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The scapegoat of heterogeneity - How fragmentation influences political decisionmaking

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The scapegoat of heterogeneity

- How fragmentation influences political decision-making

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Abstract

It is regularly stated that political fragmentation has negative effects on reforms leading to delays or even blockades. This connection is reflected in the ‘weak government hypothesis’ arguing that fragmented governments create higher budget deficits. Although the assumption seems logical, reviewing theoretical and empirical research on the topic does not completely support this hypothesis. In fact, only few theoretical models concentrate on the impact of fragmentation and empirical findings on the issue are ambiguous. Disentangling the effect is intricate: The definition of fragmentation has various dimensions and every model or empirical study does neglect at least some important factors. In the following I would like to shed some light on the relation and the shortcomings of recent findings. As fragmentation will have various effects on political actions it seems unjustified to generally make it the scapegoat of reform delays.

Keywords: political economy, reform delay, fragmentation

Jel Codes: H3 (Fiscal Policies and Behavior of Economic Agents), D7 (Analysis of Collective Decision-Making), H10 (Structure and Scope of Government-General)

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1 Introduction

The research on the impact of fragmentation or heterogeneity was intensified during the last few decades. The enhanced interest was supported by the recent literature on ethnic diversity that showed that fragmentation may be responsible for low growth (Easterly/Levine, 1997), a higher propensity of civil wars (Collier/Hoeffler, 2004) or a poor provision of public goods (Goldin/Katz, 1997; Alesina et al., 1999). However, fragmentation does not only play an important role in the ethnic literature that mostly focuses on problems of developing countries, but is also an essential factor in the political arena. The topic is a central issue in the political economy of reforms. In particular, fragmentation in the political sphere is said to be the main reason for reform delays. Divided governments were made responsible for severe problems such as the adverse development of budget deficits in South America and OECD countries in the Eighties, apparently showing that necessary policy measures tend to be postponed or even abandoned in spite of devastating consequences. Negative effects of hyperinflation caused by the excessive use of seignorage or budget deficits due to overspending are very present in the minds of the general public as well as politicians. Nevertheless, it sometimes seems impossible to reach an agreement on necessary reforms.

In general, fragmentation was made the scapegoat of these adverse developments, albeit theory provides a wide range of possible explanations for procrastination apart from fragmentation in government. The most obvious explanation is that sometimes there is no clear and unambiguous answer to economic problems. Even if there is general agreement on the necessity of a reform, the design may still be a matter of dispute (Drazen, 2000). Reform deadlocks may also occur if politicians behave according to their own ideological preferences instead of social preferences. There has been excessive modelling of the possibility of selfish politicians in the literature of political economy (Alesina/Tabellini, 1988b; Drazen, 2000). Although the argument seems reasonable in some aspects, it is hard to imagine that politicians completely ignore voters' preferences. Especially in democratic systems, elections ensure that politicians must at least in some respects adjust their ideologies to public opinion. This problem may also have other roots such as incomplete information, the intervention of interest groups or the irrational behaviour of agents.

Despite the great number of possible explanations, particularly in the empirical literature, research focuses on the effects caused by political fragmentation. However, fragmentation is a multidimensional problem referring to different types of heterogeneity. Size fragmentation for instance alludes to the number of opposing groups or their relative size. Qualitative fragmentation encompasses factors such as differences in cost shares, the degree of uncertainty or general abilities. Thus, a general statement concerning the interplay between heterogeneity and reform delay is hardly possible. By reviewing important theories and empirical contributions in the field, this paper will show that the 'weak government hypothesis' cannot entirely be supported neither by theoretical approaches nor by

empirical testing. Results react sensitively to changes in the framework and strongly depend on the assumptions made or the dataset chosen.

Critically speaking, all theories on reform blockades rely on critical assumptions and find their origin in the assumption of rational behaviour. This is in fact quite a strong restriction and without doubt rather difficult to apply to voting decisions. It has often been shown that voters are by no means perfectly informed about the economy and that voting behaviour generally seems to be biased by non-rational influences (Downs, 1975; Caplan, 2001, 2002; Heinemann, 2004). Moreover, factors such as strategic behaviour, e.g. compensation payments, which are a day to day event in politics, may have a major impact on political decision making and are totally ignored in theoretical approaches.

Apart from this critique, the 'weak government' hypothesis contains reasonable ideas about the connection between fragmentation and the prolongation of reforms. Theoretically, the effects cannot be questioned, but it must be considered that negative effects of political fragmentation on the pace of political action will also be influenced by factors not directly connected with heterogeneity.

Apart from that, heterogeneity, especially size fragmentation, also has some positive effects. For instance, more parties offer more choices to the voter and allow him to support his preferences more expressively. In addition, fragmentation can induce competition between institutions, for instance federal states or parties (Blais/Dobrzynska, 1998; Geys/Heyndels, 2006). Yet, the most important advantage of fragmented political systems is the guarantee of checks and balances. This actually does not ensure a successful decision making process, neither will it foster the pace of legislation, but it may fundamentally prevent governments from making the wrong decision or focussing on its own interests. The paper is organized as follows: Section 2 will discuss the different types of heterogeneity and review their characteristics. Section 3 introduces theoretical approaches explaining the roots of reform delays. In this context, the paper will concentrate on three relevant theories starting with the common pool theory, proceeding with the war of attrition approaches, and finally discussing possible influences of uncertainty and time-inconsistency. The section finishes with a short conclusion and possible effects of different forms of fragmentation in the distinct theoretical models. Section 4 reviews recent empirical research. Section 5 finally concludes.

2 Interrelations between heterogeneity and decision making

A conflict may arise if at least two decisive agents have heterogeneous preferences. Here, two basic characteristics of fragmentation can be identified. The first aspect is the number of bargainers called size fragmentation. For instance, size fragmentation in a coalition will make bargaining between the partners more intricate and thus a governing coalition may procrastinate decisions due to differing preferences of the coalition partners. In addition, a greater number of parties makes it more time consuming for the voter to inform himself and thus the transactions costs of information gathering

increase. Besides that, the chance for every voter to be decisive falls and this lack of effectiveness of voting can influence the turnout of an election (Blais/Dobrzynska, 1998; Geys/Heyndels, 2006). The second aspect, as important as the first, is the distance of preferences. While large distances between agents' aims may prolong negotiations, preferences that do not strongly deviate from each other need not lead to conflicts.

Naturally, both aspects are interrelated. When quantitative fragmentation is lacking so that only one group decides about reforms, a conflict cannot emerge per se. Pure size fragmentation will not end in a conflict when agents do not differ in their preferences. This is also the case in the absence of qualitative heterogeneity. One aspect of heterogeneity alone cannot be the origin of conflicts. Both are necessary to create dissents and against this background, this paper will analyse both types.

