Essays on endogenous economic policy
Mazza, I.A.

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A growing literature has examined how interest groups can affect public policies, by explicitly focusing on the features of the policymaking process. The essays contained in this study analyze the influence of lobbies when public policies are shaped by the choices of multiple decision-makers. Two essays investigate the strategic behavior of interest groups to influence the different tiers of political decision making (e.g., central and local governments, or legislators and bureaucrats). The model developed for this analysis is also applied to explore the effects of political centralization within the EU. Another essay considers international policy coordination when the composition of national interest groups is affected by immigration.

Isidoro Mazza studied economics at the University of Catania and at the University of Maryland at College Park. After graduate studies at the University of Amsterdam, he joined the University of Catania where he is professor of public finance. His main research interests include public economics, game theory, economics of the arts and culture, urban economics.
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ESSAYS ON ENDOGENOUS ECONOMIC POLICY

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Isidoro Adolfo Mazza

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Promotor
Prof. Dr. F.A.A.M. van Winden

Overige leden
prof. dr. A.J.H.C. Schram
prof. dr. F. van der Ploeg
prof. dr. V.K. Borooah

Faculteit Economie en Bedrijfskunde
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Sophocles wrote that men cannot say whether their life was blessed or not until their last day. Although this is certainly true, without waiting for that moment of final summary, I have no hesitation to affirm that studying at the University of Amsterdam was one of the most fortunate events of my life. I had the opportunity to study and conduct my research in a culturally open environment of outstanding scientific quality and, above all, I had the privilege of having Frans van Winden as supervisor. Words fail to express my gratitude for the long hours he spent to improve my research and for being always available anytime I needed him. I have learnt from him much more than economics. He represents for me a model of scholar, teacher and person that I wish to be able to follow.

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Index

1. Introduction » 1
   Objectives and methodology » 5

2. An Endogenous Policy Model of Hierarchical Government » 11
   1. Introduction » 11
   2. The Model » 15
   3. Two-tier Lobbying » 18
      3.1. Monopsonistic Lobbying » 18
      3.2. Competitive Lobbying » 19
      3.3. Cross-tiers Effects of Changes in Influence Under Competitive Lobbying » 22
   4. Further Results on Hierarchical Influence » 23
   5. Concluding Discussion » 25
   Appendix
      A.1. Monopsonistic Lobbying (section 3.1.) » 26
      A.2. Competitive Lobbying (section 3.2.) » 28
      A.3. Cross-tiers Effects of Changes in Influence Under Competitive Lobbying (section 3.3.) » 31
      A.4. Further Results on Hierarchical Influence (section 4) » 31

3. Does Centralization Increase the Size of Government? The Effects of Separation of Powers and Lobbying » 33
   1. Introduction » 33
   2. The Model » 36
      2.1. Centralized Policymaking with a Divided Government » 36
      2.2. Two-tier Lobbying » 37
   3. Conclusion » 39
   Appendix
      A.1. Policymaking with a Divided Government and Single-tier Lobbying » 39
      A.2. Policymaking with a Divided Government and Two-tier Lobbying » 40

4. A Political Economic Analysis of Labor Migration and Redistribution » 45
1. Introduction  » 45
2. The Model with Exogenous and Endogenous Migration  » 50
  2.1. General Equilibrium with Exogenous Migration  » 54
  2.2. General Equilibrium with Endogenous Migration  » 56
3. Regulation  » 58
4. Policy Competition and Coordination  » 61
  4.1. Small Open Polities  » 61
  4.2. Coordination  » 63
  4.3. Other Types of Competition  » 64
5. Concluding Remarks  » 65
Appendix  » 67

References  » 71

Samenvatting  » 83
1. Introduction

Redistributive policies often seem to disregard public welfare and favor instead specific narrow interests. A frequent explanation is that policies can be influenced by the strategic activities of specific interest groups, or lobbies. These groups, remarkably diffuse in advanced economies, are undoubtedly acknowledged to be important actors in the policymaking process of representative democracies. Since the pioneering studies on interest groups by Olson (1965), Stigler (1971), Posner (1974) and Peltzman (1976) an impressive literature has arisen. The analysis of special interest politics, which initially appeared in the theories of industrial regulation, and international trade thereafter, has been applied to a wide range of economic contexts. The diffusion of these models has relatively reduced the focus on the median voter in the investigation of endogenous policymaking. As pointed out by Saint-Paul (2000, p. 920): “the presumption remains that the median voter theory is probably the wrong approach to understand redistribution. Redistribution consists of a large number of programs, and the median voter is unlikely to benefit from these individual programs”.

Along the years, the analysis has contributed to open the ‘black box’ of interest groups’ influence, which characterized early models, providing a micro-founded framework for

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1 The agency *Lobbyists.info* provides a data set of 22 thousand professional lobbyists and lobbying firms active in the US. In the European Union (EU), the estimated number of accredited lobbyists is between 15 and 20 thousand (www.alter-eu.org).

2 The heterogeneity of interest groups hinders a comprehensive general definition. Some groups are very broad and poorly organized (think of unemployed or pensioners); others pursue collective goods such as environment, peace, and civic rights (Brown 1998). The political economic analysis generally refers to interest groups, acting as single agents, which have already solved the free-riding problems concerning their formation and organization (Olson 1965). Coates et al. (2007), Dougan and Snyder (1996), Le Breton and Selanie (2003), Mitra (1999), Sadiraj et al. (2007) analyze the endogenous formation of interest groups. Aidt (2002) investigates the decision of existing groups to become politically active, while Felli and Merlo (2006) focus on the legislator’s selection of the lobbies allowed to participate in policymaking.


4 See also Becker (1983, 1985).


6 These models of interest groups concentrated mainly on the demand side, without indicating explicitly what activities determine the influence of interest groups, and how.
the determinants of political power of interest groups. In particular, these groups have three main instruments to influence policymaking: information transfers, pressure, and voting.

In the US politics, where the activities of interest groups are well documented, lobbies invest a substantial effort to promote their policy goals. Lobbying expenditures increased twofold through the last decade, from $1.26 billion in 1997 to $2.82 billion in 2007.7 These sums can be used for several goals, such as organizing and/or attending meetings, hearings and public events involving the participation of politicians and public officials. In these occasions, interest groups have the opportunity to convey **information** in order to influence policy decisions. For instance, interest groups may provide information to politicians about issues relevant for their (re)election: preferences of the group, or of other groups of voters, outcomes of alternative policies, performance of public agencies. Also bureaucrats may welcome information, taking advantage of the expertise and technical reports provided by interest groups.8 Clearly, public decisionmakers are aware that interest groups may not share the same objectives and, thus, have an incentive to misrepresent the truth. Different studies investigate, in a variety of contexts, under what conditions information transmission by interest groups may actually be influential. Typically, the credibility of a group increases when it bears some cost to convey the message.9 Furthermore, an interest group may direct information to the public or to its own members. For instance, political endorsement by a group signals its preferred electoral platform and, thus, may influence the positions of the candidate (Grossman and Helpman 1999)10.

Models including uncertainty and information transmission have contributed a large deal to our understanding of the incentives for lobbying. They have also provided explicit behavioral underpinnings for possible specifications of the objective functions of policymakers.11 However, a main difficulty about information transmission concerns the difficulty to verify it empirically.

The essays presented here focus on the remaining two instruments of influence, namely pressure (through contributions) and voting. Lobbies can exert **pressure** through the use of ‘deeds’ generating opportunity costs related to the enforcement of various forms of threats – some legal (strikes, public gatherings, litigations) others not (terrorism or kidnapping)12 – or to the offer of positive rewards. The latter case is more frequent, an example of which being campaign contributions to candidates and parties. This important phenomenon has

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7 Data are available at the Center for Responsive Politics (www.opensecrets.org).
8 This appears to be the case in the European Union. Mazey and Richardson (1993, 208-209) affirm: “on the whole, the EC administration is open to the exterior. A principal reason for this openness is the fact that the Commission, despite being ‘technocratic’, is relatively small (…) and inexpert in the sense of lacking detailed technical knowledge (…). It is therefore reliant upon external evidence from groups or ‘experts’.”
10 Potters et al. (1997) combine endorsement through costly signalling with campaign contributions (see infra) investigating when a lobby would prefer one instrument over the other.
12 The first category of threats may also imply information provision for the public. As for the second category, Dal Bó and Di Tella (2003) present a model where ‘nasty’ pressure groups may influence successfully a benevolent policymaker with personal threats. Dal Bó et al. (2006) consider the case when groups may attempt to influence policies using bribes in addition to threat.
been extensively investigated, again with a predominant focus on the US politics, where campaign contributions present a magnitude comparable to that of lobbying expenditures. According to the report *Influence Inc. 2000* by the Center for Responsive Politics: “in the 1999-2000 election cycle, nearly $3 billion was spent on federal elections, or $1.5 billion per year. At $1.45 billion, lobbying expenditures in 1999 were virtually identical to the annual average for campaign expenditures”,\(^\text{13}\) A similar amount of campaign contributions was given in 2006 (while lobbying expenditures reached $2.6 billion). In that year, the share of contributions from Political Action Committees (PACs) – which have the purpose of raising and spending money to support candidates – accounted for only $520 million, due to ceilings on contributions.\(^\text{14}\) The empirical verification whether campaign contributions indeed influence policymaking is not univocal. However, there is a significant literature indicating that campaign contributions do influence legislator voting, especially when this concerns issues that are crucial for narrow and localized interests and the outcome has little visibility - as for protectionist measures.\(^\text{15}\)

The literature attributes four primary goals to campaign contributions. First, they can be used to strengthen the credibility of an interest group message (Austen-Smith 1995; Lohmann 1995). Models allowing for multiple means of influence typically show that the use of one instrument causes an externality on the use of the other one.\(^\text{16}\) Second, contributions may be useful to gain access. The policymaker could require them to sort out groups with valuable information, or to collect resources through meetings, or as a fee for her time.\(^\text{17}\) Third, contributions could be given to affect the electoral outcome. Support models take the policy platforms as given and interest groups contribute to the preferred candidate (position induced contributions); then contributions are influential because candidates locate themselves exploiting the trade-off between the loss of votes and the

\(^{13}\)See www.opensecrets.org/lobby/lobby00/summary.php.

\(^{14}\)PACs face a limit of $5,000 per candidate committee per election and of $15,000 per year to any national party committee. However, virtually no limits exist on the contribution of “soft-money” to parties that can spend it for their organization and for congressional and presidential elections, as long as the money is not allocated to the benefit of a single federal candidate. Ansolabehere *et al.* (2003) suggest that the large amount of individual contributions would make PACs less needed by politicians. They interpret individual contributions as an instrument for ideologically motivated subjects to engage in political participation.

\(^{15}\)See Baldwin and Magee (2000), Gawande and Bandyopadhayay (2000), Gawande and Krishna (2005), Goldberg and Maggi (1999). See also Potters and Sloof (1996) and Morton and Cameron (1992) for surveys of previous studies in different contexts. PACs also show rational behavior in their choices of contributing, for instance adopting mechanisms that could prevent reneging by legislators; such as the choice of appropriate timing for giving (Stratmann 1992, 1995, 1996, 1998).

\(^{16}\)Dahm and Porteiro (2005) illustrate that informational lobbying has a strategic effect on pressure activity: if informational lobbying is successful, this effect is positive, otherwise the effect is negative. Also Bennedsen and Feldmann (2006b) show that the collection of information by a lobby creates an information externality: it leads the policymaker to infer that information is withheld, and increases the amount of contribution required for influence.

\(^{17}\)In Austen-Smith (1998) less informative groups have to pay a higher price of access. Ansolabehere *et al.* (2002) find evidence connecting campaign contribution to expenditure to collect information. Langbein (1986) suggests that contributions may be used to ration time assigned to a lobby, and observes that the congressmen who spent more time in meetings with lobbyists raised more PAC contributions during the 1975-76 election cycle. The estimated price schedule indicated a cost of $6,390 for 25 minutes of access.
increase in contributions. Alternatively, exchange models assume that interest groups offer contributions as a quid-pro-quo to obtain favors (service induced contributions). Fourth, contributions can buy influence over the decisions of a policymaker. Grossman and Helpman (1994, 2001, and 2002) provide a model, based on the common agency framework developed by Bernheim and Whinston (1986), where, in equilibrium, their lobbying endogenously augments the political weights of interest groups.

Clearly, the idea that money is explicitly traded for votes by the congressmen seems questionable. However, a vast array of exchanges (not always easy to detect) can be envisaged. Interest groups can offer to the policymaker (or people connected to her) anything that is costly for them and valuable for the policymaker, such as campaign contributions as well as future appointments (‘revolving-doors’), in-kind services (perks, ghost writing, free holidays, etc.), gifts or even bribes.

The influence of an interest group may also depend on its ability to guarantee to a candidate the votes of its members. The report Influence Inc. 2000, previously mentioned, reveals that:

“For some groups, campaign contributions and lobbying are only peripheral extensions of political power. For example, the Christian Coalition dramatically slashed its Washington presence from $8.0 million in 1997 to just $1.3 million in 1999. Since the Christian Coalition’s real power lies in its ability to get its members to the polls on election day, a decline in lobbying spending hardly reflects a drop-off in the group’s political power. Similarly, labor spending remained virtually constant from 1998 to 1999 despite a series of trade measures opposed by the unions. However, labor’s power is in the votes its members possess and, to a lesser extent, in its campaign contributions. Thus, its lobbying expenditures bear little relation to its real power. Groups like the American Association of Retired Persons, the American Israel Public Affairs Committee, and the Sierra Club all fall into the category of groups whose lobbying power is greatly magnified by their membership base.”

18 Unfortunately, these moves may lead to convergence, in which case no group contributes. In order to avoid such a problem, various assumptions (such as ideological restraint) have been adopted in the literature (see Austen-Smith 1996, Potters and van Winden 1996).

19 In Baron (1989) and Snyder (1990) candidates use their position to extract contributions from groups in exchange for services to be provided after election. The main inadequacy of these models is the lack of explanation about how contributions influence votes. Probabilistic voting models have contributed to shed light on this issue suggesting that candidates can use campaign contributions to inform voters and increase the probability of support (Austen-Smith 1987; Baron 1994; Coate 2004; Mayer and Li 1994; Grossman and Helpman 1996). For the different impacts of advertising versus persuasive campaign see Mueller and Stratmann (1994).

20 The use of contributions to buy influence is considered in chapters 2 and 3.

21 Austen-Smith (1991) opposes the hypothesis that contributions can buy influence over the legislator, because it would imply that voters fail constantly to recognize that campaign expenditures can be exchanged for redistribution at their expenses, as in the case of tariffs. Fremling and Lott (1995) reply arguing that it is reasonable to expect that voters have difficulties in identifying which variables are related, since even public choice scholars still debate about the effect of contributions on policies.

22 See www.opensecrets.org/lobby/lobby00/summary.php
Probabilistic voting models suggest that the homogeneity and organization of interest groups reduce the uncertainty of candidates about the voting behavior of their members. Thus, candidates may find beneficial, in view of their re-election, to propose policies that favor specific interest groups. In Coughlin et al. (1990), for instance, electoral competition will lead candidates to maximize a ‘political’ welfare function, where the utility of each voter receives a weight positively influenced by the density of an idiosyncratic bias (e.g. due to ideology) and by the size of the group he or she belongs to. Therefore, interest groups may influence public policies through their dimension and homogeneity. Clearly, the influence highlighted by the probabilistic voting models can be complementary to the influence that groups may have because of other activities such as information transmission or pressure.

Objectives and methodology

Notwithstanding the remarkable advancements of the literature, most models present a rather narrow view of the influence that interest groups may exert on policymaking. Persson and Tabellini (2000, p. 160) observe that: “although these approaches yield useful insights, each still gives only a partial answer to the question of which groups are the most powerful. A formal integration of the different approaches is only beginning to take shape”. The analysis has recently followed different directions to provide a more comprehensive approach.

One strand of research relaxes the common assumption of a single instrument of influence. This extension provides a more detailed description of the effective influencing ability of interest groups. The connected effects of multiple instruments on public policies lead to results that may differ substantially from those derived under a single instrument hypothesis (see van Winden 2003).

A different line of investigation, followed in Chapters 2 and 3, expands the aims of lobbies allowing for their direct influence on more decisionmakers. Public policies are, in fact, shaped by the choices of more actors. They may interact at the same political or administrative tier – within one institutional body (as in the case of legislatures) or separately (e.g. different regions or states) – or across different tiers (e.g. central and local

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23 With probabilistic voting, candidates are uncertain about how individuals are going to vote in an electoral contest. It is then assumed that the probability that an individual will vote for a candidate will be an increasing function of the difference in the utilities promised by that candidate and the opponent. This entails that a candidate simply cannot be sure to obtain a vote from an individual in exchange of a policy promising a higher utility than that promised by the other candidate. See Borooah and van der Ploeg (1983) Coughlin (1992), Coughlin and Nitzan (1981), Coughlin et al. (1990), Lindbeck and Weibull (1987).

24 Interest groups with low ideological motivations could also represent swing voters, crucial for winning the elections (see Persson and Tabellini 2000).

25 It is interesting to note that these models produce an explicit objective function for the policymakers similar to that derived in Grossman and Helpman (1994), with the difference that political weights are now determined by the attributes of the groups and not by their pressure.

26 Chapter 4 illustrates a similar model of influence.

27 Few papers explicitly consider the existence of multiple channels of influence. See the Introduction of Chapter 2.
governments, legislators and bureaucrats). A plethora of decisionmakers obviously generates several different targets of influence for interest groups. On the contrary, most models arbitrarily restrict the influence of interest groups to a single agent. This assumption has some shortcomings. For instance, it limits the extent of competition. With multiple available targets, an interest group with uneasy access to one decisionmaker could prefer to shift lobbying to another, more favorable one. Therefore, the allocation of resources to seek influence will depend on the political authority of a decisionmaker and her leaning towards competing interest groups. Moreover, the relationships between different decisionmakers are likely to be affected by their respective exposure to lobbying. Then, multi-target lobbying models seem particularly appropriate for the analysis of the separation of political powers and decisionmaking in hierarchical organizations and governments.  

The latter topic is addressed by the first two essays of this study that account for multiple channels of influence. Chapter 2 presents a political economic model of redistributive policy resulting by the combination of the separate and sequential decisions of two decisionmakers. A legislator defines the size of revenue and an executive agency, a bureaucrat, determines the allocation of the public budget to two projects accruing to groups with different interests. Both decisionmakers are subject to the influence of interest groups. Influence is analyzed according to the menu-auction model of common agency with perfect information developed by Bernheim and Whinston (1986). This approach has been adopted in many political economic studies, starting with the influential study of lobbying for tariffs by Grossman and Helpman (1994).  

Limiting lobbying to one decisionmaker may lead to contrasting interpretation of the influence of lobbies. An instructive example is offered by the theory on delegation of political authority to bureaucracy. On one hand, some models assume that bureaucratic agencies are subject to the capture of interest groups, causing different forms of reaction of the legislator to reduce this phenomenon (Bennedsen and Feldmann 2006a; Laffont and Tirole 1993; Spiller 1990). On the other hand, ‘fire alarm’ models suppose that interest groups are, for the legislator, a source of information helpful to strengthen control over bureaucracy (Banks and Weingast 1992; Epstein and O'Halloran 1995; Lupia and McCubbins 1994; McCubbins and Schwartz 1984). Therefore, it remains difficult to ascertain how interest groups affect the relationship between legislature and bureaucracy. If interest groups are indeed like Janus Bifrons, looking at one face will tell you only half of the truth.

See also Grossman and Helpman (2002) and Coate and Morris (1999) for other application of the model to the political economy of trade. In the same vein, Levy (1999) extends the model in order to confront the organized interests of the import-competing industries against those of the exporting industries. Bennedsen (2000) investigates lobbying in state owned enterprises. Dharmapala (1999) analyzes the capture of committees for spending programs. Dixit (1996b) studies the endogenous decision on consumer and producer taxes and subsidies. Dixit et al. (1997) generalize the Bernheim-Whinston model to the case when utilities are not transferable in order to incorporate the income effect useful for the evaluation of fiscal redistribution. Besley and Coate (2001), Grossman and Helpman (1996) and Prat (2002) apply this model to electoral competition where contributions are used to improve the probability of success, while Bardhan and Mookherjee (2000) extend that analysis to investigate whether central or local electoral competitions will be more easily captured. Testa (2005) introduces upper and lower bounds on redistribution as additional instruments of influence. Helpman and Persson (2001) examine when a majority rule legislature is lobbied and each interest group offers contribution to a single congressman. Damania et al. (2004), Le Breton and Selanie (2003) and Mitra (1999) take into account the endogenous formation of organized groups. Persson and Tabellini (1994) study lobbying in a federal context. Rama and Tabellini (1998) present a model where capital and labor compete by lobbying the government for trade and wage policies. Bebchuck and Neeman (2007) investigate how public companies and investor intermediaries can influence regulation for investor protection, whereas Marceau and Smart (2003) show how lobbying for tax differentials among industries.
as principals precommitted to a menu of policy contingent contributions offered, simultaneously and noncooperatively, to a common agent: an incumbent policymaker. Successively, the latter chooses a policy that maximizes her objective function including the sum of contributions and social welfare.\(^{30}\) In a subgame perfect Nash equilibrium, contribution schedules and policy are such that, for every group, they are the best response to the contribution schedules offered by the other groups. The policy selected maximizes the objective function of the agent taking into account the optimal contribution schedules offered by the groups. The interest group influence is micro-founded because it derives from the outcome of the game. In fact, under some assumptions,\(^{31}\) in a ‘truthful’ equilibrium\(^{32}\) the policymaker maximizes a political welfare function, where the utility of each contributing group is weighted more than it would be in absence of contributions.\(^{33}\) Another remarkable result of the menu auction model is that competition among interest groups reduces the influence that a single lobby may exert. Thus, in the extreme case when all groups are organized, the policymaker chooses the same policy that would be selected without lobbying from any group.\(^{34}\) Moreover, the truthfulness refinement allows the calculation of equilibrium contributions of lobbies. This proves to be useful for comparing the welfare effects of different institutional and lobbying conditions.

The model in Chapter 2 extends the menu-auction model by introducing two decisionmakers, acting as separate common agents of the interest groups. Both are lobbied in a sequence (first the legislator and then the bureaucrat) through the offer of policy contingent contribution schedules.\(^{35}\) In addition, a hierarchical relationship is assumed may favor the owners of sunk capital. Aïd (1998), Conconi (2006) and Fredriksson (1997) examine the influence of environmental groups on policy-making. Bellettini and Berti Ceroni (2008) take into account the pressure of entrepreneurs on immigration policy.

\(^{30}\) The problem of non-enforceability of contracts between policymaker and interest groups is generally assumed to be solved by the reputation created by the repetition of interactions.

\(^{31}\) The utility functions of the lobbies are assumed linear in the payments and the policymaker maximizes the sum of contributions and social welfare.

\(^{32}\) A disadvantage of the menu auction approach is the existence of many equilibria potentially inefficient. To avoid this problem, Bernheim and Whinston (1986) apply a refinement selecting equilibria that implement efficient actions. They refer to equilibria arising when (globally) truthful contribution schedules are offered to the agent. These are schedules revealing the willingness to pay for any change in the policy selected. It is shown that truthful strategies do not imply any cost for the principals because the set of best responses to any strategies played by opponents includes a strategy that is ‘truthful’. In addition, truthful Nash equilibria have the appealing characteristics of being coalition-proof [cf. Bernheim, Peleg and Whinston (1987)].

\(^{33}\) This powerful result is further strengthened by Grossman and Helpman (1996) where a similar function results to be the optimal strategy for candidates using contributions to affect voting of less informed individuals.

\(^{34}\) The term lobbying is often used to refer to influence attempts based on information transmission. This study adopts a broader interpretation of lobbying that includes also the supply of campaign contributions (e.g. as in Persson and Tabellini 2000).

\(^{35}\) In line with Grossman and Helpman (1994), contributions can include “anything that can be used to sway the specific choices or the strategies of another individual” (Dahl 1961, p.226) and implies a cost for the lobbies. In Grossman and Helpman (1994) compensating transfers offered by the lobbies can also be interpreted as plain bribes. Few recent studies make a distinction between lobbying and bribery in order to verify the differential impact of complementarity (Harstad and Svensson 2006) or substitutibility (Damania et al. 2004; Giovannoni and Campos 2007).
between the legislator and the bureaucrat, in the sense that the latter may disregard the objectives of the former at some cost that can be compensated by interest groups. The combination of sequential decisionmaking and lobbying implies that the interaction between the agent at one tier and the interest group(s) depends on the exchange between the same interest group(s) and the agent at the other tier. The results, concerning the effects of multi-tier lobbying and legislatorial oversight, substantially qualify conventional wisdom related to one-tier lobbying. The potential advantages of a double opportunity to influence decisionmaking are confronted with the disadvantages of extra lobbying expenditure and separation of powers. A key indication is that the existence of multiple opportunities of lobbying may benefit neither the interest groups nor the decisionmakers. The reason is that the policymaker at the upper hierarchical tier tries to discourage lobbying at the other tier by reducing the budget to distribute, and may make lobbying wasteful even when there is no competition from other lobbies. Regarding the effect of multi-tier influence on legislatorial oversight, it is shown that this can be perfectly substituted by competitive lobbying at the bureaucratic tier. Moreover, extensions of the model indicate its usefulness for the analysis of decisionmaking in other multilevel governance structures, like federations or firms.

In Chapter 3, the same model with two-tier influence is applied to the analysis of the effects of political centralization within the EU. It is feared that a process of further integration would favor powerful interest groups able to lobby the EU policymakers. Persson and Tabellini (1994) argue that political centralization will increase the size of the government because of free-riding incentives created by federally funded programs with localized benefits. To better capture the EU institutional framework, the analysis applies the two-stage budgeting process described earlier to a federal context, where national interest groups compete for the allocation of funds budget. The Council chooses the size of the budget at one stage, while the Commission chooses the share of the revenue going to two different states at the next stage. State communities may seek influence at both tiers of decisionmaking.

It is shown that separation of powers in the budgeting process restricts free riding and, therefore, reduces the incentives to exert influence. Therefore the size of the budget is unaffected by centralization, in which case interest group influence is restricted to the legislator. Furthermore, also two-tier influence does have an impact. If both policymakers can be influenced by the state interest groups, then the size of the public sector may actually reduce under centralized policymaking.

The final essay addresses an issue often neglected in the literature, namely the dynamics in the composition of interest groups. Although most models assume a given size and organization of interest groups, they can be influenced by different forces, such as economic and/or demographic changes. This study investigates the impact of immigration on the political influence of interest groups in a two-country political economic model of income redistribution with internationally mobile labor. The political economic model differs from that used in the previous chapters, because it does not account for lobbying through contributions. Political influence is determined by the size and homogeneity of groups, in view of electoral support and pressure (strikes, public gatherings, etc.).

