

A new approach measuring political diversity through ideological distinctiveness*

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Abstract: We propose a new index of political diversity that takes into account not only the number and size of political parties, but also their ideological distinctiveness. By using election manifestos from 49 major democratic countries as proxy markers for ideological distinctiveness of political parties, we demonstrate that our index and the widely used "effective number of parties" (ENP) yield different conclusions. In particular, our index suggests a weaker link between the type of electoral system and the degree of political diversity than that derived by ENP. In addition, the structure of our index allows us to examine a relationship between political diversity of the electorate and the elected parties in countries with pluralist voting systems.

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Introduction

A common way to measure political diversity among the elected representatives in a country is by the number of political parties. However, even though in most democratic societies the number of parties is large, most of them are small and lack without a substantial influence in political life. Thus, not all parties should be accounted for in the same way and political scientists commonly use the so-called "effective number of parties" (ENP) (see, e.g, Laakso and Taagepera, 1979). The effective number of parties is a standard index of diversity that takes into account the number and size of the parties. The type of electoral system might play a fundamental role in explaining the differences across countries in the number of effective political parties. Much literature in the field, from Duverger (1972) onwards argues that under Plurality Voting institutions, the number of effective parties is small, in most of the cases, just two. Under Proportional Representation, such a number can be larger, depending on the level of diversity, or number of cleavages among voters. We believe that a more accurate way to measure political diversity among the political parties should also incorporate information about the ideological diversity of their political proposals. Thus, a possible link between diversity in the population and diversity among the political representatives should incorporate information on the ideological stands of the parties as well as the (effective) number of parties.

All the standard indexes in the field used to measure political diversity suffer from the same shortcomings as the ENP. The measurement of ENP tells the observer how many parties cover the

spectrum of opinion in a country, but does not shed any light on the level of parties' distinctiveness. In this paper we propose a way to incorporate the ideological "distances" between the different parties into an index of diversity. We follow an approach similar to the one proposed by Greenberg (1956) in the context of linguistic diversity, and later used by Fearon (2003) and Desmet, Ortuno-Ortin and Weber (2007) to construct indexes of ethnolinguistic diversity that incorporate the linguistic distances between the languages spoken in a society.

We show that our index is different from the standard commonly used indices because it incorporates the concept of ideological distance between parties comprising mainstream political opinion, not just the number of parties that fall within that range. Specifically, we calculate the index of political diversity for a set of 49 democracies using data from the Comparative Manifestos Project and demonstrate that such index differs from the ENP. We also argue that our index might be useful in explaining the possible link between political institutions and political diversity.

The index of political diversity

One period diversity

Consider a democratic country during a single electoral period. Let n be the number of parties represented in the legislature after elections. Denote by v_i the vote share¹ obtained by party i , so that

$\sum_{i=1}^n v_i = 1$. In some cases we will be interested in share of seat allocated to parties rather than their

vote share. Thus, we denote by s_i the seat share obtained by party i and $\sum_{i=1}^n s_i = 1$. Let us suppose

that the policies proposed by parties can be associated to elements in the policy space P .

Thus, $p_i \in P$ represents the policy proposal of party i . Furthermore, we assume that the space P is a subset of the m -Euclidean space, and without loss of generality we take $P = \mathbb{Q}_+^m$. Each dimension

¹ If some parties receive votes but do not receive representation the share v_i is the ratio of the number of votes obtained by party i over the total number of votes obtained by all the parties with representation in the legislature.

of the policy space can be seen as a different issue. In the empirical part we will associate p_i with the platform of party i , but other interpretations are also possible. Next we define an *ideological distance* between parties i and j , which depends on their respective policy proposals p_i and p_j . It is natural to require that $d_{ij} > 0$ whenever $p_i \neq p_j$ and $d_{ij} = 0$ whenever $p_i = p_j$, and without. We assume, without loss of generality, that the distance function is given by the (normalized) Euclidean distance² between the policy proposals. Thus, in this case the distance between party i and party j is

$$d_{ij} = \frac{\sqrt{\sum_{k=1}^m (p_{i,k} - p_{j,k})^2}}{2} \quad (1.1)$$

where p_{ik} stands for the policy proposal of party i on issue k .

