Cyprus Economic Policy Review, Vol. 11, No. 1, pp.41-68 (2017) 1450-4561

Preferences for Redistribution in Cyprus

Andros Kourtellos* and Kyriakos Petrou

Department of Economics, University of Cyprus

Abstract

This paper investigates the determinants of the preferences of redistribution in Cyprus using two complementary surveys, the European Social Survey and the World Values Survey. We find that current individual income and perceptions about fairness play a major role in determining the preferences for redistribution in Cyprus even when we account for model uncertainty. Both income and perceptions about fairness are negatively associated with demand for redistribution. From the perspective of policy evaluation our results can have important consequences on government size, inequality, intergenerational mobility, and even long-run growth in Cyprus. The substantial reductions in individual income and perceptions about fairness during the recent economic crisis in Cyprus are expected to generate a higher demand for redistribution. Thus, policy makers will face the challenge to revise the mix of progressive and regressive taxation in Cyprus in the coming years in order to reduce the mismatch between preferences and actual policy outcomes.

Keywords: Cyprus, inequality, preferences for redistribution, social preferences.

1. Introduction

In this paper we study the determinants of the preferences for redistribution in Cyprus, which is a key feature of a welfare state. The size of the redistributive government depends on the demand for redistribution, that is, the willingness of individuals to tax the rich more heavily and transfer resources to the poor.

The recent economic crisis in Cyprus has provided challenges to the public provision of redistribution. As a result, in an effort to reduce its public debt, Cyprus has engaged in fiscal austerity to shrink the size of the government by slashing spending and deregulating the economy. Many argue that this has had an impact on both direct and indirect redistribution including taxes and transfers, social insurance, education finance, and labor market regulation. Figures 1 and 2 summarize the size of the

* Corresponding author. Address: University of Cyprus, Department of Economics, P.O. Box 537, CY 1678 Nicosia, Cyprus. E-mail: andros@ucy.ac.cy

redistributive government in Cyprus. The general government expenditure as a percentage share of GDP was 49.3% in 2014 just below the Euro area average and up by about 19% since 2013. This increase reflects the large contraction of the Cyprus economy rather than an increase in the size of government expenditure. On average the government expenditure in Cyprus for the period 2005-2014 is 41.4%, well below the euro area average. Interestingly, the share of social transfers as a share of total expenditure in 2014 is only 30% compared to the euro area average of 35.2%.

There is also a debate among policy makers about whether income inequality has increased recently. Figure 3 shows the Gini coefficient for the period 2005-2014, which indicates a secular trend in inequality after about 2010.[1] In fact, early models of preferences for redistribution emphasize the role of the position of the individual in income distribution. For example, Meltzer and Richard (1981) argue that in majority ruling societies, where the decisive voter is the one with the median income and that the median voter's cost of taxation is proportional to her own income while the benefits are proportional to the mean income, poor people have an incentive to vote for more redistribution. Thus, the Meltzer-Richard model predicts that more inequality will lead to more redistribution and hence, larger government. However, the empirical evidence on the Meltzer-Richard hypothesis is mixed mainly due to the fact that the preferences for redistribution is a much more complicated object, which is not well captured by the median voter assumption.

The literature discusses a number of alternative mechanisms to account for the cross-country and individual heterogeneity. These include different aspects of upward mobility, education, culture, perception of fairness, risk aversion, religion, ideology, the structure and the organization of the family and a set of other individuals' characteristics, such as age, gender, marital and employment status. Alesina and Giuliano (2011) provide a comprehensive recent survey.

We find strong evidence that current income and perceptions about fairness play a major role in determining the preferences for redistribution in Cyprus. More precisely, we find that richer individuals or individuals who believe in a fair society prefer less redistribution. There is also some weaker evidence about the roles of education, social mobility, self-employment, and marital status. The results appear to be robust for modeling uncertainty with respect to the choice of determinants of the preferences for redistribution including interaction effects.

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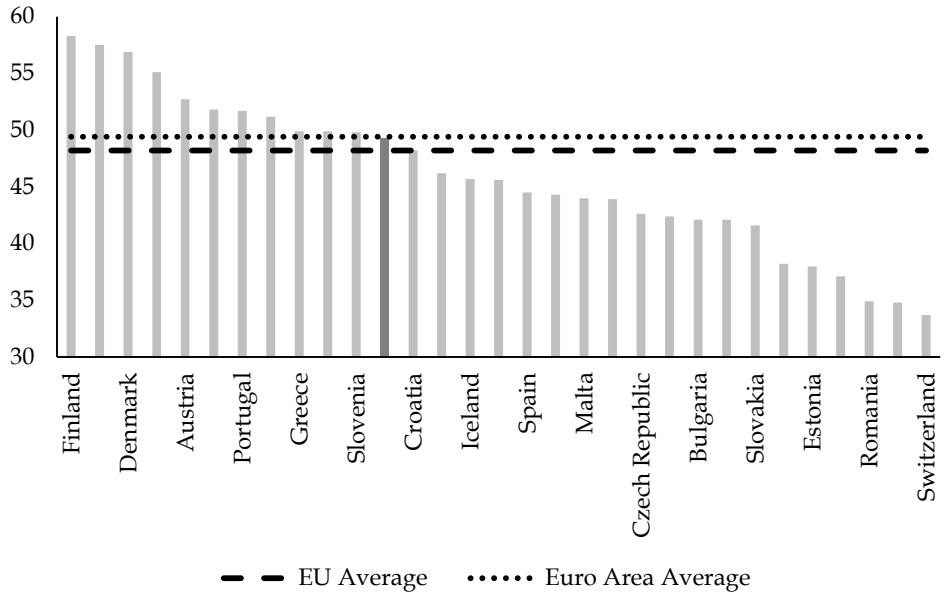
[1] Data comes from the Standardized World Income Inequality Database and ends in 2014.

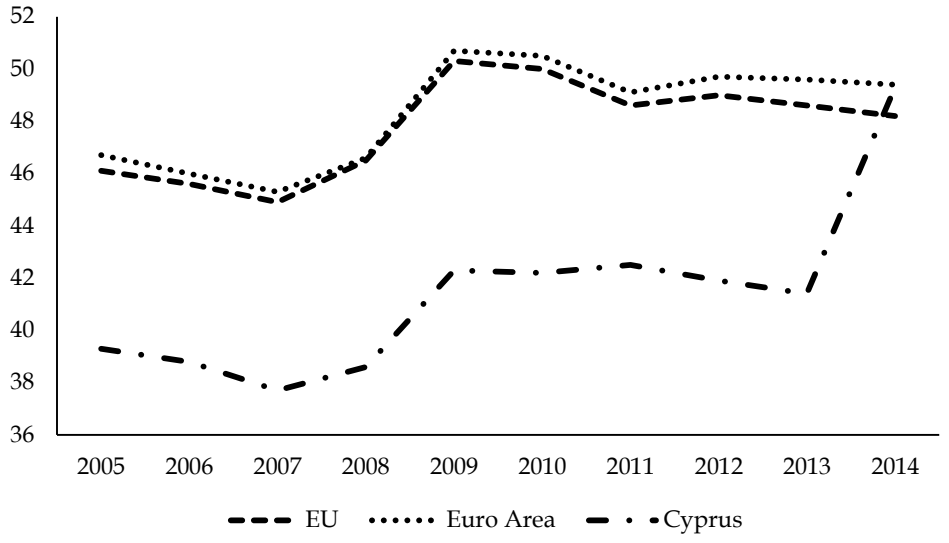
FIGURE 1

Government Expenditure in Cyprus

Panel A: Total General Government Expenditure as a % of GDP by Country (2014)



Panel B: Total General Government Expenditure as a % of GDP (2005 - 2014)

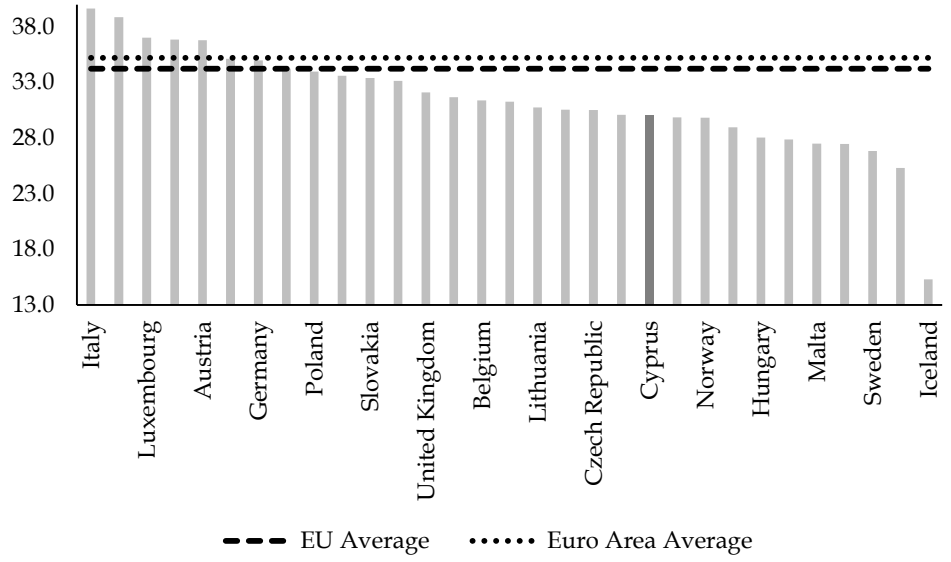


Source: World Development Indicators (World Bank).

