

Conventions and the European periphery.

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Abstract

The European periphery is qualitatively different from the core. This implies that a monetary and fiscal policy mix which benefits the core will not, by definition, benefit the periphery except by coincident or accident. The debtor nations are also qualitatively different from the creditor nations. There is a distinct, but not total, overlap between the core and creditor countries, and between the peripheral and debtor countries. The (biased) case for the periphery is made in this article.

1 Defining the periphery.

A periphery is a line that forms the boundary of an area. Usually one institutes a boundary because there are differences between two or more areas. Geographically the European periphery is comprised of those countries on the edge of the European Union. Moving anti-clockwise around a map of the Eurozone, the geographical periphery includes countries like Ireland, Portugal, Spain, Malta, Greece and Finland. Some European countries, like Hungary, are relatively central however, and are yet considered ‘peripheral’. Moreover, it seems clear that countries can change their status from ‘core’ to ‘peripheral’, in some sense. For example, witness the treatment of Spain in the recent financial crisis. There must be a more objective way to define the periphery.

Using OECD data, and ranking each member of the Eurozone by an index of development like gross domestic product per capita, and indexing relative to the GDP per capita of the median within the series, it should be possible to ‘see’, in some sense, members of the core group and the members of the peripheral group.

Table 1 performs this ranking. It ranks the members of the Eurozone by four measures: GDP per capita, average debt as a percentage of GDP from 2006-2011, the average of their individual current accounts from 2006 to 2011, and by the average rate of GDP growth from 2006 to 2011.

In the next column, beside each measure, I create a ‘median index’, where the median of the series is calculated, and then used as the index value for

*Stephen.Kinsella@ul.ie. Funding from the Institute for New Economic Thinking is gratefully acknowledged. To appear in the *Journal of Balkan and Near Eastern Studies*.

the rest of the series. So, for example, median GDP per capita of the series is 35100 euros. Dividing the value for Luxemborg, which is 107,000 euros and multiplying by 100 gives 305. The division between ‘core’ and ‘periphery’ is fairly easy to see using this measure. Of course one measure is not enough, but combining these simple measures, there is a clear division between countries that are ‘core’ and those that are not.

Those countries commonly understood as the periphery such as Greece, Cyprus, Malta, and Slovakia are represented as having lower index values for GDP per capita, higher values for Debt as a percentage of GDP, higher current account levels, and lower average real GDP growth. The opposite, broadly, is true of core countries like Germany and France.

Notable exceptions are Ireland, Spain, and the Netherlands.

Note that over a longer period, say 1990 to 2011, those countries considered ‘core’ or ‘peripheral’ would change markedly also, as the membership has changed.

The table also shows the peripheral ‘tipping point’ becomes fairly obvious in times of debt. Countries that experience higher debt levels with corresponding falls in output and employment are not by definition, peripheral, but it is clear that all peripheral member states of the Eurozone experienced these falls from 2007 to 2012. The definition of peripheral state lies not in geography alone, but in a combination of geography, debt, current account status—deficit or surplus—and response to shocks.

This short article uses a simple model to try to understand the movement of one country into the periphery while examining its effects on those countries that remain in the core.

Country	GDP Per Capita	Median Index	Debt/GDP	Median Index	Current A/C	Median Index	GDP Growth %	Median Index
Luxembourg	107000	305	6	12	-208	-170	1.3	140
Netherlands	48300	138	46	89	-2540	-2084	0.9	104
Ireland GDP	47600	136	35	68	-420	-345	-0.9	-100
Austria	45900	131	62	120	-17	-14	1.2	135
Belgium	43800	125	91	177	-1097	-900	1.1	117
Finland	43700	125	35	68	173	142	0.6	70
Germany	41500	118	42	82	-5	-4	1.3	142
France	41200	117	57	111	555	455	0.5	54
Italy	35100	100	101	196	370	304	-0.5	-61
Spain	32400	92	39	76	5210	4274	0.1	16
Greece	29400	84	120	233	3037	2491	-2.2	-240
Cyprus*	28300	81	101	196	29	24	1.7	188
Slovenia	24300	69	28	54	706	579	0.9	96
Portugal	21700	62	74	144	2041	1674	-0.2	-18
Malta*	20300	58	78	151	71	58	2.3	255
Slovakia	18200	52	31	60	706	579	3.8	418

Table 1: The periphery is rather easy to see. Sources: OECD, Eurostat. Countries marked with a star have data available from 2006 to 2010 rather than 2011.

