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Litina, Anastasia and Varvarigos, Dimitrios

University of Ioannina, Leicester University

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# Family Ties and Corruption

Anastasia Litina<sup>†</sup>  
*University of Ioannina*

Dimitrios Varvarigos<sup>‡</sup>  
*University of Leicester*

## Abstract

We construct a model to examine the relation between family ties and corruption. The overall effect of strong family ties on the incentive to be corrupt can be ambiguous due to the presence of conflicting mechanisms. The model also shows that the measure of family ties can be crucial in determining its observed effect on corruption, thus offering a theoretical foundation on why the empirical outcomes entailing cross-country comparisons can differ from the outcomes of micro-level empirical investigations. This aspect of the theoretical framework is verified by our empirical analysis: Using micro-level data, we show that, in contrast to conventional wisdom and cross-country comparisons, stronger family ties reduce the approval for a broad set of activities that measure corruption.

*Keywords:* D73, Z10

*JEL Classification:* Corruption, Family values

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<sup>†</sup> **Anastasia Litina.** Department of Economics, University of Ioannina, University Campus, Ioannina 45110, Greece.

✉ [alitina.uoi@gmail.com](mailto:alitina.uoi@gmail.com)

☎ +30 265 100 5970

<sup>‡</sup> **Dimitrios Varvarigos.** School of Business, Division of Economics, University of Leicester, Astley Clarke Building, University Road, Leicester LE1 7RH, United Kingdom.

✉ [dv33@le.ac.uk](mailto:dv33@le.ac.uk)

☎ +44 (0) 116 252 2184

# 1 Introduction

Corruption is a phenomenon whose adverse social and economic effects can be wide-ranging (e.g., Mauro 1995; Tanzi and Davoodi 1998). For this reason, the identification of various factors that fuel corruption has held a prominent place in the research agenda of many fields, including economics. As a result, a large body of work has indeed pinpointed several factors that are responsible for high levels of corruption – factors that include economic, administrative, historical, and cultural ones.<sup>1</sup> Our study contributes to a further understanding of the cultural sources behind high corruption, as it aims at investigating, both theoretically and empirically, how family ties can potentially affect the level of corruption.

Conventional wisdom would suggest that strong family ties are a fillip for corruption, in line with Banfield's (1958) arguments about 'amoral familism'. Interestingly, however, the results from existing empirical work on the link between corruption and family ties, is rather mixed: While the study by Marè *et al.* (2016) finds that stronger family ties are associated with higher levels of corruption, Ljunge (2015) reports that stronger family ties promote civic virtues – among them, the disapproval of corruption.

In general, while the link between family ties and corruption has already attracted the interest of empirically-oriented work, the existing literature lacks a systematic theoretical study that explains possible mechanisms through which strong family ties affect people's attitudes towards corruption. The main aim of our study is to fill this gap in the literature. From a certain perspective, our theoretical model delivers mechanisms that explain why the effect of family ties on corruption can be ambiguous. On the one hand, people's desire to retain strong family ties reduces the range of high-productivity opportunities to which they can be employed, thus tempting them to compensate for this shortfall through the ill-gotten gains of corrupt behaviour. On the other hand, however, the expected utility cost that emanates from the stigma attached to the revelation of corrupt behaviour, is more pronounced for people who possess a sense of

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<sup>1</sup> This literature is very extensive and has traced several factors, such as opportunities for rents and discretionary power (Klitgaard 1988); regulation, taxation and below market-price provision of goods (Tanzi 1988; De Soto 1989); and the level of public sector wages (Haque and Sahay 1996) among others. Treisman (2000) explores a series of determinants that are correlated with corruption, such as legal origin and institutions, whereas Barr and Serra (2010) emphasise the role of culture and norms.

strong family ties, thus acting as a counter-incentive for them to seek illegal rents through corruption. Overall, when the measure of strong family ties is the population share of those who abide by them, family ties may be associated with either more or less favourable attitudes towards corrupt behaviour – and, therefore, with either higher or lower incidence of corruption – depending on which of the two opposing mechanisms prevails. Nevertheless, there is another perspective that involves the potential measures of strong family ties in our model. In addition to the prevalence of different family values among the population, our theory also pinpoints a different measure of family ties – i.e., the component that measures the utility accruing as a result of retaining close ties with one’s family. Under this alternative measure, the relation between family ties and corruption is unambiguously negative. In other words, when the utility value of retaining strong family ties increases, the incentive to be corrupt declines due to the strength of the aforementioned, stigma-related mechanism.

In the empirical analysis, we test our reduced-form hypothesis using micro-level data from the European Values Study (EVS). As a means of measuring the strength of family ties, we adopt a variable developed by Alesina and Giuliano (2010) in their study on the economic implications of family ties. The empirical results we obtain are unambiguously in support of the hypothesis that stronger family ties are associated with attitudes less favourable to corruption, hence they are in accordance with the empirical outcomes in Ljunge (2015). Our results are robust to several different specifications, such as controlling for region fixed effects that captures even more unobservables, and to the use of different samples, e.g., the World Value Survey (WVS) instead of the EVS. Furthermore, to mitigate any concerns of endogeneity, we confirm our benchmark findings by conducting an IV analysis.<sup>2</sup> Generally speaking, our empirical results are in line with broader arguments that stress the importance of familial experiences in determining civic values (e.g., Wilson 1993).

Despite the fact that there are reasonable arguments to support an outcome whereby strong family ties reduce the incidence of corruption, still conventional wisdom and casual observation may be at odds with this view. After all, a simple observation of the

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<sup>2</sup> Ljunge’s (2015) approach is to conduct a 2<sup>nd</sup>-generation immigrant analysis in order to eliminate omitted variable bias concerns, using the European Social Survey (ESS). However, the ESS does not use the same set of questions we use as measures of attitudes towards corruption.

European continent, for example, can reveal that corruption is more widespread among countries in Southern Europe - in which strong family ties are also a common characteristic - compared to Northern European countries - in which strong family ties are not as pervasive. How can this observation reconcile with our theoretical and empirical results? To see this, recall that, in our theoretical framework, it is possible that while the share of the population with preferences for retaining strong family ties (i.e., an aggregate measure) is positively related to corruption, at the same time the utility value of retaining strong family ties is inversely related to corruption. In this respect, our micro-level empirical approach is primarily capturing outcomes that are consistent with the latter mechanism, given that our main source of variation is across-individual variation, without being necessarily at odds with cross-country comparisons on the issue. Indeed, we conduct an individual-level analysis and our results are derived after accounting for a wide range of individual and country controls such as country and year fixed effects, thus we obtain within-country estimates. Therefore, our results should be primarily interpreted as suggesting that if two individuals live in the same country and are thus faced with the same institutional/historical/cultural background of the country, then the individuals that have stronger family ties will be less favourable towards corruption.

