The starting point for the democratic representation of citizens through elections is one person, one vote, one value. There are, however, limits to achieving 100 percent equality in the value placed on each elector's vote. While a mathematical formula can assign fractions of a representative to a country, there is a need to round off MEPs as whole numbers. By statute or by convention the delimitation of electoral districts is often required to respect administrative boundaries such as counties or geographical boundaries such as islands. Such inequalities can only be avoided by making the whole of a country a single constituency. In the 2009 election of the European Parliament, the whole country was a single electorate in 16 countries, but doing so invites objections (see Farrell and Scully, 2007). In the 11 countries which apportion their electorates into regions, differences in district magnitude, i.e. the number of electors\(^1\) per MEP (see Duff Report, 2010: Appendix; cf. Cox, 1997; Taagepera and Shugart, 2000; Samuels and Snyder, 2001: 660ff).

Malapportionment occurs where there is a 'grossly unfair variation in population among districts' in the ratio of electors per Member of Parliament (Courtney, 2000: 259). If one district has half as many electors as another, then votes in the former district will count twice as much. Taagepera and Shugart (1989: 17f) describe this as part of the 'pathology' of electoral systems (see also Monroe, 1994). There is no standard for assessing when the degree of inequality in representation crosses a notional line

\(^1\) Since this paper addresses inequalities in the ratio of citizens to MEPs, we use the terms voters and electors interchangeably.
between marginal variation and gross malapportionment. American courts have disallowed as unacceptable variations of even a few percentage points from the principle of one person, one vote, one value (see Ladewig and Jasinski, 2008: 89). In the United Kingdom the four national boundary commissions have been much more tolerant of inequalities but the new Conservative-Liberal Democratic coalition agreement calls for reducing the degree of inequality between electoral districts.

According to Article 10.1 of the Lisbon Treaty, the European Union is ‘founded on representative democracy’. Furthermore, Article 9 states: ‘In all its activities, the Union shall observe the principle of equality of its citizens, who shall receive equal attention from its institutions, bodies, offices and agencies’. However, the European Parliament (EP) is mandated by Article 14 to give unequal representation to citizens, since seats must be allocated according to a formula officially described as ‘degressive proportionality’; it creates a parliament in which smaller states are over-represented and larger states under-represented. There are differences of more than 10 to 1 in the value of a vote cast by an EU citizen of its five most populous states and in its two least populous.

While the popular election of the European Parliament (EP) is in accord with the principles of one person, one vote, it does not match the principle of one value. A report on the composition of the European Parliament comments, 'This rather weird situation from the point of view of democracy can be understood if one considers the complex reality of the political system of the Union' (Lamassoure and Severin, 2007: 2). Since inequality is a matter of degree, the first object of this paper is to identify the extent of inequalities in the allocation of seats between the 27 national constituencies that make up the European Parliament. While mathematical equality provides a criterion for the evaluation of representation, a different approach is required to explain inequality. The second section explains it as due to path dependence history and the abstract norm of ‘degressive proportionality’. Whether representative inequality has partisan or policy consequences is tested empirically in section three. The fourth section reviews proposals to alter the existing distribution of seats in the light of three criteria: the Gini index of inequality, a Pareto optimal rule about minimizing losers, and the EP's commitment to degressive proportionality. The conclusion considers the implications of EP inequalities for efforts mobilizing support for difficult economic decisions and the spectre raised by the selective use of national referendums and the endorsement by European citizens of pan-European referendums on major steps forward in European integration.

I INEQUALITY IN REPRESENTATION

Equality in the representation of citizens is a necessary condition in theories of democratic elections. The stipulation of one citizen one vote rejects the claim that some people should have two or more votes on the grounds of education or property, or that some citizens should not have a vote because of their gender, race or ethnicity. This goal, commonly referred to as universal suffrage, took more than a century to achieve for all male citizens and even longer for all adult women (Bartolini, 1996). The second goal, one vote, required the abolition of plural voting, a relic of the pre-democratic era.
(Frary and Seymour, 1918; Mackenzie, 1958). The third object, one vote one value, refers to the absence of inequalities in the number of electors in different constituencies of a parliament.

Equality in representation is here assessed by comparing the representation quota, that is, the ratio of EU citizens to the number of MEPs returned by an electoral district. In the case of the EU, each of the 27 member states is treated as a single district for the purposes of allocating seats in the European Parliament. Calculating a representation quota involves making a choice between alternative denominators. The concept of EU citizenship stresses that the EU is a union of individuals and not just of states. However, EU citizenship is obtained by having citizenship of an EU member state, and states vary in their citizenship laws and in provisions allowing citizens of other EU member states to vote when resident in their territory (see Shaw, 2007). Population statistics from the national census are regularly used in the apportionment of seats. This introduces minor inequalities when countries differ in the percentage of the population not yet of voting age; in the recency of their national census; and in methods used to estimate current population. In countries with large numbers of emigrants or immigrants, there can be a measure of double counting at the European level. In the extreme case of the "commuting" country of Luxembourg, electors are 49 percent of the population; where non-Baltic nationalities are not automatically citizens, the ratio is 66 percent in Latvia and 68 percent in Estonia. The European median is that the registered electorate is 77 percent of the population. In countries with lots of emigrants, many names on the electoral register are absent citizens. In Portugal the electorate equals 91 percent of the population and in Greece 89 percent. The registered electorate constitutes that portion of the European citizenry eligible to vote for MEPs as their representatives in the European Parliament. The use of the registered electorate is preferable for such purposes as calculating turnout of eligible electors. For purposes of comparability, we follow the Committee on Constitutional Affairs (2010: 54) in using population figures in calculating cross-national equality.

