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Unanimous constitutional consent and the immigration problem*

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Abstract. This paper utilizes the cross-cutting cleavages approach to evaluate the probability of a unanimous constitutional consent and, based on these results, discusses the implications of immigration on an existing constitutional consent. It is shown that previous conclusions of beneficial effects stemming from a multitude of political dimensions for a unanimous constitutional consent crucially depend on the assumption of an extreme mode of intrapersonal compensation of constitutional majority and minority preferences. These conclusions are reversed once you consider more restrictive schemes of such intrapersonal compensation. Since, furthermore, the probability of constitutional consent unambiguously falls with a growing size of the collectivity, only a policy of selective and controlled immigration will be able to guarantee with regard to the existing cleavages of a society that the existing constitutional consent will not be damaged or destroyed, whereas uncontrolled immigration, possibly based on ethical norms, will risk the breakdown of any constitutional consent in a society.

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I. Introduction

Ever since the classical work of Thomas Hobbes, the idea of a social contract based on general constitutional consent has played a pivotal role in contractarian thinking. As emphasized by Wicksell (1896) and, following his lead, Buchanan and Tullock (1962), the possibility to reconcile the existence of collective coercion, which is inevitable whenever collective goods are to be produced, with the individualistic norm, so highly valued by most economists and contractarian theorists, crucially rests on the existence of such a constitutional consent. In this perspective, one question becomes paramount: how can individuals with diverging constitutional preferences agree upon a single constitution? One popular approach to answer that question to the affirmative rests on the idea of "cross-cutting cleavages" (see Rabushka and Shepsle (1972)), which imply different individuals to prefer similar voting rules, probably close to simple majority, as long as all individuals belong to the minority in some as well as to the majority in other political dimensions.

The present paper utilizes the cross-cutting-cleavages approach to evaluate the effects of different compensation models of constitutional majority and minority preferences on the probability of a unanimous constitutional consent and, based on these results, discusses the implications of immigration on an existing constitutional consent. We endeavour to show that the optimistic statements concerning the probability of constitutional consensus which can be derived within a basic cross-cutting-cleavages approach for determining a voting rule are much too general to adequately mirror reality. This is mainly due to the premise of an *intra*individual compromise which presupposes a model of *continuous compensation*: According to this model a compromise between a majority and a minority preference should be able to compensate a minority preference in another dimension so that the result would be similar to a majority preference close to simple majority, which again can compensate a further

minority preference and so on. This is a very extreme assumption. Once you widen the spectrum of possible assumptions by considering the equally extreme model of *zero compensation* and the intermediate variant of *single compensation,* the previous conclusions regarding the beneficial effects of a multitude of dimensions for an unanimous constitutional consent will be reversed.

Since, furthermore, in all three considered models of intrapersonal compensation schemes the probability of constitutional consent unambiguously falls with a growing size of the collectivity, we shall have to say goodbye to any form of uncontrolled immigration which may be called for on ethical grounds. Only a policy of selective and controlled immigration will be able to guarantee with regard to the *existing* cleavages of a society that the *existing* constitutional consent will not be damaged or destroyed, whereas uncontrolled immigration will risk the breakdown of any constitutional consent in a society – even in the most optimistic model of continuous compensation.

The rest of the paper proceeds as follows: After discussing the welfare connotation and normative significance of a constitutional consent (section II), a simple and optimistic "calculus of consent" is presented in section III, based on the idea of cross-cutting cleavages. However, as is shown in section IV, the optimistic results presented there mainly depend on the assumption of an extreme mode of intrapersonal compensation, the continuous compensation model. Widening the spectrum of possible assumptions in section V by considering the equally extreme model of zero compensation and the intermediate variant of single compensation, it is shown that the previous conclusions regarding the beneficial effects of a multitude of political dimensions for a unanimous constitutional consent are reversed. In this section, we also discuss the implications of immigration for constitutional consent within these three basic models. Finally, section VI summarizes the theoretical and political results of the discussion.

II. The Normative Significance of Constitutional Consent

Within contractarian thinking about the origin of the state the idea of a social or constitutional contract plays a pivotal role. There are innumerable passages in the literature pointing out that this way of thinking can be traced back to Thomas Hobbes, who proposed a radical insurance solution to get away from the disorder of the state of nature and thus from the economic illogicality of a *bellum omnium contra omnes*. In a mutual and irrevocable contract of subjugation people entrust their individual freedom to a sovereign, the Leviathan, whose power is absolute and whose sole duty it is to guarantee peace in society. Under this contract they mutually commit themselves to live according to the rules of the sovereign, who himself is not a partner to the contract, implying that he is not contractually bound (Hartmann, 1997:43). Of course, such a radical solution (not only) nowadays and from an individualistic perspective strikes one as rash and rather strange (Blankart, 2001: 40). That exactly is the reason why social theorists tried to devise institutions and mechanisms which should be able to guarantee – maybe not perfectly but to a certain extent – the collective good ´social peace´ without totally giving up individual freedom (for details see Kirsch, Ch. I-III). Fundamental to these endeavours was Adam Smith´s concept of the market as an institution in which individuals, based on self-interest and the guarantee of private ownership, anonymously and peacefully interact in a wondrous way (the invisible hand) via trade and exchange to the welfare of them all. The market, however, is concerned with the exchange of private goods, characterized by the exclusion principle and rivalry in consumption; the limits of the market as an institution are to be found where these conditions are not given, i.e. essentially where the production of collective goods is concerned. But it was originally shown by Buchanan (1968) that the provision of public goods does not necessarily imply collective decision-making on their production and financing; instead, negotiations between autonomous individuals are able to provide the people with public

goods efficiently. With respect to social and individual forces exercising influence over human behaviour, resulting in public goods like clean parks, the contributions by Coleman (1990), Putnam (1995) and Frank (1987) are of special importance; based on the paradigm of methodological individualism they show that there are rational (economic) reasons why people accept and enforce social norms, why social norms and relations among people form a social capital that serves as a production factor for society as a whole, and why a human being should have a conscience consisting of a set of internalized social norms.