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36 This assumption is in line with the probabilistic voting outcome illustrated previously.
Migration can be exogenous and/or endogenous (i.e. determined by labor income differentials) and has an ambiguous impact on the ability of a group to influence policymaking. On one hand, large group size may imply more votes for the politician and thus enhance the political power of that group. On the other hand, excessive size may encumber interior organization and trigger free-riding, weakening the ability of the group to successfully pursue the common goals of its members. It is shown that, when the positive effect dominates, immigration can increase the transfers to, and the income of, the mobile group. Moreover, migration regulation, tax-transfer policy competition and coordination and, finally, coordination of regulation policies are investigated. It results that the selection of any of those regimes will depend on the distribution of political influence among the relevant groups in the two countries.

This study is organized as follows. Chapter 2 presents a model of hierarchical decisionmaking with two-tier lobbying. Chapter 3 investigates the impact of centralization on the size of the public sector. Chapter 4 examines the effects of immigration on redistribution when migrants affect the political influence of labor in the host country.
1. Introduction

The theory of endogenous policy describes how self-interested agents influence the choices made regarding government policies. Similarly, rent-seeking models describe how resources are expended by interest groups in the same quest for political favors. Other models combine endogenous policy with rent-seeking outlays or focus on the use of campaign contributions to influence policy. These different perspectives on interest groups and endogenous policy have in common that, in general, a single policymaker or level of government is portrayed as subject to influence. This assumption contrasts with the general observation that government is often organized in different levels of more or less autonomous decisionmaking. Think, for example, of a legislature and a bureaucracy, of central and local governments, or of a president and a parliament in a presidential democracy. A policy is in fact shaped by the different decisions taken at different political and/or administrative tiers. This offers multiple opportunities to interest groups to affect political decisionmaking. Also, efforts to influence a particular tier may depend on a lobby’s ability to affect decisionmaking at another tier. Moreover, competition among lobbies is not restricted to one tier but may extend across different tiers.

In reality, therefore, lobbying is a more complex activity than it is usually investigated. According to Richardson (1993, p. 4), in the US, for example: “pressure groups take account of (and exploit) the multiplicity of access points which is so characteristic of the American system of government – the presidency, the bureaucracy, both houses of Congress, the powerful congressional committees, the judiciary and state and local government”.

The existence of multiple opportunities to influence decisionmaking may not be as advantageous for an interest group as it may seem at first sight. Multi-tier lobbying may
produce an increase in lobbying expenditures that can be wasteful, particularly when more groups compete for influence. Moreover, in a hierarchical sequence of decisionmaking, lobbying at a lower tier may trigger a (negative) reaction by a decisionmaker at a higher tier which can make lobbying overall more costly. On the other hand, lobbying at a lower tier may also induce policies in line with the objective of a superior decisionmaker and thereby reduce the need for controlling subordinates.

The exercise of influence at different tiers of government decisionmaking is therefore likely to produce more ambiguous results concerning the payoffs of interest groups and public decisionmakers, compared to the traditional model of a unitary government. By exploring the extent of the effects of multi-tiered lobbying in a divided government this essay intends to contribute to the related literature.

We present a political economic model where policy discretion exists at two government levels. At the higher level, a legislator (‘L’) decides on the size of the government budget (tax revenue). L is assumed to have distinct preferences concerning the allocation of the budget over two public goods, each of which is consumed by a different group of individuals. L is interested in the welfare of the groups – as such, or for future electoral support – as well as in the contributions they can offer (in an attempt to influence L’s decisions). The actual distribution of the budget across the public goods is effectively decided at a lower level, by a bureaucrat (‘B’). B can only disregard the preferences of L at a personal cost, for example, in terms of career prospects or loyalty. However, B may be compensated by contributions offered by the groups to affect the budget allocation decision. The realism of this setting is exemplified by the fact that legislators often decide on the total budget for a particular policy program (such as defense, health care, education or agricultural subsidies), while bureaucrats have some discretionary power regarding the allocation of the budget within the program (e.g., the location of defense facilities, hospitals or schools, or the designation of the crops for which agricultural subsidies are available). For simplicity, the hierarchical relationship between L and B is investigated in a reduced form, through the weight that B attaches to L’s objective. Lobbying is modeled using the Bernheim and Whinston (1986) menu-auction framework. Their common agency model has been adopted in several political economic studies, starting with the analysis of lobbying for tariffs by Grossman and Helpman (1994). We contribute to this analysis by focusing on sequential decisionmaking by different agents.

The main implication of introducing a sequence of decisionmaking and lobbying is that the interaction between L and the interest group(s) depends on the exchange between the same interest group(s) and B. The hierarchical link between the two decisionmakers can trigger strategic actions by the superior L to avoid lobbying at B’s level and/or to redirect

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3 It is beyond the scope of this paper to investigate the reasons for the delegation of decision power to the bureaucrat. We only observe that, in reality, delegation is very common and can be justified in numerous ways: lack of expertise of the legislator, reduction of implementation time, shift of responsibility, or to prevent time inconsistency problems concerning policy announcements of the legislator.

4 Another example, concerning fiscal federalism, is that decisions regarding grants, determining aggregate expenditures, are made at a higher level of government whereas decisions regarding the allocation of grants are taken at a lower level.

5 See also Grossman and Helpman (2001, 2002).
lobbying expenditures towards L’s tier. It will be shown that these reactions make the
impact of lobbying – for policymakers as well as interest groups – more ambiguous than in
the traditional influence model of a unitary government. This ambiguity qualifies some
conventional wisdom about lobbying and highlights the problematic nature of limiting the
investigation of influence activities to a single decisionmaking level, if groups have in fact
access to multiple tiers.

First, suppose that only one group is able to lobby. A standard tenet in the literature
says that the policymaker cannot lose from lobbying, otherwise he/she would not accept it,
while the monopsonist interest group benefits. However, our model shows that strikingly
different results can be obtained once one allows for multi-tier lobbying. In fact, L is found
to be worse off with lobbying than without. The reason is the cost for the interest group to
lobby B. Nonetheless, L has an incentive to give access to lobbying provided that lobbying
cannot be effectively excluded at B’s tier. Moreover two-tier lobbying can even become
counterproductive for the interest group. The intuition for this surprising result that the
reaction of L to the capture of B leads to such a reduction of the stakes for the lobby - even
with respect to the outcome under no lobbying at any stage – that it cannot be reverted by
lobbying at L’s tier.

Another major finding concerns the case where all groups are organized. Competitive
lobbying at the lower tier turns out to be a substitute for legislatorial control over
bureaucracy. This holds as long as all groups, in the welfare of which L is interested,
lobby. In fact, since lobbying follows the preferences of the groups, L’s influence cannot
produce any policy improvement to the groups. This provides an explanation for the
apparently contradicting empirical observations of influencing activities directed at
bureaucrats together with a bureaucratic policy that may be in line with the objectives of
the legislators (Schlozman and Tierney 1986; Krause 1996). However, an increase in the
control of L over B does reduce the contributions transferred by the lobbies to B.
Therefore, the lobbies may still find that is profitable to lobby L for more influence over B,
as it will be shown below.

Moreover, imperfect control does affect the budget, which is used by L as a second-best
instrument of influence. So we find that an increase in the influence of a group at B’s tier
can nonetheless have a negative impact on the amount of the public good that the group
lobbies for, because of a cut in B’s budget. Finally, our analysis shows that, in general, the
policymakers are likely to be better off with competitive lobbying than when confronted
with a single organized interest group.

However, the influence of L on B does reduce the amount of contributions transferred
by the lobbies to B. Therefore, the lobbies may still find that is profitable to lobby L for
more influence over B, as it will be shown below.

Furthermore, imperfect control makes the budget chosen by L a second-best instrument
of influence. Our analysis shows that the budget decreases with B’s autonomy or when a
group with strong influence at B’s tier becomes relatively less influential at L’s level. Due
to this response by L, we also find that an increase in a group’s influence at B’s level can
nonetheless have a negative effect on the amount of the public good that the group is

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6 The latter goal is typically neglected in studies of bureaucratic capture by excluding the possibility that
also the legislator is subject to lobbying (see Laffont and Tirole 1993).
The analysis presented here is related to different lines of research. Previous studies of multi-staged lobbying differ from the present one by not offering a complete analysis in terms of endogenous policy and lobbying expenditures. Hillman and Katz (1987), Katz and Tokatlidu (1996) and Gradstein and Konrad (1999) concentrate on rent dissipation in hierarchies of rent-seeking contests. Hoyt and Toma (1989) focus on the choice of groups of residents in allocating lobbying efforts between local and central policymakers, showing that countervailing lobbying at the state level reduces inefficiencies caused by local lobbying. However, they do not pay attention to the influence that lobbying at one level has on the policy decisions taken at the other level. Some papers focus on the agency problems linked to bureaucratic activity. Austen-Smith (1993) presents a model where one interest group can influence the decisionmaking of two legislative bodies (a committee and the House) via strategic information transmission. It is shown that influential lobbying is more likely to happen at the agenda-setting stage. Sloof (2000) investigates the influence of interest groups on the delegation of political authority by a legislator to a bureaucrat when both can be lobbied through strategic and costly transmission of information. Since only the bureaucrat is assumed to have sufficient expertise to understand the message, the legislator may prefer a biased bureaucrat when the informational gains outweigh the losses of bureaucratic drift. In these models lobbying expenditures are taken as given. Harstad and Svensson (2006) present a growth model where firms lobby the legislator to change existing policies, and bribe the bureaucrat to get around existing laws. Bribing turns out to be more likely than lobbying at a low level of development, then firms have little incentive to invest and may end into a sort of poverty trap. Bribing and lobbying is modeled as a bargaining game and not as a menu-auction.

This essay also relates to the growing literature on the separation of political powers, seen as a system to improve political accountability (Alesina and Rosenthal 1996, 2000; Grossman and Helpman 2006; Persson et al. 1997). This literature has so far paid little attention to the consequences of the separation of powers on lobbying and, vice versa, on the effects that lobbying may have on the policy outcome of a divided government, issues that are central to this chapter.

Multi-period common agency is also investigated by Prat and Rustichini (1998) and Bergemann and Valimaki (2003). Unlike the present study, both studies consider a single agent to whom the principals make their offers in a sequence or simultaneously for a number of periods.

More closely connected is the recent work of Epstein and Nitzan (2002). They present a two-tier policymaking process where two groups, representing all the relevant interests in society, invest resources to support the approval or rejection of a proposal introducing a rent. In Epstein and Nitzan (2002) the proposal is made by a bureaucrat who takes into account the rent-seeking targeted at the legislator in view of the hierarchical relationship with the latter. The authors find that an increase in the politicization of the government (a larger weight given by the bureaucrat to lobbying expenditures) may actually improve the net welfare of the interest groups, through a higher gross expected welfare that more than compensates the larger lobbying contributions. Our study represents a generalization of that analysis, by adding a separate tier of lobbying activities directed at B. Therefore, the concept of politicization becomes more complex as it depends on the (relative) importance of lobbying transfers for each agent and the hierarchical influence of L on B. In this
context, we show that a larger interest of B in the contributions received by L has a positive impact on the net welfare of the groups by reducing the cost of lobbying B. Finally, Epstein and Nitzan (2006a) present a rent-seeking model where the policymakers act as principals of the lobbies, instead of the other way around as in menu-auctions models like ours. They show that this different assumption may lead to more extreme outcomes than those derived with policymakers being common agents. In this chapter, the tendency of a policymaker to compromise may instead be hindered by the existence of lobbying at another decisional tier.

The chapter is organized as follows. The basic model is introduced in section 2. Section 3 presents the equilibrium analysis and comparative-statics results concerning the cases where either one or two groups lobby the decisionmakers. In section 4 we address the issue of legislatorial oversight and discuss some insights provided by our model. Section 5 concludes.

2. The Model

Consider an economy where individuals are divided into two groups, of size \( n_1 \) and \( n_2 \). Members of each group have the same preferences and derive utility from disposable income and the consumption of a group-specific pure public good \( G_m \), with \( m=1,2 \). Preferences are reflected by the following quasi-linear utility function:

\[
u_m = (1-t)y_m + h_m(G_m) \quad m = 1, 2 \tag{2.1}\]

where \( t \) is an income tax rate and \( y_m \) denotes before-tax income; we assume that \( h_m \) is a continuous function and has a positive first-order and a negative second-order derivative and \( \lim_{G_m \to 0} (dh_m/dG_m) = \infty \) and \( \lim_{G_m \to \infty} (dh_m/dG_m) = 0 \). Government output results from the choices made by two public agents, L and B, at different decisionmaking levels. L chooses the income tax rate \( t \), and assigns the resulting tax revenue, \( R \equiv t\sum_m n_m y_m = tY \), to B’s budget. The latter is assumed to actually determine the share \( s (1-s) \) of \( R \) to be allocated for the production of \( G_1 \) (\( G_2 \)). Public goods are obtained through a linear transformation function: \( G_1 = sR \) and \( G_2 = (1-s)R \).

In line with the common agency framework of Bernheim and Whinston (1986), a group \( m \) may decide to influence decisionmaking by submitting a ‘menu’ of policy contingent contributions to one or both of the public agents. Contributions can be generally interpreted as something which is beneficial for the receiver and costly for the donor.\(^8\)

\(^7\) Rents with group-specific public good characteristics are rather common in reality. Think of those resulting from regulation protecting the interests of groups of producers or consumers, or from the provision of local services (see Persson and Tabellini 2002).

\(^8\) Contributions can include anything that can sway the specific choices of another individual and implies a cost for the lobbies. For example, favorable policies can be (implicitly) exchanged for future employment opportunities (‘revolving doors’), in-kind services (e.g. “wining and dining”, perks, free rented cars, holidays, etc.), volunteer labor, or even plain bribes. Politicians, and occasionally the bureaucrats, can also use contributions for funding political campaign, staff and/or party expenditures. For evidence on contributions affecting legislative decisions, see Baldwin and Magee (2000), Gawande and Bandyopadhyay (2000),
The sequence of events is as follows. First, at the higher decisionmaking level, interest group \( m \) decides on offering \( L \) a schedule \( C_m^o(t) \), mapping every feasible tax rate into a contribution. Subsequently, the latter chooses a \( t^o \) maximizing his or her own objective function and obtains the corresponding monetary (equivalent) reward \( l_m C_m^o(t^o) \geq 0 \) from group \( m \). The parameter \( l_m > 0 \) reflects the “shadow price” of lobbying faced by group \( m \), which may differ among groups (Hillman and Riley 1989). Group \( m \) then turns to \( B \), offering a schedule \( E_m^o(s) \), which maps feasible budget shares, determining the provision level of group’s public good, into a contribution to the latter. Subsequently, \( B \) chooses \( s^o \) optimally in line with \( B \)’s objective function, and receives a reward \( b_m E_m^o(s^o) \geq 0 \), where \( b_m > 0 \) reflects the shadow price of lobbying \( B \).\(^9\) Note that if \( l_m < 1 \) or \( b_m < 1 \), lobbying implies a social cost. Redistribution takes place both at \( B \)’s level (zero-sum game) and at \( L \)’s level (where the size of the overall budget is chosen).

The assumption that the interest groups lobby the decisionmakers in a sequence – first \( L \), then \( B \) – can be justified by observing that the identity of \( B \) may not be known to the interest groups at the time \( t \) is chosen by \( L \). Moreover, in public finance, the budgetary process is typically separated into two main stages: first, the total budget is determined, thereafter its allocation (see Ferejohn and Kreibiel 1987). It would then be rather difficult for interest groups to lobby simultaneously the decisionmakers at both stages, even if their identity were known from the beginning.

After including lobbying expenditures in (2.1), and aggregating over the group members, we obtain the following net utility function for group \( m \):

\[
V_m = U_m(s,t) - C_m(t) - E_m(s) \quad m = 1, 2
\]

(2.2)

where \( V_m = n_m v_m \) and \( U_m = n_m u_m \). Regarding the objective functions of the decisionmakers, we assume that \( L \) is interested both in contributions from the groups and social welfare. Apart from a different ability of lobbying, groups may differ in terms of political relevance (think of future elections, for example). This leads to the following objective function for \( L \), to be maximized over \( t \in T = [0,1] \):\(^{10}\)

\[
P_L = \sum_m l_m C_m(t) + l_u \sum_t \theta_m V_m(s,t) \quad l_m, l_u, \theta_m > 0
\]

(2.3)

In (2.3), \( l_u \) indicates the weight that \( L \) attaches to the (weighted) welfare of the social groups in society, relative to contributions,\(^{11}\) and \( \theta_m \) expresses the political relevance of

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\(^9\) In common agency models of lobbying, it is assumed that policies and schedules are adhered to. Reputation and repeated interaction are typically referred to for supporting commitment (for evidence, see Snyder 1992 and Stratmann 1995, 1998). In one-shot games, factors like ethical commitment (“word of honor”) may play a similar role.

\(^{10}\) We assume that \( L \) cares for the net welfare of the groups, for one thing because it seems rather unintuitive to believe that the legislator would not consider lobbying expenditures, in a complete information framework. A similar approach, including net instead of gross utility in the social welfare aggregation, is adopted by Coate (2004), Lohmann (1998), and Rama and Tabellini (1998).

\(^{11}\) Le Breton and Salanie (2003) introduce uncertainty about \( l_u \).
group $m$. This weight can be the outcome of electoral competition, as Coughlin et al. (1990) show in a model with probabilistic voting, where expected plurality maximizing candidates attach weights to the groups according to their homogeneity.\(^\text{12}\) Lobbying occurs only if contributions are positively evaluated by $L$; this requires that the net reward ($l_m-l_u\theta_mC_m=\lambda_mC_m\geq 0$). Thus, a group is able to lobby only when the shadow price of lobbying is sufficiently low ($l_m$ sufficiently high) compared to $L$’s interest in the group’s welfare, such that $\lambda_m>0$.

Turning next to agent $B$, we assume that the reality of highly incomplete contracts in the public sector makes room for opportunistic behavior on the side of the bureaucrat, such as dealing with lobbies. On the other hand, this decisionmaker is taken to be interested not only in the contributions offered by interest groups but also in $L$’s payoff. This may be due to bureaucratic loyalty, political affiliation or career concerns (see Peacock 1994). Formally, $B$ chooses $s\in S=[0,1]$ such that the following objective function is maximized:\(^\text{13}\)

$$P_B = \sum_m b_mE_m(s) + bP_L(s) = \sum_m \beta_mE_m(s) + bl_u\sum_m \theta_mU_m(s) + \sum_m \lambda_mC_m \tag{2.4}$$

where $\beta_m = b_m - bl_u\theta_m$ ($b, b_m > 0$), and $b$ indicates the weight that $B$ attaches to the objective of $L$. or, put differently, the degree of (indirect) control of $L$ over $B$.\(^\text{14}\) For a group to lobby $B$, it should hold that $\beta_m > 0$. One interpretation of (2.4), related to career concerns, would be that $E_m$ represents future earnings in the private sector (discounted by $b_m$) which are traded off against future earnings in the public sector (determined by $P_L$, discounted by $b$). Clearly, $B$ may have an independent interest in social welfare. Divergence of opinion between $L$ and $B$ could be taken into account by adequate adjustments of $bl_u\theta_m$. For simplicity, we neglect this generalization that would complicate the analysis without affecting our results in a qualitative sense.

For later reference, it is convenient to indicate first the policies selected in case of no lobbying at all. Solving backwards (beginning with the second stage where $t$ is given) and letting $s^\circ$ stand for the policy selected by $B$ and $t^\circ$ for the policy selected by $L$, these policies are implicitly determined by:

$$\sum_m \theta_mU_m(s^\circ; t^\circ) = 0 \quad \text{and} \quad \sum_m \theta_mU_m(t^\circ) = 0 \tag{2.5}$$

where the additional subscripts are used to indicate partial total derivation.\(^\text{15}\) The conditions of (2.5) show that, without any lobbying, $B$’s behavior fully accords with $L$’s preferences.

\(^\text{12}\) For an alternative underpinning, related to information, see Grossman and Helpman (1996).

\(^\text{13}\) Since $B$’s policy may have an effect on $C$s and then on $L$’s objective, it is rational to include the latter contributions in the objective function of $B$.

\(^\text{14}\) An alternative view of $b$, not pursued here, is that it represents the relative bargaining strength of $L$ (as suggested by Dixit 1997). The assumption of an exogenous $b$ will be relaxed in Section 4.

\(^\text{15}\) Second order condition for $s^\circ$ is guaranteed by concavity, whereas a sufficient condition for equilibrium $t^\circ$ is: $0<n_1\theta_1s^\circ h_1\{s^\circ+t\circ(ds^\circ/dt)\}+n_2\theta_2(1-s^\circ)h_2\{t\circ-t\circ(1-s^\circ)-\ell^\circ(ds^\circ/dt)\}$ which is satisfied if $s^\circ+t\circ(ds^\circ/dt)$ is sufficiently close to $l$.  

17
3. Two-tier Lobbying

In this section we analyze the cases where either only one group or both groups lobby at the two tiers of decisionmaking. To save space, all proofs are relegated to the Appendix.

3.1. Monopsonistic Lobbying

Suppose, first, that only one group \((i)\) is able to lobby (or ‘buy’ policies from) the decisionmakers. Lobbying may be too costly for the other group \((j)\) because of lack of organization or political access, so that \(C_j=0\) and \(E_j=0\) hold in the objective functions (2.3) and (2.4), respectively. This analysis would be relevant for ‘particularistic’ policies that are specifically offered only to one lobbying group and the costs of which are so widely spread among the population that they do not elicit any counteracting opposition (see Baron 1994, Grossman and Helpman 1996). The game is solved by backward inductions, starting at the lower tier where \(B\) chooses an optimal allocation \(s^i \in S\), given the contribution schedule \(E^i(s)\) offered by the group \(i\) (where the superscript indicates that only group \(i\) is lobbying). Then, at the higher tier, the interest group offers a contribution schedule \(C^i(t)\) to \(L\) who then chooses a tax rate \(t^i \in T\), taking into account the reactions at the lower tier \((s^i, E^i)\). In equilibrium, the contribution schedules are such that, at the margin, the contribution will be equal to the benefit of lobbying. It is straightforward to show that \(s^i\) and \(t^i\) are determined by the following conditions:

\[
\begin{align*}
 b_i U_{is}(s^i; t^i) + b l_u \theta_i U_{is}(s^i; t^i) &= 0 \\
 l_i[U_{it}(t^i)-E^i_{it}(t^i)] + l_u \theta_i U_{it}(t^i) &= 0
\end{align*}
\]

(2.6)

for \(j \neq i\) and \(i, j=1, 2\). Comparing (2.6) and (2.5) reveals that lobbying induces the decisionmakers to maximize a weighted gross “political welfare function”. Since the interest group \((i)\) maximizes its utility, the social welfare parameter \(l_u\) shows up only in the weight of the inactive group \((bl_u \theta)\). The weight attached to the welfare of the lobbying group – \(b_i\), which reflects its lobbying ability – has become larger. This group exploits its advantage of being the only lobby by offering (strictly positive) contributions, \(C_i\) and \(E_i\), that just compensate each decisionmaker for selecting a policy that is more favorable to \(i\) compared to the outcome under no lobbying at the respective tier. At each tier separately, the lobby gains and the unorganized group loses from the biased policy. Moreover, by just compensating each policymaker for the biased policy, monopsonistic lobbying implies a “full capture” of the decisionmaker by the interest group.

However, this does not necessarily mean that a decisionmaker cannot benefit from lobbying compared to no lobbying at all, because lobbying at one tier may affect the payoff of the decisionmaker at the other tier. For the overall effect of lobbying on the payoff of the decisionmakers, we have to compare with the outcome obtained if there is no lobbying at both tiers.

**Proposition 1.** Compared with the outcome obtained in the absence of lobbying, monopsonistic lobbying at both tiers causes that: (i) \(L\)’s payoff decreases; (ii) \(B\)’s payoff
may increase or decrease; (iii) the lobby’s payoff may increase or decrease; (iv) the unorganized group’s payoff may increase, if the lobby’s payoff decreases, otherwise it decreases.

The most striking result in this Proposition is that the interest group may not benefit from its influencing activity, even though it is the only one to lobby. The reason for this counterintuitive result is the fact that the policy outcome depends on the choices made by two different agents (divided government) that are sequentially lobbied (two-tier lobbying).

Because of the separation of powers, the reaction of L to the lobbying of B is directed at reducing the stakes for lobbying at that tier, by manipulating the budget $R$. As a consequence, L’s policy choice may produce an overall outcome that is worse for the interest group than the outcome obtained without lobbying at all. However, the latter may now be too costly to induce, through a contribution to L. Because of the incentive incompatibility to refrain from “buying” B, after arriving at the second decisionmaking stage, the opportunity of lobbying may be detrimental to the interest group. Technically, this happens for $s'$ very close to $s''$ such that the change in distribution of the tax revenue is dominated by the size of the latter. It is somewhat interesting that, in this case, it may also happen that the reaction of L is able to fully compensate the unorganized group – and, at an extreme, even make it better off – for the opponent’s lobbying.

Two-tier lobbying may also harm both decisionmakers, in contrast to the conventional wisdom. Although L is (just) compensated for giving in to the lobby, the fall-back outcome is changed by lobbying at the other tier. L loses from any contribution paid to B and the policy change it induces at that tier. L can never gain, therefore, and would rather ban lobbying if that would also hold for agent B. B, on the other hand, may benefit from being lobbied, if that causes a sufficient increase in the contribution received. The outcome that a decisionmaker may benefit from the capture of another decisionmaker, at a different tier, differs from previous results in the literature (e.g. Hillman and Katz 1987; Spiller 1990) because it does not assume that a superior can simply seize part of the lobby contributions received by a subordinate.

3.2. Competitive Lobbying

We now consider the competitive lobbying case, where both groups are able to lobby at both levels of decisionmaking ($\lambda_m,\beta_m>0$ for all $m$).

LOWER TIER

At the lower tier, for any given $t \in T$ and $C_m$, B chooses an allocation $s^* \in S$ that maximizes (2.4), given the contribution schedules $E_m$ offered by the lobbies. As before, the solution of the game implies the implicit maximization of a weighted gross ‘social welfare function’:

\[ \text{16 Notice that lobbying at L’s stage is still incentive compatible for the organized group, when it lobbies also B (see the Appendix).} \]
However, now only \( b_m \) (reflecting the shadow price of lobbying) shows up as weight. This is due to the fact that, for an equilibrium, the net welfare of each group should be maximized, entailing \( U_{ms}(s^*) = E_{ms}(s^*) \).17

Again, an equilibrium analysis shows that each lobby pays a strictly positive contribution to \( B \) that just compensates the latter for moving away from the policy that \( B \) would find optimal if the group concerned does not lobby. As one may expect, it turns out that lobbying competition tends to favor \( B \), compared with the previous case of monopsonistic lobbying. The opposite applies to the lobbying groups, since a policy change that is beneficial to the one will always be detrimental to the other. This effect is particularly evident if the groups have the same political influence, before and after lobbying [cf. (2.5) and (2.7)]. Then, contributions will exactly offset each other and lead to the very same allocation as in the absence of lobbying. In this symmetric case, we have ‘full capture’ of the interest groups by \( B \), because only the latter profits from the lobbying. Contributions are a pure waste for the groups in this situation, and they would be better off without any lobbying. However, in the latter case, each group would have an incentive to start lobbying. The interest groups face a prisoner’s dilemma and the lack of coordination induces them to contribute, although at most one group can benefit from lobbying.

