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The effect of culture on fiscal redistribution: Evidence based on genetic, epidemiological and linguistic data

Pantelis Kammas[a] , Pantelis Kazakis[b] and Vassilis Sarantides[c]

[a] Department of Economics, University of Ioannina, P.O. Box 1186, 45110 Ioannina, Greece. kammas@cc.uoi.gr

[b] Department of World Economy, University of Economics Prague, VSE v Praze, Nam. W. Churchilla 4, 130 67 Praha 3.pantelis.kazakis@vse.cz

[c] Department of Economics, University of Sheffield, 9 Mappin Str, Sheffield S1 4DT, UK. v.sarantides@sheffield.ac.uk

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Abstract: Using a set of innovative instruments qualified by the literature, we investigate the effect of individualist culture on fiscal redistribution. Our analysis suggests that societies characterized by less collectivistic culture present higher levels of fiscal redistribution, as proxied by government subsidies and transfers as well as health and education expenses.

1. Introduction

Numerous theoretical and empirical studies suggest that culture affects economic outcomes and institutions within countries (see e.g., Spolaore and Wacziarg, 2013). However, contemporaneous culture might be endogenous to economic outcomes and institutions. In a highly influential paper Gorodnichenko and Roland (2016) employ a set of innovative instruments to address endogeneity concerns and, thus, establish a convincing relationship between individualistic culture and growth.

Following the identification strategy of Gorodnichenko and Roland (2016), this work examines one dimension of culture that can be seen as relevant to welfare policies: individualism versus collectivism.[1] Fiscal redistribution is proxied by government subsidies and transfers, as well as health and education expenses that entail a dimension of redistribution (Desmet et al., 2009). To deal with the usual identification concerns, we instrument culture by a set of genetic, epidemiological and linguistic data that have been linked empirically to this cultural dimension (see Kashima and Kashima, 1998; Murray and Schaller, 2010; Way and Lieberman, 2010). Our analysis suggests that countries characterized by higher levels of individualism present higher levels of redistributive spending.

2. Data and Theoretical Considerations

Our data covers a wide cross-section of countries. The dependent variables in our analysis are fiscal spending accounts, which are used as proxies redistribution by the relevant literature. (e.g., Desmet et al. 2009). Specifically, we employ as dependent variable interchangeably: (i) government subsidies and transfers (% GDP) and (ii) health and education expenses (% GDP) from 1980-2004.[2]

The key explanatory variable in our analysis is culture. In particular, we focus on one dimension of culture: individualism versus collectivism. Individualism is a cultural trait that emphasizes personal freedom and achievement and awards social status to personal

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[1] To the best of our knowledge, this is the first study that investigates directly the relationship between individualism/collectivism and fiscal redistribution. However, there are two parallel strands of the literature closely related to our analysis. The first concentrates on the relationship between family structure and implemented welfare policies (e.g., Esping-Andersen, 1999), whereas the second investigates the potential relationship between generalized trust (that is trust in "out-group" relationships) and welfare state (e.g., Berg and Bjørnskov, 2011). Both strands chime with a negative relationship between collectivistic norms and welfare state. More precisely, Esping-Andersen (1999) suggest that close family ties provide a social security net to the individuals that otherwise would be provided by the formal state. Similarly, Berg and Bjørnskov (2011) argue that a higher level of generalized trust - which is a basic characteristic of more individualistic societies - mitigates the temptation of free riding and allows for the universal provision of public goods, transfers and services.

[2] Data are obtained from the World Bank's World Development Indicators (WDI).

accomplishments that make an individual stand out. On the other hand, collectivism emphasizes the embeddedness of individuals in larger groups and encourages conformity to "in-group" relationships (see Triandis, 1995). As a main proxy for individualistic/collectivistic culture, we employ the measure developed by Hofstede (2001) with higher values indicating more individualistic societies (denoted as individualism).

The theoretical relationship between this dimension of culture and fiscal redistribution is a priori ambiguous. This is because, on the one hand, welfare state is a formal risk sharing institution that provides a safety net to "unlucky" individuals, whereas collectivistic norms -such as strong family ties- serve as informal risk sharing agreements that also protect individuals against risk (see Esping-Andersen, 1999). According to this argument, collectivism and welfare policies operate as substitutes and, thus, we should expect a negative association between the two – or a positive one between more individualism and redistribution. The reason is that, in the absence of formal risk sharing institutions (i.e. before the formation of welfare state), societies facing increased risks, such as climate variability or a higher prevalence of lethal diseases, developed informal insurance contracts (i.e. extended networks of "in group" relationships) to tackle the issue of uncertainty (see e.g. Murray and Schaller, 2010). For this reason, more collectivistic (individualistic) societies were in lower (higher) need of protection from the state when welfare policies were put in place. On the other hand, preferences for redistribution are endogenous to formal institutions. Therefore, a larger (narrower) welfare state may lead to collectivistic (individualistic) norms and hence increased (decreased) demand for fiscal redistribution (see e.g., Alesina and Fuchs-Schuendeln, 2007). If this is the case, collectivism and redistributive policies will function as complements rather than substitutes. Being theoretically ambiguous, an empirical investigation will shed more light on the sign of the association between individualism and welfare policies.

