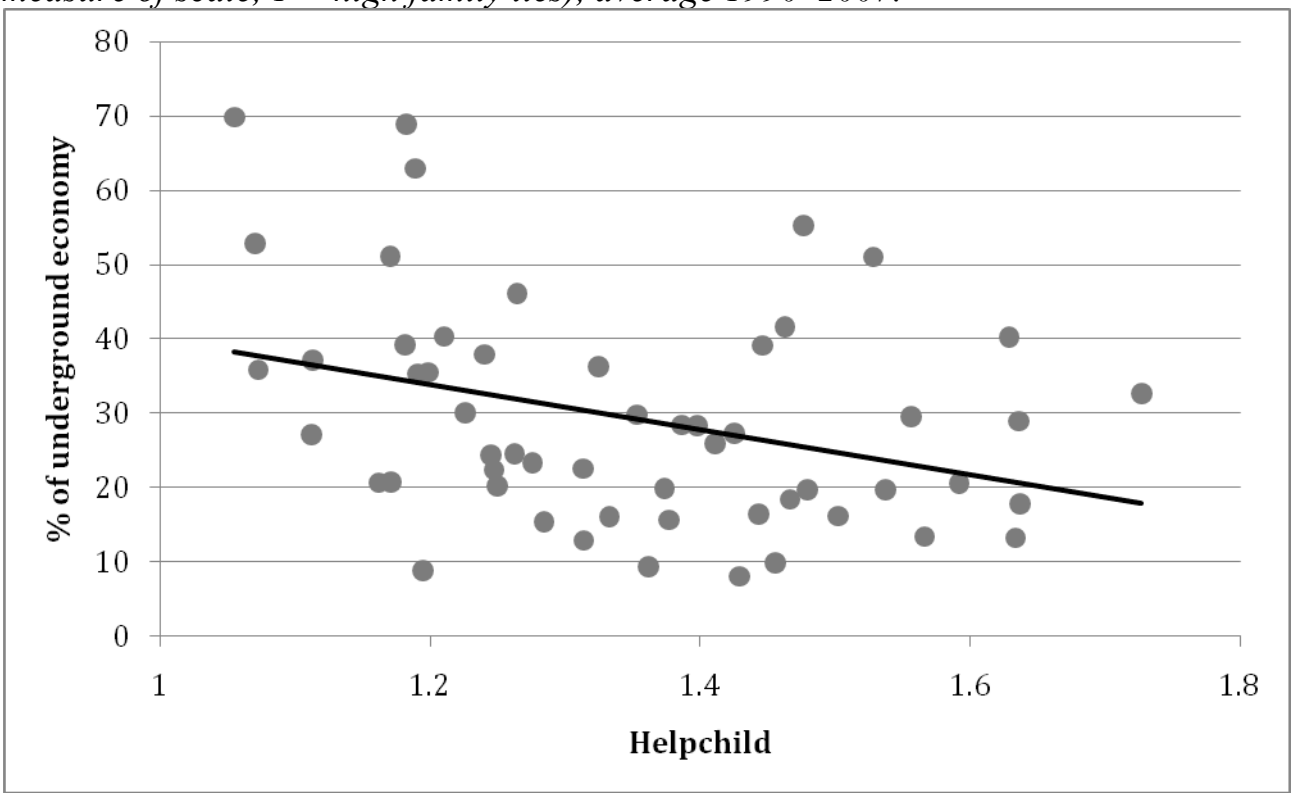

Figure 8 *Relationship between importance of family and the shadow economy (original measure of scale, 1 = high family ties), average 1990–2007.*

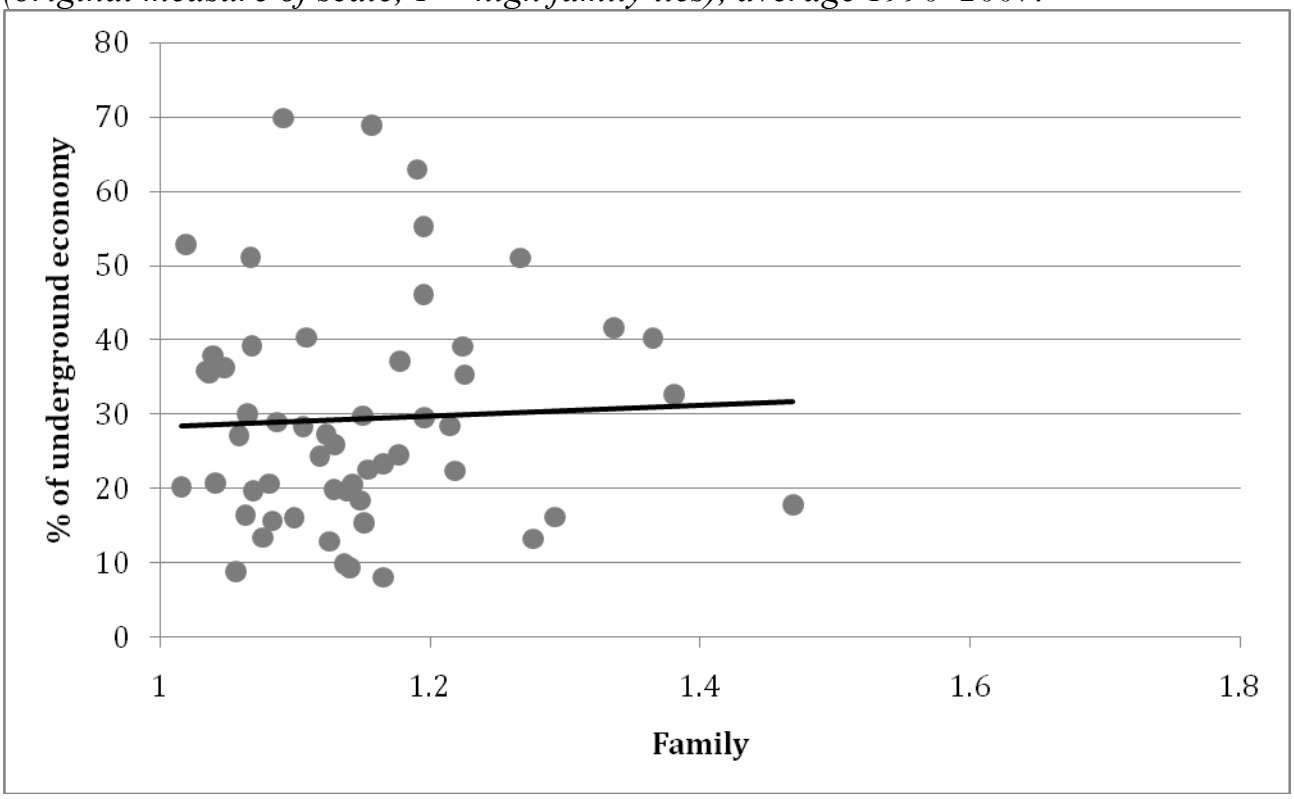

Figure 9 *Relationship among family ties, the role of the mother, and the role of the father, average 1990–2010 (values increase with the intensity of the variable).*