In politics, size fragmentation is reflected in the number of parties in a coalition or in parliament. This is quantified by fragmentation indices, which are rooted in the research on ethnic diversity. Most prominent is the ELF index measuring the probability of two randomly drawn individuals not belonging to the same group. Thus, a low measure of ELF indicates a less fragmented society (Easterly/Levine, 1997). The fractionalization index peaks when every individual belongs to a distinct group. The size of the distinct group is considered whereas the relative size is not.¹

However, the number alone yields little explanatory power for the importance of a group. For instance, when two parties form a coalition it certainly matters whether both have an equal number of seats or whether there is a strong difference in their relative size. If parties have a similar voting power the situation may be considered to be more fragmented. Hence, interpreting numbers alone neglects the influence of dominance or polarization. Actually, this assertion is challenged and can be avoided by the utilization of so called polarization measures. Polarization indexes reach their highest value if society consists of two equally sized groups. It can be observed that for very low and high values of fragmentation the indices of polarization and fragmentation are almost equal in size while they differ significantly for medium levels of heterogeneity.²

Nevertheless, the size or relative size of the group has no direct effect on decision influencing factors. For instance, in the German second chamber (*Bundesrat*) votes are assigned to the federal states based

¹ $ELF = 1 - \sum_i s_i^2$, in which s is the proportion of every ethnic group, I the total number of ethnic groups and i represents

the distinct group number. For more detailed information on the dataset provided by the Atlas Narodov Mira see Bridgman (2008).

² See Montalvo and Reynal-Querol (2005) for an extensive discussion and an example for an polarization index measured

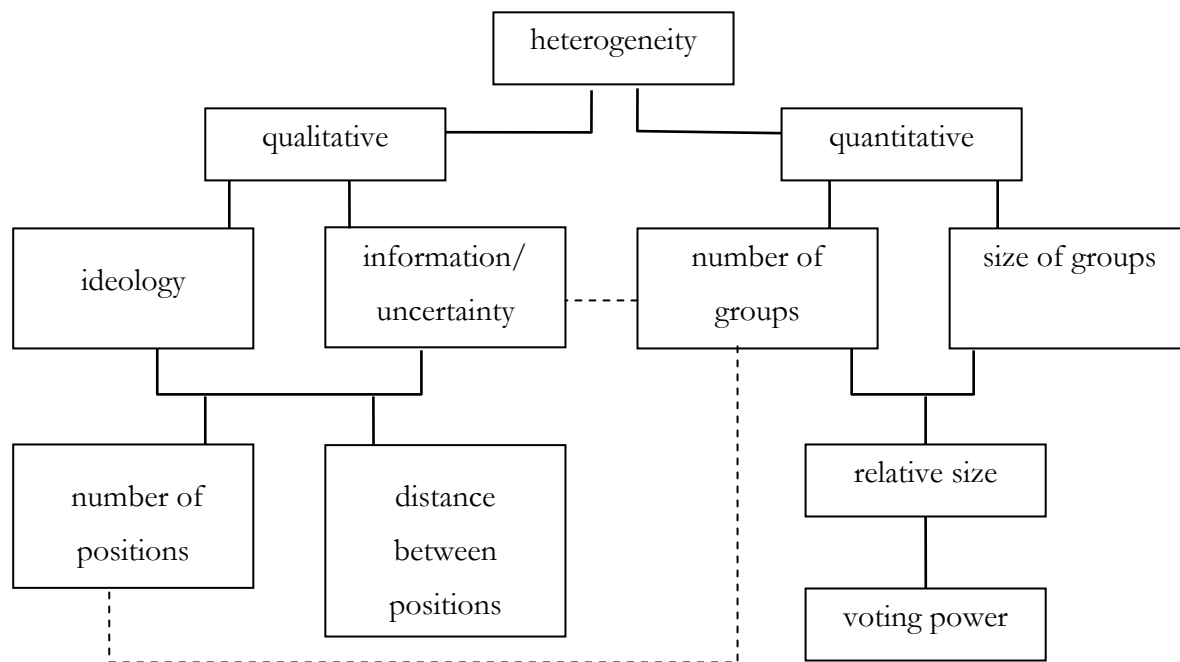
as $RQ = 1 - \sum_{i=1}^N \left(\frac{1/2 - s_i}{1/2} \right)^2 s_i$, in which s represents the proportion of the distinct ethnic group and N denotes the total number of groups, while i represents the number of the certain group.

on their population. The same principle is applied in the European Union and the US. Here, it is often remarked that smaller groups either in the European Union or in federalist countries have a greater voting power in decisions than is implied by their size (Pitlik et al., 2001). Also, the possibilities to form coalitions are clearly an important indicator of strength. For instance, during the first period of the European Union the state of Luxembourg had actually no possibility to influence coalition building because of the number of its votes (Irlenbusch et al., 2003). To cope with such biases some analysis use voting power indices calculating the sum of all possible winning coalitions that can be formed by the respective group (see Irlenbusch et al., 2003 for a comprehensive explanation of the Banzhaf Index). Next, voting power does not need to be based on votes but can also be 'invisible'. It is mentioned that in certain organizations members have power that is not based on size but on prestige or history. France and Germany as an example are reported to have more influence on decisions in the European Union as they are two of its founders (Steinberg, 2002). For sure, these effects cannot be quantified. In addition, the size fragmentation in the political sphere is closely related to the constitutional setting. It is common knowledge that more proportional systems usually result in a higher number of parties than presidential systems and thus a majority of one party is quite unlikely in a proportional system. Hence, coalitions between several parties are common (Persson/Tabellini, 2005). The constitution influences the political arena in terms of cabinet or parliament size, the number of veto players or the number of federal states and thereby affects the voting power of agents. Nevertheless, size fragmentation is certainly a good indicator for conflicts. Alas, conflicts can only occur when preferences of agents diverge at the same time. These differences can be measured by estimating the distance of positions of agents. In the political sphere, these distances are regularly defined by party ideology. Crucially, in this case positions may be dynamic and will change in every instance so that they cannot be classified in general. Moreover, this classification into a set of cross country governments causes additional problems as ideologies should be regarded in a country related framework and the method might strongly differ among states. Additionally, qualitative fragmentation can be defined along two lines. First of all, it can be seen as the pure distance between positions, in which more extreme positions result in a higher fragmentation. Secondly, it can be defined as the number of positions, in which the distance between the positions has a lower importance for the degree of fragmentation. This problem alludes to the discussion of polarization aspects in the number of groups and their strength. Qualitative fragmentation cannot only be defined as differences in positions, but also in terms of the level of information. This results in different degrees of uncertainty i.e. about the reform's pay-off or the opponents' behaviour. Uncertainty is also connected with other forms of heterogeneity. It can be enhanced by increasing fragmentation when the behaviour of agents is unsure (Messick et al., 1997). In conclusion, it can be stated that a precise definition of heterogeneity or fragmentation can be questioned as its different forms are clearly connected and an accurate distinction seems to be rather

complex. Finally, only a combination of both dimensions of fragmentation, quantitative and qualitative, entails conflict potential. Heterogeneity can aggravate bargaining in many various ways via the number of participants, their relative preferences and their different degrees of information.

