Chapter 3 “The Party” in the Process of Public Job Distribution
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“(in all modern parties) there is a continual latent struggle. Every oligarchy is full of suspicion towards those who aspire to enter its ranks, regarding them not simply as eventual heirs but as successors who are ready to supplant them without waiting for a natural death.” Robert Michels, Political Parties, 1962

Distribution of public jobs through political patron-client networks has been taking new forms as a result of the political and socio-economic changes in Argentina and Turkey. One expectation of the earlier social science literature was that in developing democracies like these two countries, political and economic development and reduction in available public resources would lead to the replacement of particularistic relationships like patronage networks by universalism in state-citizen relationships. However, in most of these countries violations of equal access to public resources and informal inequality in political rights have persisted. Such violations have significant consequences for the political legitimacy of democratic regimes that are still in the process of consolidation and for the degree of inequality in the actual distribution of material resources. As such, it is necessary to analyze and understand the changes that have been taking place in political networks that are formed around the exchange of material benefits and the new forms of such networks that have been emerging as a result of the political and socio-economic changes.

As is true for all forms of patron-client relationships in democratic regimes, the formation and functioning of patronage networks in the context of public sector
employment are affected by political competition. However, as I have argued in
the previous chapter, the literature has until now focused solely on one part of such
competition— that between parties and candidates in general elections. Yet, for
analytical purposes, we can distinguish between two separate stages of political
competition in democracies: the general elections and the process of achieving
candidacy. I argue that neither of these stages should be ignored if we are to
understand the political and social factors that affect clientelism. Moreover, in
understanding how clientelism works in the distribution of public jobs, analyzing
competition within parties is especially important in the aftermath of the political
and socio-economic changes that these two countries have experienced since their
transitions to democracy in 1983.

The parties and the exchange have a number of characteristics that shape the
way through which internal party competition affects clientelism. These include:
the kind of political support that parties and politicians expect from the recipients
of these jobs, the rules for selecting candidates for public positions and party posts,
the role of party members and activists in campaigns for general and intra-party
elections, and the financing of parties.

As I have argued, the literature on clientelism until now has largely focused on
one kind of political support: the parties’ and politicians’ expectations of votes
in general elections in return for the public benefits that they distribute. Yet, I
have also argued that in the case of clientelism in public employment, allocating
jobs to particular individuals in order to get their votes in a general election is
not an efficient strategy. Limitations on the number of available jobs as a result

\footnote{1949 constitution in Argentina introduced “stability” to all workers. According to the}
resulting from broader economic crises and the consequent efforts to “reduce the state” have decreased the efficiency of this strategy.

As an example, we can look at the changes in the total number of provincial personnel in Argentina between 1998 and 1999, the year when both national and provincial elections took place, and compare this change with the differences in the number of votes that the two leading parties got. It can be seen in Table 2 that in Tierra del Fuego, a new public job was created for almost every 2 votes. However, on the other extreme, in Santiago del Estero, while the difference in the votes was 84672, only 182 new jobs were created. Across provinces the average number of votes per every new job is 85.7. These figures suggest that even if we assume that all these new employees are hired through clientelistic ties and take into account the possibility that the exchange of one job would also be accompanied by more than one vote, mostly by the family members of the new employee, we can see that on average the number of jobs that can be distributed to increase the share of votes in the elections are too limited to make a significant difference.

Yet, as supported by interviews with politicians and public employees\(^2\), we still

\(^2\)The interviewees included politicians from two main parties in Argentina, UCR and PJ as well as ARI and a provincial party in Chaco, Accion Chaqueña. (See table 1 for a list of all abbreviations that are used.) In Turkey, the interviewees were selected from six parties that have participated in government in the period from 1983 to 2004: JDP, RPP, DLP, MP, TPP and NAP. For both countries the selected interviewees are politicians who have occupied various public and party offices. The interviewed public employees include only three bureaucrats (from the federal government) in Argentina and various employees at national and municipal level in
observe political hirings at different levels of the public sector. If politicians cannot make an effective difference in the result of elections and, as I discussed in the previous chapter, if they cannot monitor the voting behavior of the employees, why would they show any effort to allocate these public jobs to “selected” individuals who have close ties with the parties and politicians? I argue that the answer lies in how parties work in countries like Argentina and Turkey.

As the president of the electoral tribunal of the Radical party in Chaco described in the interview, the party does not have the financial resources to hire the personnel to conduct the campaigns and do the daily work of the party in most provinces, cities and smaller localities. As the president of the deliberative council of the locality, Pilar, in Buenos Aires argued, only in some exceptional places like the Capital Federal\textsuperscript{3} in Argentina do local politicians have the resources to conduct professional campaigns that use the media. In most other localities, “house to house” visits, “face to face” talks, coffee-house visits, “caminatas” (walks), and large gatherings constitute the major part of political campaigns.

Especially in places where unemployment is widespread and where the average income is low, as the ex-president of the Republican People’s Party in the city of Canakkale in Turkey, argued, the people, the party members who participate in these activities are the ones who “expect something in return” (author’s interview) and one of the most important type of benefits that they can receive is a job in the public sector. Not only do party campaigns depend on the voluntary work of the party activists and members, but also most of the party personnel

\textsuperscript{3}Capital Federal refers to the City of Buenos Aires that hosts the federal government of Argentina. It has its own independent municipal government.
who conduct the daily work of the party do not get any salaries. As the president of the electoral tribunal of the Radical party in Chaco stated, the personnel, including himself, work in other (mostly public) jobs in addition to their work in the party. Thus, develop concepts like “ñoquis” in Argentina to refer to those public employees who show up at the work place only at the end of the month to get their salaries.

In this chapter, I first provide a brief description of party financing, the role of party activists in electoral campaigns, and candidate nomination and party official selection processes of parties in Argentina and Turkey. Then, with a game theoretic model, I analyze how these three aspects of parties shape the use of particularistic distribution of public jobs in political competition. I demonstrate that internal party competition provides politicians incentives to limit their efforts to build personal political loyalties through distributing jobs when their party’s or party leader’s support is important for their reelection, when the leader’s support for other party members carries risks for leadership take-over and when an individual politician’s reelection is not critical for the party (or the party leader.) Then, I offer some concluding thoughts about the role of parties in clientelistic linkages before turning to empirical analysis in the next chapter.

Party Financing:

In both countries, as in other developing democracies, how the political parties are financed is a widely debated political issue. However, detailed budgetary

4As Levitsky (2003, pp. 69) explained, public employees who do not actually work, but get salaries from the state are referred to as “ñoquis” in Argentina. The name comes from the tradition in Argentina to eat “ñoquis” on the 29th of each month because these employees show up at the work place only at the end of the month to get their paychecks.
data from political parties and information about their campaign spending and resources are not very easily accessible. Yet, in interviews with politicians a recurring theme was the financial pressures on parties, especially at the local level. A significant portion of party resources in both countries comes from the national government. In Argentina, with the Organic Law of Political Parties (Law No. 23,298) a Permanent Party Fund was created. Through this fund, each party receives financial help from the federal government in accordance with the number of votes they got in the most recent election. In 1993 the amount was set to be 2.5 pesos per vote, then it was changed to 1 peso in the national budget legislation in 1997 and then through a decree in 2001 the decision on the amount of support was left to the Ministry of Interior.

In Turkey, national government support to political parties was introduced through a modification of the Political Parties Law (Law No.2,820) in 1984. (Genckaya 2000) However, the specifics of the support were not written out in the legislation. In the very limited information available about party budgets in Turkey, it can be seen that state help constitutes a significant share of their legally obtained resources. For example, in the six month period between January and June 2004, funds from the state constituted 87.3 percent of the revenues of the JDP. 5 (The party that controlled the national government during that time.) For the RPP, the party that got the second largest share of votes in the 2002 parliamentary elections, state support constituted 80% of the revenues in the period between June 2001 and August 2003 (CHP Parti Meclisi Calisma Raporu- RPP Party Congress Report).

Yet, a significant difference between Argentina and Turkey concerns the shar-

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5 This information is available on JDP’s web-site, www.akparti.org.tr.
ing of state funds among different organizational levels of the party. While in Turkey the law does not specify any conditions for how these resources can be used by parties, according to the legislation in Argentina, 80% of the funds that come from the state have to be distributed to district level organizations of the parties. In the interviews with politicians from various parties in Turkey, not only did party officials at the district level in Istanbul and Bilecik complained about the level of financial transfers from the central administration of the parties, but politicians who have occupied positions at the central administrations of the parties admitted that the resources that are distributed to the decentralized organs of the parties are very limited.

Again, when we look at the JDP’s budget from 2004, transfers to the lower levels of party organizations constitute only 33% of the total spending. For the RPP in the period between 2001 and 2003, transfers constitute only 16% of the total spending. As exemplified by these figures, decentralized organs of the parties in Turkey get only a minor share of the most significant funding source for political parties, state support. Interviews with party officials at the provincial and department level revealed that while the provincial level organizations get some support from the central administration, municipal level organizations are left almost totally on their own to generate resources. As a result, while the central party organizations can utilize professional campaign tools such as commercials on the radio and TV and in newspapers, local organizations have to rely mostly on voluntary participants.

While I could not get access to any detailed budgetary information on election campaigns in Turkey, some limited data exists for some cases in Argentina. The
National Election Office of Argentina (Camara Electoral Nacional)\textsuperscript{6} publishes on the internet the information provided by some parties in some provinces. Also, the non-governmental organization Poder Ciudadano\textsuperscript{7} initiated a project to make campaign spending more transparent and asked candidates for local government office to present detailed information about their revenues and spending. Unfortunately, only a handful of candidates participated in the project, but some helpful information can be gathered from this data.

The most striking aspect of the spending data in terms of the main question of this dissertation is that salaries for personnel are not included as part of any of the campaign budgets. For example, when we look at the information that was provided by the candidate for the mayor of Moron, Buenos Aires, from Agrupacion Nuevo Moron, Martin Sabbatella, we can see that there was not any explicit reference to spending on personnel. Of the $47,841 spent in total, only $5,000 is designated as having been spent on the “placement of posters,” which might have involved payments to some workers, and $2,500 on public transportation, which could have again involved some payments to drivers. However, the large part of the spending seemed to have gone to printing and phone expenses. When we analyze the budgetary data of the PJ’s provincial organization in Buenos Aires, the only reference to spending on staff are “professionals of publicity agencies,” $193,600, and on legal professionals, $4,700, out of a total budget of $3,040,260. The corresponding figures for UCR are: $7,501 on professional advisors out of the total spending, $337,226. These illustrations of campaign spending by provincial

\textsuperscript{6}The information can be found on the web-site of National Election Office of Argetina, www.pjn.gov.ar/cne.

\textsuperscript{7}The data on campaign spending is available on Poder Ciudadano’s web-site, www.poderciudadano.org.ar
and local level organizations of Argentine political parties support the information that was provided by the interviews with politicians that most of the labor participation in the electoral campaigns is voluntary, at least in the formal sense.

Party Activists and Party Members:

Both in general elections and in internal party elections, participation of party activists in the campaigns is fundamental. Its significance increases as party organizations’ financial resources to hire professional labor for their campaigns decreases. As the discussion in the previous section illustrates, the local and district level party organizations in Argentina and Turkey rely mainly on the voluntary participation of activists for their campaigns due to financial limitations. According to interviews and newspaper coverage of the campaigns, typical methods that are employed by politicians to appeal to their electorate either in general or internal elections include village, house to house, association and coffee house (in Turkey) visits, walks, and large gatherings.

According to the interviewees, such “face to face” interactions are very effective in appealing to the electorate and for communicating their message, but they are also very labor intensive. As one of the council members from PJ in La Matanza said, “We use all methods. House to house visits have turned out very well... [Party] militants are fundamental. All the people that voluntarily want to help the party. Walking, visiting needs a lot of people. House to house [visits] need a lot of people.” As another council member from PJ, La Matanza, said, “The campaigns, they are conducted house to house. We go to four hundred thousand houses in La Matanza. About ten thousand militants.”