3. Identification Strategy

Our analysis relies on contemporaneous measures of culture which might be endogenous to the implemented economic policy. To address the usual endogeneity concerns, we employ a battery of alternative instruments that have been linked empirically to this cultural dimension. Following Gorodnichenko and Roland (2016), our basic instrument is the Mahalanobis distance between the frequency of blood types in a given country and the UK, which is the second most individualistic country in our sample. Genetic markers are probably the cleanest instruments by not being

correlated to fiscal redistribution through any other channel other than culture, thus satisfying the exclusion restriction. We denote this as blood distance from the UK. Employing this instrument has two major advantages. First, blood distance from the UK is a neutral genetic marker that allows us to rule out reverse causality concerns. This is because different blood types are not expected to affect intelligence and output. Second, the frequency of alleles determining blood types is a widely available genetic information that ensures a large number of cross-country observations. Figure 1 plots government transfers along with health and educational expenses against blood distance from the UK. As can be seen, reduced-form relationships indicated that countries further away in terms of blood distance from the UK present a lower level of redistributive spending. It must be stressed that the use of genetic data does not surmise any causal effect between genetic and cultural distance. Genetic markers are used exclusively as a proxy for transmission of cultural traits from parents to offspring. In other words, our analysis seeks to exploit the stylized fact that culture is transmitted from parents to offspring (similarly to the genes) and takes the advantage of this correlation between cultural and genetic transmission to investigate the cultural distances that cannot be proxied in a more direct way (see also Gorodnichenko and Roland, 2016). Likewise, we also employ the G allele in polymorphism A118G in the μ-opioid receptor gene that leads to higher stress in case of social rejection (denoted as Al18G). According to Way and Lieberman (2010) the G allele in polymorphism A118G in the μ-opioid receptor gene is strongly correlated to the collectivistic traits that provide psychological protection from social rejection. Unfortunately, cross-country coverage for the variable Al18G is limited, which qualifies blood distance from the UK as our main instrument.

[Insert Figure 1 about here]

We also use the epidemiological data on pathogen prevalence put together by Murray and Schaller (2010) - denoted as pathogen prevalence. The rationale behind the use of epidemiological data is that stronger pathogen prevalence pushed communities to follow collectivist traits that emphasize the embeddedness of individuals to "in-group" relationships and set limits to openness towards foreigners (e.g., Murray and Schaller, 2010).

Apart from the genetic and epidemiological data, we employ the linguistic variable on pronoun drop developed by Davis and Abdurazokzoda (2016) as an instrument for cultural emphasis on

autonomy rather than on in-group embeddedness. According to Kashima and Kashima (1998), the requirement to use pronouns in a language or the license to drop them is linked to the degree of psychological differentiation between the speaker and the social context of speech, including the conversation partner. Therefore, the linguistic practice of "pronoun drop" reveals a cultural dimension of central interest, namely the relationship between the individual and the group. Cultures with pronoun drop languages tend to be less individualistic. In turn, we employ the linguistic variable language developed by Tabellini (2008) that accounts for both the pronoun drop and 2nd person differentiation (the so-called "T-V distinction"). Linguists point out that this T-V distinction is associated with cultures that pay close attention to the hierarchy of interpersonal relations. Therefore, cultures with T-V distinction languages tend to be less individualistic (see Kashima and Kashima, 1998).[3]

4. Results

Table 1 presents the OLS and IV estimates for the effect of individualism on fiscal redistribution when the latter is proxied by: (i) government subsidies and transfers (% GDP) [Panel A]; and health and education expenses (% GDP) [Panel B]. Even columns of Table 1 control also for the level of development, as proxied by GDP per capita. The first stage results in columns (3)-(12) for the data described above indicate that the coefficients have the expected sign and are highly significant. Moreover, as can be easily verified individualism enters with a positive and highly significant coefficient in all alternative specifications. We interpret this empirical finding in the following way. In collectivistic societies, "in-group" relationships (i.e., stronger family ties) act as a substitute of formal risk sharing institutions (i.e., welfare state). These informal risk sharing agreements provide a safety net against risk that makes the redistributive policy of the state less necessary and consequently the demand for redistribution weaker. Obviously, the opposite holds for societies characterized by higher levels of individualism.