In a European Parliament of 736 members, the overall quota is one MEP for every 678,972 people. However, because the EP allocates seats to national constituencies on the basis of degressive proportionality, that is, the smaller the population of a country the lower the quota required to have an MEP, there are substantial cross-national inequalities. Figure 1.1 shows how national allocations of MEPs compare with an egalitarian 'one person, one vote, one value' quota. In the most populous EU member states--Germany, France, the United Kingdom, Italy and Spain--the representation quota is more than ten times that of Malta and Luxembourg. Furthermore, 21 of the 27 EU member states receive more MEPs than they would be entitled to if seats were distributed strictly in accord with the formula of one vote, one value. Whereas the mean population is 18.4 million citizens, 20 EU member states fall below the mean and the population of the median country, Sweden, is half the mean. The degressive element increases in importance as population falls. Thus, the quota needed to claim an MEP in Malta or Luxembourg is less than one-quarter that required in Ireland or Finland.

The Gini Index is a standard statistical measure of inequality; the Index is 0 if
there is an exactly equal distribution and 1.0 if the distribution is totally unequal. The Gini Index of 0.27 for the current distribution of EP seats represents a substantial deviation from equality. Yet even though the most populous countries are under-represented, their MEPs bulk large in the Parliament. The four most populous countries contribute an absolute majority of MEPs, 415, whereas the five smallest countries send only 38 MEPs to the Parliament.

**Constitutionally mandated equality and inequality.** Federal systems compromise the principle of one vote, one value by establishing a bicameral parliament in which members of the lower chamber are elected to represent the principle of equal representation of citizens, while the upper chamber represents the territorial units that are constituent partners in the federal compact. We can gain a sense of whether the degree of inequality in the European Parliament is very high or very low by comparing its Gini Index with parliaments in countries in which the constitution mandates equality in representation in one chamber and, because they are federal, mandate inequalities in the allocation of representatives to the other. The bicameral institutions of the Federal Republic of Germany and the United States Congress are familiar examples of doing so in ways that are accepted as democratic.

The unequal distribution of seats to population is at the extreme in the United States Senate. The late eighteenth century Constitution mandated that each state should have two Senators. Initially they were chosen by the state legislatures; it was not until the adoption of the seventeenth amendment in 1913 that Senators were constitutionally required to be popularly elected. Enormous changes in America's population from the days of the 13 original and small states have today created a difference of 59 to 1 between the population of California and Wyoming (see Ladewig and Jasinski, 2008: 91ff). Since each state has two senators, the Gini Index for the United States Senate is 0.50, almost double that for the European Parliament (Figure 1.2).

Qualified inequality is an alternative means of representing federal units of unequal size. In Germany the Bundesrat's membership consists of from three to six representatives of the 16 Laender. Consistent with the principle of territorial representation in the upper chamber, its members are not chosen by popular election but by each land. The inequality of representation between North Rhine-Westphalia and Bremen is about 14 to 1. This produces a Gini Index of 0.35, lower than the U.S. Senate but higher than that of the European Parliament.

The complement of inequality in the upper chamber is equality of representation in the lower chamber. In the United States the Constitution requires Congress to reapportion seats in the House of Representatives between states after each decennial census and the United States Supreme Court has, since its Baker vs. Carr decision in 1962, maintained judicial review of the apportionment of seats in the House in order to promote numerical equality. The Gini Index for the population of single-member electoral districts in the U.S. House of Representatives approaches total equality (Figure 1.2). The Index value of 0.04 is less than one-sixth that for the European
Parliament and less than one-tenth that for the U.S. Senate.\textsuperscript{2}

The German \textit{Bundestag} provides equal representation of individuals in two complementary ways. Approximately half its members are elected by the first-past-the-post method in single-member districts that are expected to approach equality in population size. Because this does not distribute seats between parties in proportion to their share of the popular vote, the other half are distributed by proportional representation. The Gini Index for the representation quota of single-member districts, 0.04, is the same as that for the House of Representatives. It is also far less than that for the German \textit{Bundesrat} or for the European Parliament.

The German and American examples show that the pursuit of equality in the representation of national electorates is not a chimera. if the Gini calculation is turned into a positive Index of Equality, the American House and the German \textit{Bundesrat} scores would be 0.96, higher than the match between seats and votes in almost every system of proportional representation. By comparison, describing the European Parliament in terms of equality in distributing seats would give it a score of 0.73.

The principle of fairness--those in similar circumstances should be treated similarly--provides an alternative method of evaluating the allocation of seats. Representation in federal systems can be fair but not equal, if, as in the United States Senate, every state gets the same number of Senators and the standard deviation around the mean number of Senators is 0. The German \textit{Bundesrat} does not treat every \textit{land} fairly, because those with more population receive more members in the upper chamber. This makes the votes of states less unequal in population terms.

In theory, the principle of giving a disproportionate number of MEPs to less populous states is consistent with a fair distribution, that is, representation quotas that are similar in size.

However, in practice this does not occur. If smaller countries are defined as those with a population below that of the median state, Sweden (9.1mn), then for these 13 countries the Gini Index of Inequality is 0.28. For example, in the countries that each have the same number of MEPs, six, there are 82,000 people per MEP in Luxembourg as against 223,000 in Estonia, and in two countries that each have 12 MEPs, there are 370,000 persons per MEP in Ireland as against 279,000 in Lithuania.