We propose the following index of political diversity

$$G = \sum_{i=1}^n \sum_{j=1}^n v_i v_j d_{ij} \quad (1.2)$$

This index has been introduced by Greenberg (1956) in the context of linguistic diversity and was examined (as quadratic entropy) in Rao (1982). A similar index was also used by Nei and Li (1979) to measure genetic diversity. Fearon (2003) and Desmet et al. (2007) utilize this index to compute linguistic diversity for more than 80 countries.³ The index G computes the weighted total distances between all political parties. If we identify the political position or ideology of a voter with the policy of the party he/she vote for, the index can also be interpreted as the expected ideological distance between two randomly selected voters.⁴ Notice that by setting the ideological distance d_{ij} equal to zero the index takes the value zero.

² It turns out that for the data we use in the empirical section, the Manhattan distances and the Euclidean distances are very much correlated and our results on political diversity are basically the same under both distances.

³ See also Bossert, D'Ambrosio and La Ferrara (2006) for a characterization of a similar index. Ricotta and Szeidl (2006) argue that this index can be viewed as the probability of conflict among species in a given environment.

⁴ It is interesting to notice that if d_{ij} stands for the income difference between group i and group j , G would coincide with the Gini index.

It is common to assume that an index of *diversity* should satisfy two properties (see Shannon, 1949): (i) one would require that, given a number of political parties, the index reaches its maximum when all parties receive the same vote share; (ii) the second requirement is that whenever all parties receive the same number of votes, the society with a larger number of parties exhibits a higher index of political diversity. These requirements are natural when the index of diversity takes into account information only on the number and size of the groups (political parties in our case). However, our index G also incorporates information about the ideological differences between the parties so that in this context those requirements are not “natural” any more. Indeed, it is not difficult to see that our index G does not always satisfy such requirements, and the maximal diversity need not be attained when all parties receive the same vote share.

If we set the ideological distance between any pair of different parties equal to one the index in (1.2) becomes:

$$F = 1 - \sum_{i=1}^n v_i^2 \quad (1.3)$$

This is the well known Gini-Simpson index of diversity, known also as ethnolinguistic fractionalization (ELF) index (see, e.g., Atlas Narodov Mira, 1964, Easterly and Levine, 1997, and Alesina, Baqir and Easterly, 1999). The F index measures the probability that two randomly chosen citizens vote for different parties. This index does not take into account the distinctiveness of the parties. Notice that the most popular measure in the political science literature of the Effective Number of Parties is (see Laakso and Taagepera, 1979)

$$ENP = \frac{1}{\sum_{i=1}^n v_i^2} \quad (1.4)$$

Thus, we have that $F=1-1/(ENP)$, and, for the purpose of this paper, the two indices can be seen as equivalent.⁵ Consequently, the value of ENP can be seen as an index of political diversity that only takes into account the number and size of the different groups but not their distinctiveness.⁶ One might be also interested in the index of diversity for some specific policy issue. If, for example, we focus our analysis on the k dimension of the policy space P (i.e., policy issue k) we take the distance function

$$d_{ij} = \|p_{i,k} - p_{j,k}\| \quad (1.5)$$

and the index of political diversity is given by expression (1.2) using now this new distance.

Sometimes it is more appropriate to calculate political diversity, or the effective number of parties, using the *seat share* obtained by each party instead of the popular vote share. Our index could be modified to allow for this possibility as well. We substitute v_i for the corresponding seat share of party i to obtain

$$G^s = \sum_{i=1}^n \sum_{j=1}^n s_i s_j d_{ij} \quad (1.6)$$

Say, for example, that the shares s_i correspond to the seat shares in a parliament, and assume that all the members of a party embrace the same political ideology. Then, the index G^s can be interpreted as the expected ideological distance between two randomly selected members of the parliament. In this case, the Gini-Simpson index with seat shares is

$$F^s = 1 - \sum_{i=1}^n s_i^2 \quad (1.7)$$

⁵ This measure of the Effective Number of Parties is also the inverse of the Herfindahl index of concentration in a given industry.