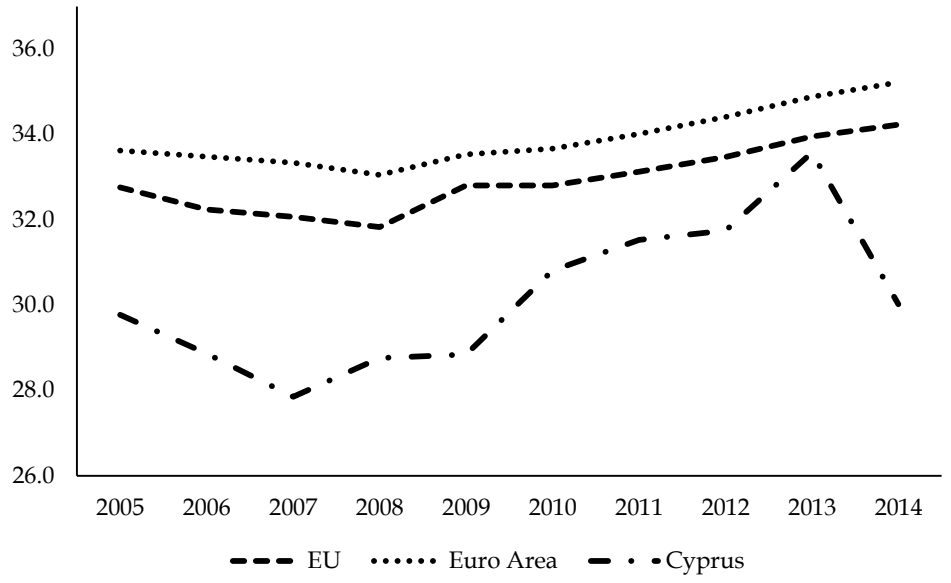
FIGURE 2

Social Benefits in Cyprus

Panel A: Social Benefits as a % of Total General Government Expenditure by Country (2014)



Panel B: Social Benefits as a % of Total General Government Expenditure (2005 - 2014)



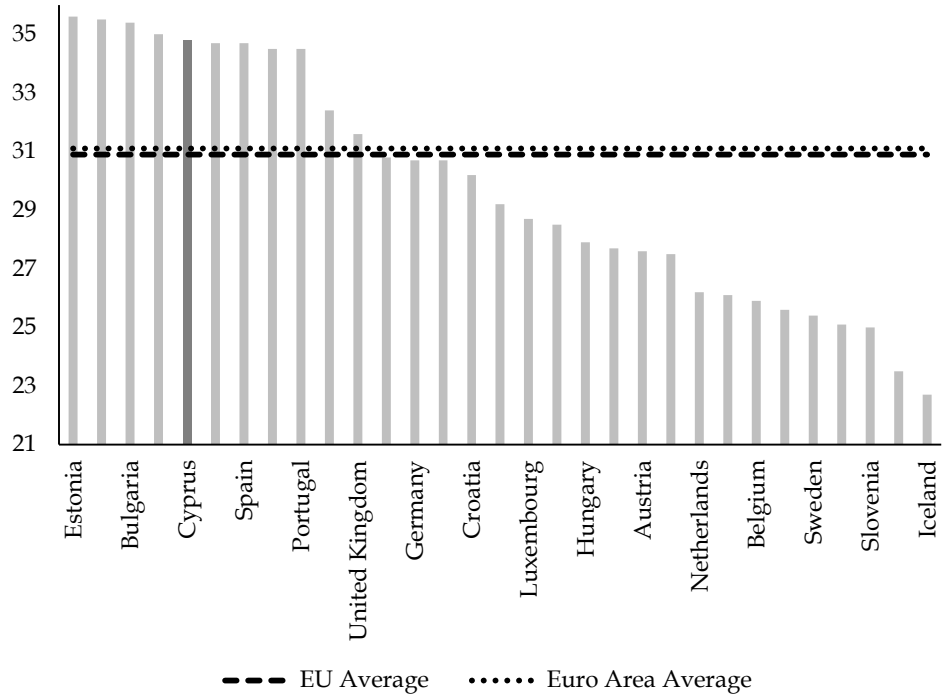
Source: World Development Indicators (World Bank).

Our results have important policy implications for government size, inequality, intergenerational mobility, and even long-run growth in Cyprus. Policy makers' reaction to the preferences for redistribution is a big challenge. On the one hand, policies that aim at reducing the gap between preferences and actual redistribution will have an impact on government size through the provision of direct (social transfers) and indirect (public goods) redistributive programs. On the other hand, if policy makers opt to do nothing hoping that this higher demand in redistribution will be temporary then the society faces the risk of higher inequality and perhaps lower intergenerational mobility. In both cases, the response of policy makers to the changes in the preferences of redistribution can affect long-run outcomes including long-run growth through their effects on government size, inequality, and intergenerational mobility.

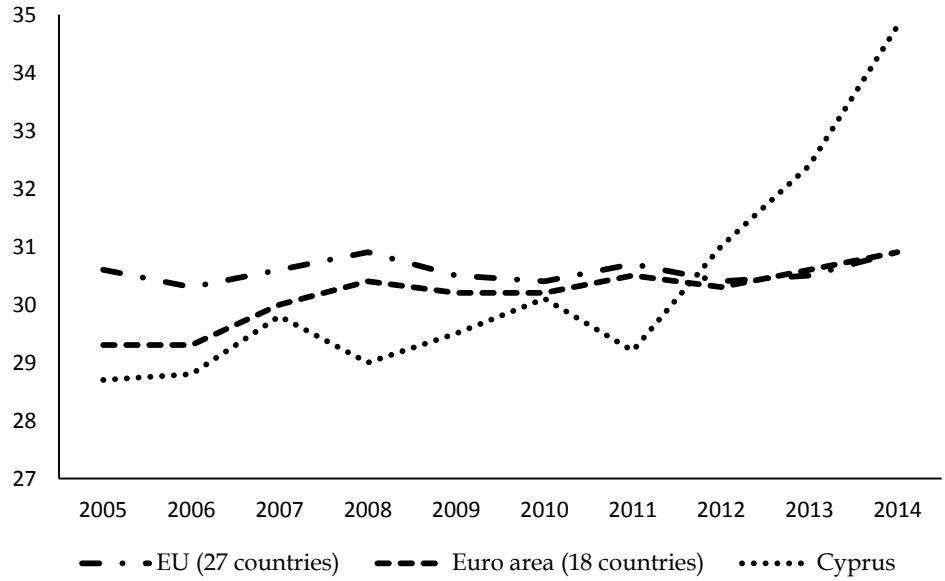
FIGURE 3

Income Inequality in Cyprus

Panel A: Gini Coefficient of Equalized Disposable Income by Country (2014)



Panel B: Gini Coefficient of Equalized Disposable Income (2005 - 2014)



Source: World Development Indicators (World Bank).

While our sample ends in 2011, our findings allow us to make predictions about the direction of the demand for redistribution. In particular, we predict that the demand for redistribution will rise due to a decrease in both individual income and perception of fairness. In fact the decline for both variables that started since mid-2000 is expected to continue and exacerbate during the last few years. Specifically, the recent crisis and the fiscal austerity in the make of the bailout package have resulted in substantial reductions of the disposal individual income. Finally, a number of events such as the Mari explosion, the poor fiscal governance, and the reckless behavior of the banks are expected to influence negatively the perceptions about fairness. Thus, in view of our results that the preferences for redistribution are strongly negatively associated with both fairness and individual income, we expect that, on average the preference for redistribution in Cyprus will increase.