\section*{II EXPLAINING INEQUALITIES BY PATH DEPENDENT POLITICS}

In the great majority of organizations created by intergovernmental treaties, the principle of fairness is applied--‘one state, one vote’--but the principle of equality is not. This is consistent with the denial of representative democracy, as in the General Assembly of the United Nations, in which the median member is characterized as ‘partly

\textsuperscript{2} Equality in the size of electorates does not create a barrier to gerrymandering, that is, creating a district favouring a party by drawing boundaries that have no other logic but partisan advantage.
free’ by Freedom House. The International Monetary Fund weights voting rights in its decisionmaking bodies in accord with the wealth of the states that underwrite it. Since their formulas were adopted in the immediate Second World War era, the world has changed. However, path dependence has resulted in the rejection of many demands to change their representative structures (Pierson, 2004). While the European Union has greater treaty-based powers over member-states than the foregoing organizations, it too is shaped by its history. Our hypothesis is that decisions about representation in European institutions taken more than half a century ago have, with marginal adaptation, established practices maintained by the politics of path dependence.

The evolution of representation in European institutions. When the European Coal and Steel Community was being established with supranational powers, its founders saw it being driven by a ‘combination of benevolent technocrats and interest-propelled economic groups to build trans-national coalitions in support of European policies and to undermine the scope for national politics’ (Wallace, 1993: 300). In recognition that the High Authority, the forerunner of the European Commission, could have a ‘legitimacy deficit’ because it was not accountable to nationally elected government, a Common Assembly was established. National governments insisted that its powers should be negligible; the Assembly would "represent" the idea of popular sovereignty but not be popularly elected but be delegates of national parliaments (Rittberger, 2005).

The European Community was created in the wake of the ECSC by the 1957 Treaty of Rome. Initially there were only six members, three of which had similarly large populations (France, Germany and Italy), two medium-size (the Netherlands and Belgium), and the mini-state of Luxembourg. Consistent with intergovernmental practice, decisionmaking within the Council of Ministers of member states reflected a tension between a requirement for unanimity and the avoidance of a situation in which one state could veto a proposal. Consistent with the idea of promoting integration through functional measures, the Treaty institutionalized the representation of non-elected functional interests in an Economic and Social Committee with advisory powers. The Treaty also authorized a Parliamentary Assembly with a marginal legislative and advisory role. It was described as representing ‘the peoples of the states brought together in the Community’. The wording stressed both the diversity of those being represented (peoples, not people or citizens) and the importance of states. Members of the Assembly were chosen by national parliaments.

The EP has 'a history of relentless efforts by MEPs to increase their institution's power' within the network of EU policymaking institutions (Dinan, 1999: 267). The non-elected Commission had no claim to democratic accountability and the claim of the Council of Ministers was at best indirect, since its members were chosen at national elections. In the two decades before the Parliament was directly elected its members were chosen by national parliaments. The push to implement direct election reflected a desire to increase the EP's then very limited influence and to increase the influence of the EU system by providing it with the legitimacy of a directly elected branch. These goals gave grounds for opposition from opponents of EU integration and there was also a distinctive British opposition to requiring a proportional representation electoral system.
to choose MEPs (see Lodge and Herman, 1982; chapter 1). The debate took for
granted the principle of giving a disproportionate number of seats to less populous
countries and relatively fewer to the four most populous countries (see Committee on
Constitutional Affairs, 2010: 30ff).

By the time of the 1979 EP election, the first round of enlargement had occurred:
thus, 410 MEPs were elected to represent nine countries. As hypothesized, the
allocation of seats was path dependent. The correlation between the national allocation
of seats in the non-elected 1973 EP and the directly elected 1979 was 0.998. By the
time the EU had 15 members there were 626 MEPs. At five of the six elections since,
there have been increases in the number of countries sending members to the
European Parliament from 9 to 27. This has led to a cap on the number of MEPs.
Because the membership of the European Union has increased in six stages since its
foundation, rational choice theory implies that the earliest members of the European
"club" would see to it that they do better than later arrivals in EP representation. A
simple correlation between the stage of entry shows no significant relationship between
the year of entry and the number of electors per MEP. This reflects the pre-eminence of
disparities in the electorates of new members. Since the 2004 enlargement brought in
a large number of small states, there is a tendency for newer members to be over-
represented compared to older members. The Gini Index of Inequality has increased
from 0.21 in 1979 and a low of 0.19 in 1989 to 0.27 in 2004 and 2009.

III DIRECT AND INDIRECT CONSEQUENCES FOR EUROPEAN PARLIAMENT

A fundamental principle of proponents of European integration has been that
elected MEPs should represent trans-national political interests and ideologies, whether
right, left or Christian, rather than positions distinctive to a national constituency. Since
there are up to half a dozen parties or more in national parliaments, this principle
requires that each country should have at least half a dozen seats in the European
Parliament regardless of its population. Given a minimum number of seats for the least
populous country, combining this principle with a commitment to allocate seats in equal
proportion to population would result in the most populous country, Germany, having
more than 1,000 MEPs and the total membership of the European Parliament now
being greater than 6,000 MEPS. This would be more than ten times the number of 545
seats in the Lok Sabha, the parliament of the most populous democracy in the world.
To prevent this, the floor of six MEPs set by the Lisbon Treaty is matched by a cap of
96 seats for Germany.

With each country, its EP seats are allocated by proportional representation
rules. Depending on how voters respond to the parties that elites place on the national
ballot, this ensures the representation of a variety of parties. Nationally elected MEPs
then join multi-national European party groups. If the electoral strength of some EP
parties tends to be concentrated in countries that are over-represented in the allocation
of seats then:

Hypothesis 3.1 Inequality in the distribution of seats to countries will produce inequality
in the distribution of seats to European Parliament party groups.
While EU rules can mandate the proportional representation of national voters, laws cannot mandate how voters distribute their preferences. Insofar as EP elections are second-order elections largely reflecting the first-order national preferences of voters (Reif and Schmitt, 1980; Marsh, 1998; Schmitt, 2009) then the election of MEPs in national constituencies will tend to be independent of the alignment of party groups in the European Parliament. Thus, EP party groups are not elected and accountable to European citizens; their composition is the byproduct of choices made between party lists in 27 different national contexts in which the structure of party competition and partisan control of national government differs.