Another method that is used in both countries is large gatherings where the party leaders make speeches. However, the effectiveness of these gatherings was
disputed by the politicians that were interviewed. For example, a former governor of the province of Chaco argued that these large gatherings were very important in the past, but that they are losing significance as the use of media replaces them. Still, whenever these gatherings take place, the number of people who participated in these events seem to be of outmost importance, especially as a signal of parties’ or candidates’ strength. Again, as one of the council members from PJ, La Matanza, emphasized, “In La Matanza, at a gathering by the Peronists, very easily you get thirty thousand people. In the last gathering at the central market there were more than fifty thousand. There are party affiliates and those that support the mayor.” Another example can be given from year 1995 where in one of the Peronist gatherings that Eduardo Duhalde (gubernatorial candidate) participated in the Gregorio de Lafferrere Station, La Matanza, an estimated sixty thousand people participated. (La Nacion, November 19, 1995) These examples show how important the involvement of party activists is for these gatherings, not only due to their actual participation, but also because of their role as mobilizers of other supporters. (See Auyero (2001) for a meticulous analysis of such events and the role of party activists.)

Even though the participation of these party activists is sometimes truly voluntary, the use of selective material incentives by politicians to motivate activists to work in electoral and party activities is widely recognized by the literature on political parties. (See Ware (1992, 1996) on parties in industrialized democracies, Epstein (1986) and Steed (1998) on parties in the US, Chubb (1982) on Italian Christian Democrats, Coppedge (1994) on parties in Venezuela and Levitsky (2003) on the PJ as few examples.) The works by Ware (1996), Epstein (1986) and Steed (1998) emphasize the decreasing role of material incentives to
get political activists to work for European and North American political parties. Although there is not any systematic work on the recruitment of party activists in Turkey, interviews with party officials and politicians who have occupied public office suggest that material incentives still play a significant role. In addition to the information that was provided by the interviews for the case of Argentina, some systematic analysis is conducted by Levitsky (2003). According to a survey of Peronist “base units” (neighborhood organizations of the PJ, unidades basicas), the role of selective material incentives to foster activist participation actually increased in the case of PJ (Levitsky 2003, pp. 209). Given that political parties lack financial resources, especially at the provincial and local level, politicians resort to public benefits, such as jobs in the public sector, when they are able to do so to encourage activist participation. As one party member from PJ, Chaco, said:

“Yes, in a campaign there is great participation of militants. Voluntary, yes. Some people have some salary from the legislature, or some contracted jobs in the nation, or some substitute from Plan Trabajar\(^8\). However, there are also some people who voluntarily dedicate hours by their own means. At least in Peronism. I think in Radicalism, no. Because they are in government. They manage all contracts, all positions. As such, they can pay their militants. Public employment works for the party.”

Candidate and Party Authority Selection:

The discussion in the previous two sections gives examples of cases where particularistic distribution of public jobs is utilized by parties in Argentina and Turkey to motivate activist participation in campaigns for general and internal

\(^8\)Plan Trabajar is a targeted social assistance program.
elections. Still, there is variation across and within countries in the degree to which parties and politicians make use of particularism to run the party machine and in the way they utilize particularistic exchanges. I argue that the main critical factor that affects how and how much politicians distribute public jobs to party activists is the internal competition for party and public positions. Even though politicians within the same party share some common goals (whether these goals are electoral, programmatic or ideological), they also compete with each other to control the party and to win nominations for elected public positions. As such, internal politics of parties are affected by the formal and informal rules of candidate and party official selection. This, in turn, leads to variations in the strategies that politicians use to further their career goals, including the distribution of material benefits.

Therefore, in order to understand how politicians within the same party interact, one needs to know the party’s candidate and party authority selection methods. Rahat and Hazan (2001) point out four dimensions of the candidate selection process: the required characteristics of the candidates, the definition of selectors, the geographical levels of selection, and voting/appointment systems. The same dimensions are also relevant to analyze the selection of party officials. There are important variations in these dimensions across parties in Argentina and in Turkey.

In Turkey, the law of political parties (Law No. 2,820) specifies in detail how parties should be organized and how they should select their party authorities. However, it leaves the decision of candidate nomination methods to the parties. According to the law of political parties, all parties have to organize at the neighborhood (mahalle), municipal (ilce) and provincial (il) level. At each
level, they choose the authorities for that level and the delegates for the upper
level. The national convention, where the delegates chosen at the provincial con-
vention participate, is of outmost importance because that is where the national
party authorities, including the party leader, are selected. Since Turkey has a
parliamentary system, the party leader that is elected at the national convention
is most likely to become prime minister in the event the party wins the general
elections.

The party law authorizes the parties to choose their own nomination methods
and in none of the parties the statutes defines a specific nomination method, but
leaves it to the national party authorities to choose among various methods - elite
decision at the national level, elite decision at the provincial or local level, indirect
assemblies where the delegates vote and direct primaries where party members
vote. Therefore, the national convention where the national party authorities are
chosen gain even more importance. When we look at the period after 1983, the
method that is employed most frequently is elite decision at the national level. The
RPP (and its predecessor, SPP), in the 1980s and in the first half of 1990s used
indirect assemblies for choosing their candidates for general and local elections in
some provinces. During this period, two center-right parties, the TPP and the
Motherland Party, also used indirect assemblies to choose their candidates in some
provinces. In the period after 1983, direct primaries were employed only once and
it was by the SPP in the 1987 general elections. Only party members could vote
in these primaries. However, recently the dominant method in all parties to select
their national and local candidates has become elite decision at the national level
and in some occasions elite decision at the local level for local candidates.

As a result, although the party leaders are elected at national conventions,
they are rarely replaced because of their control over candidate nominations and financial resources (party and public when they are in government.) Indeed, in the period between 1983 and 2004, the leader of a party that was in government was defeated only once, when Yıldırım Akbulut of the Motherland Party was defeated at a national convention by his challenger, Mesut Yılmaz, in 1991. According to the interviews, party leaders either directly contact the delegates and use public resources to influence their decisions or use intermediaries (local party bosses), most of the time the provincial president of the party or the legislators from that province, to preserve their leadership.

In Argentina, the organic law of political parties (Law No. 23,298) leaves it to the party statutes to define how to choose party authorities and candidates (except the candidacies for the presidency and national legislators.) Prior to the most recent presidential elections and national legislative elections in 2003, the law was modified (Law No. 25,611) to introduce simultaneous and open primaries for choosing presidential and national legislative candidates. However, especially due to internal competition within the PJ, the decision was contested politically and was modified by various decrees. In the end, legislation was passed to suspend the initial modification and the National Congresses of parties were designated as the authorities to decide to call for primaries. The decision for the selection of the national legislators was left to the district level authorities. Selection methods for provincial level offices are established by provincial statutes. Even though most provincial level party organizations have selected primaries$^9$ as the nomination

$^9$The participation of the independents vary across periods and provinces. See De Luca et al. (2002) for further information on the use of primaries for selecting national legislative candidates in Argentina.
method, in some provinces and municipalities where the party has a dominant leader an alternative list does not compete. For example, in Chaco, since Angel Rozas won the internal elections against Leon’s internal line in 1995, the Radical party has reached an agreement on a consensus list for all the nominations.

Even though the organizational structure of two major parties in Argentina is similar to the organization of parties in Turkey in that they are organized at the municipal, provincial and national level, one crucial difference is that in two major parties, PJ and UCR, the delegates for the national convention are chosen through direct elections at the provincial level. Although according to Levitsky (2003), the national authorities of the UCR have more power compared to those of the PJ, provincial actors in all Argentine parties, especially governors, are more independent vis a vis national party figures than their counterparts in Turkey. Direct elections for national convention delegates, the selection of provincial candidates at the provincial level and more financial resources at the provincial level make provincial organizations of Argentine parties very powerful. (See Jones et al. (2001), Eaton (2003) and De Luca et al.(2002) on the role of governors in Argentinean political parties and political system in general.)

Internal Elections and Material Benefits:

As a result of these differences across the two countries, parties, and provinces in terms of candidate and party official selection, the critical actors that are involved in the internal party competition and the nature of the competition vary. In some provinces and parties internal elections are held for selecting candidates for public office as well as party authorities. In others, they are used only to elect party authorities. In these internal elections, whether they are held by the participation of delegates, party members or independents, public jobs might be
distributed in order to influence the voting decisions of the selectors. As it was mentioned in many interviews with politicians in Turkey, when the number of selectors is low, such as in the case of indirect assemblies with delegates, the exchange of material benefits might be more efficient from the perspective of competitors.

In those cases where party members as well as independents can vote, as Domingo Cavallo said “The primaries are like general elections.” (personal interview) However, one main difference is that the turnout in Argentine primaries has, in general, been very low. Even though it is hard to get systematic data on turnout in primaries, some information is available for 1999 UCR primaries for municipal offices in Chaco, and some information on turnout in municipal level primaries for Peronist candidates at the province of Buenos Aires in 1991 was published in the Argentine newspaper, La Nación. When we look at this data, we can see that the turnout for Radical primaries for municipal office in Chaco in 1999 ranged from the lowest of 23 percent to the highest of 57 percent with an average of 34 percent. In the province of Buenos Aires, the available figures for the Peronist primaries in 1991 had a range of 25 to 50 percent.

These examples show that candidates can actually affect the primary results by mobilizing their supporters. Therefore, in addition to their participation in campaigns, party activists are critical for mobilization in the day of elections. This gives an additional incentive to candidates within parties to distribute material benefits like public jobs to activists to work for them in internal elections as well as in general elections. Since both participation in electoral campaigns and

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10 The data on turnout and results of UCR primaries for selecting candidates for municipal offices in April 24th, 1999 was made available by the director of ECOMCHACO.
in mobilization efforts are observable services, monitoring problems that make the exchange of material benefits for political support less efficient from the perspective of the provider are also solved.

Network of Supporters:

The discussions in the previous chapter and the preceding sections of this chapter show that politicians have various purposes for distributing material benefits in exchange for political support. In return for distributing benefits, politicians might be expecting votes in general elections, votes in direct primaries and indirect assemblies, as well as participation in electoral campaigns and in mobilization efforts. All politicians need to form a network of supporters to be able to win public office and in some cases particularistic distribution of material benefits is a useful tool to build political loyalties.

However, as analyzed in detail by Auyero (2001) some of these supporters are closer to the candidates than other political followers, provide them observable services such as mobilizing voters at a locality and win them a number of votes. As a former mayor of Fontana (Chaco) said “In Fontana you need at least 150 political leaders of your line. 150 political bosses (punteros) that one way or another carry your message. They form a nucleus, we say.” Exchanging benefits of high material value like public jobs with such closer supporters who provide these observable services might be a more efficient strategy from the perspective of “patrons”. Yet, the number and composition of these supporters, the use of “particularistic benefits” and the allocation of these benefits among different groups of supporters vary in each case. As one legislator from JDP (representing Kocaeli) said, a legislator needs to be in direct, every day contact with 15-20 people. However, an active group of 1000-2000 people work for each candidate. I
analyze in the following section with the aid of a game theoretic model the factors that lead to variations in the formation of these networks of supporters through particularistic distribution of public jobs.

Model:

In this chapter I introduce a general model that analyzes the interaction of two actors who compete within the same party. One of the players (Leader, $P_L$) is a politician with a higher, more valued position. This position can either be an elected public or party position. The player can be an individual or can be a faction (collective actor) in the party that dominates a party organ like the national council. The second player (Follower, $P_F$) is another politician from the same party with a lower, less valued position. Again, this can be an elected public or party position. In the following chapters I apply the model to the analysis of specific empirical cases. In chapter 4, the empirical analysis involves provincial level public employment in Argentina and the model is applied to the relationship between governors and the party leader (president if the governors’ party is holding the presidency). In chapter 6, the interaction between mayors and governors is analyzed in case studies of two Argentine provinces, Buenos Aires and Chaco. Chapter 5 includes the statistical analysis of public employment across provinces and “grand city” municipalities in Turkey. There, I analyze the interaction of party leaders with legislators as well as with mayors of “grand cities”. In Chapter 7, the interactions between the mayor of the central municipality in the province and the rest of the mayors are analyzed with the case studies of two provinces in Turkey: Istanbul and Bilecik.

