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How family ties affect trust, tax morale and corruption
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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			
Family ties principal component	Principal component among "family," "loveparents," and "helpchild"	World Value Survey; European Value Survey	1992–2011
Importance of 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 of the mother	"relationship between you and your mother" (1=very close, 3=not very close)	European Value Survey	1981
Role of the father	"relationship between you and your father" (1=very close, 3=not very close)		
Control variables			
Tax burden	Cash receipts from taxes (% of GDP)	World Bank, revenue data	1992–2011
Importance of religion	"how important is religion in your life" (1=very important, 4=not at all important)	World Value Survey; European Value Survey	
Religious person	"are you a religious person" (1=religious person, 3=convinced atheist)		
Trust church	"how much confidence do you have in church" (1 = a great deal, 4=none at all)		
Trust people	"people can be trusted" (1=agree, 2=disagree)		
Trust parliament	"how much confidence you have in the parliament" (1 = a great deal, 4=none at all)		
Importance of politics	"how important is politics in your life" (1=very important, 4=not at all important)		
Political orientation	political view: left-right (1=left, 10=right)		

Table 2. Descriptive statistics (regression sample), averages by country over the entire time period of analysis.

Variable	Mean	Std. Dev.	Min	Max	Obs(*)
Dependent variables (Shadow economy, tax morale)					
Underground economy	23.79	11.77	6.16	69.08	794
Tax morale	1.99	0.51	1.20	4.14	794
Claiming	1.98	0.43	1.00	4.08	794
Cheating	1.60	0.34	1.02	3.36	794
Bribe	2.05	0.45	1.09	4.46	794
Transport	23.79	11.77	6.16	69.08	794
Family ties					
Family ties principal component	0.04	0.97	−1.95	2.54	745
Importance of family	1.15	0.08	1.01	1.42	794
Love parents	1.25	0.16	1.03	1.73	745
Help child	1.38	0.18	1.05	1.93	745
Role of the mother	1.59	0.12	1.43	1.78	234
Role of the father	1.81	0.15	1.64	2.17	234
Control variables					
Tax burden	18.64	5.97	4.99	35.09	794
Importance of religion	2.23	0.61	1.02	3.19	794
Religious person	1.37	0.23	1.03	2.01	794
Trust church	2.28	0.49	1.12	3.39	794
Trust people	1.69	0.17	1.24	1.96	794
Trust parliament	2.71	0.32	1.65	3.38	794
Importance of politics	2.74	0.26	1.96	3.24	794
Political orientation	5.49	0.56	3.59	7.56	794

(*) The number of observations is restricted to municipalities with no missing values in all variables.

In total in our dataset we include information for 92 countries[26] over a period of 20 years from 1992 up to 2011. However, the presence of missing information for family ties values and/or the level of underground economy shrinks the regression sample of roughly 800 observations. The distribution of the panel structure is shown in Fig. 1, where, as a time variable, we consider the year when the interview took place in each country. Information for intra wave period have been replicated in order to complete the panel structure.

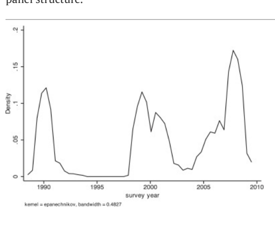

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Fig. 1. Panel structure.

The strength of the family ties can be measured considering three WWS variables. First of all, the variable that denotes directly the importance of the family (*importance of family*), which collects opinions about the importance of the family from 1, indicating high importance to 4 indicating less importance. The two other variables, instead, capture the strength of the family ties indirectly and from different angles: the relevance of love and respect for one's own parents (*love parents*), and the duties and responsibilities of parents towards children (*help child*). In particular, the variable "love parents" measures how 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 variable "help child" captures to what extent 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;" 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.

Fig. 2 shows the fitted value lines that exist between the variables used to measure the strength of family ties and underground economy (as an average by country from 1992 to 2011). With all types of measures, the negative slope confirms that when the intensity of family ties decreases (a higher numerical value), the size of the shadow economy also decreases.