[Insert Table 1 about here]

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[3] The remaining reduced-form scatter plots between our instruments and redistributive spending are available at the end of the Appendix.

Table 2 presents OLS and IV estimates for the basic instrument of our analysis, namely blood distance from the UK, when employing a set of extended controls to account for other potential confounding factors (see Desmet et al., 2009). Thus, we control for: continental effects, legal origins, percentages of religious affiliation, population, share of population above 65, ethno-linguistic fractionalization and absolute latitude. Economic and demographic controls are obtained from the WDI, whereas the remaining controls (i.e., geographical variables, legal origins, major religions etc.) are taken from Gorodnichenko and Roland (2016). Evidently, individualism enters again with a positive and significant coefficient in all alternative estimates.

[Insert Table 2 about here]

It should be noted that when these controls are incorporated in the specifications of the alternative instruments presented in Table 1, it turns out that blood distance from the UK displays by far the strongest first stage results. In a battery of robustness checks, we have replaced redistributive expenses with tax variables (e.g., direct taxes (% of GDP)), and the results, although weaker, provide further evidence in favour of a positive relationship between individualism and fiscal redistribution. Finally, our results are insensitive to dropping one continent at a time.[4]

5. Conclusions

Building on the identification strategy employed by Gorodnichenko and Roland (2016) this study seeks to provide evidence for the association between culture and welfare policies. Our empirical findings suggest that countries characterized by more individualistic cultural values present higher levels of fiscal redistribution.

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[4] All unreported results are available on the Appendix.

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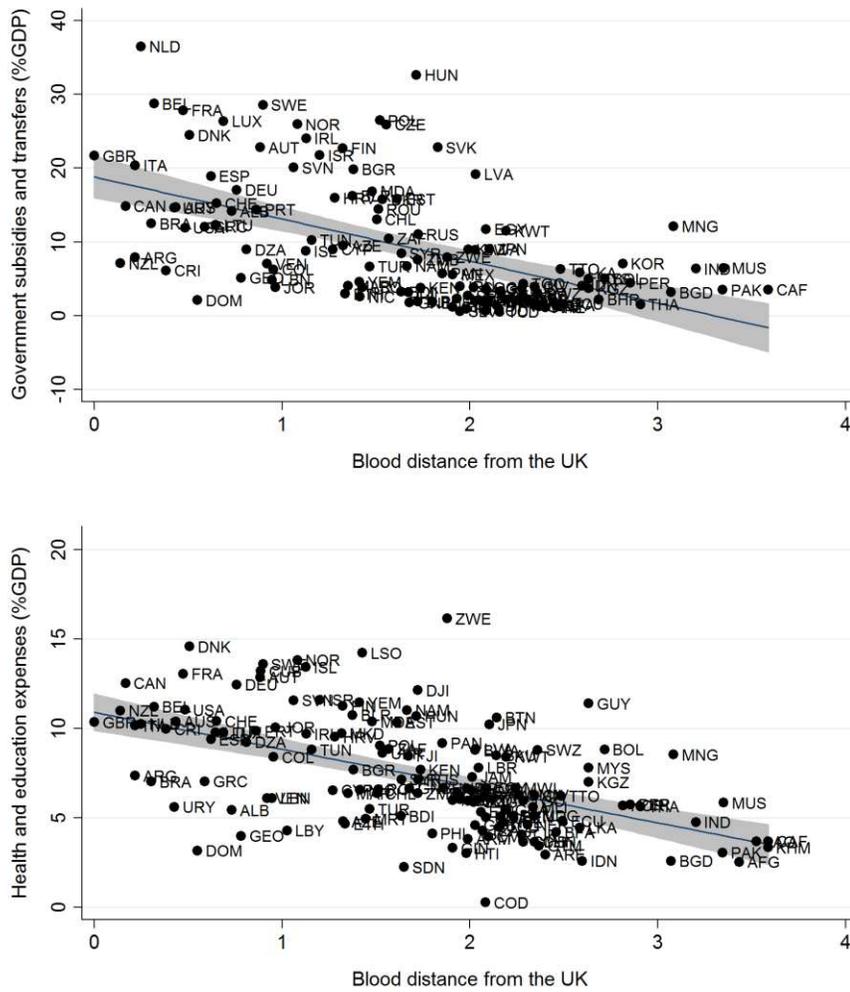
Figure 1: Reduced form relationship between blood distance from the UK and governmental transfers and between blood distance from the UK health and education expanses.

