

Do gender norms matter in taxation and public spending?

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VERY PRELIMINARY DRAFT: please do not circulate

Abstract

Tax systems and public spending programs differ widely across countries. This variety reflects the dominant socio-economic and political context. According to a recent strand of the literature, culture and social norms also play a relevant role. Gender norms, i.e. the role of men and women in the society, are a natural, fundamental component of how culture may influence public policies. In this paper, we assemble a new panel dataset to investigate whether historical gender norms influence the size and composition of tax systems and public spending programs. Gender norms are measured by using three different historical variables: the timing of women's enfranchisement and two different measures of family types, values and patriarchal norms based on Todd (1990, 1985). The first measure builds on Todd's categorization of feminism based on the status of women within a family system, while the second measure combines the degree of feminism with a measure of the degree of parental authority. We show that the level of total tax revenue as percentage of GDP is higher in countries where the historical role of women within the family was more relevant. At the same time, we find that both the timing of women's enfranchisement and the degree of historical status of women in the family are significantly related to the structure of tax systems. In countries with earlier women's enfranchisement and/or where women historically played a more relevant role within the family, the share of direct taxes on total taxation is higher than in countries with a later enfranchisement and with historical gender inequality within the family. Looking at the expenditure side of the public budget, our preliminary results underline a positive and statistically significant relationship between the degree of historical status of women in the family and the share of total public spending as percentage of GDP. The use of historical variables allows also to overcome endogeneity concerns of the relationship between gender attitudes and public finance outcomes. Our results are robust to including all standard variables, which have been used by previous studies to explain the size and composition of public policies, and a comprehensive set of

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alternative historical determinants, such as legal origins, the importance of Catholicism in 1970s, the existence of a Communist regime in 1970s, the number of years of interstate conflict and the use of plough in agriculture as a proxy of the origins of gender roles. Our findings suggest that tax reforms such as a tax shift from direct to indirect taxes are not gender-neutral.

Keywords: gender inequality, comparative public finance, institutions, historical origins

JEL classification: H10, H20, N30, Z18

1 Introduction

Tax systems and public spending programs differ widely across countries. This variety reflects the dominant socio-economic and political context. The tax system, public spending and their rules significantly affect individuals and their socio-economic behaviors. Over the last two centuries, taxation regimes have changed significantly adapting to the dicta of economic development and progress. Notwithstanding this, in terms of gender neutrality, every tax system still presents deep differences and exhibits different levels of discrimination and gender bias, either explicit or implicit, which in turn may reflect the historically determined social and cultural norms that are prevalent in the country. According to a recent strand of the literature, culture and social norms also play a relevant role. Gender norms, i.e. the role of men and women in the society, are a natural, fundamental component of how culture may influence public policies. In this paper, we assemble a new panel dataset to investigate whether historical gender norms influence the size and composition of tax systems and public spending programs. Gender norms are measured by using three different historical variables: the timing of women's enfranchisement and two different measures of family types, values and patriarchal norms based on Todd (1990, 1985). The first measure builds on Todd's categorization of feminism based on the status of women within a family system, while the second measure combines the degree of feminism with a measure of the degree of parental authority. We show that the level of total tax revenue as percentage of GDP is higher in countries where the historical role of women within the family was more relevant. At the same time, we find that both the timing of women's enfranchisement and the degree of historical status of women in the family are significantly related to the structure of tax systems. In countries with earlier women's enfranchisement and/or where women historically played a more relevant role within the family, the share of direct taxes on total taxation is higher than in countries with a later enfranchisement and with historical gender inequality within the family. Looking at the expenditure side of the public budget, our preliminary results underline a positive and statistically significant relationship between the degree of historical status of women in the family and the share of total public spending as percentage of GDP. The use of historical variables allows also to overcome endogeneity concerns of the relationship between gender attitudes and public finance outcomes. Our results are robust to including all standard variables, which have been used by previous studies to explain the size and composition of public policies, and a comprehensive set of alternative historical determinants, such as legal origins, the importance of Catholicism in 1970s, the existence of a Communist regime in 1970s, the number of years of interstate conflict and the use of plough in agriculture as a proxy of the origins of gender roles. Our results suggest that policy-makers need to take into account that tax reforms such as a tax shift from direct to indirect taxes are not gender-neutral.

2 Literature review

There is little literature on the gender effects of direct versus indirect taxes. Elson (1999) highlights that women usually bear a disproportionate larger burden of taxes on goods and services than men because of their different consumption patterns (more family oriented). This is made even worse by the fact that women are generally also poorer than men. Aidt and Jensen (2009) explore the effect of the extension of the women's suffrage on tax composition and hypothesize an increase in the share of direct taxes, *ceteris paribus*, due to redistributive reasons. Most recent public finance studies have focused on the consequences of certain tax rules (e.g. marriage penalties) on the participation of women in the labor force (Gustafsson, 1992; Alm and Melnik, 2005; Alm and Whittington, 1999; LaLumia, 2008) and on the choices of motherhood, fertility, and child-bearing. In the context of the flourishing literature on the political economy of taxation and the welfare state, contributions have focused more on the impact of women's involvement in politics on fiscal and welfare policies (Lindert, 1994; Aidt and Dallal, 2008; Aidt et al., 2008 ; Aidt and Jensen, 2009a-b). The literature on the determinants of the women's empowerment has emphasized the role of history and its legacy on gender outcomes (Boserup, 1970; Alesina, Giuliano and Nunn, 2013; Bertocchi and Bozzano, 2016), of informal institutions, namely culture (Guiso, Sapienza and Zingales, 2006; Fernandez and Fogli, 2009; Givati and Troiano, 2012) and the influence of religion on the perception of the role of women in the family and in society in general (Guiso, Sapienza and Zingales, 2003; Algan and Cahuc, 2006; Bozzano, 2017) highlighting in particular the association between the presence of Catholicism in a country and a lower probability of granting women's suffrage (Bertocchi, 2011). Moreover a part of the literature has been devoted to the study of the influence of family ties and structures and their persistent effects of gender inequality (Alesina and Giuliano, 2010; Bertocchi and Bozzano, 2019). Finally, our paper is also related to the vast literature on the determinants and origins of formal institutions and institutional design and the coevolution with informal institutions (Aghion et al., 2004; Acemoglu and Johnson, 2005; Bisin and Verdier, 2001).

