# Electable and Stable Insiders' Coalition Governments*

Tryphon Kollintzas** and Lambros Pechlivanos**

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**Abstract**: In this paper, we formulate a general equilibrium theory that explains the existence and stability of democratically elected governments that support certain groups of individuals in society (insiders) to the detriment of everybody else (outsiders), even if the latter constitute a majority. The vehicle is a dynamic general equilibrium model, where insiders get monopoly rents and outsiders get less than what they would have gotten under a common good regime. We construct such political economy equilibria and we identify the conditions under which such political regimes (coalitions of insiders): (a) can safeguard against opportunistic behavior (i.e., do not fall from within) and (b) may come to power in the first place (i.e., manage to get elected). To that end, we highlight the role of ideology or self-serving bias as a gluing device to garner an electable coalition.

**Keywords:** insiders, coalition governments, stability, electability, politico-economic equilibrium, perceptions manipulation, self-serving bias

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**Correspondence:** Tryphon Kollintzas, kollintz@aueb.gr and Lambros Pechlivanos, lpech@aueb.gr

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** Athens University of Economics and Business

# 1. Introduction

Economic and political outcomes are structurally intertwined. Various constituencies understand their accession to political power as a mean to affect in their favor the distribution of economic outcomes via the enaction of preferential economic policies. Clearly, though this conflict for the "spoils of power" is not a zero-sum game. The identity and the scope of the governing coalition does not only affect the distribution of winners and losers, but also the efficiency of the economic outcome.[1]

Electoral competition in democracies could, in principle, restrict the incentives prospective coalitions have to gain at the expense of the rest of society. Moreover, in democracies, elected governing coalitions are not institutionalized stable entities, but temporal groups that have to safeguard themselves against their members' opportunistic behaviors. In other words, they should be understood as self-enforcing arrangements whose sustainability over the electoral cycle requires a constant unanimous consensus over proposed economic policies.[2]

We present a dynamic general equilibrium model that highlights the interplay between ex ante electability and ex post stability constraints of a governing coalition and how they shape the efficiency characteristics of the set of the implementable economic policies. In particular, we model the corporatist society as an economy consisting of insiders and outsiders. Outsiders work in industries that make up the competitive sector. That is, a sector comprised of industries with perfectly competitive product and labor markets. Insiders populate a cluster of industries, which operate as unionized monopolies. Membership to this cluster is being assigned by government regulation fiat. Insiders keep their status as long as they remain part of the governing coalition. The size of the governing coalition, i.e., the number of constituents that are employed in protected sectors, affects the efficiency of the resulting steady state market equilibrium. In particular, the resulting dead-weight loss is increasing in the number of insiders' industries. Nonetheless, electability issues and ex-post sustainability concerns about the governing coalition place restrictions on its size.

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[1] See the political economy literature, e.g., Persson and Tabellini (2000). Moreover, there is a plethora of such examples in economic history. An example that motivated the present paper, is the case of South Europe over, at least, the last two decades of the last century and the first decade of this century. Kollintzas et al. (2018b) cite several official reports and provide empirical evidence in support of the view that the economic underperformance of several Southern European countries at that time was due to their inefficient economic system that was in a symbiotic arrangement with their political system. For the major political parties, dominated by powerful unions, professional associations, and their strategic business allies, succeeded in maintaining and promoting this arrangement.

[2] There is an active discussion in the political science literature on the nature of "corporatism" as a "government structure" based on centralized hierarchy, political coercion to promote concertation of special interests, and that of "corporatism" as a "process" employing a relatively fragmented democratic bargaining process based on persuasion and not on coercion to achieve a special interests representation system. See, e.g., Baccaro (2003) and the literature discussion therein. The institutional set up we envision here is in accordance with the second view of corporatism.

We consider an economy with a number of intermediate good sectors, producing gross complement goods. The gross complementarity assumption allows us to link the outcomes in the various sectors and to propagate the effects of the imposition of an inefficient regulation in a sector to the rest of the economy. Hence, the unionized monopolization of a sector gives rise to positive price mark-ups and wage premia within this sector (i.e., rents to insiders), but at the same time reduces sectoral output which in turn reduces the efficiency of the economy (homogeneous final good sector), resulting to smaller wages in the other sectors, either they are protected by regulation or function competitively. As the number of the protected sectors increases the inefficiency problem exacerbates due to the decentralized (i.e., per protected sector) nature of the bargaining between the monopolies and the sectoral unions.[3] The model is reminiscent of Cole and Ohanian (2004), which features a non-competitive sector coupled with a non-competitive labor market and a competitive sector coupled with a competitive labor market.

Obviously, in each sector, insiders would prefer to reduce the number of protected sectors by abolishing other sectors' protective regulation. This means that the governing coalition must safeguard itself against opportunistic behavior of its members who would like to kill other sector's protective regulation. The disciplining mechanism we envision is ostracism from the governing coalition. Since, as explained above, the insiders' rents decrease in the size of the coalition, stability considerations of the governing coalition place an upper bound on its size, and subsequently on the acceptable level of inefficiency for a corporatist state to be self-sustainable, i.e., *not to fall from within*. This analysis is reminiscent, in a dynamic framework, of the school of Chicago political economy themes put forth such as in Stigler (1971), Peltzman (1976) and Becker (1983, 1985).

The obvious next step is to examine the viability of such a corporatist state. In other words, to check the conditions under which such a coalition of insiders would ever be elected in the first place. Clearly, if the available counter platform in the electoral competition is that of a fully efficient competitive economy benchmark, then no insiders' coalition ever gets elected. This is essentially a result in the tradition of a Coasian – Williamsonian analysis of the evolution of governance structures, in which competition among alternative modes give rise to the efficient outcome.[4] Nonetheless, we explore the cohesive power ideology or self-serving biases have in making the institution of corporatist state an electable alternative, and the subsequent incentives of an insiders' coalition to affect them by spending resources. Ideology is presented as a mean to manipulate perceptions about the economic outcomes of hypothetical regimes (i.e., the competitive economy benchmark).[5] Self-serving bias is

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[3] Clearly, a fully corporatist state (i.e., an economy in which all sectors are regulated) gives rise to an outcome where insiders are worse off compared to the competitive economy benchmark.

[4] For example, see Coase (1937) and Williamson (1985, 1996).

[5] For example, see Piketty (1995), in which it is argued that perceptions about the unfairness of social and economic outcomes are significant determinants of voters' preferences over redistributive fiscal

presented as an inflated subjective probability constituents may have about their importance as members of the insiders' coalition.[6] As a result, these departures from the rational expectations benchmark ensures the electability of some insiders' coalitions, now placing both an upper bound as well as a lower bound on their size and their level of inefficiency.

The plan of the paper has as follows: In Section 2 we present the dynamic general equilibrium model, and we derive its equilibrium as a function of the number of noncompetitive industries. In Section 3 we define stable insiders' coalition governments and develop necessary and sufficient conditions for their existence. In Section 4 we characterize the electability of stable insiders' coalition governments in two ways. First, under the hypothesis of manipulated voter perceptions about the common good regime (Subsection 4.1). And second, under the hypothesis of inflated subjective probabilities of voters ending up as insiders, once the insiders – outsiders society is elected (Subsection 4.2). In Section 5 we present several extensions of the model. Thus, in Subsections 5.1, 5.2, and 5.3 we introduce voter risk aversion, an endogenous preference manipulation technology, and insiders' dividends. Also, in Subsection 5.4 we present a generalized model that combines all the extensions mentioned. As this generalized model is too complex to characterize analytically the stability and electability of insiders' coalition governments, we employ numerical analysis to do so. Finaly, Section 6 is the conclusion.

# 2. Model

## 2.1 Preliminaries

We consider an economy that is populated by a large number of identical individuals or voters, $L$. Individuals consume a homogeneous final good that is produced combining a number of intermediate goods, $N$. Each one of these intermediate goods is produced using labor supplied by individuals under CRS and each individual is endowed by one unit of labor, which is inelastically supplied. At the beginning of each period, individuals vote to elect a government. There are two regimes, individuals can vote for: (i) The "insiders-outsiders society", where some individuals, called insiders, work in noncompetitive industries while the remaining individuals, called outsiders, work in competitive industries, where they get a smaller wage rate than insiders. In this regime, the probability an individual ends up as an insider depends on the structure of the economy (e.g., the fraction of noncompetitive industries and the relative size of each noncompetitive industry). And (ii) the "perceived common good" regime where all individuals work in competitive industries and get the same wage rate. Individuals have a perception of this wage rate that depends on their idiosyncratic characteristics and/or other factors, such as ideology or self-serving bias, to be analyzed further below. If the

policies. It is also within the logic put forth by Jean Tirole in his book "Economics for the Common Good "(2017).

[6] This is reminiscent of Passarelli and Tabellini (2017).

insiders-outsiders society wins a majority, insiders form a coalition that controls the government. Government decides the number of noncompetitive intermediate good industries in the economy, $K_t \in \{0,1,2,\ldots,N\}$. In each one of these noncompetitive industries there is a single intermediate good producer. These $K_t$industries comprise the noncompetitive sector or the economy, where insiders work. The remaining $N - K_t$industries comprise the competitive sector of the economy, where outsiders work. In the noncompetitive industries, employees are organized in unions (or professional associations). Each one of these unions bargains in a decentralized fashion, i.e., independently of all other unions, for wages and employment with the corresponding intermediate good monopolist.[7] Once insiders control the government, each group in the coalition has an incentive to deviate ex post, by voting down proposals for operating in such a fashion any number of noncompetitive industries, except their own. This is because, if there are fewer noncompetitive industries, the benefit of each group of insiders in the noncompetitive sector is higher. If they deviate by voting down proposals for the operation of other noncompetitive industries, there is a probability that they will be detected and expelled from government next period. This probability decreases, ceteris paribus, with the number of noncompetitive industries and increases with the number of proposals voted down.

We are interested in characterizing two properties of the insiders-outsiders regime. First, we are interested in investigating under what conditions the coalition of insiders comprising the government is stable. That is, no group of insiders in the coalition has an incentive to deviate from the coalition, by voting down any number of proposals to limit the number of noncompetitive industries. We call this property of the insiders-outsiders society ex post stability. Second, we are interested in investigating under what conditions voters will choose an ex post stable insiders-outsiders society over the common good regime. We call this property of the insiders-outsiders society, ex ante electability.

It is clear that if the perceived common good regime coincides with the competitive equilibrium, there will be no possibility to find a majority that will support the insiders – outsiders society, since the latter is associated with the inefficiency of the noncompetitive sector. So, in characterizing the electability property, we consider two possible deviations in shaping the perceptions of the common good regime. First, we consider the case where a stable insiders-outsiders regime devotes resources in changing these perceptions, as illustrated later in Figure1. These resources are part of the profits in the noncompetitive industries. Second, in a way similar to Passarelli and Tabellini (2017), we consider the case where individuals perceptions about themselves are inflated, in the sense that they think of themselves as been better than others, so that in an insiders-outsiders society they have a higher probability to be insiders than the one implied by rationality.

[7] Kollintzas et al. (2018 a) for the functioning of a dynamic general equilibrium in such an insiders-outsiders economy. In their model the degree of insiders' influence on government decisions is exogenously determined. And, given this degree of influence, the share of insiders' industries in the economy is decided by a Ramsey planner.

## 2.2 Functioning of an economy with K non-competitive industries

We consider a simple general equilibrium model with risk neutral agents. Time is discrete and subscript *t* indicates magnitudes in period t.

**(i) Final good producers:**

The technology of the representative final good producer is given by the Dixit-Stiglitz aggregator function:

$$Y_t = A_t\left(\sum_{j=1}^{N} Y_{jt}^{\zeta}\right)^{\frac{1}{\zeta}}; A_t > 0 \; and \; \zeta \in (0,1) \tag{1}$$

where $Y_t$ and $Y_{jt}$ are the output and the input of the *jth* intermediate good, respectively, of the representative final good producer. Parameter $A_t$ is the total factor productivity and expression $\left(\frac{1}{1-\zeta}\right)$is the common elasticity of substitution, across all intermediate good inputs.[8] Profit maximization implies the (inverse) input demand functions:

$$p_{jt} = \left(\frac{Y_t}{Y_{jt}}\right)^{1-\zeta}; \quad \forall j \in \{1,\ldots,N\} \tag{2}$$

where $p_{jt}$is the relative price of the *jth* intermediate good; and the price of the final good product is the numeraire.

**(ii) Intermediate good producers**

Production technology is common across all intermediate good industries and represented by the Ricardian factor requirements function:

$$H_{jt} = (1/B_t)Y_{jt}; \quad B_t > 0, \quad \forall j \in \{1,\ldots,N\} \tag{3}$$

where $H_{jt}$ is labor input in the *jth* intermediate good industry.

**(iii) Intermediate good producers of the competitive sector**

Let $w_{jt}$ stand for the wage rate, in final good units, of the *jth* intermediate good industry. Since all workers are identical, workers in the competitive sector (i.e., outsiders) take their common wage rate, denoted by $w_t^0$ , as given. That is,

$$w_{jt} = w_t^0; \forall j \in \{(K_t + 1),\ldots,N\} \tag{4}$$

Profit maximization in the competitive sector implies that output price is equal to marginal cost:

[8] Clearly, the elasticity of substitution increases with $\zeta$ , and as $\zeta$ goes to 1 the intermediate goods become perfect substitutes.

$$p_{jt} = \frac{w_t^0}{B_t}; \forall j \in \{(K_t + 1), \ldots, N\} \tag{5}$$

Clearly, in equilibrium output prices and outputs must be common across all competitive sector industries. Let the common values of output price and output in the competitive sector denoted by $p_t^0$ and $Y_t^0$ , respectively. Then,

$$w_t^0 = Bp_t^0 = B\left(\frac{Y_t}{Y_t^0}\right)^{1-\zeta} \tag{6}$$

**(iv) Intermediate good producers and labor unions of the non-competitive sector**

In any non-competitive intermediate good industry *j*, the labor union is bargaining with the monopolist producer over wages and employment. Efficient bargaining outcomes are characterized by:

$$(w_{jt}^*, H_{jt}^*) \quad = \underset{(w_{jt}, H_{jt}) \in [w_t^0, \infty) X [0, \infty)}{argmax} (w_{jt} - w_t^0)^\lambda \pi_{jt}, \quad \lambda > 0 \ , \forall j \in \{1, \ldots, K_t\}$$

where: $\lambda$ *and* $w_t^0$ are the relative bargaining power and the and the reservation wage rate of the labor union, respectively; and

$$\pi_{jt} = p_{jt} Y_{jt} - w_{jt} H_{jt} = {Y_t}^{1-\zeta}(B_t H_{jt})^\zeta - w_{jt} H_{jt}\, ; \forall j \in \{1,2, \ldots, K_t\} \tag{7}$$

is the profit of the monopolist. Here, we assume that: (I) If there is no agreement, insiders can work in the competitive good sector of the economy. (II) The reservation profits of the intermediate good producers in the non-competitive sector are zero.[9] (III) Producers and unions take the aggregate output, $Y_t$, as given and beyond their control, i.e., the bargaining process per sector is decentralized.

It follows that insiders' wages, output, output prices, and employment across the insiders' industries are common. Let these common variables denoted by $w_t^i, p_t^i, Y_t^i \ and \ H_t^i$, respectively. It is straightforward to show that given,

$$[\boldsymbol{R.1.}\ \boldsymbol{a}] \qquad \zeta > \frac{\lambda}{1+\lambda},$$

the unique efficient bargaining contract, across the insiders' industries, is characterized by:

$$w_t^i = \zeta B_t p_t^i = \nu w_t^o; \quad \nu \equiv \frac{\zeta}{\zeta(1+\lambda) - \lambda} > 1 \tag{8}$$

**(v) General economic equilibrium**

Then, in addition to (6)-(8), the equations characterizing the general economic equilibrium of the model economy can be written as follows:

[9] This is the standard monopoly-union efficient bargaining model of the labor economics literature. See, e.g., Oswald (1982).

$$L = K_t H_t^i + (N - K_t) H_t^0 \quad (9)$$

$$Y_t = K_t p_t^i Y_t^i + (N - K_t) p_t^o Y_t^o \quad (10)$$

Equations (9) and (10) are the market clearing conditions in the labor and output markets, respectively. The demand for output in the RHS of (10) is consistent with two alternative specifications. To see this, first note that (equilibrium) profits in the insiders' sector, $K_t\pi_t^i$, are given by $K_t\pi_t^i = K_t(p_t^i Y_t^i - w_t^i H_t^i)$ Thus, in view of (6) and (8), the demand for output can also be expressed as $K_t w_t^i H_t^i + (N - K_t) w_t^o H_t^o + K_t\pi_t^i$. The first and second term in this expression correspond to the consumption of workers in insiders' and outsiders' industries, respectively, and the third term in this expression could have the following two interpretations: First, if there is no taxation and all profits are distributed as dividends and consumed by entrepreneurs in insiders' industries. Second, insiders' profits are fully taxed and government revenues are used to influence perceptions about political regimes.[10]

It should be noted that a crucial and convenient property of this general economic equilibrium is that it can be expressed analytically in terms of the model's parameters and the number of noncompetitive industries, $K_t$. In particular, as it will be shortly shown, wages in the competitive and noncompetitive sectors can be expressed as functions of $K_t$.

**(vi) Wage structure**

First, note that if $K_t = 0$, the equilibrium is trivial, in the sense that there is only a competitive sector in the economy. The equilibrium in this case is Pareto Optimum and characterized by a common wage rate for all workers:

$$w_t^* = {A_t}^{(1-\zeta)} B_t N^{\frac{(1-\zeta)}{\varsigma}} \quad (11)$$

Henceforth, we consider the case, where $K_t \in \{1, \dots, N-1\}$. From (6) and (8), $\frac{p_t^i}{p_t^0} = \frac{\nu}{\zeta} = \frac{1}{\zeta(1+\lambda)-\lambda} > 1$ , where the last inequality is a direct consequence of $[\boldsymbol{R.1.\ a}]$. Further, from (2): $\frac{p_t^i}{p_t^0} = \left[\left(\frac{Y_t^0}{Y_t^i}\right)^{\zeta}\right]^{\frac{1-\zeta}{\zeta}}$. Therefore: $\left(\frac{Y_t^0}{Y_t^i}\right) = \frac{1}{\tau}$, where $\tau \equiv \left(\frac{\zeta}{\nu}\right)^{\frac{1}{1-\zeta}} = [\zeta(1+\lambda) - \lambda]^{\frac{1}{1-\varsigma}} \in (0,1)$. Then, it is straightforward to show that for all $K_t \in \{1, \dots, N-1\}$,

$$w_t^o = {A_t}^{(1-\zeta)} B_t (N - \xi K_t)^{\frac{(1-\zeta)}{\zeta}} \equiv w_t^o(K_t) \quad (12)$$

$$w_t^i = \nu w_t^o(K_t) \equiv w_t^i(K_t), \quad (13)$$

where, $\xi = 1 - \tau^{\zeta} = 1 - [\zeta(1+\lambda) - \lambda]^{\frac{\zeta}{1-\varsigma}} \in (0,1)$.

[10] Of course, any combination between these two extreme alternatives could also be incorporated into the model to the cost of additional notation.

It remains to characterize insiders' wages for $K_t = N$. In this case, there are no outsiders, and the wage rate of outsiders cannot be used as the reservation wage rate for insiders. Consequently, the efficient bargain contract is not well defined. Assume that when$K_t = N$, the reservation wage rate of insiders is given by the limit of the wage rate of outsiders, $w_t^o(K_t)$, as $K_t$approaches $N$. That is:

$w_t^o(N) \equiv \lim_{K_t \to N} w_t^o(K_t) = A_t{}^{(1-\zeta)} B_t N^{\frac{(1-\zeta)}{\zeta}} \frac{\zeta}{\nu}$.[11] Then, it follows as in the case of $K_t \in \{1,\ldots,N-1\}$, that $w_t^i(N) = \nu w_t^o(N) = \zeta A_t{}^{(1-\zeta)} B_t N^{\frac{(1-\zeta)}{\zeta}}$. The preceding results lead to the following:

<u>**Proposition 1**</u>: Given$[\boldsymbol{R.1.}\ \boldsymbol{a}]$**,** the equilibrium wage structure of insiders and outsiders is such that:

(a) $w_t^o(K_t) < w_t^o(K_t - 1);\quad \forall K_t \in \{1,\ldots,N\}$

$w_t^i(K_t) < w_t^i(K_t - 1);\quad \forall K_t \in \{1,\ldots,N\}$

(b) $w_t^o(K_t) < w_t^*;\quad \forall K_t \in \{1,\ldots,N\}$

(c) Let $K^*$ = $\vartheta N$, where $\vartheta \equiv \frac{1-\nu^{-\frac{\zeta}{1-\zeta}}}{\xi}$ Then, $w_t^i(K_t) \begin{cases} > w_t^*, & K_t < K^* \\ = w_t^*, & K_t = K^* \\ < w_t^*, & K_t > K^* \end{cases}$

**Proof:** See Appendix

Part (a) establishes that wages in both the insiders' and outsiders' sectors decrease with the number of insiders' industries. This is due to the fact the inefficiency increases as the number of insiders' industries increases. Part (b) establishes that the wage rate of outsiders is always less than the wage rate of workers in the competitive equilibrium, for any number of insiders' industries. And, Part (c) establishes that there is an upper bound in the number of insiders' industries such that the equilibrium of the insiders – outsiders society is in a certain sense profitable for insiders. That is, the wage rate of insiders is greater than the wage rate of workers in the competitive equilibrium regime, for any number of insiders' industries less than this upper bound, $\vartheta N$. Clearly, $\vartheta \in (0,1)$ and increases with the relative bargaining power of unions across insiders' industries, $\lambda$, and the input elasticity of substitution across intermediate good industries, $\left(\frac{1}{1-\zeta}\right)$. Moreover, as $\zeta$approaches one, $\vartheta$ approaches one also. Thus, when intermediate goods are perfect substitutes there are no insiders' industries with a wage rate that is less than the competitive equilibrium wage rate.