Table 1: The effect of culture on fiscal redistribution

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	IV (blood distance from the UK)		IV (A118G)		IV (pathogen prevalence)		IV (pronoun drop)		IV (language)	
Panel A: government subsidies and transfers (%GDP)												
Individualism	0.273***	0.195***	0.360***	0.312**	0.415***	0.454***	0.411***	0.474***	0.268***	0.191**	0.222***	0.170**
	(0.036)	(0.044)	(0.058)	(0.122)	(0.062)	(0.082)	(0.054)	(0.127)	(0.060)	(0.089)	(0.054)	(0.067)
GDP per capita		1.853***		0.701		-1.403		-0.887		1.739*		1.947**
		(0.532)		(1.233)		(1.330)		(1.303)		(0.896)		(0.770)
First-stage results												
Instrumental variable			-15.600***	-7.974***	-1.457***	-1.068***	-23.425***	-14.891***	-27.620***	-17.071***	-22.691***	-17.465***
			(2.491)	(2.798)	(0.330)	(0.187)	(2.411)	(3.674)	(5.257)	(4.442)	(3.447)	(2.540)
F-stat			39.22	8.122	19.45	32.76	94.40	16.43	88.35	40.03	43.32	47.29
Observations	83	83	83	83	33	33	83	83	72	72	61	61
R^2	0.486	0.543	0.437	0.490	0.297	0.252	0.361	0.244	0.491	0.535	0.516	0.548
Panel B: health and education expenses (%GDP)												
Individualism	0.091***	0.057***	0.135***	0.128***	0.107***	0.079***	0.131***	0.113***	0.119***	0.093***	0.100***	0.086***
	(0.009)	(0.012)	(0.019)	(0.046)	(0.020)	(0.021)	(0.015)	(0.030)	(0.018)	(0.028)	(0.015)	(0.019)
GDP per capita		0.761***		0.096		0.838***		0.234		0.561*		0.567**
		(0.195)		(0.442)		(0.240)		(0.302)		(0.316)		(0.250)
First-stage results												
Instrumental variable			-15.994***	-8.332***	-1.508***	-1.036***	-23.620***	-15.213***	-27.398***	-17.153***	-21.498***	-16.926***
			(2.437)	(2.670)	(0.318)	(0.185)	(2.282)	(3.620)	(5.053)	(4.281)	(3.408)	(2.357)
F-stat			43.08	9.736	22.47	31.21	107.1	17.66	94.83	38.63	39.78	51.56
Observations	91	91	91	91	33	33	91	91	64	64	64	64
R^2	0.485	0.578	0.376	0.410	0.577	0.714	0.395	0.473	0.539	0.613	0.563	0.637

Notes: The table shows two panels one for each of the two dependent variables, government subsidies and transfers and health and education expenses. The F-stat is the F statistic for the explanatory power of the excluded instrument in first stage regressions. Robust standard errors are in parentheses. *** (**, *) denotes statistical significance at the 1 (5, 10) percent level.

Table 2: The effect of culture on fiscal redistribution: Extended set of controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	government subsidies and transfers (%GDP)				health and education expenses (%GDP)			
	OLS	**IV (blood distance from the UK)**			**OLS**	**IV (blood distance from the UK)**		
Individualism	0.184***	0.222***	0.103**	0.122**	0.053***	0.102***	0.107***	0.120***
	(0.054)	(0.074)	(0.049)	(0.053)	(0.016)	(0.021)	(0.031)	(0.035)
GDP per capita	0.458	0.341	0.722	0.895	0.885***	0.376*	0.337	0.413
	(1.012)	(0.920)	(0.668)	(0.769)	(0.193)	(0.226)	(0.303)	(0.284)
Ethno-linguistic fractionalization	-4.780*	-5.795**	-4.834**	-4.487**	-0.974	-1.283	-1.343	-1.190
	(2.594)	(2.926)	(2.427)	(2.230)	(0.963)	(0.926)	(0.908)	(0.853)
Population	-0.704	-0.900	-0.130	-0.210	-1.019***	-1.360***	-1.435***	-1.502***
	(1.175)	(1.293)	(0.907)	(0.912)	(0.370)	(0.328)	(0.410)	(0.421)
Population above 65	-0.197	0.023	-0.169	-0.167	0.074	0.027	0.018	0.020
	(0.197)	(0.191)	(0.153)	(0.168)	(0.052)	(0.061)	(0.057)	(0.056)
Latitude	-0.063	0.045	0.014	-0.015	-0.030	-0.048***	-0.058***	-0.074**
	(0.068)	(0.058)	(0.058)	(0.071)	(0.020)	(0.018)	(0.022)	(0.029)
			First-stage results					
Instrumental variable		-12.884***	-12.076***	-11.359***		-11.752***	-10.656***	-9.632***
		(2.485)	(2.448)	(2.497)		(2.280)	(2.368)	(2.419)
F-stat		26.87	24.34	20.70		26.57	20.25	15.86
Legal Origins	Y	Y	Y	Y	Y	Y	Y	Y
Continent dummies	Y	N	Y	Y	Y	N	Y	Y
Religion	Y	N	N	Y	Y	N	N	Y
Observations	68	68	68	68	77	77	77	77
R^2	0.847	0.712	0.832	0.841	0.804	0.749	0.741	0.735

Notes: The instrument is the blood distance from the UK. The F-stat is the F statistic for the explanatory power of the excluded instrument in first stage regressions. Robust standard errors are in parentheses. *** (**, *) denotes statistical significance at the 1 (5, 10) percent level.