All in all, our study contributes to two strands of the literature. First, it contributes to the literature that investigates the determinants of corruption. As we stated earlier, this literature is extensive and has identified several economic, institutional, historical and cultural factors (e.g., Klitgaard 1988; Tanzi 1988 De Soto 1989; Haque and Sahay 1996; Treisman 2000; Barr and Serra 2010). Second, it contributes to the literature that investigates the impact of family ties on various economic and social outcomes. This literature has identified the implications of strong family ties for labour market outcomes (Alesina and Giuliano 2010; Alesina *et al.* 2015), geographical mobility (Giuliano 2007; Alesina and Giuliano 2010), education (Duranton *et al.* 2009), gender roles (Alesina and Giuliano 2013), economic systems and reform (Esping-Andersen 1999; Brumm and Brumm 2017; Galasso and Profeta 2018), trust (Alesina and Giuliano 2011), as well as ideology and political participation (Todd 1983; Alesina and Giuliano 2011).

The paper is structured as follows: In Section 2 we develop a theoretical model to study the underlying mechanisms that link corruption with the strength of family ties. Section 3 presents the data, the empirical approach, and our empirical findings. Finally, Section 4 concludes.

## 2 Theory

We consider an overlapping generations economy, populated by a constant mass (normalised to 1) of couples who live for three periods – youth, middle age and old age. The individuals who comprise a couple are distinguished solely on the basis of occupational characteristics, the details of which will be discussed shortly. Nevertheless, each couple shares the same personality traits and preferences, and make all their decisions jointly. The demographic structure is simple, as each couple gives birth to a couple, and so on.

When young, couples form their personality traits and adopt the values and norms that will ultimately determine their desire to retain strong ties with their families. In this study, we are not going to be explicit about the process whereby couples adopt these cultural traits. Instead, we shall assume that a fixed fraction  $f \in (0,1)$  of couples wish to retain strong family ties, whereas the remaining fraction  $1 - f$  do not have such a desire. This is a scenario where young couples simply adopt their parents' cultural characteristics, hence allowing us to focus purely on the decisions made by couples when they are middle-aged. In what follows, couples are going to be distinguished by  $j = \{s, w\}$  where  $s$  stands for couples who have a desire for strong family ties, while  $w$  stands for couples whose desire for family ties is rather weak (or even absent).

During their middle age, couples earn income, enjoy the consumption of (private and public) goods, and rear their children. There are two sources of income for each couple because the activity to which each individual will be engaged, with the purpose of earning income, differs. Particularly, one of them will operate as a perfectly competitive supplier of a privately-produced good; the other will be employed by the public sector (e.g., as a civil servant) contributing to the procurement of a utility-enhancing public good.

### *Private Production*

The producer of the private good will supply  $Y$  units of it, meaning that this is also the amount of income that accrues to each couple as a result of private production. We follow Alesina *et al.* (2015) in assuming that the productivity of private sector producers is a function of the location in which the couple decides to reside. If the couple is willing to move to any location away from their parents' place of residence, private production will result in  $Y_h = (1 + \omega)y$  units of output with certainty, where  $\omega, y > 0$ . If, however, the couple restrict themselves in residing to the location of their parents, private production will result in the same amount of output, i.e.,  $Y_h = (1 + \omega)y$ , only with probability  $\pi \in (0, 1)$ , whereas with probability  $1 - \pi$  private production will generate  $Y_l = y$  units of output. One way to justify this assumption is to think that people can have a greater set of productive opportunities, and a better match for their skills, if they are more mobile in terms of location.

### *Public Sector*

The government distributes an amount of output to each civil servant, with the condition that these funds should be used as an input in the operation of a project that contributes to the procurement of a utility-enhancing public good. In return, civil servants receive a salary  $B > 0$  for their services. Contrary to private sector producers, we assume that the productivity of individuals who work as civil servants is not affected by the location where the couple resides. We will also assume that the production of public goods occurs prior to private production.<sup>3</sup>

The government also levies a (lump-sum) tax  $T > 0$  from each couple, and uses the proceeds to finance its expenses for public sector salaries and for the provision of public goods. Using  $G > 0$  to denote the amount devoted to public goods' provision, and taking account the unit mass of couples, it follows that the government's budget is given by  $T = G + B$ . We also assume that all items in the public budget are tied to the economy's output by setting

$$B = by, G = gy, T = \tau y, \quad (1)$$

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<sup>3</sup> This assumption is innocuous for our results. See Footnote 6.

where  $b, g, \tau \in (0, 1)$ . Therefore,

$$\tau = g + b. \quad (2)$$

With the purpose of introducing the moral hazard problem that will ultimately generate the incidence of corruption, we follow Varvarigos and Arsenis (2015) in assuming that the delivery of public goods is possible through two types of projects. Type- $H$  projects return either  $\gamma > 0$  units of public goods with probability  $p \in (0, 1)$  or  $\beta \in (0, \gamma)$  units of public goods with probability  $1 - p$ , for each unit of output invested in them. Note that the realisation of the state of nature is independently distributed across all Type- $H$  projects. Type- $L$  projects, on the other hand, return  $\delta \in (\beta, \gamma)$  units of public goods with certainty, for each unit of output invested in them. As long as  $p\gamma + (1 - p)\beta > \delta$ , a condition that is assumed to hold hereafter, the expected return of Type- $H$  projects is strictly higher compared to the return of Type- $L$  projects. For this reason, the government imposes a condition on the employment contracts of civil servants, obliging them to operate only Type- $H$  projects. Nevertheless, some civil servants may have the incentive to invest only a fraction  $\frac{\beta}{\delta} \in (0, 1)$  of the funds allocated to them in the operation of a Type- $L$  project - resulting in an overall return of  $\delta \frac{\beta}{\delta} = \beta$  units of public goods per unit of funds allocated to the civil servant - while making the false claim that all the funds available to them were invested in the operation of a Type- $H$  project, which eventually had a bad realisation of the state of nature. Doing so allows them to gain private rents, amounting to a fraction  $1 - \frac{\beta}{\delta}$  of the funds that they should have invested in the first place. Nevertheless, their malfeasance may be detected by the authorities. In the event that the authorities detect and prosecute a case of corruption, the civil servant's penalties involve the loss of his salary, in addition to the loss of his ill-gotten gains. Furthermore, the stigma and shame associated with the revelation of a civil servant's misconduct is an impediment to the couple's prospects of enjoying activities such as consumption and - for those with preferences for strong family ties - being close to their parents. As we shall see shortly, these emotional costs entail a proportional loss in utility.

Let us assume that the probability of a Type-  $j$  civil servant being apprehended and punished for his transgression, denoted  $M_j$ , is uniformly distributed on  $[0,1]$  across all civil servants of the same type (i.e.,  $j = \{s, w\}$ ). Similarly to Varvarigos (2017), this form of heterogeneity captures the varying abilities of corrupt civil servants in avoiding the revelation of their misdemeanour. For example, it may capture varying degrees of vigilance and care in avoiding lifestyle choices and behaviour that could signal their excessive income. It may also capture varying degrees of networking with people who can assist them in eluding detection and punishment.<sup>4</sup> With the purpose of simplifying the analysis, we shall employ the following functional form for the probability that a Type-  $j$  civil servant's nefarious activities will be eventually revealed:

$$M_j = \frac{\mu_j}{F_j}, \quad (3)$$

where

$$\mu_j \in \begin{cases} [0, f] & \text{if } j = s \\ [0, 1-f] & \text{if } j = w \end{cases}, \quad F_j = \begin{cases} f & \text{if } j = s \\ 1-f & \text{if } j = w \end{cases}. \quad (4)$$