The key idea of the model is that a rivalry between these two politicians for the leadership of the party is very likely. The politician with the lower level position
might want to replace the politician with the higher level (more valued) position or form an opposition movement with others in the party to challenge the current party leadership. All current party leaders maintain their power in the party by forming alliances with other members who have strong positions in the party and the public in general. (Panebianco 1988) However, these alliances last only when those who are not the leaders are not independent enough to challenge the leaders. As one politician expressed a point touched upon by many others, “In politics, today’s friends are tomorrow’s enemies.” (author’s interview) Thus, the tension in the interaction between these two players derives from the fact that the higher level politician would want the other politician to have enough public support for the benefit of the party as a whole, but not so much support that she could challenge the leader’s own position. The ability and the incentive of the politician with the lower level position to challenge the politician with high level position would, in turn, depend on her motivations (ambitions) and the level of support she has in the party and the public in general.

The model is an incomplete information game where the leader ($P_L$) does not have any information about whether the follower ($P_F$) is a challenger type or not. She infers information about $P_F$’s type from the level of patronage jobs that are distributed by the follower (the signal). Since the follower ($P_F$) uses these jobs to build support and since distributing these jobs is costly for him, the level of patronage jobs distributed is a costly signal of his type. The leader wants the follower to be successful in the general elections because his reelection benefits the party. However, if $P_F$ has adequate support in the party and if she is of the challenger type, $P_L$ faces the risk of her leadership being challenged.

Therefore, according to the new (updated) information about $P_F$’s type, the
leader decides whether to support $P_F$. Supporting a successful party member and forming an alliance with him also helps her to maintain her leadership and strength in the party. The nature of the support provided by the leader and its effectiveness might be different according to the case that is analyzed. Support might be financial or symbolic. According to the information provided by the interviews with politicians, financial support can include campaign contributions and if $P_L$ is holding office, support might involve public investments such as building infrastructure like roads and bridges as well as providing public credit to the administrative unit of $P_F$. In Turkey, where leadership support is necessary to be nominated for a public position, support can take its maximum value if the possibility for $P_F$ to switch to another party is very low. Most of the interviewees claimed that symbolic support in the form of participating in public gatherings together or appearing in posters together are valuable if the leader has public visibility and popularity. The electoral chances of $P_F$ and whether she replaces the leader depend on the levels of patronage jobs that she distributes and whether she gets support from $P_L$ or not.

In game theoretic terms the setup of the game is as follows: Nature moves first and determines the followers’s type $i$ in $I \in \{C, A\}$ where $C$ denotes “challenger” type and $A$ denotes the “apathetic” type. Let $p(i)$ denote the probability of $P_F$ being type $i$. Then, knowing her own type, $P_F$ chooses the level of jobs ($x$) that she distributes to increase her support. Let $x$ denote the proportion of citizens that receive jobs in the public sector as a result of a particularistic exchange with the politician. Hypothetically, the politician ($P_F$) can establish such exchanges with the whole labor force in the district and $x$ would equal 1. Or the politician does not hire anyone through clientelistic exchanges, and then $x$ would be equal to
0. Therefore, formally, \( x \in [0,1] \). \( P_F \) pays a cost for these “clientelistic” hirings in the public sector, \( c(x) \). This cost can be budgetary and/or electoral. Indeed, the resulting fiscal problems are very likely to hurt the politician electorally. \( c(x) \) is a function that increases with \( x \) at an increasing rate. That is, the first order partial derivative, \( c_x > 0 \) and second order partial derivative \( c_{xx} > 0 \).

Observing the level of jobs, but lacking information about the type of the lower level politician (\( P_F \)), the leader (\( P_L \)) decides whether to support \( P_F \). That is, \( P_L \) chooses \( s \in S = \{0,1\} \) where \( s = 1 \) denotes supporting and \( s = 0 \) denotes not supporting. (This can be a continuous variable as in the case of investments, but here I focus the analysis on the case where \( s \) is discreet.) The level of jobs that are distributed \( (x) \) and whether the higher level politician supports the lower level politician \( (s) \) affect the probability that the lower level politician wins the general elections and the probability that the lower level politician successfully replaces the higher level politician. Let

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\pi \text{ be the probability of } P_F \text{ successfully replacing } P_L, \pi(s(x),x) \text{ and }
\tau \text{ be the probability of } P_F \text{ winning the elections, } \tau(s(x),x) \text{) (In some cases where the candidates are chosen by the party leaders and the options of switching to another party or running as an independent candidate do not exist, } \tau = 0 \text{ if } s = 0). \]

The payoffs that the players receive are defined as follows: The follower wants to win the general elections for her lower level position and gets utility \( M \) if she gets this position. Depending on her type, that is, if she is a challenger, she wants to replace the leader and get the higher level position. Let the utility that she gets from taking over the leadership be \( R \). The leader (\( P_L \)) wants to keep her higher level position and gets utility \( Q \) if she keeps it. \( P_L \) also wants the follower
(P_F) to win the general elections for her low level position. The leader gets utility \( G \) from \( P_F \)’s reelection.

Therefore, the utility functions of the players are:

\[
U_{P_F} = \tau(s(x), x)M + \pi(s(x), x)R - c(x) \text{ where for } i = A, \pi = 0.
\]

\[
U_{P_L} = \tau(s(x), x)G + [1 - \pi(s(x), x)]Q
\]

where the first order partial derivatives are:

\[
\tau_s > 0, \tau_x > 0
\]

\[
\pi_x > 0, \pi_s > 0
\]

To simplify the finding of the equilibria, I make the following assumptions:

\[
\pi(s(x), x) = \alpha_1 s + \alpha_2 x \text{ where } \alpha_1 s + \alpha_2 x \leq 1
\]

\[
\tau(s(x), x) = \sigma_1 s + \sigma_2 x \text{ where } \sigma_1 s + \sigma_2 x \leq 1
\]

and \( c(x) = \nu x^2 \). (See Table 3 for a summary of exogenous parameters.)

Therefore, the probabilities of reelection and leadership replacement increase with support from the leader \( s \) and the level of jobs \( x \). The relative rate of their effect depends on \( \alpha_{1,2} \) and \( \sigma_{1,2} \). When we embed these functional assumptions into the utility functions we get:

\[
U_{P_F}^i = (\sigma_1 s + \sigma_2 x)M + (\alpha_1 s + \alpha_2 x)R - vx^2
\]

\[
U_{P_L} = (\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q
\]

Equilibria:

Given the utility function of \( P_F \), without any interactions with \( P_L \), the follower in the party would choose to provide the level of \( x \) that maximizes the following condition:

When \( i = C \)

\[
\arg\max_x [(\sigma_1 s + \sigma_2 x)M + (\alpha_1 s + \alpha_2 x)R - \nu x^2] = \sigma_2 M + \alpha_2 R - 2\nu x = 0
\]

\[
2\nu x = \sigma_2 M + \alpha_2 R
\]
When \( i = A \)
\[
\arg \max_x [(\sigma_1 s + \sigma_2 x)M - c(x)] = \sigma_2 M - 2\nu x = 0 \\
2\nu x = \sigma_2 M \\
x = \frac{\sigma_2 M}{2\nu}
\]

As expected, even without any interactions with the party leader, the “challenger” politician would choose to provide higher levels of jobs to build support in the party and public. The critical question is whether the competition with the party leader can induce the “challenger” to behave in another way.

Before analyzing the game under incomplete information I will present the solutions for the complete information game where \( P_L \) knows whether \( P_F \) is a challenger type or not. Under this version we can use backwards induction to find the equilibria:

**Lemma 1.** \( P_L \)’s best response strategy to \( P_F \) is:

\[
s^*_P(x) = 1 \forall i \in I \text{ when } \frac{\underline{G}}{Q} \geq \frac{\underline{M}}{\sigma_1} \text{ (condition 1)}
\]

and \( s^*_P(x) = \begin{cases} 
0 \text{ if } i = C \\
1 \text{ if } i = A 
\end{cases} \text{ when } \frac{\underline{G}}{Q} < \frac{\underline{M}}{\sigma_1}
\]

Proof. For the case when \( P_F \) is a challenger, that is \( i = C \), when \( s = 1 \), the utility of \( P_L \) is \( U_{P_L} = (\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q \) and when \( s = 0 \) the utility of \( P_L \) is \( U_{P_L} = (\sigma_2 x)G + (1 - \alpha_2 x)Q \)

\[
U_L(s = 1) \geq U_L(s = 0) \text{ when } \frac{\underline{G}}{Q} \geq \frac{\underline{M}}{\sigma_1}.
\]

For the case when \( P_F \) is not a challenger, that is \( i = A \), when \( s = 1 \), the utility of \( P_L \) is \( U_{P_L} = (\sigma_1 s + \sigma_2 x)G + Q \) and when \( s = 0 \) the utility of \( P_L \) is \( U_{P_L} = (\sigma_2 x)G + Q \)

Therefore, \( U_L(s = 1) \geq U_L(s = 0) \) given that by assumption \( \sigma_1 s > 0 \) and
This means that, when the follower is a “challenger” type, the leader decides to support the follower only when the relative value of $P_F$’s reelection to the value of keeping her own position is larger than the ratio of the value of the difference that her support can make to the probability of losing her own position to the difference that she can make in the probability of the follower' reelection. It is plausible to expect the value of retaining leadership to be higher for $P_L$ than $P_F$’s reelection. Therefore, for this condition to hold, we would at least expect the support to be more effective in increasing the probability of $P_F$’s reelection than in increasing the probability of replacing the leader. Given the best response of the leader, $P_F$ chooses the value of $x$ that maximizes her utility:

\[ \text{Proposition 1: } P_F \text{’s best response action at the first stage is} \]

\[ x^* = \begin{cases} \frac{\sigma_2 M + \sigma_2 R}{2\nu} & \text{if } i = C \\ \frac{\sigma_1 M}{2\nu} & \text{if } i = A \end{cases} \]

Proof. Lemma 1 implies that $P_L$’s best response strategy to $P_F$ when $P_F$ is of the “challenger” type depends on condition 1.

Since the level of $x$ does not have an impact on Player’s best response strategy, Player 1 at the last stage chooses the level of $x$ that maximizes her utility, which is:

when $i = C$

\[ \arg \max_x [(\sigma_1 s + \sigma_2 x)M + (\alpha_1 s + \alpha_2 x)R - c(x)] = \sigma_2 M + \alpha_2 R - 2\nu x = 0 \]

\[ 2\nu x = \sigma_2 M + \alpha_2 R \]

\[ x = \frac{\sigma_2 M + \alpha_2 R}{2\nu} \]

or if $s = 0$ given that $\frac{G}{Q} < \frac{\alpha_1}{\sigma_1}$

\[ \arg \max_x [(\sigma_2 x)M + (\alpha_2 x)R - c(x)] = \sigma_2 M + \alpha_2 R - 2\nu x = 0 \]
\[ x = \frac{\sigma_2 M - \sigma_2 R}{2\nu} \]

and when \( i = A \)

\[
\arg \max_x [(\sigma_1 s + \sigma_2 x)M - c(x)] = \sigma_2 M - 2\nu x = 0
\]

\[ 2\nu x = \sigma_2 M \]

\[ x = \frac{\sigma_2 M}{2\nu} \quad \square \]

Therefore, under complete information, the follower’s choice of \( x \) (the level of jobs) is the same as it would be without any interactions with the party leader. When the follower is a challenger type the leader would benefit from Player 1 distributing fewer jobs when \( \sigma_2 G < \alpha_2 Q \).\(^{11}\) However, the leader cannot credibly threaten to cut down on support to force Player 1 to distribute fewer jobs. When the follower is of the loyal type the leader’s utility is maximized when \( x = \frac{\sigma_2 M}{2\nu} \), that is at the value of \( x \) that maximizes the follower’s utility. Therefore, the analysis of the complete information game shows that when the leader knows the follower’s type, the follower always distributes the maximum level of jobs that would surpass her costs from distributing jobs, \( c(x) \).