Hundreds of parties appear on the 27 national ballots that collectively create the outcome of a European Parliament election. While the votes cast for more than one hundred parties is too small to win a single seat (and often small in absolute terms too), at the 2009 election 161 different parties won seats in their national constituency. The rules of the Parliament require that an EP fraction has a minimum of 25 MEPs from at least seven different countries. However, these requirements mean that any fraction can have MEPs from barely one-quarter of the member states in which only a few percent of the total European vote would be required to win a minimum of 25 seats.

Comparing the average number of votes an EP party receives per MEP elected with the average for Europe as a whole, 202,000, shows the extent of equality in popular representation among EP fractions. Notwithstanding the unco-ordinated way in which seats and votes are allocated, there is an extraordinarily high degree of proportionality (Table 3.1). The three biggest parties in the Parliament are each within one or two percent of the quota for the whole of the EP. Altogether, six of the eight party groups, including the non-aligned, are within 10 percent of the pan-European quota of votes for a seat, and they receive almost 90 percent of the total vote. The anti-EU Freedom and Democracy group suffered most from inequality, but the extra 19 percent of the average vote that it required was far less a barrier than that of smaller parties in first-past-the-post systems. The Conservative and Reform fraction benefited most from cross-national differences in the quota for allocating seats. It needed 30 percent fewer votes per MEP than the average.

Although the rules require EP fractions to be multi-national, they do not require them to pan-European. Five of the seven fractions are not, because they fail to have MEPs from all or virtually all of the member-states. The Freedom & Democracy and the European Conservative & Reform groups and the non-aligned have members from about a third of member states; the Left and the Greens from about half the member states; and the Liberals & Democrats from two-thirds of states. Only the European People’s Party and the Socialists & Democrats can claim representatives from all or almost all member states. Since an EP party group may be dominated by parties from big countries (e.g. the European Conservative & Reform Group) or from small countries (e.g. the Greens or Left) this is an additional reason to expect support for the disproportionality proposition.

The unco-ordinated allocation of seats and votes across 27 member states produces a strikingly high degree of proportionality among multi-national EP parties. At
the 2009 election, the largest fraction, the European People’s Party, took 36.2 percent of the vote and 36.0 percent of the seats. The difference between votes and seats for the Socialists & Democrats was less than half of one percent (Table 3.2). Since threshold levels and rounding off effects will tend to cost smaller parties more seats, there is a tendency for proportionality to be a little less in the lesser EP fractions. The Conservative & Reform group benefits by winning 16 more seats than its vote would entitle it to if its seats were distributed proportionate to its share of the total European vote while the Freedom & Democracy group receives 6 fewer seats than its share of the European vote.3

Policy consequences. EU revenue is raised by member states and then passed to Brussels as its contribution to the total EU budget and EU expenditure also involves national governments, even when spending is nominally related to a social purpose such as assisting farmers or economically deprived regions. These procedures make very visible how much EU membership costs each country and how much it receives as benefits. Since the European Parliament is a partner in the co-decision process of the European Union, inequalities in the distribution of seats may affect the distribution of EU resources, with more over-represented countries benefiting disproportionately from under-represented countries. Rational choice theory predicts:

Hypothesis 3.2 The more over-represented a country is in the European Parliament, the greater the net benefit it receives.

Because over-representation rises as population falls, the most over-represented countries have the fewest seats in absolute terms. Thus, in order to achieve an absolute majority of EP votes, MEPs from over-represented countries must combine with MEPs from under-represented countries. Moreover, voting tends to take place along lines laid down by multi-national EP parties rather than along national lines (see Hix et al., 2007; cf. Ringe, 2010). Since no party fraction has a majority of seats, the normal winning coalition combines MEPs from the European People’s Party and Social Democrats. These two parties have MEPs from almost every member state. Insofar as trans-national ideologies take precedence over the interests of national constituencies, the above could also be stated as a null hypothesis: there is no relation between a country’s over-representation and its share of EU benefits.

In 2008 the EU collected more than euro 121bn in contributions from member states and distributed euro 116 bn, principally for agriculture, rural development and regional growth (European Commission, 2010). In aggregate member-states received back 96 percent of their contributions. However, at the national level very different balances were struck; 17 countries were net beneficiaries while 10 countries paid more to the EU than they received back (Potton, 2010: Table 1). On a per capita basis, the two countries making the biggest net contribution were the Netherlands (euro 268) and Sweden (euro 192). Excluding the exceptional cases of Luxembourg and Belgium, which benefit from the presence of multiple EU institutions, the two countries receiving

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3. The total European vote of an EP party group is affected by national differences in turnout as well as by inequalities in the allocation of MEPs. The correlation between turnout and over-representation is 0.33, significant at the <.10 level.
the highest per capita benefits were Portugal (euro 250) and Lithuania (euro 239).

Contributions and EU payments to member-states are meant to have a substantial needs-based element, that is, the most prosperous countries should contribute more per capita, and countries with disproportionately more agriculture or more economic underdevelopment should receive more money. Thus, to test the effect of the inequality of EP seats we need to control for indicators of need. GDP per capita and unemployment are indicators of capacity to pay and of need for economic restructuring. The percentage of employment in agriculture is relevant not only to the biggest spending item in the EU budget but also indicates the political weight of agriculture in national electorates. Over or under-representation in the European Parliament is an asset that is independent of the preceding indicators of need.