⁶ Many alternatives to ENP have been proposed (see for example Molinar, 1991, and Niemi et al., 2002). However, all of them use the same type of information, namely the number and size of the different parties, and none incorporates distances among political parties.

which is the probability that two randomly chosen members of the parliament belong to different parties. In the same way, we write the Effective Number of Parties with seat shares as

$$ENP^s = \frac{1}{\sum_{i=1}^n s_i^2} \quad (1.8)$$

Diversity and time

In a multi-period electoral setting there are two possible ways to calculate the index of political diversity. The first alternative is to treat each period independent of the others and average diversity across periods. For this end, consider a setting with T electoral periods in and denote by G_t the value of the diversity index in (1.2) in period $t, t=1, \dots, T$. We define the (average) diversity during the T electoral periods as

$$MG = \frac{\sum_{t=1}^T G_t}{T} \quad (1.9)$$

However, this index might underestimate the level of diversity. For instance, consider the following hypothetical case of a country with two political parties and two electoral periods. In the first period both parties propose the same political platform p^1 , and in the second they both propose platform p^2 . In both periods each party gets 50% of the vote share. Suppose that platforms p^1 and p^2 are substantially distinct. We have $G_1=G_2=0$, and, according to index in (1.9) the average diversity is $MG=0$. This might indicate a lack of political diversity in such a country. However, it is clear that the political diversity over time is evident. Thus, this example indicates that index in (1.9) may fail to capture inter-temporal diversity in multi-period cases.

One can examine the following alternative index. Suppose that, in the same way we defined the ideological distance d_{ij} between party i and party j in an electoral period, we are able to define the ideological distance $d_{ij:qt}$ between party i at period q and party j at period t . In this case, the distance $d_{ii:qt}$ between party i at period q and the same party at period t does not need to be equal to zero. Thus, by changing platforms across periods a party might increase the overall level of diversity. The definition of diversity is then

$$TG = 1 - \sum_{i=1}^n \sum_{j=1}^n \sum_{t=1}^T \sum_{q=1}^T \tilde{v}_{iq} \tilde{v}_{jt} (1 - d_{ij:qt}) \quad (1.10)$$

Where \tilde{v}_{iq} stands for the vote share of party i at period q over the total vote across the T elections, i.e. $\tilde{v}_{iq} = v_{iq} / T$. If the distance between parties is given by the distance between their policy proposals, $d_{ij:qt}$ in index (1.10) can be written as

$$d_{ij:qt} = \frac{\sqrt{\sum_{k=1}^m (p_{iq,k} - p_{jt,k})^2}}{2} \quad (1.11)$$

where $p_{iq,k}$ stands for the value of the k^{th} component of the policy proposal of party i at period q .

If we use the seat shares instead of the vote shares the index in (1.9) becomes

$$MG^s = \frac{\sum_{t=1}^T G_t^s}{T} \quad (1.12)$$

and the index in (1.10) becomes

$$TG^s = 1 - \sum_{i=1}^n \sum_{j=1}^n \sum_{t=1}^T \sum_{q=1}^T \tilde{s}_{iq} \tilde{s}_{jt} (1 - d_{ij:qt}) \quad (1.13)$$

where \tilde{s}_{iq} stands for the seat share of party i at period q over the total number of seats across the T elections, i.e. $\tilde{s}_{iq} = s_{iq} / T$.

Empirical Analysis

We measure political diversity for the 49 countries reported in the Table 1 in Appendix. The data source is provided by the *Comparative Manifestos Project*, which can be obtained from Klingemann et al. (2005). The Comparative Manifestos Project profiles the election manifestos, also known as the party platform, for competitive electoral parties in general elections of the democratic nations of Europe, as well as the United States, Canada, Israel, Japan, Australia, and New Zealand, during the fifteen-year period 1990-2005.

Our goal is to produce comparable quantitative data on the content of party manifestos from a large number of democratic nations. The Comparative Manifestos Project's researchers analyze each sentence of an election manifesto and assign each sentence (or quasi sentence) to one of 56 policy categories. Manifestos are then characterized by the percentage of all coded sentences in each of these policy categories. Namely, this methodology provides, for each party and each issue, a numerical score indicating the position of that party on that issue. It also provides information on the Left-Right position of each party, which is calculated by aggregating the scores from a subset of the original 56 issues.