Tables A1: The effect of culture on fiscal redistribution: Extended set of controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	government subsidies and transfers (%GDP)					**health and education expenses (%GDP)**				
	IV (blood distance from the UK)	IV (A118G)	IV (pathogen prevalence)	IV (pronoun drop)	IV (language)	IV (blood distance from the UK)	IV (A118G)	IV (pathogen prevalence)	IV (pronoun drop)	IV (language)
Individualism	0.122**	0.464***	0.409***	1.689	0.150	0.120***	0.123***	0.120***	0.233	0.087*
	(0.053)	(0.093)	(0.128)	(2.896)	(0.138)	(0.035)	(0.041)	(0.036)	(0.247)	(0.050)
					First-stage results					
Instrumental variable	-11.359***	-0.758**	-15.318**	-1.861	-7.695*	-9.632***	-0.759***	-14.962***	-3.651	-6.583*
	(2.497)	(0.268)	(5.876)	(4.633)	(3.845)	(2.419)	(0.244)	(5.240)	(4.487)	(3.562)
F-stat	20.698	8.007	6.796	0.161	4.005	15.858	9.706	8.154	0.662	3.414
Extended set of controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Legal Origins	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Continent dummies	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Religion	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
No. of Countries	68	29	68	61	57	77	30	77	66	61
R^2	0.841	0.892	0.767	-1.385	0.850	0.735	0.901	0.735	0.488	0.850

Notes: Columns (1) and (6) reproduce the results of columns (4) and (8) of Table 2 when the instrument blood distance from the UK is included in the 2SLS specifications for government subsidies and transfers and health and education expenses, respectively. Columns (2)-(5) and (7)-(10), use the full set of controls for the rest of the instruments we employ in our study for government subsidies and transfers and health and education expenses, respectively. The extended set of controls includes GDP per capita, population, share of population above 65, ethno-linguistic fractionalization and absolute latitude. The F-stat is the F statistic for the explanatory power of the excluded instrument in first stage regressions. Robust standard errors are in parentheses. *** (**, *) denotes statistical significance at the 1 (5, 10) percent level.

Table A2: The effect of culture on Taxes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	OLS	OLS	IV (blood distance from the UK)		IV (A118G)		IV (pathogen prevalence)		IV (pronoun drop)		IV (language)	
Panel A: total taxes (%GDP)												
Individualism	0.149***	0.099**	0.266***	0.362**	0.254***	0.298***	0.230***	0.259**	0.158**	0.112	0.139**	0.126
	(0.034)	(0.049)	(0.060)	(0.158)	(0.067)	(0.101)	(0.052)	(0.125)	(0.065)	(0.113)	(0.059)	(0.078)
GDP per capita		1.124		-1.377		-1.330		-0.404		1.035		0.582
		(0.731)		(1.601)		(1.654)		(1.342)		(1.347)		(1.103)
					First-stage results							
Instrumental variable			-16.465***	-8.631***	-1.516***	-1.057***	-24.063***	-15.929***	-27.215***	-16.996***	-21.901***	-17.511***
			(2.470)	(2.749)	(0.312)	(0.183)	(2.227)	(3.562)	(5.124)	(4.262)	(3.414)	(2.343)
F-stat			44.432	9.857	23.591	33.304	116.793	19.998	28.211	15.903	41.147	55.845
Observations	90	90	90	90	33	33	90	90	75	75	63	63
R²	0.161	0.186	0.063	0.100	-0.052	-0.116	0.115	0.079	0.186	0.205	0.205	0.208
Panel B: direct taxes (%GDP)												
Individualism	0.130***	0.103***	0.173***	0.188***	0.124***	0.101***	0.138***	0.075	0.175***	0.194***	0.168***	0.177***
	(0.017)	(0.022)	(0.028)	(0.072)	(0.024)	(0.031)	(0.023)	(0.052)	(0.034)	(0.058)	(0.028)	(0.036)
GDP per capita		0.593**		-0.221		0.690		0.858		-0.411		-0.368
		(0.279)		(0.698)		(0.452)		(0.543)		(0.597)		(0.424)
					First-stage results							
Instrumental variable			-15.883***	-8.026***	-1.495***	-1.035***	-23.321***	-14.739***	-27.150***	-16.769***	-21.764***	-17.135***
			(2.437)	(2.662)	(0.312)	(0.180)	(2.227)	(3.360)	(5.059)	(4.225)	(3.350)	(2.320)
F-stat			42.479	9.089	22.970	33.079	109.652	19.249	28.807	15.753	42.204	54.543
Observations	93	93	93	93	34	34	93	93	78	78	66	66
R²	0.447	0.472	0.397	0.361	0.497	0.530	0.445	0.460	0.409	0.369	0.522	0.522