## 3. Ex Post Stability

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[11] In fact, it can be shown that this is the only reservation wage rate for which the efficient bargaining contract is well defined.

Individual preferences are characterized by the expected discounted future stream of her consumption, $U_t = E\sum_{\tau=0}^{\infty}\beta^{\tau}w_{t+\tau}$, where $\beta \in (0,1)$ is the discount factor and $E(\cdot)$ denotes the expectations operator, as the individual is uncertain about the regime that will prevail in the elections and if the insiders-outsiders society is elected whether she will end up as an insider or an outsider. Suppose, now, that the insiders-outsiders society has been elected. Then, the value function of the individual is defined by:

$$V_t^{i-o} \equiv \pi_t V_t^i + (1-\pi_t)V_t^0, \tag{14}$$

where $\pi_t$ is the probability of being an insider if the insiders – outsiders society is elected in period $t$ and $V_t^i, V_t^o$ are the value functions of the insider and the outsider, in period t, respectively. Since we will consider two alternative specifications for these probabilities, it will be convenient to define them later. Given that the insiders-outsiders society regime has been elected, the representative of any group of insiders in government, can decide whether she will behave "loyally" according to the wishes of her peers and vote to sustain the protection of all the insiders' industries or to act "opportunistically" and kill the protection in some of her peers' industries. This happens when she votes against a $\kappa$ number of proposals, to run noncompetitive industries in the economy. The ex-post value of the insider is: $V_t^i = max\{\tilde{V}(K_t), \tilde{V}(K_t,\kappa)\}$, where: $\tilde{V}(K_t)$ is the value of the insider if she acts loyally and $\tilde{V}(K_t,\kappa)$ is the insider's value if she deviates and votes against $\kappa$ proposals for noncompetitive industries. Depending on how many proposals votes against, the representative has a different probability of being identified and expelled from the government coalition. Let $q(K,\kappa)$ stand for the probability of being identified, if the representative votes against $\kappa$ such proposals. We assume that, given $K, \ldots > q(K,\kappa+1) > q(K,\kappa) > q(K,\kappa-1) > \ldots$ and that $q(K,0) = 0$ and $q(K,K-1) = 1$. Then, in any given period t, the value function of a representative of any group of insiders if she votes for $\kappa$ deviations is given by:

$$\tilde{V}(K_t,\kappa) = w^i(K_t-\kappa) + \beta\{[1-q(K_t,\kappa)]\tilde{V}(K_{t+1}) + q(K_t,\kappa)V_{t+1}^0\} \tag{15}$$

We are interested in a steady state, where: $\ldots K_{t-1} = K_t = K_{t+1} = \ldots = K$.[12] In this case, $\tilde{V}(K_t) = \tilde{V}(K) = \frac{w^i(K)}{1-\beta}$ and $V_{t+1}^0 = \frac{w^o(K)}{1-\beta}$, for all $t$. And, the steady state value function of an insider that deviates in $\kappa$ proposals is:

$$\tilde{V}(K,\kappa) = \frac{(1-\beta)w^i\ (K-\kappa) + \beta\{[1-q(K,\kappa)]w^i\ (K) + q(K,\kappa)]w^o\ (K)\}}{(1-\beta)} \tag{16}$$

**Definition:** Given $(K,\kappa)$, the insiders' coalition government is locally stable in the steady state for deviations that reduce the number of noncompetitive industries by $\kappa$ if and only if, $\tilde{V}(K\ \ ) \geq \tilde{V}(K\ \ ,\kappa)$.

[12] Variables without time subscripts denote the value of the corresponding variable along the steady state.

**Proposition 2**: Given $K \in \{1, \ldots, N-1\}$ and $\kappa \in \{0, \ldots, K-1\}$, an insiders' coalition government is locally stable in the steady state for deviations that reduce the number of non-competitive industries by $\kappa$ if and only if:

$$\left(1 + \frac{\xi\kappa}{N-\xi K}\right)^{\frac{1-\zeta}{\zeta}} \leq 1 + \frac{\beta(\nu-1)q(K,\kappa)}{(1-\beta)\nu} \tag{17}$$

**Proof:** See Appendix

Rearranging terms in (17), this inequality can be rewritten in two alternative forms. The first of these forms is more suitable for interpretation purposes and the second form is more useful for understanding the factors that are crucial for its satisfaction. First, note that (17) is equivalent to:

$$\nu A^{1-\varsigma}B\left\{[N-\xi(K-\kappa)]^{\frac{1-\zeta}{\zeta}} - (N-\xi\kappa)^{\frac{1-\zeta}{\zeta}}\right\} \leq q(K,\kappa)\frac{\beta(\nu-1)}{(1-\beta)}A^{1-\varsigma}B(N-\xi\kappa)^{\frac{1-\zeta}{\zeta}} \tag{17a}$$

Then, it follows from the wage structure equations (12) and (13), that the left hand side of the above inequality is the current period benefit of the coalition member of an insiders' government with $K$ non-competitive industries that votes to reduce this number by $\kappa$, i.e., $w^i(K-\kappa) - w^i\ (K)$. And, correspondingly, the right hand side of the above inequality is the expected present value of the cost of this vote, $\frac{\beta}{1-\beta}q(K,\kappa)[w^i\ (K) - w^o\ (K)]$, i.e., the expected cost of a ostracism. Hence, one way to interpret (17) is that for an insiders' coalition to remain stable in the steady state against its members voting to reduce their membership by any given number is that the current period benefit from a coalition with fewer members is no greater than the expected present value of the cost associated with being detected and expelled from the coalition. Second, (17) can be rewritten as:

$$\frac{(1-\beta)\nu}{\beta(\nu-1)}\left[\left(1 + \frac{\xi\kappa}{N-\xi K}\right)^{\frac{1-\zeta}{\zeta}} - 1\right] \leq q(K,\kappa) \tag{17b}$$

Thus, another way to interpret (17) is that it places a lower bound in the probability of being detected and expelled from the coalition government. In particular, an insiders' coalition government is locally stable in the steady state for deviations that reduce the number of non-competitive industries by $\kappa$if the corresponding probability of being detected and expelled from the government coalition is higher than a lower bound that depends on the model's parameters. In fact it is straightforward to show that this (i.e., the LHS of (17b)) is: (a) strictly decreasing in the discount rate, $\beta$; (b) strictly increasing in the steady state number of non-competitive industries, $K$; and (c) strictly increasing in the number of proposals for non-competitive industries voted down, $\kappa$. Since, $q(K,\kappa)$ is also strictly increasing in $\kappa$, this last result is important in the design of appropriate restrictions for the satisfaction of (17b) for all $\kappa \in \{0, \ldots, K-1\}$. We now turn our attention to this question exactly. For, we are obviously interested in coalition governments such that the local stability condition (17) holds for all $\kappa \in \{0, \ldots, K-1\}$.

**Definition:** The insiders' coalition government is globally stable in the steady state if and only if, given $K$, it is locally stable in the steady state for all possible deviations that reduce the number of non-competitive industries by $\kappa \in \{0,\dots,K-1\}$.

The following establishes a necessary condition for an insiders' coalition government to be globally stable in the steady state.

**Lemma 1: (a)** Any globally stable insiders' coalition government with $K \in \{1,\dots,N-1\}$non-competitive industries satisfies (17) for $\kappa = K-1$. **(b)** There exists a number $M \in \{1,\dots,N-1\}$such that if there is a globally stable insiders' coalition government with $K$noncompetitive industries, $K \leq M$. (**c**) For sufficiently large $N$, $M \leq \theta N$, where $\theta \equiv min\left\{1, \frac{\eta-1}{\xi\eta}\right\}$, and $\eta \equiv \left[\frac{\nu-\beta}{\nu(1-\beta)}\right]^{\frac{\zeta}{1-\zeta}} > 1$.

**(d)** Let: $\breve{\beta} \equiv \frac{\nu}{1+\nu} < \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}} \equiv \hat{\beta} \in (0,1)$, then $\beta \begin{cases} \in (0,\ \breve{\beta}), & if\ 1 > \vartheta > \theta \\ = \breve{\beta}, & if\ 1 > \vartheta = \theta \\ \in (\ \breve{\beta}, \hat{\beta}), & if\ 1 > \theta > \vartheta \\ \in\ (\hat{\beta}, 1), & if\ 1 = \theta > \vartheta \end{cases}$.

**Proof:** See Appendix

The usefulness of this result is that without loss of generality we can limit our investigation for globally stable insiders' coalition governments in the set $\{1,\dots,M\}$, where $1 \leq M \leq N-1$. For, if there was an insiders' coalition government with $K \in \{M+1,\dots,N-1\}$non-competitive industries, it cannot be globally stable in the steady state. Moreover, Part (c) establishes an upper bound on $K$ (i.e., $\theta N$) for sufficiently large $N$. Finally, Part (d) characterizes the size of this bound with respect to the discount factor, $\beta$. In fact, it is straightforward to show the following.

**Remark 1:** Suppose that $M \leq \theta N$ as in Lemma 1, and that there is a globally stable in the steady state insiders' coalition government with $K \in \{1,\dots,M\}$noncompetitive industries, Then: (a) If $\hat{\beta} > \beta$, this government is a minority government (i.e., $\left(\frac{KH^i}{L}\right) < \frac{1}{2}$). (b) If $\breve{\beta} > \beta$, this government also runs an insiders - outsiders society that is profitable for insiders and unprofitable for outsiders (i.e., $w^i\ (K) > w^*(K) > w^o\ (K)$).

Thus, when the upper bound on the size of an insiders' coalition government to be globally stable in the steady state is binding (i.e., $\breve{\beta} > \beta$ or $\theta < 1$), this government is a minority government. And, for a sufficiently low discount factor (i.e., $\hat{\beta} > \breve{\beta} > \beta$ or $\theta < \vartheta$), global stability in the steady state implies that the government runs an insiders – outsiders society that is profitable for insiders and unprofitable for outsiders. In essence, a relatively small discount rate implies that the incentive to defect becomes relatively strong and the government safeguards against such threat by forming a smaller insiders' coalition. This smaller size of the insiders' coalition contains the magnitude of the implied inefficiency and the subsequent benefit form defecting. If, on the other hand, $\theta > \vartheta$ the largest globally stable coalition government results to a situation in which the insiders – outsiders society is detrimental also to the insiders. Nonetheless, the insiders enter into a rat-race-like situation in which they would prefer to abolish it, but they cannot vote for it individually because of the fear that they might just be left out.

Now, not surprisingly, the existence of insiders' coalition governments that are globally stable in the steady state necessitates monotonicity - type restrictions on the probability distribution characterizing the identification of the representative of a group of insiders that does not vote to grant economic power to other insiders' groups, $q(K,\kappa)$. In what follows, we will adopt the conventional assumption that:

$[\boldsymbol{R}.2]$ $q(K,\cdot)$ increases at a non-increasing rate with $\kappa$

An example of a probability distribution function that satisfies $[\boldsymbol{R}.2]$ is the linear specification:$q(K,\kappa)=\frac{K-\kappa}{K-1}$.[13]

We are now ready to state the main result of this section.

**<u>Proposition 3</u>**: Suppose that assumptions $[R.1.\ a]$ and $[R.2]$hold and that $M \leq \theta N$ as in Lemma 1. Then, all insiders' coalition governments with $K \in \{1,\ldots,M\}$ noncompetitive industries are globally stable in the steady state.

**Proof:** See Appendix

Essentially, the result highlights that if the deviation does not pay for a particular *K*-member coalition it will not be profitable for all smaller coalitions. This is due to the fact that the benefits from turning a non-competitive industry into a competitive one are smaller, the smaller is the insiders' coalition. Formally, given the concavity restriction we impose on $q(K,\kappa)$**,** necessary condition (17) is easier to be satisfied the smaller $K$ is, for each $\kappa \in \{0,\ldots,K-1\}$.[14]

# 4. Ex ante Electability

## 4.1 Perceptions Manipulation

In this subsection we assume that voters have rational expectations on their probabilities of being an insider or outsider, if an insiders-outsiders society is elected and the same perceptions on their benefits under the perceived common good regime.  We take the latter

[13] In this case: $[q(K,\kappa+1)-q(K,\kappa)]-[q(K,\kappa)-q(K,\kappa-1)]=\frac{-1}{K-1}-\frac{-1}{K-1}=0$

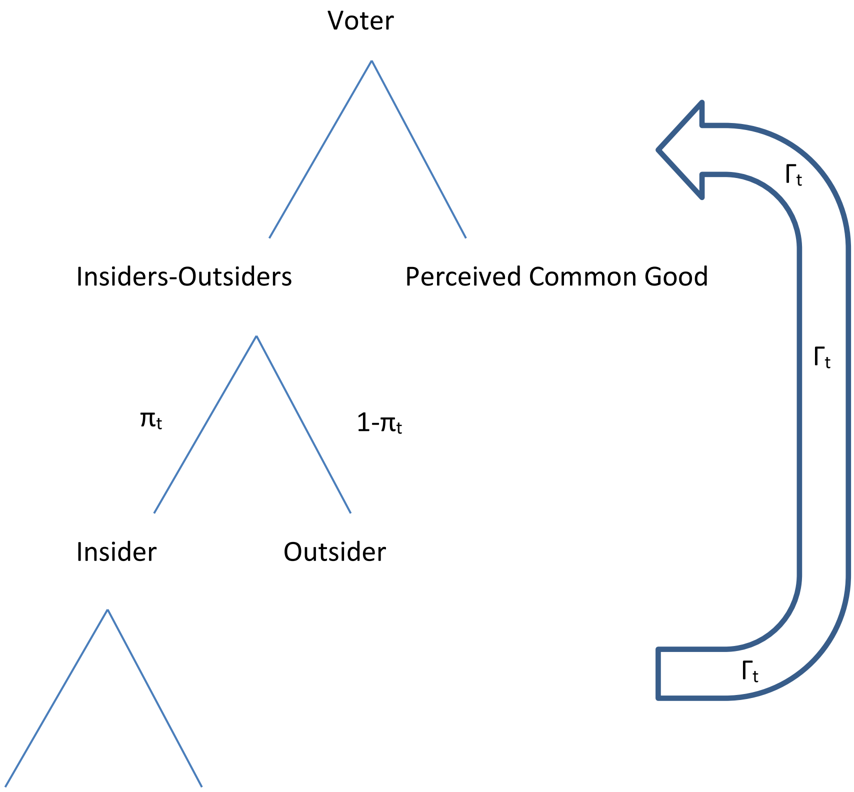
[14] Moreover, it should understood that if an $M$-member coalition is viable (as it is globally stable) then competition among ex ante identical interested groups to become members of the coalition may drive its size to the maximum viable one $M$. On the other hand, smaller size coalitions may arise to reduce the implied level of inefficiency in the economy.

to be represented by a value function that is fraction, $\rho_t$ , of the present value of the discounted future stream of wages in the competitive equilibrium:

$$V_t^{pcg} = \rho_t \sum_{\tau=0}^{\infty} \beta^\tau w_{t+\tau}^*$$

However, we will assume that $\rho_t$ can be manipulated so as to be less than 1. An example of such a perceptions manipulation technology will be specified in the next subsection. For now, we will simply consider cases where $\rho_t \in [0,1]$. The timeline of the model is illustrated in Figure 1.

**Figure 1: TIMELINE OF THE PERCEIVED GOOD REGIME SUBCASE**




Key :

$\pi_t$: : probability of being an insider if the insiders - outsiders society is elected in period t

$\Gamma_t$ : resources to change perceptions of the perceived common good regime in period t

With rational expectations, the value function of the voter if the insiders-outsiders society is elected is given by:

$$V_t^{i-o} = \frac{K_t H_t^i}{K_t H_t^i + (N - K_t) H_t^o} V_t^i + \frac{(N - K_t) H_t^o}{K_t H_t^i + (N - K_t) H_t^o} V_t^0$$

We will consider an insiders' coalition government that is globally stable in the steady state (i.e., so that: $\ldots K_{t-1} = K_t = K_{t+1} = \ldots = K$, and$\ldots \rho_{t-1}, \rho_t, \rho_{t+1} = \ldots = \rho$ ). Hence,

$$\ldots V_{t-1}^i = V_t^i = V_{t+1}^i = \ldots = V^i(K) = \frac{w^i(K)}{1-\beta}$$

$$\ldots V_{t-1}^o = V_t^o = V_{t+1}^o = \ldots = V^o(K) = \frac{w^o(K)}{1-\beta}$$

**Definition:** A globally stable insiders' coalition government (GSICG) with$K \in \{1, \ldots, M\}$ noncompetitive industries is electable in the steady state if and only if, $V^{i-o}(K \quad) \geq V^{pcg}$.

Clearly, the latter condition is equivalent to:

$$\frac{K \quad H^i}{K \quad H^i + (N-K \quad) H^o} w^i \ (K) + \frac{(N-K \quad) H^o}{K \quad H^i + (N-K \quad) H^o} w^0 \ (K \quad) > \rho w^* \tag{18}$$

Or, in view of the wage structure equations (i.e., (11)-(13)) and the fact that

$\left(\frac{H^0}{H^i}\right) = \left(\frac{Y^0}{Y^i}\right) = \left(\frac{\nu}{\zeta}\right)^{\frac{1}{1-\zeta}} \equiv \frac{1}{\tau}$, (18) is equivalent to:

$$1 + \frac{(\nu-1)\tau}{\left(\frac{N}{K}\right) - (1-\tau)} \geq \rho \left[ \frac{\left(\frac{N}{K}\right)}{\left(\frac{N}{K}\right) - \xi} \right]^{\frac{1-\zeta}{\zeta}} \tag{18a}$$

Define first $x = \frac{N}{K'}$, which clearly is decreasing in the size coalition $K$. Then define, three real functions $\hat{\varphi}(\cdot),\ \hat{\chi}(\cdot),\ and\ \hat{\psi}(\cdot): \left[\frac{N}{M}, N\right] \to \mathbb{R}_+$, such that: $\hat{\varphi}(x) \equiv 1 + \frac{(\nu-1)\tau}{x-(1-\tau)'}$, i.e., the real variable equivalent of the LHS of (18a), $\hat{\chi}(x) \equiv \rho \left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\varsigma}}$, i.e., the real variable equivalent of the RHS of (18a), and their ratio $\hat{\psi}(x) \equiv \frac{\hat{\varphi}(x)}{\hat{\chi}(x)}$. Clearly, for any given $K \in \{1, \ldots, M\}$, the globally stable insiders' coalition government is electable in the steady state if and only if $\hat{\psi}(x) \geq 1$. The following proposition characterizes the conditions for the electability of a globally stable insiders' coalition government.

**Proposition 4**: Suppose that $N$ is sufficiently large and restrictions$[R.1.\ a]$ and

$[\boldsymbol{R.1.\ b}]$ $\qquad \zeta \leq \frac{2\lambda}{1+\lambda}$

hold and that $M \leq \theta N$ as in Lemma 1. Then:

**(a)** If $\rho = 1$, the globally stable insiders' coalition government is not electable in the steady state for any $K \in \{1, \ldots, M\}$.

**(b)** If $\rho = 0$, the globally stable insiders' coalition government is electable in the steady state for all $K \in \{1, \ldots, M\}$.

