

Owen Winter

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Q-Step

The Impact of Electoral Systems on Economic Democracy in Developed Democracies

With the challenges of climate change, globalisation and a backlash against established political and economic institutions, many political commentators have pointed to a sense of alienation and marginalisation stemming from a loss of economic control. To tackle political alienation, many have argued for the extension of 'economic democracy' - granting people greater control over the economic forces which affect them. In this context, researchers at the University of Glasgow and Nottingham Trent University have constructed an international Economic Democracy Index (EDI) to explore the relationship between economic democracy and key public policy goals (Cumbers et al, 2016). In this essay, I will argue that countries' electoral systems have a significant effect on levels of economic democracy.

Thesis

My thesis is that proportional democracies will have higher levels of economic democracy than disproportional ones. This is the result of three factors. Firstly, the partisanship of governments in proportional versus disproportional democracies. Secondly, the nature of decision making in proportional versus disproportional legislatures. And thirdly, the information environment and sophistication of proportional versus disproportional political systems.

The language of economic democracy is most common amongst politicians and parties of the left. These parties have greater links to trade unions, are generally in favour of higher rates of government expenditure and are more likely to support employment protection measures. It follows, therefore, that countries with greater representation of the left in government will have higher EDI scores. As Torben and Iversen (2006) argue, the nature of proportional electoral systems leads to greater frequencies of left-leaning governments. Their model - based on the class coalitions

which emerge under different electoral systems - is supported by empirical data on partisanship from advanced democracies. They also argue that left-leaning parties under majoritarian systems will be most effective when they convincingly adopt a centrist (middle-class) platform, perhaps explaining why many left-leaning parties have embraced privatisation. More proportional systems, therefore, give a partisan advantage to parties which are more likely to introduce elements of economic democracy, whereas majoritarian systems discentivise more radical proposals.

Further, proportional legislatures are themselves more likely to produce policies which expand economic democracy. This is because proportional legislatures are a 'collective veto point' and better at representing diffuse interests (Birchfield and Crepaz, 1998). Economic democracy involves disseminating economic power, meaning policies which are bound to be supported by a more diffuse group than its opponents. Collective veto points also encourage collective agency and reduced partisanship, leading to greater willingness to devolve political power. Single-party majority governments may, for example, be more reluctant than coalitions to devolve funding to local government units controlled by other parties. A recent example of this effect in the UK is Conservative Transport Secretary Chris Grayling's opposition to London rail devolution, for fear it would put routes 'in the clutches of a Labour mayor' (Mason, 2016).

Thirdly, electoral systems affect the information environment of political systems. As Orellana (2010) argues, more permissive electoral systems allow a greater diversity of perspectives in the policy-making process, facilitating elite and public consideration of new issues and ideas. This is backed up by literature on political sophistication which argues that greater national and local competition between parties under PR systems lead to more sophisticated and engaged voters (Jackman, 1987; Jackman and Miller, 1995; Gordon and Segura, 1997). An example of broader political debate under a PR system leading to greater economic democracy is identified by Cumbers (2013), who argues that the proportional electoral system of Norway is a key factor in the debate around oil developments. Broader debate, according to Cumbers, produced radical policy proposals including the creation of the Petroleum Directorate to oversee state management of oil and gas, and legislation to ensure a slow and controlled rate of extraction. This led to an oil industry which was far more democratic than, for example, the UK's.

These factors are the theoretical basis for the thesis that proportional democracies will have higher levels of economic democracy, a proposition I will test below.

Operationalising key concepts

Economic Democracy The Economic Democracy Index (EDI) is based on four dimensions: workplace and individual economic rights, associational economic democracy, the distribution of economic decision making powers, and transparency and democratic engagement in macroeconomic decision-making. So far, EDI scores are available for 32 of the 34 OECD nations based on data up to 2013. The country with the highest EDI score is Denmark (0.653) and the lowest is Slovakia (0.269).