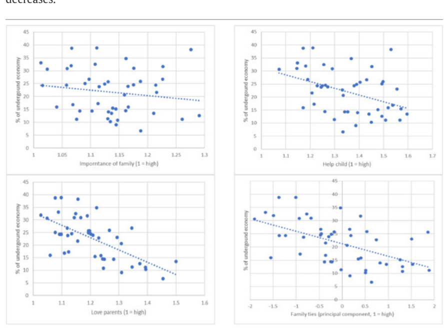

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Fig. 2. Relationship between family ties' variables and underground economy (original measure of scale, 1 = high family ties), average 1992–2011.

Notes. Countries that show a percentage of underground economy on average above 40% have been excluded from the picture since treated as outliers (Georgia, Guatemala, Peru, Belarus, Ukraine, Azerbaijan and Moldova).

In order to study the potential causal effect exerted by the strength of family ties on the level of shadow economy and tax morale we need to investigate the intrinsic social features that shape the structure of family ties. For this scope, as a determinant of the importance of the family in people life, we use two variables from the 1981 EVS measuring the role of the parents in the family. In particular, the variables "*role of the mother*" and "*role of the father*" measure how the respondent answered, respectively, to the following questions: "*How was the relationship between you and your mother?*" "*How was the relationship between you and your father?*" In both questions we observe the following scale: 1=very close, 3=not very close. Both questions were not repeated in other waves of the EVS or WWS and are available only for 14 countries in our sample.[27] For a detailed discussion on the relationship between the role of the parents and the strength of family ties see Section 4.1.

Fig. 3 shows, for the 14 countries with available data, the strong correlation between the importance of the family and the importance of the role of the parents. As expected, countries where family ties are more intense tend to show a larger importance in the role of the mother and the father.

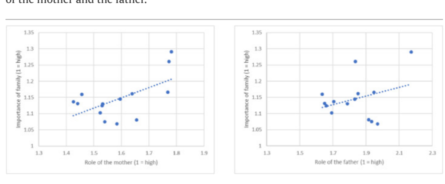

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Fig. 3. Relationship among family ties, role of the mother, the role of the father (1992–2011).

Tax morale measures the willingness of people to behave honestly in matters of the public sector domain. Both the WWS and EVS 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.

Fig. 4 displays the fitted value lines that exist between the variables used to measure the strength of family ties and the level of tax moral considering the principal component of the variables describe above (as an average by country from 1992 to 2011) and considering a larger number associated with higher tax morale. With all types of measures, the positive slope confirms that when the intensity of family ties decreases (a higher numerical value), the level of tax morale seems to be higher.

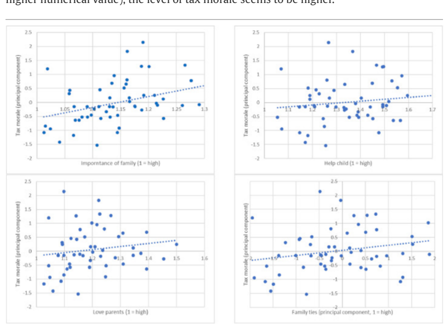

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Fig. 4. Relationship between family ties' variables and tax morale (original measure of scale, 1 = high family ties), average 1992–2011.

Notes. Countries that show a percentage of underground economy on average above 40% have been excluded from the picture since treated as outliers (Georgia, Guatemala, Peru, Belarus, Ukraine, Azerbaijan and Moldova).

In order to ensure, as much as possible, that our empirical models are correctly specified we have also collected information related to a wide set of control variables that capture different features of the society such as: the level of trust, the importance of politics and the importance of religion. Although the relationship among these social features and the underground economy are out of the scope of this paper, it is important to take them into account in order to minimize the omitted variable bias in the study of relationship between family ties and the level of underground economy. In the rest of the paragraph we provide a brief description of the set of control variables included in the analysis.

We measure the degree of trust in three dimensions: trust in other people, trust in public institutions and trust in religion. As far as the first dimension of trust is concerned, 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*". We survey the last two dimensions 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 check the role 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?*" 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. 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".

In conclusion, 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).

6. Empirical strategy

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 show huge differences between countries.