However, if the capacities and the potentials of these institutions are exhausted, there is no getting round the production of collective goods by collectively exerting coercion; this collective coercion may to a certain extent be mitigated by exit and voice (Hirschman, 1970) but it cannot be totally avoided, unless people are willing to renounce public goods altogether. According to Buchanan and Tullock (1962), it is precisely the institution of the democratic constitutional state which is optimally suited for reconciling the existence of collective coercion with the individualistic norm. Their main argument is that the contradiction between collective coercion and individual freedom cannot be dissolved at the level of the results of the decision-making process but only at the level of its procedures. The basic condition for such a solution is that individuals unanimously agree on *one* decision-making procedure, i.e. *one* constitution a condition for which there are, according to Wicksell (1896) and, following him, Buchanan and Tullock (1962), both a positive and a normative reason: firstly, it is much easier to reach a consensus on decision-making procedures than on particular issues with strong distributional or re-distributional implications (Lowi, 1972);[1] secondly, decisions on procedures should be taken unanimously (unanimous constitutional consent) because later decisions on particular issues may, then, possibly violate the

preferences of the individual but not his individual freedom. Thus, the possibility to reconcile the existence of collective coercion with the individualistic norm crucially rests on the existence of a constitutional consent. Without such a consent, society either has to forego the advantages of collective goods, or else enforce their production by exerting coercion in an illegitimate manner.

III. A Simple and Optimistic "Calculus of Consent"

Two questions arise from the aforementioned. What calculations will a *single* individual typically make concerning the optimality of a constitution, and how can *many* individuals with diverging constitutional preferences agree to just *one* constitution? In order to answer the first question Buchanan and Tulluck (1962) developed the instrument of interdependence costs ; to make the problem more tractable they first reduce the complex constitutional problem to the question of the number of yes-votes required in a ballot to make collective decisions, and exclude the problem of power and influence by the principle of one man, one vote For a single individual, her decision-making costs are definitely minimized if she can decide *alone for all* her fellow citizens; the higher the number of necessary yes-votes, the more efforts to convince other people and the more concessions towards them are inevitable, which also implies that the decision-making costs increase progressively. On the other hand, however, for a single individual the probability of uncomfortable decisions for her will be high if all the *other* individuals have the right to decide *for* her too (expected external costs); so the only way for each single individual to insure herself against that risk would be to opt for unanimity, which gives her the right to veto unwelcome decision results and, of course, between unanimity-rule and every-man-rule the external costs again rise progressively. Therefore, the individual is faced with a trade-off, which it solves by minimizing the sum of decision-making and external costs, the interdependence costs.

This minimum of the interdependence costs determines the optimal constitution as the optimal number of yes-votes and indicates the costs arising from the fulfilment of needs in a collectivity.

We wish to demonstrate this using the example of a polarized society, laying the basis for our further discussion, and assume two more or less heterogeneous groups separated by a political no-man s-land (Kirsch, 1997:129)[2]. The external costs of a minority member rise from 100% (unanimity) to the minority limit, jump dependent on the degree of polarization within the society, and rise progressively afterwards; the external costs of a majority member rise from 100% to the majority limit and also jump, then showing a similar progressive increase. The decision-making costs reveal an analogous but reverse path: for a minority member they increase from 1% or less to the minority limit and for the majority member to the majority limit and jump again to rise progressively up to 100%. This results in diametrically opposed shapes of the interdependence costs curves:

Figure 1. *Interdependence-cost-curves: majority, minority, average*
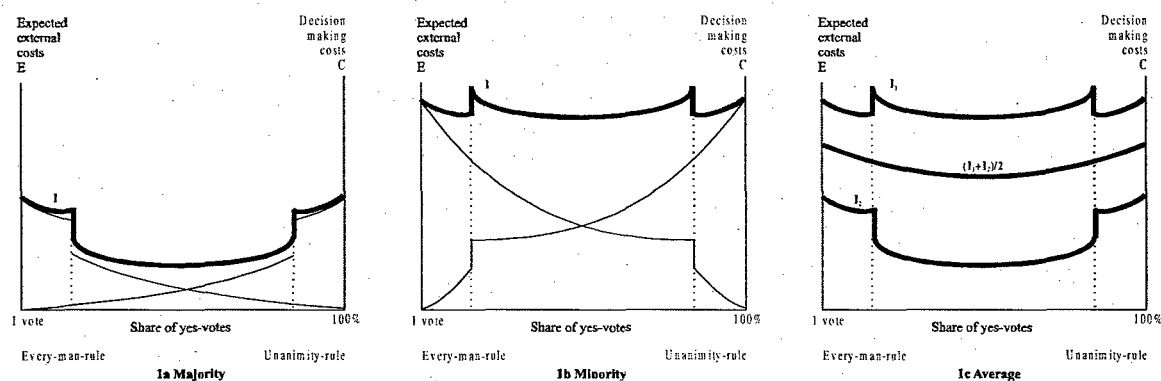
The minority (Fig.1a) prefers very high *and* very low quotas of yes-votes, rejects simple majority rule and is undecided between the extremes of unanimity-rule and every-man-rule ; the majority (Fig. 1b) prefers voting rules close to the *simple majority rule,* which

is optimal because it is the smallest majority one can select and still avoid having conflicting proposals both obtaining winning majorities (Mueller, 1989:56f.).