A short summary of fragmentation can be found in figure1.

Figure1



Source: Own figure

3 Theoretical literature review

Literature suggests different theories to disentangle the reasons for reform delay and possible connections with the topic of fragmentation. However, more generally speaking, it does not concentrate on a specific form of fragmentation. In the following, three approaches will be discussed in order to explain reform deadlocks, the common pool theory, the war of attrition and finally models focussing on uncertainty and time-inconsistencies. It is anticipated that the theories presented here can of course be amended by other arguments. Game theory approaches and also the literature on irrational behaviour or experimental design especially stress psychological factors such as Loss Aversion (Tversky/Kahneman, 1991) and the Status Quo Bias (Samuelson/Zeckhauser, 1988).³ Approaches discussed here are traditional and build upon the theory of rational behaviour in the sense

³ Loss Aversion describes the utility dependence on the reference point e.g. the willingness to pay for the same good may be much lower than the willingness to accept. The Status Quo Bias at least defines a quite similar phenomenon, stating that agents tend to have higher preferences for the Status Quo and overweight its true value.

that individuals always strive to maximize their profits. Both effects are able to initiate changes and thereby create procrastination.

3.1 Common Pool Theory

Common Pool models are based on the idea of public goods and the problem of cost internalization. The model was mostly applied to provide a theoretical explanation for growing budget deficits among OECD countries as well as Latin American countries during the eighties. The government budget is seen as a common resource exploited by different groups. The problem can be described as follows: While a group receiving a transfer benefits fully from this transfer, it only pays a fraction $1/n$ of the related costs. In this case, the group will demand more transfers than it would demand if it were responsible for bearing all the costs on its own. This leads to an excessive consumption of transfers followed by a significant budget deficit. Hence, the higher the number of groups n , the less costs are internalized and the more inefficient the outcome will be (Woo, 2005).

This basic assumption can be modelled in different ways without changing the results. Mondino et al. (1996) for instance seek to explain the inflationary cycles observed in Latin America during the eighties by modelling groups as federal governments. While competing for transfers granted by the central government, they invoke a dynamic version of the described public good game. Additional transfers are financed by distortionary inflation taxation which induces additional costs for the public. These costs increase the advantages of a stabilization program until finally all groups concede to stabilize. After stabilization, the cycle starts anew. Similar models are presented by Aizenman (1992) or Velaso (1997a; , 1997b).

There are some extensions to be made to this 'basic model'. Aizenman (1998) for instance tries to incorporate the possibility of non-cooperative behaviour and rent-seeking by modelling federal governors, which represent the heads of local interest groups, as self-interested individuals. Federal governors try to prey on the central government by overexploiting the budget assigned to them. Zarazaga (1995) tries to account for the influence of different institutional settings to explain the puzzle of debt accumulation. Woo (2005) quantifies the heterogeneity of different groups by explicitly modelling this characteristic as differing preferences for two public goods on offer. He shows that the more polarized these interests are, the less likely it is that behaviour will be cooperative. Thus, he introduces a crucial amendment of the basic model by assuming that transfers or public goods do not only accrue to one single group as in the case of federal states. In contrast, all groups benefit from a transfer, however not to the same extent.

The implications of the common pool problem considering fragmentation are obvious: the more groups the lower the degree of cost internalization and the more inefficient will be the result. Hence, the higher the size fragmentation of the population is, the more inefficient are chosen policies in general. However, the degree of the effect depends on the distinct public good and the institutional

setting. Suppose that the public good will exclusively be consumed by the distinct region it is assigned to and no other group will benefit from it. In this case the relative group size will be irrelevant for the bargaining process if one assumes that the local government negotiates directly with the central government (if one ignores the possibility that larger groups have more bargaining power and thus normally reach better agreements). In this situation, interregional preferences for public goods do not matter and hence qualitative fragmentation has no influence. The result completely changes if the assumption of exclusivity is dropped. If individuals try to reach agreement on a public good shared by all groups, but for which the distinct groups have varying preferences, it will be of significance for the efficiency of the decision. From this, it follows that the model incorporates two implications for the effects of fragmentation. First, size fragmentation is always devastating in this model, but the degree is unsure and hinges on the good in question. Second, if the good is not exclusive to one of the groups, different preferences together with size fragmentation enter the stage and may then change the result.

3.2 Interest groups

Models referring to the public good characteristic of reforms are usually marked as interest group approaches, in which the expression 'interest group' solely refers to an organized group sharing the same interests for public goods, a fact that, actually, also corresponds to the definition of a group in the common pool theory. However, the term 'interest group' was initially used to characterise groups exhibiting some sort of political influence that clearly exceeds their importance in terms of group size. This definition alludes to another strand of models emphasizing the problem caused by differences in voting power.

The core thesis, however, is that policies are not chosen by the majority of the population but by certain powerful vested interest groups, e.g. the military or certain lobbies. Hence, chosen policies must not necessarily be beneficial for society as a whole but rather for the most powerful group. Initially, of course, the problem is also caused by a non-internalization of costs, though in comparison to the common pool approach the problem is even more severe. Even if the majority of the population were to benefit from a reform, it may not be adopted if the elite does not gain any advantages from it. Interest group theory in itself dates back to the works of Olson (1981) who sought to explain the differences in growth performance with the influence of vested interest groups, which might bring economic development to a halt. Models referring more explicitly to the problem of reform delay in this framework are presented by Tornell (1998) or Mc Bride (2005). These models refer to interest groups that directly take part and are responsible for the decision making process, while another strand of the literature concentrates on interest groups that seek to influence decisions more indirectly, for instance by lobbying. As this research does not directly address fragmentation in the political sphere, due to the constitution, it will not be considered as crucial, alas it may be of high significance for decisions (see Mueller, 2003, p. 174 ff for a survey).