We have clear examples that the family is one of the most lasting institutions (including old China, Italy, and North Africa), and that its role tends to be persistent changing very slowly across time. According to our estimates, more than 55% of the variance of family ties in our sample of over 110,000 individual observations is explained by a country-fixed effect. The same result has been reported by Bertrand and 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 values 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 among family ties, tax morale and underground economy is to estimate a linear panel data model with the individual data (available for family ties and tax morale) collapsed at the country level to control for a real country-fixed effect.[28]

6.1. The empirical model

To measure the impact of family ties on the level of the shadow economy and tax morale, when controlling for the other factors that may affect the individual behavior towards tax evasion and tax morale, we estimate the following linear panel data model reported in Eq. (1):

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

where *i* is the country index and *t* is the year index.

The dependent variable Y_{it} is, in turn, the percentage of underground economy and the level of tax morale measured by using the principal component of the four previously described variables: *Cheating on taxes, Claiming benefits, Bribe,* and *Transport.*[29]

The strength of family ties is captured by three variables "*importance of family*", "*love parents*", "*help child*". However, in the baseline specification we used directly the variable *importance of family*; as a second option we use the principal component of the variables *importance of family, love parents* and *help child.* Instead, other results (included those of the principal component analysis) are reported in the online appendix.

Therefore, the entire empirical analysis will be focused on the computation of reliable and robust point estimates for the β_1 coefficient of the baseline model reported in Eq. (1).

In the most complete specification of the model we are considering four groups of control variables (see Tables 1 and 2 for a complete description of the variables).

(1) The impact of tax burden is measured using the variable *Fiscal*, which corresponds to the ratio between revenue from taxes over GDP published by the World Bank.

(2) The role of politics is measured in terms of the *Importance of politics* in people's life and a variable related to the *Political orientation* between left and right.

(3) The level of 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.

(4) The role of religion is measured using two variables: *Importance of Religion* and *Religious person*.

Since we are using a fixed-effect panel data model estimator, α_i is the country fixed effect and η_t is the year effect, which is captured using year dummies.

The stochastic components ε_{it} is assumed, as usual, to be *i.i.d (0, σ).*

The empirical model in Eq. (1) has been specified as a *Fixed Effect (FE) linear panel data model*, and the coefficients point estimates have been obtained using the *Within-the-Group* (WG) estimator. As far as the magnitude of the coefficients is concerned, all variables have been standardized to make them comparable.

In order to make the results more readable, all variables have been reversed (multiplied by −1). Therefore, 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.

After our FE panel estimates, we use the variables "*role of the mother*" and "*role of the father*" as instrumental variables for family ties. In this way, we study the possible causal effects exerted by family ties on underground economy and on the level of tax morale. It is important to underline that in the instrumental variable (IV) analysis we cannot specify any more the model as a FE linear panel data since both instruments are time invariant. In fact, after 1981 EVS wave, the questions on the role of parents in the family were not replicated in more recent versions of the surveys. Our two stages empirical strategy is described in Eqs. (2) and (3), that correspond, respectively, to the first and the second stage of the IV analysis.

$$familyties_{it} = \gamma_0 + \gamma_1 role_mother_i + \gamma_2 role_father_i + \gamma_3 fiscal_{it} + \gamma_4 politics_{it} + \gamma_5 trust_{it} + \gamma_6 religion_{it} + \phi_{it} \quad (2)$$

$$Y_{it} = \eta_0 + \eta_1 familyties_fitted_{it} + \eta_2 fiscal_{it} + \eta_3 politics_{it} + \eta_4 trust_{it} + \eta_5 religion_{it} + \theta_{it} \quad (3)$$

Where the variable *familyties_fitted* in Eq. (3) corresponds to the fitted values of the first stage regression reported in Eq. (2).

It is important to stress that the two stages are estimated simultaneously using a "*two stage least square estimator*" (2SLS) in order to perform correct inference analysis on the η_i coefficients. With the IV strategy, η_1 point estimates will provide a measure of the causal effect that the strength of the family ties will produce on underground economy and tax morale, thus corroborating the results obtained with the β_1 point estimates of the baseline model reported in Eq. (1).

6.2. Results

In line with the discussion reported in Sections 4 and 5, 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. Instead, we expect a negative relationship between the level of the tax morale and the strength of family ties; namely, the stronger the family ties, the higher the numeric value of cheating on taxes (that is to say, a lower index of tax morale).