Electoral System The main measure of electoral systems I will use in this essay is disproportionality. I use an average of Gallagher's Least Squares Index of disproportionality for elections in each country since 1988, the 25 years leading up to 2013 (Gallagher, 2018). The mean value is 6.388, the minimum is 1.003 (Netherlands), and the maximum is 17.995 (France). I also use a dummy variable to show electoral system groups. This dummy variable assigns 1 to those countries with systems of proportional representation - from the Netherlands, the most proportional, to Hungary, the least - and 0 to non-proportional systems, including FPTP in use in the UK, Canada and USA; majoritarian systems in Australia and France; and parallel systems in Japan, South Korea and Italy.

Control Variables The control variables I use are population in thousands and the Human Development Index.

The effect of disproportionality on Economic Democracy

Despite a limited number of cases measured by the EDI, my regression analyses support the thesis that countries with more proportional electoral systems will have greater levels of economic democracy. Table 1 shows four OLS regression models with EDI as the dependent variable.

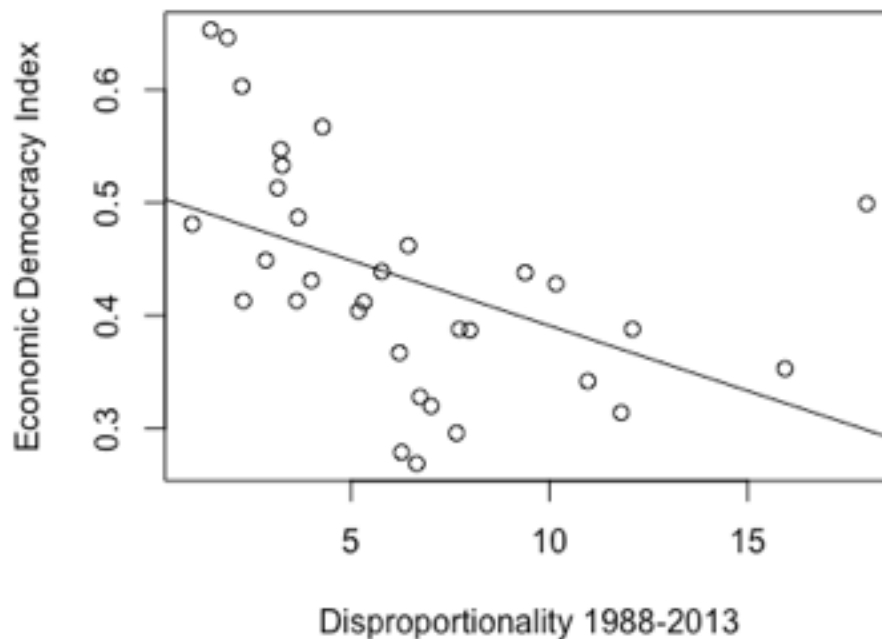
Table 1 - Dependent Variable: Economic Democracy Index

	(1)	(2)	(3)	(4)
Intercept	0.506636*** (0.030)	5.100e-01*** (0.029)	-0.51741 (0.417)	-8.181e-01* (0.386)
Disproportionality	-0.011562** (0.004)	-9.597e-03* (0.004)	-0.01019* (0.004)	-6.870e-03 (0.004)
Population		-4.711e-07 (0.000)		-6.971e-07** (0.000)
HDI			1.15208* (0.468)	1.496e** (0.434)
Adjusted R ²	0.193	0.2439	0.3094	0.4501
N	32	32	32	32

* p<0.05; ** p<0.01; *** p<0.001.

For models 1-3, disproportionality has a significant correlation with EDI, with coefficients ranging from -0.011562 to -0.009597. For an increase in disproportionality of 4.452 (the interquartile range of disproportionality data), we can expect a reduction in EDI of between 0.0435 and 0.0525 - over 10% of the total range of EDI scores. In model 4, controlling for HDI and population, the p-value is 0.061, placing it just outside the range of statistically significant results, with a coefficient only slightly smaller than models 1-3. The lack of statistical significance, in this case, is probably due to overfitting, with four predictive variables being applied to 32 cases - violating the 'one in ten rule' put forward by some statisticians. In models 3 and 4, we can see that HDI is the variable which produces the greatest effect on the model, necessitating further research beyond the scope of this essay.