This paper intends to straddle these strands of the literature by investigating whether and how institutional differences between countries are the result of a crystallization of historically determined social and cultural values regarding the role of women in the society.

3 Data description

We collect data on total revenue (excluding grants and social security contributions) as percentage of GDP and on tax composition, i.e. the share of direct over indirect taxes, the share of direct taxes as percentage of total tax revenue, and the share of indirect taxes as percentage of total tax revenue. These data come from the UNUWIDER Government Revenue Dataset. According to data availability they are referred to all the countries of the world, and they go from 1980 to 2016.

We also collect data on total public expenditures as percentage of GDP from IMF

Government Finance Statistics (GFS).

Our historical explanatory variables are the following: - the timing of women’s enfranchisement; The franchise extension to women is a central event in the democratization process and it has been adopted over a long period of time. We construct a categorical variable which records the date in which the franchise has been extended to women for the first time (in some cases with restrictions of income or age or education level); - the role of women in the family. We construct two different measures starting from Todd (1990, 1985). The first measure builds on Todd’s categorization of feminism based on the status of women within a family system, while the second measure combines the degree of feminism with a measure of the degree of parental authority.

Our dataset also includes socio-economic variables at the macroeconomic level in order to control for the following dimensions: - economic structure: GDP per capita, the GDP growth rate; and the GDP per capita growth rate; - democratization and other political variables: measures of civil liberties and political rights from the Freedom house, the leftist orientation with respect to economic policy of the party of the prime minister or president, and the regime type; - demographic structure of the population: population density, urban population, the share of elderly and of young people in the total population; the fertility rate; - women’s socioeconomic outcomes: female labor force participation.

Regarding the alternative historical determinants, we collect data on: - colonial origins and quality of government (La Porta et al., 2008); - religion: the importance of Catholicism in each country in 1970s from McCleary and Barro’s (2006) Religion Adherence Dataset; - communism: the existence of a Communist regime in each country in 1970s from McCleary and Barro’s (2006); - wars periods: the years of interstate conflicts in each country; - the use of plough in agriculture a proxy of the origins of gender roles.

Many of these variables have a temporal dimension that allows us to exploit the panel dimension of the dataset. Summary statistics of selected variables are shown in Table 1.

[Table 1 about here]

3.1 Stylized facts

Figures 1 and 2 show that in countries where the right to vote has been granted to women earlier, or the role of women within the family was more relevant, the ratio direct/indirect taxes is higher, meaning that either direct taxes are higher or indirect taxes are lower. Indeed, New Zealand and Australia extended the suffrage to women in 1893 and 1902, respectively, and show a higher share of direct taxes over indirect ones. On the contrary, countries such as Bahrein, Oman, and The United Arab Emirates granted the suffrage after year 2000 and show a lower share of direct to indirect taxes.

Figures 3 and 4 plot the relationship between our two measures of gender norms and the ratio of direct taxes over total tax revenue. In this way we understand that in countries where the right to vote has been granted to women earlier, or the role of

women within the family was more relevant, the ratio direct/indirect taxes is higher due to higher direct taxes.

[Figures 1-4 about here]

4 Empirical analysis and results

We estimate the following equation:

$$Y_{i,t} =_{i,t} (Womensuffrage_i, Feminism_i, Pol_{i,t}, Eco_{i,t}, Demo_{i,t}, X_{i,t}) + \varepsilon_{i,t} \quad (1)$$

where $Y_{i,t}$ is our taxation dependent variable and $Womensuffrage_i$ and $Feminism_i$ are our focus explanatory variables. In a very parsimonious specification we include in the regression only the following variables: a measure of political rights and civil liberties in order to capture the degree of democratization of the country, a measure of the leftist orientation with respect to economic policy of the party of the prime minister or president, GDP per capita, population density, latitude and longitude to control for factor endowment and geographical conditions. Then we add different control variables which have been used by previous studies to explain the size and composition of public policies, and a comprehensive set of alternative historical determinants, such as legal origins, religion and communism in 1970s, years of interstate conflict and the use of plough in agriculture as a proxy of the origins of gender roles. We estimate the model by using GLS with regions and year dummies and we cluster standard errors at the country level in order to deal with potential heteroscedasticity as well as serial correlation within entities. We alternatively estimate our specification by using the so called hybrid model (Allison, 2009) in order to check the robustness of our results and make sure that the estimates are not inflated by not considering within-effects.

[Tables 2-9 about here]¹

Table 2 shows the correlation matrix for selected variables.

We find a positive and statistically significant relationship between the degree of feminism and the total tax revenue as percentage of GDP. On the contrary we are not able to find a statistically significant relationship between the timing of the extension of the suffrage to women and the total tax revenue as percentage of GDP. Looking at the tax composition, both the degree of feminism and the timing of the extension of the suffrage to women show a statistically significant relationship with not only the share of direct over indirect taxes but also the share of direct taxes as percentage of total tax revenue. Thus, in countries where women have been enfranchised earlier and/or women played a relevant role within the family we observe a higher direct to indirect taxes ratio as well as a higher level of direct taxes over the total tax revenue. On the contrary, there is no relationship between both the timing of the extension of the suffrage to women

¹Our results still hold when we substitute the degree of feminism with the combined measure of the degree of feminism and the degree of parental authority.

and the degree of feminism and the amount of indirect taxes as percentage of total tax revenue. Our results are robust and consistent across specifications and hold to the inclusion of a broad set of confounding explanatory variables. Overall, they suggest the existence of some relationship between both the political and the family role of women and the redistributive role of the tax system, mainly played by direct taxes.

Then, we look at the spending side of the public budget. In particular, we preliminary test if gender norms are related to the total level of public spending on GDP. Thus, in this case $Y_{i,t}$ identifies the total public expenditure as percentage of GDP.

[Tables 10-11 about here]²

We find a positive and statistically significant relationship between the degree of feminism and the level of total spending as percentage of GDP, while the timing of the extension of the suffrage to women does not show a statistically significant relationship with the size of government. Even in this case our preliminary results are robust and consistent across specifications and hold to the inclusion of a broad set of confounding explanatory variables.

5 Conclusions

To be added

²Our results still hold when we substitute the degree of feminism with the combined measure of the degree of feminism and the degree of parental authority.