Implications of size fragmentation in the case of interest groups directly taking part in the decision-making process are ambiguous. It seems quite obvious that the more groups the ruling elite faces in the opposition, the lower will be the opposition's power due to organizational problems. It is generally agreed that larger and more diverse groups will have more problems in organizing themselves (Olson, 1981). The weaker the opposition, the more prone is the ruling elite to exploit resources in its own favour (Collier/Hoeffler, 2004). Relative group size is also of importance for the effectiveness of policies in this case. If the ruling elite is relatively small compared to the opposition, policy outcomes will be more devastating as the aims followed by the leading group are only representative for a very small fraction of society. In addition, with a small elite it will be easier for the respective group leader to control the members of his group and provide enough resources for them to ensure their support (Collier/Hoeffler, 2004). By contrast, when the ruling elite almost incorporates the entire society, policies chosen by this group will converge with the policies chosen by a benevolent social planner. As a greater number of groups indicate a decreasing group size, one might assume that a more heterogeneous society in quantitative terms leads to worse policies. The same considerations also apply to lobby groups in western countries. A smaller lobby may be easier to organize but a larger lobby will perhaps have a greater influence. The implications of size fragmentation in this case are thus ambiguous. The qualitative fragmentation, namely the distance of the positions of the elite versus the opposition, has actually no implications for the decision if the interest group is powerful enough to enforce the legislation anyhow. The heterogeneity of interests only implies that the stronger the interests of the leading group diverge from the population's mean interest, the more policies will diverge. If the interest group does not have that power procrastination will occur.

3.3 Wars of attrition

Later on, the common pool theory was extended to the 'war of attrition models', a sort of dynamic version of the common pool problem including uncertainty as a second characteristic. The term 'war of attrition' was first developed by Alesina and Drazen (1991) in their seminal theory on stabilization delay. Generally, the expression refers to a situation, in which the clashing interests of two heterogeneous groups prevent reforms. Contrary to the common pool approach, there is no real dissent on the necessity of reform; reform is rather delayed due to a disagreement on the distribution of costs. While common pool models simply concentrate on the problem of heterogeneities, war of attrition models also include incomplete information in the framework. Groups are uncertain about the exact value of costs across opposing groups arising from not reforming. This uncertainty causes groups to refrain from reform as they hope that the other group will bear the costs. The underlying mechanism can be described in simple formal terms following a model by Fudenberg and Tirole (Fudenberg/Tirole, 1991).

There are two groups i and j that face the decision of introducing a reform, which in this case represents the public good. Implementing the reform yields the utility $u(r)$ for each group, not implementing the reform yields only $u(n)$, where in this case $u(r) = 1$ and $u(n) = 0$. The adoption of reform is costly, so that each group faces costs of $c(j)$ and $c(i)$, respectively. Each group knows its own costs with certainty, but not the exact value of the other group's costs. The opponent group only knows the distribution of costs $P(c)$. There exist thus two possible strategies for group i : Either the group implements the reform and bears the cost $c(i)$ or the group refrains from implementing the reform in the hope that the other group will bear the costs. The probability that this will happen is $z(P(c_j))$.

Group i will then only agree to bear the costs if the expected utility of this strategy exceeds the expected utility of the waiting strategy, namely when

$$z(P(c_j)) u(r) \leq u(r) - c(i),$$

where $u(r) = 1$ so that the inequality yields

$$c(i) \leq 1 - z(P(c_j))$$

and $c(j) \leq 1 - z(P(c_i))$ respectively for group j

The success of reform depends on several parameters, namely the costs the individual groups face as well as the probability that the other group will bear the costs, which can only be guessed from the probability function. In this framework, as each group is unsure about the action of the other group, it is likely that reforms will not be carried out although they are beneficial for every individual.

The model represents the core features of all war of attrition models. Reform delay occurs due to a combination of uncertainty and public good characteristics of the reform. Failure would not occur if reforms were a private good. However, in certain situations, reform deadlocks can also occur as was shown in the previous paragraph. Uncertainty adds yet another element of inefficiency to the setup. In all other models reforms which are individually profitable are adopted although they may deviate from global benefits. In contrast to that, uncertainty also renders it possible that individually beneficial reforms are not carried out. If each group were sure about the cost distribution of the other group, this kind of inefficiency could not arise, as there would be no incentive to wait the other group out.

Alesina and Drazen (1991) were the first to apply the framework to the problem of reform delay in times of inflation. The basic model includes two groups suffering from inflation to varying degrees, in which the exact value of costs arising from inflation is unknown to the opponent group. Both groups are aware of the benefits of a stabilization programme, but the costs of the programme such as a reduction in transfers will not be distributed equally among the groups. The group that first concedes to stabilization will have to pay fraction α , at which $\alpha > 0.5$ of all costs. Hence, it may pay to try to wait the other group out as indicated by the Fundenberg-Tirole framework.

There is a range of extensions and related models of the Alesina-Drazen framework that account for different specialities in the basic setup. Drazen and Grilli (1993) use the model to support the so called

crises hypothesis, stating that before policy measures are taken *'things need to get very bad (and not just bad)'* (Drazen/Easterly, 2001 p. 130). Perotti (1992) seeks to incorporate external shocks and widens the number of actors to three groups, but results remain unchanged. Other authors specify the framework by defining the groups and their characteristics more explicitly. Labáan (1994) and Labáan and Sturzenegger (1994) model the distinct groups as Poor and Rich, where the Rich have access to external capital markets and can thereby evade the costs of inflation taxation by transferring capital abroad. This point adds another dimension to the basic model, making it easier to predict which group will lose in crisis situations. A related idea is presented by Hsieh (2000) and Martinelli and Escorza (2007).

The distinct number of groups seems to have no influence on the war of attrition as shown by Perotti (1992). However, it is conceded that relative size and connected with that the voting power will have an influence on the result. Moreover, voting power can also be generated by qualitative measures such as the difference between the reform costs and the costs of the status quo. And these can surely influence the outcome. The implications are clear: the more unequal the cost distribution, the more attractive a waiting strategy is compared to an immediate stabilization. Martinelli and Escorza (2007) show that asymmetric costs generated by the status quo can have ambiguous effects. On the one hand, an immediate solution can be found as the disadvantaged group will anticipate that its bargaining power is rather small. On the other hand, differences in voting power will also affect the reform costs, so that the disadvantaged group will in fact face higher costs of immediate action and thus try to procrastinate a change of the status quo.

In contrast, the original model by Alesina and Drazen does not contain heterogeneity in costs for the distinct groups caused by inflation. Individuals only know the distribution of this cost. Greater heterogeneity would thus create a higher variance in the distribution. As optimal concession times are not computed on the basis of variances, they cannot depend on higher heterogeneity in ex ante costs. What is important is only the probability that the other group bears a higher cost, and this probability is in no way affected by the variance in the model. Therefore, in this framework one can completely neglect the degree of uncertainty resulting from this variance, but the results strongly depend on the underlying assumptions of the model.