From this section on, we will follow the convention of focusing on “(globally) truthful strategies” for the lobbies, which means that the equilibrium contribution schedules reveal the willingness to pay for any policy different from \( s^* \).18 The next proposition shows that our model allows for outcomes different from a standard result in the rent-seeking literature, namely that the introduction of competition increases lobbying expenditure.19

**Proposition 2.** Compared with a monopsonistic lobbying equilibrium, the entry of another lobby can lead to a reduction or an increase in the contribution given by the incumbent group \( i \) as well as in the aggregate amount of lobbying expenditure.

The differences with the standard result are due to the endogeneity of the rent and the heterogeneity of the influence weights and the prices of lobbying of the groups. When a monopsonist lobby \( i \) has a high shadow price of lobbying, its lobbying expenditure may be rather high. Under competitive lobbying, though, the same group obtains a less favorable biased policy and that may reduce the compensation offered to \( B \). If the opponent group \( j \),

\[
\sum_{m} b_m U_{ms}(s^*) = 0 \quad m = 1, 2 \quad (2.7)
\]

17 As can be seen from (2.4), for the same reason, it also holds that \( \sum_{m} b_m E_{ms}(s^*) = 0 \), which means that implicitly a weighted sum of the lobbies’ contributions is maximized. This equivalence would be important for interpreting empirical data.

18 Theorem 1 in Bernheim and Whinston (1986) shows that truthful strategies do not imply a cost for the players because they are included in their best-response set.

19 In a lottery-model of rent-seeking contests (Tullock 1980), the entry of a new player with different preferences increases the overall spending, in general (see, e.g., Ellingsen 1991). Appelbaum and Katz (1986) and Wenders (1987) show that when the rent is a transfer from the loser(s) to the winner of the contest, then transfer-avoiding activities from the losers leads to larger rent-seeking expenditure than in the case of contests for pre-determined rents. In a similar context, Fabella (1995) finds that the entry of an opponent increases the expenditure of a single incumbent as well as the overall lobbying expenditure.
on the other hand, faces a low shadow price, lobbying expenditure by this group can be rather low and even smaller than the decrease in group $i$’s expenditure.

**Upper Tier**

As holds for the lower tier, equilibrium analysis regarding the upper tier shows that each group has an incentive to lobby the policymaker by offering a contribution schedule $C_m(t)$. Confronted with these policy contingent contribution schedules, $L$ chooses $t^* \in T$ to maximize (2.3) taking into account the equilibrium behavior of the players at the lower decisionmaking level $(s^*, E_1^*, E_2^*)$. Replicating the procedure for the lower tier, in equilibrium, $L$ chooses a tax rate $t^*$ such that:

$$\sum_m [U_{mt}(t^*)-E_{mt}(t^*)] = 0$$

(2.8)

The intuition is the same as that provided for eq. (2.7). As demonstrated in the Appendix, $L$’s direct concern for the welfare of the interest groups ($L_u$) and their electoral influence ($\theta_m$) are relevant in the choice of $t^*$ only because of their influence on contributions $E_{m}^*$ at the lower tier. In this respect, one can say that lobbying directed at political subordinates disciplines the activity of the master.

Using the solution to the complete game, we can now compare the payoffs of the decisionmakers in the different situations of competitive and monopsonistic lobbying. The next proposition summarizes the results obtained.

**Proposition 3.** Compared with the outcome in the absence of lobbying, in general, competitive lobbying has ambiguous effects on the payoffs of the policymakers and the interest groups. However, if $L$ benefits from lobbying then also $B$ does, and if $B$ loses then also $L$ does. Moreover, at most one interest group can benefit from competitive lobbying, but both can lose.

As can be expected, it turns out that $L$ benefits from lobbying if the weight attached to social welfare ($L_u$) is sufficiently low. However, if one lobby is hardly effective (i.e. $\lambda_m = l_m - l_u \theta_m$ goes to zero) then we are in a situation approaching monopolistic lobbying that will be detrimental for $L$ (see Proposition 1). A similar reasoning applies to $B$. If $\beta_m = b_m - b_l \theta_m$ is very low for one $m$, the situation approaches monopolistic lobbying. In that case, $B$ is kept indifferent with respect to the no-lobbying outcome that actually reflects the objective of $L$. Since $L$ loses if $\lambda_m \to 0$ (i.e. $l_u$ sufficiently large), $B$ would also lose in that case. However, $B$ seems more likely to gain from competitive lobbying, since (only) $B$ benefits from the contributions received by the decisionmaker at the other tier. Moreover, not all groups can win. This is a consequence of the purely redistributational nature of the lobbying activity. On the other hand, if the political influence of the groups sufficiently balances, both interest groups will lose because of the then only wasteful expenditures, due to the lobbying competition (as we had already seen at the lower tier). The lobbies are trapped in a prisoner’s dilemma, with lobbying being a dominant strategy at each tier.

Even though lobbying can be a pure waste for all social groups, in general a ban on lobbying may be less viable under competitive lobbying, because then not only $B$ but also $L$ may gain, in contrast with the case of monopolistic lobbying (see Proposition 1).
3.3. Cross-tiers Effects of Changes in Influence Under Competitive Lobbying

Changes in the political influence of a group at one tier may have consequences for the lobbying activity as well as the political outcome at the other tier. In this subsection we will focus on a group’s allocation of its lobbying activities across the different tiers. A comparative-statics analysis will demonstrate the problematic nature of limiting the theoretical and empirical investigation of lobbying contributions to a specific policy or a single decisionmaking level if groups have access to different tiers. We will also discuss some implications for the size of the public sector.

To obtain sharper results regarding the policies \((t, s)\) and contributions \((C_m, E_m)\), we adopt the following symmetric specification for the utility derived from the group-specific public goods in (1): \(h_m(G_m) = G_m^{\frac{1}{2}}\). Although admittedly restrictive, it enables us to show some novel results concerning lobbying. Moreover, the intuition provided suggests that these results may hold more generally.

CROSS-TIERS EFFECTS OF POLITICAL INFLUENCE

An increase in the effectiveness of a group in lobbying B \((b_i)\) appears to have an asymmetric effect on that group’s contributions to L \((C_i^*)\). A larger \(b_i\) leads to larger contributions when \(t^* > t^\circ\), where \(t^\circ\) indicates the out-of-equilibrium tax rate that would be selected if only group \(i\) would lobby L, while both groups lobby B. If the tax rate to be selected in equilibrium is regarded as “low” by the group \((t^* > t^\circ)\), an increase in \(b_i\), meaning a larger budget share for the provision of the group’s public good \(G_i\), gives an incentive to group \(i\) for intensifying its lobbying of L to increase \(t\). Similarly, when the equilibrium tax rate is “high” according to the group \((t^* < t^\circ)\), the group has a weaker incentive to lobby for a tax reduction if \(b_i\) increases. In contrast, the effect on the contribution to B \((E_i^*\) is ambiguous, since it depends on the group’s relative shadow price of lobbying at both tiers. If, instead, group \(i\)’s effectiveness in lobbying L \((l_i)\) increases, the opponent group \(j\) invests relatively more in lobbying L (that is, \(E_j^* / C_j^*\) is inversely related to \(l_i\) when its effectiveness is sufficiently larger than that of group \(i\) (more specifically, \(l_i < l_j / \beta_j\)). This result shows that, in reaction to an increase in the political effectiveness of a competing lobby, an interest group may further concentrate its lobbying activity on this policymaker with whom it has already a comparative advantage in lobbying. This lobbying “specialization” is related to counteractive lobbying (cf. Austen-Smith and Wright 1994).

SIZE OF THE PUBLIC SECTOR

An increase in the effectiveness of a group in lobbying B \((b_i)\) may not only negatively affect the budget provided to B \((t^*)\) but even the level of the public good provided to that group \((G_i)\). That happens, for example, when \(l_i / \beta_i\) is sufficiently low (so that group \(i\) faces a relatively high cost for lobbying L but gains substantially from lobbying B), while \(l_j / \beta_j\) \((i \neq j)\) is sufficiently high. By reducing the budget, L limits the transfer of resources from group \(j\), having relatively more influence on L, to group \(i\). Roughly put, it may be better for a lobby “not to put all the eggs in one basket”. If a policy results from decisions taken by
different agents, it may not be advantageous to concentrate efforts on improving the effectiveness of lobbying a particular agent. Moreover, $t$ increases with the degree of L’s influence on B ($b$). The intuition is that L limits the budget assigned to B when it is difficult to effectuate the policy L prefers (for empirical support, see Crain and Muris 1995).\footnote{Examining data concerning state expenditures in the U.S. for the period 1982-1988, they find that revenues tend to be higher when a legislator choosing taxes has control over the way that funds are spent than in case the revenues and spending are controlled by two different authorities.} This finding goes against the conventional (public choice) wisdom that bureaucratic discretion boosts the size of the public sector. Finally, we find that the size of the public sector is positively affected by an increase in L’s interest in social welfare ($l_u$) and/or in the electoral influence of the groups ($\theta_m$). The reason is that, for given $b$, they imply a larger impact of L’s interests on the objective of B [cf.(2.4)].

4. Further Results on Hierarchical Influence

A glance at (2.7) shows that, for given $t$, the allocation $s^*$ selected by B is not affected by the degree of hierarchical influence (expressed by the parameter $b$), under competitive lobbying. B’s choice under L’s oversight is just the same as with no oversight ($b=0$). Although the result is surprising, the intuition is rather straightforward. The policy selected by B maximizes the utilities of all interest groups, then L’s oversight cannot improve the result for them and is irrelevant for B’s choice. However, if not all groups are able to lobby B, hierarchical influence does affect the budget allocation.\footnote{Notice that this result is quite general as it does not depend on assumptions concerning the value of the weights or the form of the utility function. Moreover, it also holds if the legislator is assumed to care for gross instead of net social welfare, as long as the same weight ($\theta$) is assigned to the welfare of the groups, as in case of a utilitarian social welfare function.}

This outcome has some important implications. In particular, it may provide a new intuition regarding the contrasting empirical results reported in the literature with respect to bureaucratic discretion (cf. Krause 1996). Well-known empirical studies by Weingast and Moran (1983) and Weingast (1984) on the activity of the U.S. Commissions show that, even though these Commissions appear to be scarcely monitored, their policies are nonetheless strongly influenced by congressional committees (presumably, through other instruments of control over bureaucratic activity, like internal competition or appointments). However, the hypothesis of (strong) legislatorial control seems at odds with the results of a survey by Schlozman and Tierney (1986), for example, showing that bureaucratic agencies represent an important target for interest group lobbying.\footnote{Schlozman and Tierney (1986) mention that two-thirds of the 175 politically active organizations represented in Washington that were interviewed indicated that executive agencies are a very important focus of organizational activity; only 6 percent deemed it not too important (p. 330).} This suggests that agencies may indeed enjoy substantial discretion in policy implementation; otherwise, why bother influencing them?

Our analysis offers a potential explanation for these contrasting observations of a lack of monitoring activity, bureaucratic autonomy, and yet policymaking consistent with the legislatorial objective. If all politically relevant groups have access to lobbying, scarce
monitoring by legislators may be due to the ineffectiveness of control. At the same time, however, if the competition among the lobbies is sufficiently balanced (symmetric), the policy selected by B will perfectly match the preferences of L. Therefore, the implementation of the policy preferred by L does not need a strong control over B. It may be selected even in the absence of any control \((b=0)\), in which case B cares for contributions only.

Even though stronger control may not influence the budget allocation of B, it nonetheless reduces the amount of lobbying contributions \(E_m^*\), for any given \(t\). The intuition is that, in the absence of hierarchical influence, B would only be interested in contributions. This would increase the cost for group \(i\) to compensate B for not choosing the policy preferred by group \(j\). The reason is that now B does not take into account the welfare loss that group \(i\) would suffer if the policy preferred by group \(j\) is selected (instead of that chosen in a competitive lobbying equilibrium).

However, if we do not take \(t\) as given, a tightening of L’s oversight may lead to an increase in \(E_i^*\), because of a positive effect on \(t^*\). This happens if group \(i\) has sufficiently small electoral influence compared with group \(j\), that is, if \(\theta_i/\theta_j\) is sufficiently small. In fact, a larger \(b\) can even induce a group to shift resources from L’s tier to B’s tier \((E_i^*\text{ increases and } C_i^*\text{ decreases})\). Consequently, a larger influence of L over B may not only increase, instead of decrease, the contributions to the subordinate agent but may also reduce the contributions received by the political master. Nonetheless, a negative effect of \(b\) on \(E_i^*\) is still possible if \(\theta_i/\theta_j\) is sufficiently high.

**Proposition 4.** Hierarchical influence under competitive lobbying: for any given \(t\) and \(C\), a stronger influence of L on B (larger \(b\)) has no effect on B’s policy but reduces lobbying expenditure \((E)\). The latter result may be reversed through a positive effect of \(b\) on \(t^*\).

These results suggest that the effect of legislatorial oversight may manifest itself in the effort invested in lobbying bureaucracy, rather than the policy selected. This points at an interesting alternative explanation of (costly) political supervision: legislatorial control may in fact be induced by lobbies that are willing to offer a share of what they may save in terms of lobbying expenditures. In the literature on bureaucracy and regulatory capture, it is often assumed that the legislator invests resources to oversee bureaucratic agencies with the aim of promoting the interests of the legislator’s constituency. Our model suggests that the legislator may (in addition) be induced to do so by the interest groups themselves if (s)he cares for their welfare. They can offer part of the resources saved in lobbying the bureaucrat to the legislator in exchange for control and be better off than under no control. In this event, legislatorial control is clearly endogenous in the policymaking process and it depends on the incentives provided by the interest group.²³

²³To elaborate this point a bit further, assume that the budget \(R\) assigned to B is exogenously given, such that L’s influence has the effect of reducing the cost of lobbying B without affecting \(s^*\) (as discussed above). Then, L chooses the amount of (costly) oversight by solving the following program: \(\max_b P_L = \sum_m \lambda_m C_m(b) + l_i \theta_i [U_m(s^*) - E_m^*(s^*, b)] - M(b)\).

Now, each group lobbies L by setting a contribution schedule contingent on the amount of oversight \(b\) that represents a public good for the lobbies. With \(M(b)\) we indicate the cost of monitoring the bureaucrat
5. Concluding Discussion

The main contribution of this chapter concerns the analysis of lobbying activity in a divided government. The existence of different levels of decisionmaking complicates the decisions of the lobbies, because the allocation of lobbying activity depends not only on the institutional links between the decisionmakers but also on the reaction of the political superior to lobbying, especially at the subordinate tier. In addition, two-tier lobbying makes the payoffs of the decisionmakers more interdependent, introducing new perspectives for the analysis of legislator control and lobbying regulation. More generally, the model presented in this study may be helpful for a better understanding of policymaking in a multi-level decisionmaking structure. We close with some applications regarding the political economic analysis of fiscal federalism and the firm.

In a fiscal federalism framework, the higher level decisionmaker (L) would be the central government deciding on a general grant \((R)\) to be transferred to a local government (B). The latter decides on the allocation of the grant for the provision of local public goods favoring specific interest groups. Our analysis suggests that the size of the grant and its division over the different local public goods will be dependent on the extent to which the interests of the central policymakers are taken into account by the local policymakers. A greater influence of an interest group on a local government may trigger a decrease in the general grant, when an opponent group is influential at the national level (see Oulasvirta 1997). A related application concerns the effects that decentralization and the subsidiarity principle in the EU have on the size of government. On this issue, Persson and Tabellini (1994) show that central financing of state public goods will exacerbate free-riding. As a consequence, lobbying by the different states of the central (federal) legislator will increase public expenditure beyond the level selected in a decentralized system, where each state pays for its own provision. In Chapter 3, however, the opposite result - a decrease in public expenditure – is reached by taking into account the existence of two autonomous decisionmakers at the Union level (the Council and the Commission) and including two-tier lobbying by state groups.

Firms are characterized by agency problems that are to some extent similar to those of political institutions.24 The institutional framework of our model may prove to be useful to investigate the issue of corporate control. A firm’s governance can be hypothesized to be in the hands of two agents acting at a different hierarchical level: the board of directors and a senior executive. As indicated by Milgrom and Roberts (1992), directors «have the power to set dividends, to hire, fire, and set compensation of the senior executives», but the latter «may have effective control of many of the decisions that are nominally controlled by the board» (pp. 314-5), although the board’s preferences may not be

\[
(M(0)=0, M_b>0 \text{ and } M_{bb}>0). \text{ Since } s^* \text{ does not depend on } b, \text{ no oversight will be exerted if } b_m \leq 0 \text{ for all } m, \text{ because then } E_m^*=0. \text{ Thus, for } l_v>0, \text{ max}_{m} b_m/l_v, \text{ constitutes the upperbound for the amount of oversight exerted by } L \text{ (if } l_v=0, C_m(b)=0, \text{ because } b \text{ does not affect } E_m^*). \text{ In Mazza and van Winden (1998) it is shown that both groups are willing to contribute for improving control, since this cost is lower than the benefit they obtain.}
\]

24 According to Dixit (1996a, p. 51): «in a firm, for example, the managers act as agents of equity owners, who are the principals. The hierarchy of a firm often involves other agency relations, for example between managers and line supervisors, or purchasers and outside suppliers.»
disregarded without cost. On the “demand” side, groups of powerful stockholders, banks or institutional investors (the principals) may have little direct control over management decisions, but may nonetheless be influential over the directors, who are elected and replaced by them. Moreover, some stockholders have sufficient incentives to overcome free-riding and exert effort to gain influence over corporate policy, also considering the effect this may have on the performances of other companies in which they have invested (Shleifer and Vishny 1986). The influencing activities may have the form of reward schemes to managers and directors based, for example, on their approval for higher salaries, bonuses etc., or better jobs in other corporations, or simply money and gifts. To apply our model, notice that stockholders may easily have conflicting interests about the management strategy, for example concerning the amount of profits to be reserved ($R$, in our model). This amount is chosen by the board ($L$) and is allocated over two different projects ($G_1$ and $G_2$) by an executive officer ($B$). The analysis presented in this essay shows that when groups with different preferences try to affect decisionmaking, their efforts may offset each other, with little or no influence on the policy selected. This result can provide some additional intuition for the little influence that shareholders frequently seem to have in a corporation. Moreover, the comparative-statics results (section 3.3) suggest that a stronger alliance between managers and directors (an increase in $b$) might have a positive effect on the share of profits that are re-invested ($t^*$).

Appendix

A.1. Monopsonistic Lobbying (section 3.1.)

Without loss of generality, assume that only group 1 is organized to lobby. Starting from the lower tier, group 1 offers to $B$ a contribution schedule $E_1(s)$. From Lemma 2 in Bernheim and Whinston (1986), an equilibrium $\{(E_1, s^1)\}$ has to maximize the objective function of the agent ($B$) and the joint payoff of the latter and each single principal (in this case group 1 only). Thus, also the utility of group 1 is maximized: $B$ chooses an allocation $s^1 \in S = [0, 1]$ that maximizes $P_B = (b_1 - b_1^\theta_1) E_1(s) + b_1 \sum_{m=2}^M \theta_m U_m(s) + \lambda_1 C_1$ for $m=1, 2$ and $\lambda_m = (1 - \theta_m)$ — and also such that $U_1(s) = E_1(s^1)$, for any given $t \in T$ and $C$. The combination of the two conditions implies that, in equilibrium, $b_1 U_1(s) + b_1^\theta_1 U_2 = 0$ [cf. first part of (2.6)]. Comparing (2.5) and (2.6), $1 > s^1 > s^2 > 0$ is obtained from the assumptions of strict concavity concerning (2.1) and $b_1 > b_1^\theta_1$. Since the contribution

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25 On the political economy of dividend policy, see Desai et al. (2002).
26 Without loss of generality, we restrict the analysis to nonnegative schedules (cf. Bernheim and Whinston 1986, Lemma 1).
27 Otherwise, any principal could rearrange its schedule in a way that makes profitable for $B$ to maximize the joint payoff, leaving the lobby with a higher payoff. Moreover, the equilibrium definition states there must be some “unfavorable” policy for the group, but still optimal for $B$, for which the lobby offers a contribution equal to zero. Otherwise, the group’s payoff would improve by reducing the schedule, such that nil is contributed to $B$ for that specific policy, without affecting $B$’s decision.
28 Strict concavity of $U_m$ in $s$ guarantees that the second order sufficient condition is satisfied.
schedule is set optimally, \( E_i^l \) is just sufficient to make \( B \) not worse off than by choosing \( s^n \); the latter policy maximizes the social welfare part of \( P_B \) and causes zero contributions from 1. This implies \( P_B(s^l) = b[l_u \sum_m \theta_m U_m(s^n) + \lambda_1 C_1] \), or:

\[
E_i^l = (b_l u / \beta_1) \sum_m \theta_m [U_m(s^n) - U_m(s^l)]
\]  

(A.1)

where \( \beta_1 \equiv b_1 - b_l u \theta_1 \). From the definition of \( s^n \) (2.5) and strict concavity, we obtain \( E_i^l > 0 \), since \( s^n \neq s^l \). \( B \) is just compensated for choosing \( s^l \) instead of \( s^n \) and the whole surplus goes to the monopolist lobby. From (A.1): \( \beta_1 [U_1(s^l) - E_1^l] = b_1 [U_1(s^l) - U_1(s^n)] + b_l u \theta_2 [U_2(s^l) - U_2(s^n)] + \beta_1 U_1(s^l) \). Recalling the first order condition for \( s^l \) (2.6) and \( s^l \neq s^n \), from strict concavity of \( U_m \):

\[
E_1^l(s^l) > 0,
\]

since \( s^n \neq s^l \). \( B \) is just compensated for choosing \( s^l \) instead of \( s^n \) and the whole surplus goes to the monopsonist lobby. From (A.1):

\[
\beta_1 [U_1(s^l) - E_1^l] = b_1 [U_1(s^l) - U_1(s^n)] + b_l u \theta_2 [U_2(s^l) - U_2(s^n)] + \beta_1 U_1(s^l)
\]

leading to the second equation in (2.6), assuming, as in the sequel, that the second order condition is satisfied. To reduce notation, from now on, we adopt the convention that \( U_m(s^n, t) = U_m(s^n, t) \) (\( m=1, 2; w=1, n \)) and \( E_1^l(s^l, t^l) = E_1^l(t) \). Now, group 1 offers a contribution \( C_1 \) for \( t^l \) that leaves \( L \) indifferent between \( t^l \) and the tax rate \( t_u \) that would not elicit lobbying expenditure at \( L \)'s tier (but it would at \( B \)'s tier), if (optimally) selected by \( L \).

Thus, \( C_1 \) is such that:

\[
C_1 = \left( l_u / \lambda_1 \right) \{ \theta_1 [U_1(s^l, t^l) - E_1^l(t^l)] + \theta_2 [U_2(s^l, t^l) - U_2(s^l, t^l)] \}
\]  

(A.2)

where \( \lambda_1 \equiv l_u - \lambda_1 \theta_1 \). From the definition of \( t^l \): \( C_1 \geq 0 \); and, from (A.2) and the definition of \( t^l \): \( U_1(t^l) - E_1^l(t^l) \geq C_1(t^l) \) meaning that group 1 has an incentive to lobby \( L \). In both cases, strict inequality holds for \( t^l \neq t^l \).

**PROPOSITION 1**

Denote with \( P_B(s^l, t^l) \) and \( P_L(s^l, t^l) \) the payoffs of \( B \) and \( L \) when they are lobbied by group 1, and with \( P_B(s^n, t^l) \) and \( P_L(s^n, t^l) \) their payoffs when they are not lobbied.

(i) \( P_B(s^n, t^l) > P_B(s^l, t^l) \) if and only if \( l_u \sum_m \theta_m [U_m(s^n, t^l) - U_m(s^l, t^l)] > \lambda_1 C_1 - l_u \theta E_1^l(t^l) \) or, from (A.2):

\[
\sum_m \theta_m [U_m(s^n, t^l) - U_m(s^l, t^l)] + \theta_1 E_1^l(t^l) > 0,
\]

implying, after rearranging, \( \sum_m \theta_m [U_m(s^n, t^l) - U_m(s^l, t^l)] + \theta_1 E_1^l(t^l) > 0 \). This inequality is satisfied because the first term is nonnegative, by the definition of \( t^l \) (5), the second term is strictly positive by the definition of \( s^n \) (5), \( s^n \neq s^l \), and \( E_1^l > 0 \) for any \( t \in T \).

(ii) To prove that lobbying (at both stages) may have an ambiguous effect on the payoff of \( B \), comparing with the case of no lobbying, assume for the moment that \( E_i^l \) strongly increases with \( t \). From (A.2), \( P_B(s^l, t^l) \geq P_B(s^n, t^l) \) if and only if:

\[
(b_1 - 2 l_u \theta_1) \sum_m \theta_m [U_m(s^n, t^l) - U_m(s^l, t^l)] > 0
\]

Note that \( t^l \) is generally different from \( t^l \) [cf. (2.5)] that is obtained when \( E_m \) equals zero for all \( m \).

30 If we neglect the special case of \( U_1(s^l, t^l) - E_1^l(t^l) \) maximized at \( t^l \), then \( t^l \neq t^l \) is obtained, and \( C_1 \neq 0 \).
\(bl_u \theta_1 E_1^j(t^j)+bl_u \sum \theta_m [U_m(s^i,t^j)-U_m(s^i,t^j)]=0.\)

Recall that \((b_1-bl_u \theta_1)E_1^j(t^j)=bl_u \sum \theta_m [U_m(s^i,t^j)-U_m(s^i,t^j)].\) Thus, \(P_B(s^i,t^j)>P_B(s^i,t^j)\) if and only if \(b_1[E_1^j(t^j)-E_1^j(t^j)]>bl_u \sum \theta_m[U_m(s^i,t^j)-U_m(s^i,t^j)].\)

Assume \(t^j>t^j.\) Then, \(E_1^j(t^j)<E_1^j(t^j)\) and also \(P_B(s^i,t^j)<P_B(s^i,t^j),\) since \(\sum \theta_m[U_m(s^i,t^j)-U_m(s^i,t^j)]>0.\) In this way, it can be shown that \(t^j>t^j\) if \(b_1\) is sufficiently small, establishing the proof.