References

- Aghion, P., Alesina, A., Trebbi, F., 2004. Endogenous Political Institutions, *The Quarterly Journal of Economics*, Oxford University Press, 119(2), 565-611.
- Alesina, A., Algan, Y., Cahuc, P., Giuliano, P., 2015. Family Values And The Regulation Of Labor, *Journal of the European Economic Association*, 13(4), 599-630.
- Alesina, A.F., Giuliano, P., 2010. The Power of the Family. *Journal of Economic Growth*, 15, 93-125.
- Alesina, A.F., Giuliano, P., Nunn, N., 2013. On the Origins of Gender Roles: Women and the Plough. *Quarterly Journal of Economics*, 128, 2, 469-530.
- Aidt, T.S., Dallal, B., 2008. Female Voting Power: The Contribution of Women's Suffrage to the Growth of Social Spending in Western Europe (1869-1960). *Public Choice*, 134, 3-4, 391-417.
- Aidt, T.S., Dutta, J., Loukoianova, E., 2006. Democracy comes to Europe: Franchise extension and fiscal outcomes 1830-1938, *European Economic Review*, 50, 2, 249-283.
- Aidt, T.S., Jensen, P., 2009a. Tax Structure, Size of Government and the Extension of the Voting Franchise in Western Europe, 1860-1938. *International Tax and Public Finance*, 16, 3, 362-394.
- Aidt, T.S., Jensen, P., 2009b. The taxman tools up: An event history study of the introduction of the personal income tax, *Journal of Public Economics*, 93, 1-2, 160-175.
- Algan, Y., Cahuc, P., 2006. Job Protection: The Macho Hypothesis. *Oxford Review of Economic Policy*, 22, 290-410.
- Alm, J., Melnik, M. I., 2005. Taxing the family in the individual income tax. *Public Finance and Management*, 5, 56-101.
- Alm, J., Whittington, L.A., 1999. Policy Watch. The Marriage Penalty. *Journal of Economic Perspective*, 13, 193-204.
- Barnett, K., Grown, C., Commonwealth Secretariat, 2004. Gender impacts of government revenue collection: the case of taxation , Commonwealth Secretariat London.
- Bertocchi, G., 2011. The Enfranchisement of Women and the Welfare State. *European Economic Review*, 55, 535-553.
- Bertocchi, G., Bozzano, M., 2019. Origins and Implications of Family Structure across Italian Provinces in Historical Perspective, in Claude Diebolt *et al.*, (eds) *Cliometrics and the Family: Global Patterns and Their Impact on Diverging Development*, Springer Verlag, Berlin.

- Bertocchi, G., Bozzano, M., 2016. Women, Medieval Commerce, and the Education Gender Gap. *Journal of Comparative Economics*, 44, 496-521.
- Bertocchi, G., Bozzano, M., 2015. Family Structure and the Education Gender Gap: Evidence from Italian Provinces, *CESifo Economic Studies* 61, 263-300.
- Bisin, A., Verdier, T., 2001. The Economics of Cultural Transmission and the Dynamics of Preferences. *Journal of Economic Theory*, Elsevier, 97(2), 298-319.
- Boserup, E., 1970. *Woman's role in economic development*. London: George Allen & Unwin.
- Bozzano, M., 2017. On the Historical Roots of Women's Empowerment across Italian Provinces: Religion or Family Culture? *European Journal of Political Economy*.
- Carmichael, S.G., 2016. Marriage, Family and Gender Inequality: An historical exploration of the relationship between family systems, the position of women and development, Ph.D. Thesis dissertation, University of Utrecht.
- Carmichael, S.G., Rijpma, A., 2016. Testing Todd and Matching Murdock: Global Data on Historical Family Characteristics. *Economic History of Developing Regions*, volume 31, 1, 10-46.
- Elson, D., 1999. Labor Markets as Gendered Institutions: Equality, Efficiency and Empowerment Issues, *World Development*, Elsevier, 27(3), 611-627.
- Fernandez, R., Fogli, A., 2009. Culture: An Empirical Investigation of Beliefs, Work, and Fertility. *American Economic Journal: Macroeconomics* 1, 146-177.
- Galasso, V., Profeta, P., 2018. When the State Mirrors the Family: The Design of Pension Systems. *Journal of the European Economic Association*, vol. 16(6), 1712-1763.
- Givati, Y., Troiano, U., 2012. Law, Economics and Culture: Theory of Mandated Benefits and Evidence from Maternal Leave Policies. *Journal of Law and Economics*, 55, 339-364.
- Goldin, Claudia, 1990. *Understanding the Gender Gap*. Oxford University Press, New York.
- Guiso, L., Sapienza, P., Zingales, L., 2003. Peoples Opium? Religion and Economic Attitudes. *Journal of Monetary Economics*, 50, 225-282.
- Guiso, L., Sapienza, P., Zingales, L., 2006. Does Culture Affect Economic Outcomes?. *Journal of Economic Perspectives*, 20, 23-48.
- Gustafsson, S., 1992. Separate taxation and married women's labor supply. *Journal of Population Economics*, 5, 618-5.

- Shleifer, A., Lopez-de-Silanes, F., La Porta, R., 2008. The Economic Consequences of Legal Origins. *Journal of Economic Literature*, American Economic Association, 46(2), 285-332.
- LaLumia, S. 2008. The effects of joint taxation of married couples on labor supply and non-wage income. *Journal of Public Economics*, 92 (2008) 16981719.
- Lindert, P., 1994. The Rise of Social Spending, 1880-1930, *Explorations in Economic History*, 31, 1, 1-37.
- OECD, 2018. Taxing Wages 2018, OECD Publishing, Paris, https://doi.org/10.1787/tax_wages-2018-en.
- Stotsky, J., 1997a. Gender bias in tax systems, *Tax Notes International*, 9 June, pp. 19131923.
- Stotsky, J., 1997b. How tax systems treat men and women differently, *Finance and Development*, March: 3033.
- Todd, E., 1990. *L'Invention de l'Europe*. Seuil, Paris.
- Todd, E., 1985. *The Explanation of Ideology: Family Structures and Social System*. Basil Blackwell, Oxford.
- World Economic Forum (various). *The Global Gender Gap Report*. WEF, Davos.