A first choice for constructing this new index incorporating ideological distinctiveness is whether to use the scores for all the 56 issues or just for the Left-Right position (in the first case the dimensionality of the policy space P is 56 and in the second is 1). A second choice refers a variable to be chosen to represent the size of the parties. As mentioned in the previous section, we could use either the information on the seat share (the number of seats obtained in the parliament) or the popular vote share. We have calculated the following three indices of political diversity: i) The index MG given in (1.9) using the 56 issues; ii) The index MG^s given in (1.12) using the 56 issues; iii) The index MG^s given in (1.12) using the Left-Right scores; iv) and the index TM given in (1.10) using the 56 issues.

Those four alternative indexes are reported in the Table 1 in the Appendix. We will compare our indexes of political diversity with the standard Effective Number of Parties index. To calculate such index we use the information on electoral vote shares and seat shares reported in the Comparative Manifestoes Project. Denote by ENP_t the value of the index given in (1.4) electoral period t . Then, the value ENP reported in the table is the average of the effective numbers of parties over the T electoral periods considered, i.e. $ENP = (\sum_{t=1}^T ENP_t) / T$. If we use the seat shares instead of the vote share the index reported is $ENP^s = (\sum_{t=1}^T ENP_t^s) / T$. The last two columns in the Table 1 in the Appendix provide the value of such indexes for our 49 countries.⁷

The table partitions the 49 countries in three groups. The countries in the first group have pluralist voting or non proportional representation electoral systems. In the second group all the countries have a proportional representation system. The third group contains the former socialist countries (regardless of their type of electoral system) and is considered as a different group because all of them are nascent democracies. The row at the bottom of each group provides the average value of the corresponding index for the countries in that group. The very last column in the table reports for each index the average value over all countries analyzed.

It is clear that our indexes of political diversity capture different features of the political diversity than does the *Effective Number of Parties*. Although the indexes are positively correlated, the correlation is not strong enough to conclude that the effective number of parties and any of our indexes of political diversity are substitutes or equivalent indexes.

⁷ The Manifesto Research Group does not provide vote share information on the very small parties. Hence, we computed the vote share for each party as a percentage of the total vote reported in the Manifesto.

Let's focus, for example, on the indexes MG and ENP^s . The correlation between these two indices is 0.56. The average value of ENP^s among the first group of countries is 2.637 much lower than the corresponding average for the second and third group, 4.404 and 4.783 respectively. This is in agreement with the so called Duverger's law: Countries with a plurality electoral system tend to have a low number of effective parties (around two). Something similar happens with the average values for the MG index. Among the first group of countries such average is 0.073 whereas for the countries with PR systems it takes the much higher value of 0.085 (for the former socialist countries the average is 0.097). However, the link between MG and the electoral system is much weaker than the link between ENP^s and the electoral system. Thus, all the countries in the first group present a value of ENP^s lower than the overall average or than the average for the PR countries. Among the 19 countries with a PR system only Greece, Malta and Portugal have a value of ENP^s lower than the average value for the first group (2.637). Yet three countries out of eight in the first group (Canada, France and Japan) have values of MG higher than the average in the PR group. And ten countries in the PR group show values of MG higher than the average for the first group (0.073).

Thus, our calculations suggest that countries with plurality electoral systems tend to have a low number of effective parties *but the degree of political diversity does not present a clear relation with the electoral system or the number of parties*. This observation holds when we compare ENP^s or ENP with MG , MG^s or $MG^s(L-R)$. The link between electoral system and the index TG is even weaker than with the other indexes of political diversity.

It is interesting to point out some specific countries. Canada for example has a low number of effective parties (2.623) and still according to MG shows a quite high level of political diversity. USA has both very low levels of political diversity and very low ENP (and this is the case for any of the alternative indexes).