If we denote the number of civil servants who will decide to be corrupt by  $\Theta$ , it follows that the amount of public goods offered by the public sector, denoted  $a$ , can be expressed as  $a = G\{(1 - \Theta)[p\gamma + (1 - p)\beta] + \Theta\beta\}$ . Taking account of (1), this expression can be rewritten as

$$a = gy[(1 - \Theta)p(\gamma - \beta) + \beta]. \quad (5)$$

### *Preferences*

As we indicated previously, the decision to reside in the close vicinity of the couple's parents will entail a productivity cost, manifested in the potential loss of income from private production. The reason why the couple may still decide to do so however, relates to their preferences on the issue of family ties. Particularly, a couple who have a desire for strong family ties will either enjoy a utility gain if they reside in their parents'

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<sup>4</sup> Another underlying assumption here is that the probability of detection is independent of the civil servant's type (i.e.,  $j = s$  or  $j = w$ ). This is done purely as a means of analytical simplicity, with minimal cost to generality (if any).

location, or incur a utility cost if they move away from it. On the contrary, couples who have not adopted values that are supportive to strong family ties, do not gain nor lose any utility as a result of their choice of residence when they become adults. Formally, the middle-aged, Type-  $j$  couple's utility is given by

$$U_j = (c_j + \Phi_j)(1 - S) + a, \quad (6)$$

where  $c_j$  denotes consumption of private goods and

$$\Phi_j = \begin{cases} \varphi & \text{if } j = s \text{ and the couple reside in their parents' location} \\ -\varphi & \text{if } j = s \text{ and the couple reside away from their parents' location} \\ 0 & \text{if } j = w, \text{ irrespective of the couple's location} \end{cases} \quad (7)$$

such that  $\varphi > 0$ . Furthermore, note that  $S$  captures the proportional loss in utility, due to the stigma and shame attached to the revelation of a corrupt civil servant's wrongdoing. Given this, we assume that

$$S = \begin{cases} \sigma \in (0,1) & \text{if the civil servant is corrupt, and eventually revealed as such} \\ 0 & \text{if the civil servant is corrupt, but avoids detection} \\ 0 & \text{if the civil servant is honest} \end{cases} \quad (8)$$

Note that the specification in (6) assumes that the deleterious effects of stigma do not impinge on the utility from public goods. From a technical point of view, this assumption eliminates strategic considerations on the incentives to be corrupt among Type- $w$  and Type- $s$  civil servants. Such strategic effects would impose significant mathematical complication, thus obscuring the clarity of our analysis, without adding anything to its main implications.

## 2.1 The Decisions of Type- $w$ Couples

Let us consider a couple who do not have a desire to retain strong family ties (i.e.,  $j = w$ ). Taking account of (6)-(8), it follows that they will choose to move away from their parents' location, thus earning  $Y_h = (1 + \omega)y$  units of income from private production. As a result, if the civil servant is honest in his involvement with public goods delivery, the couple's utility will be

$$U_w^{honest} = c_w^{honest} + a, \quad (9)$$

where

$$c_w^{honest} = Y_h + B - T = (1 + \omega - g)y, \quad (10)$$

is the couple's budget constraint. If the civil servant is corrupt, the couple's income will be augmented by the amount of ill-gotten gains that emanate from his rent-seeking. In the event that he is detected, however, he will lose all the gains from his employment in the public sector - the salary and the proceeds from illegal rent-seeking - while he and his partner will face the consequences of being stigmatised. Under such circumstances, the Type- $w$  couple's (expected) utility is:

$$U_w^{corrupt} = (1 - M_w)c_w^{corrupt, not\ detected} + M_w c_w^{corrupt, detected} (1 - \sigma) + a. \quad (11)$$

Defining the composite term  $z \equiv \frac{\beta}{\delta} \in (0, 1)$ , we can substitute (1) and (2) to express the budget constraints as follows:

$$c_w^{corrupt, not\ detected} = Y_h + B + (1 - z)G - T = (1 + \omega - gz)y, \quad (12)$$

$$c_w^{corrupt, detected} = Y_h - T = (1 + \omega - g - b)y. \quad (13)$$

Next, we can combine (3), (4), (10), (12) and (13) to rewrite the utility functions in (9) and (11) as

$$U_w^{honest} = (1 + \omega - g)y + a, \quad (14)$$

and

$$U_w^{corrupt} = \left(1 - \frac{\mu_w}{1 - f}\right)(1 + \omega - gz)y + \frac{\mu_w}{1 - f}(1 + \omega - g - b)y(1 - \sigma) + a, \quad (15)$$

respectively. The Type- $w$  civil servant will be corrupt and engage in illegal rent-seeking as long as the couple's (expected) utility from doing so is at least equal to the utility that applies if he decides to abscond from any wrongdoing, i.e., if  $U_w^{corrupt} \geq U_w^{honest}$ . Therefore, equating (14) and (15) defines a critical value

$$\widehat{\mu}_w = \frac{g(1 - z)}{g(1 - z) + \sigma(1 + \omega - g - b) + b}(1 - f), \quad (16)$$

such that civil servants for whom  $\mu_w \leq \widehat{\mu}_w$  will be corrupt, whereas those for whom  $\mu_w > \widehat{\mu}_w$  will decide to remain honest. In other words,  $\widehat{\mu}_w$  is also the number of corrupted Type- $w$  civil servants.

## 2.2 The Decisions of Type-s Couples

Now, let us consider a couple who have been inculcated with a preference for retaining strong ties with their family (i.e.,  $j = s$ ). Given the characteristics of the model, this couple may actually have the incentive to stay in the location of their parents, despite the potential loss of income from such a decision. If they do so, the couple's budget constraint, following the substitution of Eq. (1) and (2), will be given by

$$c_s^{honest} = \begin{cases} Y_h + B - T = (1 + \omega - g)y & \text{with probability } \pi \\ Y_l + B - T = (1 - g)y & \text{with probability } 1 - \pi' \end{cases} \quad (17)$$

if the civil servant does not engage in the pursuit of ill-gotten gains, or

$$c_s^{corrupt, not\ detected} = \begin{cases} Y_h + B + (1 - z)G - T = (1 + \omega - gz)y & \text{with probability } \pi \\ Y_l + B + (1 - z)G - T = (1 - gz)y & \text{with probability } 1 - \pi' \end{cases} \quad (18)$$

$$c_s^{corrupt, detected} = \begin{cases} Y_h - T = (1 + \omega - g - b)y & \text{with probability } \pi \\ Y_l - T = (1 - g - b)y & \text{with probability } 1 - \pi' \end{cases} \quad (19)$$

if he does. In the scenario where Type-s couples move to new locations, their budget constraints will be identical to those of Type-w couples, i.e.,  $c_s^{honest} = (1 + \omega - g)y$ ,  $c_s^{corrupt, not\ detected} = (1 + \omega - gz)y$  and  $c_s^{corrupt, detected} = (1 + \omega - g - b)y$ . Together with (3), (4), (6)-(8) and (17)-(19), it follows that the couple's (expected) utility from consumption, depending on whether the civil servant is honest or corrupt, can be written as

$$U_s^{honest} = (1 + \pi\omega - g)y + \varphi + a, \quad (20)$$

$$U_s^{corrupt} = \left(1 - \frac{\mu_s}{f}\right) [(1 + \pi\omega - gz)y + \varphi] + \frac{\mu_s}{f} [(1 + \pi\omega - g - b)y + \varphi](1 - \sigma) + a, \quad (21)$$

if they stay in their parents' location, and

$$U_s^{honest} = (1 + \omega - g)y - \varphi + a, \quad (22)$$

$$U_s^{corrupt} = \left(1 - \frac{\mu_s}{f}\right) [(1 + \omega - gz)y - \varphi] + \frac{\mu_s}{f} [(1 + \omega - g - b)y - \varphi](1 - \sigma) + a, \quad (23)$$

if they move away from it.