The second question is now: how can individuals with diverging constitutional preferences agree upon a *single* constitution? Buchanan and Tullock use the idea of a veil of ignorance which later became central in Rawls theory of justice (1971). Assuming rational choice and self-interest, it is postulated that what the society will look like at a later point in time and what the (relative) status and position of the individual within that society will be is hidden behind a veil of ignorance. Since all possible structures of and positions within the society are, therefore, equally probable, all possible constitutions are equally optimal for the individual (Kirsch, 1997:137) - and it is easily possible to agree unanimously on one single constitution. Of course, there are serious counter-arguments against this way of reasoning for there usually will be holes in that veil, so that it may be possible to draw conclusions from the past with regard to the future. Unanimity, therefore, will not be reached, and a deficit of individualistic legitimation of collective coercion will inevitably remain. Irrespective of this counter-argument and *essential* for the topic discussed here is the question what would happen if constitutional consensus already *existed* and additional individuals were added to the population of the society by immigration (or birth). Since according to the theory the veil of ignorance has always to exist, the future always has to hide itself from the present (Kirsch, 1997:138), and that means that, at least in principle, there should be a continuous voting procedure on the rules of the society with a unanimous outcome.[3]

If the idea of a veil of ignorance does not lead very far, the question arises whether there is another, different approach facilitating unanimous constitutional consent. Rabushka and Shepsle (1972) developed such an approach which has risen to prominence in the

literature under the heading of *cross-cutting cleavages* . The basic idea is that, usually, the political world is by no means one-dimensional (e.g. left/right), but there are further dimensions (cleavages) of political relevance. If this is the case and if we assume like Kirsch (1997:141) that A as a leftist belongs to a minority but as a white to the majority and *vice versa* for B, then both are faced with the problem of having to vote for *one single* constitution although as members of a minority and a majority group they actually prefer *diametrically opposed* voting rules . Rationally, they have to take into consideration both interdependence cost curves to find an *intra*individual compromise, and if they weigh both dimensions equally the result will be the average of both. With some probability the result for both individuals will be a much steadier curve with only one minimum at about the same number of yes-votes and close to simple majority (Fig.1c). Therefore, the quarrel about a single constitution has lost its tension, and this holds all the more the higher the number of politically relevant dimensions in the collectivity in question. However, a *higher* number of cleavages will not be sufficient if the theory is to succeed in contributing to an unanimous constitutional consent, but they will also have to *cut intra*individually (cross-cutting cleavages). If that is not the case and if the individuals exclusively belong to the minority or majority in all politically relevant dimensions, there will be more or less identical constitutional preferences uncompromisingly opposing each other, and a constitutional consensus will hardly seem possible.[4]

In the following, we will show that these optimistic statements concerning constitutional consensus are much too general, even in the case of cross-cutting cleavages, to adequately mirror reality. This is mainly due to the premise of an *intra*individual compromise which presupposes a model of *continuous compensation*: According to this model a compromise between a majority and a minority preference

should be able to compensate a minority preference in another dimension so that the result would be similar to a majority preference close to simple majority, which again can compensate a further minority preference and so on. This is a very extreme assumption, and we shall discuss its implications in the following section together with some theoretical and political sidelong glances, especially regarding societies with a shrinking population. In section V we shall widen the spectrum of possible assumptions by considering the equally extreme model of *zero compensation* and the intermediate variant of *single compensation,* and we shall see that the previous conclusions regarding the beneficial effects of a multitude of dimensions for an unanimous constitutional consent will be reversed.

IV. The Probability of a Unanimous Constitutional Consent

As derived above, the existence of a constitutional consent is crucial to reconciling the existence of collective coercion with the individualistic norm. To develop an understanding of the respective probabilities of such a consent under various circumstances, let us start by taking a look at the case of two politically relevant dimensions or cleavages: with regard to these two dimensions a single individual may always belong to the minority (*ii*) or to the majority (*aa*) or once to the minority and once to the majority (*ia*).[5] It goes without saying that society has to consist of more than two individuals: an assignment to the majority or minority is logically impossible for a one-person society; this criterion is irrelevant, too, in a two-person society for either there is a stalemate or the individuals are identical with regard to both dimensions. Only from three individuals onward does the assignment criterion develop its operational meaning. This holds for the number of dimensions analogously: an intrapersonal compensation of diverging constitutional preferences on account of an affiliation to the minority and the majority becomes possible only with two dimensions or more. This

does not mean, however, that these material restrictions constrain a formal analysis, and that is the reason why we start our discussion with the case of two dimensions and one individual.[6]

Now, if we have only one individual in a society and two dimensions with three possible majority-minority-combinations (MMC) but the opportunity of intrapersonal compensation, there will, from a purely formal point of view, only be one case, namely (*ii*), where a constitutional consent to choose the simple majority rule would not result. In the following, we assume that combinations like (*ia*) always compensate internally in such a way that the result will be approximately identical to a; in other words, we work on the assumption that the *intra*personal averaging of a majority preference for a yes-quota near to simple majority and of a minority preference for high *and* low yes-quotas lead to a result which is again close to simple majority. Furthermore, we assume that this result of averaging, which resembles a somewhat smoothed majority preference, will be able to compensate further minority preferences in an additional dimension, resulting again in an optimal constitution near to simple majority rule   and that this process (at least in principle) can be continued indefinitely covering innumerable dimensions, which is why, for the following, we describe this model as *continuous compensation*. Needless to say, this represents an extremely optimistic assumption which presupposes a relatively low degree of polarization (and only minor discontinuities in the interdependence cost curve) at least regarding those dimensions which are of lesser political relevance; we shall return to this later.