The rest of the paper proceeds as follows. In Section 2, we describe the data we use. Section 3 describes our results. Section 4 discusses the main findings from the policy makers' views, and briefly concludes.

2. Data

In order to study the determinants of the preferences for redistribution we use two databases: the World Values Survey (WVS) and the European

Social Survey (ESS). WVS is a worldwide cross-country survey, covering 6 waves: 1981-1984, 1990-94, 1995-98, 1999-04, 2005-09, and 2010-14. Cyprus participated in the last two waves. ESS is a cross-country survey, conducted every two years across Europe since 2001. Cyprus participated in 2006, 2008, 2010, and 2012 rounds.[2] We did not use the 2008 round due to data availability. Our effective WVS and ESS samples include 1767 and 1519 individuals, respectively. Table 1 presents summary statistics for the pooled data. A detailed description of the variables and their sources is given in Appendix Table 1.

TABLE 1

Descriptive Statistics

Sample	World Values Survey				European Social Survey			
Observations	1767				1519			
Variable	Mean	SD	Min	Max	Mean	SD	Min	Max
Responsibility to provide	6.830	2.842	1	10				
Income differences	6.577	2.967	1	10	4.144	0.854	1	5
Age	41.116	16.182	17	91	50.175	16.252	18	103
Female	0.514	0.500	0	1	0.475	0.500	0	1
Unemployed	0.056	0.230	0	1	0.057	0.232	0	1
Union member	0.165	0.371	0	1				
Self-Employed	0.095	0.293	0	1	0.172	0.377	0	1
Income	5.551	1.748	1	10	4.888	2.507	1	10
Education	5.380	2.209	1	8	3.082	1.488	1	5
Mobility (Father)					1.382	1.423	-4	4
Mobility (Mother)					1.553	1.404	-3	4
Ever divorced					0.086	0.281	0	1
Fairness	4.537	2.499	1	10	4.288	2.153	0	10
Work and Luck	4.950	2.930	1	10				
Ideology	5.211	2.618	1	10	5.088	2.964	0	10
Importance of family	1.066	0.296	1	4				
Married	0.634	0.482	0	1	0.756	0.429	0	1
Religiosity	1.852	0.980	1	4	6.898	2.242	0	10
Orthodox	0.464	0.499	0	1				
Muslim	0.475	0.500	0	1				
Other religion	0.011	0.106	0	1				

[2] Cyprus did not participate in the 2014 survey.

2.1. Preferences for Redistribution

We measure the preferences for redistribution in the WVS using two alternative measures: *"Public Provision"* and *"Reduction in Inequality"*. Individuals are asked to place their views on a scale from 1 to 10. Public provision is equal to 1 if the respondent answers that ``people should take more responsibility to provide for themselves'' and 10 if the answer is ``the government should take more responsibility to ensure that everyone is provided for''. Reduction of inequality is equal to 1 if the answer is ``we need larger income differences as incentives for individual effort''; and equal to 10 if the answer is ``incomes should be made more equal''. In the case of the ESS, we use a question which is similar to the WVS measure ``Reduction in Inequality''. The variable takes values 1 if the respondent strongly disagrees with the view that ``the government should take measures to reduce differences in income levels'' and 5 if she strongly agrees with it. For all proxies for the preferences for redistribution, higher values indicate higher demand for redistribution.

In Figure 4, we show the average preferences for redistribution for 32 European countries. Regardless of the proxy we use, Cyprus is above the European average, indicating that Cypriots prefer more redistribution than the average European individual. Cyprus appears to have more similar preferences for redistribution with the southern European countries than the northern ones. For all the measures of preferences for redistribution the data show that southern European countries (Cyprus, Greece, Italy, Spain, and Portugal) are above the European average, while northern European countries (Denmark, Finland, France, Netherlands, and Sweden) are below the European average.

2.2. Determinants of the Preferences for Redistribution

We now discuss the explanatory variables of the preferences for redistribution.

According to the Meltzer-Richard median voter hypothesis, we would expect richer individuals to demand less redistribution, which implies a negative relationship between income and support for redistribution. We control for income, which is measured by the individual's subjective household income in the scale 1 for the lowest income bracket to 10 for the highest bracket. In fact, there is a broad empirical consensus that wealthier individuals prefer less redistribution. However, as argued by Alesina and Giuliano (2011) the finding that income is a strong determinant of preferences for redistribution does not necessarily constitute an empirical validation of the median voter hypothesis.

In addition to income, we control for education (Alesina and La Ferrara (2005)). Education (controlling for income) can capture some aspects of mobility due to higher education; or it may bias people in favor of more pro-redistributive views as a result of left-wing ideology. In both WVS and ESS, we proxy education using a variable that measures individual's highest level of completed education. In the ESS sample, education takes values from 1 for less than lower secondary education to 5 for completed tertiary education. In the WVS sample, education takes values from 1 for inadequately completed elementary education to 8 for university with degree, higher education or upper-level tertiary certificate.

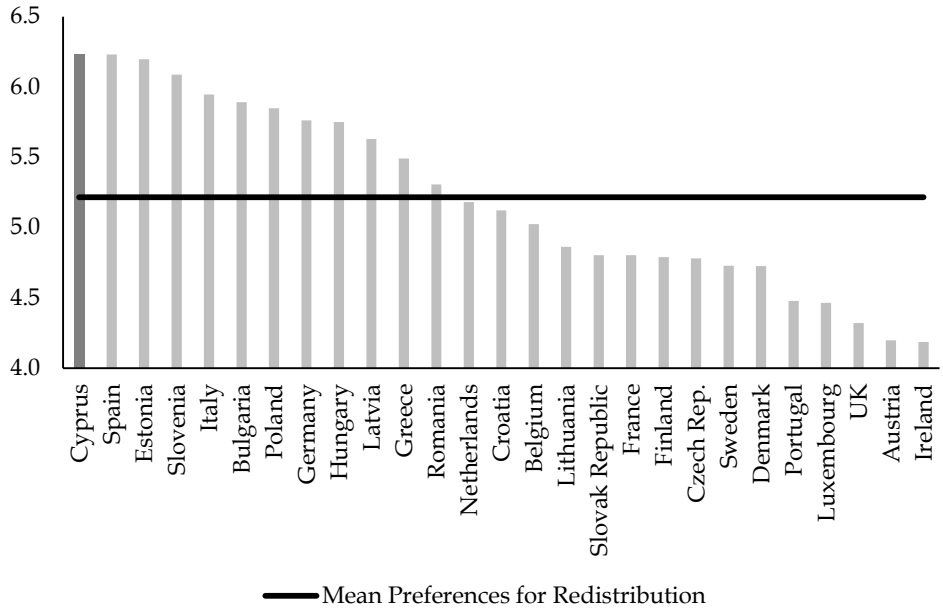
As argued by Benabou and Ok (2001), the prospects of the upward mobility hypothesis (POUM) play a major role in shaping the preferences for redistribution. Poorer than average individuals may share the same preferences as the rich ones and therefore, may be willing to vote with them if they believe that they will become richer than average in the future. We measure mobility using the difference in the years of education between the individual and her father, and the difference between the individual and her mother. Unfortunately, these variables are not available for the WVS sample.

Another important channel is the importance of beliefs about the fairness of social competition (Alesina and Angeletos (2005)). The degree of redistribution depends on how a society perceives the relative roles of individual effort and luck in determining economic outcomes. If a society believes that individual effort determines income then it will choose low redistribution and low taxes. In contrast, if a society believes that economic outcomes are primarily determined by luck, connections, and corruption then, it will demand high redistribution and high taxes. We proxy these beliefs using the variable ``Work versus Luck'', which is based on the question ``Does hard work usually bring a better life or hard work does not generally bring success-it is more a matter of luck and connections?'' The variable is equal to 0 if the answer is ``hard work usually brings a better life'' and 10 if it is ``hard work does not generally bring success''. Unfortunately, this question is only available for the WVS sample. That is, why we also use the variable ``Fairness'', which is available for both samples. Fairness is based on the question ``Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair?'' and captures the extent to which one believes that playing by the rules is associated with success. The variable is equal to 0 if the answer is ``Most people would try to take advantage of me'' and 10 if it is ``Most people would try to be fair''.