Incomplete information:

In the incomplete information version of the game the leader does not know the follower’s type, but can infer information about it through the follower’s signal, the level of jobs that she distributes. In the analysis of the equilibria I focus on pure strategies and use the concept of “Perfect Bayesian Equilibrium.” The strategy profile and the posterior beliefs of the game are defined as follows:

The posterior beliefs of \( P_L \) about \( P_F \)’ type are characterized by

\[ \mu : X \rightarrow \Delta(I) \]

where for a finite set \( D \), \( \Delta(I) \) denotes the set of probability distributions over

\[ \frac{\partial^2 U}{\partial x^2} = \frac{[\sigma_1 s + \sigma_2 x]G + [1 - (\alpha_1 s + \alpha_2 x)]Q}{\partial x} = \sigma_2 G - \sigma_2 Q < 0, \sigma_2 G < \alpha_2 Q \]

\(^{11}\)
$D$ and $\mu(i \mid x)$ is $P_L$’s belief about the likelihood that $P_F$ is type $i \in \{C, A\}$ given that $x$ is observed by $P_L$.

A strategy for $P_1$ is a function

$$z : I \to \Delta(X)$$

where $z(x \mid I)$ is the probability that $P_F$ sends the signal $x$ given that her type is $i \in \{C, A\}$. (In pure strategies $z$ is either 0 or 1.) Type $i \in \{C, A\}$ chooses $x \in X$ according to $z(.)$ if $z(x \mid I) > 0$. $x(i)$ denotes the choice of patronage jobs by type $i$.

And the strategy for $P_L$ is defined by a function such that

$$r : X \to \Delta(S)$$

where $r(s \mid x)$ denotes the probability that $P_L$ takes action $s$ upon observing $x$.

Then a perfect Bayesian equilibrium (PBE)$^{12}$ of the game is a strategy profile $r^*, z^*$ and posterior beliefs $\mu(i \mid x)$ such that

(i) $\forall i, z^*(\cdot \mid i) \in \arg\max_x U_{P_F}(x, r^*, i)$

(ii) $\forall x, r^*(\cdot \mid x) \in \arg\max_s \sum_i \mu(i \mid x) U_{P_L}(x, s, i)$

and

(iii) $\mu(i \mid x) = \frac{z^*(x \mid i) p(i)}{\sum_{i \in I} p(i) z^*(x \mid i)}$

if $\sum_{i \in I} p(i) z^*(x \mid i) > 0$,

and $\mu(\cdot \mid x)$ is any probability distribution on $I$

if $\sum_{i \in I} p(i) z^*(x \mid i) = 0$.

The potential PBE include pooling equilibria where both types distribute the same level of jobs in a particularistic manner and separating equilibria where the

$^{12}$I used the definition of PBE in Fudenberg and Tirole (1982) in the characterization of the equilibrium.
two types choose different levels of $x$. Here, I limit the analysis to such equilibria with pure strategies. I let the level of $x$ that is chosen by type $C$ be $x'$ and the level of $x$ that is chosen by type $A$ be $x''$. For separating equilibria, if we consider the actions of the follower, there are two possible cases: Either $x' > x''$ or $x' < x''$.

Observing the follower’s action, the leader forms posterior beliefs about the follower’s type. For the follower’s actions that are off-the equilibrium path (an action that is not chosen by the follower as part of her optimal strategy in the equilibrium, such as $x' < x < x''$), Bayes’ rule cannot be used to update the leader’s beliefs. Any posterior beliefs are possible.

First, I analyze the existence of separating equilibria ($x' \neq x''$). For off-the equilibrium path actions of the separating equilibrium where $x' > x''$, I specify the beliefs $\mu(A \mid x) = 0$ for all $x > x'$ so that posterior beliefs are monotonic in $x$.

**Lemma 3.** The Bayesian updated beliefs of the leader in the separating equilibria are as follows:

if $z^*(x = x' \mid a = C) = 1$ and $z^*(x = x'' \mid a = A) = 1$ then

$\mu^*(C \mid x = x') = 1$ and $\mu^*(A \mid x = x'') = 1$

Proof. $\mu^*(C \mid x = x') = \frac{z(x = x' \mid a = C)q(C)}{z(x = x' \mid a = C)q(C) + z(x = x' \mid a = A)q(A)} = \frac{1q(C)}{1q(C) + 0q(A)} = 1$ and $\mu^*(A \mid x = x'') = \frac{z(x = x'' \mid a = A)q(A)}{z(x = x'' \mid a = C)q(C) + z(x = x'' \mid a = A)q(A)} = \frac{1q(A)}{0q(C) + 1q(A)} = 1$

By definition of separating equilibria, the leader can use information from the signal (the level of patronage jobs) to update her beliefs about the follower’s type. Then, using these updated beliefs she chooses the action that maximizes her utility, that is whether to support the follower or not.

**Lemma 4.** In the case where $x' > x''$ the leader’s best response action to the follower’s strategy $z^*$ is:

\[\text{For the case where } x' < x'' \text{, see the appendix. In that case, there is no pure strategy PBE.}\]
when $G \geq \frac{a_1}{\sigma_1}$, $r^*(s = 1 \mid x) = 1 \forall x \in X$

when $G < \frac{a_1}{\sigma_1}$, $r^* = \begin{cases} 
  s = 0 & \text{if } x > x'' \\
  s = 1 & \text{if } x \leq x''
\end{cases} = 1$

Proof. See the appendix. □

The results in Lemma 4 shows that when $G < \frac{a_1}{\sigma_1}$ the leader changes her decision to support the follower depending on the level of $x$ that is observed. This means that in the incomplete version of the game, the leader can credibly threaten to cut down on support if $x > x''$.  

**Lemma 5.** In the case where $x' > x''$ the follower's best response action to the leader's strategy $r^*$ is:

for $i = C$, $x^* = \frac{\sigma M + \alpha R}{2\nu}$

for $i = A$, $x^* = \frac{\sigma M}{2\nu}$

Proof. See the appendix. □

According to Lemma 5, the level of $x$ that is chosen by the follower is the same as in the complete version of the game if type $C$ is to choose a higher level of $x$ than type $A$.

**Proposition 2.** Pure strategy separating PBE exists where

$G > \frac{a_1}{\sigma_1}$

$r^*(s = 1 \mid x) = 1 \forall x \in X$

$z^*(i = C, x = \frac{\sigma M + \alpha R}{2\nu}, r^*(x)) = 1$, $z^*(i = A, x = \frac{\sigma M}{2\nu}, r^*(x)) = 1$

$\mu^*(C \mid x = \frac{\sigma M + \alpha R}{2\nu}) = 1$ and $\mu^*(A \mid x = \frac{\sigma M}{2\nu}) = 1$

and

$G < \frac{a_1}{\sigma_1}$

$r^* = \begin{cases} 
  s = 0 & \text{if } x > x'' \\
  s = 1 & \text{if } x \leq x''
\end{cases} = 1$
\[ z^*(i = C, x = \frac{M+R}{2}, r^*(x)) = 1, \quad z^*(i = A, x = \frac{M}{2}, r^*(x)) = 1 \]

\[ \mu^*(C \mid x = \frac{M+R}{2}) = 1, \quad \mu^*(A \mid x = \frac{M}{2}) = 1 \]

and \( U_1(a = C, x = \frac{M}{2}, s = 1) - U_1(a = C, x = \frac{M+R}{2}, s = 0) < 0 \)

Proof. See the appendix. □

The existence of pure strategy PBE where \( x_0 = \frac{M+R}{2} \) and \( x_00 = \frac{M}{2} \) implies that under some conditions the follower of challenger type has incentives to distribute higher level of jobs than the follower of type \( A \). When these conditions exist, the competition with the leader under incomplete information does not give any incentives to the follower to cut down on patronage.

Now, I turn to the analysis of pooling equilibria. To make the discussion of the analysis easier, I will assume that the prior belief of \( P_L \) about \( P_F \)'s type is equal to 1/2. \( (p(i = C) = 1/2) \)

**Lemma 6.** The Bayesian updated beliefs of the leader in the pooling equilibria are as follows:

Given \( z^*(x' \mid i) = 1, \forall i \), with the prior belief that \( p(i = C) = 1/2 \)

\[ \mu^*(C; x = x') = 0.5 \quad \text{and} \quad \mu^*(A; x = x') = 0.5 \]

Proof. \[ \mu^*(C; x = x') = \frac{\text{log}(C)}{\text{log}(C) + \text{log}(A)} = \frac{1+0.5}{1+0.5+1+0.5} = 0.5 \quad \text{and} \quad \mu^*(A; x = x') = \frac{\text{log}(A)}{\text{log}(A) + \text{log}(C)} = \frac{1+0.5}{1+0.5+1+0.5} = 0.5 \]

By definition of pooling equilibria, the leader does not infer any additional information about the type of the follower from observing \( x \). Let \( q \) be \( P_L \)'s belief that \( i = C \mid x > x'' \).

**Lemma 7.** Given the updated beliefs, the follower’s best response is:

if \( z^*(x' \mid i) = 1, \forall i \)

when \( \frac{G^i}{q^i} > \frac{2a_1}{\alpha_1} \), \( r^*(s = 1 \mid x) = 1 \) \( \forall x \in X \)
when \( \frac{\alpha_1}{2\sigma_1} < \frac{G}{Q} < \frac{\alpha_0}{\sigma_1} \), \( r^* = \begin{cases} 
 s = 0 & \text{if } x > x'' \\
 s = 1 & \text{if } x \leq x'' 
\end{cases} = 1 \)

and

when \( \frac{\alpha_1}{2\sigma_1} > \frac{G}{Q} \), \( r^*(s = 0 \mid x) = 1 \ \forall x \in X \)

Proof. See the appendix. \( \square \)

As in the separating equilibria, under some condition the leader’s decision to support depends on the level of \( x \), but this condition in the pooling equilibria is

\[ \frac{\alpha_1}{2\sigma_1} < \frac{G}{Q} < \frac{\alpha_0}{\sigma_1}. \]

Proposition 3. Pooling equilibria exist where

\[ \frac{\alpha_1}{2\sigma_1} < \frac{G}{Q} < \frac{\alpha_0}{\sigma_1}, \]

\( r^* = \begin{cases} 
 s = 0 & \text{if } x > x'' \\
 s = 1 & \text{if } x \leq x'' 
\end{cases} = 1 \)

and

\[ z^* (\forall i \in I, x = \frac{\alpha M}{2\nu}, r^*(x)) = 1 \]

and

\[ \mu^*(C \mid x = \frac{\alpha M}{2\nu}) = 1/2 \]

when \( U_1(i = C, x = \frac{\alpha M}{2\nu}, s = 1) - U_1(i = C, x = \frac{\alpha M + \alpha R}{2\nu}, s = 0) > 0 \)

Proof. See the appendix. \( \square \)

The existence of a pooling equilibrium where both types choose \( x = \frac{\alpha M}{2\nu} \) implies that under the conditions specified in Proposition 3, the follower of challenger type chooses a level of \( x \) that is lower than the level of jobs she would have distributed without any interactions with the leader and with competition under complete information. This is the most critical implication of the game theoretic analysis because it suggests that internal competition under incomplete information leads to lower levels of patronage in public sector employment under
the conditions that are specified in Proposition 3. In the next section I discuss these conditions.