If the society consists of 2 individuals and there are still 2 dimensions, the following 6 combinations result, of which the first three cannot lead to a constitutional consent in the sense described above because preferential compensation is only possible

*intra*personally and not   *inter*personally under the premises of normative

individualism:[7]

ii   ii   ii   aa   aa   ia

ii   aa   ia   aa   ia   ia

If we had 3 individuals, again with 2 dimensions, there will be 10 combinations, and,

again, the first six exclude a constitutional consent.

ii   ii   ii   ii   ii   ii   aa   aa   aa   ia

ii   ii   ii   aa   aa   ia   aa   aa   ia   ia

ii   aa   ia   aa   ia   ia   aa   ia   ia   ia

To prevent a misunderstanding, a short interjection seems to be necessary. The

examples above are based on the formal application of the rules of the theory of

combinations for 2 dimensions with 3 MMCs treating *ia* and *ai* identically, which

means that it makes no difference in which dimension the individual belongs to the

majority or minority. From a compensation-theoretical perspective this seems to be

justified for we are solely focusing on the results in form of a majority preference close

to simple majority. From a logical point of view the standard would, however, be

stricter: firstly, it should be excluded that e.g. all 3 individuals belong to the minority

(e.g. the case *ii, ii, ii*) if the society really consisted only of those 3 individuals

otherwise the cleavage character would be revoked; therefore, those cases would have

to be filtered out and excluded which are logically impossible in this sense. Secondly,

the same logic calls for calculating with 4 instead of 3 MMCs because *ia* and *ai* can no

longer be treated identically and cannot be reduced to 1 MMC. In our example of 3

individuals we then have 20 cases instead of 10, of which 12 prove to be logically

impossible; from the 8 logically possible cases there are 3 that lead to a constitutional consent close to simple majority. It can be seen clearly that such a procedure implies a stricter selection regarding the frequency or probability of a constitutional consent. The procedure we prefer here leads to a quota of constitutional consent of 40%, the "logical" procedure, however, to 37.5%. Since our main goal here is not the modelling of individual societies but to derive basic knowledge with regard to immigration using theoretical reasoning about compensation and consent building, the procedure chosen here appears justified, even if the frequency and probability of constitutional consent will be slightly overestimated[8].

Now, if we denote k as the number of individuals, n as the possible number of MMCs for a single individual (e.g. $n=3$ for 2 cleavages as explained above), it follows by induction that for 1 individual and 2 cleavages (therefore 3 MMCs) the Non-Unanimity-Quota (NU) is 1 out of 3; for 2 individuals it is 3 out of 6, for 3 individuals it is 6 out of 10 and so on.[9] The number of combinations with repetition can generally be calculated for k individuals as

$$\binom{n + k - 1}{k} = (n+k - 1)! \, / \, k! \, (n - 1)!$$

Since in our example above for 2 cleavages $n=3$ holds, $(k+1)(k+2)/2$ follows for the number of combinations after some rearrangements. Now, if the *number of NU-cases for k+1 individuals* is equal to the *number of total combinations for k individuals*, then for the *number of NU-cases* and $n=3$ it follows: $(3 + (k-1) - 1)! \, / \, (k-1)! \, (3-1)!$, which can be rearranged to $k(k+1)/2$. Therefore, the NU-quota for 2 dimensions is $k/(k+2)$. Developing this procedure a little further, we arrive at the NU-quota of $k/(k+c)$ for c as the number of dimensions.[10]

For the NU-quota with a constant number of dimensions $\bar{c}$ but with an increasing number of individuals, therefore, $k/(k+\bar{c})$ holds, and with a constant number of individuals $\bar{k}$ but for an increasing number of dimensions $\bar{k}/(\bar{k}+c)$ follows. A numerical example with rising k s and c s up to 5 may demonstrate the different developments of the NU-quotas.

Table 1. *NU-Quotas in the model of continuous compensation*

Individuals k	Cleavages c				
	1	2	3	4	5
1	0.50	0.33	0.25	0.20	0.17
2	0.67	0.50	0.40	0.33	0.29
3	0.75	0.60	0.50	0.43	0.38
4	0.80	0.67	0.57	0.50	0.45
5	0.83	0.71	0.62	0.55	0.50
..					
in general	k/(k+1)	k/(k+2)	k/(k+3)	k/(k+4)	k/(k+5)

If, for example, $\bar{c}=2$ holds, the column of NU-quotas with a rising k would be 0.33; 0.5; 0.6; 0.67; and 0.71 , and if $\bar{k}=2$ holds, the row 0.67; 0.5; 0.4; 0.33; and 0.29 results. Additionally it can be seen that symmetrical NU-quotas always add up to 1 so the NU-quota with 3 individuals and 2 dimensions is 0.6, and the alternative quota with 2 individuals and 3 dimensions is 0.4, which in general implies $k_i/(k_i + c_j) + k_j/(k_j + c_i) = 1$ to hold.

To sum up, with constant dimensions $\bar{c}$ the probability of a constitutional consent decreases with a rising number of individuals k according to $k/(k+\bar{c})$; with a constant number of individuals $\bar{k}$ the probability of a constitutional consent increases with the number of cleavages c according to $\bar{k}/(\bar{k}+c)$. The probability of a unanimous

constitutional consent increases with a growing number of dimensions in the same way as it decreases with a rising number of individuals.

What theoretical conclusions can be drawn from this? First and most importantly, according to Table 1 the level of NU-quotas seems to be rather high and, therefore, the probability of a constitutional consent rather small   at least for realistic sizes of collectivities and on the plausible condition that the number of dimensions cannot be augmented arbitrarily. Furthermore, it can be seen that the probability of a unanimous constitutional consent (or the NU-quota respectively) falls (rises) with increasing size of the collectivity; legitimation by procedures seems to be attainable more easily within smaller collectivities. On the other hand, it is obvious that an increasing NU-quota due to the growing size of the collectivity can in principle be stabilized by an equivalent augmenting of dimensions: if for $c=2$ the number of individuals grows from 2 to 3, the NU-quota rises from 0.5 to 0.6; augmenting the number of dimensions by 1 would be able to compensate this increase and the result would be 0.5 again. We shall return to this shortly.