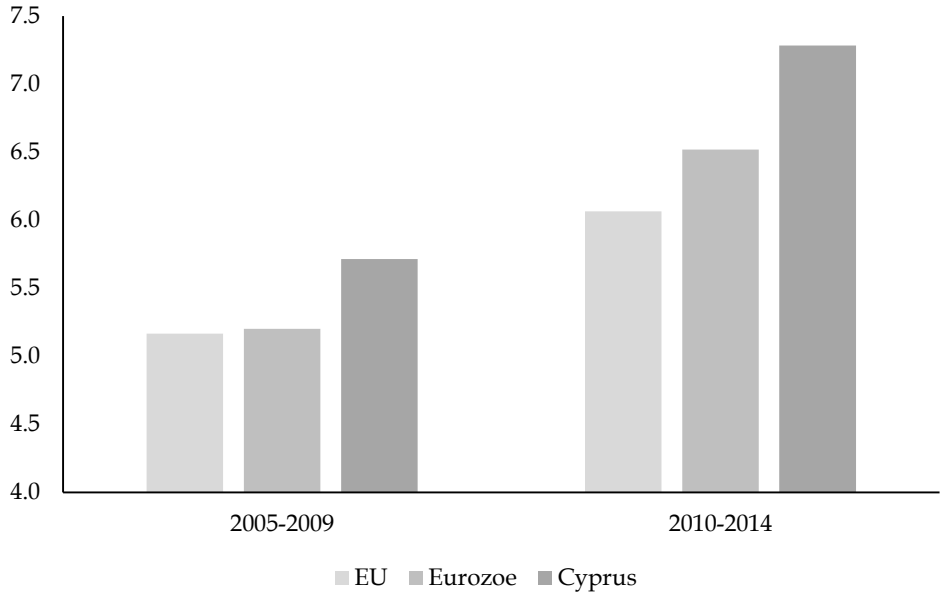
FIGURE 4

Preferences for Redistribution in Cyprus

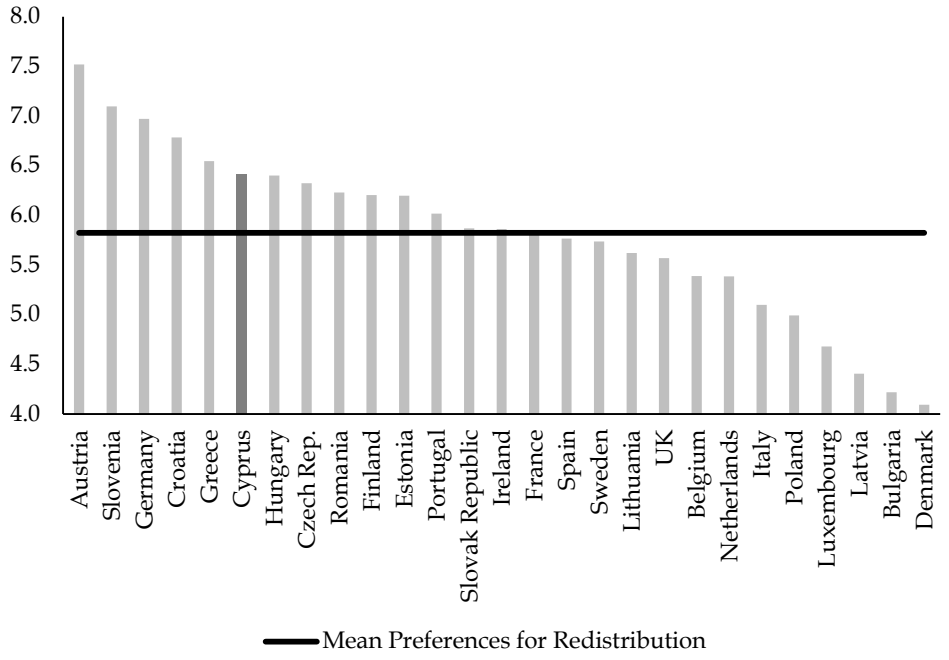
Panel A: Preferences for Redistribution (Public Provision) by Country - WVS



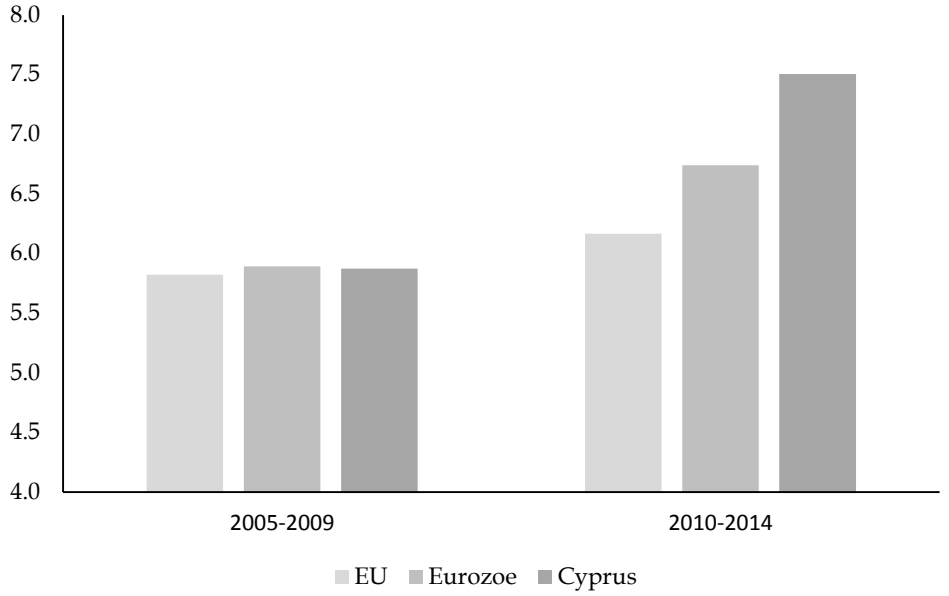
Panel B: Preferences for Redistribution (Public Provision) by Year - WVS



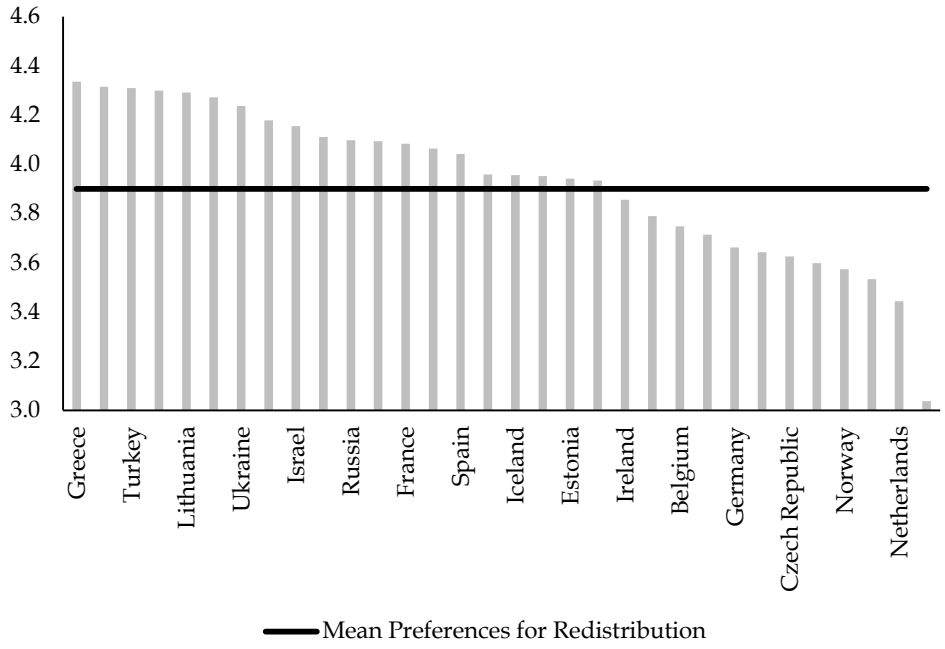
Panel C: Preferences for Redistribution (Reduction in Inequality) by Country - WVS



