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Abstract

Purpose – The purpose of the paper is to examine how much difference in income can be explained by familial culture that persists in different societies.

Design/methodology/approach – We employ a two-step methodology to evaluate the impact of familial culture on income across countries. In the first step, we construct the macro measures of familial culture from micro survey data. In the second step, the growth model is estimated.

Findings – First-step micro regression results show that family is more important to female, richer, highly educated, unemployed and married individuals. Male, poorer, less educated and unemployed individuals are more likely to respect and love parents unconditionally. The same group is also more likely to think that parents must do the best for their kids. Finally, the macro results show that the strength of national familial ties explains significant differences in income across countries.

Research limitations/implications – We show that countries with weak family ties are richer than those with strong family ties. These results are useful for policymakers who design public policies that accommodate the type of familial culture that persists in their society.

Originality/value – We construct the macro measures of familial culture from the micro survey data. The paper adds to the literature on the effect of culture on income at the macro level.

Keywords Culture, Family ties, Income across countries, A two-step methodology

Paper type Research paper

1. Introduction

In recent years, there has been considerable studies examining how much variation in income across countries is determined by culture. One type of culture that is often studied in the

JEL Classification — D10, O11

Open data statement: In the interest of transparency, data sharing and reproducibility, the author(s) of this article have made the data underlying their research openly available. It can be accessed by following the link here: [European and World Values Surveys four-wave integrated data file, 1981–2004, v.20060423, 2006](#). Surveys were designed and executed by the European Values Study Group and World Values Survey Association. File producers: ASEP/JDS, Madrid, Spain and Tilburg University, Tilburg, the Netherlands. File distributors: ASEP/JDS and GESIS, Cologne, Germany. [World Values Survey \(1981–2009\) Official aggregate v.20090901, 2009](#). World Values Survey Association (<http://www.worldvaluessurvey.org>). Aggregate file producer: ASEP/JDS, Madrid. [Maddison database http://www.gdpc.net/MADDISON/oriindex.htm](#).

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literature is interpersonal trust which is used to measure the social capital of a country. Although there are still debates on how the measure of trust can be constructed at the country level, several studies have shown that this social capital matters for the country level of income (see [Algan and Cahuc, 2010](#); [Dearmon and Grier, 2009](#); [Guiso *et al.*, 2005](#); [Knack and Keefer, 1997](#); [Lim *et al.*, 2018](#); [Tabellini, 2010](#) [Temple and Johnson, 1998](#); [Zak and Knack, 2001](#); [Whiteley, 2000](#)) [1]. Another type of culture that has also emerged as an important factor influencing economic outcomes is family structure, which measures how strong the tie is among members of a family. While many studies have established empirical evidence for the impact of familial culture on economic outcomes at the individual/household level, there are no studies, to our knowledge, examining the impact of national familial culture on income at the macro level.

In this paper, we examine the impact of national familial culture [2] on per-capita income across countries. The country-level measure of familial culture is not readily available. We employ the method used in [Di Tella *et al.* \(2001\)](#) and [Wolfers \(2003\)](#) on studying life satisfaction and [Lim *et al.* \(2018\)](#) on studying interpersonal trust to construct such a measure of familial culture from the individual survey data. The advantage of using this method is that it removes personal or socio-economic characteristics that may influence individual perception about family when responding to the survey questions. For instance, unemployed individuals may perceive family more important since they depend on family during this economic hardship; and the perception on family duties may also differ across age groups and levels of education and income. Therefore, it is imperative that we remove these individual characteristics and experiences in order to obtain the average value of family culture that persists at the national level.

This paper contributes to the literature in a number of ways. First, we construct familial culture that measures the ties within a typical family in countries across the globe. The measure is constructed from survey data by removing the variation due to individual and socio-economic characteristics. The measure could become useful for other researchers in their culture research on comparative studies of countries around the world. Second, the paper expands the knowledge in the growth literature and growth–culture nexus in particular. We correlate the constructed measures of national familial culture with per-capita income across countries to explain how much variation in income is determined by familial culture.

The rest of the paper is organized as follows: [Section 2](#) presents the relevant literature on family ties and economic consequences. [Section 3](#) details the methodology and data. [Section 4](#) discusses the micro-regression results and [Section 5](#) presents the macroeconomic impact of national familial culture on income across countries. [Section 6](#) concludes the findings and provides the implication of the findings.