What political propositions can be derived from these results? Obviously, constitutional economics provides an extension of the lessons originating from the economic theory of federalism: if the probability of constitutional consent rises with a fall in the size of the collectivities, then the legitimation of collective compulsion is more likely to succeed at the local or regional level than at the national and supranational levels. If the hypothesis is accepted that at least in principle the number of dimensions develops inversely proportionally to the size of the collectivity or, weaker, develops less than proportional, then these hypotheses support the previous result.[11] To the extent that the economic theory of federalism stresses the recommendation of following the subsidiarity principle

as far as possible, the results of both approaches seem to be parallel; to the extent that the economic theory of federalism assigns the production of public goods to higher levels, however, constitutional economics leads to an extension of the theory since at these high levels we cannot expect a unanimous constitutional consent and, therefore, an individualistic legitimation of collective compulsion. It is possible that the democratic deficit at the EU level which is often complained about may be nothing but a manifestation of these lamentable results and perhaps also the phenomenon of disillusionment with politics which can be observed especially at high political levels.[12]

If we return to the formal analysis, interpret our problem in a dynamic sense and integrate the number of dimensions into the analysis once again, then we know from the above that with a growth in the size of collectivities the NU-quota grows but that augmenting the number of dimensions works in a compensatory way; in our example we increased the size of the collectivity by 1 and were able to stabilize the NU-quota by augmenting the number of dimensions by 1 as well. But, of course, we cannot take it as the normal case that each additional individual brings along its own additional and, above all, *politically relevant* dimension (and just not its preference for vanilla ice-cream), so that we should plausibly assume that the number of cleavages develops less than proportionally to the number of individuals. This integration of the size of the collectivity and the number of dimensions logically leads to the tendency that the pattern sketched above will weaken a little from a dynamic viewpoint since additional dimensions are added but basically nothing changes; even an augmenting of dimensions during the growth process of a collectivity will presumably not be able to prevent a rising NU-quota and, therefore, a falling probability of constitutional consent.

Now, let us reverse the analysis and its results: since especially in the "old" European states (in contrast to the U.S. for instance) the size of the population is not only stagnating but will shrink significantly in the long run, we shall have to reckon with a *rising* probability of constitutional consent due to a less than proportional *decrease* in the number of dimensions, which mirrors the picture sketched above in a reverse fashion – and that necessarily holds for each level in the context of federalism discussed above. Seen from this special point of view, a shrinking population may have some welcome effects, too, because the individualistic legitimation of collective choice will be improved. On the other hand, a shrinking and ageing population necessarily implies massive economic problems which, given the long-run demographic facts, can be alleviated only by immigration.

V. Immigration and the Unanimous Constitutional Consent

Immigration may be extremely problematic from the point of view of constitutional economics and normative individualism *if it is not controlled with regard to dimensions*. Let us return to the case of 2 individuals and 2 dimensions with its resulting 6 combinations of which 3 represent the NU-quota. If we allow a third individual with an *ii*-characteristic (a pure minority subject) to immigrate, that *single* individual will ad hoc destroy the 3 possible cases of constitutional consent.[13] It would not have such a destructive effect only if it revealed an *ia* (or an *aa*) characteristic implying that it belonged partly to the minority and partly to the majority (or completely to the majority); this means that, related to the *ia*-characteristic which is of special interest to us, *cross-cutting cleavages* should be given.

If we had 3 politically relevant dimensions, once again the pure minority characteristic *iii* would be destructive, but *iia, aai* and *aaa* would not spoil the constitutional consent

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(because of the previous assumption of $(i+a)/2 \approx a$, namely the procedure of averaging diverging preferences and the continuous result of compensations close to simple majority). Lastly, if we had 4 dimensions only *iiii* would be unacceptable but *iiia, iiaa, iaaa* und *aaaa* would imply no problem. To sum up, under the very optimistic premise of a *continuous compensation* (of the mean of *i* and *a* with the minority characteristic *i* in each next dimension resulting in a constitutional preference close to simple majority) immigration can be allowed without endangering an existing constitutional consent as long as the immigrants do not belong to the minority in *all* politically relevant dimensions. If they belong to the majority in *only one* dimension they do not represent a risk for an existing constitutional consent due to the mechanism of continuous compensation. But even under this very optimistic assumption we are forced to recognize that uncontrolled immigration cannot be a sensible option; at least those potential immigrants who represent a risk for an existing constitutional consent should be turned down and this, paradoxically, precisely on the basis of the liberal theory of normative individualism.

Now, if we take it as given that the optimistic model of continuous compensation does not seem to be realistic, we can contrast it with the pessimistic, equally unrealistic and diametrically opposed model of *zero compensation* in order to evaluate how more realistic models in the middle range behave. The basic assumption behind zero compensation is that it will never be possible to average majority and minority preferences in such a way that a result close to simple majority would emerge because highly differing discontinuities in the interdependence cost curves   in other words, the political no-man   s-land between majority and minority prevent such a desirable result. If this is the case the results are, as expected, in part diametrically opposed to the continuous compensation model regarding the NU-quota and the basic calculation is

rather simple: if absolutely no compensation is possible then only MMCs exclusively consisting of the a-characteristic are able to guarantee a constitutional consent close to the simple majority. Independent of the number of dimensions there is always *only one* MMC with this characteristic so that the NU-quota (with $n=c+1$) reads as $1 - c!k!/ (c+k)!$ in this case.[14] Table 2 offers simulative data for this zero compensation model:

Table 2. *NU-Quotas in the zero compensation model*

Individuals k	Cleavages c				
	1	2	3	4	5
1	0.50	0.67	0.75	0.80	0.83
2	0.67	0.83	0.90	0.93	0.95
3	0.75	0.90	0.95	0.97	0.98
4	0.80	0.93	0.97	0.98	0.992
5	0.83	0.95	0.98	0.99	0.996