Notes: The table shows two panels one for each of the two dependent variables total taxes and direct taxes, according to the specification in Table 1 of the paper. The data for the two variables are obtained from the ICTD Government Revenue Dataset (ICTD). The F-stat is the F statistic for the explanatory power of the excluded instrument in first stage regressions. Robust standard errors are in parentheses. *** (**, *) denotes statistical significance at the 1 (5, 10) percent level.

**Table A3 – Part I: The effect of culture on fiscal redistribution taking into consideration continents**

	OLS	IV: Blood distance from the UK	IV: A118G	IV: Pathogen prevalence	IV: Pronoun drop	IV: language
All continents						
Individualism	0.273***	0.360***	0.415***	0.411***	0.268***	0.222***
	(0.036)	(0.058)	(0.062)	(0.054)	(0.060)	(0.054)
Obs.	83	83	33	83	72	61
R^2	0.486	0.437	0.297	0.361	0.491	0.516
First stage F-stat		39.221	19.452	94.400	27.610	43.323
Without Africa						
Individualism	0.262***	0.347***	0.416***	0.383***	0.273***	0.245***
	(0.037)	(0.062)	(0.062)	(0.059)	(0.059)	(0.054)
Obs.	71	71	32	71	63	54
R^2	0.466	0.418	0.244	0.368	0.473	0.516
First stage F-stat		33.977	20.291	59.919	32.735	113.639
Without Europe						
Individualism	0.126***	0.212***	0.202***	0.157***	0.146**	0.065
	(0.024)	(0.060)	(0.065)	(0.054)	(0.061)	(0.040)
Obs.	51	51	15	51	42	38
R^2	0.317	0.166	0.418	0.297	0.362	0.271
First stage F-stat		10.663	6.265	12.783	6.382	13.518
Without Asia						
Individualism	0.260***	0.286***	0.376***	0.378***	0.210***	0.172***
	(0.038)	(0.056)	(0.077)	(0.050)	(0.061)	(0.055)
Obs.	64	64	25	64	58	47
R^2	0.492	0.487	0.054	0.392	0.463	0.467
First stage F-stat		38.655	46.862	101.894	27.820	36.302
Without Americas						
Individualism	0.310***	0.410***	0.477***	0.486***	0.298***	0.251***
	(0.042)	(0.068)	(0.076)	(0.062)	(0.082)	(0.077)
Obs.	66	66	28	66	55	46
R^2	0.495	0.443	0.393	0.334	0.482	0.525
First stage F-stat		51.670	13.282	87.928	16.983	20.559
Without Oceania						
Individualism	0.300***	0.411***	0.445***	0.439***	0.309***	0.274***
	(0.035)	(0.061)	(0.064)	(0.055)	(0.062)	(0.055)
Obs.	80	80	32	80	70	59
R^2	0.534	0.461	0.354	0.420	0.550	0.606
First stage F-stat		32.396	18.376	86.360	22.638	31.096

Notes: The table shows the impact of individualism on government subsidies and transfers. The F-stat is the F statistic for the explanatory power of the excluded instrument in first stage regressions. Robust standard errors are in parentheses. *** (**, *) denotes statistical significance at the 1 (5, 10) percent level.

Table A3-Part II: The effect of culture on health and education expenses taking into consideration continents