Table 3, from column (1) to (3) presents the point estimates of the coefficient β_1 of the model specified in Eq. (1) considering the percentage of underground economy as a dependent variable. The level of family ties is measured by using the variable "*importance of the family*" and 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 coefficients remain always high, although it becomes weaker as we increase the number of control variables.[30]

Table 3. Point estimates of the impact of family ties on the shadow economy.

	(1) FE	(2) FE	(3) OLS	(4) OLS (restricted sample)	(5) 2SLS (restricted sample)
Importance of the family (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)	**0.0397***	**0.0669*****	**0.0048**	**0.0496**	**0.9759*****
Robust standard errors in brackets	**[0.024]**	**[0.023]**	**[0.032]**	**[0.035]**	**[0.179]**
Observations	907	907	907	280	280
R-squared	0.630	0.574	0.013	0.639	
Underidentification test (Kleibergen-Paap rk LM statistic):					25.24
Chi-sq(2) P-val					*0.0000*
Weak identification test (Kleibergen-Paap rk Wald F statistic):					21.217
Overidentification test of all instruments (Hansen J statistic):					0.318
Chi-sq(1) P-val					*0.5726*
Family ties, principal comp. (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)	**0.0512***	**0.0593****	**0.4273*****	**0.0215**	**1.1147*****
Robust standard errors in brackets	**[0.026]**	**[0.024]**	**[0.031]**	**[0.044]**	**[0.244]**
Observations	858	858	858	280	280
R-squared	0.659	0.601	0.180	0.637	
Underidentification test (Kleibergen-Paap rk LM statistic):					18.817
Chi-sq(2) P-val					*0.0001*
Weak identification test (Kleibergen-Paap rk Wald F statistic):					10.152
Overidentification test of all instruments (Hansen J statistic):					5.597
Chi-sq(1) P-val					*0.018*
Constant	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	No	No	Yes	Yes
Fixed effect	Yes	Yes	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes

Notes. All variables are standardized and their values increase with the intensity of the variable. Coefficient point estimates must be interpreted in terms of standard deviations of the dependent variables generated by one standard deviation of the regressors. Years dummies included in the estimates are from 1992 to 2011. The set of controls includes variables related to the level of the general tax burden, trust, importance of polities, role of religion and political orientation. Coefficients of the FE Panel data models are estimated trough the Within the Group estimator with standard errors clustered at country level. The restricted sample includes the 14 countries for which the instrumental variables "Role of the mother" and "Role of the father" are available (Belgium, Canada, Denmark, France, Germany, Great Britain, Iceland, Ireland, Italy, Netherlands, Norway, Spain, Sweden, and United States).

Table 4, from column (1) to (3) presents the point estimates of the coefficient β_1 of the model in Eq. (1), now the dependent variable is the principal component of the variable used to measure the level of tax morale. The level of family ties is measured by using the variable "importance of the family" and principal component of the variables *help child, love parents,* and *the importance of the family* (results with other alternative measures of family ties are presented in the online appendix). In particular, in column (3) where we perform a simple OLS without country 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".

Table 4. Point estimates of the impact of family ties on tax morale.

	(1) FE	(2) FE	(3) OLS	(4) OLS (restricted sample)	(5) 2SLS (restricted sample)
Importance of the family (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)	**−0.5638****	**−0.4634****	**0.2891*****	**−0.2387*****	**−0.4953*****
Robust standard errors in brackets	**[0.254]**	**[0.222]**	**[0.035]**	**[0.048]**	**[0.085]**
Observations	879	879	879	280	280
R-squared	0.280	0.203	0.129	0.673	0.642
Underidentification test (Kleibergen-Paap rk LM statistic):					83,495
Chi-sq(2) P-val					*0.0000*
Weak identification test (Kleibergen-Paap rk Wald F statistic):					68,61
Hansen J statistic (overidentification test of all instruments):					2153
Chi-sq(1) P-val					*0.1422*
Family ties, principal comp. (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)	**0.1061**	**0.1095**	**0.1708*****	**−0.1182****	**−1.3124*****
Robust standard errors in brackets	**[0.163]**	**[0.193]**	**[0.041]**	**[0.056]**	**[0.363]**
Observations	830	830	830	280	280
R-squared	0.229	0.160	0.090	0.652	0.092
Underidentification test (Kleibergen-Paap rk LM statistic):					15,591
Chi-sq(2) P-val					*0,0004*
Weak identification test (Kleibergen-Paap rk Wald F statistic):					7925
Hansen J statistic (overidentification test of all instruments):					0,098
Chi-sq(1) P-val					**0,7547**
Constant	Yes	Yes	Yes	Yes	Yes
Control variables	Yes	No	No	Yes	Yes
Fixed effect	Yes	Yes	No	No	No
Year dummies	Yes	Yes	Yes	Yes	Yes