Figure 1 plots EDI versus disproportionality, with model 1 illustrated. This graph shows one obvious outlier - France - which has the highest disproportionality of any of the countries in my model. It is worth noting that removing France increases both the significance and size of the relationships identified in Table 1.

Figure 1 - Disproportionality and EDI

Transforming the Independent Variable

Looking at Figure 1, we can see that a non-linear model may be more appropriate to consider the relationship. This is because the effect of disproportionality on EDI reduces as disproportionality increases. Whereas the first few percentage points of disproportionality make a big difference to the political system of a country - changing the electoral permissiveness and altering the party system (Neto and Cox, 1997); once a certain level of disproportionality is reached, an electoral system can effectively be described as 'majoritarian'. By transforming the independent variable - disproportionality - we can more appropriately model its effect on EDI.

Table 2 shows how the square root or natural logarithm of disproportionality are both better models for explaining variation in economic democracy when controlling for population and development. These transformations marginalise the large differences in disproportionality amongst disproportional democracies, as opposed to the relatively small variations in proportional ones. Figures 2 and 3 show how the transformed model maps onto disproportionality versus EDI.

Table 2 - Dependent Variable: Economic Democracy Index

	(1)	(2)	(3)
Intercept	-8.181e-01* (0.386)	-6.436e-01 (0.389)	-5.461e-01 (0.384)
Disproportionality	-6.870e-03 (0.004)		
Square Root Disproportionality		-4.517e-02* (0.018)	
Natural Logarithm Disproportionality			-5.986e-02** (0.021)
Population	-6.971e-07** (0.000)	-6.409e-07* (0.000)	-6.014e-07* (0.000)
HDI	1.496e+00** (0.434)	1.369e+00** (0.427)	1.246e+00** (0.423)
Adjusted R ²	0.4501	0.4891	0.5206
N	32	32	32

* p<0.05; ** p<0.01; *** p<0.001.

Figure 2 - Quadratic Model

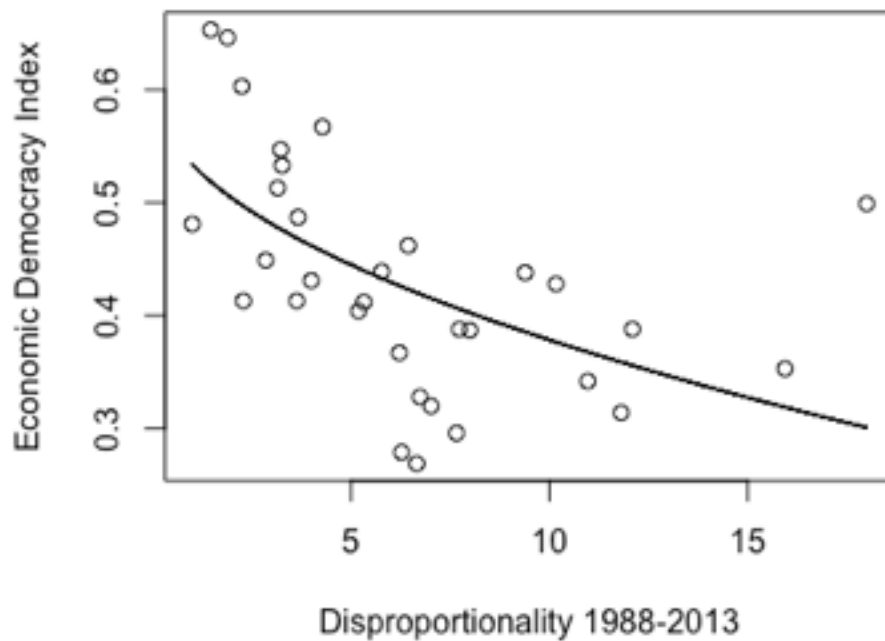
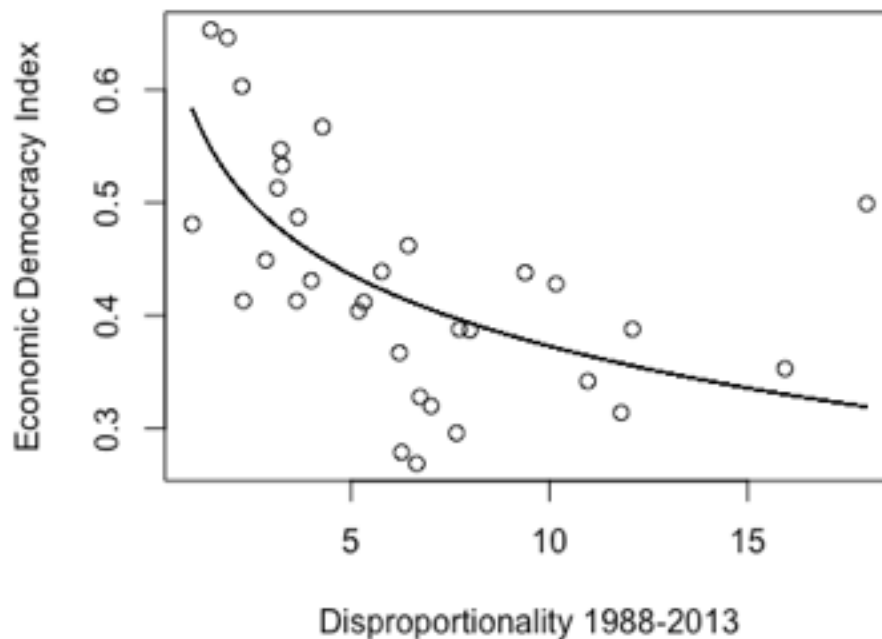