Hypotheses:

The possible outcomes of the incomplete information game as suggested by the pure strategy equilibria are summarized in Figure 3. For the figure to be more easily followed I substitute $l$ for the difference, $U_1(a = C, x = \frac{M + \alpha R}{2\nu}, s = 1) - U_1(a = C, x = \frac{M + \alpha R}{2\nu}, s = 0) = (\alpha_1 + \frac{\alpha(1-\alpha R)}{2\nu})M - \frac{\alpha^2 R^2}{4\nu} + \alpha_1 R$.

Figure 3

<table>
<thead>
<tr>
<th>$G-Q \frac{G}{\sigma_1}$</th>
<th>$l &lt; 0$</th>
<th>$l &gt; 0$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$G &gt; \frac{\alpha_1}{\sigma_1}$</td>
<td>$a = C, x = \frac{M + \alpha R}{2\nu}$</td>
<td>$a = C, x = \frac{M + \alpha R}{2\nu}$</td>
</tr>
<tr>
<td>$a = A, x = \frac{M + \alpha R}{2\nu}$</td>
<td>$a = A, x = \frac{M + \alpha R}{2\nu}$</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$G &lt; \frac{\alpha_1}{\sigma_1}$</th>
<th>$l &gt; 0$</th>
<th>no pure strategy equilibria</th>
</tr>
</thead>
<tbody>
<tr>
<td>$g_{\sigma_1} &lt; G &lt; \frac{\alpha_1}{\sigma_1}$</td>
<td>$a = C, x = \frac{M + \alpha R}{2\nu}$</td>
<td>$a = C, x = \frac{M + \alpha R}{2\nu}$</td>
</tr>
<tr>
<td>$a = A, x = \frac{M + \alpha R}{2\nu}$</td>
<td>no pure strategy equilibria</td>
<td></td>
</tr>
</tbody>
</table>

As can be seen in Figure 3, the outcome in terms of the level of jobs ($x$) is the same except the cell where $\frac{G}{\sigma_1} < \frac{G}{\sigma_1} < \frac{G}{\sigma_1}$ and $l > 0$. Only when $\frac{G}{\sigma_1} < \frac{G}{\sigma_1} < \frac{G}{\sigma_1}$ and $l > 0$, we have the follower of “challenger” type choosing $x = \frac{M + \alpha R}{2\nu}$, which is less than the level of $x$ that she chooses in all other equilibria ($x = \frac{M + \alpha R}{2\nu}$).

Therefore, we can expect to see lower levels of patronage jobs to be distributed in $\frac{G}{\sigma_1} < \frac{G}{\sigma_1} < \frac{G}{\sigma_1}$ and $l > 0$.

\[14(\alpha_1 s + \frac{M + \alpha R}{2\nu})M + (\alpha_1 s + \frac{M + \alpha R}{2\nu})R - n(\frac{M + \alpha R}{2\nu})^2 - (n_2 \frac{M + \alpha R}{2\nu})M + (\alpha_2 \frac{M + \alpha R}{2\nu})R - n(\frac{M + \alpha R}{2\nu})^2] = (\alpha_1 + \frac{M + \alpha R}{2\nu})M - \frac{\alpha^2 R^2}{4\nu} + \alpha_1 R$

\[15\text{See the appendix for the semi-separating (hybrid) equilibrium.}\]
the public sector when these two conditions are met. From the analysis of these conditions, four hypotheses follow:

**Hypothesis 1.** We would expect a larger number of public jobs to be distributed in exchange for political support if the lower level politician’s reelection is very valuable for the leader and if the leader does not value maintaining her leadership.

The left hand side of the inequality, $\frac{G}{Q} > \frac{a_0}{\sigma_1}$, increases with $G$ and decreases with $Q$. Since higher values for the left hand side of the inequality make it more likely that this inequality will hold and the outcome of smaller $x$ cannot be reached under this inequality, higher values of $G$ and lower values of $Q$ are expected to lead to higher number of patronage jobs. The intuition behind this hypothesis is easy to follow. We know from *Lemmas 1, 4 and 6* that under some condition that relates the value of the follower’s reelection and the value of leadership for the leader to the effectiveness of her support and effectiveness of patronage for the follower’s reelection (the conditions are $\frac{G}{Q} < \frac{a_0}{\sigma_1}$, $\frac{G}{Q} < \frac{a_0}{\sigma_1}$, and $\frac{a_0}{\sigma_1} \frac{G}{Q} < \frac{a_0}{\sigma_1}$ respectively for the complete information game, separating equilibria and pooling equilibria), the leader is better off supporting only the “apathetic” type. Since under complete information, the leader knows the follower’s type, the leader’s best response action does not depend on the follower’s action, the level of patronage jobs. Hence, the follower has no incentives to cut down on patronage.

However, under incomplete information, if $\frac{a_0}{2\sigma_1} < \frac{G}{Q} < \frac{a_0}{\sigma_1}$, the follower of “challenger” type can make the leader support her by reducing the level of patronage jobs to “apathetic” type’s level. Therefore, the incentives for fewer patronage jobs exist under incomplete information when the leader’s support is conditional on the observed level of jobs. This, in turn, depends on how much the leader values the follower’s reelection and her leadership. If the value of the follower’s
reelection is very high and the value of leadership is very low, the leader would always support the follower \((s = 1\forall i \in I)\). On the contrary, if maintaining the leadership is important relative to the reelection of the follower, the leader can credibly threaten to withdraw support from the “challenger” type. This would consequently give the follower incentives to send a signal that imitates the “apathetic” type’s signal, that is a lower level of jobs. The decision of the follower to send such a signal also depends on her own utility function. The conditions that follows from the \(P_F\)’s utility function are presented in hypotheses 3-5.

**Hypothesis 2.** For those cases where the support of the leader has intermediate levels of effect for internal competition, we would expect to see lower levels of patronage in public employment.

This hypothesis is again derived from the first necessary condition for lower levels of patronage, \(\frac{\alpha_1}{2\sigma_1} < \frac{G}{Q} < \frac{\alpha_1}{\sigma_1}\). Very low or very high values of \(\alpha_1\) (effectiveness of leader’s support for internal competition) would make it more difficult to fulfill this condition. The intuition behind this hypothesis is similar to the previous one. Under incomplete information, the follower would have incentives to imitate the “apathetic” type’s behavior if this allows her to get the support of the leader. As the discussion of the previous hypothesis shows, the leader’s action would be conditional on the observed level of \(x\) only if the condition \(\frac{\alpha_1}{2\sigma_1} < \frac{G}{Q} < \frac{\alpha_1}{\sigma_1}\), is met. Otherwise, if the leader’s support does not affect the probability that the follower will take over the leadership (very low values of \(\alpha_1\)), the leader would always be willing to provide this support to her challenger no matter what the observed level of \(x\) is. In addition, if giving support is very risky for the leader in maintaining her leadership (very high values of \(\alpha_1\)), she would never give support to the lower level politician no matter what signal the other politician sends through the level
of jobs that she distributes.

**Hypothesis 3.** As the importance of the leader’s support for the follower’s reelection increases, the follower of the challenger type has less incentive to distribute jobs in efforts to build political support.

Hypotheses 3-5 are derived from the second condition, \( l > 0 \) where \( l \) is a substitute for \( (\sigma_1 + \frac{\sigma_2(1-\alpha R)}{2\nu})M - \frac{\alpha_2 R^2}{4\nu} + \alpha_1 R \). For this inequality to hold, \( (\sigma_1 + \frac{\sigma_2(1-\alpha R)}{2\nu})M - \frac{\alpha_2 R^2}{4\nu} + \alpha_1 R > 0 \), which is a necessary condition for the outcome of “challenger type distributing less patronage”, we want the left hand side to increase. From the first order partial derivative of the left hand side with respect to \( \sigma_1 \), which is \( M \), it can be easily seen that increases in effectiveness of leader’s support for follower’s reelection make it more likely for this condition to be satisfied. The decision of the “challenger” type regarding how many patronage jobs to distribute can be seen as a trade-off between distributing more jobs and getting support from the leader. Therefore, it follows intuitively that as the effectiveness of support increases, the follower would have incentives to reduce patronage.

**Hypothesis 4.** The impact of increases in the effectiveness of distributing jobs for the follower’s reelection depends on the value of leadership for the follower and the effectiveness of distributing jobs in taking over the leadership. If leadership is highly valued and distributing jobs is effective for replacing the leader, increasing the effectiveness of patronage jobs for reelection leads to higher level of patronage jobs. On the contrary, if taking over the leadership is not important for the follower and if building political support through distributing jobs does not help the follower in her efforts to take over the leadership, increasing the effectiveness of distributing jobs for reelection leads to lower levels of patronage jobs.
The results in hypothesis 3 are more difficult to follow than the preceding ones. The first order partial derivative of the left hand side of the inequality with respect to $\sigma_2$ is $1 - \alpha_2 R$. This means that when $\alpha_2 R < 1$, the left hand side of the inequality is increasing with $\sigma_2$. However, when $\alpha_2 R > 1$, increasing $\sigma_2$ makes it less likely for the condition $l > 0$ to be reached. The intuition behind this result is that the trade-off between jobs and support becomes more costly as the effectiveness of distributing jobs for internal competition increases and as the follower values taking over the leadership more. If the follower is not concerned about taking over the leadership or if she cannot increase her chances of replacing the leader by exchanging jobs for political support, she would be willing to send a signal to the leader by keeping the level of jobs low in order to get her support.

Hypothesis 5. As the effectiveness of distributing jobs on replacing the leader increases, the challenger has more incentives to distribute jobs to build support.

Again, this hypothesis is derived from the first order partial derivatives of the left hand side of the inequality, $(\sigma_1 + \frac{\sigma_2(1-\alpha_2 R)}{2\nu})M - \frac{\alpha_2^2 R^2}{4\nu} + \alpha_1 R > 0$. Since the first order partial derivative for $\alpha_2$ is negative, we expect the likelihood of reaching the necessary condition for lower levels of patronage to increase as we decrease the effectiveness of distributing jobs for internal competition. It is expected that the follower would use this strategy more if she thinks that it is going to increase her chances of being successful in the leadership competition.

Conclusion:

One way of building networks of supporters for politicians and parties is to form particularistic relationships with citizens through the exchange of public material benefits. This strategy usually turns out to be costly for society because of the economic inefficiencies it creates, inequalities it leads to in the short-term.
allocation of resources as well as in the long-term possibilities of citizens to make programmatic demands from the state, and the consequent questioning of the political system’s legitimacy by the citizens.

In order to understand why such a socially costly form of politician-citizen relationship persists, the literature has focused on the role of elections in democratic systems and the availability of public and private economic resources. One conclusion that can be taken from these preceding analyses is that the mechanisms behind these particularistic exchanges vary according to the nature of the benefit that is exchanged. When we focus on one of the most cited type of benefits in the literature, public jobs, we can see that internal competition in addition to competition between parties in general elections is a factor that cannot be ignored if we are to understand the mechanisms of how politicians exchange public jobs in a particularistic manner to build political support in developing democracies like Argentina and Turkey.

This is largely due to following reasons: Economic changes that these countries have been experiencing have reduced the public resources that are available for politicians to use in these particularistic exchanges. Manipulating public sector employment is particularly costly due to the large public deficits that form one of the major factors leading to economic crises. Higher economic costs of expanding the public sector in order to create jobs that can be distributed particularistically to followers force the politicians to be more strategic about who these followers are and what they expect from them in return.

Beyond voting for the party (politician) in general elections, which is not easily verifiable, participation in electoral campaigns, mobilizing supporters for elections and voting in indirect internal elections are the services that are expected
from those who receive public jobs. The dependence of parties on “voluntary” participation of party activists and party members in local campaigns as well as party activities due to financial limitations and methods of candidate and party authority selection that are not truly participatory give incentives to politicians to make use of public resources such as employment in the public sector to motivate party members to participate in internal party activities.