2. Literature review

[Reher \(1998\)](#) examines the persistent contrasts of family structure across Western Europe with the Mediterranean region mostly characterized by strong family ties and the central and northern Europe including the United States characterized by weak family ties. The strength of family ties lies on family loyalties, allegiances and authority which define the tradition in which family group has priority over individual or individual values have priority over everything else. Reher emphasizes one important aspect of family life: the transition of young members of the family. In northern Europe and the United States, young adults normally leave home and venture on their own independence, while in Mediterranean Europe the departure from parental home generally happens when they find a stable job or get married. Based on these family structures, Reher provides some implications for the social and economic outcomes that prevail in these societies. The incidence of homelessness is much greater in a weak family society like the United States than in a strong family society like

Spain, although the former has a lower unemployment rate than the latter. Reher further suggests that a society with weak family ties tends to be more associational and dynamic with individual responsibility and initiatives as an integral part of the society whereas a society with strong family ties tends to be more passive, but more oriented toward social cohesion.

While Reher (1998) provides observable distinctions between family structures in Western Europe, Giuliano (2007) tested empirically if culture matters for living arrangements among young adults. Giuliano shows that there is a strong association between the fraction of second-generation immigrants who stay home with their parents in the US and the corresponding fractions in the countries where their parents came from. In a subsequent study, Alesina and Giuliano (2010) provides additional evidence for the impact of this family culture on several economic outcomes at the household level including home production and family size, labor force participation of women and youngsters and geographical mobility of young adults.

Alesina and Giuliano (2010) show that the stronger family ties increase home production and family size, reduce labor participation rate of women and young adults and also lower youth geographical mobility. Families with strong family ties rely less on market and government and more on family members for home production such as child care, home cooking, caring for the elderly, house cleaning etc. The division of labor between men and women is also clearly defined in multi-generation families with strong family ties, and home activities are often performed by women in such societies. It is also evident that the culture of strong family ties is associated with bigger families of coresidence with adult children. Given that social insurance can only be provided if families live together, the cost of moving away for young adults to pursue better employment opportunities increases (see also Alesina *et al.*, 2015). This reduces the labor force participation of both women and young adults.

Alesina *et al.* (2015) empirically show that individuals with strong family ties are likely less mobile, have lower income, are more often unemployed and support more stringent labor market regulations. They suggest that because firms in a flexible labor market can extract monopsony rents, the geographical mobility of workers is necessary for the market to be efficient. However, in societies with strong family ties, individuals choose a more regulated labor market to limit monopsony power of the firms and are willing to accept lower wages and higher unemployment.

In addition, Bentolila and Ichino (2008) show that in Mediterranean societies, where young adults live with their parents, unemployment shocks cause less consumption losses because their family provides insurance. Women with strong family ties have a lower fertility rate. Giuliano (2007) suggests that in Southern Europe family ties are strong and young adults only leave home when they get married. Sexual revolution has allowed these youths to stay home longer and prolong their marriage. As a result, fertility has fallen (see also Rosina, 2004 for the case of Italy).

While there is well-established empirical evidence for the economic impacts of family culture at the household level, the evidence at the macro level is nonexistent. In a very early study of family culture, Banfield (1958) contends that in societies where children learn to trust and rely on their own extended family and learn not to readily trust those outside of the family, the accumulation of social capital is lacking and formal institutions and economic cooperation are not fully developed (Alesina and Giuliano, 2010). That is, the structure of family as it exists in a country defines the development of institutions that persists in that country, and these types of institutions have long-run macroeconomic consequences. Therefore, it is essential to understand how much variation in income across countries can be explained by its national familial culture.

3. Estimation strategy and data

3.1 Estimation strategy

We employ a pooled cross-sectional regression to estimate the relationship between national familial culture and per-capita income. The equation is specified as follows:

$$Y_{it} = \beta_0 + \beta_1 Y_{i0} + \beta_2 X_{it} + \beta_3 SFT_{it} + e_{it} \quad (1)$$

where Y_{it} is the income per capita of country i at year t and Y_{i0} is the initial income per capita. X_{it} is the vector of control variables that may codetermine income per capita and the strength of family ties. SFT_{it} is the variable of interest which represents the strength of family ties in country i . e_{it} is the error term.