All the calculations related to the specific example are not presented here, but available upon request.

(iii) From previous results, we know that \(U_1(s^i,t^j)-E_1^j(t^j)>U_1(s^i,t^j);\) for \(b_1\) sufficiently larger than \(bl_u \theta_1\) the increase in redistribution (from \(s^i\) to \(s^i\)), due to lobbying at B’s stage, is expected to dominate the tax effect, leading to \(U_1(s^i,t^j)>E_1^j(t^j)>U_1(s^i,t^j);\) as indeed can be shown making use of the specific example introduced above. On the contrary, for \(b_1\) sufficiently close to \(bl_u \theta_1\) (such that \(s^i \rightarrow s^i\)) the opposite result can be obtained for some sets of parameters. They include cases where \(s^i\) and \(s^i\) both tend to one or zero, such that \(h_1(s^i,t^j)\) tends to \(h_1(s^i,t^j)\) and the disposable income effect (linear in \(V_1\)) dominates.

(iv) The result \(P_A(s^i,t^j)>P_A(s^i,t^j)\) implies, in case that group 1 profits from lobbying, that unorganized group 2 loses, because \(l_u \theta_2[U_2(s^i,t^j)-U_2(s^i,t^j)]>l_i C_i^j\) if \(E_1^j(t^j)-C_i^j>U_1(s^i,t^j);\) for \(l_u \theta_2\) sufficiently low and \(l_i \theta_1\) sufficiently high in contrast with the previous necessary condition.

A necessary condition for group 2 benefiting [i.e. \(U_2(s^i,t^j)-U_2(s^i,t^j)<0\)] is that \(U_2(s^i,t^j)>U_1(s^i,t^j),\) since \(\sum \theta_m U_m(s^i,t^j)\geq \sum \theta_m U_m(s^i,t^j),\) by the definition of \(t^j\) and \(\sum \theta_m U_m(s^i,t^j)\geq \sum \theta_m U_m(s^i,t^j)\) by the definition of \(s^i.\) Again, using the specific example, we can verify that \(U_2(s^i,t^j)<U_2(s^i,t^j)\) is feasible.

A.2. Competitive Lobbying (section 3.2.)

LOWER TIER

The derivation of (2.7) follows straightforwardly from the equilibrium definition mentioned at the beginning of this Appendix. Now, a policy has to maximize the joint payoff of the decisionmaker and each single lobby, acting in a noncooperative fashion, as...
well as the payoff of that decisionmaker. Therefore, $s^*$ maximizes $P_B$ and $U_m$ for all $m$. For any $t \in T$ and $C_m$, from (2.6) and (2.7): $s^t > s^s$, since $\beta_m = b_m - blu \theta_m > 0$ for all $m$. Comparison of (2.5) and (2.7) shows that “fully capture” ($s^* = s^0$) is obtained if $b_m = \theta_m$ for all $m$ (in which case, $blu < 1$). To check the net payoffs of the lobbies, we refer to the previous procedure for deriving the lobbying expenditure of each group. Each group $j$ offers noncooperatively a contribution such that, for any given $t \in T$ and $C_m$:

$$P_B(s^*) = P_B(s^t)$$  \hspace{1cm} (A.3)

where $s^t$ is B’s policy when only group $i$ ($i \neq j; i = 1, 2$) offers a positive contribution. Denote with $E_m^*$ an optimal contribution schedule from any group $m$, under competitive lobbying. Since $s^*$ maximizes the utility of each group: $U_i(s^*) - E_i(s^*) \geq U_i(s^t) - E_i(s^t)$. From (A.3) and (2.4): $b_2 E_2^*(s^*) = \beta_1 [E_1^*(s^t) - E_1^*(s^*)] + b_1 \theta_1 [U_1(s^t) - U_1(s^*)] + \theta_1 [U_1(s^*) - U_1(s^s)] \geq \beta_1 [U_1(s^s) - U_1(s^*)] + b_1 \theta_1 [U_1(s^*) - U_1(s^s)] \geq \beta_1 [U_1(s^s) - U_1(s^*)] \geq \beta_2 [E_1^*(s^t) - E_1^*(s^*)] + b_1 \theta_1 [U_1(s^*) - U_1(s^s)]$; or: $E_2^*(s^*) \geq (1/\beta_2) \{b_1 [E_1^*(s^t) - U_1(s^s)] + b_1 \theta_1 [U_1(s^*) - U_1(s^s)]\}$, which holds for $\beta_2$ sufficiently low, for example; since $\beta_2 \rightarrow 0$ implies that $s^t \rightarrow s^0$ (and $s^* \rightarrow s^0$) such that the right hand side tends to zero whereas the left hand side is strictly positive, recalling the definition of $s^*$ (2.7). However, if both groups compete through lobbying, at most one group can be better off: if group 2 benefits from competitive lobbying, group 1 loses, because $U_2(s^t) - E_2^*(s^t) > U_2(s^s)$ implies that $U_2(s^*) > U_2(s^0)$ and, consequently, $s^* < s^0$. But, then: $U_1(s^*) > U_1(s^t) > U_1(s^s) - E_1^*(s^0)$.

**TRUTHFUL NASH EQUILIBRIUM**

From Bernheim and Whinston (1986), $E_m^*$ represents a truthful strategy relative to $s^0$ if and only if for all $s \in S$: either $U_m(s) - E_m^*(s) = U_m(s) - E_m^*(s^0)$ or $U_m(s) - E_m^*(s) < U_m(s) - E_m^*(s^0)$ and $E_m^*(s) = 0$. Recalling that $U_m(s^0) > U_m(s) - E_m^*(s)$, truthfulness implies $U_m(s^*) - E_m^*(s^*) = U_m(s^0) - E_m^*(s^0)$. This refinement of the contribution set leads to the following unique equilibrium pair of contributions, from (A.3) and (2.4), for any given $t \in T$ and $C_m$:

$$E_1^*(s^*) = (1/\beta_1) \{b_2 [U_2(s^t) - U_2(s^s)] + b_1 \theta_1 [U_1(s^t) - U_1(s^s)]\}$$

and

$$E_2^*(s^*) = (1/\beta_2) \{b_1 [U_1(s^t) - U_1(s^s)] + b_1 \theta_1 [U_1(s^t) - U_1(s^s)]\}$$  \hspace{1cm} (A.4)

$E_m^*(s^*) > 0$ from the definition of $s^t$ (2.6). From (A.4): $U_j(s^*) - E_j^*(s^*) - U_j(s^t) = (1/\theta_j) \sum b_m [U_m(s^0) - U_m(s^t)] > 0$ by (2.7) and $s^* \neq s^t$. This means that a group $j$ has an incentive to lobby if the opponent $i$ lobbies. But, if $s^* = s^0$, the interest groups would clearly better off if they...
could coordinate on not lobbying. From now on we focus on the truthful Nash equilibrium \((E_1^*, E_2^*, s^*)\).

**Proposition 2**

Comparing (A.1) and (A.4) it is evident that \(E_i^*(s^*) > E_i^*(s^j)\) for \(bl_u\) sufficiently small. Using the example introduced in the proof of Proposition 1 (ii) we can show that this as well as the opposite result can hold, and also that \(\Sigma m E_m^*(s^*) < E_i^*(s^j)\) holds, for a ratio \(\beta p_n / \beta n_i\) sufficiently large.

**Upper Tier**

For expositional reasons, denote:

\[ \bar{U}_1(t) \equiv U_1(s^*; t) - E_1^*(s^*, s^2; t) \]

and

\[ \bar{U}_2(t) \equiv U_2(s^*; t) - E_2^*(s^*, s^1; t) \]

From (A.4):

\[ \bar{U}_1(t) = (1/\beta_1) [b_1 [U_1(s^*; t) - U_1(s^2; t)] + b_2 [U_2(s^*; t) - U_2(s^2; t)] + U_1(s^2; t)] \]

and

\[ \bar{U}_2(t) = (1/\beta_2) [b_2 [U_2(s^*; t) - U_2(s^1; t)] + b_1 [U_1(s^*; t) - U_1(s^1; t)] + U_2(s^1; t)] \]

In line with the equilibrium definition at the beginning of this Appendix, L chooses a tax rate \(t^*\), taking into account (2.7) and (A.4), such that:

\[ \Sigma m \bar{U}_m(t^*) = 0 \] [cf. (2.8)].

To derive the contributions offered to L, we take as a reference \(t^*\), which indicates the tax rate chosen when only group \(i\) lobbies L (but both groups lobby B), implicitly defined by

\[ li \bar{U}_i(t^*) + lu \theta_j \bar{U}_j(t^*) = 0. \]

At the lower tier, a group \(j \neq i\) sets \(C_j^*\) such that L is left indifferent between \(t^*\) and the competitive lobbying outcome \(t^*\), i.e. \(P_L(s^* (t^*), t^*) = P_L(s^* (t^*), t^*)\). From truthfulness, we obtain:

\[ C_j^*(t^*) = \frac{1}{\lambda_j} \left[ l_2 [\bar{U}_2(t^*) - \bar{U}_1(t^*)] + l_u \theta_j [\bar{U}_2(t^*) - \bar{U}_1(t^*)] \right] \]

and

\[ C_j^*(t^*) = \frac{1}{\lambda_j} \left[ l_1 [\bar{U}_2(t^*) - \bar{U}_1(t^*)] + l_u \theta_j [\bar{U}_2(t^*) - \bar{U}_1(t^*)] \right] \] (A.5)

where \(\lambda_m \equiv m - l_u \theta_m > 0\) for all \(m\); \(C_m^* (t^*) > 0\), by the definition of \(t^*\) (and \(C_m^* (t^*) > 0\) for \(t^* \neq t^*\)).

**Proposition 3**

Let \(P_B(s^*, t^*)\) and \(P_L(s^*, t^*)\) be the payoffs of the decisionmakers with competitive lobbying and \(P_B(s^0, t^0)\) and \(P_L(s^0, t^0)\) their payoffs in the case with no contributions. It can be seen from the objective functions of the policymakers that \([P_L(s^*, t^*) > P_L(s^0, t^0)] \Rightarrow [P_B(s^*, t^*) > P_B(s^0, t^0)] \) and \([P_B(s^*, t^*) < P_B(s^0, t^0)] \Rightarrow [P_L(s^*, t^*) < P_L(s^0, t^0)] \). Starting from the first result, after substituting for (A.5), \(P_L(s^*, t^*) > P_L(s^0, t^0)\) if and only if:

\[ l_2 [\bar{U}_2(t^0) - \bar{U}_1(t^0)] + l_u \theta_j [\bar{U}_1(t^0) - \bar{U}_1(t^0)] \]

is then possible, for example, for \(l_u\) sufficiently small since, for \(l_u \rightarrow 0\), the difference between \(\bar{U}_1(t^0) - \bar{U}_1(t^0)\) increases so that

\[ l_2 [\bar{U}_2(t^0) - \bar{U}_1(t^0)] > 0. \]

In this case, also \(P_B(s^*, t^*) > P_B(s^0, t^0)\): L and B profit from competitive lobbying.

On the contrary, L may be better off without any lobbying if lobbying at the lower stage is particularly wasteful and if lobbying gives L little benefit. From (2.3), notice that \(P_L(s^*, t^*) < P_L(s^0, t^0)\) if and only if

\[ \Sigma m \lambda_m C_m^* m - l_u \Sigma m \theta_m E_m^* < l_u \Sigma m \theta_m [U_m(s^0, t^0) - U_m(s^*, t^0)] \].

If \(l_u \Sigma m \theta_m \)

32 From (2.8) it results that \(t^* \neq t^0\), if we exclude the extreme cases where \(\bar{U}_j = 0\) at \(t^0\).

33 Also at the upper tier, an interest group has an incentive to counteract lobbying of the opponent: \(\bar{U}_j(t^0) - C_j(t^0) - \bar{U}_j(t^0) = \frac{1}{\lambda_j} \Sigma m [\bar{U}_m(t^0) - \bar{U}_m(t^0)] \geq 0\) from the definition of \(t^0\).
Then, both stages. Assume that it is not true and Proposition 1. Again, calculations are available upon request.

A.3. Cross-tiers Effects of Changes in Influence Under Competitive Lobbying (section 3.3.)

It could also happen that all lobbies lose, for example when

\[ C_m \leq \theta m \]

\[ \beta m \]

\[ \lambda_1, \lambda_2 \to 0; \] then \( t^* \to t^*, t^* \), and \( \lambda m C_m \to 0. \) Then, \( \Sigma m \theta m [U_m(s^*, t^*) - U_m(s^*, t^*)] \) is still strictly positive, for \( t^* \to t^* \), because of the definition of \( s^* \) (5) and \( s^* \).

At the lower tier, \( P_B(s^*, t^*) < P_B(s^*, t^*) \) if \( \Sigma m \theta m [U_m(s^*, t^*) - U_m(s^*, t^*)] < l_T \Sigma m \theta m [U_m(s^*, t^*) - U_m(s^*, t^*)] \). With respect to the previous case for \( L \), this outcome needs that also \( b \) is sufficiently large. A large \( b \) reduces the left hand side also through its negative effect on \( E_m^* \). However, this outcome represents a rather extreme case, since high \( b \) and \( l_T \) tend to imply low \( \beta m \); in this case competitive lobbying converges to the no-lobbying outcome.

As for the interest groups, when \( P_L(s^*, t^*) < P_L(s^*, t^*) \), it follows that \( U_m(s^*, t^*) - U_m(t^*) \) for at least one \( m \). This establishes that an interest group can lose from competition. It could also happen that all lobbies lose, for example when \( s^* = s^* \). A sufficient condition, in this case, is that \( U_m(s^*, t^*) \geq U_m(s^*, t^*) \) for all \( m \). This result is described using the specific example introduced in the proof of Proposition 1. In that example \( U_m(s^*, t^*) \) is strictly concave in \( t \). Then, defining \( \mathbf{m} = \argmax_{m} U_m(s^*, t^*) \) we can find a set of parameters such that \( t^* \geq t^* \), implying that \( U_m(s^*, t^*) \geq U_m(s^*, t^*) \), for all \( m \).

On the other hand, it results that not all groups can benefit from competitive lobbying at both stages. Assume that it is not true and \( U_m(s^*, t^*) - E_m^* (s^*, t^*) - C_m^* (s^*, t^*) > U_m(s^*, t^*) \) for all \( m \). Then, \( \Sigma m \theta m [U_m(s^*, t^*) - U_m(s^*, t^*)] > 0 \) or, after rearranging, \( \Sigma m \theta m [U_m(s^*, t^*) - U_m(s^*, t^*)] + [U_m(s^*, t^*) - U_m(s^*, t^*)] > 0 \); but this is not true since the first and the second terms are negative by the definition of \( t^* \) and \( s^* \), respectively [cf. (2.5)]. However, it is possible for one lobby \( i \) to benefit from competitive lobbying, i.e.: \( \hat{U}_i(t^*) > C_i^* (s^*, t^*) + U_i(s^*, t^*) \). This happens, for example, when the opponent group is powerless at both stages (in this way competitive lobbying approaches monopsonist lobbying that is often advantageous for the monopsonist, as shown). In fact, first notice from (A.5) that \( \hat{U}_i(t^*) > C_i^* (s^*, t^*) \) if and only if \( \Sigma m [\hat{U}_m(t^*) - U_m(t^*)] + l_T \Sigma m \theta m [\hat{U}_m(t^*) - U_m(t^*)] + \lambda_T [\hat{U}_m(t^*) - U_m(t^*)] > 0 \) for \( j \neq i \). First two terms within brackets are strictly positive by the definition of \( t^* \) (2.8) and \( t^* \) (2.5) that are generally different from \( t^* \) and \( t^* \), respectively; then, for \( \lambda_T \to 0 \), \( \hat{U}_i(t^*) > C_i^* (s^*, t^*) \). Using (A.4) evaluated at \( t^* \) and rearranging, \( U_i(s^*) - U_i(s^*) < 0 \) if and only if \( \Sigma m \theta m [U_m(s^*) - U_m(s^*)] + b_T \Sigma m \theta m [U_m(s^*) - U_m(s^*)] + \beta_T [U_j(s^*) - U_j(s^*)] > 0 \); if \( \beta_T \to 0 \), then \( s^* \to s^* \) and \( s^* \to s^* \), and the left-hand side converges to \( \Sigma m \theta m [U_m(s^*) - U_m(s^*)] \) which is strictly positive.

A.3. Cross-tiers Effects of Changes in Influence Under Competitive Lobbying (section 3.3.)

The results are derived exploiting the specific utility function introduced in the proof of Proposition 1. Again, calculations are available upon request.

A.4. Further Results on Hierarchical Influence (section 4)

See, infra, the proofs for the results in section 4.

ImPLYING THAT \( t^* \to t^* \) AND \( t^* \to t^* \)
PROPOSITION 4

Eq. (2.7) shows that \( s^* \) is unaffected by \( b \), for given \( t \). To see the effect of hierarchical influence (i.e. the parameter \( b \)) on lobbying expenditures at B’s tier, start by assuming that B is only interested in contributions, i.e. \( b=0 \). From (A.3), group 2 sets a contribution schedule such that \( b_1 E_1^{*b}(s=1) = \sum_m b_m E_m^{*b}(s^*) \),\(^{36} \) where the superscript \(-b\) denotes the lack of control, whereas group 1 sets a schedule such that \( b_2 E_2^{*b}(s=0) = \sum_m b_m E_m^{*b}(s^*) \). Truthfulness implies \( E_1^{*b}(s=1)-E_1^{*b}(s^*) = U_1(s=1)-U_1(s^*) \) and \( E_2^{*b}(s=0)-E_2^{*b}(s^*) = U_2(s=0)-U_2(s^*) \). By substitution, \( E_j^{*b}(s^*) = (b_j/b_i)[U_i(s^*)-U_i(s^*)] \), with \( s^b_1 = 1 \) and \( s^b_2 = 0 \).

From (A.4), \( E_j^*(s^*) \geq E_j^{*b}(s^*) \) if and only if \( b_j/b_i[U_i(s^*)-U_i(s^*)] + b_i b_j [U_i(s^*)-U_i(s^*)] \geq 0 \).

Since \( U_i(s^*) \leq U_i(s^b) \), and \( \sum b_m U_m(s^*) - \sum b_m U_m(s^*) < 0 \) by (7) as \( s^b \neq s^* \), the left-hand side is negative; thus: \( E_j^*(s^*) > E_j^{*b}(s^*) \). To show that the latter result can be reversed and \( E_j \) may increase through the effect on \( t^* \), for \( \theta_i/\theta_j \) sufficiently low for example, once more we use the specific example introduced earlier.

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\(^{36} \) A competitive equilibrium \( s^* \) is unaffected by \( b \).
3. Does Centralization Increase the Size of Government? The Effects of Separation of Powers and Lobbying†

1. Introduction

In the last decade, the European Union (EU) has experienced a substantial process of integration. The creation of a monetary union has raised some doubts about its viability without a further process of political integration. One argument is that, in the absence of a flexible and integrated labor market, the Economic and Monetary Union would require a (con)federal government having the financial resources to compensate the limitation of national fiscal instruments and support the economies hit by localized negative shocks (De Grauwe 1997). The issue of fiscal stabilization has provoked a large debate about the necessity of increasing the size of the EU budget (see Kletzer and von Hagen 2000).† Moreover, there is a fear that an expanded ‘European Transfer Union’ would become a Leviathan uncontrolled by the national governments (Obstfeld and Peri 1998).

An influential study by Persson and Tabellini (1994) suggests that centralization of fiscal programs, producing localized benefits with federation wide costs, would generate an evident free-riding problem and give an incentive to local interests to lobby the central government for an increase of the federal budget. That study shows that competitive lobbying by the states leads to an expansion in the provision of state public goods beyond the level selected in a decentralized system, where each state pays for its own public good. This outcome offers a political justification for decentralization that has to be balanced against spillovers and scale economies. According to their study, when we take the incentives for lobbying the central policymaker into account, the reasons for decentralization become stronger when benefits are more locally concentrated.

The goal of this essay is not to dispute this fiscal common pool argument in general. For the debate regarding the EU budget we think it is important, though, to scrutinize the strength of the argument when due account is taken of relevant existing institutions. In the EU, the Council and the Commission have different roles. The former has a decisive legislative role and the latter has mainly the role of initiating and implementing legislation,

† The content of this chapter appears in Mazza and van Winden (2002).
† The EU budget has changed relatively little in the last decade. It went from an average of 1.05% of EU Gross National Income (GNI), over the period 1993-1999, to 0.94% over 2000-2006 (European Commision, Financial Programming and Budget http://ec.europa.eu/budget/faq/faq_eu_budg_en.htm), to 1.08% of EU GNI in 2007 (European Commision 2007c).
3. Does centralization increase the size of government?

securing the observance of the EU Treaties. As for the EU budget, this has to be approved by the Council, at least for what regards compulsory expenditure (resulting from the Treaties or Community legislation; see Barrass and Madhavan 1996). However, the allocation of structural funds used to finance national projects, is in the hands of the Commission.

Consistent with this political economic framework, we therefore extend the stylized Persson and Tabellini model to two decision-making tiers at the federal level. At the first tier, a legislator determines the total amount of revenue (budget) for the provision of local public goods in each state. At the second tier, the executive (a federal agency) determines the share of revenue going to the different states. As two policymaking tiers are introduced, it is sensible to allow for lobbying by local communities (the states) at both tiers, for an increase in the amount of local public goods. Therefore, the analysis of Persson and Tabellini is generalized in two ways: first, by introducing separation of powers and, second, by allowing for two-tier lobbying. The aim of this short essay is to explore the effects of lobbying and centralization of expenditure decisions on the size of government, within this (for the EU, at least) more realistic institutional framework.

Our study shows that, when only the federal legislator can be lobbied, overexpansion is no longer implied by centralization. In fact, in that event, delegation of the revenue allocation to an independent agency produces an equally sized public sector. Although this consequence of the institutional structure seems neglected in the EU debate referred to above, the intuition behind it is rather straightforward: a lobbyist can no longer simultaneously bargain over the size and allocation of the budget. Since the agency assigns a share of the budget to each state, free riding is restricted; this checks the incentive to lobby for an increase in the size of the federal budget. A perhaps more striking result is obtained if also the agency can be lobbied. In that case, it is shown that centralization of policymaking may in fact lead to a smaller government size than decentralization. The reason is that the legislator dislikes lobbying directed towards the agency, because of the costs it implies for the local communities, and can discourage it by reducing the stakes at the agency level. The federal budget, in that case, represents a form of (low-powered) incentive scheme to limit lobbying expenditure for agency capture. Paradoxically as it may seem, this result suggests that a substantial autonomy of the EU Commission, dealing with the allocation of the EU funds, would in fact function as an effective constraint on the expansion of the Union budget.

This chapter fits into the steadily growing public finance literature on the fiscal common pool problem and the impact of separation of powers. For example, Weingast et

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2 Lobbying directed towards the Commission is empirically well established (see Mazey and Richardson 1994).

3 More generally, government policies are typically the result of decisions taken by different agents. In democratic systems, a separation of powers between a legislative and an executive tier is common. There are technical justifications for such a separation (e.g. specific competence or scarcity of time and resources needed to perform a task) as well as political reasons related to avoiding selfish behavior of political representatives to go against the interest of the voters (see Persson et al. 1997).

4 Besley and Coate (2003) confront the costs of common pool effect with the benefits of internalization of spillovers deriving from centralization. They show that, in a centralized system, a cooperative legislature will overprovide public goods. The reason is that local voters will strategically appoint representatives with high
al. (1981) argue that the number of legislative districts has a positive effect on public overspending. On the other hand, Chari et al. (1997) show that the separation of powers in presidential systems may curb overall government spending through split-ticket voting, with one of the votes going to a fiscal conservative president. Similarly, Persson and Tabellini (2004) find that presidential regimes induce smaller government size than parliamentary regimes, suggesting that a reason could be the stronger checks and balances characterizing presidential regimes. Several other papers have investigated this issue both from a theoretical and empirical point of view. A survey of these studies by Bradbury and Crain (2001) shows that the division of a legislature into two chambers lessens the common pool problem and has a negative impact on the government size. This essay contributes to this literature by introducing a formal analysis of two-tiered lobbying. The results show that this new element can have important consequences for the common pool problem and may function as an effective restraint on fiscal expansion.

From a more general perspective, the dangers of merging tax and spending powers in the hands of one ruler have been investigated by Grossman and Noh (1994). They show that a self-interested ruler sets a higher tax-rate and invests a lower level of resources in productive services than would be optimal. The gap decreases when tax and spending policy becomes more closely linked up with the probability of political survival. Migué (1997) analyzes a federal system where functions overlap and different levels of government compete for the same voters by choosing the supply of public goods in a territory. In such a system, there are two forces operating in opposite directions: one in favor of more spending due to the political dynamics and one against because of factor mobility. In line with that paper, our model could be applied to analyze a situation where two different levels of governments with overlapping functions serve the same constituency in the same territory. Also our framework of divided government presents two counteracting forces: one in favor of spending, due to lobbying, and one reducing that effect, due to institutional division of decision power.

The chapter is organized as follows. Section 2 extends the basic model in Persson and Tabellini (1994) by introducing two levels of decision-making and, at a later stage, lobbying activity directed at each tier. Section 3 concludes.

Demand for spading. Dur and Roelfsema (2004) extend that result showing that centralization may lead to underprovision when the costs cannot be shared among districts (as it could happen with environmental regulation or shelter provision to asylum seekers).

Although this result is consistent with our findings, we should be cautious to consider it as an empirical support for our model, as it refers to bicameral legislatures where policymaking presents substantial differences with policymaking in the EU. The same holds for the empirical evidence of a negative effect of two-stage budgeting suggested by the analysis of Ferejohn and Krehbiel (1987).