The final outcome of the number of jobs to be distributed in order to build support is a result of the intersection of the factors that are related both to competition between parties and competition within parties. The dependence of the party actors on each other for electoral success and internal party competition provide the possibility for the existence of incentives by individual politicians to restrict their use of public jobs to build political support. In the competition for the leadership of the party, the uncertainty concerning politicians’ intentions to compete for the leadership and ambiguity with respect to motivations behind the distribution of jobs to build support, whether it is to build support for internal competition or for parties’ electoral success, allows possibilities to develop for restricting the level of patronage jobs.

The politician who needs the support of the leader for her reelection has incentives to hold back on the efforts to build individual loyalties in order to signal to the leader that she is not a potential challenger. Since exchanging jobs for support is an easily observable activity that might trigger suspicion from the perspective of the leader, politicians who need the backing of the leader might under some conditions have the incentives to cut down on patronage. According to the results of the model, such incentives exist when the support of the party leader is important for the politicians’ electoral chances, when the impact of the leader’s
support on internal competition is not either too high or too low, when the fol-
lower’s reelection is not that important for the leader, and when the effectiveness
of patronage for internal competition decreases.

From a broader perspective, these results imply that internal party competi-
tion has the potential to contain the proliferation of patronage in public sector
employment. However, some conditions are necessary for this desired outcome to
be reached: The party should have a significant effect on the electoral chances of
individual politicians and this effect should be smaller than the impact that the
leader’s support has on internal competition. Leader’s support would affect lead-
ership turn-over only when there is real competition in the party, that is when the
leader is not dominant and when her position can be challenged. This argument
implies that when parties have an important role in the electoral competition and
when the party leadership is a contestable position, politicians would have the
incentive to reduce their patronage networks. In addition, although the literature
has largely focused on the effectiveness of clientelism in winning votes to under-
stand how this affects the degree to which clientelism is employed by politicians,
the effectiveness of patronage in internal competition seems to play at least an
equally important role. Finally, particularistic exchanges of public jobs for politi-
cal support play a less important role in parties when winning any particular one
of the elected public positions (except the one that is held by the party leader like
the presidency or prime ministry) is not be that important for the party (leader).
Table 1. List of abbreviations

ARI- Argentines for a Republic of Equals (Argentina por una República de Iguales)
JDP- Justice and Development Party (Adalet ve Kalkınma Partisi, AKP)
DLP- Democratic Left Party (Demokratik Sol Parti, DSP)
MP- Motherland Party (Anavatan Partisi, ANAP)
NAP- Nationalist Action Party (Milliyetçi Hareket Partisi, MHP)
PJ- Peronist Party (Partido Justicialista)
RPP- Republican Peoples Party (Cumhuriyet Halk Partisi, CHP)
UCR- Radical Party (Union Civica Radical)
SPP- Social Democratic People’s Party (Sosyaldemokrat Halk Partisi, SHP)
TPP- True Path Party (Dogru Yol Partisi, DYP)
Table 2. Effectiveness of Distributing Jobs for Votes (1999 elections)

<table>
<thead>
<tr>
<th>provinces</th>
<th>1998 number of employees</th>
<th>1999 number of employees</th>
<th>differences in votes of first two parties</th>
<th>differences in the number of employees</th>
<th>new jobs/vote</th>
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<tr>
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<td>cap. Fed.*</td>
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<td>7777</td>
<td>1380</td>
<td>767</td>
<td>1.80</td>
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<tr>
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<td>46306</td>
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<td>199</td>
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<td>average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>85.71</td>
</tr>
</tbody>
</table>

* For these cases I used the presidential election results because gubernatorial elections were not held.
Sources: The election results were obtained from Camara Nacional Electoral (National Electoral Chamber of Argentina.) The data on public employees is provided by ProvInfo (Provincial Database of Ministry of Interior.)
Table 3. Summary of Parameters

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>$\sigma_1$</td>
<td>effectiveness of leader’s support ($s$) for follower’s reelection</td>
</tr>
<tr>
<td>$\sigma_2$</td>
<td>effectiveness of distributing jobs ($x$) for follower’s reelection</td>
</tr>
<tr>
<td>$\alpha_1$</td>
<td>effectiveness of leader’s support ($s$) for replacing the leader</td>
</tr>
<tr>
<td>$\alpha_2$</td>
<td>effectiveness of distributing jobs ($x$) for replacing the leader</td>
</tr>
<tr>
<td>$\nu$</td>
<td>the rate of cost ($c$)</td>
</tr>
<tr>
<td>$M$</td>
<td>the value of reelection for the follower</td>
</tr>
<tr>
<td>$R$</td>
<td>the value of leadership for the follower</td>
</tr>
<tr>
<td>$G$</td>
<td>the value of follower’s reelection for the leader</td>
</tr>
<tr>
<td>$Q$</td>
<td>the value of maintaining the leadership for the leader</td>
</tr>
</tbody>
</table>
Figure 1.
Patronage Networks in the Public Sector

**National Party Leader**
(president in Argentina, prime minister in Turkey)

- challenge leadership
- support (campaign, public investments)

**Provincial Party Leader**
(governor in Argentina, legislator and/or mayor in Turkey)

- challenge leadership
- support (campaign, public investments, jobs)

**Local Party Leader**
(mayor)

- public jobs

Campaign participation, mobilization, votes in internal elections
PARTY MEMBERS, ACTIVISTS

Votes in general elections
VOTERS
**Figure 2**
Sequence of Actions in the Model

**Nature** chooses
Follower’s type:  
\[ C \]

\[ Follower \ (P_f) \]
A chooses the level of x

\[ Leader \ (P_L) \]
deleeps whether to support the follower

---

Elections for the follower

---

Elections for the follower
Leadership selection
Appendix

Equilibria under incomplete information:

**Pure strategy separating equilibria:**

Let the level of $x$ that is chosen by type $C$ be $x'$ and the level of $x$ that is chosen by type $A$ be $x''$, then in separating equilibria $x' \neq x''$.

*First, I consider the case where $x' > x''$.\*

For the follower’s actions that are off-the equilibrium path (an action that is not chosen by the follower as part of her optimal strategy in the equilibrium, such as $x' < x < x''$), Bayes’ rule cannot be used to update the leader’s beliefs. Any posterior beliefs are possible. In the rest of the analysis, for off-the equilibrium path actions, I consider the beliefs $\mu(C \mid x) = 1$ for all $x > x''$ so that posterior beliefs are monotonic in $x$.

Then, expected payoffs from $P_L$’s actions are:

\[
E(s = 1 \mid x > x'') = (\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q
\]

\[
E(s = 0 \mid x > x'') = (\sigma_2 x)G + [1 - \alpha_2 x]Q
\]

\[
E(s = 1 \mid x \leq x'') = (\sigma_1 s + \sigma_2 x)G + Q
\]

\[
E(s = 0 \mid x \leq x'') = (\sigma_2 x)G + Q
\]

\[
(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q > (\sigma_2 x)G + [1 - \alpha_2 x]Q
\]

\[
(\sigma_1 s)G > (\alpha_1 s)Q
\]

\[
\frac{G}{Q} > \frac{\alpha_1}{\sigma_1}
\]

and

\[
(\sigma_1 s + \sigma_2 x)G + Q > (\sigma_2 x)G + Q
\]

\[
(\sigma_1 s)G > 0
\]

Therefore, if $\frac{G}{Q} > \frac{\alpha_1}{\sigma_1}$, $r^*(s = 1 \mid x) = 1 \forall x \in X$.

Given $r^*(s = 1 \mid x) = 1 \forall x \in X$, what is $z^*(x \mid i)$? \forall i \in A, $z^*(x \mid i) > 0$ only
if \( \arg \max_{x \in X} U_{P_1}(i, x, r^*(x)) \).

\[
\arg \max_{x \in X} U_1(i = C, x, r^*(x)) = \arg \max_{x \in X} \left[ (\sigma_1 s + \sigma_2 x)M + (\alpha_1 s + \alpha_2 x)R - \nu x^2 \right] \\
x = \frac{\sigma_2 M + \alpha_2 R}{2\nu} \\
\arg \max_{x \in X} U_1(i = A, x, r^*(x)) = \arg \max_{x \in X} \left[ (\sigma_1 s + \sigma_2 x)M - \nu x^2 \right] \\
x = \frac{\sigma_2 M}{2\nu}
\]

Since \( \frac{\sigma_2 M}{2\nu} < \frac{\sigma_2 M + \alpha_2 R}{2\nu} \) the assumption that \( x' > x'' \) is fulfilled.

Therefore, we get a pure strategy separating PBE where

\[
G \frac{Q}{Q} > \frac{\alpha_1}{\sigma_1} \\
r^*(s = 1 \mid x) = 1 \ \forall x \in X \\
z^*(i = C, x = \frac{\sigma_2 M + \alpha_2 R}{2\nu}, r^*(x)) = 1, z^*(i = A, x = \frac{\sigma_2 M}{2\nu}, r^*(x)) = 1
\]

and

\[
\mu^*(C \mid x = \frac{\sigma_2 M + \alpha_2 R}{2\nu}) = 1 \text{ and } \mu^*(A \mid x = \frac{\sigma_2 M}{2\nu}) = 1
\]

if \( \frac{G}{Q} < \frac{\alpha_1}{\sigma_1} \), \( r^* = \begin{cases} 
0 & \text{if } x > x'' \\
1 & \text{if } x \leq x''
\end{cases} \)

Given \( r^* = \begin{cases} 
0 & \text{if } x > x'' \\
1 & \text{if } x \leq x''
\end{cases} \), what is \( z^*(x \mid i) ? \ \forall i \in A, z^*(x \mid i) > 0 \)

only if \( x \in \arg \max_{x \in X} U_{P_1}(i, x, r^*(x)) \)

The follower of type C either can choose \( x \) that maximizes her utility function when \( s = 0 \) which is

\[
\arg \max_{x \in X} U_1(i = C, x, r^*(x)) = \arg \max_{x \in X} \left[ (\sigma_2 x)M + (\alpha_2 x)R - \nu x^2 \right] \\
x = \frac{\sigma_2 M + \alpha_2 R}{2\nu} \\
or choose \( x \leq x'' \) and get support \( s = 1 \).
\]

The follower of type A would choose \( x \) that maximizes her utility function when \( s = 1 \)
\[
\arg\max_{x \in X} U_1(i = A, x, r^*(x)) = \arg\max_x [(\sigma_1 s + \sigma_2 x)M - \nu x^2]
\]
\[
x = \frac{\sigma_2 M}{2\nu}
\]

Therefore, we get a pure strategy separating PBE where
\[
\frac{\tilde{G}}{\tilde{Q}} < \frac{\alpha_1}{\sigma_1}
\]
\[
r^* = \begin{cases} 
  s = 0 & \text{if } x > x'' \\
  s = 1 & \text{if } x \leq x''
\end{cases} = 1
\]
\[
z^*(i = C, x = \frac{\sigma_2 M + \alpha R}{2\nu}, r^*(x)) = 1, \quad z^*(i = A, x = \frac{\sigma_2 M}{2\nu}, r^*(x)) = 1,
\]
\[
\mu^*(C \mid x = \frac{\sigma_2 M + \alpha R}{2\nu}) = 1, \quad \mu^*(A \mid x = \frac{\sigma_2 M}{2\nu}) = 1
\]
and when
\[
U_1(i = C, x = \frac{\sigma_2 M}{2\nu}, s = 1) - U_1(i = C, x = \frac{\sigma_2 M + \alpha R}{2\nu}, s = 0) < 0.
\]

The case where \(x'' < x'\):

Here I can no longer consider posterior beliefs that are monotonic in \(x\). From Lemma 3 we know that if \(z^*(x = x' \mid i = C) = 1 \) and \(z^*(x = x'' \mid i = A) = 1\) then
\[
\mu^*(C \mid x = x') = 1 \quad \text{and} \quad \mu^*(A \mid x = x'') = 1.
\]
However, for the inequalities \(x < x', x > x''\) and the interval \(x' < x < x''\) any posterior beliefs are possible.