The control variables are used to address the endogeneity problem that may arise from factors codetermining the variable of interest (strength of family ties) and the dependent variable (income). These control variables include a measure of openness in a country and the quality of political institutions. From Adam Smith's *Wealth of Nation* to the recent evidence of [Sachs and Warner \(1995\)](#) and [Frankel and Romer \(1999\)](#), a country with a friendly international trade policy is associated with a higher standard of living and economic growth. This increase in income comes from its ability to utilize comparative advantage in trade, knowledge spillover from international commerce and an increase in the efficiency of domestic firms due to global competition. At the same time, there is every reason to also believe that globalization influences culture and cultural traits of a society (see [Holton, 2000](#); [Machida, 2012](#)). So for this reason, trade openness has to be controlled for in the regressions.

Similarly, the level of economic development and culture can also be simultaneously determined by political institutions. [Przeworski et al. \(2000\)](#) discussed the association between political transition and economic development, and [Acemoglu et al. \(2001\)](#) argued that the quality of institutions matter for differences in income. [Tabellini \(2010\)](#) examines the data across European regions and finds that political institutions in the distant past in Europe determine individual cultural values and beliefs which are correlated with current economic development. Hence, controlling for political institutions in the regressions will help deal with the endogeneity problem.

The data on the strength of familial culture are not available at the country level. The survey data obtained from the WVS and EVS are available at the individual level. Thus, we use a method used by [Di Tella et al. \(2001\)](#), [Wolfers \(2003\)](#) and [Lim et al. \(2018\)](#) to construct the country-level measures of familial culture. [Di Tella et al. \(2001\)](#) and [Wolfers \(2003\)](#) construct a country-level measure of life satisfaction from individual responses in a survey data set by obtaining average residuals for each country in the sample, and [Lim et al. \(2018\)](#) construct a country-level measure of interpersonal trust using a similar method. The advantage of the method is that it extracts the components of familial culture that persist and are not influenced by the external factors such as education, personal income, employment and other individual characteristics; thus, the method may partially reduce measurement problems at the country level. More specifically, we perform micro-regressions using individual responses to the questions related to one's perception of the tie within a family [3]. Then, the *individual-level* residuals from these regressions are averaged for each country by the year of the survey to generate a *country-level* measure of familial culture. The micro-regression equation is specified as

$$V_{jit} = \alpha_0 + \alpha_1 Z_{jit} + u_{jit} \quad (2)$$

where j stands for individuals. V_{jit} represents various individuals' responses about their perception of family ties. Z_{jit} is a vector of respondent's characteristics which include gender, age, level of education, income, employment status and marital status. u_{jit} is the error term. The estimates of the error term (\hat{u}_{jit}) is averaged for country i by the survey year to proxy for the measure of familial culture at the country level (*SFT*).

3.2 Data description

We construct our main variable, the strength of familial culture, from three different variables in the surveys that capture the perception of the importance of family in an individual's life, the respect and love for one's own parents and the duties and responsibilities of parents toward children. These three variables are similar to those used in [Alesina and Giuliano \(2010\)](#). These variables are sourced from the World Values Survey (WVS) and European Values Survey (EVS). The WVS is administered to a representative sample of people in 85 countries in five waves (1981–1984; 1989–1993; 1994–1999; 1999–2004; and 2005–2009) and the EVS in 31 European countries in three waves (1981–1984; 1990–1993; and 1999–2004). The two sources are two large-scale, cross-national and longitudinal survey research programs, which include a large number of questions, which have been replicated since the early 1980s. The WVS and the EVS agreed to use a common dictionary to harmonize the variables and data. Apart from a few exceptions, a country participated either in an EVS wave or in a WVS wave but not in both [4]. Therefore, the data from both sources can be merged using the instruction and syntax provided on their websites [5]. Merging the two sources substantially increases the sample countries. The observations are not in a continuous time series since the surveys are conducted for different years and for different countries within the waves. After combining the two sources, we have a total of 96 countries in the sample.

Now we discuss the variables used to construct the measures of familial culture. The first variable (IMPORTANCE) assesses the importance of the family in one's life. The question is worded as "For each of the following aspects, indicate how important it is in your life. Would you say it is: Family?" The answer takes the values from 1: Very important, 2: Rather important, 3: Not very important and 4: Not at all important. We recoded the data with 4 being very important and 1 being least important to be used in the ordered regression.