3.4 Uncertainty and time-inconsistency

While the theories discussed in the previous sections focused on heterogeneity as the crucial problem in adopting reforms, theories discussed in this section will only touch on the issue. In this case, heterogeneity is only an underlying aspect, which in a way creates the crucial point of the theory, uncertainty. It is debatable whether the difference in the degree of information represents a distinct type of heterogeneity or whether it is just a side effect of other forms of fragmentation. In any case, uncertainty plays a pivotal role in this strand of literature. It can be stated that if information is not

complete, fragmentation can enhance uncertainty, either uncertainty about the own pay-off of a reform or the behaviour of opposing agents.

Probably, the most important model in this strand is the Fernandez-Rodrik approach (Fernandez/Rodrik, 1991). The model incorporates two distinct groups, a winner group that definitely benefits from reform – in this case the restructuring of a sector – and a loser group whose members either benefit from reform if they manage to change sectors or lose if they do not manage to change. The chances of being employed in the expanding sector depend on personal abilities, which are uncertain. Individuals are aware of the skill or ability distribution but not of their personal ability. Thus, they calculate the benefits of reform on the basis of the average or mean ability. If the mean ability implies that reform is not beneficial, the entire group votes against restructuring although they know that some of them would benefit from it.

The scenario shows that under certain circumstances reforms that would have been advantageous for the majority are voted down for reasons, which cannot be regarded as irrational. Yet, it is not the only theory to emphasize the counterproductive effects of imperfect knowledge. Political economic theories are rich in discussions of similar topics. At the same time, uncertainty can enter the decision making process at various stages. Voters can be unsure about the outcomes of reform – as in the Fernandez-Rodrik approach, they can be unsure about politicians' true intentions or about how the policy process functions. The last two assumptions constitute a crucial element in the literature on credibility and time-inconsistency. These models were mainly an extension of the traditional Political Business Cycle models put forward by Nordhaus (1975). Instead of assuming total voter ignorance such as in the original Nordhaus model, failures in voting behaviour in credibility models are ascribed to imperfect information. Voters are supposed to be neither capable of mapping policy processes and decisions into real world outcomes nor of recognizing politicians' true intentions.

Uncertainty then possibly results in choosing the wrong candidate, and going together with that, voting in favour of a flawed policy. Because of this uncertainty, voters will tend to vote for the candidates that propose policies that substantially deviate from their ideological base. Only in this case can they be sure about the politician's honest intentions (Rodrik, 1989, 1993; Cukierman/Tommasi, 1998b, 1998a; Murphy/Sturzenegger, 1998).

Besides politicians' partisan preferences, time itself may generate uncertainty as policies which are efficient ex ante need not be efficient ex post. This time-inconsistency is a second obstacle to the credibility of reform processes. In fact, it will often be the case that reforms, which are seemingly efficient ex ante, turn out to be inefficient ex post (Calvo, 1989). Disinflation, for example, can only be successful if the government credibly halts the growth of money supply as individuals will only stop demanding higher nominal wages if they expect inflation to fall. In this situation, expansionary monetary policy again becomes an appropriate measure to foster economic growth. The government or

monetary authority then has no further incentive to stick to its austere monetary policy and the policy turns out to be time-inconsistent.

However, an implausible reform can cause even more severe problems than no reform because individuals will fail to adjust their behaviour to the new situation (Rodrik, 1993). Hence, uncertainty can lead to inefficiencies in various ways. There is a certain relationship between heterogeneity and the different types of uncertainty, but this connection is ambiguous.

Turning to the Fernandez-Rodrik (1991) model, qualitative heterogeneity again has no impact. It does not matter how divergent the pay-offs of loser and winner groups are, nor does it play a role how heterogeneous the loser group is with respect to their abilities. Yet, the reason is the same: Heterogeneity only affects the variance of the distribution but optimal solutions are computed on the basis of distribution means. Although heterogeneity increases the degree of uncertainty and thus the distribution's variance, it leaves the result untouched.

Effects in credibility models are nearly impossible to predict. Heterogeneity appears here in a totally new version. It applies to the heterogeneity of politicians either in their degree of partisanism or in their ideological base. In the models presented, heterogeneity can help to reveal extra information to the public and thereby have a positive instead of a negative effect. However, this statement only applies to the heterogeneity in degree of benevolence. Obviously, if both politicians are totally benevolent, both will propose the same policy in every instance and voters therefore do not really face a decision. In the case where both are partisan, neither is any extra information revealed, no matter whether both share the same ideological base or not. Politicians will always propose the policy corresponding to their ideological standpoint, regardless of the state of the world. Only in the case where there is one partisan politician and one benevolent politician or where degrees of partisanism diverge is extra information revealed. In turn, the revelation of additional information does not depend on the question of whether ideological bases differ from each other. Hence, we can conclude that in the traditional credibility model, heterogeneity has – if any – a positive effect on efficiency.

However, in theory, connections between heterogeneities and uncertainty are quite hard to predict. In most cases, heterogeneity is in fact a necessary condition for uncertainty, but in most cases more heterogeneity does not imply more uncertainty. In the credibility literature, for example, more heterogeneity among politicians could even induce less uncertainty, as heterogeneity in terms of benevolence might reveal additional information to voters.

3.5 Indication of theories

It could be concluded from the discussion above that in spite of the fact that heterogeneity and uncertainty have been regarded as the main factors causing reform procrastination, the real effects of both elements are equivocal. The theory is not decisive about the role of fragmentation. Moreover, in every type of model explaining reform deadlocks, another definition of fragmentation is applied and

thus, a general statement on the effects of fragmentation cannot be made. Common pool models regard size fragmentation as the scapegoat of reform delays, but a closer look at the variety of models and especially the type of public good used poses questions with regard to that relationship. However, in general the hypothesis holds. Also, these models do not incorporate topics of agents' strength in the bargaining process. The other models focus on qualitative differences, but results are ambiguous. In particular, effects of distance between positions or their variance are closely related to the underlying assumptions. Hence, the only types of models that tend to be clear about the influence of heterogeneity seem to be the common pool models predicting negative effects of size fragmentation. However, this relationship is not imperative, but is strongly related to the distance between preferences. However, the results of empirical studies are as different as the results of theoretical approaches. Implications of all theoretical models are summarized in table 1.