2 A simple model of core/peripheral regime shift.

Given the discussion above, we can posit that it may be advantageous, at a given time, to be considered ‘peripheral’. Why? Peripheral states receive large capital transfers in the name of regional coherence, they receive exemptions from paying into the common funds, and they receive the lion’s share of funds aimed at social and economic convergence. The benefits to being a core country are counter-cyclical, in that the core countries will benefit from monetary policies and fiscal policies, and can run persistent current account surpluses through any downturn, while peripheral countries may require fiscal consolidation to ‘balance the books’ as the downturn takes hold, depressing domestic demand and increasing the hardships of their citizens.

Consider a population of countries. Following Boyer and Orlean (1992), we will repeatedly choose pairs of countries at random and ask them to play a simple, symmetric, game¹.

Define $E(C, P)$ as the expected utility derived by any country from any game in which the country plays strategy C , or aligning with the Core, and his opponent plays strategy P , or aligning with the periphery. Read $E(C, P)$ as the expected utility of choosing C with probability p . If $p * (C)$ the frequency of C strategists at time t in the population and $(1 - p)$ is the frequency of the P strategists, then an individual playing C will obtain the utility $U(C, p)$, given by:

$$U(C, p) = p * E(C, C) + (1 - p) * E(C, P) \quad (1)$$

and because the game is symmetric, the other player (themselves a member state) receives utility

$$U(P, p) = p * E(P, P) + (1 - p) * E(P, C). \quad (2)$$

So far, so boring. The players choose their strategies and are allocated a corresponding expected utility value.

Let us assume the players can learn from their previous actions. They will know from previous periods the values previous players have chosen. Assume a learning process such that the value of p increases if $U(B, p) > E(C, p)$ according to the non decreasing function G which takes the form:

$$\frac{dp}{dt} = G(U(C, p) - U(P, p)). \quad (3)$$

Following Maynard Smith (1982, pp 10-12), define an evolutionary stable strategy which is stable if when all members of a population adopt it, no ‘mutant’ strategy can invade the population. For either C or P to be an evolutionary stable strategy, it must be the case that if all members of the group of countries adopt the strategy P then their total utility must be at least as great at the

¹This is an evolutionary game, producing an evolutionary stable strategy as an equilibrium, in the spirit of Maynard Smith (1982), Crawford and Haller (1990), and Dosi et al. (2006).

utility from any other ‘peripheral’ strategy. Put another way, for values of p approaching 1, either $E(C, p) > E(P, p)$ or $E(C, p) = E(P, p)$.

A *convention*, where more than one evolutionary stable strategies co-exist in the same space, must have the property that below some level of utility, it is optimal to choose one strategy, and above a certain level, it is optimal to choose another. That is, there can, and will be, shifts in the available and dominate convention.

For example, consider a symmetric game where there are only two strategies: A and B. The utility from both strategies will be UA and UB respectively, with $0 < UA < UB$. The game, in normal form, will look like this:

	A	B
A	UA, UA	$0, 0$
B	$0, 0$	UB, UB

Figure 1: Normal form game representation of symmetric game, clearly there are two evolutionary stable strategies in this example.

What does this mean? It means that below a certain level of utility, strategy A will dominate. Above that level of utility, strategy B will dominate. Importantly, UA is still an evolutionary stable strategy even if $UA < UB$. If p is the proportion of A strategists within the population, then, following the earlier notation, $U(A, p) = p * UA$ and $U(B, p) = (1 - p) * UB$. There will be a threshold at which, with p rising, the value of $U(A, p) = U(B, p)$ and therefore

$$p^* = \frac{UA}{UA + UB}. \tag{4}$$

The relationship between the two conventions can be summed up using figure 2 below. As $p \rightarrow p^*$, the convention shifts.