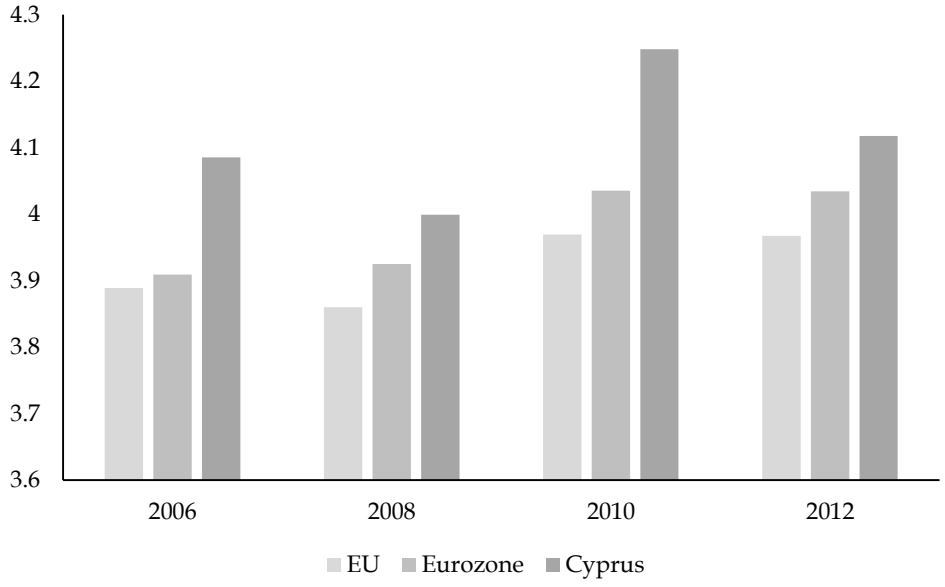
Panel D: Preferences for Redistribution (Reduction in Inequality) by Year - WVS



Panel E: Preferences for Redistribution (Reduction in Inequality) by Country - ESS



Panel F: Preferences for Redistribution (Reduction in Inequality) by Year - ESS



Source: World Values Survey (WVS) and European Social Survey (ESS).

The prospects of upward mobility are also related to the history of misfortune in the recent past (Giuliano and Spilimbergo (2014)). Negative shocks in life can change people's views of redistribution by making them more risk-averse, less optimistic about their prospects of upward mobility and as a result they demand less redistribution. In the WVS survey, we measure personal misfortune using the question that asks if the respondent has ever been divorced.

Another important determinant of the preferences for redistribution is political ideology. Several studies provide evidence that a left wing individual prefers more redistribution (e.g., Alesina and Fuchs-Schuendeln (2007)). As argued by Alesina and Giuliano (2011) a ``libertarian'' believes that the income distribution is determined by the market and no redistribution of any kind from the government is needed, while a ``communist'' believes that government ought to equalize income through tax and transfers. We measure political ideology using the individual's position on the political ``left'' and ``right'' scale taking values from 0 for left-wing to 10 for right-wing in ESS and from 1 for left-wing to 10 for right-wing in the WVS.

The structure of the family and family ties can influence the preferences for redistribution. For example, societies with close family ties will tend to rely less on the market and government for social insurance (Alesina and Giuliano (2010)). This view is consistent with the empirical findings that married individuals prefer less redistribution. To measure the role of family ties we use a variable that captures the individual's views about the importance of family. This is an ordered variable that takes values from 1 for very important to 4 for not at all important; and is only available for the WVS sample.

Additionally, we consider the role of religiosity and religious affiliation. Religion can act as a safety net for individuals against negative shocks, such as sickness and unemployment (e.g., Scheve and Stasavage (2006)). As a result, an individual relies less on government retributive policies. Others argue that religion makes individuals to become more altruistic and thus, demanding higher taxes and more transfers to the disadvantaged. The empirical evidence is generally mixed. In the ESS sample, religiosity takes values from 0 for not at all religious to 10 for very religious. In the WVS sample, we use the individual's views about how important religion is, taking values from 1 for very important to 4 for not at all important. In

the WVS sample, we also control for the religious affiliation of the individual (Orthodox and Muslim) relative to the atheist.[3]

The final set of regressors aims at capturing the role of individual characteristics. We include gender, age, and marital and employment characteristics. Alesina and Fuchs-Schuendeln (2007) argue that an individual who is a recipient of a transfer program, such as unemployment compensation, will favor more redistribution. Guillaud (2013) provides evidence that self-employed individuals are less risk averse and hence, they do not favor redistribution. In contrast, union members are typically more risk-averse individuals and favor redistribution. Therefore, we include an unemployment dummy, union member dummy, and a self-employed dummy. In the ESS sample the variation of the union member dummy is very small and we did not include it in the analysis.

3. Results

3.1. Main findings

Table 2 presents our benchmark findings for the preferences for redistribution in Cyprus based on pooled data for two alternative samples (WVS and ESS) and three alternative estimation methods: least squares, ordered probit (OP) and ordered logit (OL). Columns 2-4 report the results for the WVS sample using the ``Public Provision'' measure for the preferences for redistribution, while columns 5-7 report the results for the WVS sample using the ``Reduction in Inequality'' measure for the preferences for redistribution. The last 3 columns report the results for the ESS sample, which is only available for the variable ``Reduction in Inequality''. All models include wave effects and an intercept. Consistent with the literature, we find that all three estimation methods yield similar results; see for example, Alesina and Giuliano (2011), Giuliano and Spilimbergo (2014). Therefore, our discussion below focuses on the LS results.

There is undoubtedly strong evidence that current income matters for the demand of redistribution in Cyprus. This evidence is consistent with the literature, which finds that richer individuals do not favor redistribution (e.g., Alesina and Giuliano (2011)). For the variable ``Public Provision'' the coefficient of the income variable is negative and significant at 1%. For the variable ``Reduction in Inequality'' it is also negative but significant only at

[3] In the ESS sample, this variable was excluded because it did not have much variation and caused multicollinearity issues.

10% and 5% for the WVS and ESS samples, respectively. In terms of size we find that an increase in income by 10 percentage points is associated with a decrease of preference for redistribution by 1.5 percentage points when we use the variable ``Public Provision''. However, the size of the income effect is smaller for the demand for redistribution using the variable ``reduction of inequality'', 0.7 percentage points for the WVS sample and only 0.3 percentage points for the ESS sample.

In terms of the other individual characteristics, we find some weak evidence for the variables which refer to education, self-employment and being married. More educated individuals are likely to oppose redistributive policies. This can be interpreted as evidence consistent with the prospects for upward mobility (Benabou and Ok (2001)). The education variable is negative and statistically significant at 10% only in the case of ``Reduction in Inequality''. An increase in education variable by 10 percentage points is associated with a decrease of preference for redistribution by 0.6 percentage points and 0.5 percentage points for the WVS and ESS samples, respectively.[4]

The self-employed dummy is negative and significant at 10% only in the case of ``Reduction in Inequality'' with size -0.439 for the WVS sample and -0.1 for the ESS sample. These results suggest that self-employed individuals, on average, have 6.7 percentage points and 2.4 percentage points lower preferences for redistribution relative to non-self-employed individuals, for the WVS and the ESS sample, respectively. This is evidence that less risk-averse individuals oppose redistributive policies, as suggested by Alesina and La Ferrara (2005) and Guillaud (2013).

Contrary to the self-employed, married people appear to be more pro-redistribution than single individuals. The dummy variable married is positive and statistically significant at 10% only in the case of ``Public Provision'' for the WVS sample (coefficient is 0.28) indicating that married individuals, on average, have 4.1 percentage points higher preferences for redistribution relative to the non-married ones.

Next, we consider the role of the prospects for upward mobility (Benabou and Ok (2001)). Unfortunately, as discussed in Section 3, we can only assess this partially due to data availability. We find that the coefficient of social mobility, measured as the difference in individual's schooling and her father's schooling, is negative and significant at 10%. An increase of

[4] The uses of both education and social mobility (the difference in the years of education between the individual and her father) may cause the weak effect of both variables. The majority of the empirical literature uses only education, and finds a negative effect but significant at 1%.

social mobility by 10% decreases preferences for redistribution by 0.5 percentage points. Interestingly, the social mobility measure based on mother's education does not play any role.

Finally, we find strong evidence for the role of fairness and perception of whether inequality emerges from efforts and ability or luck. Consistent with Alesina and La Ferrara (2005) and Alesina and Giuliano (2011) we find that individuals who believe that the society is fair are associated with less demand for redistribution. Fairness is statistically significant at 5%, indicating that an increase in fairness by 10 percentage points will lead to a decrease by 0.64 and 0.69 percentage points for the redistribution measures "Public Provision" and "Reduction in Inequality", respectively. However, we find that individuals who believe that hard work is more important in order to succeed in life demand more redistribution. This result is the opposite of that found by Alesina and La Ferrara (2005) for the US. Instead, it is consistent with a modern version of Weber's hypothesis of a Protestant work ethic, combined with a charitable attitude towards the poor (Bjørnskov et. al. (2013)). More precisely, the Work versus Luck variable is statistically significant at 1%, indicating that an increase of the variable by 10% will lead to a decrease in preferences for redistribution by 1.63 percentage points for ``Public Provision'' and 1.29 percentage points for ``Reduction in Inequality''.