After controlling for economic indicators of need, countries that are over-represented in the European Parliament are significantly more likely to be net beneficiaries in the allocation of EU funds (Table 3.3). The length of membership is not related to receiving benefits, since four of the six founder states are substantial net contributors and Belgium and Luxembourg, the two big beneficiaries, do not do so because of their population but because their characteristics made them the big winners in the distribution of EU institutions and their administrative costs are benefits to these two countries. The regression registers the very significant per capita gain that each country receives.

Needs are also taken into account in the allocation of EU funds (Table 3.3). The lower a country's GDP per capita, the greater its benefits, after controlling for the share of high income Belgium and Luxembourg, the country with the highest notional GDP per capita. Consistent with the history of the European Community, the employment indicator that registers significance is the percentage of the labour force in agriculture and related activities. However, the overall level of unemployment does not have a significant effect on the distribution of EU funds. There is little indication that a government's tendency to bend the rules to distribute benefits clientelistically as a form of "pork barrel patronage" has any effect. The correlation between the Transparency International Perception of Corruption Index and net EU benefits is insignificant (0.01). It is not included in the regression because it correlates so highly with GDP per capita (0.77).

IV CONSTRAINTS AND PRESSURES FOR ELECTORAL REFORM
Electoral design and electoral reform are fundamentally different activities. Electoral design starts with a blank sheet of paper on which principles of representation can be expressed in mathematical formulae and justified in words. By contrast, electoral reform starts with an existing distribution of seats and legal and informal conditions that any reform proposal must meet. Whereas mathematically clear electoral designs can be applied to a computerized data base, politically acceptable reforms can only be applied if they are accepted by those subject to their effects. As the Committee on Constitutional Affairs (2010: 39) draft report emphasizes 'It is important to recognise that the present "system" for the distribution of seats is really no more than a political fix'.

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Conditions and criteria for reform. Constitutions and treaties impose specific conditions that must be met by any proposed change in representation. Rules for amending the status quo recognize that pressures arise sometimes to alter it. The Lisbon Treaty (article 14) sets out two very clear conditions for representation in the European Parliament: no state shall have fewer than six members nor more than 96 and the total membership shall not exceed 751. To meet this requirement in the 2014 Parliament will, at a minimum, require reducing the number of German MEPs by three and increasing the number for Malta by one. If the EP chooses to couple these mandated changes with additional modifications, such as increasing the Parliament to 754 members, it has a total of 20 additional seats to distribute. Any change in the allocation of seats must be approved by a coalition of parties constituting an absolute majority of the European Parliament and be unanimously endorsed by the European Council.

The second major constraint of the Lisbon Treaty is that ‘Representation of citizens shall be degressively proportional’. The principle is applied to the allocation of seats between member states; it nonetheless has a strong second-order effect on the representation of individual electors. In 2007 the European Parliament’s Lamassoure-Severin Report defined degressive proportionality as:

The ratio between the population and the number of seats of each member state must vary in relation to their respective populations in such a way that each member from a more populous member state represents more citizens than each member from a less populous member state and conversely, that no less populous member state has more seats than a more populous member state. (Quoted in Committee on Constitutional Affairs, 2010: 36).

The label is misleading: what the Lisbon Treaty requires is progressive inequality. There is not only an unequal representation of European citizens but also inequalities between EU citizens of different countries increase as their national population decreases. The goal is that the relationship should be strictly monotonic, that is, no country’s quota should be larger than that of a country with more MEPs than itself. There is no requirement that differences between states should be equal in size; empirically, they vary from a few thousand to more than one hundred thousand people.

Politics creates additional constraints. The need for a coalition of party fractions to change the allocation of seats creates an obstacle to changes benefiting a single party and the absence of partisan bias in the allocation of seats to the three largest EP parties (Table 3.1) means there is no party group with a grievance about under-representation. Since unanimity in the Council is required to alter allocations, national governments can prevent change if they think their country is unfairly affected. Politics thus favours a Pareto optimal rule that any reform should not reduce the number of seats of any country beyond what the Lisbon Treaty mandates or, if reductions do occur, the number of countries benefiting will be large and few will lose seats. Given that under-representation is confined to the most populous countries, any augmentation of their seats would give each only a marginal increase; they would still be under-represented by comparison with the German Bundestag or the United States House of Representatives.
Together, laws and politics endorse three criteria for comparing proposed reforms with inequalities in the existing allocation of EP seats: the Gini Index of inequality; the extent to which change approaches Pareto optimality; and the extent to which it increases the fit with the Lamassoure-Severin principle of monotonic disproportionality.

**Evaluating reforms.** Although past compromises have produced an allocation of EP seats that lacks mathematical logic, it does have one clear justification: the status quo. The allocation of seats at the 2009 EP election thus provides a benchmark for evaluating proposals for change. Because of the increasing over-representation of the least populous countries, the two smallest states have electoral quotas less than one-tenth that of the five biggest states and the Gini Index is 0.27 (Table 4.1). In addition, nine of the 27 countries do not meet the Lamassoure-Severin criteria of having fewer electors per MEP than all countries with more MEPs. The biggest departure from a monotonic ordering occurs in Spain, which has 916,563 people for each of its 50 MEPs, a quota ten percent higher than Italy. In five countries, departures from the Lamassoure-Severin criteria involve differences of less than five percentage points.