Inevitably, the NU-quotas are on a much higher level than in the continuous compensation model but at least with regard to the size of the collectivity the analogous result shows up: the probability of a constitutional consent declines with the growing size of the collectivity.[15] Concerning the influence of the number of dimensions the trend is now reversed, however: in this polar model the NU-quota increases with a growing number of dimensions implying that a constitutional consent becomes more and more improbable.[16]

Regarding the immigration problem it holds analogously to the above that in those (few) cases of constitutional consent only individuals with an exclusive a-characteristic would not disturb the constitutional consent, and these occur with the same frequency as individuals with an exclusive i-characteristic in the model of continuous compensation, namely with $1/(c+1)$. Critical for an existing constitutional consent in this model are n-

$1 = c$ MMCs; the quota of critical MMCs, therefore, is $c/(c+1)$, and it increases with a growing number of dimensions.[17] While in the continuous compensation model immigrants were unproblematic for an existing constitutional consent if they belonged to the majority in at least *one* dimension, now they have to belong to the majority in *all* dimensions if constitutional consent is not to be endangered.

The question how middle range variants between these two polar models behave can be easily answered by means of an example. In this example we allow only a *single compensation* based on the hypothesis that polarizations of the other dimensions may be so strong that a compensation of the first and successful compensation result with a minority preference in the next dimension will not be sufficient for a constitutional consent close to simple majority and that this result will again not be able to compensate a minority preference in a further dimension and so on. This assumption does not impinge, of course, on the previously presented examples for 2 and 3 individuals and 2 dimensions since it is relevant only from 3 dimensions onward; generally, in the single compensation model the columns for the dimensions 1 and 2 are identical to the corresponding columns in Table 1 for continuous compensation because single and continuous compensation are identical up to 2 dimensions. This changes inevitably from the third dimension onward because then the results of all three concepts diverge: the intermediate model of single compensation by and large behaves like the zero compensation model and leads to comparatively low but nevertheless increasing NU-quotas. The sequence of NU-quotas with a growing number of dimensions is U-shaped for all sizes of collectivities and reaches a minimum for 2 dimensions.[18]

Table 3. *NU-Quotas in a single compensation model*

Individuals k	Cleavages c				
	1	2	3	4	5
1	0.50	0.33	0.50	0.60	0.67
2	0.67	0.50	0.70	0.80	0.86
3	0.75	0.60	0.80	0.89	0.93
4	0.80	0.67	0.86	0.93	0.96
5	0.83	0.71	0.89	0.95	0.97

Without repeating the foregoing analysis for the intermediate model in total[19], we should have a brief look at the case of 3 cleavages and 2 individuals as an illustration, and the following MMCs result:

iii   iii   iii   iii   iia iia iia   aai aai aaa
iii   iia aai aaa   iia aai aaa   aai aaa aaa

In the continuous compensation model (Table 1) we have shown that only 4 out of 10 cases belong to the NU-domain but now we have 7 cases of this kind, which implies that the probability of a constitutional consent close to simple majority decreases significantly even for the existing society, namely from 60% to 30%, but it is of course higher than for zero compensation with 10% (Table 2). As a consequence, restrictions to immigration have to be tightened compared to continuous compensation (and relaxed in contrast to zero compensation). Previously, applying the model of continuous compensation for 3 dimensions we found only the MMC of *iii* (of a total of 4) to be critical but now with single compensation we have 2 MMCs (*iii* and *iia*) which are risky for an existing constitutional consent. Extending this consideration to 4 dimensions (with 5 MMCs), 3 MMCs turn out to be critical. In general and without presenting details here, it can be shown via an inductive proof that for c dimensions and $c+1$

MMCs, c-1 MMCs always have to be classified as critical; this, furthermore, implies the quota of critical MMCs as a function of c (c>1) to always be equal to $(c-1)/(c+1)$. Therefore, the *larger* the number of politically relevant dimensions, the *higher* is the quota of critical MMCs, or the *lower* is the number of MMCs of possible immigrants which can be regarded as uncritical for an *existing* constitutional consent. Of course, this result too — besides the facts of increasing or decreasing NU-quotas in the models of single and continuous compensation respectively — stands in sharp contrast to the model of continuous compensation in which the quota clearly *falls* as has been shown above.

Of course, it would be easy to relax the restriction of only single compensation and admit double or multiple compensation (e.g. under the previous condition that no further compensation of the results of these compensations with a minority preference is possible). The result would be an alternating but increasing sequence of NU-quotas: for instance, the potential of double compensation to lower NU-quotas will be active only from c=4 on, while the NU-quota for c=3 is determined according to the single compensation model and for c=1,2 according to the continuous compensation model, which for these dimensions offers the same results as the single compensation model. Regarding the number of critical cases among the MMCs of the possible immigrants, with double compensation and 4 cleavages (5 MMCs) we would arrive at only 2 critical cases, with 5 dimensions (6 MMCs) at 3 critical cases and so on. The quota of critical cases for double compensation develops according to $(c-2)/(c+1)$, or in general if m-fold compensation is admitted according to $(c-m)/(c+1)$ — at least from c>2m-1 onward[20]. Therefore, on the one hand it holds that the higher m with a given c, the lower is the quota of critical MMCs and the higher is the probability of constitutional consent close to simple majority *after immigration*; on the other hand and more importantly, it is

decisive that with increasing c and given m the above quota will be *rising*, implying that the probability of a constitutional consent after immigration *falls*.