Expected payoffs from \(P_L\)'s actions are:
\[
E(s = 1 \mid x = x') = (\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q
\]
\[
E(s = 0 \mid x = x') = (\sigma_2 x)G + [1 - (\alpha_2 x)]Q
\]
\[
E(s = 1 \mid x = x'') = (\sigma_1 s + \sigma_2 x)G + Q
\]
\[
E(s = 0 \mid x = x'') = (\sigma_2 x)G + Q
\]
\[
(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q > (\sigma_2 x)G + [1 - \alpha_2 x]Q
\]
\[
\frac{\tilde{G}}{\tilde{Q}} \geq \frac{\alpha_1}{\sigma_1}
\]
and
\[
(\sigma_1 s + \sigma_2 x)G + Q > (\sigma_2 x)G + Q
\]
\[
(\sigma_1 s)G > 0
\]
Therefore, if \(\frac{\tilde{G}}{\tilde{Q}} \geq \frac{\alpha_1}{\sigma_1}\), \(r^*(s = 1 \mid x) = 1\) where \(x \in \{x', x''\}\). If \(\frac{\tilde{G}}{\tilde{Q}} < \frac{\alpha_1}{\sigma_1}\),
\[ r^* = \begin{cases} 
  s = 0 & \text{if } x = x' \\
  s = 1 & \text{if } x = x'' 
\end{cases} = 1 
\]

We still need to consider off-the equilibrium actions, \( x < x', x > x'', x' < x < x'' \). If we let the posterior belief of the leader that the follower is a challenger if \( x < x' \) is observed be \( \rho \), then \( \rho \) can take on the value of only 1 since \( x' < x'' \) and the probability that the follower is of type A has to be zero.

Then, the expected payoffs from \( P_L \)'s actions are:
\[
E(s = 1 \mid x < x') = (\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q \\
E(s = 0 \mid x < x') = (\sigma_2 x)G + [1 - (\alpha_2 x)]Q 
\]
Therefore, if \( \frac{G}{Q} > \frac{\alpha_1}{\sigma_1} \), \( r^*(s = 1 \mid x < x') = 1 \). If \( \frac{G}{Q} < \frac{\alpha_1}{\sigma_1} \), \( r^*(s = 0 \mid x < x') = 1 \).

If we let the posterior belief of the leader that the follower is a challenger if \( x > x'' \) is observed be \( \gamma \), then \( \gamma \) can take on the value of only 0 since \( x' < x'' \).

Then, the expected payoffs from \( P_L \)'s actions are:
\[
E(s = 1 \mid x > x'') = (\sigma_1 s + \sigma_2 x)G + Q \\
E(s = 0 \mid x > x'') = (\sigma_2 x)G + Q 
\]
Therefore, \( r^*(s = 1 \mid x > x'') = 1 \).

For an observed \( x \) in the interval \( x' < x < x'' \) let the posterior belief that the follower is of type C be \( \delta \). Then the posterior belief that the follower is of type A is \( 1 - \delta \).

Expected payoffs from \( P_L \)'s actions are:
\[
E(s = 1 \mid x' < x < x'') = \delta[(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q] + (1 - \delta)[(\sigma_1 s + \sigma_2 x)G + Q] \\
= \delta(\sigma_1 s + \sigma_2 x)G + \delta Q - \delta(\alpha_1 s + \alpha_2 x)Q + [(\sigma_1 s + \sigma_2 x)G + Q] - \delta(\sigma_1 s + \sigma_2 x)G - \delta Q \\
= (\sigma_1 s + \sigma_2 x)G + [1 - \delta(\alpha_1 s + \alpha_2 x)]Q \\
E(s = 1 \mid x' < x < x'') = \delta[(\sigma_2 x)G + [1 - (\alpha_2 x)]Q] + (1 - \delta)[(\sigma_2 x)G + Q] 
\]
\[
\begin{align*}
&= \delta(\sigma_2 x) G + [\delta Q - \delta(\alpha_2 x) Q] + (\sigma_2 x) G + Q - \delta(\sigma_2 x) G - \delta Q \\
&= (\sigma_2 x) G + [1 - \delta(\alpha_2 x)]Q \\
&= (\sigma_1 s + \sigma_2 x) G + [1 - \delta(\alpha_1 s + \alpha_2 x)]Q > (\sigma_2 x) G + [1 - \delta(\alpha_2 x)]Q \\
&= (\sigma_1 s) G + [Q - \delta(\alpha_1 s + \alpha_2 x)] > [Q - \delta(\alpha_2 x)]Q \\
&= (\sigma_1 s) G - \delta(\alpha_1 s) Q > 0 \\
&= \sigma_1 G > \delta(\alpha_1 Q \\
\end{align*}
\]

If \( \frac{G}{Q} \geq \frac{\delta \alpha_1}{\alpha_1} \), \( r^*(s = 1 \mid x' \leq x \leq x'' ) = 1 \). If \( \frac{G}{Q} < \frac{\delta \alpha_1}{\alpha_1} \), \( r^* = \begin{cases} 
0 \text{ if } x' < x < x'' \ \text{ or } \
1 \text{ if } x' < x < x'' 
\end{cases} 
\]

To summarize, the best response of the leader to follower’s action \( x \) is:

If \( \frac{G}{Q} \geq \frac{\delta \alpha_1}{\alpha_1} \), \( r^*(s = 1 \mid x) = 1 \) where \( x \in \{x', x''\} \), \( r^*(s = 1 \mid x < x') = 1 \), \( r^*(s = 1 \mid x > x'') = 1 \) and \( r^*(s = 1 \mid x < x') = 1 \) and \( r^*(s = 1 \mid x < x'') = 1 \).

Therefore, when \( \frac{G}{Q} \geq \frac{\delta \alpha_1}{\alpha_1} \), \( r^*(s = 1 \mid x) = 1 \) \( \forall x \). When \( \frac{\alpha_1}{\alpha_1} > \frac{G}{Q} > \frac{\delta \alpha_1}{\alpha_1} \), \( r^* = \begin{cases} 
0 \text{ if } x = x' \\
1 \text{ if } x = x'' 
\end{cases} 
\]

\( x = x' \) \( x = x'' \) and \( r^* = \begin{cases} 
0 \text{ if } x' < x < x'' \\
1 \text{ if } x' < x < x'' 
\end{cases} 
\)

Given these best response actions of the leader, what is \( z^*(x \mid i) \)?

\( \forall i \in A, z^*(x \mid i) > 0 \) only if \( x \in \arg \max_{x \in X} U_{P_i}(i, x, r^*(x)) \).

When \( \frac{\alpha_1}{\alpha_1} \geq \frac{\delta \alpha_1}{\alpha_1} \)

\[ \arg \max_{x \in X} U_1(i = C, x, r^*(x)) = \arg \max_{x \in X} [(\sigma_1 s + \sigma_2 x)M + (\alpha_1 s + \alpha_2 x)R - \nu x^2] \]

\[ x = \frac{\sigma_2 M + \alpha_2 R}{2 \nu} \]

\[ \arg \max_{x \in X} U_1(i = A, x, r^*(x)) = \arg \max_{x \in X} [(\sigma_1 s + \sigma_2 x)M - \nu x^2] \]
However, since \( \frac{\sigma_2 M}{2\nu} < \frac{\sigma_2 M + \alpha_2 R}{2\nu} \) the assumption that \( x' < x'' \) is not fulfilled.

Therefore, a pure strategy separating PBE where \( x' < x'' \) cannot exist when
\[
\frac{G}{Q} \geq \frac{\alpha_1}{\sigma_1}.
\]

When \( \frac{G}{Q} > \frac{G_0}{Q_0}, P_F \) either chooses \( x \neq x' \) and gets \( s = 1 \) or chooses \( x' \) and gets \( s = 0 \).

Since for type \( A \) her utility is greater when \( s = 1 \), \( P_F^A \) chooses \( x' \neq x' \). \( P_F^C \) gets \( s = 0 \) if she chooses \( x = x' \) and gets \( s = 1 \) when she chooses \( x \neq x' \).
Therefore, if her utility is higher when she deviates from equilibrium level \( x', x' \), and gets \( s = 1 \), there is no pure strategy PBE under these conditions. If her utility is higher when \( s = 0 \) and \( x = x' \), she chooses \( x \) that maximizes her utility function, \((\sigma_2 x)M + (\alpha_2 x)R - \nu x^2\), which is \( x = \frac{\sigma_2 M + \alpha_2 R}{2\nu} \). However, since \( \frac{G}{Q} \geq \frac{\alpha_1}{\sigma_1} \) the assumption that \( x' < x'' \) is not fulfilled.

Therefore, a pure strategy separating PBE where \( x' < x'' \) cannot exist when
\[
\frac{\alpha_1}{\sigma_1} > \frac{G}{Q} \geq \frac{\alpha_0}{\sigma_1}.
\]

When \( \frac{G}{Q} < \frac{G_0}{Q_0}, P_F \) either chooses \( x < x' \) or \( x < x'' \) and gets \( s = 0 \) or chooses \( x > x' \) or \( x > x'' \) and gets \( s = 1 \). Since for type \( A \) her utility is greater when \( s = 1 \), \( P_F^A \) chooses \( x < x' \) or \( x < x'' \). \( P_F^C \) gets \( s = 0 \) if she chooses \( x = x' \) and gets \( s = 1 \) when she deviates from her equilibrium behavior. Therefore, if her utility is higher when she deviates from equilibrium level \( x, x' \), and gets \( s = 1 \), there is no pure strategy PBE under these conditions. If her utility is higher when \( s = 0 \) and \( x = x' \), she chooses \( x \) that maximizes her utility function, \((\sigma_2 x)M + (\alpha_2 x)R - \nu x^2\), which is \( x = \frac{\sigma_2 M + \alpha_2 R}{2\nu} \). \( P_F^A \) chooses \( \arg \max_{x \in X} U_1(i = A, x, r^*(x)) = \arg \max_{x \in X}[(\sigma_1 s + \sigma_2 x)M - \nu x^2] \) given that it is not equal to \( x' \). Therefore, \( P_F^A \) chooses \( x = \frac{\sigma_2 M}{2\nu} \).

Therefore, if her utility is higher when she deviates from equilibrium level \( x, x' \), and gets \( s = 1 \), there is no pure strategy PBE under these conditions. If her utility is higher when \( s = 0 \) and \( x = x' \), she chooses \( x \) that maximizes her utility function, \((\sigma_2 x)M + (\alpha_2 x)R - \nu x^2\), which is \( x = \frac{\sigma_2 M + \alpha_2 R}{2\nu} \). \( P_F^A \) chooses \( \arg \max_{x \in X} U_1(i = A, x, r^*(x)) = \arg \max_{x \in X}[(\sigma_1 s + \sigma_2 x)M - \nu x^2] \) given that it is not equal to \( x' \). Therefore, \( P_F^A \) chooses \( x = \frac{\sigma_2 M}{2\nu} \). However, since \( \frac{G}{Q} \geq \frac{\alpha_1}{\sigma_1} \) the assumption that \( x' < x'' \) is not fulfilled.
there is no pure strategy separating PBE where $x' < x''$. Therefore, $P_F$ chooses $x = \frac{\sigma_2 M}{2\nu}$. However, since $\frac{\sigma_2 M}{2\nu} < \frac{\sigma_2 M + \alpha_2 R}{2\nu}$ the assumption that $x' < x''$ is not fulfilled.

Therefore, a pure strategy separating PBE where $x' < x''$ cannot exist when $\frac{G}{Q} < \frac{\alpha_2}{\alpha_1}$, either.

Since we covered all possible conditions for the posterior beliefs of the follower, there is no pure strategy separating PBE where $x' < x''$.