Next, we investigate the robustness of our findings.

TABLE 2

Preferences for Redistribution

Dataset	World Values Survey		World Values Survey		European Social	
Preferences For Redistribution	Public Provision		Reduction in Inequality		Reduction in Inequality	
	Least Squares	Ordered Logit	Least Squares	Ordered Logit	Least Squares	Ordered Logit
Age	0.019	0.008	0.009	0.000	0.007	0.019
	(0.03)	(0.02)	(0.03)	(0.02)	(0.01)	-(0.02)
Age square	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.172	0.096	0.054	0.034	-0.054	-0.174*
	(0.14)	(0.09)	(0.14)	(0.09)	(0.05)	(0.10)
Unemployed	0.386	0.219	0.422	0.297	-0.092	-0.107
	(0.29)	(0.19)	(0.30)	(0.20)	(0.10)	(0.23)
Union member	-0.044	-0.041	0.072	0.034		
	(0.18)	(0.12)	(0.19)	(0.12)		

(Table 2 continues on next page)

Table 2 (continued)

Self-Employed	-0.227	-0.204	-0.439*	-0.337**	-0.100*	-0. 208
	(0.23)	(0.15)	(0.24)	(0.15)	(0.06)	(0.13)
Income	-0.148***	-0.093***	-0.072*	-0.054**	-0.028**	-0.067**
	(0.04)	(0.03)	(0.04)	(0.03)	(0.01)	(0.03)
Education	0.050	0.020	-0.062*	-0.046*	-0.053*	-0.108
	(0.04)	(0.02)	(0.04)	(0.02)	(0.03)	(0.07)
Mobility (Father)					-0.05*	-0.095
					(0.03)	(0.06)
Mobility (Mother)					0.049	0.090
					(0.03)	(0.08)
Ever divorced					-0.035	-0.115
					(0.08)	(0.19)
Fairness	-0.064**	-0.051***	-0.069**	-0.047***	-0.009	-0.012
	(0.03)	(0.02)	(0.03)	(0.02)	(0.01)	(0.02)
Work and Luck	-0.163***	-0.121***	-0.129***	-0.097***		
	(0.02)	(0.02)	(0.02)	(0.02)		
Ideology	-0.002	0.000	0.024	0.019	-0.013*	-0.027
	(0.03)	(0.02)	(0.03)	(0.02)	(0.01)	(0.02)
Importance of family	0.322	0.243	-0.300	-0.134		
	(0.23)	(0.15)	(0.23)	(0.15)		
Married	0.28*	0.243**	0.003	0.056	0.047	0.058
	(0.17)	(0.11)	(0.17)	(0.11)	(0.06)	(0.13)
Religiosity	0.018	-0.032	-0.024	-0.035	0.027***	0.064***
	(0.07)	(0.05)	(0.07)	(0.05)	(0.01)	(0.02)
Orthodox	-0.047	-0.064	-0.178	-0.094		
	(0.33)	(0.21)	(0.33)	(0.21)		
Muslim	-0.306	-0.191	-0.463	-0.262		
	(0.32)	(0.20)	(0.32)	(0.20)		
Other religion	-0.669	-0.380	-1.255*	0.727*		
	(0.69)	(0.44)	(0.70)	(0.44)		
Observations	1767	1767	1767	1767	1519	1519
R^2	0.069		0.120		0.036	
Pseudo R^2		0.019		0.031		0.014

Note: This table presents the baseline results for the determinants of preferences for redistribution in Cyprus based on pooled data from the European Social Survey and the World Values Survey using three alternative estimation methods: least squares, and ordered logit (OL). Robust standard error in parenthesis. ***, **, and * denote significance of the coefficient at 1%, 5%, and 10%, respectively.

3.2. Robustness

In this section, we investigate the sensitivity of our results by considering two different sets of exercises.[5] First we examine the issue of parameter heterogeneity and second, we explicitly address the issue of model uncertainty.

3.2.1. Parameter Heterogeneity

In Table 3 we examine the issue of parameter heterogeneity by looking into the question of whether the effects of beliefs of fairness and Work versus Luck exhibit heterogeneity with respect to the socioeconomic status or ideology of the individual by including interaction effects.[6] In Model 1 we consider interactions of Work versus Luck and fairness with low and high income dummies, in Model 2 we consider interactions with left-wing and right-wing dummies, and in Model 3 we include both kinds of interactions.

TABLE 3

Preferences for Redistribution Including Interactions

	Public Provision			**Reduction in Inequality**		
	Model 1	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Age	0.019	0.020	0.020	0.010	0.010	0.011
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Age square	0.000	0.000	0.000	0.000	0.000	0.000
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	0.191	0.193	0.212	0.065	0.067	0.081
	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Unemployed	0.455	0.362	0.432	0.459	0.404	0.443
	(0.29)	(0.29)	(0.29)	(0.30)	(0.30)	(0.30)
Union member	-0.043	-0.052	-0.053	0.079	0.017	0.024
	(0.18)	(0.18)	(0.18)	(0.19)	(0.19)	(0.19)
Self-Employed	-0.245	-0.231	-0.252	-0.449*	-0.466**	-0.477**
	(0.23)	(0.23)	(0.23)	(0.24)	(0.24)	(0.24)
Income	-0.163***	-0.145***	-0.164***	-0.111**	-0.073*	-0.121**
	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)
Education	0.048	0.054	0.052	-0.0633*	-0.051	-0.052
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Fairness	-0.055**	-0.062**	-0.052*	-0.055*	-0.106***	-0.091***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)

(Table 3 continues on next page)

[5] In unreported exercises we also considered wave-by-wave regressions but the findings appeared to be substantively similar.

[6] We also considered sub-sample regressions based on quintile income groups with similar findings.

Table 3 (continued)

Work and Luck	-0.154***	-0.176***	-0.167***	-0.124***	-0.117***	-0.111***
	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
Ideology	-0.006	0.007	0.002	0.023	-0.039	-0.042
	(0.03)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)
Importance of family	0.402*	0.329	0.409*	-0.269	-0.257	-0.227
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Married	0.289*	0.282*	0.290*	-0.002	0.020	0.013
	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Religiosity	0.010	0.012	0.006	-0.025	-0.030	-0.030
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
Orthodox	-0.123	-0.029	-0.098	-0.226	-0.131	-0.177
	(0.33)	(0.33)	(0.33)	(0.33)	(0.33)	(0.33)
Muslim	-0.359	-0.259	-0.306	-0.497	-0.372	-0.403
	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)	(0.32)
Other religion	-0.906	-0.634	-0.847	-1.350*	-1.140	-1.229*
	(0.69)	(0.69)	(0.69)	(0.70)	(0.70)	(0.70)
Fairness	-0.202**		-0.193**	-0.154*		-0.164**
× Low Income	(0.08)		(0.08)	(0.08)		(0.08)
Fairness	0.322***		0.312***	0.058		0.062
× High Income	(0.11)		(0.11)	(0.11)		(0.11)
Fairness		0.061	0.046		0.0957*	0.093*
× Left-wing		(0.05)	(0.05)		(0.05)	(0.05)
Fairness		-0.078	-0.063		0.184***	0.192***
× Right-wing		(0.06)	(0.06)		(0.06)	(0.06)
Work and Luck	0.072		0.058	0.000		-0.007
× Low Income	(0.07)		(0.07)	(0.07)		(0.07)
Work and Luck	-0.449***		-0.438***	-0.115		-0.107
× High Income	(0.11)		(0.11)	(0.11)		(0.11)
Work and Luck		0.004	0.018		-0.059	-0.054
× Left-wing		(0.05)	(0.05)		(0.05)	(0.05)
Work and Luck		0.109**	0.099*		0.019	0.018
× Right-wing		(0.05)	(0.05)		(0.05)	(0.05)
Observations	1767	1767	1767	1767	1767	1767
R^2	0.082	0.073	0.086	0.124	0.131	0.135

Notes: This table presents results for the determinants of preferences for redistribution in Cyprus based on pooled data from the World Values Survey using least squares. Robust standard error in parenthesis. ***, **, and * denote significance of the coefficient at 1%, 5%, and 10%, respectively.