The second variable (DUTY) assesses the perception of respondents about the duties and responsibilities of parents toward children. The question is worded as "Which of the following statements best describes your views about parents' responsibilities to their children?" The possible answer is: A. Parents' duty is to do their best for their children even at the expense of their own well-being; B. Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children. This variable (DUTY) is coded as 1 if A is chosen and zero if B is chosen. This variable represents parents' ties to their children.

The third variable (LOVE) assesses the perception of respondents about the respect and love for one's own parents. The question is worded as "With which of these two statements do you tend to agree?" The possible answer is: A. Regardless of what the qualities and faults of one's parents, one must always love and respect them; B. One does not have the duty to respect and love parents who have not earned it by their behavior and attitudes. This variable is coded as 1 if the respondent chooses A and zero if B is chosen. This variable represents children's ties to their parents.

We construct two composite measures of the strength of familial culture. The first composite variable (PRINCIPAL) is calculated by extracting the first principal component from all three survey questions – IMPORTANCE, LOVE and DUTY – and the second composite variable (SUM) is calculated by taking the sum of the three variables. Thus, the familial culture is defined by the strength of the ties among family members. A higher number corresponds to stronger family ties. [Table 1](#) presents the correlation at the country level between the two composite measures of national familial culture and the three variables from which they are constructed. IMPORTANCE, LOVE and DUTY are highly and positively correlated with both SUM and PRINCIPAL. SUM is almost perfectly correlated with PRINCIPAL. This indicates that the principal component variable distributes similar weighting to IMPORTANCE, LOVE and DUTY [6]. However, the correlation among IMPORTANCE, LOVE and DUTY is somewhat smaller, indicating that they do not measure

Table 1.
Correlation among
national familial
culture variables

	Family importance (IMPORTANCE)	Parental duties (DUTY)	Respect and love parents (LOVE)	National familial culture (SUM)	National familial culture (PRINCIPAL)
Family importance (IMPORTANCE)	1.000				
Parental duties (DUTY)	0.509	1.000			
Respect and love parents (LOVE)	0.357	0.264	1.000		
National familial culture (SUM)	0.761	0.733	0.786	1.000	
National familial culture (PRINCIPAL)	0.728	0.769	0.771	0.998	1.000

Note(s): The correlations are calculated at the country level

the same family value. For example, the correlation between the duties and responsibilities of parents (DUTY) and the respect and love for one's own parents (LOVE) is only 0.264 and that between the importance of family (IMPORTANCE) and the respect and love for one's own parents (LOVE) is 0.357.

For macroeconomic variables, the income per capita is measured by per-capita gross domestic products expressed in 1990 international Geary–Khamis dollars. The data are extracted from the [Maddison database](#). Initial GDP per capita in 1973 is used to control for the early stage of development. The year 1973 is chosen because the data are available for some former Soviet States which are included in our sample. The openness variable, a measure of trade to GDP ratio, is obtained from the World Penn Table 7.1. The quality of political institutions is measured by the index, Polity2, taken from Polity IV database. This variable was originally scaled from –10 to 10. Higher values correspond to more democratic political institutions. We rescale the variable between 0 and 20 for convenience. [Table 2](#) provides a summary of the data description and sources.

4. Micro-regression results of the perception about family

In this section, we relate the individual characteristics to every measures of the strength of familial culture including the composite variables. [Equation \(2\)](#) is estimated for each measure of familial culture including the three components of the composite measures. [Table 3](#) displays the results. We use different estimation methods depending on the nature of the dependent variable. The ordered probit regressions are performed for the importance of family (IMPORTANCE) due to the ordinal outcomes of the variable which range from 1 to 4 in the order of importance. The probit regressions are used for the perception of parents' duties and responsibilities toward their children (DUTY) and the perception of respect and love for one's own parents (LOVE). The OLS estimation is used for the composite measures of familial culture.

We first discuss the results in columns (1), (2) and (3) for IMPORTANCE, DUTY and LOVE, respectively. The estimates for gender show that family is more important to women than to men; however, males are more likely than females to believe that parents have the duties and responsibilities to do the best for their kids and one must always love and respect their parents unconditionally. The coefficient estimates for the age variable shows that older individuals think that parents have the duty to do the best for kids. This result is consistent with the altruistic behavior of parents.