	OLS	IV: Blood distance from the UK	IV: A118G	IV: Pathogen prevalence	IV: Pronoun drop	IV: language
All continents						
Individualism	0.091***	0.135***	0.107***	0.131***	0.119***	0.100***
	(0.009)	(0.019)	(0.020)	(0.015)	(0.018)	(0.015)
Obs.	91	91	33	91	77	64
R^2	0.485	0.376	0.577	0.395	0.474	0.563
First stage F-stat		43.078	22.466	107.139	29.395	39.782
Without Africa						
Individualism	0.091***	0.139***	0.108***	0.132***	0.113***	0.100***
	(0.010)	(0.022)	(0.020)	(0.017)	(0.018)	(0.014)
Obs.	75	75	32	75	66	55
R^2	0.491	0.357	0.557	0.396	0.475	0.552
First stage F-stat		37.130	23.503	67.285	33.918	107.572
Without Europe						
Individualism	0.072***	0.133***	0.057*	0.112***	0.096***	0.076***
	(0.012)	(0.035)	(0.032)	(0.024)	(0.023)	(0.017)
Obs.	61	61	16	61	48	43
R^2	0.313	0.094	0.498	0.220	0.363	0.409
First stage F-stat		11.102	6.965	14.972	6.530	11.452
Without Asia						
Individualism	0.082***	0.099***	0.089***	0.119***	0.111***	0.089***
	(0.009)	(0.014)	(0.031)	(0.013)	(0.018)	(0.015)
Obs.	68	68	24	68	60	47
R^2	0.512	0.489	0.440	0.405	0.476	0.587
First stage F-stat		46.886	46.597	120.371	29.155	35.511
Without the Americas						
Individualism	0.101***	0.146***	0.119***	0.141***	0.134***	0.118***
	(0.011)	(0.021)	(0.023)	(0.018)	(0.024)	(0.023)
Obs.	72	72	28	72	59	49
R^2	0.505	0.406	0.593	0.426	0.490	0.627
First stage F-stat		56.561	15.949	104.940	20.426	19.375
Without Oceania						
Individualism	0.096***	0.144***	0.112***	0.134***	0.126***	0.107***
	(0.010)	(0.022)	(0.021)	(0.016)	(0.020)	(0.018)
Obs.	88	88	32	88	75	62
R^2	0.492	0.370	0.601	0.417	0.460	0.557
First stage F-stat		35.912	21.119	97.172	24.242	27.836