Figure 3 - Logarithmic Model

Disproportionality within electoral system groups

We can also look at the effect of disproportionality within electoral system groups, using a dummy variable. Figure 4 shows the effect of disproportionality on economic democracy in non-PR countries (0), versus PR countries (1). As we can see, the correlation is entirely reversed within the non-PR group. With an N value of 8 in the non-PR group, it is not possible to find a statistically significant correlation, so it is likely that this coefficient is driven by the outlying positions of France - with very high disproportionality and relatively high EDI - and the USA - with very low EDI and surprisingly low disproportionality, owing to the extensive use of primary elections and very strong two-party system.

By contrast, there is a statistically significant relationship within the PR electoral system group, even when controlling for population and development. We can see this correlation in Figure 5, with PR countries coloured blue and non-PR countries green.

Figure 4 - Interplot

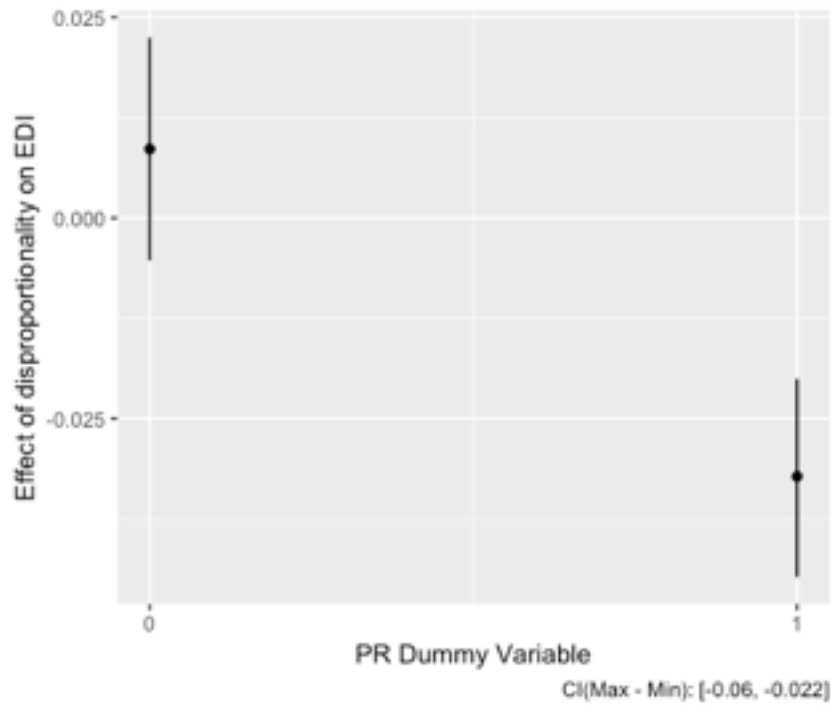
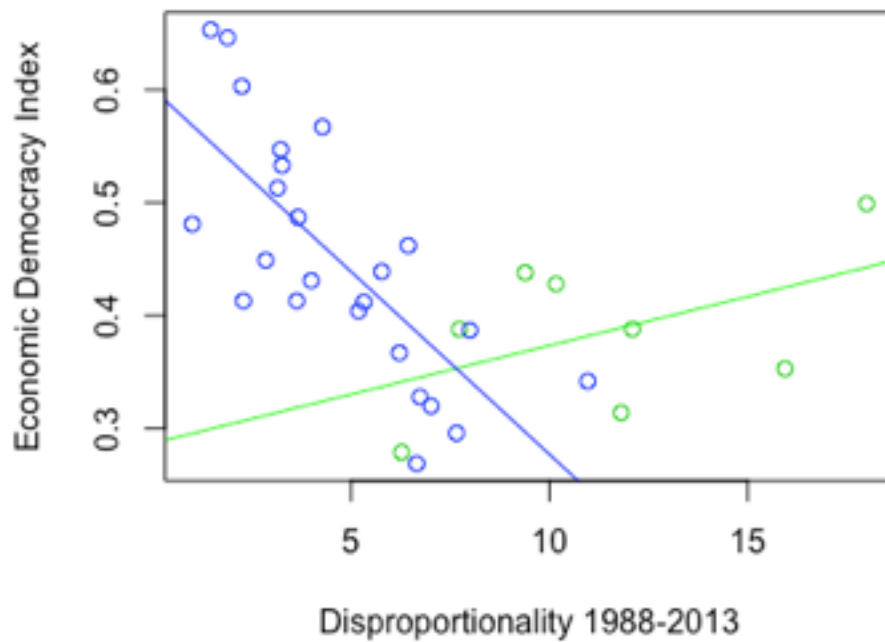


Figure 5 - Electoral System Groups



Discussion of the results

The results above are consistent with the thesis that greater electoral proportionality is correlated with greater economic democracy. When controlling for population and development, significant correlations can be found between EDI and the square root or natural logarithm of disproportionality.

The results also show that the effect of disproportionality on EDI is strongest amongst more proportional countries. This suggests that flawed PR systems, such as those used in Hungary, Poland and Greece, can be considered to be 'majoritarian' in their effect on political outcomes. Once a certain level of disproportionality has been reached - erecting barriers to participation - the level of disproportionality becomes insignificant.