Variable	Description	Source	Notes
Family importance (IMPORTANCE)	Scale from 1 (not important at all) to 4 (very important)	WVS and EVS	For each of the following aspects, indicate how important it is in your life. Would you say it is: Family?
Parental duties (DUTY)	Binary variable (A = 1; B = 0)	WVS and EVS	Which of the following statements best describes your views about parents' responsibilities to their children? A. Parents' duty is to do their best for their children even at the expense of their own well-being B. Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children
Respect and love parents (LOVE)	Binary variable (A = 1; B = 0)	WVS and EVS	With which of these two statements do you tend to agree? A. Regardless of what the qualities and faults of one's parents, one must always love and respect them B. One does not have the duty to respect and love parents who have not earned it by their behavior and attitudes
Per-capita GDP (GDPP)	1990 international Geary–Khamis dollars	The Maddison database	Per-capita GDP in 1973 is used as the initial level of development. The log form is used in the regressions
Openness (OPEN)	Trade to GDP ratio	World Penn Table 7.1	
Political institutions (POLITY2)	Scale from 0 to 20	Polity IV database	The score ranges from 0 (autocracies) to 20 (democracies)

Table 2.
Data description and sources

The coefficient for income is positive and significant at the 1% level, suggesting that richer people value family more importantly. The result is consistent with [Becker \(1993\)](#) and [Becker et al. \(1977\)](#) who argue that wealthier individuals are more likely to stay in the marriage than poorer ones because the gains from marriage are much greater for richer couples. However, the negative coefficients for income in the DUTY and LOVE regressions indicate that richer people feel less obligated to do the best for their children or less likely to have unconditional love for their parents.

The employment status is divided into three groups – the employed, the unemployed and the inactive – which includes the retirees, housewives and students. The unemployed is included as the reference group. The coefficient for the employed is negative while that for the inactive is positive. The results suggest that family is less important for the employed than the unemployed. This evidence is consistent with that found in [Bentolila and Ichino \(2008\)](#) for the Mediterranean societies where the unemployed have depended more on family insurance to mitigate the consequences of unemployment shocks.

For the marital status, the reference group is represented by those who are divorced, separated and widowed. The results show that married individuals view family more important than the divorced. The result is consistent with the welfare maximizing behavior (see [Becker, 1993](#)). However, it is interesting that single individuals are less likely than the divorced to view family as very important. The results from the DUTY and LOVE regressions are intuitive. Married individuals are more likely than the divorced group to think that one should have unconditional love for their parents or one should do the best for their kids. Similarly, the single are also more likely than the divorced to think so.

Estimation method Explanatory var.	Dependent variable				
	IMPORTANCE Ordered probit (1)	DUTY Probit (2)	LOVE Probit (3)	PRINCIPAL OLS (4)	SUM OLS (5)
Constant	2.766*** (0.026)	0.803*** (0.024)	1.223*** (0.025)	0.056*** (0.020)	5.533*** (0.013)
Male	-0.189*** (0.008)	0.025*** (0.008)	0.018** (0.008)	-0.037*** (0.007)	-0.030*** (0.004)
Age	-0.004*** (0.001)	0.002*** (0.000)	-0.001 (0.001)	-0.001** (0.000)	-0.001*** (0.000)
Income	0.028*** (0.002)	-0.009*** (0.002)	-0.042*** (0.002)	-0.013*** (0.001)	-0.007*** (0.001)
Education	0.008*** (0.002)	-0.040*** (0.002)	-0.039*** (0.002)	-0.032*** (0.001)	-0.021*** (0.001)
Employed	-0.054*** (0.013)	-0.027* (0.014)	-0.060*** (0.015)	-0.034*** (0.011)	-0.021*** (0.008)
Inactive	0.015 (0.014)	0.081*** (0.015)	0.064*** (0.015)	0.064*** (0.012)	0.042*** (0.008)
Married	0.409*** (0.011)	0.163*** (0.013)	0.200*** (0.013)	0.290*** (0.011)	0.201*** (0.007)
Single	-0.067*** (0.015)	0.011 (0.016)	0.043*** (0.016)	0.004 (0.014)	-0.001 (0.010)
(Pseudo) R^2	0.028	0.012	0.018	0.025	0.025
Observations	216,775	139,012	147,555	136,438	136,438

Note(s): Income is a scale from 1 to 10 (highest income group). Education is a scale from 1 to 8 (finish university). Employed is a binary variable equal to 1 if the individual is on full-time work, part-time work or self-employed and zero otherwise; inactive is 1 for those who are retired, housewives and students and zero otherwise; and unemployed is the base group. Married is also a binary variable equal to 1 if the individual is married or living together as married and zero otherwise; single refers to those who are single or never get married. The marital base group is divorced, separated and widowed. Robust standard errors are in parenthesis; *significant at 10%, **significant at 5% and ***significant at 1%

Table 3.
Micro-regressions:
National familial
culture

The results for both composite variables, PRINCIPAL and SUM are consistent. Women have stronger ties in the family than men. The strength of familial culture decreases with age, income or education. While family ties are stronger for the unemployed than the employed, they are stronger for the inactive than the unemployed. Family ties are stronger among the married individuals than those who are divorced, separated or widowed (reference group).