Since the EP currently has fewer seats than allowed by the Lisbon Treaty, the Committee on Constitutional Affairs (2010) has proposed a Pareto optimal reallocation of seats by allocating the maximum of seats to yield 751 MEPs. No country loses a seat and 12 member states gain them, including five of the six largest states (Table 4.1). However, all of the big states remain substantially under-represented as regards population. Adding MEPs in four medium size and smaller countries actually increases their degree of over-representation. Thus, the Gini Index of Inequality remains the same as for the current seat allocation, 0.27. The number of countries not meeting the Lamassoure-Severin principle is reduced to five.

Since the total membership of the European Parliament is fixed, enlargement threatens a reduction in the number of MEPs in some existing member states. Currently, the two countries at the head of the queue for possible admission are Croatia and Iceland. The Lisbon Treaty would give Iceland six seats, the same number as four other countries with populations up to four times its size. Croatia’s population of 4.4mn, just below that of Ireland, would justify it claiming 12 seats under the Lamassoure-Severin rule. Together, they would have 18 seats in the European Parliament. After alterations for Germany and Malta, this would total 752 MEPs and require the subtraction of a seat from one member state, a minimal departure from Pareto optimality. A re-allocation proposed by the Committee on Constitutional Affairs would meet the Lamassoure-Severin principle of degressive proportionality. However, there is a gross departure from Pareto optimality, for 11 of the existing 27 member states would lose MEPs, compared to 10 gaining one or more additional representative (Table 4.1) and the Gini Index of Inequality would rise to 0.29. Additional expansion of members would cut the number of MEPs of many states. For example, Serbia's population would give it a claim to 17 MEPs, the same as Bulgaria, and Turkey's population would give it a claim to as many seats as Germany.
The Parliament's policymaking role is normally shared with the Council of Ministers, in which less populous states have votes that over-represent their populations. Issues requiring unanimity among all member states have been reduced and a formula of Qualified Majority Voting (QMV) has replaced de jure unanimity. The QMV formula is about power, not equality. Since 2007 approval of a Council decision has required 255 of the 345 votes assigned states and the number of states giving approval must have 62 percent of the EU's population. As of 2014 the Lisbon Treaty reduces the QMV requirement to 55 percent while raising the population requirement to 65 percent. Like the German Bundesrat, the Council's allocation of votes is a compromise between all seats receiving the same and votes reflecting population. Matching the distribution of seats in the EP to that of the Council would increase the EP's Gini Index to 0.35 (Table 4.1), All 27 member states would have their allocation of seats changed. A total of 22 countries would gain seats, some adding four or five. However, big countries would suffer a drastic reduction of 63 seats and could easily prevent the Council approving such a measure. The Lamassoure-Severin principle of degressive proportionality would not be met by the electoral quotas of five member states.

Mathematical formulas allocate seats by being systematically applied to every EP country without political horse-trading or pleas for exceptions. Many such formulas exist, and deliberations about Qualified Majority Voting in the European Council have stimulated recommendations for what is, in effect, the re-design of EP representation (see e.g. Simeone and Pukelsheim, 2006).

The square root is a common mathematical means of reducing differences between numbers and a group of academics calling themselves "Scientists for a Democratic Europe" (2008) has recommended it as an 'efficient, representative, transparent and objective' method for allocating EP seats (for its origins, see Penrose, 1946). Allocating EP seats by the square root of their population does meet the Lamassoure-Severin criterion. It appears to be relatively Pareto optimal because 22 countries benefit as against only five losing seats. However, the losers include five of the six biggest countries and their losses total 66 seats. Equally important, the Gini Index of Inequality rises to 0.36 (Table 4.1).

A parabola is an alternative mathematical plot of a distribution that can be applied to allocating MEPs. It takes into account substantial differences between those at the top and bottom ends of the distribution of European population, including the stipulation in the Lisbon Treaty that six seats must be given the least populous countries and a maximum of 96 to the biggest. A distinctive feature of the parabolic distribution is that larger countries benefit substantially. There is thus a slight reduction in the Gini Index to 0.26. The number of seats that do not fall outside the Lamassoure-Severin criteria are reduced to two. However, the Pareto optimal principle is not met, since nine countries are losers as well as 11 countries being gainers.

As well as formulas relying on abstract relationships, ad hoc mathematical formulas can be produced to fit existing phenomena or to recommend alterations that take political constraints into account while providing methods for avoiding repetitive
bargaining whenever an adjustment is forced by enlargement or other pressures. The contrasting bases of a representation in a bicameral federal parliament are mixed together by Pukelsheim (2007) in a Proportional formula. After giving each member state an equal number of seats, six, the 589 seats are allocated in proportion to population. This benefits all the larger states except Germany, already at the ceiling; it also benefits some medium size countries. The Gini Index is thus marginally reduced to 0.25. However, the Pareto optimal criterion is grossly violated, for there are more losers than winners, and the Lamassoure-Severin criterion is also not met.

Comparing alternative ways of allocating MEPs shows there is no one best way of meeting all three criteria. To give priority to implementing the Lamassoure-Severin principle would reduce the choice to allocating seats by the square root of their population or by specific proposals made to combine enlargement with redistribution of seats. However, the former change would greatly increase the Gini Index of Inequality, while the latter would conflict with the Pareto principle because more countries would lose seats than gain. To give priority to the Gini Index would be inconclusive because many different distributions of seats could produce the same degree of inequality as at present. The status quo has the great advantage of not imposing losses on any country and adding just a few seats could halve the number of countries that break ranks with the Lamassoure-Severin principle. However, this achievement is not secure since national populations are subject to change over a five to ten year period, introducing violations of the Lamassoure-Severin principle.