With the purpose of improving the focus of our analysis, henceforth we shall adopt the approach of Alesina *et al.* (2015) by imposing a condition which guarantees that the couples who have preferences for strong family ties will find optimal to reside close to their parents. It should be noted that this assumption accords with evidence showing

that strong family ties reduce geographical mobility (Giuliano 2007; Alesina and Giuliano 2010). Formally, a sufficient condition is

$$\varphi > \frac{[g(1-z) + (1-\pi)\omega + \sigma(1+\pi\omega - g - b) + b]y}{2-\sigma} \equiv \hat{\varphi}. \quad (24)$$

Given the condition in (24), a couple with a desire for strong family ties will always choose to remain in their parents' location, meaning that their utility will be given by either (20) or (21).<sup>5</sup> As a result, we can use these expressions to examine the civil servant's conduct while in public office. In other words, the critical value  $\hat{\mu}_s$  for which  $U_s^{corrupt} = U_s^{honest}$  can be obtained as follows:

$$\hat{\mu}_s = \frac{g(1-z)}{g(1-z) + \sigma(1+\pi\omega - g - b) + b + \frac{\sigma\varphi}{y}} f. \quad (25)$$

According to (25), civil servants for whom  $\mu_s \leq \hat{\mu}_s$  will engage in the effort to extract illegal rents through their involvement with the public sector, whereas civil servants for whom  $\mu_s > \hat{\mu}_s$  will remain honest. Alternatively,  $\hat{\mu}_s$  is also the number of Type-s civil servants who will be corrupt.

### 2.3 Family Ties and Corruption

We can combine (16) and (25) to express the total number of corrupt civil servants as

$$\Theta = \theta_w(1-f) + \theta_s(\varphi)f = \Theta(f, \varphi), \quad (26)$$

where

$$\theta_w \equiv \frac{g(1-z)}{g(1-z) + \sigma(1+\omega - g - b) + b}, \quad \theta_s(\varphi) \equiv \frac{g(1-z)}{g(1-z) + \sigma(1+\pi\omega - g - b) + b + \frac{\sigma\varphi}{y}}. \quad (27)$$

Substitution of (26) in (5) yields

$$a = gy\{[1 - \theta_w(1-f) - \theta_s(\varphi)f]p(\gamma - \beta) + \beta\} = a(f, \varphi). \quad (28)$$

Next, we define the composite term

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<sup>5</sup> The condition in (24) guarantees that the lowest level of utility associated with staying in the parents' location (i.e., when a civil servant is corrupt but apprehended with certainty) exceeds the highest level of utility associated with residing to a different location (i.e., when a civil servant is corrupt and evades detection with certainty).

$$\tilde{\varphi} \equiv (1 - \pi)\omega\gamma, \quad (29)$$

which allows us to get the following results:

**Lemma 1.** *Suppose that  $\hat{\varphi} > \tilde{\varphi}$ . Then  $\frac{\partial \Theta(f, \varphi)}{\partial f} < 0$  and  $\frac{\partial a(f, \varphi)}{\partial f} > 0$ .*

*Proof.* From (26) and (28), it is straightforward to establish that  $\frac{\partial \Theta(f, \varphi)}{\partial f} = \theta_s(\varphi) - \theta_w$  and  $\frac{\partial a(f, \varphi)}{\partial f} = -[\theta_s(\varphi) - \theta_w]gyp(\gamma - \beta)$ . Using the expressions in (27) and (29), it is

straightforward to establish that  $\theta_w > \theta_s(\varphi)$  holds as long as

$$\varphi > (1 - \pi)\omega\gamma \Leftrightarrow \varphi > \tilde{\varphi}.$$

Since the condition in (24) holds,  $\hat{\varphi} > \tilde{\varphi}$  also implies that  $\varphi > \tilde{\varphi}$ , thus completing the proof. ■

**Lemma 2.** *Suppose that  $\hat{\varphi} < \tilde{\varphi}$ . Then:*

- i.  $\frac{\partial \Theta(f, \varphi)}{\partial f} > 0$  and  $\frac{\partial a(f, \varphi)}{\partial f} < 0$  if  $\varphi \in (\hat{\varphi}, \tilde{\varphi})$ ;
- ii.  $\frac{\partial \Theta(f, \varphi)}{\partial f} < 0$  and  $\frac{\partial a(f, \varphi)}{\partial f} > 0$  if  $\varphi > \tilde{\varphi}$ .

*Proof.* Use the proof of Lemma 1 to establish that  $\varphi < \tilde{\varphi} \Rightarrow \theta_w < \theta_s(\varphi)$  and  $\varphi > \tilde{\varphi} \Rightarrow \theta_w > \theta_s(\varphi)$ . ■

We can formalise the implications on the relation between family ties – when this is measured by  $f$  – and corruption through

**Proposition 1.** *The impact of an increase in the population share of people with a desire for strong family ties has an ambiguous (i.e., either negative or positive) effect on the incidence of corruption and, therefore, on the provision of public goods.*

*Proof.* It follows from Lemma 2. ■

The ambiguity emanates from the fact that, for couples whose values are conducive to strong family ties, the stigma associated with a civil servant's misconduct generates two conflicting effects on the incentive to be corrupt. On the one hand, the possible income loss incurred as a result of their desire to reside close to their parents, while relinquishing more productive opportunities elsewhere, mitigates the stigma-induced loss in the marginal utility of consumption. This is a mechanism through which strong family ties cause a higher incidence of corruption.<sup>6</sup> An alternative interpretation is that, for couples who abide by strong family ties, the ill-gotten gains of corruption are also viewed as the means of covering the shortfall in productivity and income. On the other hand, however, the stigma that stems from the revelation of a civil servant's wrongdoing, also mitigates the couple's enjoyment from residing close to their parents. This expected loss in utility acts as a disincentive to engage in nefarious activities while in public office, hence generating a mechanism through which family ties cause a lower incidence of corruption. Naturally, the impact of family ties on corruption also dictates its impact of on  $a$ . After all, corruption is manifested through the deliberate choice of less productive projects for the procurement of utility-enhancing public goods. Consequently, any factor that fuels corruption is bound to reduce the effectiveness of the public sector's production activities, by limiting the amount of goods delivered per unit of public investment.