Figures and Tables

Figure 1: Timing of Women's enfranchisement and tax composition (direct taxes/indirect taxes)

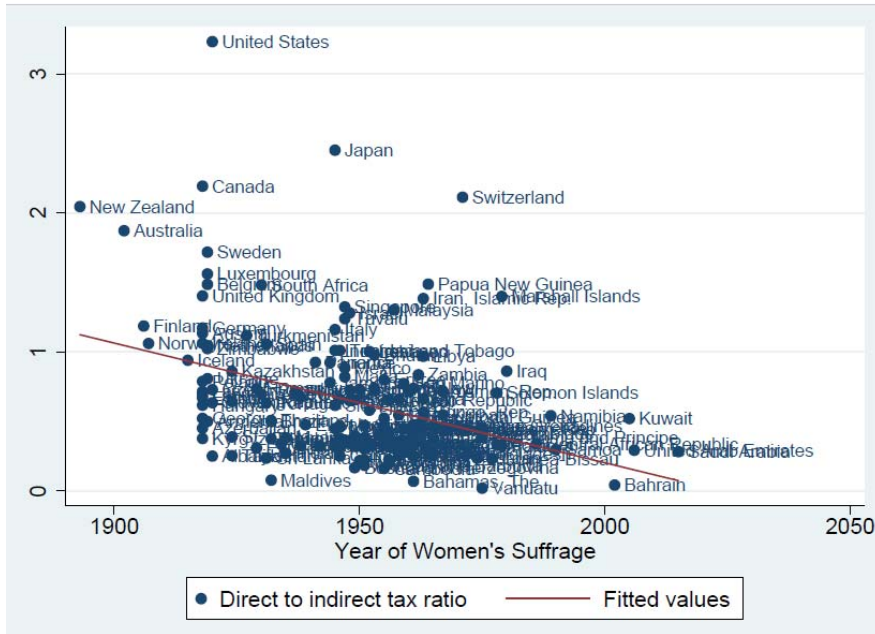


Figure 3: Timing of Women's enfranchisement and tax composition (direct taxes/total tax revenue)

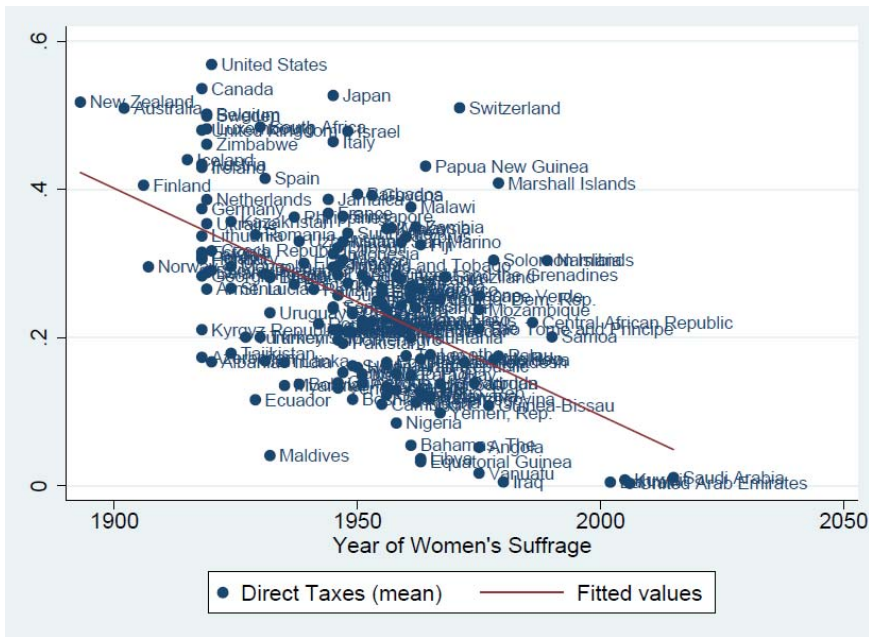


Table 1: Summary statistics: selected variables

Variable	Obs	Mean	Std. Dev.	Min	Max
World countries					
Total tax revenue (% GDP)	5,497	0.230726	0.110515	0.007	1.115
Direct taxes over indirect taxes	4,577	0.694014	0.607633	0	9.499999
Direct taxes (% total tax revenue)	4,329	0.263362	0.134215	0	0.776786
Indirect taxes (% total tax revenue)	4,396	0.486972	0.1949	0	0.928962
Women's suffrage (year)	187	1949.027	22.04036	1893	2015
Degree of Feminism	177	0.388701	0.34853	0	1
Women's status (combined)	176	3.528409	2.454154	0	8

Table 2: Correlation matrix: selected variables

	Total tax revenue (% GDP)	Direct taxes over indirect taxes	Direct taxes (% total tax revenue)	Indirect taxes (% total tax revenue)	Women's suffrage (year)	Degree of Feminism
Direct taxes over indirect taxes	0.3242*					
Direct taxes (% total tax revenue)	0.1772*	0.7392*				
Indirect taxes (% total tax revenue)	-0.5282*	-0.6009*	-0.2332*			
Women's suffrage (year)	-0.0830*	-0.3375*	-0.5018*	-0.0596*		
Degree of Feminism	0.2073*	0.3773*	0.4393*	-0.1067*	-0.4757*	
Women's status (combined)	0.1517*	0.3690*	0.4635*	-0.0440*	-0.5468*	0.9792*

Notes: the above correlations are calculated on the world sample of countries for the period 1980-2015.