Few papers also examine the impact of centralization on lobbying. Roelfsema (2004) shows that centralization increases lobbying expenditures directed to local representatives, deciding on provision of local public goods, when central authority is delegated to a single agent. However, the opposite effect holds when central decisionmaking is made by a committee of regional representatives having veto power. The reason is that the common pool effect reduces the price to influence a single legislator. Redoano (2007), adopting a citizen-candidate model, shows that centralization has an ambiguous impact on the number and size of lobbies. Similarly Bardhan and Mookherjee (2000) find that centralization has an ambiguous impact on legislative capture, suggesting that the latter depends on the specific institutional context. Sato (2003) shows that decentralization mitigates rent-seeking but increases wasteful tax competition.
2. The Model

We consider a federation formed by two states, where each state \( m \) is populated by one individual consuming a public good \( G_m \), financed by a proportional tax \( t_m \) on income. Income is for convenience normalized to one. Preferences are symmetric and the utility of the representative individual of state \( m \) is represented by:

\[
V_m = h(G_m) + I - t_m
\]  
(3.1)

where \( h(G_m) \) is a strictly concave function. In a decentralized setting, state \( m \) chooses \( G_m \) in order to maximize (3.1) subject to the balanced budget constraint \( G_m = t_m \). In equilibrium:

\[
h(G_m) = 1 \quad \text{for } m = 1, 2
\]  
(3.2)

where the subscript indicates the derivative. The level of the public good selected by each state is such that \( G_m^s = h'(G_m) \) (3.1), where the superscript \( s \) indicates the outcome under decentralization. Without spillovers or economies of scale, the decentralized choices are optimal: \( G_m^s \) equals the level of federal provision, \( G_m^f \), that would be obtained by maximizing joint welfare \( \sum_m V_m (G_m, t) \) subject to the balanced budget constraint \( \sum_m G_m = 2t \). Clearly, each state has an incentive to free-ride and lobby for an increase in the provision of the local public good that is to be paid by the whole federation. Not surprisingly, then, Persson and Tabellini (1994) show that non-cooperative lobbying by the states at the federal level increases the size of the budget: \( G_m^f > G_m^s \), with lobbying.

In reality, however, government output typically results from the activity of different agents with more or less discretionary power. In that respect, the above result applies to the polar institutional case where the agent deciding on the size of the budget keeps full control over its use. In this study, we consider the opposite benchmark case of complete separation of powers, where elected representatives deciding on the total amount of resources for a specific program do not control its allocation. As discussed in the Introduction, this case would seem to better fit the present situation in the EU, for example.

2.1. Centralized Policymaking with a Divided Government

In this section, we introduce a political economic model where the local public good provision is decided at the federal level, through a two-stage budgeting process. First, a legislator chooses the federation-wide tax rate \( t \) and, subsequently, a federal agency selects the revenue shares \( s \) for state \( I \) determining the public good level in each state, with \( G_1 = 2ts \) and \( G_2 = 2t(1-s) \). In such a framework, local interest groups have two potential targets. A state may obtain favorable redistribution by lobbying the legislator for a change in the tax rate and/or by trying to influence the agency’s policy and increase its revenue share. In order to distinguish the effect of separation of powers from that of two-tiered

\[ \text{Lobbying by local communities is evidenced by the substantial lobbying activity of regional authorities} \]
lobbying, we neglect for the moment the latter generalization of the model. At this stage, we assume that the agency is fully benevolent and immune to lobbying.

Lobbying aimed at the federal legislator is modeled using the Bernheim and Whinston (1986) common agency framework. Each state representative lobbies the legislator by submitting, in a non-cooperative fashion, a menu of contributions $C_m(t)$ contingent on the tax rate that will be selected by the latter. Contributions can be anything that is costly for the supplier and beneficial for the receiver (such as monetary transfers or endorsement efforts to be used for campaigning, for example).

We solve the game starting from the last stage, where the bureaucratic agency selects $s^f$ to maximize $\sum_m V_m(G_m)$ taking $t$ as given. After substituting for $G_m$ in (3.1), in equilibrium: $h_{G1} = h_{G2}$, for any given $t$ and $C_m$. Thus, $s^f = \frac{1}{2}$; that is, the agency distributes the budget equally, since states have the same political weight.

Given the contributions offered by the states, the balanced budget constraint, and the agency's optimal choice, the legislator selects a tax rate $t_f$ that maximizes an objective function including social welfare as well as contributions, namely:

$$P_L = (L-1) \sum_m C_m(t) + \sum_m V_m(t)$$

(3.3)

where the coefficient $L$ denotes the relative importance of contributions to the legislator ($L > 1$ is assumed to allow for lobbying, otherwise the legislator would evaluate contributions negatively). From Lemma 2 in Bernheim and Whinston (1986), it can be shown that, in equilibrium: $h_{G1} = h_{G2}$ (see Appendix). Consequently, $G_m^f = G_m^s$; that is, the federal public sector has the same size under centralization and decentralization.

This result is in fact quite intuitive. As the budget is allocated in equal proportion by the agency, state representatives have no room to free ride. An increase in the local public good is obtained through an equivalent increase in the tax payment by the state. In such a situation it is also evident that lobbying is useless since there is no advantage from changing the amount of tax revenue; thus, $C_m = 0$ in equilibrium.

### 2.2. Two-tier Lobbying

Separation of powers brings with it the possibility of multi-tiered lobbying. The question we will now address is whether allowing for lobbying at the agency level will restore the result of Persson and Tabellini (1994) that the size of the federal budget increases with centralization. Assume, therefore, that the agency can be lobbied as well, through contributions $E_m$ contingent on the agency’s policy, $s$. Again, contributions can be...
interpreted as anything useful for the policymaker and costly for the state representatives.\footnote{10} The net utility of the state representatives is now $V_m - C_m - E_m$. Consequently, the objective function of the legislator and the agency become, respectively:

$$P_L = (L-1)\sum m C_m(t) + \sum m \left[V_m(s,t) - E_m(s)\right]$$

and

$$P_A = (A-1)\sum m E_m(s) + \sum m \left[V_m(s,t) - C_m(t)\right]$$

(3.4)

where $A$ denotes the relative importance of contributions to the agency (and $A>1$ in order to allow for lobbying towards the agency). Including lobbying at each decision-making stage, the sequence of events is the following: first, each state representative $m$ non-cooperatively offers a schedule $C_m(t)$ to the legislator, who then chooses the income tax. Subsequently, each representative $m$ offers a schedule $E_m(s)$ to the agency, which then determines the allocation of the federal budget for the provision of the local public goods. We solve this game starting from the last (bureaucratic) stage.\footnote{11} To establish the effect that lobbying at the agency level has on the size of the budget selected by the federal legislator, it is further assumed that $h(G_m)$ is a homogeneous function (of degree $k<1$).

Following the procedure used before, it can be shown that $s', \maximi\Sigma m V_m(s)$, represents the Nash equilibrium for the agency, for any given $t$ and $C_m$ (see Appendix). The state representatives pay contributions to the agency, but lobbying influences just offset each other, since the utility functions and contributions of the different representatives are evaluated equally by the agency. Therefore, in equilibrium $h_{G_1}=h_{G_2}$ and $s'=\frac{1}{2}$, as in the case of no lobbying at the bureaucratic level. Consequently, from the result in the previous paragraph it follows that $G_m$ is larger, equal or smaller than $G_m^s$ if and only if the optimal tax rate is larger, equal or smaller than $t^*$. Solving for the contributions of each state representative to the agency, $E_m$, and going backward to the legislator’s stage, the optimal tax rate for the legislator $(\tau_f')$ is determined. It turns out that, in equilibrium, the selected tax rate $\tau_f'$ is different from $\tau'$, obtained under one-tier lobbying, even though the choice of the agency $(s')$ is unchanged. Specifically, we obtain that $\tau_f'<\tau'$ and, thus, $G_m^f<G_m^s$ (see Appendix).

The reason is the effect of the contribution $E_m$ on the legislator’s objective function: $E_m$ enters negatively in $P_L$ and it can be shown that $\partial E_m/\partial t>0$. This effect leads to a decrease in the tax rate selected by the legislator. The government size thus reduces with centralization. Bureaucratic capture induces the legislator to reduce the stakes for the lobbies. The budget provided to the agency can be considered as a (low-powered) incentive to reduce lobbying.\footnote{12}

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\footnote{10} The bureaucratic agency may also receive campaign contributions, if elected. Contributions may alternatively have the form of job opportunities (revolving-doors), gifts, perquisites, or valuable information, for example.

\footnote{11} Clearly, solutions for $C_m(t)$ will generally depend on $s$; similarly, $E_m(s)$ may depend on $t$ although it is designed for any given $t$.

\footnote{12} It should also be clear that, in this framework, the same result holds when only the bureaucrat is lobbied.
3. Conclusion

In this chapter we have extended the analysis of Persson and Tabellini (1994) which suggests that the centralization of local public good provision in the EU will increase the size of the federal budget. The extension concerns the introduction of two decision-making tiers at the federal level: one concerning the size of the budget and the other one concerning the allocation of the budget among the states in the federation. We have argued that this generalization better fits the specific decision-making process in the EU, although a more complete political economic model would be needed to account for other aspects, such as the bargaining process within the Council. Our analysis shows that the separation of powers may actually discipline the growth of the public sector with centralization for two reasons. First, because it mitigates the fiscal common pool problem, thereby reducing the incentive to lobby for a larger budget. Second, because separation of powers introduces the possibility of multi-tiered lobbying, a reaction by the legislator is triggered in the direction of reducing the size of the federal budget.

Appendix

A.1. Policymaking with a Divided Government and Single-tier Lobbying

At the second stage of the budgeting process, for any given \( C_m (m=1, 2) \) and \( t \in T = [0,1] \), the bureaucratic agency maximizes the sum of utilities and selects, in equilibrium, a distribution \( \delta' \), such that \( h_{G1} = h_{G2} \); thus, \( \delta' = \frac{1}{2} \).

Going backwards to the first stage, where the states 1 and 2 may lobby the legislator through the offer of contributions, define with \( C \) the set of feasible contribution strategies for each state, i.e. \( C = \{ C(t) \geq 0 \} \) for all the tax rates \( t \in T \) to be selected by the legislator.

From Lemma 2 in Bernheim and Whinston (1986), \( \left( C^f_h \right)_{h=1}^{2} \) is a Nash equilibrium if and only if:

a) \( C^f_m \in C \) for all \( m \)

b) \( t' \) maximizes \( P_L \left( \left( C^f_h (t) \right)_{h=1}^{2}, t \right) \) on \( T \)

c) \( t' \) maximizes \( P_L \left( \left( C^f_h (t) \right)_{h=1}^{2}, t \right) + [V_m(t) - C^f_m (t)] \) on \( T \) for all \( m \)

d) there exists \( t_m \) that maximizes \( P_L \left( \left( C^f_h (t) \right)_{h=1}^{2}, t \right) \) on \( T \) such that \( C^f_m = 0 \) for all \( m \) \hspace{1cm} (A.1)

Condition (A.1a) restricts the analysis to nonnegative schedules without implying a loss of generality (cf. Bernheim and Whinston 1986, Lemma 1). Given the contribution schedules, the policy selected in any Nash-equilibrium has to maximize the objective of the legislator (A.1b) and, in addition, the joint payoff of the policymaker and each single
lobby (A.1c). Condition (A.1d) indicates that group \( m \) offers a contribution of zero for some unfavorable policy. Otherwise, it could clearly be better off by reducing its schedule for the policies satisfying (A.1b), without changing the legislator’s choice. Assuming differentiable contribution schedules, from (A.1b), recalling (3.1) and (3.3), and that \( G_1=2ts \) and \( G_2=2t(1-s) \), we obtain at \( t^f \):

\[
(L-1)\sum_mC_m^f+2h_{G1}[s^f+t(ds^f/dt)]+2h_{G2}[(1-s^f)-t(ds^f/dt)]=2 \tag{A.2}
\]

moreover, from the combination of (A.1b) and (A.1c), it turns out that \( t^f \) maximizes the net utility of each state representative, i.e. in an interior equilibrium:

\[
2h_{G1}[s^f+t(ds^f/dt)]-1=C_{1t} \quad \text{and} \quad 2h_{G2}[(1-s^f)-t(ds^f/dt)]=C_{2t} \tag{A.3}
\]

Substituting (A.3) into (A.2) we see that \( \Sigma_mV_m^f=0 \). The influences of the two states offset each other: competitive lobbying induces the legislator to choose a policy that maximizes the sum of the gross utilities of the state representatives. Recalling that, at \( s^f \), \( h_{G1} \neq h_{G2} \) for any \( t \in T \), we obtain that \( h_{Gm}=1 \) and, comparing with (2), \( G_m^f=G_m^s \) for all \( m \). The sufficient condition for an equilibrium is satisfied, as \( \Sigma_mV_m^f(t,s^f) \) is strictly concave in \( t \).

The equilibrium policy \( t^f \) can be supported by globally truthful contribution schedules, where differences in contributions reveal the net willingness of a state to pay for \( t^f \) compared to an alternative policy. The alternative policy is that selected by the legislator when the state does not contribute. Now, define with \( t_2 \) the policy selected when state 1 does not lobby the legislator and state 2 does. It is easy to see from (A.1b) and (A.1c), using (3.3), that \( t_2 \) maximizes \( LV_2(t)+V_1(t) \). However, after substituting for \( s^f=\frac{1}{2} \), such that \( h_{G1}=h_{G2} \), it is easy to see that \( ds^f/dt=0 \) and \( h_{Gm}=1 \) and, thus, \( t_m=t^f \) for all \( m \). Consequently, each state has no incentive to offer a positive contribution to the legislator.

A.2. Policymaking with a Divided Government and Two-tier Lobbying

Recall that, if lobbying can take place at both levels of decision making, the net utility of the state representatives is \( U_m=V_m(s,t)-C_m(t)-E_m(s) \), for \( m=1, 2 \), where \( E_m(s) \) is the contribution schedule offered by state \( m \) to the agency, while \( C_m(t) \) is the contribution schedule offered to the legislator. The objective functions of the legislator and the agency are as in (3.4). It is assumed that \( h(G_m) \) is a homogeneous function of degree \( k<1 \) in its argument.

Starting from the second stage, the bureaucratic agency selects \( s \in S=[0,1] \) to maximize \( PA(3.4) \). For any given \( t \) and \( C_m(t) \), from Lemma 2 in Bernheim and Whinston (1986), we

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13 If the latter would not hold then lobby \( m \) could compensate the policymaker for switching to a preferred \( t \) and still be off.

14 After differentiating \( \Sigma_mV_m^f(t^f,s^f) \) with respect to \( t \), we obtain: \( 4h_{G1}[s^f+t(ds^f/dt)]^2+2h_{G1}[2(ds^f/dt)+t(ds^f/dt')]+4h_{G2}[(1-s^f)-t(ds^f/dt)]^2+2h_{G2}[-2(ds^f/dt)-t(ds^f/dt')] \). Recalling that \( h_{G1}=h_{G2} \), we clearly see that \( \Sigma_mV_m^f(t^f,s^f)<0 \).
can define a Nash equilibrium \( \left( E_n^1, s^1 \right) \) in a way similar to (A.1); then, in equilibrium, the agency selects a policy that maximizes \( P_A \left( E_n^1 \right) + P_A \left( E_n^2 \right) + U_m(s) \) for each state \( m \) that offers contributions to the agency. As shown in the previous section for the legislator, competitive lobbying induces again the agency to maximize \( \Sigma_m V_m(s) \) for any given \( t \) and \( C_m \). Therefore, \( s^1 = \frac{1}{2} \): the allocation of the budget is unchanged by lobbying.

To derive the contributions for the agency, define with \( s_m \) the allocation chosen by the agency when it is lobbied by state \( m \) (with schedule \( E_m \)) and not lobbied by state \( i \) \((i \neq m)\). Applying the same reasoning as in the definition of the Nash equilibrium, but with only one state lobbying, it turns out that \( s_m \) maximizes \( AV_m(s) + V_i(s) \), i.e. the lobbying state “buys” a larger weight through its contribution. It is straightforward to verify that \( s_1 > s^1 > s_2 \), from concavity of the objective function.

Now, we can derive the truthful Nash equilibrium contributions offered to the agency that support \( s^1 \). In particular, \( E_m \) represents a truthful strategy relative to \( s^1 \) if and only if for all \( s \in S \): either \( V_m(s) - E_m(s) = V_m(s^1) - E_m(s^1) \) or \( V_m(s^1) - E_m(s) - E_m(s^1) = 0 \). In this way, \( s^1 \) represents a truthful Nash equilibrium. Corollary 1 to Theorem 2 in Bernheim and Whinston (1986) offers a unique solution for the truthful Nash equilibrium contributions when there are only two lobbies. The intuition is as follows. Taking as given the schedule of the other state, each state sets its contribution schedule such that it maximizes its net utility, subject to the constraint that the policy contingent offer should be sufficiently large for the agency to accept the offer. In equilibrium, these schedules are consistent and support the policy \( s^1 \). Then, in order to induce the agency to choose \( s^1 \), state 1 has to offer a contribution that does not make the agency worse off with respect to \( s_2 \). Since each state chooses the contributions optimally, minimizing the cost of influence, state representative \( m \) contributes such that, for any given \( t \) and \( C_m \), and \( i = 1, 2 \):

\[
P_A(s^1) = P_A(s_i) = (A-1) E_i(s) + \sum_m [V_m(s) - C_m]
\]

(A.4)

Take, for example, \( i = 2 \). Then (A.4) can be rearranged as follows: \( (A-1) E_i(s^1) = E_i(s_i) - V_i(s^1) + [V_2(s^1) - V_2(s^2)] \). Meanwhile, from global truthfulness, we know that: \( V_2(s^1) - E_2(s^1) = V_2(s_2) - E_2(s_2) \). After substituting and applying the same procedure to the other state, we have the following solution for the contributions to the agency:

\[
E_m = (A-1)^{-1} \left\{ A [V_i(s_i) - V_i(s^1)] + [V_m(s_i) - V_m(s^1)] \right\}
\]

(A.5)

15 Bernheim and Whinston show (Theorem 1) that the set of best responses to any strategy played by the opponent lobby contains a truthful strategy. Therefore, there is no cost for the lobbies from playing truthful strategies.
16 For a description of the derivation of truthful contribution schedules, see Grossman and Helpman (1994), sect.4.
17 We know from the equilibrium definition that \( s^1 \) maximizes state 2 utility, i.e.: \( V_2(s^1) - E_2(s^1) = V_2(s_2) - E_2(s_2) \). To see that the equality sign holds, notice that \( V_2(s^1) - E_2(s^1) > V_2(s_2) \), as \( V_2(s_2) > V_2(s^1) \). Then state 2 has an incentive to lobby the agency by offering a positive contribution for \( s_2 \) as an alternative to \( s^1 \). Recalling the definition of global truthfulness, this contribution is made just equal to the net gain from having \( s_2 \) instead of \( s^1 \) and the equality sign holds.
From the definition of \( s_m \) (\( s_m \neq s \)) it is evident that \( E_m' > 0 \) for any given tax rate. From (A.5): \( V_m(s')-E_m'[s'(s',s)] = [A/(A-1)] \sum_m[V_m(s')-V_m(s_m)] + V_m(s_m), \) with \( m \neq s \).

Substituting in \( P_L \) and following the same definition for a Nash equilibrium as in (A.1), we derive a Nash equilibrium \( \left( \left( C_i^L(s)_i \right)_{i=1}^2, \tau' \right) \) at the legislative stage. Similarly to what we have seen before, since an equilibrium tax rate \( \tau' \) maximizes both \( P_L \left( \left( C_i^L(\tau)_i \right)_{i=1}^2, \tau \right) \) and \( P_L \left( \left( C_i^L(\tau)_i \right)_{i=1}^2, \tau \right) + U_m(\tau), \) it turns out that \( \tau' \) maximizes \( \sum_m[V_m(s'(t),t)-E_m'[s'(t),s(t),t]] \) on \( T, \) with \( m \neq s \). Therefore, at \( \tau': \)

\[
[A/(A-1)] \left\{ 2[V_1(t,s')+V_2(t,s')] - [V_1(t,s)+V_2(t,s)] + [V_1(s)+V_2(s)](ds'/dt) - V_1(s)+V_2(s) \right\}(ds'/dt) = 0
\]

recalling that \( \sum_m V_m(s') = 0, \) that \( V_1(s)+AV_2(s) \) and that \( V_2(s)+AV_1(s) \) are maximized by \( s_2 \) and \( s_1 \) respectively.

Using (3.1), we have:

\[
A \left\{ 2[V_1(s,h)+V_2(s,h)] - [V_1(s+h)+V_2(s+h)] + V_1(s)+V_2(s) \right\} = 0
\]

or

\[
A \left\{ 2[V_1(s,h)+V_2(s,h)] - V_1(s+h)-V_2(s+h) \right\} = 0
\]

Taking into account that \( s' = 1/2, \) \( h_G(s_2+h_G(s_2)) = A h_{G_2}(s_2) \) and \( h_{G_1}(s_1) = h_{G_2}(s_1), \) we obtain, in equilibrium:

\[
A \sum_m h_{G_m}(s'; \tau') - h_{G_1}(s_2; \tau') - h_{G_2}(s_1; \tau') - (A-1) = 0 \quad (A.6)
\]

To verify that the second-order sufficient condition for an equilibrium holds, first note that \( ds_d/dt = 0 \) and, because of homogeneity, \( ds_m/dt = 0. \) To see that take, for example, the first order condition for \( s_2: \) \( h_G(s_2) = A h_{G_2}(s_2). \) By total differentiation we obtain that \( \text{sign}(ds_2/dt) = \text{sign}[2s_2 h_{G_2} A^2 (1-s_2) h_{G_2}], \) since \( h(G_m) \) is a homogeneous function of degree \( k < 1, \) from Euler’s law, \( G_m h_{G_m} = -(1-k) h_{G_m}. \) After rearranging the above equation, we see that \( \text{sign}(ds_2/dt) = \text{sign}[A h_{G_2}-h_{G_1}]. \) Since \( A h_{G_2} - h_{G_1} = 0 \) at \( s = s_2, \) the claim follows.

Then, differentiating the left-hand side of (A.6) with respect to the tax rate, we obtain:

\[
A \left\{ 2s h_{G_2}(s') + (1-s') h_{G_2}(s') \right\} - (1-s_2) h_{G_2}(s_2) - s_1 h_{G_1}(s_1) + 1 \right\} = 0
\]

Taking into account that \( s' = 1/2, \) \( h_{G_1}(s_2) = A h_{G_2}(s_2) \) and \( h_{G_1}(s_1) = h_{G_2}(s_1), \) we obtain, in equilibrium:

\[
A \sum_m h_{G_m}(s'; \tau') - h_{G_1}(s_2; \tau') - h_{G_2}(s_1; \tau') - (A-1) = 0
\]
3. Does centralization increase the size of government?

$A[h_G(\hat{s}) - h_G(s_1)] < 0$ and $-A[h_G(\hat{s}) - h_G(s_2)] < 0$.

Finally, in order to prove that $\hat{t} < \hat{t}$ we first show that $\partial E_m^f/\partial t > 0$. We have seen that, with homogeneity of $h(G_m)$, $d\hat{s}/dt = d\hat{s}_m/dt$. Therefore, differentiating $E_m^f$ (A.5) with respect to $t$, we obtain: $\text{sign}(\partial E_m^f/\partial t) = \text{sign}\{A [2(1-s_2)h_G(s_2) - 2(1-s_1)h_G(s_1)] + 2s_1h_G(s_1) - 2s_2h_G(s_2)\}$. From the homogeneity assumption, we also have that $G_m h_{Gm}(G_m) = kh(G_m)$ (Euler’s law). Then multiplying and dividing the right-hand side of the above equation by $\hat{t}$ and adding and subtracting $(1+A)(1-\hat{t})(k/\hat{t})$, using (3.1), we obtain: $\text{sign}(\partial E_m^f/\partial t) = \text{sign}\{A[V_2(s_2) - V_2(s_1)] + [V_1(s_2) - V_1(s_1)]\}$ which is positive by the definition of $s_2$ since $s_2 \neq s_1$. Similarly, $\partial E_2^f/\partial t > 0$.

Now, notice that $\partial E_m^f/\partial \tilde{t} > 0$ implies that $\tilde{t} = \hat{t}$. In fact, for $s = \hat{s}$, the first-order condition for $\hat{t}$ is $\sum_m V_m(s(t),t) = 0$ whereas the first-order condition for $\hat{t}$ is $\sum_m V_m(s(t),t) - E_m^f(s(t),s(t),t) = 0$ (for $m \neq i$). This implies that $\sum_m V_m(s(t),t) = \sum_m V_m(s(t),t)$. Using the assumption of strict concavity of $\sum_m V_m(s(t),t)$, we see that $\hat{t} < \hat{t}$. Recalling that, with a tax rate $\hat{t}$, each state receives an amount of local public good equal to $G_m^\hat{t}$, we ascertain that $G_m^\hat{t} < G_m^\hat{t}$ for all $m$. 

43
1. Introduction

Migration is an important global issue. Its impact on the population composition is particularly visible in Europe where the sustained immigration, especially from Africa and Asia, has gradually replaced the shrinking and aging native population. As indicated by the EU Commission: “immigration is still the main element in the EU demographic growth and positive net migration is recorded in most Member States.” Moreover, after the completion of a common labor market, the recent enlargement of the EU is likely to foster labor mobility also within the EU. Some fear that cultural, religious and linguistic diversities may weaken community values and cause social tension leading to a reduced cooperation between natives and immigrants, more social stratification and less security. The extensive literature exploring, both theoretically and empirically, the economic impacts of immigration presents a varied view.

† The content of this chapter appears partly in Mazza and van Winde (1996). Additional references to recent literature have been included mostly in sections 1 and 2.

1 Commission of the European Communities (2007, p.3). At the beginning of 2006, the EU foreign residents coming from outside the EU-25 were about 18.5 million, namely 3.8% of the total population. In 2007, there were more than 2 million immigrants in the EU-27 (European Commission, 2007a). The top destination country was Spain. From 2000 to 2007, the growth of yearly immigration was particularly impressive in the Czech Republic (almost 1300 per cent), Italy (almost 1000 percent) Belgium (more than 400 percent) and, outside the EU, in Norway (about 400 per cent).

2 Heinz and Warmedinger (2006) provide several estimates of the East-West migration flows that should follow the EU enlargement to 25 country members (i.e. excluding Romania and Bulgaria). Migration to Western Europe (EU-15) is forecasted to be in the range between 1.5 and 4.5 million within one or two decades after the full implementation of free circulation. These figures do not seem too impressive (immigration from the rest of the world to the EU-15 countries was of 1.75 million in 2003 alone), but it should be considered that a large portion of these migration inflows is expected to concentrate in Germany. See also Sinn et al. (2003).

3 Among the issues raising more concerns among the public, attention has been devoted to: the effects of limiting immigration (Berry and Soligo 1989) or imposing skill or capital requirements to immigrants (Benhabib 1996; Fuest and Thum 2001) or allowing illegal immigration (Hillman and Weiss 1999; Myers and Papageorgiou 2000); the extension of welfare benefits to unemployed immigrants (Epstein and Hillman, 2003); the potential alleviation of the fiscal burden those countries suffering from aging population (Casarico
An important aspect of immigration concerns its redistributive effects that could put under pressure the welfare systems of the host countries. According to economic theory, labor mobility hinders redistributive policies (Oates 1972). Furthermore, it gives an incentive to fiscal competition, which may lead to inefficiencies due to fiscal externalities. This would provide a rationale for policy coordination or intervention from a higher government level (Brown and Oates 1987; Schwab and Oates 1991; Wellisch and Wildasin 1996; Wildasin 1991). However, these theoretical results are derived from analyses that neglect the political decision-making process. In the context of labor mobility, this neglect is worrisome, because of the political relevance of changes in the demography of a jurisdiction. According to Goldin (1993), for example, the increasing share of foreigners in U.S. cities at the beginning of the previous century blocked the adoption of restrictive legislation concerning immigration, against the will of the rural population. In fact, the greater the share of foreign population, the lower was the percentage of state representatives who voted against restrictions.