Note, however, that in addition to distribution of different types of family values among the population, our model includes an additional measure of the strength of family ties. This is captured by the parameter  $\varphi$ , i.e., the utility value for people who enjoy retaining close ties with their families. In order to investigate its implications on the model's main outcomes, consider the result in

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<sup>6</sup> Qualitatively, our results would be similar in a scenario where the civil servants' decisions and the delivery of public goods materialise after the production of private goods. This is because, with a fraction  $1 - \pi$  of Type- $s$  couples earning  $y$  from private production, instead of  $(1 + \omega)y$ , the average (private) income of this group would still lack behind the average (private) income among Type- $w$  couples.

**Lemma 3.** It is  $\frac{\partial \Theta(f, \varphi)}{\partial \varphi} < 0$  and  $\frac{\partial a(f, \varphi)}{\partial \varphi} > 0$ .

*Proof.* Given (27), we have  $\frac{\partial \theta_s(\varphi)}{\partial \varphi} < 0$ . Therefore, from (26) and (28), it is straightforward

to establish that  $\frac{\partial \Theta(f, \varphi)}{\partial \varphi} = \frac{\partial \theta_s(\varphi)}{\partial \varphi} f < 0$  and  $\frac{\partial a(f, \varphi)}{\partial f} = -\frac{\partial \theta_s(\varphi)}{\partial \varphi} f g y p (\gamma - \beta) > 0$ . ■

Now, we can establish the impact of this measure of family ties on corruption by means of

**Proposition 2.** *The impact of an increase in the utility value of retaining strong family ties on corruption, is unambiguously negative. Consequently, it has a positive effect on the provision of public goods.*

*Proof.* It follows from Lemma 3. ■

In terms of intuition, the higher is  $\varphi$ , the stronger is the expected utility loss for a couple who contemplate the ill-gotten gains of corruption, but who also consider the possible repercussions, including the psychological ones, from the revelation of this wrongdoing. For this reason, the utility value from strong family ties alleviates the incentive to engage in corrupt activities.

There are some important implications from the preceding analysis. Firstly, our model provided a theoretical foundation for circumstances when – contrary to the conventional wisdom that would view strong family ties as a fillip for corruption – factors that are relevant to strong family ties reduce the incidence of corruption. The second, and most important one in our opinion, can be clarified through

**Proposition 3.** *The measure of family ties can be crucial in determining its observed effect on corruption. It is possible that a higher population share of people with preferences for strong family ties increases the willingness to be corrupt, whereas, at the same time, a higher utility value of retaining strong family ties reduces the willingness to be corrupt.*

*Proof.* It follows from the implications of Proposition 1, Proposition 2, and Lemma 2 for  $\hat{\varphi} < \tilde{\varphi}$ . ■

In other words, the ambiguity with respect to the impact of family ties on corruption is not only related to the conflicting underlying mechanisms, but it extends to the measure of family ties as well. In the next section, we shall try to resolve the issue through an empirical analysis that uses micro-level data to test the reduced-form hypothesis of a relation between strong family ties and the approval of corrupt behaviour.

## 3 Empirical Analysis

### 3.1 Data and Empirical Strategy

In this section, we estimate the impact of family ties on corruption-related attitudes using data from the European Values Study (EVS). The EVS is a large-scale cross-national survey with four waves covering the 1981-2008 period. In our study we use data from all four waves wherever available. Overall, a total of 48 countries are included in the cumulative dataset based on the four EVS waves.

#### *Family Ties*

In line with the benchmark studies that study the role of family ties (e.g., Alesina and Giuliano 2010) we use three questions to construct the family ties index. The first question asks how important is family for the respondent's life. Answers vary from 1-4 with "1" indicating that family is very important and "4" indicating it is not important at all. The second question asks whether love and respect to parent is taken as given or whether it should be earned: The value of "1" indicates that it should always be taken for granted and the value of "2" that it should be earned. The third question asks whether parents should fulfil their responsibilities towards their children at the expense of their own well-being: The value of "1" indicates that they should do the utmost best for their children, while "2" indicates that they should not sacrifice their own well-being.

Overall, in all three questions lower values correspond to stronger family times. Note that, in order to reduce the number of variables and to combine the three components to a single variable, our approach is to conduct a principal component analysis and to employ the first component as the explanatory variable.

#### *Corruption-Related Attitudes*

In order to measure corruption-related attitudes at the individual level, we use four different questions whereby respondents are asked whether they justify the following acts: cheating on taxes; claiming state benefits (without being entitled to); accepting a bribe; and avoiding paying fare on public transport. Each variable takes values from 1 to 10 with 1 corresponding to “never” and 10 corresponding to “always”. Thus higher values of these variables are associated with more favourable views – and, therefore, a greater inclination – towards corruption.

A crucial point concerns the use of these measures as proxies for corruption. We justify this approach on the basis of the existing literature and our own correlations. As far as the existing literature is concerned, there are a number of studies that have also employed similar measures, extracted from the EVS and the WVS, as proxies for corruption. For example, Torgler and Valev (2010) and Palivos and Litina (2016) associate corruption with measures of bribe acceptance and tax cheating, while Azariadis and Ioannides (2015) do the same with unentitled benefits claims. With regard to our own correlations, we have found that, in most cases, these measures (when aggregated at the country level) have a positive correlation with actual measures of corruption, such as the Corruption Perceptions Index or the ICRG Corruption Index – with the correlation coefficient being within the range of 0.23-0.38.<sup>7</sup> There are a few

<sup>7</sup> The following table reports correlation coefficients between each measure of attitudes and two widely known measures of corruption, i.e., the ICRG index and the CPI index, averaged over the period we examine. Note that the ICRG and CPI indices are inverse ones.

	Cheat on taxes	Claim State Benefits	Avoid Fare on Public Transport	Accepting a Bribe	ICRG 1984-2008	CPI 1995-2008
Cheat on taxes	1.0000					
Accepting a Bribe	0.4078	1.0000				
Avoid Fare on Public Transport	0.6613	0.4494	1.0000			
Accepting a Bribe	0.5545	0.3997	0.6420	1.0000		
ICRG 1984-2008	-0.0061	-0.1798	-0.3316	-0.3011	1.0000	
CPI 1995-2008	-0.0242	-0.2290	-0.3756	-0.3832	0.9549	1.0000

comments worth making here. Although the avoidance of paying for public transport is not an obvious signal of corruption, it still seems to correlate positively with actual measures of corruption. Perhaps, it reflects a general mindset whereby it is acceptable to promote private gains at the expense of the ‘public’ good. It is exactly for this reason that we also find the lack of a significant correlation between the attitudes towards tax cheating and the corruption indices (despite the correlation coefficient having the correct sign). This may reflect the fact that, when considering tax morale, corruption is only one of its many facets that include personal views on the fairness of the tax system, the need for redistribution etc. Nevertheless, we still retain this measure in our analysis, since the link between tax morale and corruption is widely documented and accepted in the literature (e.g., Togler 2014).

#### *Reduced-Form Specification*

We estimate the reduced-form specification term

$$CA_{ict} = a_0 + a_1 FT_{ict} + a_2 Controls_{ict} + I_c + R_t + \varepsilon_{ict}. \quad (30)$$

where  $CA_{ict}$  denotes the attitudes towards corruption of an individual  $i$  who lives in country  $c$  and participates in round  $t$  and  $FT_{ict}$  is the measure of family ties, i.e, the principal component of previously-mentioned variables. The variable  $Controls_{ict}$  is a vector of individual-level controls including age, age squared, gender, education, religion and employment status. The term  $I_c$  denotes country fixed effects and aims to capture unobservables associated with the country in which individuals reside, and  $R_t$  denotes EVS round fixed effects, thus capturing unobservables related to the timing of the interview that are common across countries. Finally,  $\varepsilon_{ict}$  is the error term.