**(c)** If $\rho \in (0,1)$ and such that $\hat{\psi}\left(\frac{1}{\theta}\right) \leq 1$, which can happen if and only if$\zeta \leq \rho$, if $\frac{1}{\theta} = 1$ $\left(\frac{1-\tau^{\zeta}\eta+\nu\tau(\eta-1)}{1-\tau^{\zeta}\eta+\tau(\eta-1)}\frac{\nu(1-\beta)}{(\nu-\beta)} \leq \rho\right.$, if $\left.\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1\right)$, there exists an integer $\widehat{K}$, such that $1 < \widehat{K} < M$, where the globally stable insiders' coalition government is electable in the steady state only for $K \in \{1, \ldots, \widehat{K}\}$noncompetitive industries.

**(d)** If $\rho \in (0,1)$ and such that $\hat{\psi}\left(\frac{1}{\theta}\right) > 1$, which can happen if and only if$\zeta > \rho$, if $\frac{1}{\theta} = 1$ $\left(\frac{1-\tau^{\zeta}\eta+\nu\tau(\eta-1)}{1-\tau^{\zeta}\eta+\tau(\eta-1)}\frac{\nu(1-\beta)}{(\nu-\beta)} \leq \rho\right.$, if $\left.\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1\right)$, $\underset{x\in\frac{1}{\theta},\infty)}{min}\hat{\psi}(x)$ is well defined and such that:

**(i)** If $\underset{x\in\frac{1}{\theta},\infty)}{min}\hat{\psi}(x) < 1$, there exist two integers $\bar{K}'$and $\bar{K}''$, such that $1 < \bar{K}'' < \bar{K}' < M$, where the globally stable insiders' coalition government is electable in the steady state only for$K \in \{\bar{K}', \ldots, M\} \cup \{1, \ldots, \bar{K}''\}$ noncompetitive industries.

**(ii)** If $\underset{x\in\frac{1}{\theta},\infty)}{min}\hat{\psi}(x) \geq 1$, the globally stable insiders' coalition government is electable in the steady state for all $K \in \{1, \ldots, M\}$.

**Proof:** See Appendix

First, note that $[R.1.\ b]$ places an upper bound on $\zeta$. Thus, $[\boldsymbol{R.1.\ a}]$**and** $[\boldsymbol{R.1.\ b}]$ in tandem imply $\frac{\lambda}{1+\lambda} < \zeta \leq \frac{2\lambda}{1+\lambda}$. We shall denote this double inequality by $[R.1]$.[15]

Now, several comments are in order. First, cases **(a)** and **(b)** are trivial and have been included here to gain some perspective on the other parts of this proposition. In case **(a)**, there is no manipulation (i.e.,$\rho = 1$). In this case, the perceived common good regime is the common good regime or the competitive equilibrium allocation. Clearly, the result of case **(a)** is an implication of the Fundamental Theorems of Welfare Economics. A government that implements the competitive equilibrium allocation dominates all types of insiders' coalition

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[15] In fact, both bounds on $\zeta$ are increasing in the relative bargaining power of the union, $\lambda$. But, since $\zeta \in (0,1)$, the upper bound is restrictive only as long as $\lambda < 1$. In addition, as it turns out $\underset{x\in[1,N]}{min}\hat{\psi}(x)$ does depend on $\rho$. In fact, as it is shown in the Appendix, $\underset{x\in[1,N]}{min}\hat{\psi}(x)$ can be expressed analytically in terms of $\zeta$ and $\lambda$. However, the interaction between $[\mathbf{R}.1]$ and the loci of points, where $\underset{x\in[1,N]}{min}\hat{\psi}(x) < 1$ or $\underset{x\in[1,N]}{min}\hat{\psi}(x) \geq 1$ cannot be characterized analytically. Numerical simulations indicate that, for example, low (high) values of both $\zeta$ and $\lambda$ satisfy $[\mathbf{R}.1]$ and $\underset{x\in[1,N]}{min}\hat{\psi}(x) < 1$ ($[\mathbf{R}.1]$ and $\underset{x\in[1,N]}{min}\hat{\psi}(x) \geq 1$). For the MATLAB program of these numerical simulations and the corresponding graphs of $\hat{\psi}(\bullet)$ see . Also, it should be noted, here, that $[\mathbf{R}.2]$ does not interact with the other conditions, for it involves exclusively the probability distribution function $q(K,\kappa)$.

governments. Case **(b)** addresses the opposite extreme (i.e.,$\rho = 0$), the perceived common good has absolutely no value and therefore it is dominated by all types of insiders' coalition governments. Cases **(c)** and **(d)** are more interesting. In these two cases there is limited manipulation (i.e.,$0 < \rho < 1$), that lowers the value of the perceived common good regime and allows for the electability of certain sizes of globally stable insiders' coalition governments. However, to understand why this is happening, it is helpful to delve briefly into the underlying voting incentives.

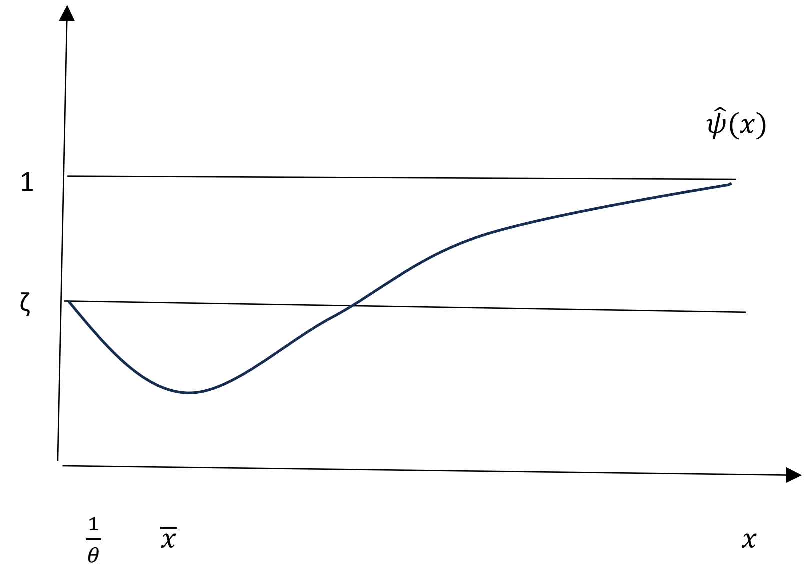
It is straightforward that $\hat{\psi}(\cdot)$ represents the ratio of the expected wage rate in the insiders' coalition government to the wage rate in the perceived good regime. If this ratio is greater than one, the rational voter votes for the insiders' coalition government. It is also straightforward to see that the expected wage in the insiders' coalition government depends on the size of the insiders' sector or the number of insiders industries. This dependence can be decomposed into two effects. First, as the number of insiders' industries rises there is a higher probability to end up as an insider and get the insiders' benefits. This effect is manifested in the positive dependence of $\hat{\varphi}(\cdot)$ and therefore $\hat{\psi}(\cdot)$ on $K$. Second, as the number of insiders' industries rises the wage rate of both insiders and outsiders falls. The reason for this is the lower aggregate output in the economy as the number of non-competitive sectors increases. This lower aggregate output effect is brought about also for two reasons. First, if one industry switches from competitive to non-competitive its output is reduced. Second, the lower output of this industry reduces aggregate output further, as the input of all other industries becomes less productive, due to the complementarity effect. This effect is manifested in the positive dependence of $\hat{\chi}(\cdot)$ and, therefore, the negative dependence of $\hat{\psi}(\cdot)$ on $K$. These opposite effects create tradeoffs that explain why a certain type of a globally stable insiders' coalition government is electable and another is not.

Now, trying to understand how these effects are affected by the parameter values that are associated with cases **(c)** and **(d)**, one can think of case **(c)** (i.e., $0 < \zeta < \rho < 1$) as the situation where there is relatively weak manipulation (i.e., $\zeta < \rho$) and/or the intermediate goods are relatively strong complements, so that the benefits to insiders (i.e., the premium over the wage of outsiders as well as the premium over the wage rate of the perceived common good regime) are relatively strong.[16] In contrast, in case **(d)** the situation is reversed; there is

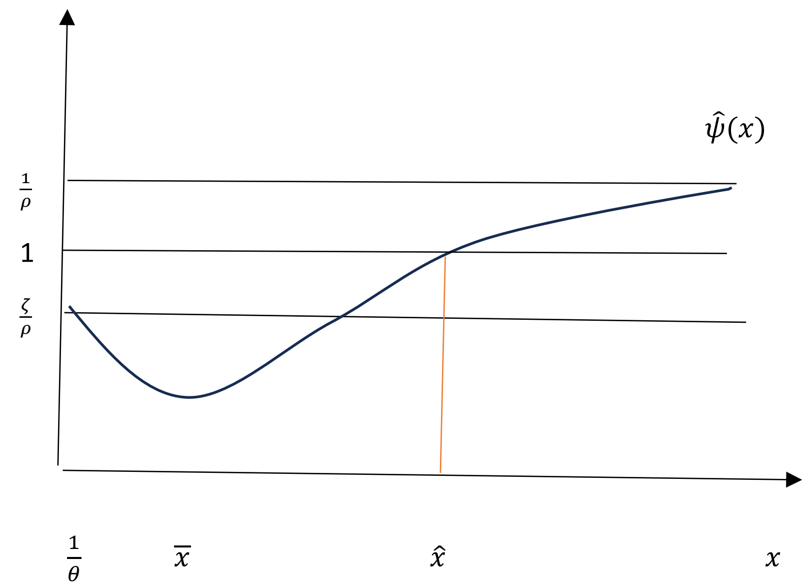
[16] The same is true for insiders' profits. The gap between insiders' profits and the zero profits in outsiders' industries or the zero profits in the perceived good regime is inversely related to $\zeta$ or the elasticity of substitution across intermediate good industries, $\left( 1/_{1-\zeta} \right)$.

*Figure 2: An illustration of Proposition 4*

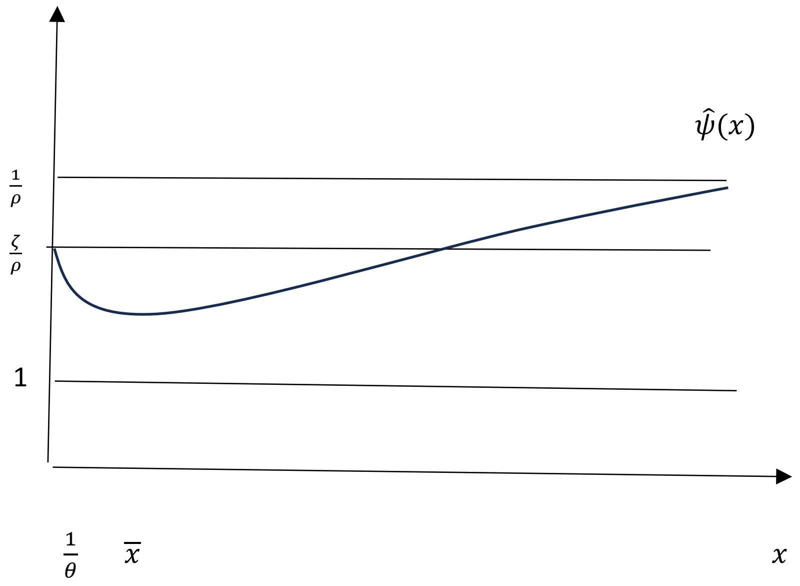
No manipulation ρ=1



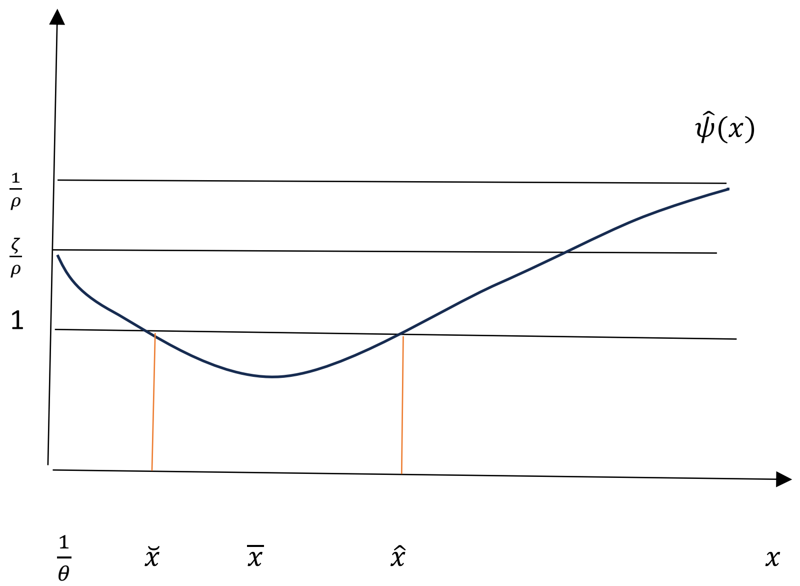

Weak manipulation, weak complementarity: 0<ζ<ρ<1



Strong manipulation, weak complementarity: 0<ρ<ζ<1




Strong manipulation, weak complementarity: 0<ρ<ζ<1




relatively strong manipulation (i.e., $\zeta > \rho$) and/or the intermediate goods are relatively closer substitutes. As a result, the premium of the wage rate of the insiders over the wage rate of the perceived common good regime is particularly strong. As a result, even small coalitions get elected as a voter prefers to vote for the long odds gamble to end up becoming an insider. Moreover, because of the large $\zeta$, the premium of the insiders' wage rate over that of the outsiders is not substantial as well as the magnitude of the output effect is relatively small, the down risk of the gamble is small. Proposition 4 is illustrated in Figure 2, below. The four panels correspond to the Parts (a) – (d) of the proposition. In all panels we plot the graph of $\hat{\psi}(x)$ as a function of $x = \frac{N}{K}$. For simplicity we have assumed that $\frac{1}{\theta} = 1$.

## 4.2 Self-Serving Bias (Inflated Subjective Probability)

Suppose, now, that there is no perceptions manipulation, so that the alternative to the insiders-outsiders society is the common good regime, in which the government supports the competitive equilibrium allocation. However, now, we assume that individuals have a subjective probability to be insiders, if the insiders-outsiders society is elected, for they think of themselves as been better than others. In particular, we assume that the probability of ending up as an insider, if the insiders-outsiders society is elected, is a multiple, $1 + \alpha_t \geq 1$, of the corresponding objective probability, $\pi_t$. That is, this subjective probability is given by:

$$(1 + \alpha_t)\pi_t = (1 + \alpha_t)\left[\frac{K_t H_t^i}{K_t H_t^i + (N - K_t)H_t^o}\right], \tag{19}$$

where, $0 \leq (1 + \alpha_t)\left[\frac{K_t H_t^i}{K_t H_t^i + (N - K_t)H_t^o}\right] \leq 1$, in order to satisfy the properties of probability. The set up of this case is illustrated in the following diagram[17]

Moreover, for convenience we assume that profits in insiders' industries are taxed away and are used to finance pure public goods. Clearly, the conditions for ex post stability are not affected, but the condition for ex ante electability is now given by: $V_\alpha^{i-o}(K) \geq V^{cg}$, where:

$$V_\alpha^{i-o} = (1 + \alpha_t)\frac{KH^i}{KH^i + (N - K)H^o}V^i + \left[1 - (1 + \alpha_t)\frac{KH^o}{KH^i + (N - K)H^o}\right]V^0,$$

$V^i = \frac{w^i(K)}{1-\beta}$, $V^o = \frac{w^o(K)}{1-\beta}$ and $V^{cg} = \frac{w^*}{1-\beta}$.

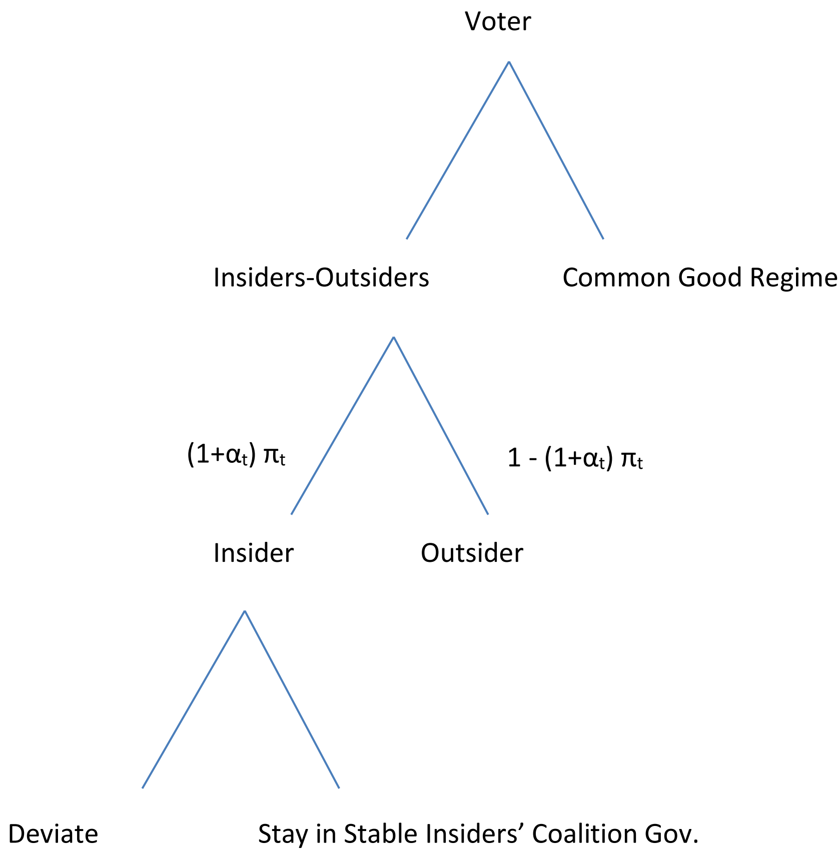
Clearly, the electability condition is equivalent to:

$$(1 + \alpha)\frac{K \quad H^i}{K \quad H^i + (N - K \quad )H^o} w^i \ (K) + \left[1 - (1 + \alpha)\frac{(N - K \quad )H^o}{K \quad H^i + (N - K \quad )H^o}\right] w^0 \ (K \quad ) \geq w^* \tag{20}$$

Or, in view of the wage structure equations (i.e., (11)-(13)), (20) is equivalent to:

[17] A situation where both departures coexist is discussed in Section 5.4.

**Figure 3: TIMELINE OF THE INFLATED SUBJECTIVE PROBABILITY CASE**



$$1+\frac{(1+\alpha)(\nu-1)\tau}{\left(\frac{N}{K}\right)-(1-\tau)} \geq \left[\frac{\left(\frac{N}{K}\right)}{\left(\frac{N}{K}\right)-\xi}\right]^{\frac{1-\zeta}{\zeta}} \tag{20a}$$

Define $\tilde{\varphi}(\cdot),\ \tilde{\chi}(\cdot),\ and\ \tilde{\psi}(\cdot)$: $\tilde{\varphi}(x) \equiv 1+\frac{(1+\alpha)(\nu-1)\tau}{x-(1-\tau)}$, $\tilde{\chi}(x) \equiv \left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\zeta}}$, and $\tilde{\psi}(x) \equiv \frac{\tilde{\varphi}(x)}{\tilde{\chi}(x)}$, where$x = \frac{N}{K}$. Further, note that the probability bound $(1+\alpha)\left[\frac{KH^i}{KH^i+(N-K)H^o}\right] \leq 1$ implies that $x \geq 1+\alpha\tau$. And, since for g*lobally* stable insiders' coalition government and sufficiently large $N$, $x \geq \frac{1}{\theta}$, where $\theta \equiv min\left\{1, \frac{\eta-1}{\xi\eta}\right\}$, and $\eta \equiv \left(\frac{1-\frac{\beta}{\nu}}{1-\beta}\right)^{\frac{\zeta}{1-\zeta}} > 0$, we are effectively interested on the behavior of $\tilde{\varphi}(\cdot),\ \tilde{\chi}(\cdot),\ and\ \tilde{\psi}(\cdot)$ over the interval $(\underset{\sim}{x}, \infty)$, where $\underset{\sim}{x} = max\left\{1+\alpha\tau, \frac{1}{\theta}\right\} \geq 1$. In this respect, we will find useful the following.

**<u>Lemma 2:</u>** For any degree of inflated perceptions $\alpha > 0$, there exists a unique discount factor $\tilde{\beta}(\alpha) \in \left(0, \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}\right) \subset (0,1)$ such that $\underset{\sim}{x} = \begin{cases} 1+\alpha\tau, & if\ \beta \in \tilde{\beta}(\alpha), 1) \\ \frac{1}{\theta}, & if\ \beta \in \left(0, \tilde{\beta}(\alpha)\right) \end{cases}$

**Proof:** See Appendix

Thus, we are now restricted to consider $K \in \{1, \ldots, \widetilde{M}\}$, where $\widetilde{M}$is the largest integer smaller than or equal to $\frac{N}{\underset{\sim}{x}}$. Clearly, for any given $K \in \{1, \ldots, \widetilde{M}\}$, the g*lobally* stable insiders' coalition government is electable in the steady state if and only if $\tilde{\psi}(x) \geq 1$. Then, the following proposition characterizes the conditions for the electability of a globally stable insiders' coalition government, in the steady state, when perceptions are inflated.