Table 1: Overview on theoretical approaches

Theory	Prediction	Effects
Common Pool (Aizenman, 1992; Zarazaga, 1995; Mondino et al., 1996; Velasco, 1997a, 1997b)	The budget of the central government (Common Pool) is deployed by federal states because of a difference between individual and social costs.	number of players: negative
Amplification Aizemann/Velasco (1998) Woo (2005)	Opportunistic behaviour of governments Explicit modelling of the degree of heterogeneity between interests	higher distance between preferences: negative
Interest Groups (Olson, 1981; Tornell, 1998; Adams, 2000; Mc Bride, 2005)	Heterogeneity in groups' preferences induces discrepancy between social and individual costs (Common Pool Problem). The problem is more severe the smaller the ruling elite, hence the stronger the deviation of the ruling elite's group size relative to its political size. The problem is more severe the more homogeneous or the higher the degree of organization among the ruling elite and the less organized the opposition is (more heterogeneous, higher number of opposition groups). The results then depend on the groups' relative size.	number of players: no general indication deviations of political strength: negative Higher distances between preferences: negative
War of Attrition (Alesina/Drazen, 1991; Fudenberg/Tirole, 1991; Perotti, 1992; Drazen/Grilli, 1993; Casella/Eichengreen, 1994; Martinelli/Escorza, 2007)	Different cost shares either in costs of the status quo or in reform costs (here stabilization) cause a waiting strategy initiating a reform delay. If both groups had the same cost distribution there would be no incentive to wait other groups out.	heterogeneity in cost shares in reform costs: negative heterogeneity in costs from status quo: negative

<p><i>Amplification</i></p> <p>Labán (1994) Labán/Sturzenegger (1994) Hsieh (2000)</p>	<p>Explicit modelling of heterogeneity as Poor versus Rich or Worker versus Capitalist</p>	
<p>Uncertainty</p> <p>Fernandez/Rodrik (1991)</p>	<p>Qualitative differences in abilities and uncertainty about the own abilities cause a rejection of a beneficial reform.</p>	<p>heterogeneity between groups: negative, degree has no implication intragroup heterogeneity in loser group: negative, degree has no implication</p>

4 Fragmentation in Empirics

Empirical testing of the subject of reform entails considerable measurement problems. It is quite difficult to determine what constitutes a reform, when a reform is initiated and how it can be measured in quantitative terms. The approach, which is probably most frequently used, is to examine the development of budget deficits. Budget data availability is rather auspicious and developments can be clearly measured in quantitative terms. This indicator, however, has significant shortcomings: On the one hand, a reduction of the budget deficit does not necessarily constitute a beneficial reform and on the other hand, budget data only shows outcomes but not policy decisions. Hence, it does not incorporate political intentions. The original decisions may also be biased by external conditions influencing the budget deficits and may not be robust (Lora, 1997).

Another method of accounting for reform activity, especially in the field of trade openness, is the formation of indices of economic freedom (Pitlik/Wirth, 2003; Heinemann, 2004; Lora/Olivera, 2004). Again, the indices tend to measure outcomes rather than policy intentions, which can bias the results. The third method, which can only be applied to major reform activities, is to collect data on reform attempts such as inflation stabilization (Veiga, 2000, 2005). This seems to be the only method to check for intentions instead of external influences, but data availability is critical.

Another major challenge in conducting empirical tests on the connection between heterogeneity and reform activity is quantifying heterogeneity in its various forms. Most studies do not focus on the heterogeneity of preferences among the population, but on the heterogeneity of politicians. It is thus questionable whether heterogeneity among politicians is an accurate indicator for equivocal preferences among the population. On the one hand, the number of parties and ideological spectra must naturally in some way be based on the interests of the population, but on the other hand the number of parties is also closely related to constitutional rules. Social heterogeneity contrariwise may not be the perfect

indicator either, as normally, decision making takes place in the political sphere. Against this background, the analysis of fragmentation within the political arena can be justified.⁴

Heterogeneity is measured along three dimensions, namely size fragmentation, referring to the number of decision makers, ideological fragmentation, measuring the qualitative heterogeneity of preferences among parties, and time fragmentation alluding to the instability of preferences over time. According to the results of the distinct models the forms of fragmentation are various. Most studies thereby concentrate on effects of size fragmentation as the most stable effect in theory.

The common pool theory predicts that the number of players will be adversarial for political decisions. In this case, one would expect negative effects for the indicators of size fragmentation. Size fragmentation can be measured in various ways. As mentioned in section 2, the institutional setting has a certain influence on the number of parties. It is shown that usually, proportionate systems yield more parties than presidential systems. Following this, the system can be used as a dummy for fragmentation, though it is rarely applied as an indicator. At least in a modified way, the type of government is considered in various studies. This was first suggested by Roubini and Sachs (1989) who classified 14 OECD countries according to a scale ranging from zero to three, in which the strength of the government decreases.⁵ Zero stands for a one party parliament or a presidential government with the same party disposing the majority in the executive and legislative branch. The highest number is only assigned to minority governments. Whereas the indicator is mainly guided by the institutional strength of governments, presidential and parliamentary systems are differentiated, as well. The original paper found significant effects for the index indicating that governments with lower decision power tend to produce higher budget deficits. However, reestimation by Edin and Ohlsson (1990) and de Haan and Sturm (1994) cast a shadow of doubt on these effects. While Edin and Ohlsson state that the effect is only generated by minority governments, de Haan et al. fail to support both the results found by Edin and Ohlsson and those of Roubini and Sachs. After expanding the index used by Roubini and Sachs from four to six categories they find significant results. These results are supported by Perotti and Kontopoulos (2002) that state that the strength of the government matters at least for expenditures. However, the 'weak government hypothesis' is not conclusively verified by empirical findings. At least, most researchers opposed the index of Roubini and Sachs (De Haan et al., 1999; Perotti/Kontopoulos, 2002; Woo, 2005; Elgie/Mc Menamin, 2008).

The strength of the government can also be measured by the number of veto-players, the agents that are able to stop a reform or oppose a budget consolidation. The number of veto players is normally

⁴ An exemption is direct democracy, e.g. in Switzerland.

⁵ 0: One party majority parliamentary government; or presidential government, with the same party in the executive and legislative branch, 1: Coalition parliamentary government with two coalition partners; or a presidential government, with different parties in control of the legislative and executive branch, 2: Coalition parliamentary government with more than two coalition partners and 3: Minority parliamentary government

defined by the number of coalition partners in government in several specifications such as a dummy for coalition governments (Woo, 2003) or the number of cabinet ministers (Volkerink/de Haan, 2001; Perotti/Kontopoulos, 2002; Woo, 2003; Ricciuti, 2004).

The results are equivocal. While the coefficient of the number of ministers in the cabinet has the expected sign and is significant throughout most specifications, the number of coalition parties is mostly insignificant. This can be explained by the difference between both indicators. The number of coalition partners does not necessarily display their influence on the decision process of the distinct parties, but matters for their relative size. In contrast to that, the strength of a spending minister resembles the importance of the branch of politics he represents rather than the voting power of his party. Therefore, the number of coalition partners does not necessarily have a direct impact. It only partly influences the strength of the position of the minister as well as the cabinet size. Hence, when one coalition partner dominates the other, this might not have any effect on spending. The number of coalition partners surely has an effect on the fragmentation of government indicators, but this indicator's impact on the budget can only be significant if coalition partners dispose of about the same voting power. According to that, the number of parties alone does not have any significance for spending. This partly explains the varying results concerning the indicators.