France emerges as a notable case due to its high disproportionality. France's relatively high EDI score probably owes to high government spending as a percentage of GDP and a relatively small share of total tax revenue going to central government. France is the only country studied in this essay to use the two-round electoral system. France's weak two-party system and use of proportional voting in local government are areas to be considered in further research on electoral systems and economic democracy.

These results show the need for further investigation. Figure 6 shows the cases studied in this dataset, exposing the lack of non-Western cases and the dominance of European countries. As the EDI is only available for members of the OECD, there is also a lack of less economically developed countries - especially important given the strength of the effect of development identified in Table 1. There is also a lack of disproportional systems represented - with only 8 cases out of 32 using non-PR systems. By increasing the number of cases studied, we could avoid the problem of overfitting.

Finally, it is important to consider problems of endogeneity. It could be, as theorised by Rokkan (1970) and Boix (1999), that countries with strong socialist parties adopted PR as a means of defending bourgeois interests, whereas those with weak socialist parties or united conservative parties retained majoritarian systems. This is consistent with some evidence showing a negative correlation between disproportionality and trade union density. This could be a confounding

Figure 6 - Map of Cases Studied

variable, with socialist movements leading to both economic democracy and electoral reform. This reinforces the need to expand the number of cases studied, which would allow for the introduction of further control variables. However, the number of variables considered as part of the EDI mean multicollinearity may be an issue.