3 Shifts in European policy towards the periphery

This little model tells us two things. First, in the ordinary course of events, some European states have little chance of ‘breaking out’ of their convention as peripheral states—their individual values of p will be too low. Others, however, will be on the margins between having ‘core’ and ‘peripheral’ status, and when the benefits to being peripheral are greater than being core, they may well take the peripheral route. Secondly, states within the other ‘core’ convention will sometimes have to shift to a ‘peripheral’ strategy if the gains to being peripheral are greater, and if the convention on being peripheral is overwhelming in the population such that this becomes the dominant evolutionary stable strategy.

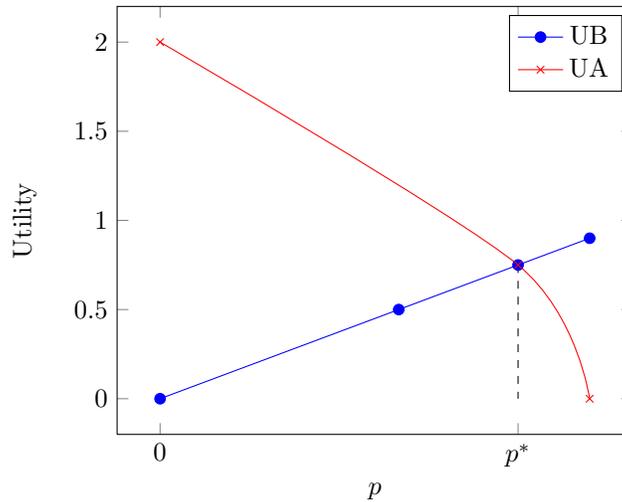


Figure 2: Evolution of convention change as p^* increases.

4 Looking forward: Modeling the shift

The goal of this short paper was to define the core and peripheral countries of the Eurozone using simple aggregate indices conditioned on median values. Then a simple model of convention formation and shift was developed. The simple idea was that conventions can be both reinforcing and harmful when moving from one convention to another.

I defined two conventions: core and peripheral. When possible, peripheral countries may wish to become core, but there are advantages to being peripheral. A Eurozone dominated by peripheral countries would have a net current account deficit, high and persistent debt to GDP ratios, lower employment levels and lower GDP per capita ratios, and experience lower overall living standards. It is, by a large, not desirable for solidly ‘core’ countries to become ‘peripheral’, though this may indeed take place.

The shift from peripheral to core (or vice versa) for a single country should take place gradually but with increased momentum. Thus when we compare Ireland, say, in 1990 with Ireland in 2000 and Ireland in 2010, we can posit, using the measures to define the periphery laid out in section 1, that Ireland went from being peripheral in 1990, to core in 2000, and is back on the periphery again.

Similarly, Italy began in 1990 on the edge of the core, and has stayed there. It may well be the case that Italy’s shift from a core to a peripheral country via a costly bank bailout and a package of fiscal measures isolates the remaining core countries—France, Germany, the Netherlands, Finland—and precipitates a shift overall from a largely ‘core’ strategy to a largely ‘peripheral’ one.

References

- R. Boyer and A. Orlean. How do conventions evolve? *Evolutionary Economics*, 2(1):165–177, 1992.
- Vincent P. Crawford and Hans Haller. Learning how to cooperate: Optimal play in repeated coordination games. *Econometrica: Journal of the Econometric Society*, 58(3):571–595, 1990.
- G. Dosi, G. Fagiolo, and A. Roventini. An evolutionary model of endogenous business cycles. *Computational Economics*, 27(1):3–34, 2006.
- J. Maynard Smith. *Evolution and the Theory of Games*. Cambridge University Press, Cambridge, 1982.