As we discuss in greater detail below, theoretical and empirical studies clearly suggest that the size of social groups is relevant for their political influence. This influence may be obtained via electoral channels, but also through participation in the exertion of political pressure by interest groups, such as unions. Considering the political effects of immigration, the latter option may be particularly important as full political rights are often not immediately granted to immigrants (an exception would be migration within a federation like the U.S.). But, even then the electoral impact may also play a role, as such rights may be obtainable within a politically relevant time-horizon; think of naturalization, which in several countries can be obtained within a period ranging from few months to ten years, depending on the family ties and the country of origin. Moreover, in case of the European Union, the restriction of political rights is thwarted by the formation of the single European market, to which the member states have committed themselves. Therefore, we share Borjas and Devillanova (2003); Roodenburg et al. (2004; Storesletten 2000). Mayda (2006) and O’Rourke and Sinnott (2006) provide insightful cross-country investigations of the economic and noneconomic determinants for individual preferences towards immigration. For a broader investigation of the economics of immigration see Bauer and Zimmermann (2002), Boeri et al. (2002), Layard et al. (1992), Siebert (1994).

Wildasin (2004) points out that immigrants in Denmark, Germany, and Sweden are recipient of over thirty percent of total cash, although they accounting for about ten percent of the population.

Earnest (2003) presents a survey regarding non-citizen voting rights across countries. A wide variety exists. Voting rights can be assigned to resident aliens of all nationalities or coming from specific countries. Some states also allow resident aliens to vote in national elections, whereas some others limit their voting to local elections. The picture is further complicated by the authority for states, regions or even towns within federations to decide about the voting rights of their alien residents. Overall, it is shown that there are twenty-two states, in Europe, Americas and Oceania, where resident aliens have at least some voting rights (in two more states constitutions allow their legislatures to enfranchise resident aliens).

For example, in 2006, there were more than 51 thousand acquisitions of citizenship in Sweden, with a total population growth of about 65 thousand, and 29 thousand in the Netherlands, with a total population increase of 24 thousand. In Germany, population decreased by 123 thousand, but the new citizenships exceeded 124 thousand (Eurostat 2007b).

The Treaty on EU states that every national of a member state is automatically citizen of the EU (art. 8). European citizenship provides, among others, the rights to move and reside freely within the EU and the right to vote and stand in local and European Parliamentary elections in the citizen’s place of residence. Although voting rights for the European Parliament are guaranteed (see Council Directive 93/109), local
(1994, p.1693) point of view that «further research on the political economy of immigration policy might greatly improve our understanding of the properties of equilibrium in the immigration market».

Labor mobility raises a number of interesting issues from this perspective. For example, what are the consequences for redistribution policy if immigrant workers add to the political influence of labor (via or outside elections)? What difference does it make if immigration is stimulated by income differentials or occurs for other reasons? What is the attractiveness of using regulation - of immigration or political rights - as a policy instrument? And what about the attractiveness and feasibility of policy coordination when political decision making is explicitly taken into account?

In this essay we will try to throw some light on these issues with a simple two-country general equilibrium model, where the “foreign country” represents the relevant out-migration area for the domestic country that is focused upon. Policymakers in both countries face two social groups in the private sector, one endowed with (mobile) labor and another owning a fixed factor of production (“capital”). Since we focus on the political impact of migration, only labor is assumed to be mobile. For, unlike capital flows, migration changes the political constituency. Redistribution affecting migration is considered the result of a policymaking process, and not motivated by altruism (as in Pauly 1973, Brown and Oates 1987, Wellisch and Wildasin 1996, Wildasin 1991).

In this study, redistribution policy is derived according to the maximization of a political welfare function, where the weights assigned to the groups of capital owners and workers depend on their size and homogeneity. Theoretical support to this political economic model is provided by the analysis of electoral competition with probabilistic voting (Coughlin 1992; Grossman and Helpman 1996; Lindbeck and Weibull 1987). Immigrants are assumed to affect the political weight of workers in two ways. On one hand, they increase the political relevance of the labor union, by increasing their size. This positive impact can be further reinforced by the assignment of voting rights to immigrants. On the other hand, because of cultural and social differences, immigrants may reduce the homogeneity of the trade union, reducing its political influence.

There is a small political economic literature investigating the influence of immigration on income distribution. Some studies rely on the median voter approach. In Eppe and Romer voting rights are not uniformly regulated yet. However the European Court «has the authority to rule an extension of the right to vote and stand for elective office in national elections if it can be demonstrated that lack of political rights is a barrier to movement» (Koslowski 1994, p. 381). See Heinz and Warmedinger (2006) for a summary of the policies towards immigrants from the EU-8 (Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia). Intra-EU mobility was rather limited in the 1990s as less than 4.4% of the population moved to another member state (European Commission 2001).

8 Although it is convenient to assume that only labor is mobile across economies, it should also be noted that international capital mobility is a controversial issue. For example, Feldstein (1995) finds a very strong correlation between savings and investment in twenty-three OECD countries suggesting that «although there are large daily flows of capital around the world, when the dust settles most of the saving done in each country remains in that country» (p. 91). See also Feldstein and Horioka (1980). Wellisch and Wildasin (1996) and Razin and Sadka (1999) present a model where both capital and labor are mobile, but transfer policies are derived for exogenously specified level of immigration.

9 These studies focus on the receiving country or jurisdiction. A different perspective is examined by Epstein et al. (1999) where losers in rent-seeking contests may be induced to leave their country.
local majorities choose a combination of tax and transfers, taking into account the impact that redistributive policies may have on immigration. Forward looking voters are also considered in Cremer and Pestieau (1998) investigating the comparative political support for different social insurance systems. Epstein and Hillman (2003) show that also national workers, in addition to capital owners, may vote in favor of transfers to unemployed immigrants when unemployment is due to efficiency wages and national workers have a priority in receiving the job offers. In this case immigration reduces real wage but can increase the probability of employment for a local worker. Thum (2004) suggests that the composition of government expenditure may be used by the median voter to inhibit immigration when regulation and discriminatory taxation are not viable. These studies differ from the analysis presented here, not only for their political economic model based on majority voting, but also because they assume that immigrants are not part of the constituency and then have no direct influence on policymaking.\(^{10}\) In contrast, immigrants are assumed to receive voting rights in Razin et al. (2002). There, it is shown that immigration reduces redistribution because natives will realize that more transfers will go to low-skill immigrants. This effect is reversed only if immigrants add sufficiently to the pro-tax voters. Mayr (2007) extends their analysis by accounting for skilled migration and, similarly to our study, endogenous migration determined by income differentials.

A different theoretical approach considers immigration policy influenced by organized groups of workers and entrepreneurs that lobby, respectively, to restrict or ease immigration.\(^{11}\) In Amegashie (2004), the lobbying contest (having the form of an all-pay-auction) determines the number of immigrants admitted and, subsequently, firm and union bargain over the wage of natives, while immigrants receive a reservation price. Epstein and Nitzan (2006b) investigate under which conditions the migration quota represents a compromise between the levels preferred by the lobbies and when, instead, a more extreme quota is selected by the policymaker. In Bello\;\text{t\;t\;i\;n\;i\; and Berti Ceroni (2008), only the entrepreneurs engage in lobbying to support immigration; then unionization is beneficial for the workers to contrast their political pressure.\(^{12}\) As in the previous studies based on the median voter, also the latter disregard the direct impact of immigrants on the influence of the labor’s union.

Similarly to our study, Lejour and Verbon (1994) and Kemnitz (2002, 2006) adopt an influence function model. In the first paper, mobility concerns workers with different unemployment risks and redistribution among workers is determined by the (given) political influence of different groups of labor modeled according to the influence function

\(^{10}\) Lorz and Nastassine (2007) consider the effect that migration may have on political participation. Considering a citizen-candidate model of decisionmaking, they suggest that mobility may reduce political participation of citizens, as they expect to relocate in another jurisdiction. Therefore, if immobile citizens are less educated and with higher preferences for welfare expenditure than mobile ones, it results that mobility increases welfare programs.

\(^{11}\) Facchini et al. (2007) provide evidence that interest groups with opposite preferences for immigration have a statistically significant impact on its regulation: barriers to immigration tend to be lower in sector where business groups spend more for lobbying and higher in sectors where labor unions are more important in political terms.

\(^{12}\) See also Fuest and Thum (2000) for an analysis of the impact of immigration on wage bargaining between labor unions and employers.
approach.\textsuperscript{13} Kemnitz (2002) extends that analysis by allowing immigrants to enhance the political influence of workers, and Kemnitz (2006) shows that unemployment insurance to immigrants may serve as a commitment device helping the government to restrain wage claims by the labor union. Both studies, unlike this one, assume exogenous migration and overlook the political difficulties that cultural differences, between native and migrant workers, may cause.

Our analysis considers two types of migration: exogenous migration and endogenous migration, where only the latter is influenced by income redistribution policies. Even though endogenous migration is a significant phenomenon, migration motivated by other reasons than income differentials - such as political and social tensions or social cultural factors - can play an important role as well (Zimmermann 1994). In addition to income redistribution policy, attention will be also paid to the policy option of regulating migration. Moreover, as regards policy competition, we will consider the case where policymakers reckon with the impact of their own policy on foreign factor prices, as well as the situation where one of the countries is “small” (in the sense that its government takes foreign factor prices as given), or both countries are. The latter case is becoming increasingly important because, due to better information and diminishing traveling costs, migration is less and less restricted to neighboring countries or to countries with which special (like colonial) bonds exist (see Appleyard 1991).

Our results indicate that not only transfers to workers but also their income can increase with larger immigration. They also show that an increase in the labor force, which negatively affects the wage rate, may lead to a higher immigration level. These outcomes are in contrast with maintained hypotheses (see, e.g., Layard \textit{et al.} 1992). Another striking result is that all social groups - at home and abroad - in small open polities may profit from policy competition, given that a specific condition regarding the nature of the political regimes in the countries is satisfied. This condition requires that the countries are different regarding their political bias towards labor and capital. The same condition appears to be incompatible with (redistribution) policy coordination under the constraint of free labor mobility. But, it is compatible with policy coordination concerning the regulation of migration, which improves political welfare in that case. This would suggest that a common labor market stands a better chance with countries that are political likes. Given the stylized model that we use to get tractable results, and the complexity of the issues involved, the reader should consider these results with caution. However, the illustration of the political economic impact of immigration and the intuition provided make the analysis an interesting exploration, in our view.

The chapter is organized as follows. Section 2 presents the basic model and analyzes the impact of exogenous and endogenous migration, assuming that policymakers take the level of migration as given. The next two sections study what happens if policymakers take into account the effect of their policies on migration. Section 3 considers the policy option of regulation, whereas section 4 goes into the effects of policy competition, using tax-transfer policies, and the feasibility of policy coordination (concerning tax-transfer policies and regulation). Section 5 closes with some concluding remarks and policy implications.

\textsuperscript{13} As will be shown below, the way the policies of jurisdictions are modeled in Lejour and Verbon (1994) and Wildasin (1991) can be interpreted as a special case of our model.
2. The Model with Exogenous and Endogenous Migration

After the presentation of the two-country model, this section analyzes the general equilibrium solutions in case of exogenous migration (subsection 2.1.) and endogenous migration (subsection 2.2.). We will initially assume that in each country the level of migration is taken as given. This case is relevant when the domestic policymakers are not well informed about the foreign economy or about the (partly psychological) mobility costs of potential immigrants. In addition, it provides a useful benchmark for our analysis in section 4, where we study the consequences of the alternative assumption that policymakers take into account the impact of redistribution on immigration.

For expositional reasons, we shall focus on the domestic country; variables related to the foreign country will be denoted by an asterisk (*). There are two social groups: \(W\) internationally mobile workers (group \(w\)), each supplying one unit of labor, and \(K\) individuals - called capitalists - owning one unit of a fixed production factor (group \(k\)). A non-traded consumption good, \(X\), is produced under a Cobb-Douglas technology, with the fixed factor and labor as inputs. Individuals have identical utility functions that are logarithmic in income. Income consists of the sum of the respective factor return \((p_k, p_w)\) and a lump-sum government transfer \((s_k, s_w)\) (cf. Brown and Oates 1987; Wellisch and Wildasin 1996; Wildasin 1991). Transfers are endogenously determined through a (balanced budget) political redistribution process. The main reason for the production and utility functions that we use is to get tractable results (see, e.g.: Casarico and Devillanova 2003; Bellettini and Berti Ceroni 2008; Epple and Romer 1991; Kemnitz 2002, 2006; Perotti 2001). However, it is noticed that empirical support for the former is presented in Berndt (1976), and for the latter in van Herwaarden and Kapteyn (1981). We will also discuss how results presented in this section would be affected by employing more general specifications.

The following relations summarize the model of the private sector. Production is determined by

\[ x = f^l \quad \text{with} \quad x = X/K, \quad l = (W+I)/K \quad \text{and} \quad 0 < \alpha < 1 \] (4.1)

where \(I\) indicates the number of immigrants (leaving \(W^*-I\) as labor input in the foreign country). For simplicity, we assume a perfectly competitive labor market, and the same productivity level for immigrants and domestic workers (as in Bond and Chen 1987, Kemnitz 2002). In this context, it is noted first that our results would not change in a qualitative sense if a fixed productivity differential is assumed. Secondly, there is empirical evidence that immigrants and native workers are indeed substitutes (see, e.g., Borjas 1994; Greenwood and Hunt 1995; Grossman 1982)\(^{14}\), although the former may be complementary to white-collar

\(^{14}\) However, also in this case, the effect of immigrants on native wages is rather low. One explanation is that immigrants could cause an increase in local demand which positively affects employment and wages (Greenwood and Hunt 1995). Borjas (1994, 1995) suggests that the weak correlation between immigration and native labor wages may not indicate a low substitutability but just that local labor markets are not closed, so that immigration induces natives to emigrate. An additional explanation could be that the negative impact of immigration on wage is accommodated by an increase in the exports of intensive productions (see Boeri et al.
The explicit incorporation of complementary labor into our model would clearly complicate the analysis, whereas the results presented in this section would basically remain the same. The reason is that these workers would partly share the interest of the other workers, and partly the interests of capital. The former is due to the effect of immigration on the political influence of labor (see below), and the latter to its factor price effect.

The utility function for a member of social group $j$ is given by

$$u_j = \ln y_j \quad j = k, w$$

where $y_j$ denotes disposable income, which is fully consumed. Furthermore,

$$y_j = p_j + s_j \quad j = k, w$$

Assuming that workers are paid their marginal product, and using the consumption good as numéraire, one obtains for the factor returns

$$p_w = \alpha \left[ \frac{K}{(W+I)} \right]^{1-\alpha} \quad \text{and} \quad p_k = (1-\alpha) \left[ \frac{(W+I)}{K} \right]^{\alpha}$$

Because of their lump-sum character, factor prices are not affected by the government transfers. The redistribution of income between the two social groups comprises the only government activity that will be focused upon at this stage. The choice of the size of the transfers $s_k$ and $s_w$ is assumed to be in accordance with the maximization of a weighted combination of the interests of workers and capitalists, where the weights reflect the relative influence of the two groups. Formally, transfers are determined by the following program:

$$\max P = \Theta u_w + (1-\Theta) u_k$$

subject to

$$s_w(W+I) + s_k K = 0$$

where $\Theta$ is the political influence weight of workers. Theoretical as well as empirical arguments support this assumption. Theoretically, Coughlin et al. (1990) have shown that expected vote (plurality) maximizing politicians, who are uncertain about the (idiosyncratic) party bias of voters, will maximize a weighted sum of the utility functions of the representative individuals of the social groups to which these voters belong, as in (4.5). In 2002).

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16 In our analysis we allow for discrimination against immigrants through regulation (see section 3), but abstract from plain wage discrimination in the labor market. The latter type of discrimination would leave an extra rent with capital owners, making immigration more attractive to them, while the attractiveness of the domestic country for potential immigrants would diminish.
their model the political influence weights are endogenously determined by the numerical strength and the homogeneity of the social groups\textsuperscript{17}. Empirically, several studies have indicated the usefulness of the so-called interest function approach for the explanation of government policies, which also entails a specification like (4.5). These studies show a significant political impact of the relative size of social groups that are actively involved in the production process, used as a proxy for the influence weight (see, e.g., Renaud 1989; van Velthoven 1989)\textsuperscript{18}. The concern about higher birth-rates among immigrant groups, that time and again pops up in political discussions on immigration, is also suggestive in this respect\textsuperscript{19}.

For the study of labor migration these results are of obvious importance. First of all, as mentioned in the Introduction, immigrants may change the size and composition of the electorate immediately, or they may do so within a politically relevant time period. Secondly, even without voting rights, immigrants increase the size of social groups, including ones that are organized (Zimmermann 1994). In the Netherlands, for example, trade unions have been interested in the integration of immigrants in order to avoid competition from irregular labor (Molle and Zandvliet 1994). Therefore, in addition to the case where the political influence weights $\Theta$ and $1-\Theta$ are fixed as in Lejour and Verbon (1994), it is interesting to consider the consequences of those weights being affected by immigration. In the latter case we will allow for a negative impact of limited voting rights and loss of group homogeneity (e.g., due to cultural differences between immigrants and native workers (cf. Layard \textit{et al.} 1992, ch. 3).

More specifically, we assume that

$$\Theta^\prime = \frac{\Theta_w}{(\Theta_w + \Theta_k)} \quad \text{with} \quad \Theta_w = \gamma(W+I), \quad \Theta_k = \tau K, \quad \gamma = \mu W/(W+\varphi I), \quad \gamma, \tau > 0, \quad \varphi \geq 0$$

thus,

$$\Theta^\prime = \frac{\mu W(W+I)}{[\mu W(W+I) + \tau K(W+\varphi I)]} \quad (4.6)$$

\textsuperscript{17} It is worth emphasizing that it is the self-interest (re-election) - and not a normative criterion of “social welfare” - that leads politicians to use their discretionary power in this way. Furthermore, we note that if the more general utility function $u_j = y_j^{1-\varepsilon}/(1-\varepsilon)$ is employed, the specification of $P$ in (4.5) - with $\ln y_j$ substituted for $u_j$ - can be derived again from an electoral competition model with probabilistic voting, where the weights reflect the numerical strengths of the groups (see Coughlin and Nitzan 1981).

\textsuperscript{18} The interest function approach focuses on the relationship between government decision making and the interests of the representative individuals of social groups (which are used as focal points in the political sphere). Policymakers are assumed to further their own interests but are constrained by the existing economic and political institutional structure (democratic elections, for instance), on the one hand, and by the reactions of other (groups of) individuals, such as represented by political parties, voters and pressure groups, on the other hand. These reactions force policymakers to take the interests of other social groups into account. As argued by van Winden (1983), the outcome of these different games concerning government policies can be fruitfully approximated by the maximization of a so-called complex interest function, which is a weighted representation of the interests of the representative individuals of the different social groups, where the weights reflect their relative political influence [as in (4.5)]. Apart from a different (non-normative) interpretation of these weights, there are other reasons for not labeling this a social welfare function (see section 3).

\textsuperscript{19} Examining data for 130 countries, Kimenyi \textit{et al.} (1988) find a positive correlation between population heterogeneity and fertility rates, \textit{ceteris paribus}. They interpret this result as support for the hypothesis that the size of interest groups affects political decisions: groups would increase their membership in order to get larger transfers. Potters and Sloof (1996), after reviewing the empirical literature on the influence of interest groups, conclude that an increase in the size of organized groups typically goes along with greater political influence and that most studies dealing with unorganized groups show the same effect (Potters and Sloof 1995).
4. A political economic analysis of labor migration

where the superscript \( n \) refers to the endogeneity of the political influence weights.

The proportionality factors \( \gamma \) and \( \tau \) scale the political influence per group member as an implicit function of group characteristics (homogeneity, for example). Hence, these "equivalence factors" indicate the specific ability of a social group to transform its numerical strength into political influence. To account for the fact that immigrants may not improve the political influence of labor as much as native workers would do, the impact of immigration on the influence of workers is represented by the parameter \( \varphi \) in the equivalence factor for this group. In the extreme case that \( \varphi = 0 \), immigrants just add to the numerical strength of workers: there are no social integration problems and immigrants have full political rights. When \( \varphi = 1 \), the political influence weight of workers is, on balance, not affected by immigration. This case would represent the situation where lack of political rights and loss of homogeneity among workers or cohesion in the labor union exactly offsets the increase in numerical strength. Beyond this point (\( \varphi > 1 \)) the balance would even become negative, resulting in a loss of political influence. If \( 1 > \varphi > 0 \), immigration only partially translates into an increase in the political influence of workers. This is probably the most frequent case, because the integration of immigrants in interest groups (like unions) takes time, and most of them do not acquire political rights on entry, but may do so in a politically relevant period of time.

With exogenous political influence weights (\( \Theta \)), the solution of (4.5), using (4.2) and (4.3), gives:

\[
\begin{align*}
sw &= \{\Theta[p_kK + p_w(W+I)] - p_w(W+I)\}/(W+I) \\
s_k &= \{(1-\Theta)[p_kK + p_w(W+I)] - p_kK\}/K
\end{align*}
\] (4.7)

With endogenous weights, using (4.6), one obtains:

\[
\begin{align*}
sw^n &= \{\gamma p_k - \tau p_w\}K/\{\gamma(W+I) + \tau K\}, \\
s_k^n &= \{\tau p_w - \gamma p_k\}(W+I)/\{\gamma(W+I) + \tau K\}
\end{align*}
\] (4.8)

where the superscript \( n \) is employed, as in the sequel, to indicate the use of endogenous political influence weights.

Eqs. (4.7) show that, with exogenous influence weights, total transfers to a social group equal the differential between the influence determined fraction of national income that is allocated to the group (the first term) and its factor income (the second term). In case of endogenous weights (4.8) the differential between the equivalence factor weighted factor prices becomes crucial. The reason is the relationship between political influence and numerical strength in this case. This is easily understood by assuming identical equivalence factors (\( \tau = \gamma \)). Then the complex interest function \( P \) of the government becomes formally equivalent to a utilitarian social welfare function, causing the transfers to be chosen such that disposable income is equalized (\( y_k = p_k + s_k = y_w = p_w + s_w \)). Through redistribution, the difference in gross (factor) income is evened out in that case. However, if the social groups start with equal equivalence factors (\( \tau = \gamma \)) at \( I = 0 \), then as long as \( \varphi > 0 \) immigration will improve the relative political influence of the capitalists and lead to \( y_k > y_w \).

Note, furthermore, that the transfers to a group are increasing with the productivity and relative size of the group providing them, and with the equivalence factor (or the exogenous
influence weight) of the receiving group. Finally, as the factor prices are independent of the (lump-sum) government transfers, given the immigration level, it makes no difference here whether the government is assumed to behave as a Stackelberg leader or as a Nash player vis-à-vis the private sector; this changes in section 4, where policymakers are assumed to take the impact of redistribution on immigration into account.

2.1. General Equilibrium with Exogenous Migration

In this subsection we analyze the case where migration is not induced by income differentials but by events abroad (such as political conflict, racial discrimination, or a natural catastrophe). For expositional reasons, we present and discuss the equilibrium outcomes only for the domestic country. Substituting (4.4) into (4.7) and (4.8) one obtains the general equilibrium solution for the transfers, given the immigration level:

\[ s_w^{(n)} = (\Theta'^{(n)} - \alpha)[K/(W+I)]^{1-\alpha}, \quad s_k^{(n)} = -(\Theta'^{(n)} - \alpha)[(W+I)/K]^\alpha \]  

(4.9)

where \( \Theta'^{n} \) is determined by (4.6). Note that (4.9) can be rewritten as \( s_w^{(n)} = [(\Theta'^{(n)} - \alpha)p_w \) and \( s_k^{(n)} = -(\Theta'^{(n)} - \alpha)(1-\alpha)p_k \). These equations show the importance of the differential between the political influence weight, \( \Theta'^{n} \), and the (labor) factor share parameter, \( \alpha \). This differential, \( \Theta'^{(n)} - \alpha \), can be interpreted as the political bias in favor of (or, if negative, against) labor. In case of a pro-labor bias (\( \Theta'^{(n)} > \alpha \)) income will be redistributed from capital to labor, and the other way round in case of a pro-capital bias (\( \Theta'^{(n)} < \alpha \)). From a comparative perspective, the Scandinavian countries or the Netherlands would seem to represent clear examples of pro-labor countries, in contrast with the U.S. or the U.K., for instance.

The impact of immigration (\( I \)) on transfers depends crucially on the exogeneity or endogeneity of the political influence weights. With fixed influence weights it is easy to see that \( \delta s_w / \delta I \geq 0 \) and \( \delta s_k / \delta I \leq 0 \) iff \( \Theta \geq \alpha \) (and, thus, \( s_w \geq 0 \) and \( s_k \leq 0 \)). The transfers to workers and capitalists are affected in the same direction in that case, with the direction depending on the political bias. For example, with pro-labor redistribution, immigration leads to smaller transfers to workers and higher taxes to capital owners (see Razin et al. 2002). However, in case of endogenous influence weights the general equilibrium effects are:

\[ s_w'^{(n)} / \delta I \leq 0 \text{ iff } [(1-\varphi)\Theta^p(1-\Theta^p)]/[1+\varphi(I/W)] \leq (1-\alpha)(\Theta^p - \alpha) \]  

and

\[ s_k'^{(n)} / \delta I \geq 0 \text{ iff } [(1-\varphi)\Theta^p(1-\Theta^p)]/[1+\varphi(I/W)] \geq \alpha(\alpha-\Theta^p) \]  

(4.10)

Though \( \Theta^p > \alpha \) implies again that \( \delta s_k'^{(n)} / \delta I < 0 \) (assuming \( \varphi < 1 \)), now \( \delta s_w'^{(n)} / \delta I < 0 \) only holds if \( \Theta^p \) is sufficiently larger than \( \alpha \). Similarly, \( \Theta^p < \alpha \) implies again that \( \delta s_k'^{(n)} / \delta I > 0 \), but now \( \delta s_w'^{(n)} / \delta I > 0 \) only holds for \( \Theta^p \) sufficiently smaller than \( \alpha \). Both effects are due to the diminishing marginal effect of the numerical strength of a group on its political influence. Because \( \delta s_w'^{(n)} / \delta I > 0 \) may hold if \( \Theta^p > \alpha \), the following interesting result is obtained.