Table 3: Total tax revenue and women's status

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Estimation technique:	Total tax revenue (% GDP)						
Random Effects							
Women's suffrage (year)	0.000158 (0.000522)	-0.000218 (0.000440)	8.95e-05 (0.000521)	9.27e-05 (0.000520)	-7.82e-05 (0.000481)	0.000449 (0.000629)	0.000125 (0.000512)
Degree of Feminism	0.0850*** (0.0329)	0.105*** (0.0359)	0.0893*** (0.0331)	0.0884*** (0.0329)	0.0736** (0.0331)	0.113*** (0.0375)	0.0824** (0.0326)
GDP per capita	4.86e-07 (4.83e-07)	-2.48e-09 (5.41e-07)	5.36e-07 (4.79e-07)	5.59e-07 (4.71e-07)	1.26e-06** (5.20e-07)	-1.13e-06** (5.38e-07)	6.29e-07 (4.64e-07)
Population density	-3.23e-05*** (4.26e-06)	-2.55e-05*** (5.13e-06)	-3.24e-05*** (4.20e-06)	-3.25e-05*** (4.13e-06)	-3.45e-05*** (4.07e-06)	-2.72e-05*** (4.45e-06)	3.38e-05*** (4.13e-06)
Political Rights (FH)	0.00221 (0.00186)	0.00238 (0.00187)	0.00222 (0.00184)	0.00224 (0.00184)	0.00195 (0.00187)	-0.000528 (0.00184)	0.00189 (0.00202)
Civil Liberties (FH)	-0.00228 (0.00287)	-0.00244 (0.00296)	-0.00229 (0.00287)	-0.00235 (0.00287)	-0.00274 (0.00274)	-0.00165 (0.00318)	-0.00186 (0.00291)
Left Government	0.00429** (0.00187)	0.00346* (0.00188)	0.00431** (0.00188)	0.00429** (0.00188)	0.00362* (0.00187)	0.00362*** (0.00125)	0.00432** (0.00191)
Latitude	-0.00185*** (0.000625)	-0.00198*** (0.000617)	-0.00192*** (0.000623)	-0.00192*** (0.000622)	-0.00182*** (0.000577)	-0.00176** (0.000738)	0.00185** (0.000622)
Longitude	-0.000646** (0.000251)	-0.000675*** (0.000220)	-0.000635** (0.000248)	-0.000630** (0.000248)	-0.000603** (0.000236)	-0.000900*** (0.000304)	0.000633* (0.000249)
Urban population		0.000776** (0.000378)					
Oil rent		0.00320*** (0.000744)					
Trade		0.000137 (8.91e-05)					
GDP growth			0.000114 (0.000231)				
GDP per capita growth				6.47e-05 (0.000242)			
Young people (0-14)					-0.00141 (0.00109)		
TFR					-0.00499 (0.00499)		
Elderly people (65+)					-0.00511* (0.00272)		
Female LFP rate						0.000173 (0.000452)	
Regime type							-9.90e-06 (5.27e-05)
Constant	-0.0566 (1.017)	0.609 (0.854)	0.0708 (1.014)	0.0651 (1.012)	0.499 (0.942)	-0.606 (1.231)	0.00748 (0.997)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,150	3,998	4,130	4,129	4,148	3,383	4,020
Number of countries	150	149	149	149	150	147	150

Standard errors in parentheses are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1

Table 4: Total tax revenue and women's status: alternative historical determinants

	(1)	(2)	(3)	(4)	(5)
Estimation technique: Random Effects	Total tax revenue (% GDP)				
Women's suffrage (year)	-9.94e-05 (0.000513)	0.000146 (0.000510)	0.000123 (0.000515)	0.000168 (0.000523)	0.000105 (0.000526)
Degree of Feminism	0.0659** (0.0306)	0.0897*** (0.0328)	0.0868** (0.0342)	0.0849*** (0.0329)	0.0805** (0.0326)
GDP per capita	4.85e-07 (4.75e-07)	4.98e-07 (4.82e-07)	5.06e-07 (5.02e-07)	4.80e-07 (4.84e-07)	4.83e-07 (4.84e-07)
Population density	-3.18e-05*** (4.22e-06)	-3.25e-05*** (4.27e-06)	-3.24e-05*** (4.27e-06)	-3.22e-05*** (4.28e-06)	-3.27e-05*** (4.27e-06)
Political Rights (FH)	0.00250 (0.00185)	0.00207 (0.00186)	0.00206 (0.00186)	0.00222 (0.00186)	0.00223 (0.00185)
Civil Liberties (FH)	-0.00248 (0.00287)	-0.00183 (0.00285)	-0.00181 (0.00285)	-0.00228 (0.00287)	-0.00228 (0.00287)
Left Government	0.00428** (0.00188)	0.00410** (0.00190)	0.00410** (0.00189)	0.00429** (0.00187)	0.00428** (0.00187)
Latitude	-0.00192*** (0.000603)	-0.00190*** (0.000610)	-0.00183*** (0.000627)	-0.00185*** (0.000623)	-0.00198*** (0.000624)
Longitude	-0.000649*** (0.000246)	-0.000750*** (0.000244)	-0.000662*** (0.000251)	-0.000612** (0.000265)	-0.000640** (0.000280)
British legal origins	-0.0312 (0.0230)				
French legal origins	-0.0580*** (0.0184)				
Catholicism 1970		-0.0275 (0.0213)			
Communist dummy 1970			0.00113 (0.0292)		
Years of interstate conflict				0.000461 (0.000676)	
Plough					0.0349 (0.0221)
Constant	0.481 (1.000)	-0.0166 (0.992)	0.0175 (1.004)	-0.0822 (1.019)	0.0279 (1.028)
Year dummies	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes
Observations	4,125	4,121	4,121	4,150	4,150
Number of country1	149	149	149	150	150