Therefore, the above conclusions   especially those concerning the continuous compensation model   have to be qualified considerably regarding intermediate models and from a more realistic point of view. *By no means* can it *generally* be taken for granted that a growing number of dimensions will enhance the probability of constitutional consent; this exclusively holds for the continuous compensation model. The two other models show differing or even contrary results: in the zero compensation model the probability of constitutional consent continually decreases with a growing number of dimensions, and for intermediate variants this clearly holds from the number of dimensions onward where they first reveal their comparative (e.g. three-fold to double compensation) potential for decreasing the level of the NU-quotas; for lower dimensions, we saw that the NU-quotas alternate but show an increasing trend which also means that the probability of constitutional consent falls. With regard to a shrinking population this means that, under the above condition of a delayed sequence of the numbers of dimensions relative to the number of individuals (e.g. $k,c = 1,1;2,1;3,2;4,2$ etc.), the probability of constitutional consent certainly is at a higher level applying the continuous compensation model, but that it increases less compared to the more realistic models when the population shrinks. Concerning the immigration problem the quota of critical MMCs for an existing constitutional consent *falls* in the continuous compensation model with a growing number of dimensions, but in the polar model of zero compensation it *rises*, and this latter relation holds for the intermediate models as well, even if to a lesser extent, especially below the limits described above.

VI. Conclusions

Applying the continuous compensation model, we have shown that the probability of constitutional consent certainly *falls* with a growing size of the collectivity but that this trend can be compensated for, at least in principle, by augmenting the number of cleavages or dimensions. On the other hand, we have also shown that, under the plausible assumption of the number of dimensions increasing less than proportionally to the size of collectivity, the *size* dominates the joint effect so that we basically have to expect a falling probability of constitutional consent with a growing size of collectivity *and* an increasing number of dimensions. This result at the same time confirms and extends the lessons from the economic theory of federalism: it confirms them insofar as the political imperative of subsidiarity is one of its lessons, and it extends it insofar as the assignment of responsibility to high federal levels will be accompanied by only a low probability of constitutional consent. The inverse conclusion is that this result also means that a decreasing size of collectivity or a shrinking population leads to an increase of the probability of constitutional consent and to a higher individualistic legitimation of collective choice.

Unfortunately, the model of continuous compensation is an extremely optimistic one and should be confronted with the model of zero compensation which, at the other pole of the continuum, is a very pessimistic one. On the one hand, it is again true that the probability of constitutional consent close to simple majority will *decrease* with a growing size of collectivity as in the continuous compensation model (even if at a lower level), but on the other hand the probability of constitutional consent will now *decrease as well* with a growing number of dimensions. Intermediate models between both extremes first tend to show alternating but on average increasing NU-quotas; after a sufficient number of dimensions is reached, they start to rise significantly so that the

picture becomes similar but somewhat more moderate compared to the one with zero compensation. Since the continuous compensation model shows the highest probabilities of constitutional consent with a growing population, the "gains" of constitutional consent from a shrinking population are the lowest compared with the more realistic models; precisely these models should therefore react in the strongest way to immigration that is risky for constitutional consent.

Regarding the immigration problem which a society with a shrinking population inevitably has to face, the restrictions on immigration are of course lowest in the continuous compensation model: whereas an existing constitutional consent is not disturbed if the immigrants belong to the majority in at least *one* dimension, they have to be part of the majority in *every* politically relevant dimension in the zero compensation model. Concerning the intermediate models the result is as expected: the *larger* the number of politically relevant dimensions, the *lower* are the number and the quota of the MMCs of potential immigrants which have to be considered as uncritical for an existing constitutional consent. That the critical quotas alternate around an increasing trend below a certain number of dimensions is simply a model-specific secondary phenomenon within this general law.

The essence of these considerations is, therefore, that any sensible immigration policy has to guarantee with regard to the *existing* cleavages of a society that immigration should only occur in a way that does not damage or destroy the *existing* constitutional consent. Only a selective and controlled immigration will be able to comply with that postulate. Uncontrolled immigration, possibly based on ethical norms, will definitely risk the breakdown of any constitutional consent in a society.

1. In a later contribution, Buchanan (1975) distinguishes between the ´protective´ (constitutional) state and the ´productive´ state: at the level of the protective or constitutional state it should be unanimously agreed which voting procedures are to be applied at the level of the productive state, the post-constitutional level. Of course, these procedures will vary according to the collective problems to be solved (Blankart, 2001:43).

2. Individuals within the groups are heterogeneous but they are less heterogeneous *within* the groups than *between* them.

3. Blankart (2001:45) expresses a similar opinion relating to constitutional reform due to changing environments (e.g. immigration): from an individualistic point of view the ´competence-competence´ - the competence to change a constitution – cannot be delegated to politicians in a parliament.

[4] It should be noted that there may be another case revealing the impossibility of a constitutional consent. If, basically, society implies having political dimensions in common, even in uncompromising contrariness, then a society will crack down when there will be sub-societies showing no common dimensions with the rest of the society (ghetto-societies). As long as the people quarrel about mutually interesting subjects, there will be society; if there is nothing left to quarrel about, society vanishes – and with it the question of a constitutional consent.

5. Statistically, we are dealing with combinations with repetition. For each relevant dimension there are 2 characteristics, namely belonging to the majority (*a*) or the minority (*i*), and solely the number of dimensions varies. The number of majority-minority combinations (MMC) at the number of dimensions *c* is then

$$n = \binom{2+c-1}{c} = (2+c-1)! \ / \ c!(2-1)! = c+1$$

For *c*=2 the result is *n*=3, consisting of *ii, aa, ia=ai*; the latter holds for the procedure of averaging preferences for the result will be the same if we average a majority with a minority preference or vice versa.

[6] It goes without saying that a society of 1 individual (and 2 dimensions) is nothing but logical nonsense: What Robinson really missed on his island was being in company with another person, thus forming a society. Above that, Robinson was 100% white and male, so he had not to care about coloured and females. If we, still, start our considerations with 1 individual we only want to show that the formal analysis applies universally, even for a "society" of one individual.