**Pooling equilibria:**

The first condition that must be satisfied is $x' = x''$.

Therefore, for PBE to exist $z^*(x' \mid i) = 1, \forall i$.

With the prior belief that $p(i = C) = 1/2$, 

$$\mu^*(C; x = x') = \frac{1q(C)}{1q(C) + 1q(A)} = \frac{1 + 0.5}{1 + 0.5 + 1 + 0.5} = 0.5.$$ 

Let $q$ be the probability that $i = C \mid x > x''$.

Then, the expected payoffs from $P_L$'s actions are:

$$E(s = 1 \mid x > x'') = q[(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q] + (1 - q)[(\sigma_1 s + \sigma_2 x)G + Q]$$

$$E(s = 0 \mid x > x'') = q[(\sigma_2 x)G + [1 - (\alpha_2 x)]Q] + (1 - q)[(\sigma_2 x)G + Q]$$

$$q[(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q] + (1 - q)[(\sigma_1 s + \sigma_2 x)G + Q] > q[(\sigma_2 x)G + [1 - (\alpha_2 x)]Q] + (1 - q)[(\sigma_2 x)G + Q]$$

$$q(\sigma_1 s + \sigma_2 x)G + q[1 - (\alpha_1 s + \alpha_2 x)]Q + [(\sigma_1 s + \sigma_2 x)G + Q] - q(\sigma_1 s + \sigma_2 x)G + Q > q(\sigma_2 x)G + q[1 - (\alpha_2 x)]Q + [(\sigma_2 x)G + Q] - q(\sigma_2 x)G + Q$$

$$q(\sigma_1 s)G + q(\sigma_2 x)G + qQ - q(\alpha_1 s + \alpha_2 x)Q + (\sigma_1 s)G + (\sigma_2 x)G + Q - q(\sigma_1 s)G - q(\sigma_2 x)G - qQ > q(\sigma_2 x)G + qQ - q(\alpha_2 x)Q + (\sigma_2 x)G + Q - q(\sigma_2 x)G - qQ$$

$$-q(\alpha_1 s)Q + (\sigma_1 s)G > 0$$

$$\sigma_1 G > q\alpha_1 Q$$
\[
\frac{G}{Q} > \frac{\rho}{\sigma_1} \\
E(s = 1 \mid x \leq x') = 1/2[(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q] + 1/2[(\sigma_1 s + \sigma_2 x)G + Q] = (\sigma_1 s + \sigma_2 x)G + [1 - 1/2(\alpha_1 s + \alpha_2 x)]Q \\
E(s = 0 \mid x \leq x'') = 1/2[(\sigma_2 x)G + [1 - \alpha_2 x]Q] + 1/2[(\sigma_2 x)G + Q] = (\sigma_2 x)G + [1 - 1/2(\alpha_2 x)]Q \\
(\sigma_1 s + \sigma_2 x)G + [1 - 1/2(\alpha_1 s + \alpha_2 x)]Q > (\sigma_2 x)G + [1 - 1/2(\alpha_2 x)]Q \\
(\sigma_1 s)G - 1/2(\alpha_1 s)Q > 0 \\
\frac{G}{Q} > \frac{\alpha}{2\sigma_1} \\
\text{Therefore, if } \frac{G}{Q} > \frac{\rho}{\sigma_1}, \text{ then } r^*(s = 1 \mid x) = 1 \forall x \in X. \\
\text{Given } \mu^*(C \mid x') = 1/2 \text{ and } r^*(s = 1 \mid x) \forall x \in X, \text{ what is } z^*(x, i)? \\
\forall i \in A, z^*(x \mid i) > 0 \text{ only if } x \in \arg\max_{x \in X} U_{P_i}(i, x, r^*(x)). \\
\arg\max_{x \in X} U_1(i = C, x, r^*(x)) = \arg\max_{x \in X} [(\sigma_1 s + \sigma_2 x)M + (\alpha_1 s + \alpha_2 x)R - \nu x^2]\]

\begin{align*}
\text{arg max}_{x \in X} U_1(i = A, x, r^*(x)) &= \arg\max_{x \in X} [(\sigma_1 s + \sigma_2 x)M - \nu x^2] \\
x &= \frac{\sigma_1 M + \alpha_2 R}{2\nu} \\
\text{r}^* &= \begin{cases} 
  s = 0 \text{ if } x > x'' \\
  s = 1 \text{ if } x \leq x'' 
\end{cases} \\
\mu^*(C \mid x'') &= 1/2 \text{ and } r^* = \begin{cases} 
  s = 0 \text{ if } x > x'' \\
  s = 1 \text{ if } x \leq x'' 
\end{cases} \\
\text{Given } z^*(x \mid i)? \\
\forall i \in A, z^*(x \mid i) > 0 \text{ only if } x \in \arg\max_{x \in X} U_{P_i}(i, x, r^*(x)) \\
\text{The follower of type C either can choose } x \text{ that maximizes her utility function when } s = 0 \text{ which is} \\
\arg\max_{x \in X} U_1(i = C, x, r^*(x)) = \arg\max_{x \in X} [(\sigma_2 x)M + (\alpha_2 x)R - \nu x^2]
\end{align*}
The follower of type A would choose \( x \) that maximizes her utility function when \( s = 1 \):

\[
\arg\max_{x \in X} U_1(i = A, x, r^*(x)) = \arg\max_x [(\sigma_1 s + \sigma_2 x)M - \nu x^2]
\]

\[
x = \frac{\sigma_2 M + \alpha_2 R}{2\nu}
\]

or choose \( x \leq x'' \) and get support \( s = 1 \).

Therefore, we get a pure strategy pooling PBE where

\[
\frac{\alpha_1}{\sigma_1} > \frac{G}{Q} > \frac{\alpha_1}{2\sigma_1}
\]

\[
r^* = \begin{cases} 
  s = 0 & \text{if } x > x'' \\
  s = 1 & \text{if } x \leq x'' \end{cases}
\]

\[
z^* (\forall i \in A, x = \frac{\sigma_2 M}{2\nu}, r^*(x)) = 1
\]

and

\[
\mu^*(C \mid x = \frac{\sigma_2 M}{2\nu}) = 1/2
\]

when \( U_1(i = C, x = \frac{\sigma_2 M + \alpha_2 R}{2\nu}, s = 0) - U_1(i = C, x = \frac{\sigma_2 M}{2\nu}, s = 1) < 0 \)

if \( \frac{\alpha_1}{2\sigma_1} > \frac{G}{Q} \), \( r^*(s = 0 \mid x) = 1 \forall x \in X \) and we do not get a pooling equilibrium.

(Note: For general values of prior belief \( p \), the condition is equal to:

\[
E(s = 1 \mid x \leq x'') = p[(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)]Q] + (1 - p)[(\sigma_1 s + \sigma_2 x)G + Q] = (\sigma_1 s + \sigma_2 x)G - p(\alpha_1 s + \alpha_2 x)Q
\]

\[
E(s = 0 \mid x \leq x'') = p[(\sigma_2 x)G + [1 - \alpha_2 x]Q] + (1 - p)[(\sigma_2 x)G + Q] = (\sigma_2 x)G + [1 - p(\alpha_2 x)]Q
\]

\[
\frac{G}{Q} > \frac{1 + \alpha_2}{\sigma_1}
\]

Semi-separating (hybrid) equilibria:

\( P^A_F \) never randomizes because \( x = \frac{\sigma_2 M}{2\nu} \) always maximizes his utility.

\( P^C_F \) randomizes with \( \omega \) to make \( P_L \) indifferent between \( s = 1 \) and \( s = 0 \).
The updated beliefs are

\[ \mu^*(C \mid x = \frac{\sigma_2 M}{2\nu}) = \frac{P(x = \frac{\sigma_2 M}{2\nu} \mid C)/2}{P(x = \frac{\sigma_2 M}{2\nu} \mid A)/2} = \frac{\frac{\omega}{2}}{\omega/2 + 1} = \frac{\omega}{1 + \omega}. \]

Then, the expected payoffs that \( P_L \) gets are:

\[
E(s = 1 \mid x \leq x'') = \frac{\omega}{1 + \omega}[(\sigma_1 s + \sigma_2 x)G + [1 - (\alpha_1 s + \alpha_2 x)Q] + \frac{Q}{1 + \omega}[(\sigma_1 s + \\
\sigma_2 x)G + Q]
\]

\[
\frac{\omega}{1 + \omega} G\sigma_1 s + \frac{\omega}{1 + \omega} G\sigma_2 x + \frac{\omega}{1 + \omega} Q - \frac{\omega}{1 + \omega} \alpha_1 s - \frac{\omega}{1 + \omega} \alpha_2 x Q + \frac{Q}{1 + \omega} G\sigma_1 s + \frac{Q}{1 + \omega} \sigma_2 x G + \frac{Q}{1 + \omega} = \\
G\sigma_1 s + G\sigma_2 x - \frac{\omega}{1 + \omega} Q \alpha_1 s - \frac{\omega}{1 + \omega} \alpha_2 x Q + Q
\]

\[
E(s = 0 \mid x \leq x'') = \frac{\omega}{1 + \omega}[(\sigma_2 x)G + [1 - \alpha_2 x]Q] + \frac{Q}{1 + \omega}[(\sigma_2 x)G + Q] = \\
\frac{\omega}{1 + \omega} \sigma_2 x G + \frac{\omega}{1 + \omega} Q - \frac{\omega}{1 + \omega} \alpha_2 x Q + \frac{Q}{1 + \omega} \sigma_2 x G + \frac{Q}{1 + \omega} Q
\]

\[
\sigma_2 x G + Q - \frac{\omega}{1 + \omega} \alpha_2 x Q
\]

when \( E(s = 1 \mid x \leq x'') = E(s = 0 \mid x \leq x'') \)

\[
G\sigma_1 s + G\sigma_2 x - \frac{\omega}{1 + \omega} Q \alpha_1 s - \frac{\omega}{1 + \omega} \alpha_2 x Q + Q = \sigma_2 x G + Q - \frac{\omega}{1 + \omega} \alpha_2 x Q
\]

\[
G\sigma_1 = \frac{G}{Q \alpha_1 - G}
\]

\[
\omega = \frac{G}{Q \alpha_1 - G}
\]

The leader randomizes with \( \phi \)

\[
\phi[(\sigma_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})M + (\alpha_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})R - \nu(\frac{\sigma_2 M + \sigma_2 R}{2\nu})^2] = (1 - \phi)[(\sigma_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})M + (\alpha_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})R - \nu(\frac{\sigma_2 M}{2\nu})^2]
\]

\[
\phi(\sigma_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})M + \phi(\alpha_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})R - \phi(\frac{\sigma_2 M + \sigma_2 R}{2\nu})^2 = (\sigma_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})M + (\alpha_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})R - \frac{\omega}{1 + \omega} \alpha_2 x Q
\]

\[
\phi(\sigma_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})M + \phi(\alpha_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})R - \phi(\frac{\sigma_2 M + \sigma_2 R}{2\nu})^2 = (\sigma_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})M + (\alpha_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})R + \phi(\frac{\sigma_2 M}{2\nu})^2
\]

\[
\phi(\sigma_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})M + \phi(\alpha_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})R - \phi(\frac{\sigma_2 M + \sigma_2 R}{2\nu})^2 + \phi(\alpha_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})R = \\
(\sigma_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})M + (\alpha_1 s)R - \nu(\frac{\sigma_2 M}{2\nu})^2
\]

\[
\phi = \frac{\phi(\sigma_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})M + (\alpha_1 s)R - \nu(\frac{\sigma_2 M}{2\nu})^2}{\phi(\sigma_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})M + (\alpha_2 \frac{\sigma_2 M + \sigma_2 R}{2\nu})R - \nu(\frac{\sigma_2 M + \sigma_2 R}{2\nu})^2 + (\alpha_1 s + \sigma_2 \frac{\sigma_2 M}{2\nu})R}
\]
References