Standard errors in parentheses are clustered at country level. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Tax composition and women's status: direct taxes over indirect taxes.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Estimation technique:	Direct taxes over indirect taxes						
Random Effects							
Women's suffrage (year)	-0.00692*** (0.00179)	-0.00697*** (0.00146)	-0.00695*** (0.00178)	-0.00698*** (0.00179)	-0.00759*** (0.00160)	-0.00589*** (0.00164)	-0.00703*** (0.00180)
Degree of Feminism	0.485*** (0.169)	0.462*** (0.161)	0.498*** (0.174)	0.500*** (0.174)	0.391** (0.186)	0.433*** (0.160)	0.483*** (0.168)
GDP per capita	1.64e-06 (2.15e-06)	-4.23e-07 (2.45e-06)	1.41e-06 (2.20e-06)	1.38e-06 (2.21e-06)	7.14e-06** (3.27e-06)	3.46e-06 (2.13e-06)	1.77e-06 (2.17e-06)
Population density	-0.000102*** (2.18e-05)	-8.84e-05*** (2.26e-05)	-0.000104*** (2.12e-05)	-0.000104*** (2.14e-05)	-0.000121*** (2.66e-05)	-3.84e-05* (2.06e-05)	-0.000101*** (2.17e-05)
Political Rights (FH)	0.00143 (0.0102)	-0.00430 (0.00861)	0.000789 (0.0102)	0.00102 (0.0102)	0.000824 (0.0101)	-0.000166 (0.0110)	0.00517 (0.00984)
Civil Liberties (FH)	-0.00821 (0.0186)	7.27e-05 (0.0181)	-0.00716 (0.0189)	-0.00709 (0.0189)	-0.00952 (0.0183)	-0.00438 (0.0177)	-0.00508 (0.0198)
Left Government	0.0222*** (0.00790)	0.0263*** (0.00695)	0.0218*** (0.00795)	0.0219*** (0.00794)	0.0179** (0.00831)	0.0230*** (0.00712)	0.0203*** (0.00784)
Latitude	-0.00191 (0.00315)	-0.00222 (0.00295)	-0.00213 (0.00318)	-0.00214 (0.00318)	-0.000826 (0.00322)	-0.00130 (0.00269)	-0.00187 (0.00318)
Longitude	-0.000185 (0.00154)	0.000794 (0.00140)	-0.000244 (0.00154)	-0.000253 (0.00155)	0.000326 (0.00136)	0.00111 (0.00158)	-0.000107 (0.00156)
Urban population		0.00856*** (0.00277)					
Oil rent		0.00536* (0.00292)					
Trade		0.000100 (0.000734)					
GDP growth			-0.00236** (0.00119)				
GDP per capita growth				-0.00194 (0.00143)			
Young people (0-14)					0.00425 (0.00743)		
TFR					-0.110*** (0.0384)		
Elderly people (65+)					-0.0201 (0.0192)		
Female LFP rate						0.000544 (0.00229)	
Regime type							0.000380 (0.000472)
Constant	14.21*** (3.527)	13.80*** (2.868)	14.29*** (3.513)	14.34*** (3.524)	15.83*** (3.184)	11.96*** (3.215)	14.38*** (3.546)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,584	3,491	3,559	3,558	3,574	2,984	3,486
Number of countries	142	141	141	141	142	140	142

Standard errors in parentheses are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Tax composition and women's status: alternative historical determinants

	(1)	(2)	(3)	(4)	(5)
Estimation technique: Random Effects					
		Direct taxes over indirect taxes			
Women's suffrage (year)	-0.00848*** (0.00191)	-0.00708*** (0.00171)	-0.00798*** (0.00169)	-0.00681*** (0.00179)	-0.00684*** (0.00178)
Degree of Feminism	0.455*** (0.171)	0.478*** (0.170)	0.289** (0.139)	0.477*** (0.173)	0.498*** (0.169)
GDP per capita	1.37e-06 (2.16e-06)	1.73e-06 (2.16e-06)	6.14e-07 (2.38e-06)	1.57e-06 (2.07e-06)	1.65e-06 (2.14e-06)
Population density	-0.000105*** (2.22e-05)	-0.000103*** (2.19e-05)	-0.000100*** (2.25e-05)	-9.71e-05*** (2.22e-05)	-0.000100*** (2.16e-05)
Political Rights (FH)	0.00264 (0.0104)	0.00291 (0.0102)	0.00355 (0.0102)	0.00213 (0.0102)	0.00136 (0.0102)
Civil Liberties (FH)	-0.00744 (0.0188)	-0.0102 (0.0186)	-0.00807 (0.0184)	-0.00855 (0.0186)	-0.00816 (0.0186)
Left Government	0.0230*** (0.00783)	0.0259*** (0.00722)	0.0267*** (0.00719)	0.0218*** (0.00791)	0.0222*** (0.00788)
Latitude	0.00149 (0.00272)	-0.00163 (0.00312)	0.000388 (0.00306)	-0.00191 (0.00301)	-0.00165 (0.00308)
Longitude	0.000279 (0.00136)	-0.000108 (0.00150)	0.00126 (0.00168)	0.000701 (0.00174)	-0.000186 (0.00150)
British legal origins	0.272** (0.127)				
French legal origins	0.0876 (0.102)				
Catholicism 1970		0.0235 (0.0968)			
Communist dummy 1970			-0.409*** (0.111)		
Years of interstate conflict				0.0105** (0.00504)	
Plough					-0.0614 (0.0952)
Constant	17.00*** (3.702)	14.57*** (3.373)	16.33*** (3.335)	13.81*** (3.532)	14.09*** (3.509)
Year dummies	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes
Observations	3,540	3,559	3,559	3,584	3,584
Number of countries	140	141	141	142	142

Standard errors in parentheses are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Tax composition and women's status: direct taxes (% total tax revenue).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Estimation technique:	Direct taxes (% total tax revenue)						
Random Effects							
Women's suffrage (year)	-0.00251*** (0.000472)	-0.00218*** (0.000428)	-0.00251*** (0.000475)	-0.00252*** (0.000476)	-0.00251*** (0.000454)	-0.00238*** (0.000475)	-0.00252*** (0.000473)
Degree of Feminism	0.192*** (0.0450)	0.166*** (0.0396)	0.194*** (0.0468)	0.194*** (0.0469)	0.156*** (0.0462)	0.163*** (0.0455)	0.192*** (0.0450)
GDP per capita	-7.74e-07 (5.15e-07)	-1.21e-06** (5.78e-07)	-8.16e-07 (5.26e-07)	-8.26e-07 (5.32e-07)	3.78e-07 (5.51e-07)	-1.33e-06** (6.11e-07)	-7.33e-07 (5.12e-07)
Population density	9.75e-06 (7.55e-06)	1.30e-05* (7.15e-06)	9.93e-06 (7.75e-06)	9.85e-06 (7.71e-06)	5.47e-06 (6.51e-06)	3.07e-05*** (1.10e-05)	9.04e-06 (7.48e-06)
Political Rights (FH)	0.000934 (0.00268)	-0.000103 (0.00234)	0.000737 (0.00264)	0.000774 (0.00265)	0.000862 (0.00270)	0.00185 (0.00298)	0.000605 (0.00261)
Civil Liberties (FH)	-0.00250 (0.00403)	-0.000609 (0.00377)	-0.00253 (0.00402)	-0.00248 (0.00402)	-0.00299 (0.00392)	-0.00741* (0.00411)	-0.00258 (0.00394)
Left Government	0.00759*** (0.00281)	0.00898*** (0.00259)	0.00744*** (0.00282)	0.00747*** (0.00282)	0.00665** (0.00308)	0.00733*** (0.00240)	0.00729*** (0.00282)
Latitude	-0.000531 (0.000709)	-0.000651 (0.000694)	-0.000538 (0.000715)	-0.000540 (0.000717)	-0.000307 (0.000667)	-0.000413 (0.000735)	-0.000528 (0.000710)
Longitude	-0.000157 (0.000345)	0.000181 (0.000349)	-0.000155 (0.000344)	-0.000157 (0.000345)	1.91e-06 (0.000320)	-0.000221 (0.000346)	-0.000149 (0.000348)
Urban population		0.00232*** (0.000654)					
Oil rent		-0.00304*** (0.000548)					
Trade		8.85e-05 (7.70e-05)					
GDP growth			-0.000598** (0.000238)				
GDP per capita growth				-0.000591** (0.000239)			
Young people (0-14)					0.00261 (0.00184)		
TFR					-0.0279*** (0.00910)		
Elderly people (65+)					0.000355 (0.00303)		
Female LFP rate						0.000800 (0.000822)	
Regime type							-3.62e-05 (0.000111)
Constant	5.050*** (0.917)	4.307*** (0.836)	5.061*** (0.923)	5.076*** (0.924)	5.070*** (0.889)	4.783*** (0.928)	5.078*** (0.920)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,380	3,278	3,367	3,366	3,380	2,884	3,283
Number of countries	142	141	141	141	142	139	142