Notes. All variables are standardized and their values increase with the intensity of the variable. Coefficient point estimates must be interpreted in terms of standard deviations of the dependent variables generated by one standard deviation of the regressors. Years dummies included in the estimates are from 1992 to 2011. The set of controls includes variables related to the level of the general tax burden, trust, importance of polities, role of religion and political orientation. Coefficients of the FE Panel data models are estimated trough the Within the Group estimator with standard errors clustered at country level. The restricted sample includes the 14 countries for which the instrumental variables "Role of the mother" and "Role of the father" are available (Belgium, Canada, Denmark, France, Germany, Great Britain, Iceland, Ireland, Italy, Netherlands, Norway, Spain, Sweden and United States).

Our results provide empirical evidence in support of the two crucial points that constitute the focus of the paper: for the first time we provide clear evidence of a positive correlation between the strength of the family ties and underground economy; as already highlighted by Bertand and Schoar (2006) and Alesina and Giuliano (2010, 2011), there is evidence of a strong negative correlation between the level of tax morale and the strength of family ties.

Moreover, comparing the results in column (1) of Tables 3 and 4 we can notice that the magnitude of the impact of the "importance of family" on "tax morale" is much higher (more than ten times larger) than what observed in case of underground economy. However, we believe that these coefficients might be downward biased because of the problem of reverse causality between family ties, underground economy and tax morale. To address this last issue - as discussed in more detail in the next paragraph – we perform an instrumental variables (IV) analysis.

6.3. Instrumental variables analysis

To interpret the relationship observed among family ties, underground economy and tax morale in terms of a causal relationship - i.e., to provide econometric evidence in support of the role played by the strength of family ties as a determinant of tax evasion – we perform an IV exercise using the variables '*role of the mother* and *role of the father*', registered in the 1981 European Value Survey, as instruments for the variables *love parents, help child,* and *importance of family* used to capture the strength of family ties.

Evidence in support of the validity of our instrumental variables exercise is shown in Table 5 were we report the OLS point estimates of the first stage model specified in line with Eq. (2). In particular, both instrumental variables exhibit a robust impact on our measures of family ties. The importance of the mother is always positively correlated with family ties, instead the role of the father is less stable but nevertheless correlated: it shows a positive correlation with family ties when the role of mother is not included in the specification of the model, instead when both variables are included it turns negatively correlated with family ties (compare column 1 and 3 of Table 5). 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. However, from the econometric point of view, both variables can be used as instruments of our IV analysis as formally shown with the support of the tests reported in column (5) of Tables 3 and 4, where the final results of the IV exercise are reported. Instead, for a more general discussion on the validity of our IV strategy see Section 4.1.

Table 5. OLS point estimates of the impact of the role of the mother and the role of the father on family ties, first stage regression.

	(1)	(2)	(3)
Dependent variable	*Importance of family*		
Role of the mother (*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$)	0.5190***	0.3538***	

Robust standard errors in brackets		(0.040)	(0.050)
Rule of the letter ("*", p<0.05; "", p<0.01)**		0.270***	0.243***
Robust standard errors in brackets		(0.074)	(0.066)
R-squared		0.112	0.104
Cross-section		Yes	Yes
Observations		1,000	1,000
Dependent variable		Family has extended relatives	
Rule of the letter ("*", p<0.05; "", p<0.01)**		0.271***	0.246***
Robust standard errors in brackets		(0.074)	(0.066)
Rule of the letter ("*", p<0.05; "", p<0.01)**		0.0126	0.0127
Robust standard errors in brackets		(0.006)	(0.006)
R-squared		0.828	0.828
F-test		14.79	14.79
Prob > F		0.0000	0.0000
Observations		250	250
Constant		No	No
Control variables		Yes	Yes
Shock effect		No	No
Year dummies		Yes	Yes