**<u>Proposition 5</u>**: Let $\underset{\sim}{\omega} \equiv \frac{[(1+\lambda)\nu+1]\xi - 2\lambda\nu(1-\tau)}{2\xi}$ and $\bar{\omega} \equiv min\ \left\{1, \frac{\zeta(1-\tau)}{(1-\zeta)\xi}\right\}$

Then, for $N$sufficiently large, such that $\frac{N}{\widetilde{M}} \geq \underset{\sim}{x}$ and given restrictions $[\boldsymbol{R.1}]$and

$[\boldsymbol{R.3}]$ $\quad \frac{\xi\underset{\sim}{\omega}}{\lambda\nu\tau} \leq 1+\alpha < \frac{\xi\bar{\omega}}{\lambda\nu\tau}$,

the following are true:

**(a)** If $\alpha = 0$, the globally stable insiders' coalition government is not electable in the steady state for any $K \in \{1, \ldots, \widetilde{M}\}$.

**(b)** If $\alpha > 0$and such that $\hat{\psi}(\underset{\sim}{x}) \leq 1$, which can happen if and only if

$1+\alpha \leq \frac{\beta[1-\tau-(\tau^{\zeta}-\tau)\eta]}{(1-\beta)\nu\tau(\eta-1)}$ when $\underset{\sim}{x} = \frac{\xi\eta}{\eta-1}$ or $1+\alpha \leq \frac{1-\tau-(\tau^{\zeta}-\tau)\nu^{\frac{\zeta}{1-\zeta}}}{\tau(\nu^{\frac{\zeta}{1-\zeta}}-1)}$, when $\underset{\sim}{x} = 1+\alpha\tau$ ,

the globally stable insiders' coalition government is not electable in the steady state for any $K \in \{1, \ldots, \widetilde{M}\}$.

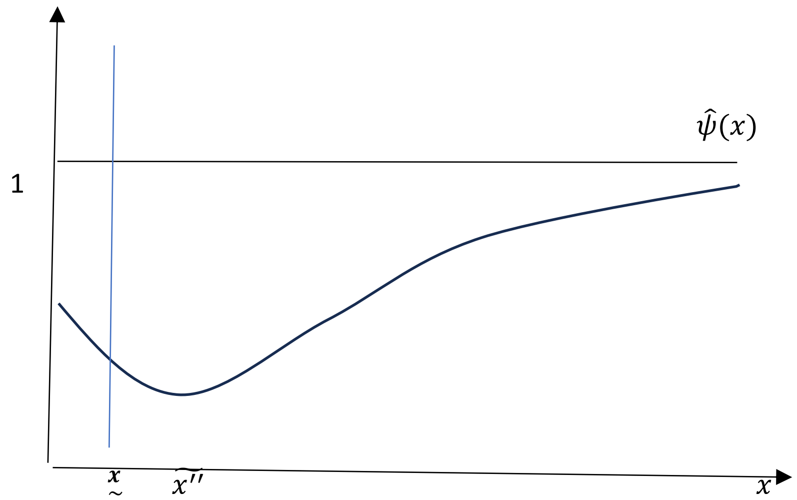
**(c)** If $\alpha > 0$ and such that $\hat{\psi}(\underset{\sim}{x}) > 1$, which can happen if and only if $1 + \alpha > \frac{\beta[1-\tau-(\tau^{\zeta}-\tau)\eta]}{(1-\beta)\nu\tau(\eta-1)}$ when $\underset{\sim}{x} = \frac{\xi\eta}{\eta-1}$ or $1 + \alpha > \frac{1-\tau-(\tau^{\zeta}-\tau)\nu^{\frac{\zeta}{1-\zeta}}}{\tau(\nu^{\frac{\zeta}{1-\zeta}}-1)}$, when $\underset{\sim}{x} = 1 + \alpha\tau$, there exists an integer $\widetilde{K}$, such that $1 < \widetilde{K} < \widetilde{M}$, where the globally stable insiders' coalition government is electable in the steady state only for $K \in \{\widetilde{K}, \ldots, \widetilde{M}\}$noncompetitive industries.

**Proof:** See Appendix

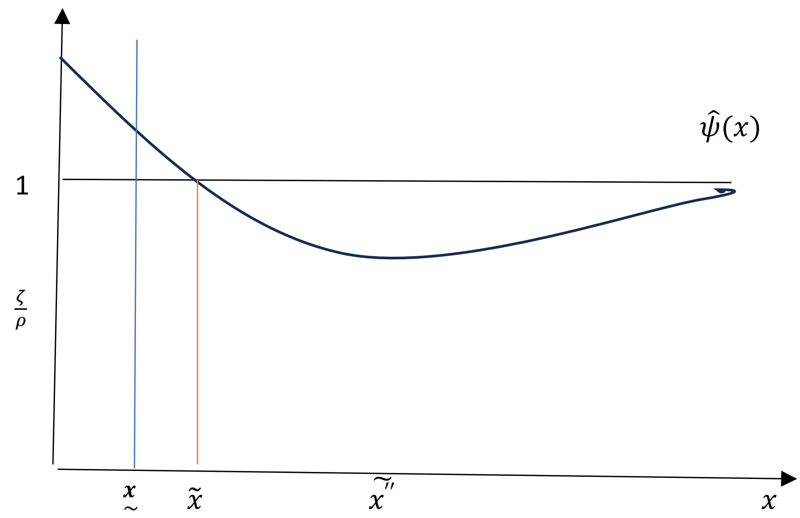
Case **(a)** of Proposition 5 is identical to Case **(a)** of Proposition 4. Cases **(a)** and **(b)** of Proposition 5 are quite similar in the sense that no globally stable insiders' coalition government is ever elected. Finally, Case **(c)** of Proposition 5 is unlike any other case considered so far. The reason for this is that there is only a lower bound on the number of noncompetitive industries. Not surprisingly, this is a consequence of the fact that the self-serving bias is associated with an amplification effect on the expected benefit of being an insider. And this amplification effect is proportional to the number of insiders' industries.

*Figure 5: An illustration of Proposition 5*

Weak self-serving bias α>0 & $\hat{\psi}(\underset{\sim}{x}) \leq 1$ [Case (b)]



Strong self-serving bias α>0 & $\hat{\psi}(\underset{\sim}{x}) > 1$ [Case (c)]




The following is an immediate implication of Proposition 5.

**Remark 2**: Suppose that $\widetilde{M} \leq (1/\underset{\sim}{x})N$ is as in Proposition 5, $(1/\underset{\sim}{x}) = \theta$ and that there is an electable globally stable in the steady state insiders' coalition government with $K \in \{1, \dots, \widetilde{M}\}$noncompetitive industries, Then, if $\breve{\beta} > \beta$, this government is a minority government (i.e., $\left(\frac{KH^i}{L}\right) < \frac{1}{2}$) and implements an insiders - outsiders society that is profitable for insiders and unprofitable for outsiders (i.e., $w^i\ (K) > w^*(K) > w^o\ (K)$).

Thus, in view of Lemma 2, in the case where the necessary condition for the global stability of an insiders' coalition government imposes a tighter condition on the size of the coalition ( i.e., $K < \theta N$) than the corresponding condition implied by the bound on the perceived probability of the voter been an insider, once the coalition government is elected (i.e., $K < [1/(1 + \alpha\tau)]N$), electability requires the insiders' coalition government to be a minority government as well as that the implemented insiders – outsiders society is profitable to insiders and unprofitable for outsiders.

# 5. Extensions

## 5.1 Risk Aversion

Here, we consider the case where voters' preferences are characterized by risk aversion. In particular, we assume that the representative voter's preferences are characterized by the expected utility, $E_t \sum_{\tau=0}^{\infty} \beta^\tau c_{t+\tau}^\gamma$, where $(1 - \gamma) \in (0,1)$ is the coefficient of relative risk aversion. In this case, the ex post value function for the non - deviating insider and outsider, in the steady state, are given by $V^i(K) = \frac{[w^i(K)]^\gamma}{1-\beta}$ and $V^o(K) = \frac{[w^o(K)]^\gamma}{1-\beta}$, respectively. Similarly, the steady state value function of an insider that deviates in $\kappa$proposals is:

$$V^i(K,\kappa) = \frac{(1-\beta)[w^i(K-\kappa)]^\gamma + \beta\{[1-q(K,\kappa)][w^i(K)]^\gamma + q(K,\kappa)][w^o(K)]^\gamma\}}{(1-\beta)}.$$

It follows, as in Section 3, that the condition for the ex post global stability of the insiders' coalition government becomes:

$$\left(1+\frac{\xi\kappa}{N-\xi K}\right)^{\frac{1-\zeta}{\zeta}} \leq 1 + \frac{\beta(\nu^\gamma-1)q(K,\kappa)}{(1-\beta)\nu^\gamma} \tag{21}$$

Since, $\gamma \in (0,1)$ and $\nu > 1$, $\nu^\gamma < \nu$ . Therefore, the right hand side of (21) is smaller than under risk neutrality (i.e., $\gamma = 1$). Hence, the condition for global stability is now tighter than under risk neutrality. However, the characterization of coalitions that satisfy global stability follows in exactly the same manner as under risk neutrality. Hence, the only consequence is a smaller maximum number of noncompetitive industries for all insiders' coalition government that are globally stable in the steady state.[18] For that matter, Propositions 2 and 3 characterize the ex post stability of insiders' coalition governments in the risk aversion case, as well.

Likewise, in the risk aversion case, the condition for electability of a globally stable insiders' coalition government, with $K$noncompetitive industries is given by:

$$\frac{K\ \ H^i}{K\ \ H^i+(N-K\ \ )H^o}\left[w^i\ (K)\right]^\gamma + \frac{(N-K\ \ )H^o}{K\ \ H^i+(N-K\ \ )H^o}\left[w^o\ (K)\right]^\gamma \geq \rho(w^*)^\gamma \tag{22}$$

Clearly, the latter condition, in view of the wage structure equations (i.e., (11)-(13)), is equivalent to:

$$1 + \frac{(\nu^\gamma-1)\tau}{\left(\frac{N}{K}\right)-(1-\tau)} \geq \rho\left[\frac{\left(\frac{N}{K}\right)}{\left(\frac{N}{K}\right)-\xi}\right]^{\gamma\frac{1-\zeta}{\zeta}} \tag{22a}$$

Proceeding as in the proofs of Proposition 4 and 5, it is straightforward to establish the existence of electable globally stable in the steady state insiders' coalition governments. However, for reasons already explained, we will investigate the effect of risk aversion on the stability and electability of globally stable insiders' coalition governments in the next section, using numerical analysis.

[18] Following the proof of Proposition 2, it is straightforward to show that this number is the largest integer smaller than $\frac{1+\left(\frac{\mu}{\xi}\right)N}{1+\mu}$, where $\mu = \left[1+\frac{\beta(\nu^\gamma-1)}{(1-\beta)\nu^\gamma}\right]^{\frac{\varsigma}{1-\varsigma}} - 1$, which is smaller than the corresponding bound of the risk neutral case $\left[1+\frac{\beta(\nu-1)}{(1-\beta)\nu}\right]^{\frac{\varsigma}{1-\varsigma}} - 1$.

## 5.2 Insiders' Dividends

As already mentioned, in equilibrium, profits in all insiders' industries are given by: $(1-\varsigma)K_t p_t^i Y_t^i$ . Suppose, now, that a fraction, $\sigma \in (0,1)$, of these profits is distributed to all insiders as dividends. Since, in equilibrium, $p_t^i = \frac{w_t^i}{\zeta B_t}$ and $Y_t^i = B_t H_t^i$, insiders' total income (i.e., wages and dividends) is given by $\mu w_t^i K_t H_t^i$, where $\mu \equiv \left[1+\sigma\left(\frac{1-\zeta}{\zeta}\right)\right]$Clearly, the condition for electability, in the steady state, becomes:

$$\mu \frac{KH^i}{KH^i+(N-K)H^o} w^i(K) + \frac{(N-K)H^o}{KH^i+(N-K)H^o} w^0(K) \geq \rho w^*. \tag{23}$$

In essence, dividends' distribution increases the benefit of being an insider and loosens the electability constraint. Moreover, as in subsection 4.1, note that (23) is equivalent to

$$1+\frac{(\mu\nu-1)\tau}{\left(\frac{N}{K}\right)-(1-\tau)} \geq \rho\left[\frac{\left(\frac{N}{K}\right)}{\left(\frac{N}{K}\right)-\xi}\right]^{\frac{1-\zeta}{\zeta}} \tag{23a}$$

Clearly, the larger the fraction of profits that go to insiders $(\sigma)$, larger is the necessary upper bound of $\rho$that satisfies (25a). Alternatively, given $\rho$, as the fraction of profits becomes larger, larger coalitions become electable, i.e., coalitions that imply the implementation of more inefficient economy outcome.

Again, to avoid repeating ourselves, we will examine the implications of insiders' dividends in the context of a generalized model that includes insiders' dividends.

## 5.3 Endogenous Perceptions Manipulation

In this subsection we endogenize the use of resources to manipulate the perceptions of voters about the common good regime (i.e., the competitive general equilibrium allocation). In particular, we model explicitly the use of resources to manipulate perceptions about the common good regime. As is typical in economic analysis, the hypothesis that resources are needed for the production of a good or service is associated with an economic problem. In this case, insiders must choose how much to spend to manipulate resources, so that the insiders- outsiders society is elected. Consequently this, in turn, introduces the need for the specification of the perceptions manipulation technology, and also introduces the need for the specification of a criterion to decide the "optimal" degree of perceptions manipulation. In what is undoubtedly a first approach to the issues involved, we assume a perceptions manipulation technology that characterizes the degree of perceptions manipulation, $\rho \in [0,1]$, as a function of the amount of resources per capita used to manipulate perceptions and the income per capita in the common good regime. The latter is used as a measure of the difficulty involved in manipulating perceptions. And we take the minimization of the amount of resources per capita used to manipulate perceptions subject to the electability of a globally stable insiders' coalition government as the criterion to decide the optimal degree of perceptions manipulation. As it might have been suspected this results in choosing an electable globally stable insiders' coalition government with a given number of noncompetitive industries.

First, recall that for any given number of noncompetitive industries, $K_t \in \{1, \ldots, N-1\}$, undistributed profits in all insiders' industries are given by $(1-\zeta)K_t p_t^i Y_t^i$. In the previous subsection we assumed that a fraction $\sigma \in (0,1)$ of these profits were distributed to insiders as dividends. Here, we assume that the remainder of these profits are used to manipulate perceptions about the common good regime. That is, $\Gamma_t = (1-\sigma)(1-\zeta)K_t p_t^i Y_t^i$.[19] In particular, we assume that the perceptions manipulation technology is characterized by:

$$\rho = \tilde{\rho}\left[\left(\frac{\Gamma_t}{L}\right),\ w_t^*\right] = \frac{\left(\frac{w_t^*}{\delta}\right)}{\left(\frac{\Gamma_t}{L}\right)+\left(\frac{w_t^*}{\delta}\right)};\ \delta \geq 0 \tag{24}$$

The properties of the $\tilde{\rho}((\frac{\Gamma}{L}), w^*)$ function are the following: (i) $\tilde{\rho}(0, w^*) = 1$; (ii)$\tilde{\rho}((\frac{\Gamma}{L}),0) = 0$; (iii)$\tilde{\rho}(\infty, w^*) = 0$; (iv) $\tilde{\rho}((\frac{\Gamma}{L}), w^*) \in (0,1)$, for all $\left((\frac{\Gamma}{L}), w^*\right) \in (0,\infty) \times (0,\infty)$ ; (v) $\tilde{\rho}_1(\cdot, w^*) < 0$; (vi) $\tilde{\rho}_{11}(\cdot, w^*) > 0$; (vii) $\tilde{\rho}_2((\frac{\Gamma}{L}),\cdot) > 0$. It follows that $\tilde{\rho}(\cdot,\cdot): [0,\infty) \times [0,1] \to [0,1]$ is strictly decreasing and strictly convex in per capita government spending, $\frac{\Gamma}{L}$; and strictly increasing in per capita income of the common good regime, fraction of insiders' income, $w^*$ . The last two assumptions incorporate the hypotheses of diminishing returns to scale in the perceptions manipulation technology and that the greater is opportunity cost of the common good regime, the more difficult it becomes to manipulate perceptions against the common good society, respectively (i.e., reduce $\rho$). Clearly then, parameter $\delta$ characterizes the efficiency of the perceptions manipulation technology.

<u>**Proposition 6:**</u> Suppose that perceptions manipulation technology is given by (24). Then, given $K \in \{1, \ldots, M\}$ and for sufficiently large $N$, the globally stable insiders' coalition government is electable in the steady state if and only if $\hat{\psi}(x) \geq 1$, where: $x \equiv \frac{N}{K} \in \left(\frac{1}{\theta}, \infty\right)$, $\hat{\psi}(x) \equiv \frac{\hat{\varphi}(x)}{\hat{\chi}(x)}$, $\hat{\varphi}(x) \equiv 1 + \frac{(\nu-1)\tau}{x-(1-\tau)}$, $\hat{\chi}(x) \equiv \rho\left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\varsigma}}$ and

$$\rho = \hat{\rho}(x) \equiv \frac{1}{\left(\frac{1}{2}\right)+\sqrt{\left(\frac{1}{2}\right)^2+\frac{\delta(1-\sigma)\left(\frac{1-\zeta}{\zeta}\right)\nu\tau}{x-(1-\nu\tau)}}} \tag{25}$$

**Proof: See Appendix**

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[19] For simplicity, in Sections 2, 3, and 4, these profits were not allocated, other than to reduce the total amount of output devoted to consumption, presumably due to lump sum income taxes. Also, for simplicity here (i.e., Section 5), we assume no taxes.

As might have been expected, now the degree of perceptions manipulation is endogenous and depends on $x$ (i.e.,$\rho = \hat{\rho}(\cdot)\colon \left(\frac{1}{\theta}, \infty\right) \to (0,1)$ ). And, clearly, $\hat{\rho}(\cdot)$ is a strictly increasing function of $x$, or a strictly decreasing function of the number of noncompetitive industries, $K$. For, although an increase in the number of noncompetitive industries lowers profits and wages in each one of the insiders' industries, but it also, ceteris paribus, increases total profits and wages, only the latter effect operates here. The reason this is happening is that (25) also incorporates the electability condition when binding, where, as already mentioned, the expected payoff from the insiders – outsiders regime is equal to the perceived common good regime. This incorporation extends over to the effect of insiders' wages on the amount of resources per capita that are devoted to the manipulation of perceptions about the common good regime. This property, however, as the following illustrates has a powerful implication for electability.

**Remark 3:** In the steady state and for sufficiently large $N$, a globally stable insiders' coalition government that seeks to minimize the amount of resources per capita that are devoted to the manipulation of perceptions about the common good regime subject to been electable, will choose the greatest number of noncompetitive industries that ensures its electability. That is, will choose an economy with $K^{\rho}$noncompetitive industries, where $K^{\rho}$is the largest integer less or equal to $\frac{N}{x^{\rho}}$ and $x^{\rho} = inf\left\{x \in \left(\frac{1}{\theta}, \infty\right) \ni \psi(x) \geq 1\right\}$.

Recall that by assumption (i.e., (24)) $\rho$decreases with the amount of resources per capita that are devoted to the manipulation of perceptions about the common good. Thus, if the insiders' coalition government minimizes these resources, it will choose the largest $\rho$that achieves electability. But, in view of Proposition 6 (i.e., (25)), the largest $\rho$is associated with the largest number of noncompetitive industries that achieves electability.

In terms of the second case of Figure 2 (i.e., Weak manipulation, weak complementarity: $0<\zeta<\rho<1$), the largest number of noncompetitive industries that achieves electability corresponds to point $\hat{x}$ And, in terms of the third case of Figure 2 (i.e., Strong manipulation, weak complementarity: $0<\rho<\zeta<1$), the largest number of noncompetitive industries that achieves electability corresponds to point $\left(\frac{1}{\theta}\right)$. The effects of endogenous perceptions manipulation and a criterion function for choosing among alternative electable globally stable insiders coalition governments will be further illustrated in the next section.