Standard errors in parentheses are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1

Table 8: Tax composition and women's status: alternative historical determinants

	(1)	(2)	(3)	(4)	(5)
Estimation technique: Random Effects					
Direct taxes (% total tax revenue)					
Women's suffrage (year)	-0.00254*** (0.000486)	-0.00255*** (0.000464)	-0.00278*** (0.000427)	-0.00248*** (0.000443)	-0.00248*** (0.000472)
Degree of Feminism	0.175*** (0.0393)	0.191*** (0.0449)	0.130*** (0.0504)	0.190*** (0.0454)	0.196*** (0.0447)
GDP per capita	-8.30e-07* (5.02e-07)	-7.80e-07 (5.11e-07)	-1.01e-06* (5.62e-07)	-7.79e-07 (5.17e-07)	-7.78e-07 (5.18e-07)
Population density	8.44e-06 (7.38e-06)	9.97e-06 (7.57e-06)	1.09e-05 (7.36e-06)	1.03e-05 (7.39e-06)	1.00e-05 (7.61e-06)
Political Rights (FH)	0.00103 (0.00270)	0.00135 (0.00267)	0.00143 (0.00266)	0.00100 (0.00267)	0.000924 (0.00268)
Civil Liberties (FH)	-0.00239 (0.00406)	-0.00317 (0.00399)	-0.00304 (0.00398)	-0.00257 (0.00402)	-0.00250 (0.00403)
Left Government	0.00765*** (0.00279)	0.00865*** (0.00266)	0.00875*** (0.00265)	0.00755*** (0.00280)	0.00759*** (0.00281)
Latitude	0.000570 (0.000700)	-0.000441 (0.000699)	1.95e-05 (0.000679)	-0.000519 (0.000688)	-0.000449 (0.000719)
Longitude	-9.12e-05 (0.000287)	-0.000136 (0.000323)	0.000199 (0.000353)	5.11e-05 (0.000355)	-0.000161 (0.000329)
British legal origins	0.101*** (0.0288)				
French legal origins	0.0201 (0.0241)				
Catholicism 1970		0.00744 (0.0315)			
Communist dummy 1970			-0.109*** (0.0291)		
Years of interstate conflict				0.00241** (0.00109)	
Plough					-0.0210 (0.0249)
Constant	5.051*** (0.935)	5.148*** (0.901)	5.603*** (0.833)	4.962*** (0.866)	5.000*** (0.914)
Year dummies	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes
Observations	3,362	3,355	3,355	3,380	3,380
Number of countries	141	141	141	142	142

Standard errors in parentheses are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1

Table 9: Tax composition and women's status: indirect taxes (% total tax revenue).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Estimation technique:	Indirect taxes (% total tax revenue)						
Random Effects							
Women's suffrage (year)	-0.00124 (0.000914)	-0.000626 (0.000610)	-0.00116 (0.000927)	-0.00115 (0.000926)	-0.00111 (0.000854)	-0.00147 (0.000946)	-0.00123 (0.000916)
Degree of Feminism	-0.0848 (0.0629)	-0.0863 (0.0612)	-0.0967 (0.0657)	-0.0970 (0.0656)	-0.0641 (0.0636)	-0.109 (0.0751)	-0.0864 (0.0629)
GDP per capita	-1.18e-06 (9.35e-07)	-1.38e-06 (1.06e-06)	-1.06e-06 (9.04e-07)	-1.06e-06 (9.02e-07)	-2.19e-06* (1.19e-06)	-1.00e-06 (1.47e-06)	-1.15e-06 (9.53e-07)
Population density	3.50e-05*** (1.29e-05)	2.40e-05 (1.54e-05)	3.45e-05*** (1.32e-05)	3.46e-05*** (1.31e-05)	3.83e-05*** (1.18e-05)	2.59e-05 (1.94e-05)	3.50e-05*** (1.33e-05)
Political Rights (FH)	0.000801 (0.00343)	0.00129 (0.00363)	0.00144 (0.00335)	0.00140 (0.00335)	0.000814 (0.00341)	3.23e-05 (0.00349)	-0.000787 (0.00386)
Civil Liberties (FH)	-0.00138 (0.00432)	-0.00130 (0.00420)	-0.00217 (0.00424)	-0.00220 (0.00424)	-0.000592 (0.00418)	0.000691 (0.00489)	-0.00282 (0.00433)
Left Government	-0.00862*** (0.00309)	-0.00893*** (0.00273)	-0.00841*** (0.00311)	-0.00844*** (0.00311)	-0.00772** (0.00309)	-0.00730** (0.00302)	-0.00822*** (0.00307)
Latitude	6.71e-05 (0.00101)	0.000254 (0.000837)	0.000183 (0.00102)	0.000185 (0.00102)	-4.44e-05 (0.00102)	-5.20e-05 (0.00102)	4.02e-05 (0.00102)
Longitude	6.49e-05 (0.000450)	-0.000220 (0.000371)	7.47e-05 (0.000454)	7.50e-05 (0.000454)	-5.30e-05 (0.000451)	-0.000346 (0.000600)	5.55e-05 (0.000451)
Urban population		-0.00211** (0.000952)					
Oil rent		-0.00667*** (0.000809)					
Trade		2.83e-05 (0.000196)					
GDP growth			0.000648** (0.000285)				
GDP per capita growth				0.000628** (0.000301)			
Young people (0-14)					0.000514 (0.00243)		
TFR					0.0123 (0.0107)		
Elderly people (65+)					0.00388 (0.00470)		
Female LFP rate						-0.000560 (0.00117)	
Regime type							-0.000170 (0.000124)
Constant	2.919 (1.776)	1.855 (1.191)	2.764 (1.801)	2.749 (1.799)	2.571 (1.670)	3.438* (1.849)	2.911 (1.782)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,413	3,291	3,400	3,399	3,413	2,926	3,315
Number of countries	142	141	141	141	142	138	142