Notes: The table shows the impact of individualism on health and education expenses. The F-stat is the F statistic for the explanatory power of the excluded instrument in first stage regressions. Robust standard errors are in parentheses. *** (**, *) denotes statistical significance at the 1 (5, 10) percent level.
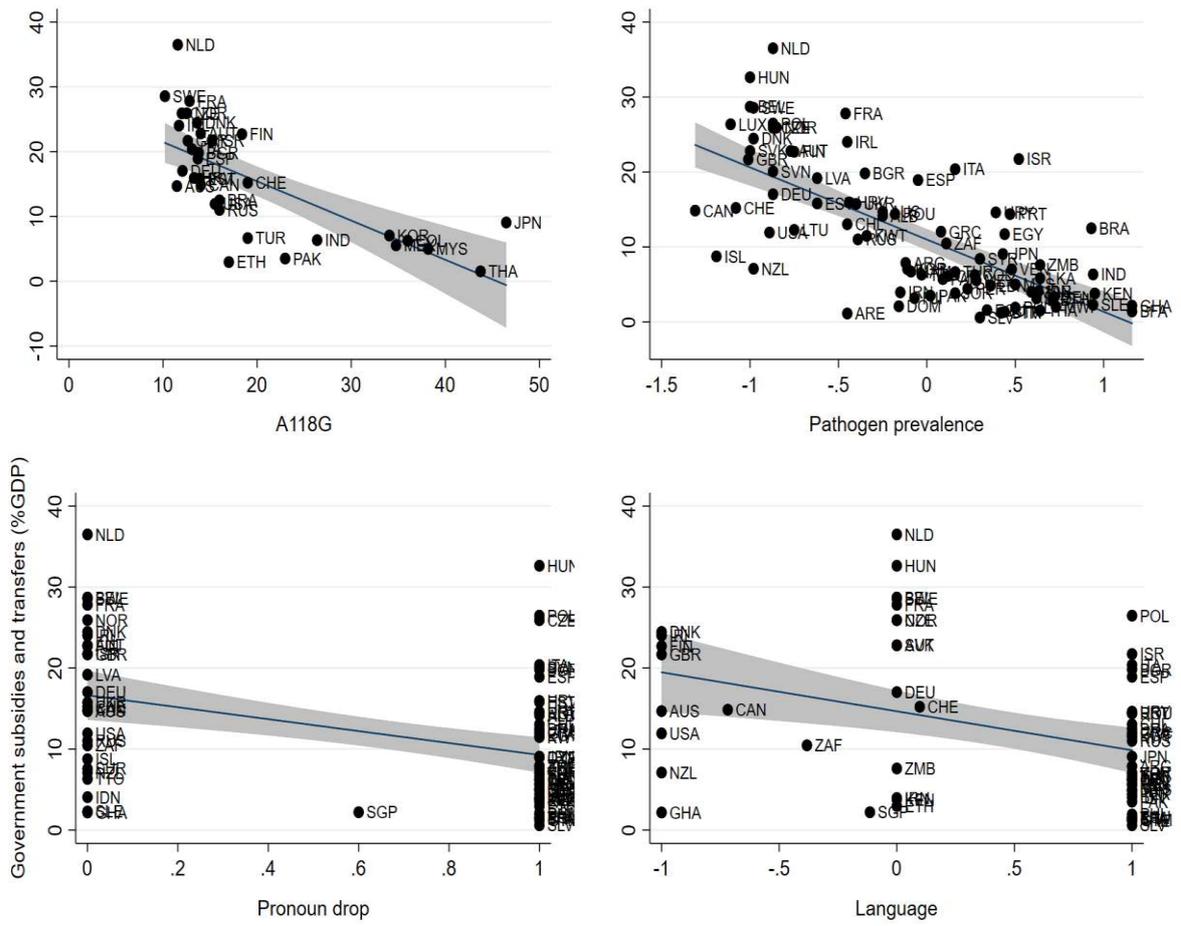
Figure A2: Reduced form relationship between other IVs and government subsidies & transfers (%GDP).
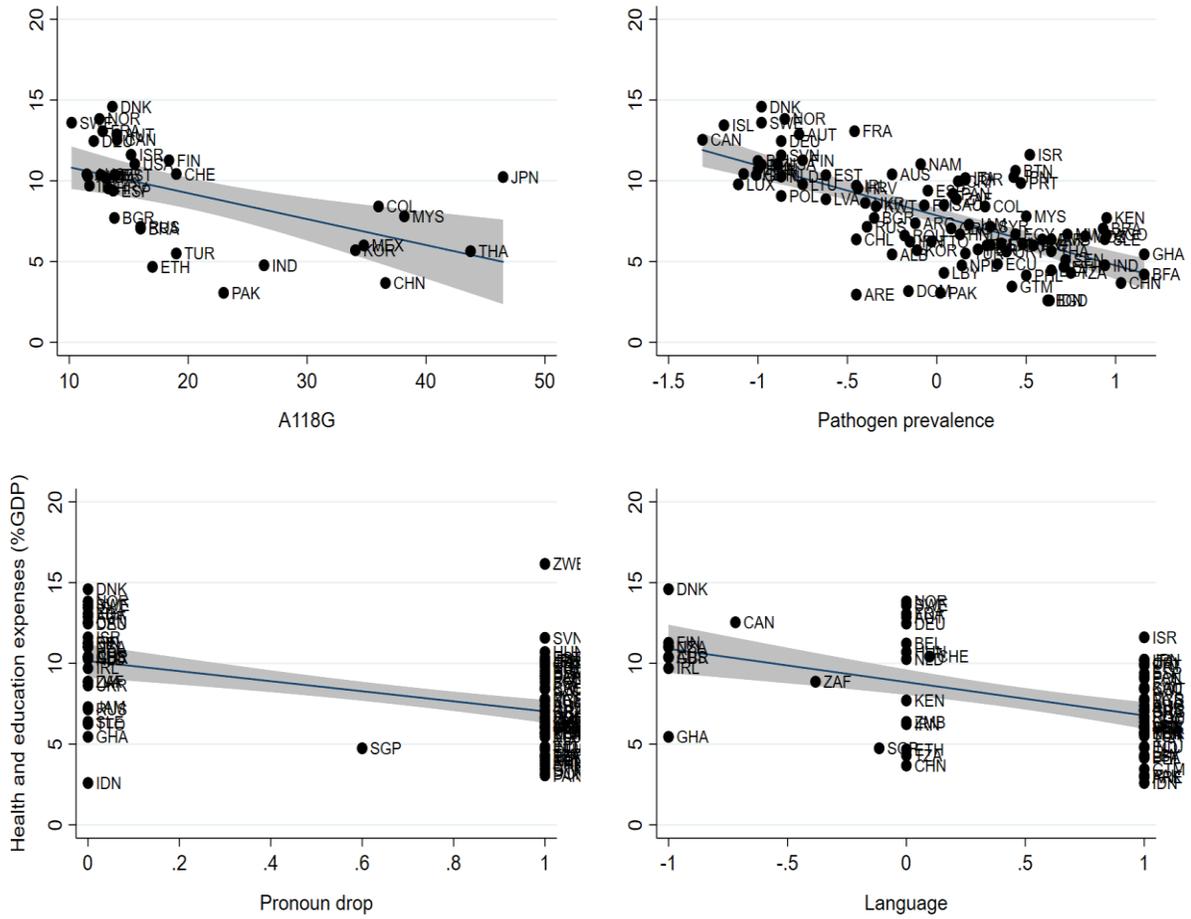
Figure A3: Reduced form relationship between other IVs and health & educations expenses (%GDP).