Conclusion

Through a combination of government partisanship, with greater representation of left-of-centre parties in government; collective decision making, leading to reduced partisanship; and diversity of political debate, leading to greater political sophistication and consideration of new ideas; proportional democracies are better placed to introduce elements of economic democracy than disproportional ones. This is backed up by strong and significant correlation coefficients between disproportionality and EDI, especially when disproportionality is transformed polynomially or logarithmically. This evidence also suggests that it is the level of disproportionality - rather than electoral system group - which affects levels of economic democracy, with flawed PR systems performing similarly to majoritarian systems. Further research is needed to test this relationship in less economically developed and Western countries, as well as to confirm the direction of causality.

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Appendix - R Code

```

rm(list=ls())
library(readxl)
data <- read_excel("~/Documents/Oxford/2nd Year Q-Step/EDlvPR.xlsx",
                  + na = "NA", n_max = 32)
EDlvDis <- lm(data$EDI2013 ~ data$Disproportionality88)
summary(lm(data$EDI2013 ~ data$Disproportionality88))
summary(lm(data$EDI2013 ~ data$Disproportionality88 + data$Population))
summary(lm(data$EDI2013 ~ data$Disproportionality88 + data$HDI2013))
summary(lm(data$EDI2013 ~ data$Disproportionality88 + data$Population + data
$HDI2013))
summary(lm(data$EDI2013 ~ data$Disproportionality88*data$PRDummy))
library(interplot)
lm.intx <- lm(EDI2013 ~ Disproportionality88*PRDummy, data = data)
interplot(m = lm.intx, var1 = "Disproportionality88", var2 = "PRDummy") + xlab("PR
Dummy Variable") + ylab("Effect of disproportionality on EDI")
plot(data$Disproportionality88, data$EDI2013, main = "Figure 1 - Disproportionality
and EDI", xlab = "Disproportionality 1988-2013", ylab = "Economic Democracy
Index")
plot(data$Disproportionality88, data$EDI2013, main = "Figure 5 - Electoral System
Groups", xlab = "Disproportionality 1988-2013", ylab = "Economic Democracy
Index", col = data$PRDummy+3)
abline(EDlvDis)
abline(a = 0.286954, b = 0.008658, lty = 1, col = 'green') (non-PR countries)
abline(a = 0.286954 + 0.313910, b = 0.008658 - 0.041034, lty = 1, col = 'blue') (PR
countries)
data$DisproportionalitySQRT = data$Disproportionality88^0.5
plot(data$DisproportionalitySQRT, data$EDI2013, xlab = "Square Root
Disproportionality 1988-2013", ylab = "Economic Democracy Index", col = data
$PRDummy+3)
summary(lm(data$EDI2013 ~ data$DisproportionalitySQRT))
abline(lm(data$EDI2013 ~ data$DisproportionalitySQRT))

```

```
x.sequence <- seq(from = min(data$Disproportionality88, na.rm = TRUE), to =  
max(data$Disproportionality88, na.rm = TRUE), by = .001)  
quadraticline <- data.frame("x" = x.sequence)  
quadraticline$y = 0.60563 - 0.07183*quadraticline$x^0.5  
plot(data$Disproportionality88, data$EDI2013, main = "Figure 2 - Quadratic Model",  
xlab = "Disproportionality 1988-2013", ylab = "Economic Democracy Index")  
lines(quadraticline$x, quadraticline$y)  
data$ln = log(data$Disproportionality88, base =)  
quadraticline$ln = 0.58348 - 0.09144*log(quadraticline$x, base =)  
plot(data$Disproportionality88, data$EDI2013, main = "Figure 3 - Logarithmic  
Model", xlab = "Disproportionality 1988-2013", ylab = "Economic Democracy Index")  
summary(data$Disproportionality88)  
nonPR <- subset(data, data$PRDummy == '0')  
PR <- subset(data, data$PRDummy == '1')
```