7. The 3 MMCs *ii*, aa and ia which are possible and reasonable from a compensation-theoretical point of view are to be combined with each other leading to 9 cases. Since it makes no difference whether the same MMCs appear with the first or second individual identical cases can be eliminated (e.g. *ii,aa=aa,ii*), and 6 cases result. From these 6 cases the latter 3 offer a constitutional consent insofar as they reveal constitutional preferences close to simple majority. An analogous way of thinking applies to the example mit 3 individuals (18 cases to be reduced by 8 double cases).

8. It is easy to show by the way that the results of the combinatorial and logical analyises converge if ceteris paribus the number of individuals increases.

9. The NU-quota exclusively relates to those cases where a constitutional consent close to simple majority is impossible; the case *ii, ii, ii,* for instance, would lead to a constitutional consent but to a consent of minority preferences, and, therefore, is part of the NU-quota.

10. A general solution requires calculating the quotient from the number of NU-cases for k individuals (equivalent to the total number of combinations for k-1 individuals) $[n + (k-1) - 1]! / (k-1)! (n-1)!$ and the total number of combinations for k individuals $(n + k - 1)! / k! (n-1)!$ which, due to $n=c+1$, leads to the formula above.

[11] That this doesn´ t need to be that way necessarily is shown, for instance, inShakespeare´ s Romeo and Juliet: in medieval Verona there was only one politically relevant dimension – belonging to the families or the Montagues or Capulets. On the other hand, political dimensions can be found which don´ t matter at high political levels but all the more at the local level: In Germany, the dimension "Jew" or "Not-Jew" is put under taboo by high politics but at the level of the ordinary citizen (and the mass-media, of course) it´ s amazingly lively as the recentcocain-scandal around the vice-president of the "Zentralrat der Juden in Deutschland" (German Association of Jews) demonstrates.

[12] There is, by now, a rich empirical literature on decision making in the EU applying the quantitative tools of voting game theory to an analysis of voting rules in the EU's key decision-making bodies (see e.g. Widgrén (1994), Laruelle and Widgrén (1998), Sutter (2000), Leech (2002), as well as Baldwin and Widgrén (2003)). However, these studies, naturally, focus on strategic interactions between member states *governments* within the respective decision-making institutions, while our approach takes the *individual* citizen as a starting-point.

13. Let us recall Section I: against the background of the ´ veil of ignorance´ we stated that if immigration happens, then in the constitutional context there should be a *permanent* unanimous consent, at least in

principle, which means that there should be a *continuous* voting procedure with a unanimous result. But immigration does not really take place in a situation in which all the structures of a society are continously arranged anew; on the contrary, when the immigrants enter a society, the relevant cleavages have emerged over a long period of time in Europe, for instance, language, religion (Belgium!) or political positions (Rabushka and Shepsle, 1972:8). It may well be, then, that potential immigrants, for example from the moslem parts of Africa, may import the potentially (or again) relevant cleavage race and may revitalize the religion cleavage or determine it in a new way; and it may also be that subgroups of the indigenous population see that new cleavage as politically relevant: typically the population in those parts of Germany where the share of foreigners is lowest shows the highest degree of xenophobia. If we still recur to an *existing* constitutional consent and investigate the dangers to it caused by immigration, this clearly reveals a certain degree of conservatism. On the other hand, the amount of immigration related to the size of indigenous populations in larger European countries seems to be rather marginal, and it is an empirical fact that efforts towards promoting the political relevance of such additional dimensions are regularly and successfully marginalized as politically incorrect.

14. Since $n=c+1$ holds, the number of combinations results in $(c+k)! / k!c!$.

15. Therefore, the considerations above on the interface of constitutional economics and the economic theory of federalism change only gradually but not in their direction.

16. Of course, this has some consequences for our previous statements: if we take it for granted again that the number of cleavages is higher at lower federal levels, then obviously the relationship between the size of collectivity and the number of dimensions becomes antinomic: if as before the probability of constitutional consent increases with declining size of the collectivity, so now it falls *with* an increasing number of cleavages implying compensation effects which do not allow such a clear conclusion as before. As a tendency, this also holds for the middle range variants to be discussed in the following.

17. The fact that the critical quotas of the models of continuous compensation and zero compensation add up to 1 can be interpreted as the numerical expression of the polarity of the models.

18. We shall soon recognize that this minimum-characteristic represents a special case which exclusively appears when applying the model of single compensation.

19. The sequence of NU-quotas from the third dimension onward ($c=3$) can be calculated according to the formula $[(c+k)!/ c!k! - (k+1)] / [(c+k)!/c!k!]$, which after rearranging leads to $1 - (k+1)!c!/ (c+k)!$ Since the term $(c+k)! / k!c!$ represents the total number of combinations, $(k+1)$ is nothing but the number of

cases of constitutional consent according to the single compensation model. But why $(k+1)$? With single compensation a constitutional consent presupposes that the minority characteristic i does not appear more than once within the MMCs. For instance, with $c=3$ there will be $n=4$ MMCs, and 2 of them belong to this group with a maximum number of one i, and this is, of course, independent of the number of dimensions. Therefore, the number of combinations leading to constitutional consent is $(2+k-1)! / k!1!$ or $(k+1)! / k!$ or $k+1$.

20. This is a result of some relevance: the critical quota of MMCs of potential immigrants grows continually only if this condition is fulfilled. If this is not the case, the critical quotas alternate according to $(c \quad c_e/2)/(c+1)$ for the even and the immediately following uneven dimensions where c_e denotes the respective even dimension. An example for three-fold compensation $(m=3)$: if $c=4$, it naturally follows that $c_e=4$ but the equation also holds for $c=5$ so that for $c=4$ $(4-2)/(4+1)= 2/5$ and for $c=5$ $(5-2)/(5+1)= 3/6$ result. Logically, the result for uneven dimensions is always 0.5 and for even dimensions a sequence of values approximating 0.5 with a growing number of dimensions. Of course, the trend of these values is increasing too.

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