**Result 1.** Under exogenous immigration and fixed influence weights an increase in the transfers to workers is only possible with negative transfers to this group. In case of
endogenous weights, this type of immigration may actually increase an already positive transfers to workers if the fiscal system is "mildly" redistributive ($\Theta^r$ larger than but sufficiently close to $\alpha$). Moreover, in that case a switch from negative to positive transfers becomes possible, with sufficiently large immigration (through the impact of $I$ on $\Theta^r$).

It also follows that countries with strong pro-labor redistribution policies are particularly likely to experience decreasing transfers to labor under exogenous immigration. So far, we focused on transfers. We will now discuss the impact of immigration on welfare (disposable income). Using (4.3), (4.4) and (4.9), one obtains for the level of disposable income:

$$y_{w}^{(n)} = \Theta^{(n)} \left[ \frac{K}{W+I} \right]^{1-\alpha}, \quad y_{k}^{(n)} = (1-\Theta^{(n)}) \left[ \frac{(W+I)}{K} \right]^{\alpha}$$

(4.11)

which implies that $y_{w}^{(n)}=\Theta^{(n)}X/L$ and $y_{k}^{(n)} = (1-\Theta^{(n)})X/K$. The conventional wisdom holds that capital gains and labor loses when immigrants are substitutes for native workers, as is assumed here (see Layard et al. 1992, ch. 3; Simon 1989, ch. 7). This is indeed what we obtain when we neglect - as is common in the literature - the endogeneity of redistribution policy by taking the political influence weights as fixed. In case of endogenous weights it follows that

$$\frac{\partial y_{w}^{(n)}}{\partial I} \preceq 0 \Leftrightarrow \frac{[(1-\Theta^r)(1-\varphi)]/[1+\varphi(I/W)]}{\varphi} \preceq (1-\alpha)$$

and

$$\frac{\partial y_{k}^{(n)}}{\partial I} \preceq 0 \Leftrightarrow \frac{[\Theta^r(1-\varphi)]/[1+\varphi(I/W)]}{\varphi} \preceq \alpha$$

(4.12)

These inequalities show that the conditions under which immigration will be favored by profit and wage earners depend on the direction of redistribution, indicated by the sign of the political bias $\Theta^r-\alpha$, and on the effect of immigrants on the political influence of workers, indicated by $\varphi$. Immigration reduces the factor price of labor and - for given political influence - the transfer it gets or the tax it pays. On the other hand, immigrants increase the political influence of workers at a rate which decreases with $\varphi$ until, at $\varphi>1$, the effect becomes negative. For capital, the effects are opposite. It turns out that the political influence effect is too weak to upset the effects of immigration on the factor price and the tax or transfer, if the latter two effects point in the same direction. This happens to labor when $\Theta^r>\alpha$ (both effects are negative) and to capital when $\Theta^r<\alpha$ (both effects are positive). However, if $\Theta^r<\alpha$ an increase in immigration lowers the tax paid by labor. In that case the negative effect on the wage rate can be overcome by a sufficiently strong positive effect on...
the political influence of labor (that is, \( \varphi \) sufficiently small), resulting in an increase of the income of workers. Similarly, if \( \Theta^n > \alpha \) the joint increase in the tax paid by capital and the political influence of labor will dominate the positive effect on the factor price of capital if \( \varphi \) is sufficiently small.

**RESULT 2.** With fixed influence weights workers lose and capitalists benefit from immigration. With endogenous influence weights, immigration increases (decreases) the disposable income of both workers and capitalists when redistribution is pro-capital (labor), and \( \varphi \) is sufficiently small.

This result suggests that immigration is likely to hurt the welfare of both groups in countries characterized by pro-labor redistribution policies and ease of political integration for immigrants. In section 3 we shall examine to what extent the regulation of political rights or immigration becomes an attractive option. Here, we only notice that the outcome that immigration may benefit all groups in case of countries with a more pro-capital political bias seems consistent with the historical openness of the U.S. towards immigrants.

Table 1 in the Appendix summarizes the comparative statics results for changes in the political influence parameters and the immigration level. The effects of the influence parameters \( \mu \) and \( \tau \), which have not been discussed so far, are all straightforward.

### 2.2. General Equilibrium with Endogenous Migration

We will now focus on that part of immigration that is not exogenous but induced by a difference in the disposable income levels for workers in the two countries. We maintain the assumption that policymakers take the level of immigration as given (the exogenous part can be taken account of via \( W \)). The decision to migrate or not will be determined by the income differential taking account of mobility costs (cf. Stiglitz 1977). Immigration will be induced as long as \( y_w > (1+d)y_w^* \), where it is assumed that mobility cost \( (dy_w^*) \) increases with income. This assumption seems a reasonable first approximation since migration costs depend on time costs (see Borjas and Trejo 1993) and rich people typically have to move or sell more.

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21 More specifically, it is required that \( \varphi < (\alpha - \Theta^o)/(1 - \Theta^o + (1 - \alpha)(I/W)) \) if \( \alpha > \Theta^o \) (pro-capital redistribution), and \( \varphi < (\Theta^o - \alpha)/(\Theta^o + \alpha(I/W)) \) if \( \Theta^o > \alpha \) (pro-labor redistribution).

22 It is noted that «virtually all of the formal theoretical work on the effects of immigration assumes constant returns to scale» (Greenwood and McDowell 1986, p. 1750). The use of a more general (CES) production function of the form \( X = \alpha L^\rho + (1-\alpha)K^\rho \) produces similar qualitative results. For labor variables (income and transfer) the results are the same both with exogenous and endogenous weights when \( \varphi = 0 \) or \( \varphi > 1 \) \((\rho < 1)\). Only for the transfer, the impact of \( I \) is somewhat different when weights are exogenous, or endogenous for \( \varphi > 1 \), and \( \rho < 0 \) as now immigration may have a positive effect on \( s_w \) even if this is positive. This is due to the fact that, whereas the political bias - which again determines the size of the transfer - still equals the difference between the political influence of workers \( \Theta^w \) and the factor share of labor, this share is now dependent on \( I \) [more specifically, this share equals \( \alpha (X/L)^\rho \)]. If the substitution elasticity is sufficiently small (that is, \( \rho \) is sufficiently negative) the increase in the political bias more than compensates the negative effect of \( I \) on \( X/L \) [cf. (4.9)].

23 Although there is substantial empirical evidence supporting this assumption, it should be noted that there are also other determinants of migration, like the supply of public amenities (cf. Treyz et al. 1993). We will return to this issue in section 5.
assets than poor people, when they emigrate\textsuperscript{24}. Then, the following condition is necessary and sufficient for the equilibrium outcomes in the previous section to represent a general equilibrium solution for the two countries with endogenous migration:

\[
y_w = (1+d)y_w^*
\]  \hspace{1cm} (4.13)

When influence weights are fixed, we obtain the following equilibrium level of endogenous immigration:

\[
I_e = (W^*-WF)/(1+F)
\]  \hspace{1cm} (4.14)

where \(F = (K^*/K)[(1+d)]^{1/(1-\alpha)}\). Immigration increases if the political influence of workers or the marginal productivity of labor increases relative to the foreign country (that is, \(\Theta/\Theta^*, K/K^*, \) or \(W/W^*\) increases), or when the mobility costs \((d)\) become smaller. Consequently, if the domestic country also faces some exogenous migration from the foreign country - which can be represented by a decrease in \(W^*/W\) - this will have a negative effect on the level of endogenous migration from that country. An increasing number of asylum seekers from the foreign country, for example, would reduce immigration caused by income differentials. The general equilibrium outcomes for the other variables \((p_j, s_j = w, k)\) are obtained by substituting \(I_e\) into equations (4.4) and (4.9). The impact of the immigration level on these variables has been discussed already in the previous section (see Table 1 of the Appendix).

We now turn to the case of endogenous political influence weights \((\Theta^o)\). In this case the equilibrium immigration level is implicitly determined by the expression for \(I_e\) in (4.14), where the influence weights are now a function of \(I\). In order to obtain some further insight, the mobility cost factor \((1+d)\) is non-linearized here in the following way\textsuperscript{25}:

\[
(1+d) = \delta(L/L^*)^{\alpha} = \delta[(W+I)/(W^*-I)]^{\alpha}
\]  \hspace{1cm} (4.15)

where the value of the scaling factor \(\delta\) is assumed to be such that \((1+d)\geq1\) at \(I=0\). Thus, when \(I=0\), mobility costs are allowed to be the same as in the fixed proportional case above, but these costs increase now with the level of migration\textsuperscript{26}.

\textsuperscript{24} Faini and Venturini (1993) find an inverse-U pattern for the propensity to migrate as a function of income. For low income levels, income growth increases migration because it relaxes financial constraints, but the effect is reversed for sufficiently high income levels. For example, estimations for Spain and Italy show that income growth has a negative impact on migration.

\textsuperscript{25} With endogenous influence weights, the sign of the comparative-static effects on the immigration level cannot be determined explicitly from eq. (4.13). A crucial factor here is the direction of the political bias \(\Theta^m\). In the sequel we will focus again on linear mobility costs.

\textsuperscript{26} On the one hand, one could think of the cost increasing impact of distance (first closest move, then those further away; see Greenwood 1975) and of a growing “ xenophobia”. On the other hand, there could be a negative (cost decreasing) counter-effect of a growing community of fellow-immigrants. Furthermore, the positive effect of \(W\) (and the negative effect of \(W^*\)) could be related to congestion. The main effect of this non-linear cost function is to curb immigration in comparison with the proportional case (4.13). From a comparative-static point of view the effects are similar. This is shown by the equilibrium immigration level under fixed influence weights, which is as in (4.14), except that now \(F = \delta(\Theta^*/\Theta)(K/K^*)^{1/(1-\alpha)}\). The sign of the impact of \(W^*\), \(K^*\), \(\Theta^\alpha\), and the exogenous cost factor, remains unaffected. In case of endogenous influence weights we obtain,
The comparative-statics effects appear to be similar to the ones obtained with fixed influence weights, except that the impact of capital and (host country) labor endowments are now ambiguous. The ambiguity of the endowment effects is due to the fact that the impact on disposable income hinges on the sign of $\theta(\alpha^*) - \alpha$, which is caused by the interplay of the effects on marginal productivity and political influence. Table 2 of the Appendix summarizes the comparative-statics effects of the influence and mobility cost parameters. We will focus here on the consequences of an increase in the political influence of workers through immigration (a decrease of $\varphi$), and the effects of a decrease in mobility costs (a decrease of $d$ or $\delta$). Not surprisingly, a smaller $\varphi$ unambiguously increases the transfers and income of workers, whereas the opposite holds for capitalists. The implications for the regulation of the political rights of immigrants are addressed in the next section. Lower mobility costs - which may be due to better information or lower traveling costs - have a more complicated impact. However, as these costs always negatively affect the equilibrium immigration level (under exogenous as well as endogenous influence weights), the effects are similar to those of an increase in immigration indicated by Result 2. Under endogenous influence weights, both workers and capitalists will welcome a decrease in mobility cost only in case of pro-capital redistribution ($\vartheta^* < \alpha$), and a sufficient impact of immigrants on the political influence of workers ($\varphi$ sufficiently small). Otherwise, such a decrease will be valued negatively by workers and positively (unless $\vartheta^* > \alpha$ and $\varphi$ sufficiently small) by capitalists.

Another result related to the endogeneity of political influence concerns the effects of a shrinking labor force (a decrease of $W$). This is an interesting issue in view of the demographic developments in the West. Conventional analysis suggests that this would encourage immigration, by boosting the marginal productivity (income) of labor. This is indeed what we would obtain with fixed influence weights [see (4.14)]. However, in case of endogenous influence weights there is an additional, negative, effect on the political influence of workers if immigrants are not perfect substitutes for domestic workers from a political influence point of view ($\varphi > 0$). As a consequence a smaller domestic labor force may induce less, instead of more, immigration. More generally, the following result holds.

**RESULT 3.** If immigrants are not perfect substitutes for domestic workers in the production of political influence ($\varphi > 0$), the size of the domestic labor force ($W$) can have a positive impact on the immigration level.

This result is quite intuitive. If immigrants weaken the political influence of labor the (ex-ante) size of labor unions will influence the ability of achieving compensation, through redistribution, for the reduction in wages caused by larger immigration. By not taking account of the endogenous character of government policies, this possibility does not show up in other studies (cf., e.g. Layard et al. 1992; Amegashie 2004).

Up to this point our analysis concerned the political and economic effects of labor mobility when policymakers at home and abroad take the migration level as given. In the following sections this assumption will be relaxed. In the next section we investigate the case where governments may unilaterally regulate migration. In the section thereafter we focus on
policy competition through the tax-transfer policies, and policy coordination.

3. Regulation

In this section we study the option of putting a cap on the immigration level, if the total supply of immigrants is considered to be larger than optimal. Let the optimal level in case of fixed influence weights be denoted by $I_f$, and under endogenous influence weights by $I_e$. Furthermore, let $I = I_w(n) + I'$ stand for the total supply of immigrants, with $I'$ indicating the exogenous component. The optimal level then follows from the maximization of the complex interest function $P$ in (4.5) with respect to $I$ ($0 \leq I \leq I'$), using (4.2), (4.6) and (4.11).

Before we proceed with this analysis it is important to pay attention to the following issue, concerning the correct treatment of the influence weights attached to the interests of the social groups ($u_w$ and $u_k$) in (4.5). If endogenous, these weights should be taken as given when maximizing $P$, in contrast with the weights that appear in $y_w$ and $y_k$, determining $u_w$ and $u_k$, respectively [see (4.11)]. The reason for this procedure is that $P$ does not represent the value of an individual utility function, but reflects the interests of social groups and their influence. These groups are not interested in the weighted sum of utilities as such but only in their own interests (utilities). Thus, it cannot be, for instance, that a policy is chosen which would harm the interests of both groups. Exactly this might happen, though, if also the weights in front of the utilities in (4.5) are taken as endogenous when solving the program. To show this more formally, consider the first-order condition for the maximization of $P(I) = \Theta'(n)u_w(I) + [1 - \Theta'(n)]u_k(I)$, which can be written as: $(u_w - u_k)(d\Theta/dI) + \Theta'(du_w/dI) + [1 - \Theta'(n)\Theta'(n)](du_k/dI) = 0$. Let $I^\gamma > 0$ indicate the value of $I$ that satisfies the condition. Now suppose that $u_w(I^\gamma) > u_k(I^\gamma)$ and $d\Theta'(I^\gamma)/dI > 0$, then it is allowed that both $du_w(I^\gamma)/dI$ and $du_k(I^\gamma)/dI$ are negative. If one were dealing with the social welfare function of a benevolent dictator, with the weights indicating the group sizes, this could make sense (in general, albeit problematic in our case where $I$ stands for immigrants; cf. Bhagwati and Srinivasan 1983). However, if $P$ represents a complex interest function, formalizing the outcome of a political decision-making process in which influential agents participate, then this is clearly not the appropriate approach. The outcome discussed above could never have been effectuated under the existing political influence structure. The right procedure then is to take these weights as given when maximizing $P$, but to require for an equilibrium that the resulting policy reproduces these weights.

More specifically, for an “immigration regulation equilibrium”, with cap $I_e(n)$, it is required that the following conditions are met: (1) $I = I_e(n)$ maximizes $P = \Theta'(n)\ln{\Theta'(n)[K/(W+I)]^{1-\alpha}} + (1 - \Theta'(n))\ln{(1 - \Theta'(n))[(W + I)/K]^{\alpha}}$, with $0 \leq I \leq I'$ and $\Theta_R$ given; (2) $\Theta_R = \Theta'(I_e(n))$. Of course, the cap

27 In practice, the restriction of immigration can be realized in various ways. The usual method is to reduce the supply of working permits (see Molle and Zandvliet 1994; Zimmermann 1994).

28 Interestingly, in one of the generalizations discussed in Wildasin (1991), concerning a reinterpretation of his model of government policy, this policy is determined by a social welfare function depending on the incomes of the rich and the (mobile) poor, with weights denoting the number of households initially located in a jurisdiction. In our view an equilibrium demands, however, that the weights are reproduced by the equilibrium policies (for a similar definition in the context of a median voter model, see Epple and Romer 1991). Both studies show some formal similarity to our model in case of fixed weights.
only bites if $I_r^{(n)}<\bar{I}$. The properties of a regulation equilibrium are summarized by the following result. For expositional reasons we focus here on the case where $I_r^{(n)} \leq I_r^{(n)*}$; otherwise, the foreign country $[I_r^{(n)*}]$ determines the equilibrium level of migration.

**RESULT 4.** (A) In case of fixed weights: (1) $I_r=I_r'$ (no restriction) if $\Theta<\alpha$, (2) policymakers are indifferent if $\Theta=\alpha$, and (3) $I_r=0$ if $\Theta>\alpha$. (B) In case of endogenous weights, and assuming that $\Theta'$ increases with immigration ($\varphi<1$): (1) an interior equilibrium is obtained with $I_r'$ determined by $\Theta'=\alpha$, given that $\Theta'(I=0)<\alpha$ and $I'$ sufficiently large; otherwise (2) $I_r'=I_r'$ if $\Theta'<\alpha$ and (3) $I_r'=0$ if $\Theta'\geq \alpha$29 (see Appendix for proof).

For the foreign country $[I_r^{(n)*}]$, $\Theta^{(n)*}$ should be substituted for $\Theta^{(n)}$ and the inequality signs should be reversed.

From Result 4 it follows that optimal regulation for countries with a pro-labor political bias implies that no immigration is allowed. This result is quite intuitive when compared with Result 2. In countries with a pro-capital bias immigration will be regulated ($0<\bar{I}_r<\bar{I}$) when influence weights are endogenous and $\bar{I}$ is sufficiently large. Moreover, in that case immigration would cause the initial political bias to vanish $[\Theta'(I_r)=\alpha]$. We should emphasize, however, that our analysis abstracts from the costs of regulation, which may be substantial (Brown and Oates 1987). Allowing for such costs would make regulation less attractive, of course, and perhaps even undesirable (cf. Bond and Chen 1987).

Nevertheless, from a comparative perspective it is interesting to note that the outcome that pro-labor countries will be more restrictive than pro-capital countries in regulating immigration seems consistent with the difference in immigration policies between the EU countries (with respect to non-EU workers) and the U.S.: «leaving aside refugees, the United States at present admits each year 160,000 primary migrants (without family ties in the United States). Europe admits virtually none» (italics added) (Layard et al. 1992, p. 7). The fact that regulation among the EU-countries has disappeared can be related to the absence of important income differentials, in addition to persisting linguistic barriers (cf. Eichengreen 1994).

Apart from direct regulation of immigration policymakers might consider the regulation of $\varphi$, by extending or curtailing the political rights of immigrants, for instance. In case of exogenous immigration an extension of political rights (causing a decrease of $\varphi$) has no effect on the immigration level but positively affects the political influence of labor. Consequently, labor would favor such a policy, whereas capitalists would oppose it. Using our model it turns out that the marginal benefit to workers of a decrease in $\varphi$ (extension of rights) exactly equals the loss to capitalists. This follows from the fact that $\partial \Theta/\partial \varphi = -\varphi (1-\Theta)/\partial \varphi$, which implies that $\partial \varphi/\partial \varphi=0$. Thus, the status quo would prevail if regulation of $\varphi$ is considered. This outcome does not hold for endogenous migration, however; that is, if policymakers take this endogeneity into account. In that situation a decrease of $\varphi$ raises the immigration level (through the positive effect on labor income). This effect would even be stronger if the granting of political rights attracts immigrants by lowering the psychic mobility costs of

29 In case of endogenous weights and $\varphi\geq 1$: (1) $I_r'=\bar{I}$ (no restriction) if $\Theta'(I=0)<\alpha$, (2) $I_r'=0$ only if $\Theta'(I=0)>\alpha$. In addition, if $\Theta'(I=0)>\alpha$, $\varphi>1$ and $I'$ sufficiently large, there is also an interior equilibrium in this case with $I_r'$ determined by $\Theta'=\alpha$. 

60
migration (cf. Koslowski 1994). It is straightforward to show that in this case countries with a pro-labor political bias would prefer to curtail these rights, whereas pro-capital countries would like to extend them. Although perhaps contrary to expectation this outcome is in line with our results concerning direct regulation of immigration, for which changing $\phi$ becomes an alternative under endogenous migration. Interestingly, also this result seems consistent with the difference in immigration policies between the U.S. and the EU, as naturalization usually requires ten years of residence in the former (for non-EU citizens) but only five years in the latter. Again, it should be noted that there may be other determining factors for regulation. Apart from regulation cost one could think of the influences of a democratic ideology, for example.

4. Policy Competition and Coordination

So far our analysis focused on cases where either the immigration level is regulated or taken as given by policymakers. However, if policymakers have information on the variables that are pertinent to the decision to migrate, it is likely that they will try to reckon with the impact of redistribution on mobility. Decisions on redistribution policy become subject to the mobility constraint (4.13) in that case. In this section we study the consequences thereof, focusing first on small open polities, where policymakers take the transfers as well as the factor prices abroad as given. This seems to be an interesting case - at least as a benchmark - since, due to better information and lower traveling costs, migration is less and less restricted to neighboring countries (jurisdictions) or to countries with which special bonds exist (Appleyard 1991). Next, we analyze the conditions for coordination, concerning tax-transfer policies as well as the joint (coordinated) regulation of migration. Finally, we consider the migration between a small and a big country, and the interaction between two big countries, where the policymakers of a big country take the impact of their policies on the factor prices in the other country into account.

4.1. Small Open Polities

In this case policymakers take foreign factor prices and transfers as given, but allow for the fact that redistribution policy may affect the level of migration and, consequently, the factor prices at home (see, in this context, Buiter et al. 1993; Epple and Zelenitz 1981). This leads to a competitive situation for the governments. Focusing again on the domestic country, it implies that transfers will be determined by the solution of program (4.5), including the mobility constraint (4.13), and taking $yw^*$ as given. From this assumption it follows that domestic disposable income of workers is determined by the level abroad, adjusted for mobility costs. This renders the following result, where the outcomes for this type of policy competition are indicated by the subscript “o”.

RESULT 5. In case of fixed or endogenous influence weights there is no redistribution, i.e.: $s_{jw}^{(o)}=0 (j=k,w)$. With fixed influence weights, $I_o \leq I_e$ if $\Theta \leq \Theta^*$; in case of endogenous weights, assuming again that $\phi<1$, immigration decreases ($I_o^{(e)}<I_e^{(e)}$) if $\Theta^*>\Theta^{(e)}$ at $l=0$, and increases
4. A political economic analysis of labor migration and redistribution

((T_o^p > T_o) only if $\Theta$ is sufficiently smaller than $\Theta^*$ at I=0^n (see Appendix for proof).

The reason why transfers go to zero, independent of the endogeneity of the influence weights, is that it is optimal to attract immigrants up to the point where the product of the marginal immigrant equals the given cost [that is, where in equilibrium $p_w=(1+d)y^*_w=(1+d)p^*_w$]. This result provides support for the argument that political competition will have a negative effect on transfers. Moreover, it implies that total output $(X+X^*)$ will be maximized if mobility costs go to zero, as in that case $I_o^{(n)}$ equalizes the marginal productivity of labor in the domestic country and abroad (cf. Wildasin 1986).

Furthermore, with fixed influence weights, Result 5 shows that the immigration level will be lower under policy competition if the political bias in the domestic country is more pro-labor than it is abroad ($\Theta > \Theta^*$), and it will be higher if the bias is more pro-capital ($\Theta < \Theta^*$). The reason is that if $\Theta > \Theta^*$, for example, the transfer to workers is a larger fraction of factor income in the domestic country than abroad [see eq. (4.9)]. In that case policy competition has a negative effect on immigration because it implies a relatively larger fall in labor income in the domestic country. In case of endogenous influence weights the immigration level can still be lower under policy competition even though $\Theta^* \leq \Theta^*$ at $I=0$, because of the additional effect of immigration on the political influence of labor, which makes $\Theta^* > \Theta^*$ possible at $I_e$.

An interesting next question is under what conditions a country may profit or lose from policy competition. For an answer we focus on the “political welfare” of a country as indicated by the value $P$ of the interest function in (4.5). In case of endogenous influence weights we keep the weights in (4.5) fixed at the value they have under no competition (cf. the argumentation in section 3). The index $n$ will be dropped for convenience. The following condition is obtained, using (4.4), (4.11), and the expressions for $I_e$ and $I_o$ in (4.14) and note 26:

\[
P_o \gtrsim P_o \quad \text{if} \quad \Theta (\ln \Theta - \ln \alpha) + (1-\Theta)
\]

\[
\cdot \ln(1-\Theta) - \ln(1-\alpha)] \gtrsim (\alpha-\Theta)[\ln(W+I_o) - \ln(W+I_e)]
\]

(4.16)

The left-hand side of this expression indicates the loss in political welfare due to competition, when the immigration level does not change ($I_o=I_e$). This loss is always positive when there is (pro-labor or pro-capital) redistribution in the domestic country. It can be compensated, however, by a change of the immigration level in the right direction, that is, by a decrease of immigration ($I_o< I_e$) when redistribution is pro-labor ($\Theta>\alpha$), and the reverse if redistribution is in favor of capital. For example, if $\Theta > \Theta^*$ then it follows from Result 5 that $I_o < I_e$. In that event, if political influence is biased in favor of labor ($\Theta > \alpha$), the policymaker may have an interest in competition because it reduces immigration (cf. Result 4). With this explanation and that provided for Result 5, the next result is rather straightforward.

\textbf{RESULT 6. Comparing the political welfare levels under policy competition ($P_o$) and no competition ($P_c$):} [1] political welfare does not change ($P_o=P_c$) if there is no political bias

\[30\] Where $I_o^{(n)}=(W-T^n)/(1+T^n)$ and $T^n=(K^*/K)(1+d)^{1/(1-\alpha)}$. In case of endogenous influence weights and non-linear mobility costs it is obtained, using (4.15): $s_0^j=0$ (j = k, w) and $I_o^{(n)}=(W-T^n)/(1+T^n)$, where $T^n=\delta(K^*/K)^{\frac{1}{1-\alpha}}$. 

62
and, thus, redistribution is zero ($\Theta = \alpha$); [2] political welfare decreases ($P_o \leq P_e$) if the domestic country, compared to the foreign country: (a) has the same political bias ($\Theta = \Theta^* \neq \alpha$), (b) is less pro-capital ($\Theta^* < \Theta < \alpha$), or (c) is less pro-labor ($\Theta^* > \Theta > \alpha$); [3] political welfare increases ($P_o > P_e$) if the domestic country is: (a) pro-capital ($\Theta < \alpha$) and $\Theta$ is sufficiently smaller than $\Theta^*$, or (b) pro-labor ($\Theta > \alpha$) and $\Theta$ is sufficiently larger than $\Theta^*$ (See Appendix for proof).