Then, we compute the strength of familial culture at the country level by taking the mean residuals of these five regressions. Table 4 presents the summary statistics of the mean residual measures of national familial culture.

National familial culture	Obs.	Mean	Std. Dev.	Min	Max
PRINCIPAL	124	-0.031	0.374	-0.975	0.683
SUM	124	-0.020	0.247	-0.623	0.455
IMPORTANCE	174	-0.008	0.147	-0.601	0.190
DUTY	124	-0.002	0.204	-0.605	0.374
LOVE	124	-0.019	0.214	-0.858	0.278

Table 4.
Summary statistics:
residual national
familial culture at the
country level

Note(s): PRINCIPAL, SUM, IMPORTANCE, DUTY and LOVE are the mean residuals of the first principal component, the sum composite, the importance of family variable from orbit regression, the importance of family variable from OLS regression, the parents' duties and responsibilities variable and the respect and love for one's parents, respectively

5. The strength of national familial culture and income across countries

This section presents the macroeconomic impact of national familial culture on income per capita. First, we present the results without any controls except for the initial development. The dependent variable is the log of real GDP per person. The 1973 per-capita income, LGDPP73, is included to control for the initial level of development which may also codetermine the current strength of national familial culture and current economic performance. We test the two composite measures of family ties, columns (1) for PRINCIPAL and (2) for SUM; then, we test each of three variables that measure the perceptions about family and the ties within the family, columns (3) for IMPORTANCE, (4) for DUTY and (5) for LOVE; and finally the three variables are included in the same regression.

Table 5 presents the association between various measures of national familial culture and income. Overall, the results show that the strength of national familial culture is negatively associated with income. The coefficients of PRINCIPAL and LOVE are negative and statistically significant at the 10% and 1% level, respectively. An increase in family ties (PRINCIPAL) by one standard deviation is estimated to cause income per person to drop by about 8%. The magnitude is really significant and that for LOVE is even greater. The result for LOVE seems consistent with the proposition that the ties of children to their parents, which limit the youths' geographic mobility, have consequences on their income. This happens at the macro level as well.

Even if we are able to confirm a negative relationship between the strength of national familial culture and income across countries, the endogeneity problem at the macro level could be a concern. The causal effect of the strength of national familial culture on income can be asserted only if the two variables are not codetermined by a third factor. As discussed in the methodology, the literature has pointed to two main variables – globalization and political institutions – that may simultaneously influence income per person and the cultural traits.

Explanatory var.	Dependent variable: Log of per-capita income (LGDP)					
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	1.251** (0.511)	1.185** (0.511)	1.582*** (0.465)	0.933* (0.541)	2.242*** (0.505)	2.237*** (0.517)
LGDPP73	0.892*** (0.052)	0.897*** (0.052)	0.910*** (0.040)	0.930*** (0.048)	0.840*** (0.055)	0.851*** (0.064)
PRINCIPAL	-0.212* (0.122)					
SUM		-0.274 (0.183)				
IMPORTANCE			0.040 (0.211)			0.026 (0.278)
DUTY				0.201 (0.216)		0.234 (0.245)
LOVE					-0.913*** (0.202)	-0.931*** (0.210)
Observation	120	120	168	120	120	120
Adj. R^2	0.741	0.741	0.693	0.735	0.750	0.852

Note(s): The dependent variable is measured by the log of the per-capita GDP in 1990 international Geary–Khamis dollars. Per-capita GDP in 1973 (LGDPP73) is used as the initial level of income. PRINCIPAL is the county-level mean OLS residuals of the strength of national familial culture – the first principal component. SUM is the county-level mean OLS residuals of the strength of national familial culture – the sum. IMPORTANCE is the country-level mean ordered probit residuals from the importance-of-family equation. DUTY is the country-level mean probit residuals of the duties-and-responsibilities-of-parents-and-children equation. LOVE is the country-level mean probit residuals of the respect-and-love-for-parents equation. The regressions control regional dummies which are statistically significant but not reported to save space. Robust standard errors are in parenthesis; *significant at 10%, **significant at 5% and ***significant at 1%

Table 5.
Macro-regressions:
national familial
culture and income
across countries

Thus, both the level of openness (OPEN) and democracy (POLITY2) are controlled for in the regressions.