## 5.4 A Synthesis

Suppose, now, that individual voter preferences are characterized by risk aversion, as in Subsection 5.1, insiders' get dividends on top of their wages, as in Subsection 5.3 and voter perceptions are simultaneously manipulated, as in Subsection, 4.1 and inflated, as in Subsection 4.2. It follows, by comparison to the analysis of Sections 3 and 4, that the ex post stability and the ex ante electability of an insiders' coalition government in such a generalized set can be characterized by the following:

**Proposition 7:** For$N$ sufficiently large: (a) global stability in the steady state of an insiders' coalition government with $K \in \{1, ..., N-1\}$noncompetitive industries require$K \leq \left(\frac{1}{\theta^S}\right) N$, where: $\theta^S = min\left\{1, \frac{\eta^S \xi}{\eta^S - 1}\right\}$ and $\eta^S = \left[\frac{(\mu\nu)^\gamma - \beta}{(\mu\nu)^\gamma(1-\beta)}\right]^{\left(\frac{1}{\gamma}\right)\left(\frac{\varsigma}{1-\varsigma}\right)}$. (b) The electability in the steady state of a globally stable insiders' coalition government with $K \in \{1, ..., N-1\}$ noncompetitive industries, requires $K \leq \left(\frac{1}{\underline{x}^S}\right) N$, where: $\underline{x}^S = max \ \left\{\frac{1}{\theta^S}, 1 + \alpha\tau\right\}$and is characterized by $\psi^S(x) \geq 1$, where: $x = \frac{N}{K} \in (\underline{x}^S, \infty)$, $\psi^S(x) \equiv \frac{\varphi^S(x)}{\chi^S(x)}$, $\varphi^S(x) \equiv 1 + \frac{[(\mu\nu)^\gamma - 1]\tau}{x - (1-\tau)}$ and $\chi^S(x) \equiv \rho \left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\varsigma}}$

The conditions for the global stability and electability, in this general case are quite complicated. For that matter, we have opted to present the underlying results using numerical analysis. Figure 6 composes of three diagrams. In all cases we measure on the horizontal axis $x = \frac{N}{K}$ and on the vertical axis the values of $\psi^S(x)$, and in all diagrams we plot the graph of $\psi^S(x)$ as well as the graph of the global stability lower bound on $x$, $\underline{x}^S$. In each diagram we plot four graphs of $\psi^S(x)$. The blue line in all diagrams corresponds to the Base Case scenario. The parameters in the Base Case scenario are those in the table, below. Clearly, in the Base Case Scenario there are no factors that could have led to electability (i.e., manipulated perceptions, self-serving bias, and insiders' dividends). The purple line in all diagrams

| Base Case Scenario | | |
|---|---|---|
| Parameter | Value | Assumption |
| $\beta$ | 0.88 | 4-year period discount factor |
| $\zeta$ | 0.80 | relatively weak complementarity |
| $\lambda$ | 1.50 | relative bargaining power of unions' that corresponds to a 60% premium in insiders' wages vs outsiders' wages |
| $\rho$ | 1.00 | no perceptions manipulation |
| $\gamma$ | 1.00 | no risk aversion |
| $\alpha$ | 0.00 | no self-serving bias (inflated perceptions) |
| $\sigma$ | 0.00 | no insiders' dividends |

corresponds to a situation where two parameters have different values vs the Base Case scenario. And, the red and yellow lines correspond to a situation where only one parameter is different vs the Base Case scenario. The titles of the legend in the diagrams indicate the underlying parameter changes.

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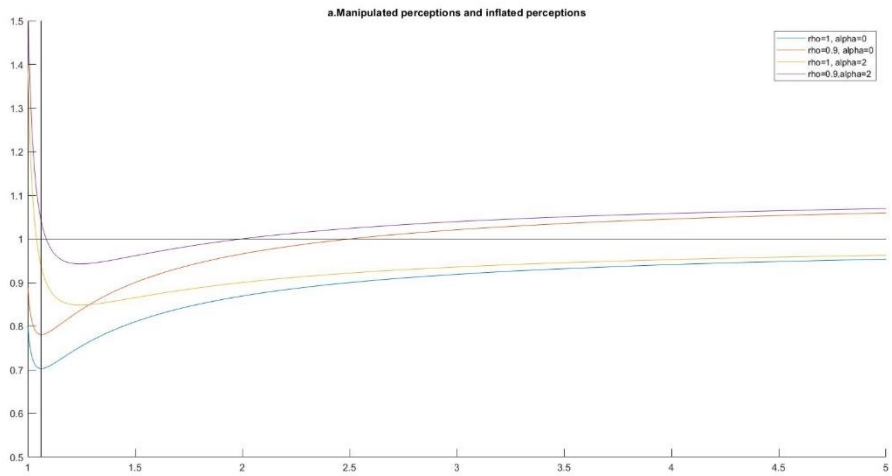
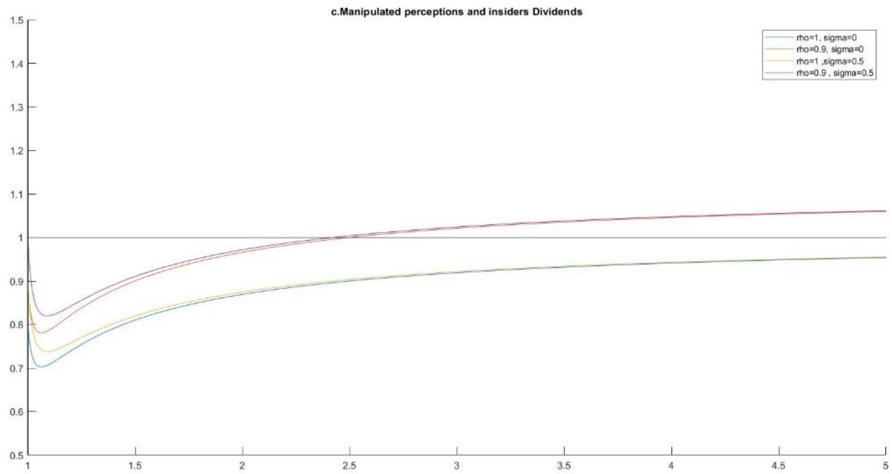
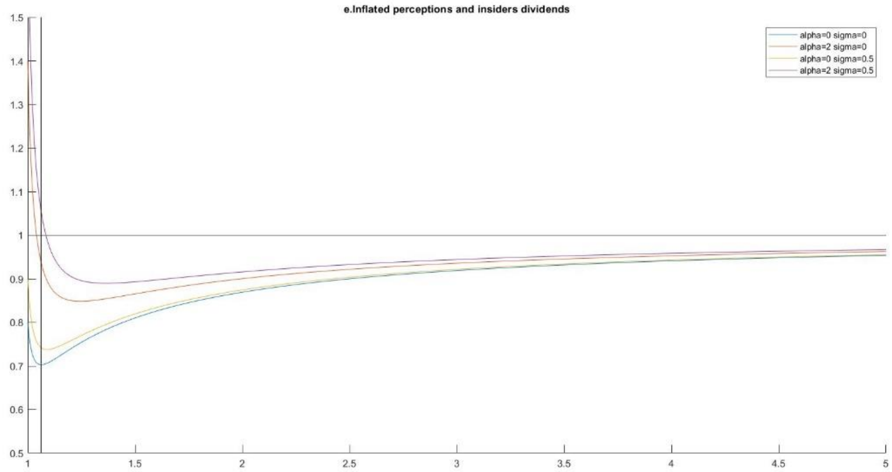
*Figure 6: An illustration of Proposition 7*






In the first diagram (manipulated perceptions and inflated perceptions), when $\rho$ takes the value 0.9 but $\alpha$ remains at 0 (i.e., red line), we have electability of the type described in Case (c) of Proposition 4 and illustrated in the second diagram of Figure 2 (i.e., "weak manipulation-weak complementarity: $0 < \zeta < \rho < 1$). In this case, electability imposes a lower bound on $x$ and therefore an upper bound on $K$, for the reasons explained in Section 4.1. When, $\alpha$ takes the value 2.0 but $\rho$ remains at 0 (i.e., yellow line), inflated perceptions are not sufficient to yield electability as in Case (b) of Proposition 5 and illustrated in the first diagram of Figure 5 (i.e., $\alpha > 0$ & $\hat{\psi}(\underset{\sim}{x}) \leq 1$). However, when we combine manipulated perceptions and self serving bias ( $\rho = 0.9$ , $\alpha = 2.0$), as the purple line indicates, $\psi^S(x)$ shifts up sufficiently, that now there are electable globally stable insiders' coalition governments for both relatively low and relatively high numbers of noncompetitive industries, $K$ . That is, we know have both an lower bound for electability that is even lower than the upper bound for global stability as in Case (c) of Proposition 5 and illustrated in the second diagram of Figure 5 (i.e., $\alpha >$ $0$ & $\hat{\psi}(\underset{\sim}{x}) > 1$), as well as a lower bound on the number of noncompetitive industries, similar to the blue line case. This mixture result is typical for the combination of inflated perceptions and manipulated perceptions has the effect of shifting up the graph of $\hat{\psi}(x)$ , especially for low values of $x$ or high values of $K$. As already explained, the reason is that inflated perceptions amplifies the effect on the expected wage rate of the insiders-outsiders regime the higher is the number on noncompetitive industries $K$ .

The cross effects of: (i) insiders' dividends and manipulated perceptions (i.e., second diagram) and (ii) insiders' dividends and inflated perceptions (i.e., third diagram) are not particularly strong, although they both reinforce the electability of globally stable insiders' coalition governments, as expected.

## 6. Conclusion

In many cases throughout the modern history of democratic societies, economists, political scientists, and other social scientists have wondered: How is it possible for a government that serves the interests of relatively few individuals in society against the interests of the rest of society is ever elected and re-elected? There have been many answers to such questions in the political economy and the political science literatures, i.e., why competition among alternative modes of government does not give rise to the institution of an efficient governance structure, according to the Coasian – Williamsonian analysis of the evolution of governance structures[20].

In this paper, we use general equilibrium theory to model the corporatist society as an economy consisting of insiders and outsiders. Outsiders work in industries that make up the competitive sector. That is, a sector comprised industries with perfectly competitive product and labor markets. Insiders populate a cluster of industries, which operate as unionized monopolies. Insiders have higher wages than outsiders, and insiders' industries have profits while outsiders' industries do not. The number of industries in the insiders' sector is decided by government regulation fiat. Voters can choose between the insiders-outsiders society and a perceived good regime, where all individuals work in competitive industries and get the same wage rate. Individuals have a perception for this wage rate. This perceived wage rate is a fraction of the competitive wage rate and this fraction declines with resources that insiders use to affect the underlying perceptions. The logic is that an elected insiders-outsiders society coalition government will spend resources (i.e., monopoly rents) to manipulate voters' ideology, i.e., their perceptions about the common good regime. However, as the underlying dead-weight loss is increasing in the number of insiders' industries in the economy, the representative in government of any group of insiders has an incentive to limit the implied inefficiency, by voting for a proposal that limits the size of the governing coalition by any given number of industries. This opportunistic incentive places a constraint on the size of a stable coalition government, i.e., a government that does not fall from within.

We showed that given reasonable restrictions on: (i) the production technology and the union-firm bargaining arrangement for a well-defined market equilibrium in the insiders-outsiders

[20] For example, see Acemoglu (2003, 2008), Acemoglu and Robinson (2008), Acemoglu, Ticchi and Vindigni (2011) and Mukand and Rodrik (2020).

society and  (ii) on the probability of being detected and expelled from the insiders' coalition government once the representative of an insiders' industry votes for limiting the size of the coalition by any number of industries, there exists an upper bound on the size of stable insiders' coalition governments, i.e., that all coalitions with size smaller than this are also stable. The rationale for this result being that if it is not profitable to vote for limiting the size of the coalition for a coalition of a given size, it will not be profitable to do so in all coalitions of a smaller size. This is due to the fact that the benefits from turning a non-competitive industry into a competitive one are smaller, the smaller the size of the insiders' coalition. Two interesting implications of our global stability result are that for sufficiently low discount factors,  an insiders' coalition government that is globally stable in the steady state is: (i)  a minority government and (ii) runs an insiders – outsiders society that is profitable for insiders and unprofitable for outsiders. This emanates from the fact that, a relatively small discount rate implies that the incentive to defect becomes relatively strong and the government safeguards against such threat by forming a smaller insiders' coalition. This smaller size of the insiders' coalition contains the magnitude of the implied inefficiency and the subsequent benefit form defecting.

Then, we address the question of the electability of the stable insiders' coalition governments over the perceived good regime. Electability depends on the expected wage rate of the ex ante identical voter been higher than that in the perceived common good regime.  In a manifestation of the First Fundamental Theorem of Welfare Economics, if the perceptions' manipulation is completely ineffective, the stable insiders' coalition government is never elected, i.e., we get the Coasian-Williamsonian benchmark.  To the degree that perceptions' manipulation is sufficiently effective, there always exist electable stable insiders' coalition governments. In this case, there are several possibilities for the number of insiders industries depending on two factors. First, the degree of manipulation, relative to the degree of inefficiency associated with the noncompetitive industries around the upper bound required for stability. That is, when the deadweight loss to society is at its maximum level. Second, note that the probability of ending up as an insider if the insiders-outsiders society is elected decreases at constant rate, while the deadweight loss to society decreases at an increasing rate, as the number of insiders industries decreases. The interaction of these two effects implies that starting from the maximum level permissible for stability, and reducing the number of noncompetitive industries, the expected wage rate of the insiders-outsiders society first decreases and then increases. Consequently, when the perceptions' manipulation technology is weak relative to the deadweight loss at the maximum permissible number of insiders industries so that the expected wage rate of the insiders-outsiders society is lower than the perceived common good regime for the maximum permissible number of industries, there will eventually be a stable insiders' coalition governments with fewer noncompetitive industries, where the opposite is true. This defines un upper bound on the number of noncompetitive industries that correspond to electable stable insiders' coalition governments. However, when the perceptions' manipulation technology is strong relative to the deadweight loss at the maximum permissible number of insiders industries there are two possibilities. Either all stable insiders' coalition governments are electable or there is a possibility of both an upper bound and a lower bound on the size of the stable insiders' coalition government. This is simply because in this case, the expected wage rate of the insiders-outsiders society is higher than the perceived common good regime at the maximum permissible number of industries and as the number of insiders industries decreases it first decreases and then increases. Consequently, the lower bound occurs as long as there is a sufficiently big drop in the expected wage rate. This, of course, depends on the particular values of the model's parameters.

We also considered the electability of stable insiders' coalition governments over the common good regime (i.e., the competitive general equilibrium), when voters perceptions about themselves are inflated, in the sense that they think of themselves as being better than others, in a way similar to Passarelli and Tabellini (2017). We model this as a voter self-serving bias that results in a higher subjective probability to end up as an insider, once the insiders – outsiders society is elected, than rationality would have implied. We found that electability of stable insiders' coalition governments is possible, but now requires only an upper bound on the number of noncompetitive industries. This is because inflated perceptions create an amplification effect on the insiders' expected wage rate as the latter increases more than in direct proportion with the fraction of insiders in the labor force. And this effect dominates the inefficiency effect of noncompetitive industries in the manipulated perceptions case.

We extended the above stability and electability results in a number of ways, by introducing a number of extensions of the basic model. First, we introduced risk aversion in voters' preferences. Second, we introduced insiders' dividends, motivated by a variety of non-wage benefits that have been enjoyed by workers in protected industries in the real world. Third, we introduced an (endogenous) perceptions manipulation technology that depends on the resources devoted to perceptions manipulation and the income per capita of the common good regime, as a measure of the difficulty involved in manipulating perceptions. income distribution between insiders and outsiders. As it turns out, the perceived good regime is characterized by a constant wage discount factor, such as the one we assumed to establish the electability properties of the stable insiders' coalition government, in the manipulated perceptions case. Finally, and more importantly, we incorporated all these extensions simultaneously and used numerical analysis to carry out a sensitivity analysis to investigate the role of these extensions on the stability and electability of insiders' coalition governments. The main implication of these sensitivity exercises is that there are considerable interaction effects that change the stability and electability regions (i.e., the lower and upper bounds on the number of noncompetitive industries discussed above). For example, for the same number of noncompetitive industries: (i) The electability of a stable government with a given degree of manipulated perceptions and no self-serving bias is not possible. (ii) The electability of a stable government with no manipulated perceptions and a given degree of self-serving bias is not possible. But, a stable government with the same degree of manipulated perceptions as in (i) and the same degree of self-serving bias as in (ii) is electable.

It is certainly interesting and no doubt quite challenging to extend this line of research to incorporate perceptions manipulation technology in a dynamic set up. In the steady state there should be no significant differences from the work presented in this paper. However, this extension may have important implications for accumulation effects, that may illustrate how easy or difficult it is to change perceptions for the perceived common good. Also, although we showed that our results can be easily extended to heterogeneous voters (e.g., the singled peaked voter distribution of Footnote 20), it would be interesting to consider cases in which ex ante voter heterogeneity helps or hinders perceived or inflated perceptions. Finally, given the plethora of different kinds of stable and electable insiders' coalition governments shown to exist at our level of abstraction, our work points to the need for applied work on preference manipulation technologies.

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## APPENDIX

**Proposition 1**: Given $[\boldsymbol{R}.\mathbf{1}]$, the equilibrium wage structure of insiders and outsiders is such that:

(a) $w^o(K_t) < w^o(K_t - 1); \forall K_t \in \{2,\dots,N\}$

$$w^i(K_t) < w^i(K_t - 1); \forall K_t \in \{2,\dots,N\}$$

(b) $w^o(K_t) < w^*; \forall K_t \in \{1,2,\dots,N\}$

(c) Let $K^* = \vartheta N$, where $\vartheta = \frac{1-\left(\frac{1}{\nu}\right)^{\frac{\zeta}{1-\zeta}}}{\xi} \in (0,1)$. Then, $w^i(K_t)\begin{cases} > w^*, K_t < K^* \\ = w^*, K_t = K^* \\ < w^*, K_t > K^* \end{cases}$

**Proof of Proposition1**: Recall that given $[\boldsymbol{R}.1]$, $\nu = \frac{\zeta}{\zeta(1+\lambda)-\lambda} > 1$ and $\xi = 1 - \left(\frac{\zeta}{\nu}\right)^{\frac{\zeta}{1-\zeta}} \in (0,1)$. Then:

(a) The inequalities involving the wage rate of outsiders, $w^o(K_t)$, and the inequalities involving the wage rate of insiders, $w^i(K_t)$, follow from (12) and (13), respectively.

(b) The inequality involving the wage rate in the common good regime, $w^*$, and the wage rate of outsiders in the insiders-outsiders society, $w^o(K_t)$, follows from (11) and (12).

(c) From (11)-(13), $w^i(K_t)$ greater, equal, or less than $w^*$, $\forall K_t \in \{1,2,\dots,N\}$, as $\nu(N - \xi K_t)^{\frac{(1-\zeta)}{\zeta}}$ greater, equal, or less than $N^{\frac{(1-\zeta)}{\zeta}}$. Then, in view of the definition of $\xi$, it follows that $w^i(K_t)$ greater, equal, or less than $w^*$ as $K_t$ less, equal, or greater than $K^* = \vartheta N$, where $\vartheta = \frac{1-\left(\frac{1}{\nu}\right)^{\frac{\zeta}{1-\zeta}}}{\xi}$. Finally, it follows from $[\boldsymbol{R}.1]$ that $\vartheta \in (0,1)$. QED

**Proposition 2**: Given $K \in \{1,\dots,N-1\}$ and $\kappa \in \{0,\dots,K-1\}$, an insiders' coalition government is locally stable in the steady state for deviations that reduce the number of non-competitive industries by $\kappa$ if and only if:

$$\left(1 + \frac{\xi\kappa}{N-\xi K}\right)^{\frac{1-\zeta}{\zeta}} \leq 1 + \frac{\beta(\nu-1)}{(1-\beta)\nu} q(K,\kappa) \qquad (17)$$

**Proof of Proposition 2**: By definition, given $K \in \{1,\dots,N-1\}$ and $\kappa \in \{0,\dots,K-1\}$, an insiders' coalition government is locally stable in the steady state for deviations that reduce the number of non-competitive industries by $\kappa$ if and only if, $\tilde{V}(K) \geq \tilde{V}(K,\kappa)$. where:

$\tilde{V}(K) = \frac{w^i(K)}{1-\beta}$ and $V^i(K,\kappa) = \frac{(1-\beta)w^i(K-\kappa)+\beta\{[1-q(K,\kappa)]w^i(K)+q(K,\kappa)w^o(K)\}}{(1-\beta)}$.