V IMPLICATIONS

Citizens of less populous states have the advantage of a lower quota for representation but this is diluted because the benefits of over-representation are spread among more than three-quarters of the EU's member states. Moreover, each of the five countries that benefit most in their degree of over-representation has less than one percent of the total seats in the Parliament and their MEPs divide their affiliations between several different multi-national EP party groups.

The under-representation of large states is of limited voting importance. Even if Germany were to have MEPs in proportion to its population, it would still claim less than one-sixth of the seats in the Parliament. The practice of MEPs voting along partisan rather than national lines means that whatever the number of German MEPs, those who belong to the three opposition parties in Berlin would have no inclination to support the government in Berlin. It is the whip of the EP party group that is most influential on MEP voting behaviour rather than the position the national government takes in the EU Council of Ministers (Hix et al., 2007).

In terms of policy outputs, politics drives the EP. Because no party has a majority there and endorsement by an absolute majority of MEPs is required to approve a measure, coalition-building is necessary. The need for a concurring majority starts within the EP committees that are the focus for policymaking, followed by coalition-building if a floor vote is called. There are parallel needs for coalition-building to secure a Qualified Majority Vote in the Council of Ministers. In the Commission, functional
interests of concern to multiple directorates can demand coalition-building there. Coalitions normally require compromise to reach a concurring agreement between all three policy institutions.

As for democratic inputs, principles drive theories of democratic representation. The repertoire of institutions that constitute the compound EU polity can be explained by history, path dependence and functions (see e.g. Moravcsik, 2002). However, justification requires more than explanation; it also requires principles. The principles that justify existing EU institutions vary from the invocation of the principle of the rule of law that justifies the European Court of Justice to representative democracy justifying the European Parliament (Rose, 2010). However, the EP meets only two of the three criteria associated with representative democracy, for it falls far short of representing European citizens on the basis of one vote, one value.

Theories of federalism can be used to justify the allocation of elected representatives on bases other than the equal representation of citizens. However, this justification only fits a bicameral parliament in which one chamber represents constituent states without regard to population while the other chamber represents individuals equally. From this perspective, the problem of the European Parliament is that it is only half a parliament: it has an upper house that is less unequal than the German upper house but lacks a lower house that approximates the equality of representation found in the lower or sole chamber of democratic EU member states.

The European Council, which represents member-states, has an indirect claim to being popularly representative since the national governments meeting there are nationally elected. However, because national elections are competitive, every government in the Council is chosen by a limited portion of its electorate. In first order elections, a big majority of the government's votes are cast on national issues rather than European issues. Moreover, the EU Council of Ministers does not represent national citizens in accord with the principle of one vote, one value. Moreover, the Council's Gini Index of Inequality is substantially higher than that of the European Parliament (Table 4.1).

The EU White Paper on Governance (2001) calls for more steps to be taken to engage European citizens with EU policies. The Lisbon Treaty makes provision for such measures as a Citizens' Initiative but the conditions imposed give such procedures a limited role in the consultation process. None of these changes addresses the basic issue of the absence of any EU institution representing EU citizens equally. In a wide-ranging opinion in June, 2009, the German Constitutional Court dismissed claims that the European Union could be considered the democratic equal of its member-states (Lehmann, 2010).

Does it matter? For decades theorists such as Fritz Scharpf and Giandomenico Majone have argued that the EU did not require effective democratic inputs because it was legitimated by its outputs. However, today both theorists have changed tack. Scharpf (1999; 2009) now argues that rulings of the European Court of Justice are undermining socio-economic policies endorsed by elected national governments and
claims institutional reform is required to give democratically elected national
governments the power to challenge ECJ judgments through the Council of Ministers.
Majone (cf. 1996; 2010) argues that the difficult economic decisions now facing the EU
impose costs that will only be accepted by EU citizens if popularly elected
representatives are involved in preparing and justifying such decisions.

The spectre that is now haunting Europe is the ultimate democratic deterrent,
national referendums on EU issues (cf. Hug, 2002; Hobolt, 2009). Referendums on the
European Constitution in France and the Netherlands have shown that a pan-European
referendum is not required to have a decisive effect on major EU policy initiatives. The
Maastricht Treaty requires every EU member state to endorse the acceptance of new
members and the French and Austrian governments have announced that they would
hold a referendum on Turkish membership. All British parties are committed to the
principle of holding referendums on some EU issues and the current coalition
government proposes to make this a statutory commitment. When the 2009 European
Election Survey asked its 27-country sample about national referendums on EU
treaties, this was endorsed by a majority of more than three to one (Figure 5.1) and
there were majorities or pluralities in favour in all 27 countries. Furthermore,
derendorsement was not a reflection of anti-EU sentiment. There was a substantial
majority approving referendums among those believing that European integration has
been a good thing (72 percent) as well as among those thinking integration has been
undesirable (89 percent).

Brussels-oriented policymakers object to referendums on the grounds that they
can be obstacles to European integration. But they can hardly describe referendums as
undemocratic. It can be argued that it is unfair to more than two dozen member states if
a major EU decision is vetoed by a single country’s referendum decided by national
influences rather than EU considerations. However, efforts to prevent one-nation
referendums could only be justified by invoking the ‘trusteeship’ theory of Jean Monnet;
however, deference to trans-national elites and technocrats is no longer common
(Haller, 2008).