Table 6 displays the results. The results provide stronger evidence for the negative impact of national familial culture on income. The estimates for both PRINCIPAL, SUM and LOVE are negative and statistically significant. From the results across all three different measures of perceived family ties, LOVE – the measure of perception that one should have unconditional love for their parents – has a dominant impact on the level of income, which still is consistent with our earlier result.

As for the controls, the initial income per capita measured by the real GDP per capita in 1973 is positive and statistically significant at the 1% level throughout the regressions. The results are consistent with the literature of economic growth (Algan and Cahuc, 2010). Without the controls of several other characteristics, the results do not provide evidence of conditional convergence but possibly suggest that countries with higher level of income in the past could manage to accumulate higher capital and raise labor efficiency to stay ahead today. Next, the political institutions carry a significant positive sign. This indicates that highly democratic institutions are beneficial for economic development. Finally, the globalization variable is positive in all regressions but only statistically significant in one of them.

One may argue that the reverse causality could be present at the macro level as well. To further address the concern, the dependent variable (real GDP per capita) is replaced by its lead from one to four years. We also use a 5-year average and 10-year average of real GDP per capita. The regressions are run for the composite measure of national familial culture and its individual components. The results presented in Table 7 are still consistent, qualitatively and

Explanatory var	Dependent variable: Log of per-capita income (LGPPP)					
	(1)	(2)	(3)	(4)	(5)	(6)
Constant	1.836*** (0.544)	1.763*** (0.544)	1.819*** (0.471)	1.426** (0.583)	2.697*** (0.515)	2.661*** (0.514)
LGPPP73	0.827*** (0.073)	0.836*** (0.073)	0.837*** (0.062)	0.887*** (0.074)	0.738*** (0.067)	0.744*** (0.068)
OPEN	0.001 (0.001)	0.001 (0.001)	0.002** (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
POLITY2	0.028*** (0.009)	0.028*** (0.009)	0.031*** (0.008)	0.026*** (0.009)	0.023*** (0.008)	0.023*** (0.008)
PRINCIPAL	-0.299** (0.146)					
SUM		-0.406* (0.223)				
IMPORTANCE			-0.154 (0.268)			-0.073 (0.312)
DUTY				0.122 (0.232)		0.146 (0.247)
LOVE					-0.955*** (0.203)	-0.945*** (0.211)
Observations	115	115	161	115	115	115
Adj. R ²	0.831	0.830	0.825	0.824	0.850	0.864

Note(s): The dependent variable is measured by the log of the per-capita GDP in 1990 International Geary-Khamis dollars. Per-capita GDP in 1973 (LGPPP73) is used as the initial level of income. PRINCIPAL is the county-level mean OLS residuals of the strength of national familial culture – the first principal component. SUM is the county-level mean OLS residuals of the strength of national familial culture – the sum. IMPORTANCE is the country-level mean ordered probit residuals from the importance-of-family equation. DUTY is the country-level mean probit residuals of the duties-and-responsibilities-of-parents-and-children equation. LOVE is the country-level mean probit residuals of the respect-and-love-for-parents equation. The regressions control regional dummies which are statistically significant but not reported to save space. Robust standard errors are in parenthesis; *significant at 10%, **significant at 5% and *** significant at 1%

Table 6.
Macro-regressions:
controlling political
institutions and trade
openness