Therefore, the insiders' coalition government is locally stable in the steady state for deviations that reduce the number of non-competitive industries by $\kappa$ if and only if:

$$w^i(K) \geq (1-\beta)w^i\ (K-\kappa) + \beta\{[1-q(K,\kappa)]w^i\ (K) + q(K,\kappa)w^o\ (K)\} \qquad \text{(A.1)}$$

But, by dividing through by $w^0(K)$ and using wage structure equations (12) and (13), the latter condition holds if and only if (17) holds. QED

**Lemma 1: (a)** Any globally stable insiders' coalition government with $K \in \{1,...,N-1\}$noncompetitive industries satisfies (17) for $\kappa = K-1$. **(b)** There exists a number $M \in \{1,...,N-1\}$such that if there is a globally stable insiders' coalition government with $K$noncompetitive industries, $K \leq M$. **(c)** Any globally stable insiders' coalition government with $K \in \{1,...,N-1\}$noncompetitive industries satisfies (17) for $\kappa = K-1$. **(c)** For sufficiently large $N$, $M \leq \theta N$, where $\theta \equiv min\left\{1, \frac{\eta-1}{\xi\eta}\right\}$, and $\eta \equiv \left[\frac{\nu-\beta}{\nu(1-\beta)}\right]^{\frac{\zeta}{1-\zeta}} > 1$.

**(d)** Let: $\breve{\beta} \equiv \frac{\nu}{1+\nu} < \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}} \equiv \hat{\beta} \in (0,1)$, then $\beta \begin{cases} \in \left(0,\ \breve{\beta}\right), & if\ 1 > \vartheta > \theta \\ = \breve{\beta}, & if\ 1 > \vartheta = \theta \\ \in \left(\ \breve{\beta}, \hat{\beta}\right), & if\ 1 > \theta > \vartheta \\ \in\ \left(\hat{\beta}, 1\right), & if\ 1 = \theta > \vartheta \end{cases}$.

**Proof of Lemma 1:**

**Part (a):** By definition, an insiders' coalition government with $K \in \{1,...,N-1\}$noncompetitive industries is globally stable in the steady if and only if it is locally asymptotically stable in the steady state for all possible deviations, that reduce the number of noncompetitive industries by $\kappa \in \{0,...,K-1\}$. Also, from Proposition 2, an insiders' coalition government with $K$noncompetitive industries is locally stable in the steady for a deviation that reduces the number of noncompetitive industries by $\kappa$if and only if (17) holds. Therefore, an insiders' coalition government with $K$noncompetitive industries is globally asymptotically stable in the steady if and only if (17) holds for all $\kappa \in \{1,...,K-1\}$. Hence, if there exists an insiders' coalition government with $K \in \{1,...,N-1\}$non-competitive industries that is globally stable in the steady state, (17) must be, in particular, satisfied for $\kappa = K-1$.

**Part (b):** Inequality (17) for $\kappa = K-1$yields:

$$\left[1 + \frac{\xi(K-1)}{N-\xi K}\right]^{\frac{1-\zeta}{\zeta}} \leq 1 + \frac{\beta(\nu-1)q(K,K-1)}{\nu(1-\beta)} \qquad \text{(A.2)}$$

However, since $q(K,K-1) = 1$, (A.2) reduces to $1 + \frac{\xi(K-1)}{N-\xi K} \leq \left[1 + \frac{\beta(\nu-1)}{\nu(1-\beta)}\right]^{\frac{\zeta}{1-\zeta}}$, or

$\frac{\xi(K-1)}{N-\xi K} \leq \left[1+\frac{\beta(\nu-1)}{\nu(1-\beta)}\right]^{\frac{\zeta}{1-\zeta}} - 1 = \left(\frac{1-\frac{\beta}{\nu}}{1-\beta}\right)^{\frac{\zeta}{1-\zeta}} - 1 = \eta - 1 > 0$. Therefore, if there is a globally stable insiders' coalition government with $K$noncompetitive industries, we must have:

$$K \leq \frac{1}{\eta} + \frac{\eta-1}{\xi\eta} N \qquad \text{(A.3)}$$

Now, let: $M = min\{N-1, \quad greatest\ integer\ less\ than\ \bar{K}\}$ . Clearly, $\frac{1}{\eta} + \frac{\eta-1}{\xi\eta} N > 1$. Therefore, $M \geq 1$. And, by definition $M \in \{1, \dots, N-1\}$.Hence, if there is an insiders' coalition government with $K \in \{1, \dots, N-1\}$noncompetitive industries, there exists a number $M \in \{1, \dots, N-1\}$, such that $K \leq M$ .

**Part (c):** From Part (b), $\frac{M}{N} \leq min\left\{\frac{N-1}{N}, \frac{\frac{1}{\eta}+\frac{\eta-1}{\xi\eta}N}{N}\right\}$ or $\frac{N}{M} \geq max\left\{\frac{1}{1-\frac{1}{N}}, \frac{1}{\frac{1}{\eta N}+\frac{\eta-1}{\xi\eta}}\right\}$ becomes $max\left\{1, \frac{1}{\frac{\eta-1}{\xi\eta}}\right\} as\ N \to \infty$. Hence, for sufficiently large $N$, $\frac{N}{M} > \frac{1}{\theta}$, where $\theta \equiv min\left\{1, \frac{\eta-1}{\xi\eta}\right\}$. Now, recall from Proposotion 1 that, given $[\boldsymbol{R}.1]$, $\frac{1}{\vartheta} = \frac{\xi}{1-\nu^{-\frac{\zeta}{1-\zeta}}} > 1$. Then it is straightforward to show that, given $[\boldsymbol{R}.1]$:

(i) $\frac{\eta-1}{\xi\eta}$ greater, equal, or less than one, if and only if $\beta$, less, equal, or greater than $\hat{\beta} \equiv \frac{\nu-\varsigma}{\nu-\frac{\varsigma}{\nu}} \in (0,1)$, respectively.

(ii) $\frac{1}{\vartheta}$ greater, equal, or less than $\frac{\eta-1}{\xi\eta}$, if and only if $\beta$ greater, equal, or less than $\breve{\beta} \equiv \frac{\nu}{1+\nu} < \hat{\beta}$.

Finally, in view of the definition of $\theta$, combining (i) and (ii), above, it follows that:

$$\beta \begin{cases} \in \left(0,\ \breve{\beta}\right), & if\ 1 > \vartheta > \theta \\ = \breve{\beta}, & if\ 1 > \vartheta = \theta \\ \in \left(\ \breve{\beta}, \hat{\beta}\right), & if\ 1 > \theta > \vartheta \\ \in \ \left(\hat{\beta}, 1\right), & if\ 1 = \theta > \vartheta \end{cases} \qquad \text{QED}$$

<u>**Proposition 3**</u>: Suppose that assumptions $[R.1.\ a]$ and $[R.2]$hold and that $M \leq \theta N$ as in Lemma 1. Then, all insiders' coalition governments with $K \in \{1, \dots, M\}$ noncompetitive industries are globally stable in the steady state.

<u>**Proof of Proposition 3:**</u> By definition, an insiders' coalition government is globally stable in the steady state if and only if, given $K \in \{1, \dots, M\}$, it is locally stable for all possible deviations that reduce the number of noncompetitive industries by $\kappa \in \{0, \dots, K-1\}$. In view of Proposition 2, an insiders' coalition government is globally stable in the steady state if and only if satisfies (17), for all $\kappa \in \{0, \dots, K-1\}$.That is, given $K \in \{1, \dots, M\}$,

$\varphi(K, \kappa) \leq \chi(K, \kappa), \quad \forall \kappa \in \{0, \dots, K-1\}$, where: $\varphi(K, \kappa) \equiv \left(1+\frac{\xi\kappa}{N-\xi K}\right)^{\frac{1-\zeta}{\zeta}}$ and $\chi(K, \kappa) \equiv 1 + \frac{\beta(\nu-1)q(K,\kappa)}{(1-\beta)\nu}$.

Now, consider the real numbers interval $[0, K-1]$ and define $\hat{\varphi}_K(x) \equiv \left(1 + \frac{\xi x}{N-\xi K}\right)^{\frac{1-\zeta}{\zeta}}$, $\hat{\chi}_K(x) \equiv 1 + \frac{\beta(\nu-1)\psi_K(x)}{(1-\beta)\nu}$, where $\psi_K(\cdot)$: $[0, K-1] \rightarrow [0,1]$ is a probability distribution function, which is: strictly increasing, concave, differentiable in$(0, K-1)$, such that $\psi_K(0) = 0$, $\psi_K(K-1) = 1$ and such that $\psi_K(x) = q(K, \kappa)$, for all $\kappa \in \{0, \ldots, K-1\}$ and Finally, note that the concavity restriction on $\psi_K(\cdot)$ implies that $q(K,\cdot)$ satisfies $[\boldsymbol{R}.2]$.

In view of assumptions $\beta$, $\zeta \in (0,1)$, restriction $[\boldsymbol{R}.\boldsymbol{1}.\boldsymbol{a}]$ $\Big($i.e, $\nu = \frac{\zeta}{\zeta(1+\lambda)-\lambda} \in (1, \infty)$ and $\xi = \frac{\nu^{\frac{\zeta}{1-\zeta}} - \zeta^{\frac{\zeta}{1-\zeta}}}{\nu^{\frac{\zeta}{1-\zeta}}} \in (0,1)\Big)$ and the properties of $\psi_K(\cdot)$, it follows that: $\hat{\varphi}_K(\cdot)$, $\hat{\chi}_K(\cdot)$: $[0, K-1] \rightarrow \mathbb{R}_+$ are strictly increasing, differentiable in $(0, K-1)$ and such that $\hat{\varphi}_K(0) = \hat{\chi}_K(0) = 1$. Moreover, since $K \leq M$, it follows from the proof of **Lemma 1** (i.e., (A.2)), that: $\hat{\varphi}_K(K-1) = \left[1 + \frac{\xi(K-1)}{N-\xi K}\right]^{\frac{1-\zeta}{\zeta}} \leq 1 + \frac{\beta(\nu-1)}{\nu(1-\beta)} = \hat{\chi}_K(K-1)$.

Furthermore, it is straightforward that: If $\zeta \in \left(\frac{1}{2}, 1\right)$, $\hat{\varphi}_K(\cdot)$ is strictly concave. If $\zeta = \frac{1}{2}$, $\hat{\varphi}_K(\cdot)$ is linear. If$\zeta \in \left(0, \frac{1}{2}\right)$, $\hat{\varphi}_K(\cdot)$ is strictly convex. Likewise, $\hat{\chi}_K(\cdot)$ is strictly concave, or linear as $\psi_K(\cdot)$ is linear or strictly concave. Also note that the above curvature properties hold throughout the domain of $\hat{\varphi}_K(\cdot)$, $[0, K-1]$.

Finally, since by construction, $\varphi(K, \kappa) = \hat{\varphi}_K(x)$ and $\chi(K, \kappa) = \hat{\chi}_K(x)$, $\forall x = \kappa \in \{0, \ldots, K-1\} \subset [0, K-1]$, it follows that a sufficient condition for a coalition government with $K$noncompetitive industries to be globally stable in the steady state is that $\hat{\varphi}_K(x) \leq \hat{\chi}_K(x)$, $\forall x \in [0, K-1]$.

In view of the preceding results, there are six possible cases:

(i) $\zeta \in \left(0, \frac{1}{2}\right)$and $\psi_K(\cdot)$ is strictly concave,

(ii) $\zeta = \frac{1}{2}$ and $\psi_K(\cdot)$ is strictly concave,

(iii) $\zeta \in \left(\frac{1}{2}, 1\right)$,$\psi_K(\cdot)$ is strictly concave,

(iv) $\zeta \in \left(0, \frac{1}{2}\right)$and $\psi_K(\cdot)$ linear,

(v) $\zeta = \frac{1}{2}$ and $\psi_K(\cdot)$ linear,

(vi) $\zeta \in \left(\frac{1}{2}, 1\right)$, $\psi_K(\cdot)$ linear.

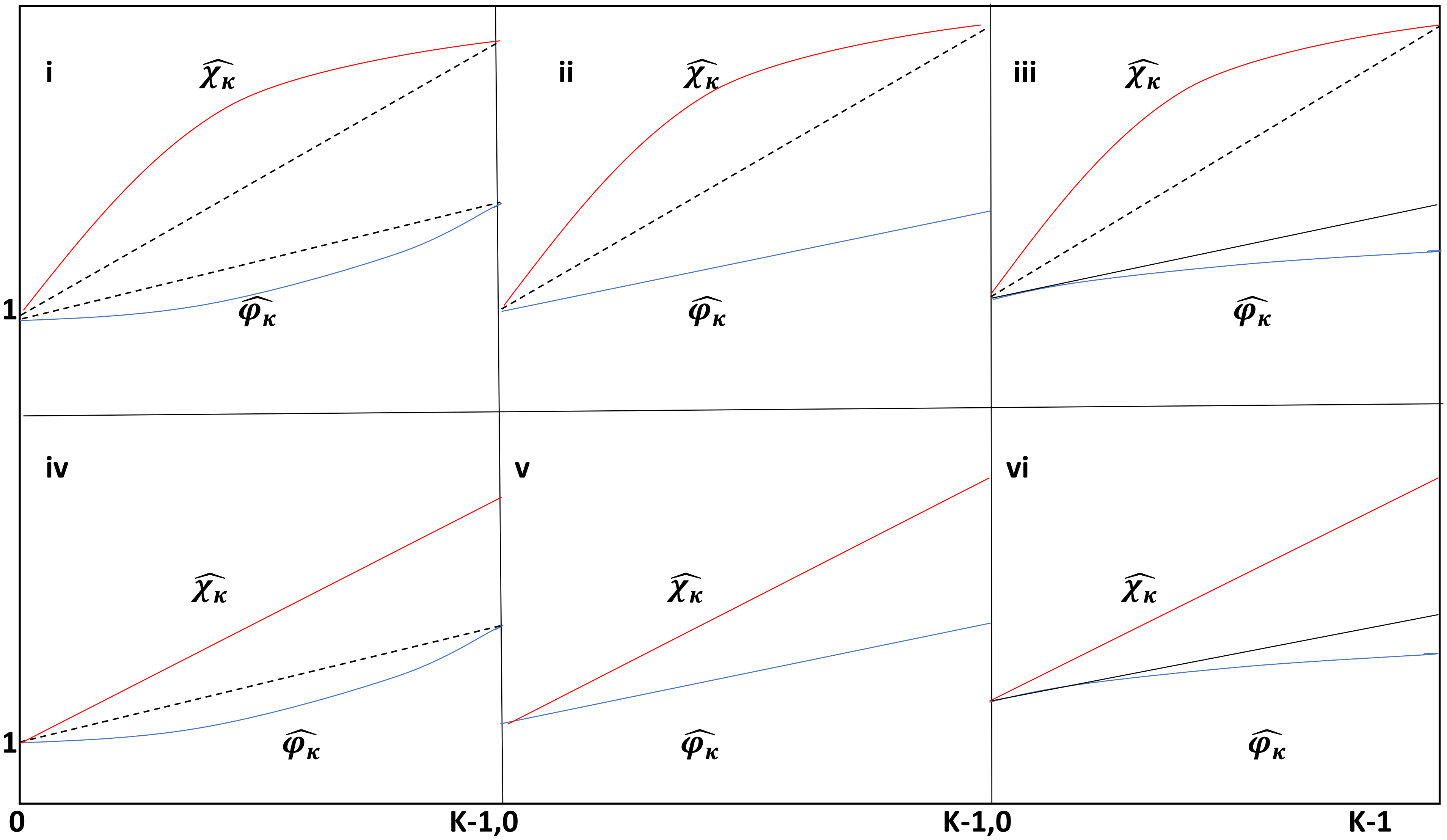
Then, it is straightforward to show that, given in all cases (i) to (vi), $\hat{\varphi}_K(x) \leq \hat{\chi}_K(x)$, $\forall x \in [0, K-1]$. For example, in Case (i) , where $\zeta \in \left(0, \frac{1}{2}\right)$and $\psi_K(\cdot)$ strictly concave, $\hat{\chi}_K(\cdot)$ is strictly concave, while $\hat{\varphi}_K(\cdot)$ is strictly convex. This implies that the graph of $\hat{\varphi}_K(\cdot)$ lies strictly above the chord that joints the end points $\hat{\varphi}_K(0)$ and $\hat{\varphi}_K(K-1)$ in $(0, K-1)$. Likewise, it follows that the graph of $\hat{\chi}_K(\cdot)$ lies strictly below the chord that joints the end points$\hat{\chi}_K(0)$ and $\hat{\chi}_K(K-1)$ in$(0, K-1)$. However, since $\hat{\varphi}_K(0) = \hat{\chi}_K(0) = 1$ and $\hat{\varphi}_K(K-1) \leq \hat{\chi}_K(K-1)$, the chord $\theta\hat{\chi}_K(0) + (1-\theta)\hat{\chi}_K(K-1)$, $\theta \in (0,1)$, lies strictly above the chord

$\theta\hat{\varphi}_K(0) + (1-\theta)\hat{\varphi}_K(K-1),\ \theta \in (0,1)$. Therefore, $\hat{\varphi}_K(x)\ \le \hat{\chi}_K(x),\ \forall x \in [0, K-1]$. The proofs of all other cases, except Case (iii) and Case (vi), are similar to Case (i). In Case (vi), both $\hat{\chi}_K(\cdot)$ and $\hat{\varphi}_K(\cdot)$ are strictly increasing, while$\hat{\chi}_K(\cdot)$ is linear and $\hat{\varphi}_K(\cdot)$ is strictly concave, with $\hat{\varphi}_K(0) = \hat{\chi}_K(0) = 1$ and $\hat{\varphi}_K(K-1)\ \le \hat{\chi}_K(K-1)$. Thus, it follows that $\hat{\chi}_K(\cdot)$ is a straight line with slope: $\frac{\hat{\chi}_K(K-1)-\hat{\chi}_K(0)}{K-1-0} = 1 + \frac{\beta(\nu-1)}{\nu(1-\beta)} - 1 = \frac{\beta(\nu-1)}{\nu(1-\beta)(K-1)}$. And, since $\hat{\varphi}_K(\cdot)$ is strictly concave, the tangent of $\hat{\varphi}_K(\cdot)$ at 0 must lie strictly above the graph of $\hat{\varphi}_K(\cdot)$. Hence, for $\hat{\varphi}_K(x)\ \le \hat{\chi}_K(x),\ \forall x \in [0, K-1]$, it suffices that:

$\frac{\beta(\nu-1)}{\nu(1-\beta)(K-1)} \ge \lim_{x\to 0_+} \hat{\varphi}_K{}'(x) = \lim_{x\to 0_+} \frac{(1-\zeta)\xi}{\zeta(N-\xi K)}\left(1 + \frac{\xi \kappa}{N-\xi K}\right)^{\frac{1-\varsigma}{\varsigma}-1} = \frac{(1-\varsigma)\xi}{\zeta(N-\xi K)}$, or

$\frac{\beta(\nu-1)}{\nu(1-\beta)} \ge \frac{(1-\zeta)\xi(K-1)}{\zeta(N-\xi K)}$. However, note that since $\zeta \in \left(\frac{1}{2}, 1\right)$ implies $\frac{(1-\zeta)}{\zeta} < 1$ , the last inequality is implied by $\frac{\beta(\nu-1)}{\nu(1-\beta)} \ge \frac{\xi(K-1)}{(N-\xi K)}$, or $1 + \frac{\beta(\nu-1)}{\nu(1-\beta)} \ge 1 + \frac{\xi(K-1)}{(N-\xi K)}$. But, also, since$\zeta \in \left(\frac{1}{2}, 1\right)$, the last inequality is implied by $\hat{\varphi}_K(K-1)\ = 1 + \frac{\beta(\nu-1)}{\nu(1-\beta)} \ge \left[1 + \frac{\xi(K-1)}{(N-\xi K)}\right]^{\frac{1-\zeta}{\zeta}} = \hat{\chi}_K(K-1)$, which is indeed valid, since $K \le M$ . The proof of Case (iii) is similar to that of Case (vi). We, therefore, conclude that, given $[\boldsymbol{R}.1]$ and $[\boldsymbol{R}.2]$, all insiders' coalition governments with $K \in \{1, \ldots, M\}$ noncompetitive industries are globally stable in the steady state. QED

*Figure A.1: Illustration of Proposition 3*



i
ii
iii
iv
v
vi
$\widehat{\chi_\kappa}$
$\widehat{\varphi_\kappa}$
1
0
K-1,0
K-1,0
K-1

**Proposition 4**: Suppose that $N$ is sufficiently large and restrictions$[R.1.\ a]$ and

$[R.1.\ b]$ $\qquad \zeta \leq \frac{2\lambda}{1+\lambda}$

hold and that $M \leq \theta N$ as in Lemma 1. Then:

**(a)** If $\rho = 1,$ the globally stable insiders' coalition government is not electable in the steady state for any $K \in \{1, \ldots, M\}$.