To prevent such a bias researchers tried to rectify this problem by weighting the quantity using effective numbers. Volkerink and de Haan (2001) apply effective numbers for the parties in government and parliament using the share of ministers of party i in relation to the total number of ministers in the cabinet and the number of coalition partners.⁶ This indicator is significant but its effect on expenditures and revenues differs. The same indicator is used by Ashwort and Heyndels (2005). Their test only contains correlations between effective numbers and the budget deficits, but they found significant results at the 10 percent level. Huber et al. (2003) among others apply a voter power index measuring the sum of all possible winning coalitions that can be built by an agent, and found significant results. Hence, in coalitions between roughly equally strong partners, the deficits are generally higher than when one partner is dominated by the other.

This result is supported by a model by Collier (2001) applying an ethnical fragmentation framework. If groups can be ordered lexicographically by their preferences (e.g. for taxes) and the median voter is the decisive voter, fragmentation will bring chosen policies nearer to the choice of the median voter while polarization will move chosen policies away from their optimal point. The mechanism can be explained as follows: The party incorporating the median voter is certain to win the election and thereafter pursues the policy that is preferred by its own median voter, who is not necessarily identical to the true

⁶ The Effective number of parties in the coalition is computed by $ENGP = \frac{1}{\sum_{i=1}^n p_i^2}$ where p denotes the share of ministers

median voter. In a situation with two nearly equally sized groups, which Collier labels a polarized case, the interests of the median voter will deviate substantially from the interests of the respective parties' median voters. In a fragmented society, there may possibly be no winning party, hence parties must form coalitions that include the straddling voter who, with an increasing number of groups, will tend to become the true median voter. Finally, if there is one dominating group incorporating most of the population, chosen policies will again tend to be very close to the true median voter's choice. Hence, Collier shows that medium levels of fragmentation or polarization have the most negative effect on chosen policies. This was also incorporated in newer fragmentation indices like the polarizations indices (Esteban/Ray, 1994; Montalvo/Reynal-Querol, 2005).

Voting power does not only depend on the size of the party in government or parliament itself but also on the constitutional setting. The vigorousness of the government's majority is also defined by the control of the single chambers or the power of the opposition, which is closely connected with the opposition's degree of fragmentation of the. A fragmented opposition may be less strictly organized and therefore less able to act as a homogeneous group.

Various specifications of the strength of the government's majority have been tested by different authors (Volkerink/de Haan, 2001; Woo, 2003; Ricciuti, 2004; Tsebelis/Chang, 2004). It turns out that most of them, except for the control variable for the majority in different houses or chambers are insignificant. The decision power of a government is also highly influenced by rules of budget timing and budget negotiations (Alesina/Perotti, 1996; Woo, 2003).

As a result, the evaluation of the power and size of parties or the government lacks important aspects, e.g. the constitutional setting, and maybe more important the ideological distance between parties. Yet, there have been some attempts to quantify the differences in political preferences. Alas, measurement is only possible in a unidimensional way. This method is certainly unable to capture all aspects of voters' multidimensional preferences. Nevertheless, voting for a party does not necessarily demand general approval of all of its positions.

Measuring will be quite difficult as it demands the classification of parties on a left-right scale. Defining parties correctly as socialist or conservative inevitably causes biases. Volkerink and de Haan (2001) create an index of the ideological fragmentation of both parliament and government to check for effects caused by heterogeneous preferences. Despite measurement problems, ideological fragmentation in parliament is found to increase government spending, while government fragmentation leaves spending untouched. Tsebelis and Chang (2004) come to similar results by testing the effects of ideological fragmentation on changes in the budget structure of 19 OECD countries, measured as the distance between two years in an n-dimensional space where n represents the respective spending areas.

Results on ideological fragmentation generally seem clear-cut. The greater the ideological fragmentation within government or parliament, the more inefficient policy outcomes will be. One should bear in

mind, however, that measurement will be strongly biased by the various party classifications and that results are probably not very robust. Nevertheless, the inclusion of distances between positions seems to be imperative to be able to answer the question at hand. Pitlik and Wirth (2003) apply the method to a non-OECD sample and find no significant effect of ideological fragmentation.

Among all studies, Woo (2003) is the only one to check for heterogeneity among the population by including various specifications of the Gini-coefficient in his study. He finds that higher income inequality tends to reduce the public sector surplus. The reason for this effect stems from the political economy but actually does not root in issues of fragmentation. The result simply supports the median voter theorem which states that the poorer the median voter is, the higher the propensity to redistribute income (Thorbecke/Charumilind, 2002). In addition, social heterogeneity is, as mentioned, not necessarily an unbiased indicator for decision making.

The last type of heterogeneity stressed in the empirical literature is time fragmentation. This refers to the frequency of government changes in various ways and is therefore an indicator of uncertainty. A greater degree of political instability tends to lead to less consistent policies and thereby biases expectations of future events. It is noteworthy that this kind of heterogeneity is not extensively discussed in the reviewed models, but it plays a major role in empirical studies.

Regime changes can occur either under violent circumstances or within normal constitutional terms. It should be noted that especially the wide range of literature on coup attempts (Woo, 2003) shows that political uncertainty tends to worsen economic outcomes. However, instability does not only affect voters' expectations, but also governments' behaviour. Governments expecting to be voted out of office in the next period face a shorter time horizon and therefore have no incentive to pay any attention to long-term developments (Edwards/Tabellini, 1991; Annett, 2000). Most measures of regular regime changes induced by elections are insignificant (Grilli et al., 1991; Woo, 2003; Ricciuti, 2004). The reason for this weak influence of non-violent regime changes can be seen in the time horizons created by democratic systems. Even if governments expect to be dropped in the subsequent period, excessive debt accumulation does not seem to be a rational reaction as it will reduce chances of re-election for more than one period.

Other forms of uncertainty that are stressed in section 3.4 are not an issue in empirical studies, maybe because they are difficult to quantify. Nevertheless, uncertainty about the pay-off or the behaviour of other agents seems to be quite important for decision making. These effects are discussed in experimental designs. Cason and Mui (2003) support the results of the Fernandez- Rodrik model, stating that uncertainty about the pay-off hinders decisions.

Generally, empirical support for the theoretical assumptions on the relationship between heterogeneity and reforms is quite poor. While some authors find significant influences of size fragmentation based alone on the number of veto players with respect to budget deficits, others do not. Even if indicators are ameliorated including information on the relative size of the veto players results are not robust.