3.2.2. Model Uncertainty

We explicitly address the issue of model uncertainty using a model averaging methodology. Model uncertainty is due to the fact that any given theory of the preferences for redistribution does not logically exclude other theories from also being relevant; and therefore, there is no a priori justification for focusing on a specific subset of determinants.[20] To deal with theory uncertainty we employ Bayesian Model Averaging (BMA) (Raftery, Madigan and Hoeting (1997) and Hoeting et. al. (1999), which constructs estimates that do not depend on a particular model specification but rather use information from all candidate models. Put differently, BMA amounts to forming a weighted average of model specific estimates, where the weights are given by the posterior model probabilities that arise from Bayes' theorem.[21]

In particular, we consider two model spaces. A baseline model space is based on all possible combinations of the determinants used in Table 2. An extended model space adds to the baseline model space the interaction terms used in Table 3. The BMA posterior mean is the sum of the posterior means of each model, weighted by their posterior probabilities. The posterior variance is the sum of the posterior variances of each model, weighted by their posterior probabilities (within model variance) plus a term that indicates how stable the estimates are across models (variance of model-specific estimates across models). The main tool of inference in the BMA context is the posterior inclusion probability (PIP) of each regressor. The PIP of a variable is the sum of the posterior probabilities of the models that contain the variable.[9]

Table 4A and 4B present the model averaging results. Our findings suggest that there exists decisive evidence ($PIP = 100\%$) for the role of the perception of whether inequality emerges from efforts and ability or luck, connections, or corruption. The posterior mean is negative, as in the benchmark model, showing that individuals who believe that luck brings

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[7] Brock and Durlauf (2001) called this problem ``theory uncertainty'' in the context of growth regressions.

[8] An econometrician is faced with an infinite number of modeling choices. One implication of model uncertainty is that the coefficient estimates of interest can become 'fragile' in the sense that the estimated effect could change dramatically in magnitude, lose its statistical significance, or, even switch signs depending on which other (nuisance) variables are included or excluded in the regression equation.

[9] If $PIP < 50\%$ there is evidence against the effect, if $50\% \leq PIP < 75\%$ there is weak evidence for the effect, if $75\% \leq PIP < 95\%$ there is "positive" evidence for the effect, if $95\% \leq PIP < 99\%$ there is strong evidence for the effect and if $PIP \geq 99\%$ there is decisive evidence for the effect.

success in life prefer less redistribution. Additionally, we find strong support for the negative role of income variable for the case ``Public Provision''; and ``positive'' evidence for the case of ``Reduction in Inequality'' for the ESS sample. Finally, there is also ``positive'' evidence for the role of education for ``Reduction in Inequality'' in the case of the ESS sample, the only variable that is robust ($PIP > 75\%$). Like the benchmark results, the posterior mean is negative, indicating that more educated individuals prefer less redistribution. Finally, the interaction effects do not appear robust. The only robust variable appears to be the interaction of fairness with the right-wing dummy, with 92% PIP in the case of the variable ``Reduction in Inequality''.

TABLE 4A

Preferences for Redistribution: Model Averaging - Baseline

	WVS		WVS		ESS	
	Public Provision		Reduction in Inequality			
	PIP	PM (PSE)	PIP	PM (PSE)	PIP	PM (PSE)
Age	0.077	0.001	0.041	0.000	0.039	0.000
		(0.00)		(0.00)		(0.00)
Age square	0.055	0.000	0.048	0.000	0.044	0.000
		(0.00)		(0.00)		(0.00)
Female	0.049	0.007	0.030	0.003	0.032	-0.001
		(0.04)		(0.03)		(0.01)
Unemployed	0.044		0.080	0.038	0.030	-0.002
		(0.09)		(0.15)		(0.02)
Union member	0.023	0.000	0.025	0.002		
		(0.03)		(0.03)		
Self-Employed	0.032	-0.007	0.220	-0.113	0.095	-0.009
		(0.06)		(0.24)		(0.03)
Income	0.980	-0.149	0.460	-0.050	0.330	-0.009
		(0.04)		(0.06)		(0.02)
Education	0.032	0.001	0.301	-0.023	0.774	-0.046
		(0.01)		(0.04)		(0.03)
Mobility (Father)					0.159	-0.007
						(0.02)
Mobility (Mother)					0.045	0.000
						(0.01)
Ever divorced					0.028	-0.001
						(0.01)
Fairness	0.257	-0.016	0.533	-0.040	0.043	-0.001
		(0.03)		(0.04)		(0.00)
Work and Luck	1.000	-0.158	1.000	-0.122		
		(0.02)		(0.02)		

(Table 4A continues on next page)

Table 4A (continued)

Ideology	0.023	0.000	0.045	0.001	0.143	-0.002
		(0.00)		(0.01)		(0.01)
Importance of family	0.048	0.013	0.053	-0.014		
		(0.08)		(0.08)		
Married	0.115	0.030	0.025	0.001	0.043	0.002
		(0.10)		(0.02)		(0.02)
Religiosity	0.028	0.000	0.034	-0.002	0.569	0.016
		(0.01)		(0.02)		(0.02)
Orthodox	0.155	0.044	0.146	0.042		
		(0.12)		(0.12)		
Muslim	0.199	-0.060	0.150	-0.043		
		(0.14)		(0.12)		
Other religion	0.034	-0.019	0.086	-0.089		
		(0.15)		(0.34)		

Notes: This table presents model averaging estimates for the determinants of preferences for redistribution in Cyprus based on pooled data from the European Social Survey (ESS) and the World Values Survey (WVS) based on a Bayesian Model Averaging method. The posterior inclusion probability (PIP) of a variable is the sum of the posterior probabilities models that include that variable. The posterior mean (PM) is the average of the partial likelihood coefficient estimates of individual models weighted by posterior probability. Below in parenthesis we report the posterior standard error (PSE), which is the BMA estimate for the standard error taking model uncertainty into account. We consider two model spaces: baseline and extended (baseline plus interactions).

TABLE 4B

Preferences for Redistribution: Model Averaging - Extended

	WVS			
	Public Provision		Reduction in Inequality	
	PIP	PM (PSE)	PIP	PM (PSE)
Age	0.081	0.001	0.041	0.000
		(0.00)		(0.00)
Age square	0.062	0.000	0.037	0.000
		(0.00)		(0.00)
Female	0.053	0.009	0.029	0.003
		(0.05)		(0.03)
Unemployed	0.048	0.018	0.077	0.036
		(0.10)		(0.15)
Union member	0.020	0.000	0.024	0.001
		(0.03)		(0.03)
Self-Employed	0.042	-0.011	0.305	-0.167
		(0.07)		(0.28)
Income	0.830	-0.132	0.506	-0.067
		(0.08)		(0.08)
Education	0.021	0.000	0.114	-0.007
		(0.01)		(0.02)

(Table 4B continues on next page)

Table 4B (continued)

Fairness	0.221	-0.014	0.774	-0.071
		(0.03)		(0.05)
Work and Luck	1.000	-0.151	1.000	-0.122
		(0.02)		(0.02)
Ideology	0.023	0.000	0.063	-0.003
		(0.01)		(0.01)
Importance of family	0.052	0.017	0.041	-0.010
		(0.09)		(0.07)
Married	0.114	0.030	0.026	0.001
		(0.10)		(0.02)
Religiosity	0.024	0.000	0.039	-0.002
		(0.01)		(0.02)
Orthodox	0.109	0.028	0.094	0.023
		(0.09)		(0.08)
Muslim	0.166	-0.047	0.122	-0.031
		(0.12)		(0.10)
Other religion	0.037	-0.023	0.066	-0.062
		(0.17)		(0.28)
Fairness	0.421	-0.072	0.303	-0.052
× Low Income		(0.09)		(0.09)
Fairness	0.222	0.057	0.042	-0.003
× High Income		(0.12)		(0.02)
Fairness	0.062	0.003	0.201	0.016
× Left-wing		(0.02)		(0.04)
Fairness	0.033	-0.002	0.918	0.160
× Right-wing		(0.02)		(0.06)
Work and Luck	0.035	0.002	0.053	-0.003
× Low Income		(0.02)		(0.02)
Work and Luck	0.674	-0.195	0.073	-0.009
× High Income		(0.17)		(0.04)
Work and Luck	0.039	0.001	0.037	0.001
× Left-wing		(0.01)		(0.01)
Work and Luck	0.117	0.008	0.100	0.010
× Right-wing		(0.03)		(0.04)

Notes: This table presents model averaging estimates for the determinants of preferences for redistribution in Cyprus based on pooled data from the European Social Survey (ESS) and the World Values Survey (WVS) based on a Bayesian Model Averaging method. The posterior inclusion probability (PIP) of a variable is the sum of the posterior probabilities models that include that variable. The posterior mean (PM) is the average of the partial likelihood coefficient estimates of individual models weighted by posterior probability. Below in parenthesis we report the posterior standard error (PSE), which is the BMA estimate for the standard error taking model uncertainty into account. We consider two model spaces: baseline and extended (baseline plus interactions).