**(b)** If $\rho = 0$, the globally stable insiders' coalition government is electable in the steady state for all $K \in \{1, \ldots, M\}$.

**(c)** If $\rho \in (0,1)$ and such that $\hat{\psi}\left(\frac{1}{\theta}\right) \leq 1,$ which can happen if and only if$\zeta \leq \rho$ when$\frac{1}{\theta} = 1$ $(1 + \frac{\nu\tau(\eta-1)}{1-\tau^{\varsigma}\eta-\tau(\eta-1)} \frac{\nu(1-\beta)}{(\nu-\beta)} \leq \rho$ when $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1)$, there exists an integer $\hat{K}$, such that $1 < \hat{K} < M$, where the globally stable insiders' coalition government is electable in the steady state only for $K \in \{1, \ldots, \hat{K}\}$noncompetitive industries.

**(d)** If $\rho \in (0,1)$ and such that $\hat{\psi}\left(\frac{1}{\theta}\right) > 1,$ which can happen if and only if$\zeta > \rho$, if $\frac{1}{\theta} = 1$ $(\frac{1-\tau^{\varsigma}\eta-\nu\tau(\eta-1)}{1-\tau^{\varsigma}\eta-\tau(\eta-1)} \frac{\nu(1-\beta)}{(\nu-\beta)} > \rho$, if $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1)$, $\min_{x \in \frac{1}{\theta}, \infty)} \hat{\psi}(x)$ is well defined and such that:

**(iii)** If $\min_{x \in \frac{1}{\theta}, \infty)} \hat{\psi}(x) < 1$, there exist two integers $\bar{K}'$and $\bar{K}''$, such that $1 < \bar{K}'' < \bar{K}' < M$, where the globally stable insiders' coalition government is electable in the steady state only for$K \in \{\bar{K}', \ldots, M\} \cup \{1, \ldots, \bar{K}''\}$ noncompetitive industries.

**(iv)** If $\min_{x \in \frac{1}{\theta}, \infty)} \hat{\psi}(x) \geq 1$, the globally stable insiders' coalition government is electable in the steady state for all $K \in \{1, \ldots, M\}$.

**Proof of Proposition 4**:

**Preliminaries**: As already mentioned in Section 4, a globally stable insiders' coalition government with $K \in \{1, \ldots, M\}$noncompetitive industries is electable in the steady state if and only if $\hat{\psi}(x) \geq 1$, where $x = \frac{K}{M}$, $\hat{\psi}(x) = \frac{\hat{\varphi}(x)}{\hat{\chi}(x)}$, $\hat{\varphi}(x) = 1 + \frac{(\nu-1)\tau}{x-(1-\tau)}$ and $\hat{\chi}(x) \equiv \rho\left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\zeta}}$. Note, that $\hat{\varphi}(), \hat{\chi}(),$ *and* $\hat{\psi}()$are well defined functions in the interval $(\xi, \infty)$. However, it follows by definition of $M$that, for sufficiently large $N$,$K \in \{1, \ldots, M\}$ if and only if, $x = \frac{N}{K} \geq \frac{1}{\theta} = max\left\{1, \frac{\xi\eta}{\eta-1}\right\}$, where $\eta = \left(\frac{1-\frac{\beta}{\nu}}{1-\beta}\right)^{\frac{\zeta}{1-\zeta}}$. Thus, we are effectively interested on the behavior of $\hat{\varphi}(\cdot), \hat{\chi}(\cdot),$ $\hat{\psi}(\cdot)$ over the interval $\frac{1}{\theta}, \infty)$.

Now, recall that, given $[R.1.\ a]$, $\zeta \in (0,1)$, $\lambda > 0$, $\nu = \frac{\zeta}{\zeta(1+\lambda)-\lambda} > 1$, $\xi = 1 - \left(\frac{\zeta}{\nu}\right)^{\frac{\zeta}{1-\zeta}} \in (0,1)$, $\tau = \left(\frac{\zeta}{\nu}\right)^{\frac{1}{1-\zeta}} < \left(\frac{\zeta}{\nu}\right)^{\frac{\zeta}{1-\zeta}}$. Then, we can establish the following facts:

(i) $\hat{\varphi}\left(\frac{1}{\theta}\right) = 1 + \frac{(\nu-1)\tau}{\frac{1}{\theta}-(1-\tau)} = \begin{cases} \nu, & if\, \frac{1}{\theta} = 1 \\ 1 + \frac{(\nu-1)\tau(\eta-1)}{1-\tau^{\varsigma}\eta+\tau(\eta-1)} \in (1,\nu), & if\, \frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1 \end{cases}$

(ii) $\hat{\varphi}(N) = 1 + \frac{(\nu-1)\tau}{N-(1-\tau)} \to 1 \quad as \quad N \to \infty$

(iii) $\hat{\chi}\left(\frac{1}{\theta}\right) = \rho\left(\frac{\frac{1}{\theta}}{\frac{1}{\theta}-\xi}\right)^{\frac{1-\zeta}{\zeta}} = \begin{cases} \frac{\rho\nu}{\zeta}, & if\, \frac{1}{\theta} = 1 \\ \frac{\rho(\nu-\beta)}{\nu(1-\beta)} > \frac{\rho\nu}{\zeta}, & if\, \frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1 \end{cases}$

where $\frac{\rho(\nu-\beta)}{\nu(1-\beta)} > \frac{\rho\nu}{\zeta}$ follows from the fact that $\frac{\rho(\nu-\beta)}{\nu(1-\beta)}$ is strictly increasing in $\beta$and as established in Lemma 1, $\frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}$ is a lower bound of $\beta$ for $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1$.

(iv) $\hat{\chi}(N) = \rho\left(\frac{N}{N-\xi}\right) \to \rho \quad as \quad N \to \infty$

Therefore, it follows from facts (i) – (iv), above, that:

(v) $\hat{\psi}\left(\frac{1}{\theta}\right) = \frac{\hat{\varphi}\left(\frac{1}{\theta}\right)}{\hat{\chi}\left(\frac{1}{\theta}\right)} = \begin{cases} \frac{\zeta}{\rho}, & if\, \frac{1}{\theta} = 1 \\ \left\{1 + \frac{(\nu-1)\tau(\eta-1)}{1-\tau^{\varsigma}\eta+\tau(\eta-1)}\right\}\frac{\nu(1-\beta)}{\rho(\nu-\beta)} < \frac{\zeta}{\rho} & if\, \frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1 \end{cases}$

(vi) $\hat{\psi}(N) = \frac{\hat{\varphi}(N)}{\hat{\chi}(N)} \to \frac{1}{\rho} \quad as \quad N \to \infty.$

Further, it is straightforward to show that:

(vii) $\hat{\psi}'(x)\begin{cases} \geq 0 \\ < 0 \end{cases} \Leftrightarrow \frac{\hat{\psi}'(x)}{\hat{\psi}(x)}\begin{cases} \geq 0 \\ < 0 \end{cases} \Leftrightarrow \frac{\hat{\varphi}'(x)}{\varphi(x)} - \frac{\hat{\chi}'(x)}{\chi(x)}\begin{cases} \geq 0 \\ < 0 \end{cases} \Leftrightarrow$

$$\hat{Z}x^2 + \hat{H}x + \hat{\Theta}\begin{cases} \geq 0 \\ < 0 \end{cases} \tag{A.3}$$

where, given $[R.1]$:$\hat{Z} \equiv 1 - \frac{\lambda\nu\tau}{\xi} > 0, H \equiv -\{2 - [(1+\lambda)\nu + 1]\tau\} < 0$, and $\hat{\Theta} \equiv (1-\nu\tau)(1-\tau) > 0$. Moreover, $[R.1]$ implies, $Z + H + \Theta < 0$ . This, in turn, has two important implications. The first implication is that $H^2 - 4Z\Theta > 0$, so that the roots of the equation in (A.3), are two distinct positive real numbers. Let $\underline{x}, \bar{x}$denote these roots and, without loss of generality, assume that $0 < \underline{x} < \bar{x} < \infty$. . Then, it follows that, given$[R.1]$,

$$\hat{\psi}'(x)\begin{cases} > 0, & for\ x \in (0,\underline{x}) \\ = 0, & for\ x = \underline{x} \\ < 0, & for\ x \in (\underline{x},\bar{x}) \\ = 0, & for\ x = \bar{x} \\ > 0, & for\ x \in (\bar{x},\infty) \end{cases} \tag{A.4}$$

However, note that the preceding result is pertinent only as long as $x \in (\xi, \infty)$, where $\hat{\varphi}(\cdot)$, $\hat{\chi}(\cdot)$ and $\hat{\psi}(\cdot)$ are well defined. Moreover, we are interested in the electability of globally stable insiders' coalition government with $K \in \{1, ..., M\}$noncompetitive industries, whereby $\frac{K}{M} = x \leq \frac{1}{\theta}$. Thus, to completely characterize the behavior of $\hat{\psi}(\cdot)$in the interval $\left.\frac{1}{\theta}, \infty\right)$, we need to characterize the behavior of $\hat{\psi}'(\cdot)$in the interval $\left(\frac{1}{\theta},\infty\right)$. To accomplish this, given the result in (vii), and the fact that that $\hat{\psi}'(\cdot)$ is well defined for all $x \in \left(\frac{1}{\theta},\infty\right) \subset (\xi,\infty)$, it suffices to characterize the derivative $\hat{\psi}'(\cdot)$ at $\frac{1}{\theta}$. To show this, note that if $\frac{1}{\theta} = 1$, it follows from (vii) that$\hat{\psi}'(1) = \hat{Z} + \hat{H} + \hat{\Theta} < 0$. Then, it also follows from (vii) that $\frac{1}{\theta} \in (\underline{x},\bar{x})$ or that $0 < \underline{x} < 1 = \frac{1}{\theta} < \bar{x} < \infty$. And, if $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1$, we claim that $\frac{1}{\theta} < \frac{-\hat{H}}{2\hat{Z}}$ . Note that $\frac{-\hat{H}}{2\hat{Z}}$is the value of$x$associated with the vertex of the quadratic polynomial in (A3), and hence, $0 < \underline{x} < 1 < \frac{1}{\theta} = \frac{\xi\eta}{\eta-1} < \frac{-\hat{H}}{2\hat{Z}} < \bar{x} < \infty$. Consequently, it follows from (vii) that $\hat{\psi}'\left(\frac{\xi\eta}{\eta-1}\right) < 0$. Thus, if the claim is true, we have established the following:

(viii) $$\hat{\psi}'(x)\begin{cases} < 0, & for\ x \in \left(\frac{1}{\theta},\bar{x}\right) \\ = 0, & for\ x = \bar{x} \\ > 0, & for\ x \in (\bar{x},\infty) \end{cases}$$

It remains, therefore, to prove the claim $\frac{1}{\theta} < \frac{-\hat{H}}{2\hat{Z}}$. First, note that, $\frac{\xi\eta}{\eta-1} < \frac{-\hat{H}}{2\hat{Z}} \Leftrightarrow \eta > \frac{-\hat{H}}{-\hat{H}-2\xi\hat{Z}} = \frac{2-[(1+\lambda)\nu+1]\tau}{2(1-\xi)-[(1-\lambda)\nu+1]\tau}$. But, as already mentioned in (iii), $\eta = \left[\frac{(\nu-\beta)}{\nu(1-\beta)}\right]^{\frac{\zeta}{1-\zeta}}$ is strictly increasing in $\beta$and as established in Lemma 1, $\frac{\nu-\varsigma}{\nu-\frac{\varsigma}{\nu}}$ is a lower bound of $\beta$ for $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1$. Therefore, since

$$\left[\frac{\nu-\frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}}{\nu\left(1-\frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}\right)}\right]^{\frac{\zeta}{1-\zeta}} = \left(\frac{\nu}{\zeta}\right)^{\frac{\zeta}{1-\zeta}}, \left(\frac{\nu}{\zeta}\right)^{\frac{\zeta}{1-\zeta}} > \frac{2-[(1+\lambda)\nu+1]\tau}{2(1-\xi)-[(1-\lambda)\nu+1]\tau}$$ implies that the claim is true. Then, it is straightforward, using the fact that, $1-\xi = \left(\frac{\nu}{\zeta}\right)^{-\frac{\zeta}{1-\zeta}}$ and $\left(\frac{\zeta}{\nu}\right) < \left(\frac{\zeta}{\nu}\right)^{\frac{1}{1-\zeta}}$ that $\left(\frac{\nu}{\zeta}\right)^{\frac{\zeta}{1-\zeta}} > \frac{2-[(1+\lambda)\nu+1]\tau}{2(1-\xi)-[(1-\lambda)\nu+1]\tau}$ is always true.

Now, facts (i)-(viii) imply that $\hat{\psi}(x)$is a continuous and strictly decreasing function from $\frac{1}{\theta}$ to $\bar{x}$, that falls from a value $\hat{\psi}\left(\frac{1}{\theta}\right)$ equal to $\frac{\zeta}{\rho}$ if $\frac{1}{\theta} = 1$ or from a value $\hat{\psi}\left(\frac{1}{\theta}\right)$ equal to $\left\{1 + \frac{(\nu-1)\tau(\eta-1)}{1-\tau^{\zeta}\eta+\tau(\eta-1)}\right\}\frac{\nu(1-\beta)}{\rho(\nu-\beta)} \in \left(0,\frac{\zeta}{\rho}\right)$ if $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1$ to the value $\min_{x\in[\frac{1}{\theta},N]} \hat{\psi}(x) = \hat{\psi}(\bar{x}) \in (0,\frac{\zeta}{\rho})$ at $x = \bar{x}$. And, $\hat{\psi}(x)$is a continuous and strictly increasing function from $\bar{x}$to $N$ that rises from the value $\hat{\psi}(\bar{x})$at $x = \bar{x}$ to a value arbitrarily close to $\frac{1}{\rho}$ at $N$. Consequently, we may conclude as follows:

**Part (a)**: If $\rho = 0$, $\hat{\psi}(x) = +\infty$, $\forall x \in [1,N]$. Therefore, the globally stable insiders' coalition government is electable in the steady state for all $x \in [1,N]$ or for all $K \in \{1,\ldots,M\}$.

**Part (b)**: If $\rho = 1$, $\hat{\psi}(x) > 1$, $\forall x \in [1,N]$. Therefore, the globally stable insiders' coalition government is electable in the steady state for all $x \in [1,N]$ or for all $K \in \{1,\ldots,M\}$.

**Part (c)**: If $\rho \in (0,1)$ and such that $\hat{\psi}\left(\frac{1}{\theta}\right) \leq 1$, which can happen if and only if $\zeta \leq \rho$, if $\frac{1}{\theta} = 1$ ($\frac{1-\tau^{\varsigma}\eta+\nu\tau(\eta-1)}{1-\tau^{\varsigma}\eta+\tau(\eta-1)}\frac{\nu(1-\beta)}{(\nu-\beta)} \leq \rho$, if $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1$), $\hat{\psi}(x)$ is strictly decreasing over the interval $\left(\frac{1}{\theta}, \bar{x}\right)$ from a value that is less than 1 to the value $\hat{\psi}(\bar{x}) \in \left(\hat{\psi}\left(\frac{1}{\theta}\right), 1\right)$ at $x = \bar{x}$ and then $\hat{\psi}(x)$ is strictly increasing over the interval $(\bar{x}, \infty)$ from the value $\hat{\psi}(\bar{x})$ at $x = \bar{x}$ to a value arbitrarily close to $\frac{1}{\rho} > 1$ for sufficiently large $N$. It follows by standard arguments (i.e., the properties of monotone continuous functions) that there exists an $\bar{x}' \in (\bar{x}, N) \ni \hat{\psi}(\bar{x}') = 1$ and moreover, $\hat{\psi}(x) > 1, \forall x \in (\bar{x}', N)$. Thus, in this case, the globally stable insiders' coalition government is electable in the steady state for all $x \in [\bar{x}', N]$ or for all $K \in \{1, \ldots, \widehat{K}\}$, where $\widehat{K}$ is the largest integer smaller than or equal to $\frac{N}{\bar{x}'}$.

**Part (d)**: If $\rho \in (0,1)$ and such that $\hat{\psi}\left(\frac{1}{\theta}\right) > 1$, which can happen if and only if $\zeta > \rho$, if $\frac{1}{\theta} = 1$ ($\frac{1-\tau^{\varsigma}\eta+\nu\tau(\eta-1)}{1-\tau^{\varsigma}\eta+\tau(\eta-1)}\frac{\nu(1-\beta)}{(\nu-\beta)} > \rho$, if $\frac{1}{\theta} = \frac{\xi\eta}{\eta-1} > 1$), $\hat{\psi}(x)$ is strictly decreasing over the interval $\left(\frac{1}{\theta}, \bar{x}\right)$ from a value that is greater than 1 to the value $\hat{\psi}(\bar{x}) \in \left(\hat{\psi}\left(\frac{1}{\theta}\right), \infty\right)$ at $x = \bar{x}$ and then $\hat{\psi}(x)$ is strictly increasing over the interval $(\bar{x}, \infty)$ from the value $\hat{\psi}(\bar{x})$ at $x = \bar{x}$ to a value arbitrarily close to $\frac{1}{\rho} > 1$ for sufficiently large $N$. In this case, however, there are two possibilities:

(i) First, if $\hat{\psi}(\bar{x}) = \min_{x \in \frac{1}{\theta}, \infty)} \hat{\psi}(x) < 1$, it follows as in Part (c) that there exist positive real numbers $\bar{x}'$ and $\bar{x}''$ such that $\frac{1}{\theta} < \bar{x}' \leq \bar{x} \leq \bar{x}'' < \infty$. And, moreover, $\hat{\psi}(x) \geq 1, \forall x \in [\frac{1}{\theta}, \bar{x}'] \cup [\bar{x}'', \infty)$. Therefore, in this case, the globally stable insiders' coalition government is electable in the steady state for all $K \in \{\bar{K}', \ldots, M\} \cup \{1, \ldots, \bar{K}''\}$, where $\bar{K}'$ is the smallest integer greater than $\frac{N}{\bar{x}'}$ and $\bar{K}''$ is the largest integer smaller than or equal to $\frac{N}{\bar{x}''}$.

(ii) Second, if $\hat{\psi}(\bar{x}) = \min_{x \in \frac{1}{\theta}, \infty)} \hat{\psi}(x) \geq 1$, it follows that $\hat{\psi}(x) \geq 1$, $\forall x \in [\frac{1}{\theta}, N]$. Therefore, the globally stable insiders' coalition government is electable in the steady state for all $x \in [\frac{1}{\theta}, N]$ or for all $K \in \{1, \ldots, M\}$. QED

**Lemma 2:** For any degree of inflated perceptions $\alpha > 0$, there exists a unique discount factor $\tilde{\beta}(\alpha) \in \left(0, \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}\right) \subset (0,1)$ such that $\underset{\sim}{x} = \begin{cases} 1 + \alpha\tau, & if\ \beta \in \tilde{\beta}(\alpha), 1) \\ \frac{1}{\theta} & , \ if\ \beta \in (0, \tilde{\beta}(\alpha)) \end{cases}$.