Naturally, our coefficient of interest in Eq. (30) is  $a_1$ . This will identify the impact of family ties on the proxies of corruption-related attitudes, accounting for other individual characteristics as well as country and year effects.

#### *Identification*

One limitation of Eq. (30) is that, while it provides simple correlations among the variables, it does not address the issue of endogeneity. Nevertheless, both the measure of family ties and the measures of corruption could capture attitudes which may be

affected by other unobservables that are not captured by our set of controls. To address this concern, we conduct an IV analysis using a measure that is not reflecting attitudes as an instrument for family ties. In particular, we use a question related to whether respondents have experienced the death of their father. Our underlying hypothesis is the death of the father has an effect on a person's perception of family ties – an effect that, on the outset, could be either positive or negative.<sup>8</sup> Our analysis indicates that the actual correlation between experiencing the death of a parent and the variables that capture family ties is negative. The top panel of Table 2 shows the 1<sup>st</sup> stage estimates, i.e., it establishes that family ties become stronger following the loss of a parent. This outcome may reflect the fact that a bereavement of this type intensifies the realisation of how important the lost parent was for the person affected, hence strengthening their feelings on the importance of the family in general. It may also reflect the fact that this loss brings the other family members closer to each other, through an increased sense of responsibility and through the need for emotional support.<sup>9</sup>

An important issue is to ensure that our instrument does not have any impact on the measures of corruption-related attitudes. One concern is that the loss of a parent may have financial repercussions for the affected individuals, thus it can ultimately have an effect on their perceptions and attitudes towards corruption. As a means of ruling out this channel, we have included controls such as education and employment status. Another concern is the continuous influence that parents exert on their children's attitudes (including those on corruption) and the possibility that attitudes may change if, following a parent's death, this direct influence disappears. To address this concern, restrict our sample to individuals that are above the age of 35 and have thus shaped their personality.

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<sup>8</sup> Marè et al. (2016) use the relationship with the parents as an instrument of family ties. The reason we cannot use this variable is because it is available in the EVS only for 1981, whereas the measures for family ties are available from 1990 onwards. Marè et al. (2016) can use this instrumental variable as they aggregate it at the country level; in our case, this is not feasible. Nevertheless, it should be noted that the rationale between their instrument (i.e., closeness to a parent) and ours (i.e., death of a parent) is quite similar.

<sup>9</sup> Later we conduct robustness checks on the IV specification, showing that the results are robust to the loss of both parents as well (see Table 6).

### 3.2 Empirical Results

#### *Benchmark Specification*

Table 1 reports estimates on the impact of the measure of family ties on attitudes towards corruption. The dependent variable in Column (1) is “*Justifiable: Cheating on Taxes*”; in Column (2) is “*Justifiable: To Claim State Benefits*”; in Column (3) is “*Justifiable: Accepting a Bribe*”; and in Column (4) is “*Justifiable: Avoiding Fare on Public Transport*”. The analysis controls for the full set of relevant demographic, socio-economic and household characteristics (i.e., age, age squared, gender, education, religion and employment status), as well as EVS round and country fixed effects. In all four columns we find that weaker family ties are associated with more favourable attitudes towards corruption. Line II of Table 1 reports the logit model coefficient in order to get a sense about the magnitude of the probability to switch category. For example, we can see that a one unit increase in the family ties variable (i.e., weakening of the strength of family ties) is associated with individuals having a 0.1 ordered log-odds (0.5 probability approximately) to move up one scale in justifying tax cheating. The magnitudes for the other variables are similar. Overall, these are not very strong effects, nevertheless they are systematic and emerge in all different specifications, even after having controlled for several demographic, country and time invariant characteristics.

[TABLE 1 HERE]

#### *IV Estimates*

Table 2 reports IV estimates replicating the analysis of Table 1. In each column we use the full set of individual controls. As an instrument we use two variables, i.e., whether the father has died. As already mentioned in Section 3.1, and confirmed in the first stage estimates, the death of the parent results in family ties becoming stronger. The F-statistics reported for each column indicate that the instruments are strong. In all four cases, we observe that the IV coefficients have become larger, thus hinting towards the fact that we rightly try to correct for endogeneity.

**[TABLE 2 HERE]**

*Robustness*

Table 3 replicates the analysis in Table 1 by adopting a more stringent specification. Specifically, we employ a full set of regional fixed effects at the NUTS 2 level. The reason why we do not adopt this specification from the outset is because we have significantly fewer observations. Importantly though, the results remain highly significant and similar to the benchmark specification.

**[TABLE 3 HERE]**

Table 4 tests the robustness of the explanatory variable by employing another measure that is widely used in this literature. This is the sum of the three variables that are used as measures of the strength of family ties, as opposed to their principal component. To do this, we first make the three variables similar in terms of scale - in this case, we bring them to a scale from 1 to 2 - with lower values still indicating stronger family ties. Subsequently, we use their sum instead of the first component. Columns (1) to (4) refer to the same dependent variables as in Table 1 and they use the same full set of controls. The results are - qualitatively and quantitatively - very similar. It should be noted that, although not reported here, similar results are also obtained if, instead of their sum, we use each of the three measures that are incorporated in the family ties index separately.

**[TABLE 4 HERE]**

Table 5 tests the robustness of the benchmark analysis, using the sample from the WVS instead. All the variables and the controls are defined in the same exact way, given that the two surveys (EVS and WVS) are standardised in terms of questions. The results are strikingly similar both qualitatively and quantitatively.

**[TABLE 5 HERE]**

Table 6 tests the robustness of the IV analysis. We introduce two new specifications. In Panel A, we restrict our sample to individuals who are above the age of 35, thus less likely to be financially dependent on their parents, and more likely to have already shaped their personality. Despite the large decrease in the sample, the results are qualitatively similar. In Panel B, we use as an instrument the death of both parents. The results are somewhat weaker and the F-Stat lower. It appears that the loss of the father has a stronger impact on family ties. However, the results still remain significant and qualitatively similar.<sup>10</sup>

[TABLE 6 HERE]

## 4 Conclusions

This purpose of this paper was to contribute to a further understanding of issues surrounding the relation between family ties and corruption. Our theoretical model showed that the overall effect of strong family ties on the incentive to be corrupt – and, therefore, on the incidence of corruption – can be ambiguous due to the presence of conflicting mechanisms. Our theory also pinpointed the possibility that the impact on corruption can be quite different, depending on the characteristics that measure the relative strength of family ties. This is a point with major implications, as it offers a theoretical foundation on why the empirical outcomes entailing cross-country comparisons can differ from the outcomes of micro-level empirical investigations. The empirical approach we adopted belongs to the latter category, as it used micro-level data to examine the effect of family ties on the approval of activities that proxy for corruption – activities such as bribery, tax evasion etc. Our empirical results verified that, at the individual level, stronger family ties are associated with reduced corruption, thus verifying the relevant result of our theory.