An application: Political and social diversity

In this section we illustrate the type of potential questions for which our index can be applicable. In the previous Section we showed that the relationship between the type of electoral system and the degree of political diversity might be more complex than it is often assumed. Our goal here is to study the possible link between diversity of the electorate and diversity of the political parties. One might suspect that under proportional representation such a link would be stronger than under pluralistic systems. However, the data we provide suggests a different picture. Let us focus on the Left-Right policy dimension. The first task is to choose an index of diversity for the populations analyzed in this paper. Since we argue that the index of political diversity should incorporate the ideological distance between the different parties, one might argue that the index of diversity in the electorate should also incorporate the "ideological distance" between the different citizens in society. Thus, say that the Left-Right ideological position of any citizen is given by a number from the set $I=\{1,2,3,4,5,6,7,8,9,10\}$, where 1 stands for the most extreme Left position and 10 for the most extreme Right position. The ideological distance between an agent with ideological position $i \in I$ and an agent with ideological position $j \in I$ is given by $d(i,j) \equiv |i-j|$. Let m_i be the percentage of agents with ideological position i . The equivalent index to the one given in (1.2) is

$$E = \sum_{i=1}^{10} \sum_{j=1}^{10} m_i m_j d_{ij}$$

Thus, the index E measures the political (Left-Right) diversity in the electorate.

We compute such index of electorate political diversity using data from the World Values Survey (WVS). These surveys provide information on the self reported Left-Right ideological position of the people interviewed.⁸ Thus, we compute for a series of countries and years the corresponding index E . Table 2 in Appendix contains the different values of E as well as the Left-Right index of political diversity that we computed before (using data from the Manifestos), and the Effective Number of Parties. The first column indicates the name of the country and the year the

⁸ The data is available at <http://www.worldvaluessurvey.org/>

World Values Survey was carried out and the year of the corresponding Manifesto data. Thus, for example, “Australia 1995-96” means that the opinion poll was conducted in 1995 and the Manifestos in 1996. We only report cases for which the time gap between the WVS and the manifesto is less than three years. The second column provides the value of the index E for the corresponding country and time period. The third column provides our Left-Right index G_t for the corresponding country and period.⁹ The last column contains the ENP measure calculated according to (1.4). We divide the countries in the same three groups as in Table 1. For each of these three groups the last two rows show the average values of the three indexes and the *correlation coefficient* between the values of the index E and the values of the index G_t (third column) and the values of index ENP (fourth column).

The correlation coefficient between E and G_t is much stronger (0.7) in the first group of countries (0.7) than in the second (0.38) and third group (-0.089). Thus, our data suggest that *the link between social (electorate) diversity and party (electoral) diversity appears in a netted way only for the case of countries without PR.*¹⁰ It is also interesting to observe that the correlation between E and the effective number of parties is always much weaker than the correlation between E and G_t . Thus, our data show that, as proposed by the standard approach, the number of parties depends on the type of electoral system. However, the degree of political diversity of the electorate seems to have no effect on the number of parties.

Final Comments

We have proposed an index to measure the degree of diversity of the electoral proposals (otherwise known as “campaign promises”) of the political parties with electoral representation. This index of diversity among political parties uses information on both the size of parties and their

⁹ We use the vote share to calculate this index. The qualitative results do not change if we use the seat share instead.

¹⁰ Notice that for the former socialist countries our data show a complete lack of correlation between those two variables.

ideological distances. We suggest that this type of approach might be useful in the analysis of how the interaction of electoral institutions and social cleavages influences the ideological position adopted by political parties. Moreover, our index is different from the widely used Effective Number of Parties. The ENP shows a stronger connection with the type of electoral system than the connection found between the type of electoral system and our index of political diversity.