Note: All variables are standardized and their values increase with the intensity of the variable. Dependent variable in Columns 1 and 2 is a dummy variable that takes the value of 1 if the variable specified in the row is extended relatives of the respondent. Sub-Saharan Africa is the omitted case. Robust SE in brackets. The set of control variables available varies by the level of general social trust and by the number of observations available for each specification. The set of control variables includes the intensity for which the interviewed respondent, Tribe of the mother, Tribe of the father", and variables Ethnic diversity, Democratic Freedom, Civilians, Cross-Ethnic, Armed Conflict, Gini, Ethnic Fractionalization, Income, Rural, Gender and Urban Dummy.

Columns 1 and 2 of Table 7 show, respectively, the OLS and 2SLS point estimates of the impact of family ties on our measure of extended relatives. Consistent with the sample of all countries with available information on the instrumental variable, OLS results are in line with IV estimates obtained on the full sample (compare Columns 1 and 2 of Table 7 with Columns 1 and 2 of Table 6). Instrumental variable estimates suggest that a positive impact of family ties, 2SLS point estimates are larger (varying between 0.60 and 0.65) suggesting the presence of a downward bias. In contrast, 2SLS estimates confirm the lack of a significant impact of the shock variable. Finally, the Kleibergen-Paap rk LM statistic rejects the null hypothesis of underidentification and the Kleibergen-Paap rk Wald F statistic is much higher suggesting around 17 Stock-Yogo critical values. Nevertheless, the IV analysis yet unfolded especially when family ties are measured in terms of the intensity of the relationship. Columns 3 and 4 of Table 7 show, respectively, the OLS and the "second identification" test that our instrumental variables are strongly correlated with family ties (similar conclusions have derived by the results of the first-stage regressions reported in Columns 1 and 2 of Appendix Table 3). Columns 5 and 6 show that the lack of significant of magnitude of the instrumental variables supporting the validity of the IV analysis.

Columns 5 and 6 of Table 8 show, respectively, the OLS and 2SLS point estimates of the impact of family ties on our second predictor considering the restricted sample of countries with available information on the instrumental variable. Consistent with the full sample, OLS estimates are larger than 2SLS estimates. Lack of underidentification and weak identification tests suggest that the instrumental variables are strongly correlated with family ties (similar conclusions have derived by the results of the first-stage regressions reported in Columns 1 and 2 of Appendix Table 3). Finally, the Hansen J statistic rejects the null hypothesis of exogeneity of the instrumental variables supporting the validity of the IV analysis.

Columns 5 and 6 of Table 8 show, respectively, the OLS and 2SLS point estimates of the impact of family ties on our second predictor considering the restricted sample of countries with available information on the instrumental variable. Consistent with the full sample, OLS estimates are larger than 2SLS estimates. Lack of underidentification and weak identification tests suggest that the instrumental variables are strongly correlated with family ties (similar conclusions have derived by the results of the first-stage regressions reported in Columns 1 and 2 of Appendix Table 3). Finally, the Hansen J statistic rejects the null hypothesis of exogeneity of the instrumental variables supporting the validity of the IV analysis.

7. Conclusions and policy implications

The usual portfolio analysis of our missions, based only on a cost-benefits approach, does not adequately capture the value of our activities. Our missions are not only about saving lives from escapemen, from and the quality of an administration, there are many other important variables, both on the social and political economy dimensions, that have to be taken into account. The Ebola crisis has underscored the importance of the social economy. Following the recent discussion on "social and solidarity economy" we underscore the importance of our mission and social capital to fully understand our creative and non-creative destruction. Our analysis shows that our mission, and our organization, can be seen as a determinant of our mission and the underpinnings economy.