4. Discussion and Conclusion

In this paper, we investigate the determinants of the preferences for redistribution, which reflect the demand of the redistributive policy in Cyprus. We find that that current individual income and perceptions about fairness play a major role in determining preferences for redistribution in Cyprus. Both income and perceptions are negatively associated with the preferences for redistribution. Furthermore, we find that while education, social mobility, and self-employment are weakly negatively associated with preferences for redistribution, while marital status is weakly positively associated.

It is important to emphasize that our results hold even when we explicitly take into account model uncertainty using a model averaging method. Model averaging allows us to integrate out the uncertainty with respect to the choice of variables and thus analyze policy using unconditional probability statements rather than conditional on a single model. In other words policy-makers can make use of our results without worrying about the validity of our model specification.

From the perspective of policy evaluation our results can have important consequences on government size, inequality, intergenerational mobility, and even long-run growth in Cyprus. Shifts in the preferences for redistribution pose a serious challenge to policy makers and hence, tracing these shifts to the determinants of the demand for redistribution is important. On the one hand, any changes in the mix of progressive and regressive taxation to reduce the gap between preferences and actual policy will have an impact on government size through the provision of direct (social transfers) and indirect (public goods) redistributive programs. On the other hand, the policy makers may opt not to take any actions hoping that the higher demand for redistribution will adjust back to the previous levels in the near future to restore the equilibrium. However, this strategy might result in higher inequality and perhaps lower intergenerational mobility. In both cases, the response of policy makers to the changes in the preferences of redistribution can affect long-run outcomes including long-run growth through their effects on government size, inequality, and intergenerational mobility.

In view of the recent economic crisis in Cyprus, our findings suggest that we anticipate a higher demand for redistribution in the near future due to a decrease in both income and perception of fairness. It is worth noting that both income and perceptions about fairness have a downward trend. Specifically, we notice that household total net income was 6.43 in 2006,

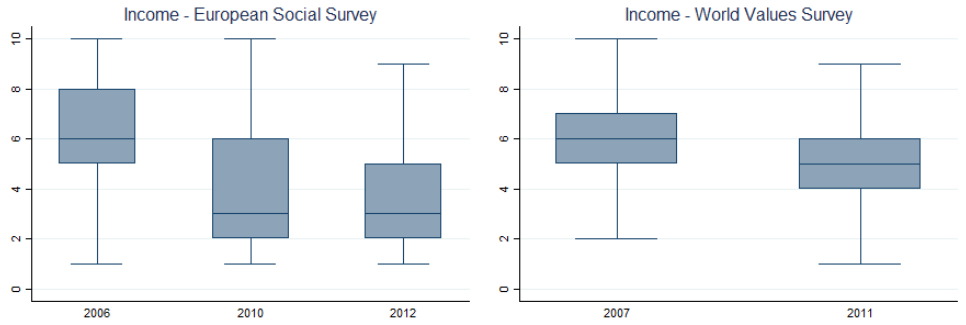
3.98 in 2010, and 3.64 in 2012.[10] The mean perception about fairness was 4.85 in 2006, 4.86 in 2008, 4.20 in 2010, and 4.10 in 2012.[11] Furthermore, in Figures 5 and 6 we present the boxplot concerning income and fairness, respectively, through time.

Additionally, the unprecedented recession and the fiscal austerity in the island for the period after March 2013 have resulted in substantial reductions of the disposal individual income.[12] Finally, a number of events such as the Mari explosion, the poor fiscal governance and the reckless behavior of the banks prior to the crisis in conjunction with the harsh bailout terms that led to a fiscal austerity, which are generally perceived as an unfair treatment are expected to reduce the perceptions about fairness even further.

In view of our findings and Cyprus' recent macroeconomic experience, policy makers should be very cautious in yielding to demands for higher redistribution. Instead, the policy makers should engage in pre-redistribution as opposed to redistribution. New research by James Heckman and co-authors (e.g., Heckman and Mosso (2014)) has documented the importance of public policies that aim at disadvantaged families to provide the resources needed to help children to acquire skills and flourish. Put differently, public policies should aim at levelling the opportunities for learning and gaining skills, and hence reducing inequality when they are adults and increasing social mobility.

FIGURE 5

Net Household Income in Cyprus



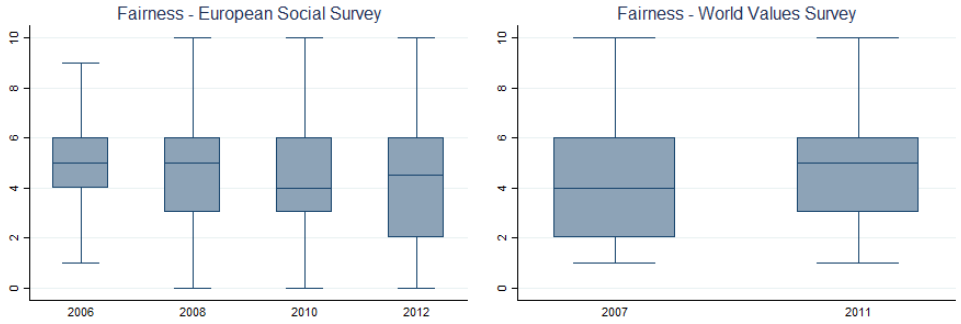
[10] Using WVS we note that income in 2007 was 5.70, and in 2011 was 5.19.

[11] Using WVS we note that the mean perception about fairness in 2007 was 4.24, and in 2011 was 4.55.

[12] Using data from the World Development Indicators, we find that for the decade of 1999 to 2008 Cyprus had an average annual GDP per capita growth of 2.6%. On the contrary, for the years 2009 to 2014 the average growth was -3.11%, with the biggest decline occurring in 2013 (-5.74%).

FIGURE 6

Perception about Fairness in Cyprus



Appendix

TABLE 1

Description of Variables

Variable	Description
Public provision	People should take more public provision for themselves (1) Vs Government should take more responsibility to ensure that everyone is provided for (10). Scale: 1-10
Reduction in inequality	WVS: We need larger income differences as incentives for individual effort (1) Vs Incomes should be made more equal (10); ESS: Government should reduce differences in income levels: Disagree strongly (1) - Agree strongly (5). Scale: WVS:1-10; ESS:1-5
Age	Individual's age.
Female	Gender: female. Scale: 0-1
Unemployed	Employment status: Unemployed. Scale: 0 or 1
Union member	Member of a labor union. Scale: 0 or 1
Self-Employed	Employment status: Self-employed. Scale: 0-1
Income	WVS: Individual's subjective group of household income in an income scale: Lower step (1) - Highest step (10); ESS: Household's total net income from all sources: 1st decile (1) - 10th decile (10). Scale: 1-10
Education	WVS: Highest level of completed education: Inadequately completed elementary education (1) - University with degree/Higher education - upper-level tertiary certificate (8); ESS: Highest level of education: Less than lower secondary education (1) - Tertiary education completed (5). Scale: WVS:1-8; ESS:1-5
Mobility (Father)	Mobility - Difference in years of education (father)
Mobility (Mother)	Mobility - Difference in years of education (mother)
Ever divorced	Ever been divorced. Scale: 0-1
Fairness	Most people would try to take advantage of you if they got a chance (1) Vs or would try to be fair (10). Scale: 1-10
Work versus luck	In the long run, hard work usually brings a better life (1) Vs Hard work does not generally bring success-it is more a matter of luck and connections (10). Scale: 1-10
Ideology	Individual's position on the political "left" and "right" scale: Left (1) - Right (10). Scale: 1-10
Importance of family	Individual views of how important is family: Very important (1) - Not at all important (4). Scale: 1-4
Married	Marital status: Married. Scale: 0 or 1
Religiosity	WVS: Individual views of how important is religion: Very important (1) - Not at all important (4); ESS: Individual's religiosity: Not at all religious (0) - Very religious (10). Scale: WVS:1-4; ESS:0-10
Orthodox	Religious denomination: Orthodox. Scale: 0 or 1
Muslim	Religious denomination: Muslim. Scale: 0 or 1
Other religion	Religious denomination: Other. Scale: 0 or 1

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