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Appendix

Table 1

	<i>MG</i>	<i>MG^s</i>	<i>MG^s (L-R)</i>	<i>TG</i>	<i>ENP</i>	<i>ENP^s</i>
<i>Countries without PR</i>						
Australia	0.075	0.068	0.069	0.674	2.570	2.450
Canada	0.100	0.088	0.067	0.374	3.738	2.623
France	0.088	0.052	0.044	0.347	4.495	2.866
Germany	0.061	0.060	0.089	0.362	2.891	2.815
Great Britain	0.049	0.038	0.061	0.313	2.910	2.256
Japan	0.098	0.075	0.042	0.820	3.989	3.125
New Zealand	0.074	0.069	0.081	0.518	3.243	2.974
United States	0.038	0.037	0.051	0.273	1.998	1.990
<i>Average</i>	<i>0.073</i>	<i>0.067</i>	<i>0.063</i>	<i>0.460</i>	<i>3.229</i>	<i>2.637</i>
<i>Countries with PR</i>						
Austria	0.078	0.078	0.082	0.574	3.303	3.298
Belgium	0.071	0.059	0.034	0.332	7.827	9.066
Cyprus	0.055	0.052	0.030	0.141	3.290	3.589
Denmark	0.130	0.130	0.128	0.643	4.556	4.523
Finland	0.127	0.124	0.086	0.654	5.423	5.045
Greece	0.079	0.070	0.081	0.458	2.539	2.277
Iceland	0.107	0.106	0.108	0.563	3.833	3.723
Ireland	0.063	0.052	0.037	0.261	3.296	3.307
Israel	0.164	0.148	0.130	0.568	5.915	6.347
Italy	0.097	0.083	0.074	0.490	6.415	6.227
Luxembourg	0.066	0.063	0.055	0.157	4.219	4.119
Malta	0.034	0.034	0.017	0.106	1.997	1.994
Netherlands	0.057	0.052	0.058	0.301	4.793	5.221
Norway	0.071	0.070	0.105	0.254	4.898	4.585
Portugal	0.036	0.032	0.038	0.198	2.813	2.492
Spain	0.048	0.041	0.056	0.180	2.944	2.625
Sweden	0.107	0.105	0.112	0.533	4.131	4.054
Switzerland	0.121	0.112	0.147	0.556	5.750	5.618
Turkey	0.092	0.070	0.060	0.460	4.143	5.573
<i>Average</i>	<i>0.085</i>	<i>0.078</i>	<i>0.076</i>	<i>0.397</i>	<i>4.320</i>	<i>4.404</i>
<i>Former socialists</i>						
Albania	0.066	0.046	0.028	0.598	2.054	2.188
Armenia	0.112	0.045	0.025	0.430	3.734	5.263
Azerbaijan	0.068	0.014	0.010	0.196	1.877	3.980
Bosnia-Herzegovina	0.135	0.100	0.049	0.851	4.076	5.828
Bulgaria	0.060	0.058	0.036	0.537	2.654	2.600
Croatia	0.096	0.045	0.034	0.741	2.428	4.535
Czech Republic	0.080	0.078	0.069	0.549	3.817	3.710
Estonia	0.108	0.104	0.065	0.537	5.320	5.057
Georgia	0.101	0.060	0.028	0.395	5.304	8.521
Hungary	0.097	0.085	0.038	0.531	3.890	3.282
Latvia	0.112	0.112	0.060	0.577	5.785	5.785
Lithuania	0.074	0.064	0.039	0.319	3.687	3.454
Macedonia	0.077	0.068	0.027	0.314	3.747	3.511
Moldova	0.081	0.080	0.032	0.080	2.695	2.624
Montenegro	0.095	0.089	0.039	0.404	2.348	2.413
Poland	0.123	0.118	0.060	0.621	5.813	5.322
Romania	0.096	0.089	0.045	0.558	3.390	3.706
Russia	0.109	0.054	0.045	0.536	5.428	8.053
Serbia	0.114	0.091	0.063	0.844	2.927	2.634
Slovakia	0.092	0.091	0.055	0.644	4.720	4.692
Slovenia	0.122	0.110	0.087	0.569	5.523	6.395
Ukraine	0.121	0.058	0.023	0.469	5.098	11.675
<i>Average</i>	<i>0.097</i>	<i>0.075</i>	<i>0.043</i>	<i>0.513</i>	<i>3.923</i>	<i>4.783</i>
<i>Average all countries</i>	<i>0.087</i>	<i>0.073</i>	<i>0.058</i>	<i>0.450</i>	<i>3.885</i>	<i>4.200</i>

Table 2.