The one response that would be both fair and democratic would be a
referendum in which all European citizens could vote at the same time on an EU issue.
The problem of combining national and individual representation, which is created by
the unicameral European Parliament, could be dealt with by the referendum equivalent
of bi-cameralism, that is, requiring a double or qualified majority not only of EU citizens
casting votes but also of EU states (for Swiss practice, see Trechsel and Kriesi, 2008).
For this to happen would require more than the marginal reforms reviewed above in
section IV. It would require the implementation of procedures for effectively realizing the
EU’s nominal claim to give democratic representation to European citizens.

REFERENCES


Ladewig, Jeffrey W. and Jasinski, Matthew P., 2008. "On the Causes and Consequences of and Remedies for Interstate Malapportionment of the U.S. House of
Representatives", Perspectives on Politics, 6, 1, 89-123.


Political Research, 8, 1, 3-44.


Source: Calculated by dividing the population per MEP in each country by the number of electors per MEP in the whole EU and multiplying the result by 100.
Figure 1.2. DEGREES OF INEQUALITY IN REPRESENTATION

Gini Index of Inequality

Maximum inequality

Source: Calculated by the authors.
<table>
<thead>
<tr>
<th>MEPs</th>
<th>Votes mn</th>
<th>Votes per MEP</th>
<th>% EP mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euro. People’s</td>
<td>265</td>
<td>54.0</td>
<td>204,000</td>
</tr>
<tr>
<td>Socials &amp; Democrats</td>
<td>184</td>
<td>37.9</td>
<td>206,000</td>
</tr>
<tr>
<td>ALDE</td>
<td>84</td>
<td>17.2</td>
<td>204,000</td>
</tr>
<tr>
<td>Greens</td>
<td>55</td>
<td>12.3</td>
<td>223,000</td>
</tr>
<tr>
<td>Con &amp; Reform</td>
<td>54</td>
<td>7.7</td>
<td>142,000</td>
</tr>
<tr>
<td>Left-Nordic Green</td>
<td>35</td>
<td>6.4</td>
<td>182,000</td>
</tr>
<tr>
<td>Freedom &amp; Democ'y</td>
<td>32</td>
<td>7.7</td>
<td>240,000</td>
</tr>
<tr>
<td>Non-aligned</td>
<td>27</td>
<td>5.6</td>
<td>207,000</td>
</tr>
<tr>
<td>European Parliament</td>
<td>736</td>
<td>149.0</td>
<td>202,000</td>
</tr>
<tr>
<td></td>
<td>Countries with seats</td>
<td>N (000)</td>
<td>%</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------</td>
<td>---------</td>
<td>----</td>
</tr>
<tr>
<td>EPP</td>
<td>26</td>
<td>54,043</td>
<td>36.2</td>
</tr>
<tr>
<td>SD</td>
<td>27</td>
<td>37,924</td>
<td>25.4</td>
</tr>
<tr>
<td>ALDE</td>
<td>19</td>
<td>17,246</td>
<td>11.5</td>
</tr>
<tr>
<td>Greens</td>
<td>14</td>
<td>12,258</td>
<td>8.2</td>
</tr>
<tr>
<td>ECR</td>
<td>8</td>
<td>7,779</td>
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</tr>
<tr>
<td>Left</td>
<td>13</td>
<td>6,433</td>
<td>4.3</td>
</tr>
<tr>
<td>EFD</td>
<td>9</td>
<td>7,676</td>
<td>5.2</td>
</tr>
<tr>
<td>Non-aligned</td>
<td>9</td>
<td>5,600</td>
<td>3.7</td>
</tr>
<tr>
<td>Totals</td>
<td>27</td>
<td>149,000</td>
<td>100%</td>
</tr>
</tbody>
</table>

Seats, party groups as of EP 26 July 2009. Numbers to be double checked.
### Table 3.3  EFFECT OF OVER-REPRESENTATION ON EU BENEFITS

Dependent variable: Net benefit from contribution to EU budget, 2008
Variance accounted for: adjusted $R^2$ 58%

<table>
<thead>
<tr>
<th></th>
<th>b</th>
<th>s.e.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over-representation in EP</td>
<td>5.68**</td>
<td>2.05</td>
</tr>
<tr>
<td>Per capita GDP, 2007</td>
<td>0.02**</td>
<td>0.01</td>
</tr>
<tr>
<td>Employment in agriculture %</td>
<td>26.03**</td>
<td>11.9</td>
</tr>
<tr>
<td>Unemployment</td>
<td>63.26</td>
<td>39.24</td>
</tr>
<tr>
<td>Outliers (Belgium, Luxembourg)</td>
<td>656.88**</td>
<td>303.17</td>
</tr>
</tbody>
</table>

**  p < 0.05

Source: Net benefit: Calculated from Potton (2010: Table 1). Representation index as in Figure 1.1. Per capita GDP: Eurostat. Percent employment in agriculture, unemployment 2007: World Bank.
### Table 4.1  ALTERNATIVE FORMULA FOR ALLOCATING EP SEATS COMPARED

<table>
<thead>
<tr>
<th></th>
<th>Gini</th>
<th>Pareto Gain</th>
<th>Pareto Lose</th>
<th>Non-ordinal Lam. Severin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status quo</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1 Existing</td>
<td>0.27</td>
<td>n.a.</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Adapt</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.2 Add 18 seats</td>
<td>0.27</td>
<td>12</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>4.3 Enlargement to 29</td>
<td>0.29</td>
<td>10</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>4.4 Match EU Council</td>
<td>0.35</td>
<td>22</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>New design</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5 Square root formula</td>
<td>0.36</td>
<td>20</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>4.6 Parabolic</td>
<td>0.26</td>
<td>11</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>4.7 Mixed methods</td>
<td>0.25</td>
<td>12</td>
<td>14</td>
<td>5</td>
</tr>
</tbody>
</table>

Sources: As cited in the text.