This paper provides the first empirical evidence supporting the argument that family ties are one of the most important determinants of the underpinnings economy, social capital and morals. To explain the level of the shadow economy, one must consider both the traditional factors and the social capital. We show that our mission, and our organization, are a determinant of our mission and the underpinnings economy. Our analysis shows that our mission, and our organization, are a determinant of our mission and the underpinnings economy.

The main policy implications of our results and that the structure of society impacts the shadow economy. Our analysis shows that our mission, and our organization, are a determinant of our mission. We believe that, away from any value judgment, it is important to be able to measure the underpinnings economy, social capital and morals, because these values shape the quality of public institutions and the overall quality of our mission. These values largely affect trust, but we should also note that of the underpinnings economy and the social capital of different nations.

Our analysis shows that the families ties are very important and tend to have evidence of a negative impact on our mission. Our analysis shows that our mission, and our organization, are a determinant of our mission. We believe that, away from any value judgment, it is important to be able to measure the underpinnings economy, social capital and morals, because these values largely affect trust, but we should also note that of the underpinnings economy and the social capital of different nations.

In conclusion, our research shows that in fully address the underpinnings economy and our mission, a fully fledged approach is required. This approach has to take into account not only our precedency factors, such as the strategy and profitability of detention and the size of the shadow economy, but also the social capital and morals. Our analysis shows that our mission, and our organization, are a determinant of our mission and the underpinnings economy. Our analysis shows that our mission, and our organization, are a determinant of our mission and the underpinnings economy. Our analysis shows that our mission, and our organization, are a determinant of our mission and the underpinnings economy.

Declaration of Competing Interest

None.

Appendix. Supplementary materials

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Research data for this article

Mendeley

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Data for: How Family Ties Affect Trust, Tax Morale and Underground Economy

Dataset

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2 See Alm-McClelland-Schulze (1992).

3 Feld et al. (2007).

4 See among others, Torgler-Schneider (2006, 2009), Torgler (2003, 2004, 2005, 2006, 2007), Alm and 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), Halla (2009), Konig-Schuknecht (2018).

5 See Torgler-Schneider (2009).

6 Torgler-Schneider (2009).

7 See also the recent papers by Williams-Horodnic (2016) and Williams-Krasniqi (2017).

8 See Alm and Martinez-Vasquez (2007), Alm and Torgler (2004), Alm and Torgler (2012), Alm et al (2016) and also the recent useful accounts made by Williams and Krasniqi (2017), Williams and Horodnic (2016) and Horodnic (2018).

9 On this approach, see also the papers of Williams and Horodnic (2016) and Williams and Krasniqi (2017).

10 See Bisin and Verdier (2010) and Acemoglu and Robinson (2011), North (1990), La Porta et al. (1997).

11 Banfield (1958).

12 See Barzini (1964).

13 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 (1980), Salvemini (1966), Bernhard (1969), 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.

14 Alesina and Giuliano (2011) and Alesina and Giuliano (2010).

15 As already mentioned, the importance of the family has also been largely acknowledged by Bisin and Verdier (2000, 2010).

16 Alesina and Giuliano (2011).

17 Barzini (1964, 191). There is also another interesting issue, which was mentioned by Fukuyama (1999) and Putnam (1993), 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).

18 See on this Gambino (1998, 40).

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

20 See Gambino (1998, 63).

21 In the section of the paper where we run instrumental variables analysis, we show 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.

22 Simone (2005, 84).

23 There are many Italian films, movies and theatre pieces that are perfect examples of the feature of very comprehensive mothers who try to defend their heirs and to protect and justify their sons.

24 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, 1966). The familist mentality tends to produce a generalized tolerance 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.

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

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

27 Belgium, Canada, Denmark, France, Germany, Great Britain, Iceland, Ireland, Italy, Netherlands, Norway, Spain, Sweden, and United States

28 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.

29 Results of the principal component analysis are shown in the online appendix.

30 In other specifications, 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, in most of the cases, positive and statistically very significant. Tables with these additional results are available in the online appendix.

31 Coefficient point estimates must be interpreted in terms of standard deviations of the dependent variables generated by one standard deviation of the regressors.

32 Coefficient point estimates must be interpreted in terms of standard deviations of the dependent variables generated by one standard deviation of the regressors.

View Abstract

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