	Index $E(WVS)$	G_r (Manifesto)	ENP
<i>Countries without PR</i>			
Australia 1995-96	0,190	0,048	2,744
Canada 2000-00	0,198	0,072	3,600
France 1999-97	0,240	0,131	5,211
Germany West 1990-90	0,186	0,063	2,668
Germany West 1997-98	0,194	0,093	2,933
Great Britain 1990-92	0,208	0,142	2,892
Great Britain 1999-01	0,173	0,033	2,984
Japan 1990-02	0,183	0,021	2,955
Japan 1995-96	0,198	0,054	4,070
Japan 2000-00	0,205	0,105	5,001
New Zealand 1998-99	0,207	0,155	3,377
United States 1990-92	0,193	0,045	1,994
United States 1995-96	0,206	0,039	2,000
United States 1999-00	0,215	0,092	2,000
<i>Average</i>	0,200	0,078	3,174
<i>Coefficient of correlation with E</i>		0,700	0,440
<i>Countries with PR</i>			
Belgium 1990-91	0,227	0,035	8,775
Belgium 1999-99	0,197	0,043	9,126
Denmark 1990-90	0,212	0,123	4,373
Denmark 1999-98	0,223	0,100	4,699
Finland 1990-91	0,239	0,064	5,630
Finland 1996-95	0,208	0,094	5,360
Finland 2000-99	0,238	0,102	5,360
Greece 1999-00	0,235	0,042	2,397
Iceland 1999-99	0,245	0,102	3,494
Ireland 1990-92	0,200	0,058	3,323
Ireland 1999-97	0,171	0,042	3,281
Israel 2001-99	0,314	0,155	7,345
Italy 1990-92	0,235	0,047	5,822
Italy 1999-01	0,247	0,079	5,824
Malta 1999-98	0,185	0,001	1,995
Netherlands 1999-98	0,194	0,068	4,362
Norway 1996-97	0,194	0,081	4,745
Portugal 1990-91	0,236	0,012	2,558
Portugal 1999-99	0,251	0,053	2,947
Spain 1995-96	0,213	0,059	2,997
Spain 2000-00	0,198	0,080	2,725
Sweden 1990-91	0,238	0,125	4,486
Sweden 1996-94	0,244	0,078	3,488
Sweden 1999-98	0,235	0,129	4,313
Switzerland 1989-91	0,230	0,146	6,474
Switzerland 1996-95	0,201	0,132	6,157
Turkey 1990-91	0,229	0,058	4,623

Turkey 1996-95	0,304	0,094	4,753
<i>Average</i>	0,227	0,079	4,694
<i>Coefficient of correlation with E</i>		0,380	0,199
<i>Former socialists</i>			
Bulgaria 1997-97	0,270	0,020	2,561
Bulgaria 1990-90	0,232	0,012	2,610
Bulgaria 1999-01	0,279	0,054	2,917
Czech Republic 1991-90	0,236	0,051	2,357
Czech Republic 1998-98	0,259	0,081	3,763
Estonia 1996-95	0,186	0,052	4,596
Estonia 1999-99	0,185	0,075	5,833
Georgia 1996-95	0,268	0,061	3,894
Hungary 1991-90	0,169	0,043	4,983
Hungary 1998-98	0,216	0,026	4,065
Latvia 1996-95	0,182	0,125	7,655
Latvia 1999-98	0,204	0,048	5,523
Lithuania 1997-96	0,245	0,049	3,455
Lithuania 1999-00	0,243	0,035	4,451
Poland 1997-97	0,252	0,045	3,578
Poland 1999-01	0,252	0,075	3,765
Romania 1993-92	0,194	0,066	4,535
Romania 1998-96	0,240	0,056	3,949
Romania 1999-00	0,248	0,018	3,167
Serbia 1996-97	0,259	0,107	3,036
Serbia 2001-01	0,252	0,035	1,710
Slovakia 1991-90	0,263	0,105	4,994
Slovakia 1998-98	0,238	0,034	4,753
Ukraine 1996-94	0,225	0,037	4,379
Ukraine 1999-98	0,266	0,055	6,260
<i>Average</i>	0,234	0,055	4,112
<i>Coefficient of correlation with E</i>		-0,089	-0,134