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<sup>10</sup> The fact that the results are even stronger for the case of the death of the father than in the case for the death of the mother, possibly reflects some sort of patriarchal family structure.

Naturally, our theoretical model is stylised in many respects, in order to ensure its analytical tractability and the clarity of the intuition. As a result, while it directs attention to some intuitive mechanisms, unavoidably it does not incorporate other mechanisms that can identify additional links on the relation between family ties and corruption – for example, nepotism. Furthermore, it is not explicit on the cultural transmission process for characteristics such as the preferences for retaining strong family ties or the attitudes towards corruption. All these certainly represent worth-pursuing avenues for future research.

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TABLE 1: Benchmark Specification: The Impact of Family Ties on Attitudes Related to Corruption

	(1)	(2)	(3)	(4)
	Justifiable to			
	Cheat on Tax	Claim State Benefits	Accept a Bribe	Avoid Transport Fare
<b>I. Family Ties (PC)</b>	0.191*** (0.018)	0.110*** (0.020)	0.138*** (0.018)	0.211*** (0.017)
Obs.	69021	68858	69432	57847
R-sq.	0.094	0.129	0.082	0.134
<b>II. Family Ties (Logit)</b>	0.097*** (0.016)	0.071*** (0.021)	0.147*** (0.021)	0.096*** (0.018)
EVS Round FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
Obs.	69021	68858	69432	57847

Summary: This table establishes that weaker family ties are positively correlated with more favorable attitudes towards corruption. The analysis controls for individual characteristics such as age, age square, gender, educational level, employment status, religious denomination as well as for ESS round and country fixed effects.

Notes: (i) The attitudes related variables ("Justifiable to: Cheat on Tax; Claim State Benefits; Accept a Bribe; Avoid Transport Fare") take values from 1-10 with 10 indicating "Always Justifiable"; (ii) The "Family Ties" variable is the principal component of three variables, "How important in Family in your Life", "Love and Respect Parents: Always/Earned", "Parents Responsibilities to their Children: At Expense of/not Sacrifice Own Well-Being". Higher values of the variable indicate weaker family ties; (iii) Robust standard error estimates, clustered at the dimension of the country of origin, are reported in parentheses; (iv) \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, and \* at the 10 percent level, all for two-sided hypothesis tests.

TABLE 2: IV Estimates

	(1)	(2)	(3)	(4)
	Dependent Variables:			
<b>IV-First Stage (Instrument: Father Died)</b>	Dep. Var: Family Ties			
Father Died	-0.066*** (0.020)	-0.067*** (0.019)	-0.066*** (0.019)	-0.066*** (0.019)
	<b>IV (Instrument: Father Died)</b>			
	Dependent Variables			
Expl. Var: Family Ties	1.311*** (0.583)	1.942** (0.725)	0.889* (0.523)	1.835* (0.975)
EVS Round FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
Obs	44234	44125	44472	44346
F-Stat	29.85	31.04	30.24	30.34

Summary: This table addresses the issue of endogeneity in Table 1 by instrumenting for family ties with the incidence of the death of the father and/or the mother. The findings are in line with the findings in Table 1. The analysis controls for individual characteristics such as age, age square, gender, educational level, employment status, religious denomination as well as for ESS round and country fixed effects.

Notes: (i) The attitudes related variables ("Justifiable to: Cheat on Tax; Claim State Benefits; Accept a Bribe; Avoid Transport Fare") take values from 1-10 with 10 indicating "Always Justifiable"; (ii) The "Family Ties" variable is the principal component of three variables, "How important in Family in your Life", "Love and Respect Parents: Always/Earned", "Parents Responsibilities to their Children: At Expense of/not Sacrifice Own Well-Being". Higher values of the variable indicate weaker family ties; (iii) Robust standard error estimates, clustered at the dimension of the country of origin, are reported in parentheses; (iv) \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, and \* at the 10 percent level, all for two-sided hypothesis tests.

TABLE 3: Robustness: Regional Fixed Effects

	(1)	(2)	(3)	(4)
	Justifiable to			
	Cheat on Tax	Claim State Benefits	Accept a Bribe	Avoid Transport Fare
<b>Family Ties</b>	0.169** (0.021)	0.057*** (0.017)	0.112*** (0.016)	0.176*** (0.021)
EVS Round FE	Yes	Yes	Yes	Yes
<b>Regional FE</b>	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
Obs.	23092	23038	23248	13172
R-sq.	0.160	0.174	0.135	0.204

Summary: This table establishes the robustness of the results in Table 1 by controlling for regional fixed effects.

Notes: (i) The attitudes related variables ("Justifiable to: Cheat on Tax; Claim State Benefits; Accept a Bribe; Avoid Transport Fare") take values from 1-10 with 10 indicating "Always Justifiable"; (ii) The "Family Ties" variable is the principal component of three variables, "How important in Family in your Life", "Love and Respect Parents: Always/Earned", "Parents Responsibilities to their Children: At Expense of/not Sacrifice Own Well-Being". Higher values of the variable indicate weaker family ties; (iii) Robust standard error estimates, clustered at the dimension of the country of origin, are reported in parentheses; (iv) \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, and \* at the 10 percent level, all for two-sided hypothesis tests.

TABLE 4: Robustness: Alternative Measures of Family Ties

	(1)	(2)	(3)	(4)
	Justifiable to			
	Cheat on Tax	Claim State Benefits	Accept a Bribe	Avoid Transport Fare
<b>I. Family Ties (Sum)</b>	0.143*** (0.020)	0.068*** (0.023)	0.089*** (0.018)	0.136*** (0.019)
EVS Round FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
Obs.	77718	77495	78239	64971
R-sq.	0.088	0.124	0.078	0.129

Summary: This table establishes the robustness of the results to the use of an alternative measure for family ties. The analysis controls for individual characteristics such as age, age square, gender, educational level, employment status, religious denomination as well as for ESS round and country fixed effects.

Notes: (i) The attitudes related variables ("Justifiable to: Cheat on Tax; Claim State Benefits; Accept a Bribe; Avoid Transport Fare") take values from 1-10 with 10 indicating "Always Justifiable"; (ii) The "Family Ties" variable is the sum of the three variables, "How important in Family in your Life", "Love and Respect Parents: Always/Earned", "Parents Responsibilities to their Children: At Expense of/not Sacrifice Own Well-Being". Higher values of the variable indicate weaker family ties; (iii) Robust standard error estimates, clustered at the dimension of the country of origin, are reported in parentheses; (iv) \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, and \* at the 10 percent level, all for two-sided hypothesis tests.

TABLE 5: Robustness: World Values Surveys

	(1)	(2)	(3)	(4)
	Justifiable to			
	Cheat on Tax	Claim State Benefits	Accept a Bribe	Avoid Transport Fare
<b>I. Family Ties (WVS)</b>	0.161*** (0.022)	0.116*** (0.014)	0.101*** (0.016)	0.146*** (0.017)
EVS Round FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes
Obs.	103077	100783	105095	101508
R-sq.	0.107	0.080	0.094	0.130

Summary: This table establishes the robustness of the results to the use of an alternative sample, i.e., the World Values Survey. The analysis controls for individual characteristics such as age, age square, gender, educational level, employment status, religious denomination as well as for ESS round and country fixed effects.