Elgie and Mc Menamin (2008) suggest that the predictions and effects of the ‘weak government thesis’ only hold for ‘old democracies’ referring to countries where the system and the bureaucracy enjoys long tradition. Finally, the only variable that is significant in all specifications and analyses is the size of the cabinet or the number of spending ministers, respectively

Turning to ideological fragmentation, the classification along a right-left scale is very general and does not really contain much information about the comparability of political positions across countries. The results are ambiguous. Some authors find evidence for an ideological motivation (Perotti/Kontopoulos, 2002) or at least an indication for the hypothesis that left wing governments tend to spend more (de Haan/Sturm, 1997; Volkerink/de Haan, 2001). Summing up the results of Perotti and Kontopoulos (2002), it can be stated that the influence of ideological fragmentation does not seem to be as important as size fragmentation.

After all, results appear to depend on the dataset used. Nearly all reviewed studies are based on OECD country statistics and thus may only be valid for more industrialized countries. This idea is supported by the results found by Elgie and Mc Menamin (2008).

Finally, despite the many measurement problems it seems unlikely that poor empirical results can be ameliorated by improving the measurement techniques. Results are summarized in table 2.

5 Conclusion

The starting point of this analysis was the commonly agreed presumption that heterogeneity among the population such as diverging incomes, job opportunities or costs and the resulting heterogeneity in preferences is a main obstacle to beneficial reforms. But, reviewing and analysing recent research attempts in detail shows that the impact of diverging preferences is not that unambiguous. Heterogeneity has more than one definition, which makes the analysis even more intricate. What is usually labelled as heterogeneity encompasses quantitative heterogeneity referring to group numbers and relative group sizes and a wide range of qualitative heterogeneities, which allude to differences in opinions or costs and benefits. Therefore, it is not at all surprising that different models based on different forms of heterogeneity lead to different results.

Despite all these problems, reform delays seem intuitively a logical consequence of fragmentation, either in size or in preferences. However, this prediction is not unanimously supported by empirical research. Findings show a negative correlation between fragmentation and fiscal stability (Huber et al., 2003), mixed results (Ashworth/Heyndels, 2005) or even a positive connection between size fragmentation and budget stabilization (Leech, 2002).

This variance can actually be explained by the poor data availability or the excessive concentration on a single aspect of the connection. Empirical research strongly concentrates on the topic of size fragmentation, stressing the other influences to a lesser extent.

Table 2: Overview on empirical results

Issue	Significance
Size-fragmentation	
Number of parties in the government coalition	Perotti/Kontopoulos (2002) De Haan/sturm (1997) Volkerink/ De Haan (2001) Aswort/Heyndels (2001)
cabinet size/number of spending ministers	Volkerink/de Haan (Volkerink/de Haan, 2001) Perotti/Kontopoulos (Perotti/Kontopoulos, 2002) Woo (2003) Ricciuti (2004) Ashworth/Heyndels (2005)
government indices Roubini/Sachs	Roubini/Sachs (1989) Ashworth/Heyndels (2001) only for minority government Edin and Ohlsson (1990) and Woo (2003)
relative size/ effective number of parties in government voting power indicator	Ashworth and Heyndels (2001) Volkerink/de Haan (2001) Huber/Kocher/Sutter (Huber et al., 2003)
Ideology	
fragmentation in government	De Haan/Sturm (1997) Volkerink/De Haan (2001) Perotti/Kontopoulos (2002)
other topics	
process of budget negotiations	Woo (2003)
time fragmentation (measures of a stable government)	Roubini/Sachs (1989); De Haan/Sturm/Beekhuis (1999) and Woo (2003)

There are in fact some variables which reflect ideological or time fragmentation such as indicators for a stable government (Roubini/Sachs, 1989; De Haan et al., 1999; Woo, 2003), which are integrated into the estimations, but they are not especially underlined. As already mentioned, stressing size fragmentation without considering or controlling heterogeneity in preferences or positions seems to be pointless. As long as there is no qualitative conflict, a reform delay cannot arise. In addition to underestimating the effects of heterogeneities in preference, indicators of fragmentation usually have a low power in predicting conflicts. Applying the number of parties as an instrument to represent fragmentation does not necessarily have any significance. Consequently, indicators integrating also other factors such as the relative size of the party or the opposition apparently contain greater predictive value for size fragmentation. Moreover, it should be emphasized that the position vis-à-vis the opposition or the coalition partner exerts major influence on the bargaining power and thus using voting power indices promises better and more detailed results.

The voting power in turn strongly depends on the situation and can lead to different results in dominated or more polarized societies (Collier, 2001). Considering these differences more thoroughly might give a more comprehensive idea of the underlying problems and lead to more consistent results.

It can also be noted that important factors are omitted both in theoretical and empirical studies. The reviewed models are based on the assumption of rationality, meaning that individuals strive to maximize their profits. This assumption is questionable in transferring the results to real world situations. It might be imperative to at least consider recent research results in the field of behavioural economics with factors as loss aversion.

The main problem here is that theoretical models, based on the assumption of rationality, are applied to field data, biased not only by psychological factors but also strategic motives of politicians or parties. Politicians surely have different time horizons than predicted in the theory considering their re-election, or they may be guided by their ideological position rather than by fragmentation.

Strategic behaviour may foster compensation payments to implement reforms. In reality, we often observe that reform design will be shaped so that groups initially losing from reform receive compensations to obtain their agreement. Compensation payments may be the most important instrument to reach a decision. A model seeking to explain the mechanism of reform adoption would thus necessarily have to include this possibility. Taking this fact into account, the picture might change completely. Fragmentation then corresponds to declining group sizes, which could be advantageous for the process of compensation. The larger the groups, the more the government will tend to overcompensate. Compensation schemes are thus a crucial factor in determining the true effects of heterogeneous preferences on the propensity to reform. Apart from this crucial point, it could be interesting to pay greater attention to the formation of majorities and the institutional framework. Particularly, the latter aspect seems essential to understanding of how reforms are pushed through and what institutional obstacles incumbents face in pertaining reforms. On the other hand, it also seems

essential to think about the penalties incumbents face for not reforming. The interaction between both groups, voters and politicians, needs a lot of further investigation to complete the picture of reform deadlocks.

In conclusion, two aspects can be stated: First, the models reviewed are naturally too restricted to reflect all dimensions of the real world. Nevertheless, they shed some light on interesting and essential aspects of reform deadlocks. Especially, the role of fragmentation in time, preferences or size is quite important, although this is not completely supported by empirical results. This may be due to the fact that field data used by most studies contains many more factors than captured by the theoretical literature. Hence, recent attempts certainly provide interesting insights into the mechanisms of reform adoption, but they are far from offering a complete picture of the real situation.

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