Explanatory var.	Dependent variable										
	LGDPP _{t+1}	LGDPP _{t+2}	LGDPP _{t+3}	LGDPP _{t+4}	LGDPP5	LGDPP10					
Constant	1.907*** (0.533)	2.115*** (0.545)	2.765*** (0.508)	2.361*** (0.546)	3.153*** (0.518)	2.487*** (0.537)	3.196*** (0.507)	1.801*** (0.526)	2.667*** (0.503)	1.830*** (0.507)	2.595*** (0.485)
LGDPP73	0.836*** (0.070)	0.748*** (0.065)	0.814*** (0.071)	0.727*** (0.065)	0.784*** (0.071)	0.702*** (0.065)	0.775*** (0.069)	0.701*** (0.064)	0.843*** (0.070)	0.841*** (0.067)	0.763*** (0.062)
OPEN	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
POLITY2	0.022** (0.008)	0.017** (0.008)	0.022** (0.008)	0.018** (0.008)	0.024*** (0.008)	0.020** (0.008)	0.022*** (0.008)	0.019** (0.008)	0.017** (0.008)	0.021*** (0.008)	0.016** (0.007)
PRINCIPAL	-0.248* (0.130)	-0.265** (0.131)	-0.288** (0.129)	-0.286** (0.129)	-0.288** (0.129)	-0.296** (0.123)	-0.296** (0.123)	-0.226* (0.131)	-0.226* (0.131)	-0.218* (0.126)	-0.218* (0.126)
IMPORTANCE			0.016 (0.306)	-0.06 (0.315)	-0.118 (0.316)		-0.168 (0.316)		0.056 (0.302)		0.032 (0.292)
DUTY			0.149 (0.243)	0.168 (0.238)	0.146 (0.239)		0.122 (0.236)		0.155 (0.237)		0.125 (0.227)
LOVE			-0.890*** (0.202)	-0.896*** (0.206)	-0.881*** (0.209)		-0.826*** (0.206)		-0.873*** (0.199)		-0.789*** (0.185)
Observations	115	115	115	115	115	115	115	115	115	115	115
Adj. R ²	0.84	0.838	0.856	0.854	0.837	0.851	0.84	0.852	0.844	0.858	0.871

Note(s): The dependent variable is measured by the log of the per-capita GDP in 1990 International Geary-Khamis dollars. Per-capita GDP in 1973 (LGDPP73) is used as the initial level of income. PRINCIPAL is the country-level mean OLS residuals of national familial culture – the first principal component. SUM is the country-level mean OLS residuals of the strength of national familial culture – the sum. IMPORTANCE is the country-level mean ordered probit residuals from the importance-of-family equation. DUTY is the country-level mean probit residuals of the duties-and-responsibilities-of-parents-and-children equation. LOVE is the country-level mean probit residuals of the respect-and-love-for-parents equation. The regressions control regional dummies which are statistically significant but not reported to save space. Robust standard errors are in parenthesis; *significant at 10%, **significant at 5% and ***significant at 1%.

Table 7.
Macro-regressions:
addressing reverse
causality at the
macro level

quantitatively. The estimate for the composite variable indicates that a one standard deviation increase in the strength of family reduces real GDP per capital by about 8–11%.

6. Conclusions

Whether the strength of national familial culture matters for income is the central question in this study. We employ a two-step methodology to evaluate the impact of national familial culture on economic performance across countries. First-step micro-regression results show that family is more important to female, richer, highly educated, unemployed and married individuals. Male, poorer, less educated and unemployed individuals are more likely to respect and love parents unconditionally. The same group is also more likely to think that parents must do what is in the best interest for their kids.

The results from the second step show that the strength of familial culture explains differences in income across countries. Countries with stronger family ties have lower income. This evidence suggests that the culture of family that exists in a society defines the types of institutions that persist in that society and matters for its overall macroeconomic development. The evidence is consistent across the composite measures of national familial culture and with various controls. These results are useful for policymakers who design public policies that accommodate the type of familial culture that persists in their society.

Notes

1. Several other studies also examine the transmission of this cultural trait (trust) across generations (see Alesina and La Ferrara, 2002; Guiso *et al.*, 2008; Lim and Morshed, 2019; Nunn and Wantchekon, 2011).
2. In this paper, we use the terms – familial culture, family structure and family ties – interchangeably. Family structure or familial culture that constitutes more young adults living with their parents indicates a stronger tie within the family.
3. Details about the variables and the construction of the variable for the strength of familial culture are discussed in the data section.
4. The data for Sweden in 1999 appearing in both surveys are exactly the same; thus, those in WVS were removed before the merge.
5. The instruction and syntax to merge the two data sets can be downloaded from the EVS website at: <http://www.europeanvaluesstudy.eu/evs/surveys/longitudinal-file-1981-2008/integratedvaluessurveys/> (last accessed September 9, 2013).
6. We test the impact of familial culture on income by regressing equation (1), and both SUM and PRINCIPAL represent the strength of family ties (*SFT*). They enter the regression one at a time. With their high correlation, we should expect similar results for both.

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