Similar results hold for the foreign country, substituting $\Theta^*$ for $\Theta$ and interchanging $I_o$ and $I_e$. The fact that political welfare may increase under policy competition raises the question whether political welfare in the domestic country and abroad can increase simultaneously under policy competition, implying that $P_o > P_e$ and $P_o^* > P_e^*$. This turns out to be the case. In fact we are able to proof the following stronger result.

**Result 7.** The political welfare in both countries may increase under policy competition, that is, $P_o > P_e$ and $P_o^* > P_e^*$. In fact, all social groups, in the domestic country and abroad, may benefit from policy competition, in terms of welfare (utility). In both cases either $\Theta < \alpha < \Theta^*$ or $\Theta > \alpha > \Theta^*$ should hold. Moreover, not all social groups in each country experience a loss of welfare from policy competition (See Appendix for proof).

Thus, policy competition may be beneficial to all social groups at home and abroad, even though the transfer to those that enjoyed a political bias in their favor under no competition decreases (in fact, goes to zero). In any case, the change in immigration caused by competition will be advantageous for at least one social group in each country, independent of the political bias (direction of redistribution) in the two countries. Finally, it is noted with respect to regulation - as an alternative to tax-transfer policy competition - that the results presented in section 3 carry over to this model of endogenous migration (substituting $I_o^m + I'$ for $I'$).

### 4.2. Coordination

Since governments in this model of policy competition do not take account of fiscal externalities, coordination may lead to a welfare improvement. They have two options here: they can coordinate their tax-transfer policies, keeping free mobility of labor (a common labor market), or they can coordinate on the regulation of migration. In the first case they have to take into account the mobility constraint (4.13). Both options will be studied only from the point of view whether coordination is feasible, which requires a Pareto-improvement in the political welfare indicated by $P$ and $P^*$

Consider first the coordination of tax-transfer policies. The advantage of coordination is that two transfers become available for manipulation, instead of only one. Evaluating the total differential of $P^*$ at the equilibrium under policy competition, we obtain the following result.

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31 To determine whether coordination will actually take place, and what its nature will be in that event, one needs a formalization of the bargaining process that it entails, which goes beyond the scope of this paper.
RESULT 8. Coordination of tax-transfer policies, under free mobility of labor, is feasible if and only if the political bias ($\Theta^* \neq \alpha$) does not go in different directions in the domestic country and abroad$^{32}$ (See Appendix for proof).

We know from section 3 (Result 4) that with a similar political bias countries have opposite interests concerning the regulation of migration. Now, the present result shows that these countries can coordinate their tax-transfer policies while retaining free mobility of labor. This result is quite intuitive given the fact that transfers in both countries can be jointly determined. With respect to the coordination of the regulation of migration, on the other hand, we have the following result$^{33}$.

RESULT 9. Coordinated regulation of migration is feasible if and only if the political bias in the domestic country and abroad go in different directions (that is, $\Theta \prec \alpha \prec \Theta^*$ or $\Theta \succ \alpha \succ \Theta^*$) (proof follows from Result 4).

These results suggest that free mobility of labor (a common labor market) has a better chance under policy coordination when the coordinating countries are political likes. According to this outcome labor mobility could represent a problem for the potential extension of the EU towards Eastern Europe, given the seemingly pro-capital nature of these countries.

4.3. Other Types of Competition

So far we have considered a strong form of policy competition, where policymakers not only take foreign taxes and subsidies but also foreign factor prices as given. In this subsection we will relax this assumption and discuss what happens in case of policy competition between either a small (domestic) country and a big country, or two big countries. In the first case, the government of the small country takes again foreign transfers and foreign factor prices as given, whereas the government of the big country takes account of the policy of the small country and how the factor prices in that country are affected by its own policy. In the second case, governments take each other's policy as given but reckon with the impact of their policies on foreign factor prices. For simplicity, it is assumed in the following discussion that the political influence weights are fixed.

First, it is noted that equilibrium outcomes are the same under all different forms of policy competition if $\Theta^* = \Theta = \alpha$. If there is no political bias in favor of labor or capitalists, transfers will be zero and factor prices are determined by the migration level given in (4.14).

32 In case of endogenous influence weights one should either take $\Theta^*$ at $I=0$, if the comparison of competition and coordination is made before immigration takes place, or its value at the equilibrium under competition, if coordination is considered in that situation. The first treatment suits the model better in case of positive mobility costs, as the model does not allow for reverse migration in that case [cf.(4.13)].

33 Recall that the comparison here is with competition. We cannot have an improvement for each country if the comparison is with uncoordinated regulation, as the one who regulated will experience a loss of political welfare.
Consequently, political welfare $P^*$ is identical for all cases that have been distinguished. Moreover, total output $(X^* + X)$ is maximized, allowing for mobility costs.  

**Second**, if there is a political bias in the domestic country and/or abroad, the governments of big countries have an incentive to choose transfers to workers that are smaller in absolute value (but still different from zero) when compared with the case where the mobility constraint is neglected; the government of a small country will opt again for zero transfers, as discussed above. This is due to the fact that big countries take into account the positive effect on the migration level of a larger subsidy to (or a smaller tax on) workers. This effect is positively valued by capitalists, as it increases the return on capital, but it is negatively valued by workers, since it decreases the wage rate. The additional effect on labor income via the impact on the foreign wage rate, causes the transfers to be different from zero. The impact on the level of foreign wage rate, the transfers would be zero. For the other regimes we cannot exclude that the absolute value of the transfer in one of the countries is higher in equilibrium. In the country where this equality holds the transfers would be zero. For the other regimes we cannot exclude that the absolute value of the transfer in one of the countries is higher in equilibrium.  

Finally, evaluating the total differential of $P$ and $P^*$ in the equilibrium under the respective form of policy competition, as discussed above for small open polities, it turns out that coordination of tax-transfer policies is feasible if there is a political bias in at least one of the countries. Moreover, in contrast with the small open polities case, the political bias may go in different directions now.

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34 It is easily shown that with endogenous influence weights the same results can be obtained as equilibrium outcomes if in any of the cases distinguished $\Theta^* = \Theta^{**} = \alpha$ holds in equilibrium.

35 In the small versus big country case it can be proved, indeed, that the absolute value of the transfer to workers in the big country will be smaller, except for the political bias regimes where $\Theta > a > \Theta^*$ or $\Theta > a > \Theta$, whereas $\Theta$ should be sufficiently close to $a$ in the regimes where $a > \Theta > \Theta^*$ or $\Theta > \Theta > a$. This can be proved by using the mobility constraint (4.13) and the first order conditions for (4.5) for both countries. For the big versus big country case we are able to show this result only for the regimes where either $\Theta$ or $\Theta^*$ is equal to $a$ (note that in the country where this equality holds the transfers would be zero). For the other regimes we cannot exclude that the absolute value of the transfer in one of the countries is higher in equilibrium.

36 There is one exception. Letting $y_{ws}^*$ stand for labor income in the small versus big country case, $y_{ws}^* = y_{ws}$ if $\Theta = a$. Recall that it is assumed that the domestic country is small in case of a small country facing a big country.

37 This follows from an inspection of the first order conditions, except that the result is unclear for $\Theta^* > \Theta > a$ and $a > \Theta > \Theta^*$ if $\Theta$ is not sufficiently close to $a$.

38 Using again $f$ and $s_w$ as instruments, it turns out for the small versus big country case that $dP^* \geq 0$ (at $I_L$) if $(a-\Theta) [ (\alpha \hat{\Theta} \beta / \alpha) d\beta ] + ds_w \geq 0$, and $dP^* \geq 0$ if $(\alpha \hat{\Theta} \beta / \alpha) d\beta > 0$. In case of the big versus big country case: $dP^* \geq 0$ (at $I_L$) if $(\alpha \hat{\Theta} \beta / \alpha) d\beta + ds_w \geq 0$, and $dP^* \geq 0$ if $(\alpha \hat{\Theta} \beta / \alpha) d\beta > 0$. In both cases $(\alpha \hat{\Theta} \beta / \alpha) d\beta$ drops out, because this partial derivative is zero at the respective equilibrium under policy competition. Moreover, it can be shown that at these equilibria the above expressions $\alpha \hat{\Theta} \beta / \alpha$ and $\alpha \hat{\Theta} \beta / \alpha$ are all unequal to zero if there is a political bias (this is due to the fact that, under coordination, $I_L$ and $s_w$ can be used as separate instruments). Thus, coordination
5. Concluding Remarks

Our analysis shows the significance of taking political decision making into account when studying the determinants and effects of labor mobility. Outcomes can be strikingly different from those obtained neglecting politics. For example, transfers and disposable income for workers can increase if the number of immigrant workers rises. Furthermore, an increase in the domestic labor force may lead to a higher immigration level. On the other hand, an increase in exogenous migration decreases endogenous migration (motivated by income differentials). Important in this respect are the nature of the political regimes in the different countries, in terms of their political bias concerning the interests of social groups, and the responsiveness of the political decision-making process to changes in the size and homogeneity of these groups. The results concerning the policy interaction between the countries are, in our view, particularly interesting. Policy competition, among small open polities, was shown to be advantageous for all social groups, at home and abroad, only when countries have a different political bias (implying opposite directions of redistribution). In addition it turned out that coordination, improving political welfare, would be feasible in that case. However, in that situation coordination would have to be of the regulation type, which is incompatible with the maintenance of a common labor market (free mobility of labor). This would entail a policy implication for political associations considering extensions towards other countries. Not only the economic status of such countries appears to be a relevant issue of consideration, but also their political regimes. To maintain free mobility of labor an association of political likes seems to be important, if coordination is intended or foreseen. On the other hand, without coordination countries could be better off if they associate with countries that are different qua political bias.

Apart from the incorporation of trade (Ethier 1985; Hillman amd Weiss 1999; Michael 2003) or resource transfers (Hatzipanayotou and Michael 2005; Mansoorian and Myers 1993; Persson and Tabellini 1994), a dynamic analysis of the problems investigated here would be an important extension of the presented model, in particular from the perspective of the endogeneity of political influence. With respect to the incorporation of mobile capital it is interesting to note that, again, outcomes may differ when the political impact of immigration is taken into account. In case of fixed influence weights, capital mobility would have a stimulating effect on immigration. This is due to the inflow of capital attracted by a higher factor price causing in its turn an increase in labor income (Gerking and Mutti 1983; Perotti 2001). That is, if the political influence weights are fixed. In case of endogenous influence weights, and immigration sufficiently increasing the political influence of labor, immigration may actually have a negative effect on capital income lowering the equilibrium level of immigration.

Finally, concerning the incentives to migrate, one could reinterpret the mobility cost factor as to incorporate the monetized value of environmental amenities. Furthermore, transfers could represent both cash payments and the monetized value of quasi-private public goods (see Wildasin 1991). The latter reinterpretation is not very satisfactory, however, in case of a
positive political economic analysis. In fact, the explicit incorporation of the supply of public goods and services and their producers - civil servants or bureaucrats - as a social group could be one of the interesting extensions of the model, in view of the demand by immigrants for such goods and services. More generally, a further elaboration of the model in a political institutional sense is a prerequisite for a positive analysis of the determinants and effects of policy coordination and political (dis)integration. That is also why we restricted ourselves to a discussion of the feasibility of coordination only, whereas integration was only considered in the economic form of lower mobility costs. The actual decision-making process of policy coordination and political integration involves a whole new set of issues, such as the behavior and influence of country representatives, requiring a separate analysis.

Appendix

Proof of Result 4

(A). If immigration does not affect the political influence weight Θ, then the regulated level of immigration is derived by maximizing \( P = \Theta \ln(\Theta[K/(W+I)]^{1-\alpha} + (1-\Theta) \ln((1-\Theta)[W+I]/K]) \). Since \( \frac{\partial P}{\partial I} \gg 0 \Leftrightarrow \alpha \leq \Theta \), Result 4(A) is obtained.

(B). In case that immigration influences the political weights then \( I^* \) is derived from the maximization of \( P = \Theta R \ln(\Theta R[K/(W+I)]^{1-\alpha} + (1-\Theta R) \ln((1-\Theta R)[W+I]/K]) \) with \( \Theta R = \mu(W+I)/[\mu(W+I) + (1+\phi(I/W)) \tau K] \). Differentiation shows that \( \frac{\partial P}{\partial I} \gg 0 \Leftrightarrow \left( \Theta R - \Theta R \right) / \Theta R (1-\Theta R) \frac{\partial \Theta R}{\partial I} \gg \Theta R - \Theta R / (W+I) \). The results follow straightforwardly by letting \( \Theta R = \Theta R \), realizing that \( \frac{\partial \Theta R}{\partial I} \leq 0 \) if \( \phi \geq 1 \), and \( \frac{\partial \Theta R}{\partial I} > 0 \) if \( \phi < 1 \). It is noted, furthermore, that \( \frac{\partial^2 P}{\partial I^2} < 0 \) at \( \Theta R = \Theta R = \alpha \).

Proof of Result 5

(A). Recalling that \( y_w^* \) is given, note that \( \max P \) in (4.5) is here equivalent to \( \max y_k \), as \( y_w=(1+d)y_w^* \) (mobility constraint). Then using (4.3), (4.4) and (4.13) domestic policy is determined by the maximization of \( y_k = (1-\alpha)((W+I)/K)^{1-\alpha} + s_h \) with respect to \( I \), where, from the budget and mobility constraints: \( s_h = -sw(W+I)/K = -(W+I)/K \{ (1+d)y_w^* - \alpha[K/(W+I)]^{1-\alpha} \} \).

From the first order condition (noting that \( \frac{\partial^2 y_k}{\partial I^2} < 0 \)) one obtains: \( I = K[a/(1+d)y_w^*]^{1-\alpha} \). Inserting \( I \) into the migration equilibrium condition [i.e. \( y_w = (1+d)y_w^* \)] it follows that \( s_h = 0 \). Using the same procedure for the foreign country, it is obtained that \( s_h = 0 \), and, thus, \( y_w^* = p_w^* \). Using (4.4) for \( p_w^* \) and solving for \( I \) renders the expression in note 26. Simple comparison of \( I_o \) with \( I_e \) [see (4.14)] shows that \( I_o \gg I_e \Leftrightarrow \Theta^* \gg \Theta \).

(B). In case of endogenous influence weights, \( \Theta^{(r)} \) again drops out of the optimization problem. Consequently \( I_o = I_o \) is the competitive outcome also in this case. In addition, by comparison it is easily seen that \( I_o \gg I_o \) if \( \Theta^* \mid_{I=0} > \Theta^{(r)} \mid_{I=0} \) and \( \phi < 1 \). However for some positive levels of immigration, it may be that \( \Theta^* \mid_{I=0} > \Theta^{(r)} \mid_{I=0} \) and still \( I_o \gg I_o \), through the effect of \( I \) on \( \Theta^{(r)} \), for \( \Theta^* \) sufficiently close to \( \Theta^{(r)} \) at \( I=0 \).

Proof of Result 6

Note that the left hand side (LHS) of (4.16) is zero at \( \Theta = \alpha \). To see its sign we can take the derivative with respect to \( \Theta \). Note that the sign of \( \frac{\partial \text{LHS}}{\partial \Theta} \) is given by the sign of \( Z = [\Theta/(1-\Theta)] - [a/(1-\alpha)] \).
Consequently \( Z \geq 0 \iff \Theta \geq a \). Reassuming the LHS of (4.16) is zero when \( \Theta = a \), increasing when \( \Theta > a \) and decreasing when \( \Theta < a \). Thus the LHS of (4.16) is positive if \( \Theta > a \). Recall that \( I_o \geq I_e \) if \( \Theta > a \). Simple comparison leads to Result 6.

**Proof of Result 7**

Recall from (4.16), Result 5 and Result 6.3 that \( P_o > P_e \) if (a) \( \Theta < a \) and \( I_e \) sufficiently larger than \( I_o \) (i.e. \( \Theta^* \) sufficiently larger than \( \Theta \)) or (b) \( \Theta > a \) and \( I_o \) sufficiently smaller than \( I_e \) (i.e. \( \Theta^* \) sufficiently smaller than \( \Theta \)); as regards the foreign country, \( P_o^* > P_e^* \) if (c) \( \Theta > a \) and \( I_e \) sufficiently larger than \( I_o \) (i.e. \( \Theta^* \) sufficiently larger than \( \Theta \)) or (d) \( \Theta > a \) and \( I_o \) sufficiently smaller than \( I_e \) (i.e. \( \Theta^* \) sufficiently larger than \( \Theta \)). Then it is evident that conditions (a) and (c) are in contrast. So are conditions (b) and (d). Therefore \( \alpha \) has to be between the labor political influence weights, in order to have both \( P_o > P_e \) and \( P_o^* > P_e^* \). To check that this outcome is indeed possible take, for example, \( \alpha = 0.5, \Theta / \Theta = 12/7 \), and \( (K^*/K)(1+d)^{1/(1-a)} = 1 \), determine \( I_o \) and \( I_e \) from (4.14) and note 26, and use those values to evaluate (4.16).

To prove the last part of Result 7, use (4.14) and Result 5 obtaining that \( y_{wo} \Rightarrow (\Theta/a) \geq (1+T)/(1+T(\Theta^*/\Theta)^{1/(1-a)}) \) and \( y_{ke} \geq y_{ko} \Rightarrow [(1-\Theta)/(1-\alpha)] \geq [(1+T(\Theta^*/\Theta)^{1/(1-a)})(1+T)]^{\alpha} \), where \( (\Theta/a)^{1/(1-a)} < (1-\alpha)/(1-\Theta) \)\(^{1/(1-a)} \).

By comparing \( y_{jo} \) with \( y_{jo} \) (\( j = k, w \)) some tedious algebra shows that if \( \Theta > \Theta^* \geq a \) or \( \Theta^* > \Theta > a \) (\( \Theta < \Theta^* < a \)), then \( y_{wo} < y_{wo} \) \( y_{wo} < y_{wo} \) but \( y_{ko} \leq y_{ko} \); if \( \Theta = \Theta^* \neq \alpha \), or \( \Theta \neq \alpha = \Theta \) then \( y_{wo} < y_{wo} \Rightarrow y_{ke} < y_{ko} \). The opposite result \( y_{w1} > y_{wo} \) \( y_{w1} > y_{wo} \) and \( y_{ko} \leq y_{ko} \) \( y_{ko} \leq y_{ko} \) take for example \( \alpha = 0.5, T = 1, \Theta = 0.1 \) and \( \Theta^* = 0.5 \) or \( \Theta^* = 0.45 \). When \( \Theta = \Theta^* > a \), notice that \( y_{wo} > y_{wo} \) \( y_{wo} > y_{wo} \) implies \( y_{ke} < y_{ko} \), however if \( y_{wo} < y_{wo} \) \( y_{wo} < y_{wo} \) it is possible to have also \( y_{ke} < y_{ko} \) \( y_{ke} < y_{ko} \) by assuming for example \( \alpha = 0.5, T = 10, \Theta = 0.9 \) and \( \Theta^* = 0.4 \). Finally in case that \( \Theta^* > a > \Theta \), \( \Theta^* > a > \Theta \), then \( y_{wo} > y_{wo} \) \( y_{wo} > y_{wo} \) implies \( y_{ke} < y_{ko} \). We can obtain \( y_{jo} < y_{jo} \) \( y_{jo} < y_{jo} \) when, for instance, \( \alpha = 0.5, T = 1/3, \Theta = 0.15 \) and \( \Theta^* = 0.75 \).

For the foreign country the outcomes are equivalent to those obtained for the domestic country, substituting \( \Theta \) for \( \Theta^* \). Thus it cannot be that \( y_{wo} > y_{wo} \) \( y_{wo} > y_{wo} \) for \( j = w, k \). On the other hand \( y_{jo} < y_{jo} \) \( y_{jo} < y_{jo} \) may hold in case that: (i) \( \alpha \geq \Theta > \Theta^* \), (ii) \( \Theta > a > \Theta^* \) and (iii) \( \Theta^* > a > \Theta \).

**Proof of Result 8**

Recall that by the balanced budget constraint, \( s_k = s_w(W + I_o)/K \); moreover, under policy competition \( s_{wo} = 0 \). Then by totally differentiating \( P \), we obtain: \( dP = (\Theta/p_o)[(\partial p_o/\partial \Theta)dI + ds_k] + [(1-\Theta)p_o][(\partial p_o/\partial \Theta)dl - ((W + I_o)/K)ds_w] \). Using (4.4), after rearranging, it results that: \( dP \geq 0 \iff (\Theta - \Theta^*(\Theta^*(\Theta - \Theta^*)^{1-\alpha}dI) \).

Then consider the foreign country. By using the mobility equilibrium condition \( \left[ y_{wo}((W - 1)y_{w} + s_kK) = 0 \right] \), the total differential of \( P^* \) (at \( I_o^* \), i.e. \( s_w = s_w^* \)) is:

\[
dP^* = \{(\Theta/p_o)(\partial p_o/\partial \Theta) - \{(1-\Theta^*)(W^* - I^*)^{1-\alpha}((W^* - I^*)^{1-\alpha} - (\partial p_o/\partial \Theta)(1+d)^{1-\alpha})[(K^*/W^* - I^*)]^{1-\alpha} - p_o((1+d)^{1-\alpha})\}dI + \{(\Theta/p_o)(1-\Theta^*)(W^* - I^*)^{1-\alpha} - p_o((1+d)^{1-\alpha})\}ds_w.
\]

After rearranging and using (4.4), it results that \( dP^* \geq 0 \) iff \( \Theta^*(1 - \alpha)(W + I_o)^{1-\alpha}K((W + I_o)^{1-\alpha})dI \). Comparing \( dP \) and \( dP^* \) we obtain Result 8, i.e.: \( dP^* \geq 0 \iff (\Theta^* - \Theta^*(1 - \alpha)(W + I_o)^{1-\alpha}K((W + I_o)^{1-\alpha})dI \).
4. A political economic analysis of labor migration

Table 1 - Comparative statics: exogenous migration

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Table 2 - General equilibrium comparative statics: endogenous migration

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Notes: $a$: $\varphi=0$, $b$: $1>\varphi>0$, $c$: $\varphi=1$, $d$: $\varphi>1$
References

References


Browne W. P. (1998), Groups, interests, and U.S. public policy, Georgetown University Press,
Washington D.C.


75
References

References


Olson M. (1965), The logic of collective action, Harvard University Press, Cambridge MA.


References


Samenvatting (summary in Dutch)

Herverdelingsbeleid lijkt vaak het algemeen belang te negeren en in plaats daarvan voorkeur te hebben voor specifieke beperkte belangen. Een vaak voorkomende uitleg is dat beleid kan worden beïnvloed door de strategische activiteiten van specifieke belangengroepen of lobbies. De hier gepresenteerde essays focussen op twee instrumenten die invloed kunnen uitoefenen namelijk pressie door campagnebijdragen en stemmen.

Hoofdstuk twee (An Endogenous Policy Model of Hierarchical Government) laat een politiek economisch model van herverdelingsbeleid zien die resultaat geeft door het combineren van de afzonderlijke en opeenvolgende beslissingen van twee beleidmakers. Een wetgever bepaalt de hoogte van het bedrag en een uitvoerend organa, een ambtenaar bepaalt de toewijzing van het budget aan de twee projecten die aan groepen met verschillende belangen toebehoren.

Beide beleidmakers worden blootgesteld aan de invloed van de belangengroepen door het aanbod van beleidafhankelijke campagnebijdragen. Dit in tegenstelling tot de meeste modellen die de invloed van belangengroepen beperken tot één enkele persoon. In werkelijkheid wordt beleid echter gevormd door de keuzes van meerdere spelers die op hetzelfde politieke of administratieve niveau op elkaar inwerken, dan wel door verschillende niveaus heen (bv. centrale en lokale overheid, wetgevers en ambtenaren).

Het potentiële voordeel van een dubbele gelegenheid om beleidmakers te beïnvloeden wordt geconfronteerd met de nadelen van extra lobbykosten en machtscheiding. Het belangrijkste resultaat is dat het bestaan van een veelvoudige lobby nog de belangengroep, noch de beleidmakers ten goede komt. Wat betreft het effect van de invloed op meerdere niveaus op wetgevende supervisie, laat het zien dat dit prima kan worden vervangen door competitief lobbyen op ambtenaarniveau. Aanvullingen op het model indiceren het nut van dit model voor de analyse van beleid maken in andere bestuurstructuren die uit meer lagen bestaan zoals bonden en bedrijven.

In hoofdstuk drie (Does Centralization Increase the Size of Government? The Effects of Separation of Powers and Lobbying) wordt hetzelfde model met deze dubbele laag invloed toegepast op de analyse van de effecten van politieke centralisatie binnen de EU. Men is bang dat een proces van politieke centralisatie in het voordeel zal werken van machtige belangengroepen die bij de beleidmakers kunnen lobbyen en dat de grootte van de overheid zal toenemen door free-riding. Om het EU constitutionele framework beter te kunnen omschrijven, past de analyse het eerder beschreven twee stappen budgetteringsproces toe op een federale context, waar nationale belangengroepen strijden voor de toekenning van fondsen.

De Raad bepaalt de omvang van het budget in fase één terwijl de Commissie het deel van de opbrengst welk naar de twee verschillende staten gaat in de volgende fase bepaalt. Bevolkingsgroepen kunnen zoeken naar manieren om invloed uit te oefenen op beide lagen beleidmakers. Ook wordt aangetoond dat machtscheiding in het budgetteringsproces free-riding beperkt en daardoor de stimulans om invloed uit te oefenen verkleint.

Daarom zal, als beide beleidmakers kunnen worden beïnvloed door de belangengroepen van het land, de grootte van de publieke sector daadwerkelijk kleiner worden onder gecentraliseerde beleidmakers.
Hoofdstuk vier (A Political Economic Analysis of Labor Migration and Redistribution) adreseert de issue van de dynamiek van de samenstelling van de belangengroepen. Belangengroepen kunnen worden beïnvloed door verschillende krachten, zoals economische en/of demografische veranderingen. Deze studie onderzoekt de invloed van immigratie op de politieke invloed van belangengroepen in het politiek economische model van twee landen op de herverdeling van inkomsten met internationale mobile labor. Het politiek economische model verschilt van hetgeen dat in de vorige hoofdstukken is gebruikt, omdat het geen rekening houdt met lobbyen door middel van bijdragen.

Politieke invloed wordt bepaald door de grootte en homogeniteit van de groepen met betrekking tot verkiezingssteun en pressie (stakingen, publieke bijeenkomsten, etc). Het laat zien dat als het positieve effect overheerst immigratie, de overdracht naar en het inkomen van de mobiele groep kan laten toenemen.

Bovendien worden migratiewetgeving, concurrentie en coördinatie van belastingoverdracht beleid en tenslotte de coördinatie van wetgeving onderzocht. Het resulteert erin dat de keuze van welk regiem dan ook afhankelijk is van de verdeling van politieke invloed onder de relevante groepen in de twee landen.
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