**Proof of Lemma 2:** It is an immediate implication of Lemma 1 that if $\beta \in \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}, 1\Big)$, $\theta = 1$ and, therefore, $\underset{\sim}{x} = max\left\{1 + \alpha\tau, \frac{1}{\eta}\right\} = 1 + \alpha\tau$, $\forall \alpha > 0$. Moreover, it also follows from Lemma 1 that if $\beta \in \left(0, \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}\right)$, $\theta < 1$, in which case $1 + \alpha\tau \geq \frac{1}{\theta}$ if and only if:

$$\eta \geq \frac{1+\alpha\tau}{1+\alpha\tau-\xi} \tag{A.5}$$

But, note that $\eta = \left(\frac{1-\frac{\beta}{\nu}}{1-\beta}\right)^{\frac{\zeta}{1-\zeta}}$ is a continuous and strictly increasing function of $\beta$ that takes the values 1 and $\left(\frac{\nu}{\zeta}\right)^{\frac{\zeta}{1-\zeta}}$ for $\beta$ equal to 0 and $\frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}$, respectively. Moreover, the RHS of (A.5) is a strictly decreasing function of $\alpha$, that takes the value $\left(\frac{\nu}{\zeta}\right)^{\frac{\zeta}{1-\zeta}}$ at $\alpha = 0$ and approaches 1 as $\alpha$ approaches infinity. It follows that for any $\alpha > 0$, there exists a $\tilde{\beta}(\alpha) \in \left(0, \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}\right) \ni \underset{\sim}{x} = \begin{cases} 1+\alpha\tau, & if\ \beta \in \tilde{\beta}(\alpha),1) \\ \frac{1}{\eta} & , if\ \beta \in \left(0, \tilde{\beta}(\alpha)\right) \end{cases}$. Combining results, we have established the following:

$$1+\alpha\tau \begin{cases} < \frac{1}{\eta}, \ when\ \beta \in \left(0, \tilde{\beta}(\alpha)\right), & in\ which\ case\ \underset{\sim}{x} = \frac{1}{\eta} > 1 \\ \geq \frac{1}{\eta}, when\ \beta \in \left(\tilde{\beta}(\alpha), \frac{\nu-\zeta}{\nu-\frac{\zeta}{\nu}}\right), & in\ which\ case\ \underset{\sim}{x} = 1+\alpha\tau \end{cases}. \quad \text{QED}$$

<u>**Proposition 5**</u>: Let $\underset{\sim}{\omega} \equiv \frac{[(1+\lambda)\nu+1]\xi-2\lambda\nu(1-\tau)}{2\xi}$ and $\bar{\omega} \equiv min\ \left\{1, \frac{\zeta(1-\tau)}{(1-\zeta)\xi}\right\}$

Then, for $N$ sufficiently large, such that $\frac{N}{\widetilde{M}} \geq \underset{\sim}{x}$ and given restrictions $[\boldsymbol{R.1}]$ and

$[\boldsymbol{R.3}]$ $\qquad \frac{\xi\underset{\sim}{\omega}}{\lambda\nu\tau} \leq 1+\alpha < \frac{\xi\bar{\omega}}{\lambda\nu\tau}$,

the following are true:

- **(a)** If $\alpha = 0$, the globally stable insiders' coalition government is not electable in the steady state for any $K \in \{1, \dots, \widetilde{M}\}$.
- **(b)** If $\alpha > 0$ and such that $\hat{\psi}(\underset{\sim}{x}) \leq 1$, which can happen if and only if $1+\alpha \leq \frac{\beta[1-\tau-(\tau^{\zeta}-\tau)\eta]}{(1-\beta)\nu\tau(\eta-1)}$ when $\underset{\sim}{x} = \frac{\xi\eta}{\eta-1}$ or $1+\alpha \leq \frac{1-\tau-(\tau^{\zeta}-\tau)\nu^{\frac{\zeta}{1-\zeta}}}{\tau(\nu^{\frac{\zeta}{1-\zeta}}-1)}$, when $\underset{\sim}{x} = 1+\alpha\tau$ , the globally stable insiders' coalition government is not electable in the steady state for any $K \in \{1, \dots, \widetilde{M}\}$.
- **(c)** If $\alpha > 0$ and such that $\hat{\psi}(\underset{\sim}{x}) > 1$, which can happen if and only if $1+\alpha > \frac{\beta[1-\tau-(\tau^{\zeta}-\tau)\eta]}{(1-\beta)\nu\tau(\eta-1)}$ when $\underset{\sim}{x} = \frac{\xi\eta}{\eta-1}$ or $1+\alpha > \frac{1-\tau-(\tau^{\zeta}-\tau)\nu^{\frac{\zeta}{1-\zeta}}}{\tau(\nu^{\frac{\zeta}{1-\zeta}}-1)}$, when $\underset{\sim}{x} = 1+\alpha\tau$, there exists an integer $\widetilde{K}$, such that $1 < \widetilde{K} < \widetilde{M}$, where the globally stable insiders' coalition government is electable in the steady state only for $K \in \{\widetilde{K}, \dots, \widetilde{M}\}$ noncompetitive industries.

<u>**Proof of Proposition 5:**</u>

**Preliminaries**: As already mentioned in Subsection 4.2, a globally stable insiders' coalition government with $K \in \{1, \ldots, \widetilde{M}\}$ noncompetitive industries is electable in the steady state if and only if $\tilde{\psi}(x) \geq 1$, where: $x = \frac{N}{K}$, $\tilde{\psi}(x) = \frac{\tilde{\varphi}(x)}{\tilde{\chi}(x)}$, $\tilde{\varphi}(x) = 1 + \frac{(1+\alpha)(\nu-1)\tau}{x-(1-\tau)}$ and $\tilde{\chi}(x) = \left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\zeta}}$. Note, that $\tilde{\varphi}(\cdot)$, $\tilde{\chi}(\cdot)$ and $\tilde{\psi}(\cdot)$ are well defined functions in the interval $(\xi, \infty)$. However, it follows by definition of $\widetilde{M}$that, for sufficiently large $N$,$K \in \{1, \ldots, \widetilde{M}\}$if and only if, $x = \frac{N}{K} \geq \underset{\sim}{x} = max\left\{\frac{1}{\theta},\ 1 + \alpha\tau\right\}$. Thus, we are effectively interested on the behavior of $\tilde{\varphi}(\cdot)$, $\tilde{\chi}(\cdot)$ and $\tilde{\psi}(\cdot)$ over the interval $\underset{\sim}{x}, \infty)$. Recall from Lemma 2 that for any degree of inflated perceptions, $\alpha$, it depends on the discount factor, $\beta$, whether $\underset{\sim}{x}$ is equal to $\frac{1}{\theta}$ or $1 + \alpha\tau$.

Now, it follows as in the proof of Proposition 4, that, given $[\boldsymbol{R}.1]$, the following are true:

(i) $\tilde{\varphi}(\underset{\sim}{x}) = 1 + \frac{(1+\alpha)(\nu-1)\tau}{\underset{\sim}{x}-(1-\tau)} = \begin{cases} 1 + \frac{(1+\alpha)(\nu-1)\tau(\eta-1)}{1-\tau-(\tau^{\zeta}-\tau)\eta}, & if\ \underset{\sim}{x}\ = \frac{\xi\eta}{\eta-1} \\ \nu, & if\ \underset{\sim}{x}\ = 1 + \alpha\tau \end{cases}$

(ii) $\tilde{\varphi}(N) = 1 + \frac{(1+\alpha)(\nu-1)\tau}{N-(1-\tau)} \to 1 \quad as \quad N \to \infty.$

(iii) $\quad \hat{\chi}(\underset{\sim}{x}) == \begin{cases} \frac{(\nu-\beta)}{\nu(1-\beta)}, & if\ \underset{\sim}{x}\ = \frac{\xi\eta}{\eta-1} \\ \left(\frac{1+\alpha\tau}{\tau^{\zeta}+\alpha\tau}\right)^{\frac{1-\zeta}{\zeta}}, & if\ \underset{\sim}{x}\ = 1 + \alpha\tau \end{cases}$

(iv) $\quad \hat{\chi}(N) = \left(\frac{N}{N-\xi}\right)^{\frac{1-\zeta}{\zeta}} \to 1 \quad as \quad N \to \infty.$

Therefore, it follows from facts (i) – (iv), above, that:

(v) $\quad \tilde{\psi}(\underset{\sim}{x}) = \frac{\tilde{\varphi}(\underset{\sim}{x})}{\tilde{\chi}(\underset{\sim}{x})} = \begin{cases} \left\{1 + \frac{(1+\alpha)(\nu-1)\tau(\eta-1)}{1-\tau-(\tau^{\zeta}-\tau)\eta}\right\}\frac{\nu(1-\beta)}{\nu-\beta}, & if\ \underset{\sim}{x}\ = \frac{\xi\eta}{\eta-1} \\ \frac{\nu}{\left(\frac{1+\alpha\tau}{\tau^{\zeta}+\alpha\tau}\right)^{\frac{1-\zeta}{\zeta}}}, & if\ \underset{\sim}{x}\ = 1 + \alpha\tau \end{cases}$

(vi) $\quad \tilde{\psi}(N) = \frac{\tilde{\varphi}(N)}{\tilde{\chi}(N)} \to 1 \quad as \quad N \to \infty.$

Further, it follows as in the proof of Proposition 4 that, given $[\boldsymbol{R}.1]$and $[\boldsymbol{R}.3]$:

(vii) $\tilde{\psi}'(x) \geq \$0 \Leftrightarrow \tilde{Z}x^2 + \widetilde{H}x + \tilde{\Theta} \geq \$0$ (A.6)

where:

$\tilde{Z} \equiv 1 - \frac{(1+\alpha)\lambda\nu\tau}{\xi} > 0, \widetilde{H} \equiv -\{2(1-\tau) - [(1+\alpha)(1+\lambda)\nu - 1]\tau\} < 0,$

$\tilde{\Theta} \equiv (1-\tau)^2\left[1 - \frac{(1+\alpha)(\nu-1)\tau}{1-\tau}\right] > 0$ and $\tilde{Z} + \widetilde{H} + \tilde{\Theta} < 0$

The last inequality has two important implications. The first implication is that $\tilde{H}^2 - 4\tilde{Z}\tilde{\Theta} > 0$, so that the roots of the equation in (A.6), are two distinct positive real numbers. Let $\tilde{x}', \tilde{x}''$denote these roots. Without loss of generality, assume that in this case $0 < \tilde{x}' < \tilde{x}'' < \infty$ . It follows from (A.6), that, given $[\boldsymbol{R}.1]$and$[\boldsymbol{R}.3]$,

$$\tilde{\psi}'(x) \begin{cases} > 0, & for\ x \in (0, \hat{x}) \\ = 0, & for\ x = \hat{x} \\ < 0, & for\ x \in (\hat{x}, \breve{x}) \\ = 0, & for\ x = \breve{x} \\ > 0, & for\ x \in (\breve{x}, \infty) \end{cases}$$

The second implication is that $\tilde{Z}\underset{\sim}{x}^2 + \tilde{H}\underset{\sim}{x} + \tilde{\Theta} = \tilde{Z}(1+\alpha\tau)^2 + \tilde{H}(1+\alpha\tau) + \tilde{\Theta} < 0$. Then, since $\tilde{\psi}'\left(\underset{\sim}{x}\right) = \tilde{\mathrm{Z}}(1+\alpha\tau)^2 + \tilde{\mathrm{H}}(1+\alpha\tau)\tilde{\Theta}$, $\tilde{\psi}'(\underset{\sim}{x}) < 0$. Therefore, we must have:

(viii) $$\tilde{\psi}'(x) \begin{cases} < 0, & for\ x \in \left(\underset{\sim}{x}, \tilde{x}''\right) \\ = 0, & for\ x = \tilde{x}'' \\ > 0, & for\ x \in (\tilde{x}'', \infty) \end{cases}$$

Now, since by assumption, we take $N$ to be sufficiently large, $N > \hat{x}$ and facts (i)-(viii) imply that $\tilde{\psi}(x)$is a continuous and strictly decreasing function from $1 + (\alpha - 1)\tau$ to $\hat{x}$ that falls from the value $\tilde{\psi}(1 + (\alpha - 1)\tau)$ to the value $\min\limits_{x \in [1+(\alpha-1)\tau, N]} \tilde{\psi}(x)$ at $x = \hat{x}$. And, $\hat{\psi}(x)$is a continuous and strictly increasing function from $\hat{x}$to $N$ that rises from the value $\hat{\psi}(\hat{x})$at $x = \bar{x}$to a value arbitrarily close to 1 for sufficiently large $N$. Note, also, that $\min\limits_{x \in [1+(\alpha-1)\tau, N]} \tilde{\psi}(x) = \hat{\psi}(\bar{x}) < 1$, for, otherwise, $\tilde{\psi}(\cdot)$ cannot be a strictly increasing function from $\hat{x}$to 1, for sufficiently large $N$.

In view of facts (i)- (viii), it follows that:

**Part (a)**: The case where $\alpha = 0$ is exactly the same with Part (b) of Proposition 4 (i.e., $\rho = 1$).

**Part (b)**: If $\tilde{\psi}(\cdot)$ is strictly decreasing from a value, $\tilde{\psi}(1 + (\alpha - 1)\tau)$, that is greater than 1 to a value less than 1 at $x = \hat{x}$and then $\hat{\psi}(\cdot)$ is strictly increasing from the value $\tilde{\psi}(\hat{x})$ to a value arbitrarily close to 1, for sufficiently large $N$. It follows, as in the proof of Proposition 4, that there exists an $\tilde{x} \in \left(1+(\alpha-1)\tau, \hat{x}\right) \ni \tilde{\psi}(\tilde{x}) = 1$ and moreover, $\tilde{\psi}\left(x\right) > 1, \forall x \in (1 + (\alpha - 1)\tau, \tilde{x})$. Thus, in this case, the globally stable insiders' coalition government is electable in the steady state for all $x \in [1 + (\alpha - 1)\tau, \tilde{x}]$ or for all $K \in \{\tilde{K}, \ldots, \tilde{M}\}$,where $\tilde{K}$is the smallest integer larger than or equal to $\frac{N}{\tilde{x}}$ and $\tilde{M}$is the largest integer smaller than or equal to $\frac{N}{1+(\alpha-1)\tau}$.

**Part (c)**: If $\alpha \leq 1 + \frac{\left(\frac{1}{\varsigma}\right)^{\left(\frac{1}{1-\varsigma}\right)} - \left(\frac{1}{\varsigma}\right)}{\left(\frac{1}{\nu}\right) - \left(\frac{1}{\nu}\right)^{\left(\frac{1}{1-\varsigma}\right)}}$, $\tilde{\psi}(\cdot)$ is strictly decreasing from a value, $\tilde{\psi}(1 + (\alpha - 1)\tau)$, that is smaller than 1 to a value less than 1 at $x = \hat{x}$and then $\hat{\psi}(\cdot)$ is strictly increasing from the value $\tilde{\psi}(\hat{x})$ to a value arbitrarily close to 1, for sufficiently large $N$. It follows that $\tilde{\psi}\left(x\right) < 1, \forall x \in 1 + (\alpha - 1)\tau, N$. Thus, in this case, the globally stable insiders' coalition government is not electable in the steady state for any $x \in [1 + (\alpha - 1)\tau, N]$ or for all $K \in \{1, \dots, \widetilde{M}\}$. QED

**Part (b)**: If $\alpha > 0$and such that $\hat{\psi}(\underset{\sim}{x}) \leq 1$, which can happen if and only if $\frac{1-\tau^{\zeta}\eta+[\nu+\alpha(\nu-1)]\tau(\eta-1)}{1-\tau^{\zeta}\eta+\tau(\eta-1)} \leq \frac{\nu-\beta}{\nu-\nu\beta}$ when $\underset{\sim}{x} = \frac{\xi\eta}{\eta-1} > 1$ or $\nu^{\frac{\zeta}{1-\zeta}} \leq \frac{1+\alpha\tau}{\tau^{\zeta}+\alpha\tau}$ when $\underset{\sim}{x} = 1 + \alpha\tau$, and $\alpha > 1 + \frac{\left(\frac{1}{\varsigma}\right)^{\left(\frac{1}{1-\varsigma}\right)} - \left(\frac{1}{\varsigma}\right)}{\left(\frac{1}{\nu}\right) - \left(\frac{1}{\nu}\right)^{\left(\frac{1}{1-\varsigma}\right)}}$, $\tilde{\psi}(\cdot)$ is strictly decreasing from a value, $\tilde{\psi}(1 + (\alpha - 1)\tau)$, that is greater than 1 to a value less than 1 at $x = \hat{x}$and then $\hat{\psi}(\cdot)$ is strictly increasing from the value $\tilde{\psi}(\hat{x})$ to a value arbitrarily close to 1, for sufficiently large $N$. It follows as in the proof of Proposition 4 that there exists an $\tilde{x} \in (1+(\alpha-1)\tau, \hat{x}) \ni \tilde{\psi}(\tilde{x}) = 1$ and moreover, $\tilde{\psi}(x) > 1, \forall x \in (1 + (\alpha - 1)\tau, \tilde{x})$. Thus, in this case, the globally stable insiders' coalition government is electable in the steady state for all $x \in [1 + (\alpha - 1)\tau, \tilde{x}]$ or for all $K \in \{\widetilde{K}, \dots, \widetilde{M}\}$,where $\widetilde{K}$ is the smallest integer larger than or equal to $\frac{N}{\tilde{x}}$ and $\widetilde{M}$is the largest integer smaller than or equal to $\frac{N}{1+(\alpha-1)\tau}$. QED

**<u>Proposition 6:</u>** Suppose that perceptions manipulation technology is given by (24). Then, given $K \in \{1, \dots, M\}$ and for sufficiently large $N$, the globally stable insiders' coalition government is electable in the steady state if and only if $\hat{\psi}(x) \geq 1$, where: $x \equiv \frac{N}{K} \in \left(\frac{1}{\theta}, \infty\right)$, $\hat{\psi}(x) \equiv \frac{\hat{\varphi}(x)}{\hat{\chi}(x)}$, $\hat{\varphi}(x) \equiv 1 + \frac{(\nu-1)\tau}{x-(1-\tau)}$, $\hat{\chi}(x) \equiv \rho\left(\frac{x}{x-\xi}\right)^{\frac{1-\zeta}{\varsigma}}$ and

$$\rho = \hat{\rho}(x) \equiv \frac{1}{\left(\frac{1}{2}\right) + \sqrt{\left(\frac{1}{2}\right)^2 + \frac{\delta(1-\sigma)\left(\frac{1-\zeta}{\zeta}\right)\nu\tau}{x-(1-\nu\tau)}}} \tag{25}$$

**<u>Proof of Proposition 6</u>**: First, note that, in view of the general economic equilibrium formulae, (24) implies:

$$\rho = \tilde{\rho}\left[\left(\Gamma/L\right), w^*\right] = \frac{1}{1 + \left(\delta\Gamma / Lw^*\right)} = \frac{1}{1 + \frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]}\left(\frac{w^O}{w^*}\right)} \tag{A.7}$$

Second, in view of (A.7), the electability constraint of Subsection 4.1 can be written as follows:

$$1+\frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]}\left(\frac{w^o}{w^*}\right)\geq\frac{\left(\frac{w^*}{w^o}\right)}{\hat{\varphi}(x)} \tag{A.8}$$

Now, multiplying both hand sides of (A.8) by $\hat{\varphi}(x)\left(\frac{w^*}{w^o}\right)$, re-expresses the electability constraint as follows:

$$\left(\frac{w^*}{w^o}\right)^2-\hat{\varphi}(x)\left(\frac{w^*}{w^o}\right)-\hat{\varphi}(x)\frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]}\leq 0 \tag{A.9}$$

Then, observe that the LHS of (A.9) can be factored as:

$$\left\{\left(\frac{w^*}{w^o}\right)-\hat{\varphi}(x)\left[\left(\frac{1}{2}\right)+\sqrt{\left(\frac{1}{2}\right)^2+\frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]\hat{\varphi}(x)}}\right]\right\}\left\{\left(\frac{w^*}{w^o}\right)-\hat{\varphi}(x)\left[\left(\frac{1}{2}\right)-\sqrt{\left(\frac{1}{2}\right)^2+\frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]\hat{\varphi}(x)}}\right]\right\}$$

But, since $\hat{\varphi}(x)\left[\left(\frac{1}{2}\right)-\sqrt{\left(\frac{1}{2}\right)^2+\frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]\hat{\varphi}(x)}}\right]<0$ for all $x>(1-\tau)$, the second of the above two braces is always positive, so that the electability constraint (A.9) reduces to:

$$\left\{\left(\frac{w^*}{w^o}\right)-\hat{\varphi}(x)\left[\left(\frac{1}{2}\right)+\sqrt{\left(\frac{1}{2}\right)^2+\frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]\hat{\varphi}(x)}}\right]\right\}\leq 0 \tag{A.10}$$

Rearranging terms in (A.10), gives:

$$\hat{\varphi}(x) \geq \frac{1}{\left(\frac{1}{2}\right) + \sqrt{\left(\frac{1}{2}\right)^2 + \frac{\delta(1-\sigma)\left(\frac{1-\varsigma}{\varsigma}\right)\nu\tau}{[x-(1-\tau)]\hat{\varphi}(x)}}} \frac{w^*}{w^o}$$ or

$\hat{\psi}(x) \geq 1$, where: $\hat{\psi}(x) = \dfrac{\hat{\varphi}(x)}{\hat{\chi}(x)}$, $\hat{\varphi}(x) = 1 + \dfrac{(\nu-1)\tau}{x-(1-\tau)} = \dfrac{x-(1-\nu\tau)}{x-(1-\tau)}$,

$\hat{\chi}(x) = \rho \dfrac{w^*}{w^o} = \rho\left(\dfrac{x}{x-\xi}\right)^{\frac{1-\varsigma}{\varsigma}}$ and $\rho = \hat{\rho}(x)$ defined as in (25). Q.E.D.