Notes: (i) The attitudes related variables ("Justifiable to: Cheat on Tax; Claim State Benefits; Accept a Bribe; Avoid Transport Fare") take values from 1-10 with 10 indicating "Always Justifiable"; (ii) The "Family Ties" variable is the sum of the three variables, "How important in Family in your Life", "Love and Respect Parents: Always/Earned", "Parents Responsibilities to their Children: At Expense of/not Sacrifice Own Well-Being". Higher values of the variable indicate weaker family ties; (iii) Robust standard error estimates, clustered at the dimension of the country of origin, are reported in parentheses; (iv) \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, and \* at the 10 percent level, all for two-sided hypothesis tests.

TABLE 6: IV Estimates: Robustness Checks

	(1)	(2)	(3)	(4)
	Cheat on Tax	Claim State Benefits	Accept a Bribe	Avoid Transport Fare
<b>Panel A: IV</b>				
<b>Adults above 35</b>				
Family Ties	1.510** (0.571)	1.744*** (0.606)	0.972** (0.447)	1.826** (0.831)
Obs	30628	30556	30792	30693
F-Stat	36.390	37.782	36.172	36.350
<b>Panel B: IV</b>				
<b>(Inst.: Both Parents Died)</b>				
Family Ties	1.355** (0.591)	1.983*** (0.749)	0.898* (0.530)	1.850* (0.983)
Obs	44147	44037	44388	44260
F-Stat	15.098	15.685	15.394	15.333
EVS Round FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes

**Summary:** This table establishes the robustness of the IV analysis. The analysis controls for individual characteristics such as age, age square, gender, educational level, employment status, religious denomination as well as for ESS round and country fixed effects.

**Notes:** (i) The attitudes related variables ("Justifiable to: Cheat on Tax; Claim State Benefits; Accept a Bribe; Avoid Transport Fare") take values from 1-10 with 10 indicating "Always Justifiable"; (ii) The "Family Ties" variable is the principal component of three variables, "How important in Family in your Life", "Love and Respect Parents: Always/Earned", "Parents Responsibilities to their Children: At Expense of/not Sacrifice Own Well-Being". Higher values of the variable indicate weaker family ties; (iii) Robust standard error estimates, clustered at the dimension of the country of origin, are reported in parentheses; (iv) \*\*\* denotes statistical significance at the 1 percent level, \*\* at the 5 percent level, and \* at the 10 percent level, all for two-sided hypothesis tests.

# A Variable Definitions and Sources

## A.1 EVS Variables

### *Family Ties*

**Family Ties (Principal Component).** We use three questions to construct the family ties index. The first question is "How important is family in your life". Answers vary from 1-4 with 1 indicating "very important" and 4 indicating "not at all important". The second question asks whether love and respect to parent is taken as given or whether it should be earned. 1 indicates that it should always be taken for granted and 2 that it should be earned. The third question asks whether parents should fulfill their responsibilities towards their children at the expense of their own well-being. 1 indicates that they should do the utmost best for their children and 2 that they should not sacrifice their own well-being. Overall, in all three questions higher values indicate weaker family times. In order to reduce the number of variables and to combine the three components to a single variable we conduct a Principal Component Analysis.

**Family Ties (Sum).** This alternative measure of family ties is the sum of the same three questions. To take the sum we give the same scale to all the variable, i.e., from 1 to 2, with higher values indicating weaker family ties.

### *Attitudes Related to Corruption*

**Justifiable: To Cheat on Taxes.** This variable answers to the question "To what extend do you find it justifiable to cheat on taxes". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

**Justifiable: To Claim Benefits.** This variable answers to the question "To what extend do you find it justifiable to claim benefits one is not entitled to". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

**Justifiable: To Take Bribe.** This variable answers to the question "To what extend do you find it justifiable to take bribes". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

**Justifiable: To Avoid Fare on Public Transport.** This variable answers to the question "To what extend do you find it justifiable to avoid fare on public transport". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

### *Individual Controls*

**Age.** The age of the respondent.

**Female.** A binary variable taking the value of 1 if the individual is a female and 0 if the individual is a man.

**Education.** Education is an ordered variable taking values from 1-3 with 1 denoting "tertiary completed", 2 denoting "secondary completed" and 3 denoting "primary completed". The same classification is used for the controls of paternal, maternal and spouse education.

**Religion.** Religion takes nine different values each associated with a different religious denomination,.

**Employment Status.** The employment status of the respondent is a categorical variable taking values from 1-4 as follows: 1-"full-time", 2-"part-time or self-employed", 3-"not participant (student, retired, other)", 4-"unemployed"..

#### *IV Estimation*

**Experience a Father's Death.** The variable is derived from the question "Did you even experience mother's death? ". The variable is binary and takes the value the value 1 if the answer is "yes" and 0 otherwise.

**Experience Mother's Death.** The variable is derived from the question "Did you even experience mother's death? ". The variable is binary and takes the value the value 1 if the answer is "yes" and 0 otherwise.

## A.2 WVS Variables

### *Family Ties*

**Family Ties (Principal Component).** We use three questions to construct the family ties index. The first question is "How important is family in your life". Answers vary from 1-4 with 1 indicating "very important" and 4 indicating "not at all important". The second question asks whether love and respect to parent is taken as given or whether it should be earned. 1 indicates that it should always be taken for granted and 2 that it should be earned. The third question asks whether parents should fulfill their responsibilities towards their children at the expense of their own well-being. 1 indicates that they should do the utmost best for their children and 2 that they should not sacrifice their own well-being. Overall, in all three questions higher values indicate weaker family ties. In order to reduce the number of variables and to combine the three components to a single variable we conduct a Principal Component Analysis.

**Family Ties (Sum).** This alternative measure of family ties is the sum of the same three questions. To take the sum we give the same scale to all the variable, i.e., from 1 to 2, with higher values indicating weaker family ties.

### *Attitudes Related to Corruption*

**Justifiable: To Cheat on Taxes.** This variable answers to the question "To what extent do you find it justifiable to cheat on taxes". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

**Justifiable: To Claim Benefits.** This variable answers to the question "To what extent do you find it justifiable to claim benefits one is not entitled to". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

**Justifiable: To Take Bribes.** This variable answers to the question "To what extent do you find it justifiable to take bribes". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

**Justifiable: To Avoid Fare on Public Transport.** This variable answers to the question "To what extent do you find it justifiable to avoid fare on public transport". The variable takes values from 1 to 10 with 1 denoting "never" and 10 denoting "always".

### *Individual Controls*

**Age.** The age of the respondent.

**Female.** A binary variable taking the value of 1 if the individual is a female and 0 if the individual is a man.

**Education.** Education is an ordered variable taking values from 1-3 with 1 denoting "tertiary completed", 2 denoting "secondary completed" and 3 denoting "primary completed". The same classification is used for the controls of paternal, maternal and spouse education.

**Religion.** Religion takes nine different values each associated with a different religious denomination,.

**Employment Status.** The employment status of the respondent is a categorical variable taking values from 1-4 as follows: 1-"full-time", 2-"part-time or self-employed", 3-"not participant (student, retired, other)", 4-"unemployed"..