Standard errors in parentheses are clustered at the country level. *** p<0.01, ** p<0.05, * p<0.1

Table 10: Total public spending and women's status

Estimation technique:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Random Effects	Total public spending (% GDP)						
Women's suffrage (year)	-0.0232 (0.0675)	0.00373 (0.0514)	-0.0209 (0.0608)	-0.0222 (0.0608)	-0.0370 (0.0658)	-0.0144 (0.0667)	-0.0184 (0.0657)
Degree of Feminism	16.06*** (4.492)	11.53*** (4.314)	13.00*** (4.094)	12.89*** (4.047)	14.44*** (4.260)	15.31*** (4.560)	15.02*** (4.429)
GDP per capita	-0.000146* (7.65e-05)	-0.000187** (8.53e-05)	-0.000103 (6.71e-05)	-0.000103 (6.44e-05)	-0.000117* (6.77e-05)	-0.000160** (7.51e-05)	-0.000113 (7.82e-05)
Population density	-0.000256 (0.000587)	9.27e-05 (0.000609)	-0.000681 (0.000516)	-0.000650 (0.000522)	-0.000819 (0.000570)	-0.000340 (0.000551)	-0.000509 (0.000606)
Political Rights (FH)	-0.0728 (0.398)	0.0215 (0.414)	-0.171 (0.393)	-0.182 (0.392)	0.0378 (0.434)	-0.0284 (0.395)	0.141 (0.504)
Civil Liberties (FH)	-0.292 (0.662)	-0.540 (0.595)	-0.333 (0.657)	-0.349 (0.658)	-0.405 (0.725)	-0.313 (0.634)	-0.232 (0.672)
Left Government	0.150 (0.170)	0.156 (0.159)	0.195 (0.175)	0.194 (0.175)	0.0614 (0.170)	0.131 (0.164)	0.135 (0.182)
Latitude	-0.0934 (0.0983)	-0.100 (0.0795)	-0.0896 (0.0882)	-0.0876 (0.0888)	-0.120 (0.0825)	-0.101 (0.0961)	-0.0829 (0.0958)
Longitude	-0.107*** (0.0350)	-0.0904*** (0.0299)	-0.0921*** (0.0320)	-0.0922*** (0.0323)	-0.0966*** (0.0337)	-0.110*** (0.0351)	-0.0996*** (0.0340)
Urban population		0.252*** (0.0748)					
Oil rent		0.0106 (0.0947)					
Trade		-0.0201 (0.0123)					
GDP growth			-0.232** (0.0909)				
GDP per capita growth				-0.206** (0.0805)			
Young people (0-14)					-0.190 (0.329)		
TFR					-2.327 (1.686)		
Elderly people (65+)					-0.106 (0.454)		
Female LFP rate						0.0868 (0.0776)	
Regime type							0.0144 (0.0120)
Constant	72.58 (131.0)	9.174 (99.78)	70.11 (117.9)	72.48 (118.0)	110.3 (131.3)	61.86 (130.3)	61.45 (127.5)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,142	1,137	1,139	1,139	1,142	1,128	1,080
Number of countries	80	80	80	80	80	80	79

Standard errors in parentheses are clustered at country level. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Total public spending and women's status: alternative historical determinants

	(1)	(2)	(3)	(4)	(5)
Estimation technique: Random Effects					
	Total public spending (% GDP)				
Women's suffrage (year)	-0.000938 (0.0612)	-0.0377 (0.0648)	-0.0454 (0.0709)	-0.0241 (0.0637)	-0.0593 (0.0694)
Degree of Feminism	15.88*** (4.347)	15.82*** (4.863)	13.05*** (4.256)	16.41*** (4.446)	15.23*** (4.405)
GDP per capita	-0.000125 (7.77e-05)	-0.000162** (7.53e-05)	-0.000204** (9.23e-05)	-0.000146* (7.62e-05)	-0.000147* (7.76e-05)
Population density	-0.000238 (0.000579)	-0.000211 (0.000572)	-3.19e-05 (0.000602)	-0.000212 (0.000572)	-0.000342 (0.000592)
Political Rights (FH)	-0.0368 (0.397)	-0.0137 (0.396)	-0.0303 (0.404)	-0.0636 (0.401)	-0.0195 (0.404)
Civil Liberties (FH)	-0.255 (0.656)	-0.231 (0.667)	-0.221 (0.661)	-0.310 (0.659)	-0.231 (0.663)
Left Government	0.138 (0.169)	0.141 (0.169)	0.154 (0.167)	0.148 (0.169)	0.140 (0.169)
Latitude	-0.203** (0.0906)	-0.0819 (0.0927)	-0.0380 (0.113)	-0.0966 (0.0919)	-0.0990 (0.105)
Longitude	-0.123*** (0.0304)	-0.0888*** (0.0343)	-0.0921*** (0.0343)	-0.0910*** (0.0323)	-0.104*** (0.0321)
British legal origins	-9.314*** (2.440)				
French legal origins	-7.041*** (2.148)				
Catholicism 1970		6.144* (3.177)			
Communist dummy 1970			-6.559* (3.499)		
Years of interstate conflict				0.172** (0.0770)	
Plough					7.685** (3.898)
Constant	37.88 (118.6)	98.74 (125.6)	116.8 (137.3)	70.72 (123.5)	136.9 (134.6)
Year dummies	Yes	Yes	Yes	Yes	Yes
Region dummies	Yes	Yes	Yes	Yes	Yes
Observations	1,142	1,138	1,138	1,142	1,142
Number of countries	80	79	79	80	80

Standard errors in parentheses are clustered at country level. *** p<0.01, ** p<0.05, * p<0.1