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PROMISCUOUS ELITES AND ECONOMIC DEVELOPMENT

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Abstract

This paper analyzes the interconnection between elites and its effects on economic growth. For decades, the bureaucratic elite has been joining the business elite after leaving office, and this in growing numbers. This relationship has been termed "the revolving door" in English, "pantouflage" in French, and "amakudari" [descent from heaven] in Japanese.

The purpose of this paper is to explain why this social behavior takes place, and why the political elite does not try to prevent it. Moreover, this paper shows that the bureaucratic elite obtains excessive bureaucratic power, and that promiscuous elites actually lead to lower economic growth.

Keywords: elites, bureaucracy, abuse of power, revolving door, economic growth.
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I. Introduction

Over the last decade, the waltz-like tempo of prominent figures moving from public-sector positions to the business world has become ever brisker.[1] For decades, the bureaucratic elite has entered the business elite after leaving their bureaucratic positions; and this in growing numbers. Indeed, after completing their bureaucratic terms, heads of state agencies are frequently co-opted into the very sector they have regulated.

This relationship has been termed "the revolving door" in English, "pantouflage" in French, and "amakudari" ["descent from heaven"] in Japanese. Indeed, revolving door is not specific to the US, and Europe is not immune to this practice, especially France with its specific school for civil servants, the ENA.[2]

The main problem with the revolving door is that it leads to some conflict of interest, and the former regulator who passes through the revolving door might behave unethically. The purpose of this paper is to explain why this social behavior takes place, and why the political elite does not try to prevent it. Moreover, this paper shows that promiscuous elites lead to lower economic growth, as well as the bureaucratic elite gaining excessive bureaucratic power.

There are numerous forms of conflict of interest linked to the revolving door, and they can be divided into three distinct groups referred to as the *regulatory capture*, the *lobbying capture*, and the *abuse of power*.

Regulatory capture occurs when a regulator will be "captured" by one specific firm, and while strict with the other ones, he will be lenient with this firm in order to be hired by it after leaving office. This behavior takes place as emphasized by Laffont and Tirole, (1996), when: "Monetary bribes are feasible although not common due to their illegality. More pervasive are the hope for future employment for regulators with the regulated firms."

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[1] The list of these people is long, just to name a few: Alan Greenspan, Glenn Hubbard, Robert Zoellick, Dick Cheney, and of course, Larry Summers. More specifically, Alan Greenspan moved from serving as chair of the Federal Reserve to the hedge fund Paulson & Co.; Glenn Hubbard from the US Treasury Department to KKR Financial Corporation; Robert Zoellick from the US State Department to Goldman and Sachs; Dick Cheney from being US Secretary of Defense to private military contractors; and of course, Larry Summers, who pressed for the deregulation of financial markets while serving as Treasury Secretary, then moved to the hedge fund D.E. Shaw, Goldman Sachs and lately to the venture capital firm Andreessen Horowitz. For more cases, see Table 1 and the movie "Inside Job" directed by Charles Ferguson.

[2] The examples are numerous. I cite the case of Jean-Marie Messier, who moved from the French Economy Ministry to the bank Lazard Frères, and then to Vivendi; and Jean-Bernard Levy from the French Telecommunication Ministry to Matra, Vivendi and finally to Activism Blizzard. The significance of this phenomenon is stressed in Charle (1987). This behavior also affects EU institutions, and especially the European Commission.

It should be noted that this form of revolving door is linked to corruption and is unlawful. Moreover, any wrongdoing arises while the worker is employed as a regulator. Regarding regulatory capture, the literature is vast, and I summarize it in the next section.

The second form of revolving door is *lobbying capture*, wherein after leaving office, the bureaucrat is hired by a lobbying firm and will lobby on behalf of companies that are the firm's clients. The bureaucrat influences his former associates to implement or shape policy to benefit his new employer's clients.

While lobbying capture is not illegal, its behaviour incorporates strong elements of conflict of interest. One US senator claimed: "My vote can't be bought, but it can be rented".[3] In Table 2, I present a list of companies using lobbyists, and the number of revolving door lobbyists.

In many Western countries this wrongdoing is legally accepted, perhaps because it occurs at the juncture of post-public employment. While the literature on lobby capture is not broad, a synopsis thereof it can be found in Vidal et al. (2010).

The third form of revolving door is *abuse of power*. This conflict of interest arises when "bureaucrats abuse their power to ingratiate oneself with potential future employer" (*Transparency International, 2011)*. In other words, the bureaucrat's actions and decisions while in office enabling him to cash in later on when joining a firm he has regulated, constitutes abuse of power. His actions can take different forms, but they all incorporate what we term the creation of *bureaucratic capital*.

The most common type of investment in *bureaucratic capital* takes the form of investing in good relationships with the lower bureaucracy, ties which will help him in the future. It also includes the creation of specific knowledge on the ins of the system, as will be explained below. Note that contrarily to *regulatory capture*, *abuse of power* which also occurs during public employment, is not challenged by the legal system, and is "merely" viewed as unethical.

In this paper, I analyze the reasons why this abuse of power is widely in use, and not challenged by the system. To do so, I develop a model that incorporates the market for *bureaucratic capital*, wherein I define the demand, supply and equilibrium thereof. The players in this market are the various elites, whose promiscuity generates bureaucratic capital, which in turn engenders abuse of power.

In most countries, three main groups compose the power elite: the political, the bureaucratic and the business elite.[4] In this model, we define the specific role of each elite, thereby enabling us to emphasize the effect of "abuse of power" on the economy.

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[3] Senator Breaux, who after leaving office, went to work for a lobbying firm and among his clients are found: Citigroup, Goldman Sachs, GE, AT&T, and PhRMA.

[4] In some countries, the religious elite has real power and is therefore part of the power elite.

Starting with the bureaucrats, we stress that they are appointed by the political elite in order to regulate the economy, so as to increase its productivity. Yet, the bureaucrats do not merely enact efficient regulation; they also add rules and regulations, and invest in good relationship with the lower bureaucrats. As the engineer of these rules, regulations and relationships, the regulator has better knowledge of the ins and outs of the system, including any loopholes that might exist. This bureaucratic capital will enable him to cash in later on, after exiting the revolving door, and joining the business firm in the sector he previously regulated. Thusly, the bureaucrat can abuse power and increase his income in a perfectly legal way. [5]

The second player in this framework, who also belongs to the power elite, is the business elite. The business elite finds the knowledge accumulated by the bureaucrat valuable. Thus, once the latter has left the civil service, he will indeed be offered a job, such as joining the board of directors, allowing him to cash in on the *bureaucratic capital* he has accumulated.

The third player is the political elite, which appoints the bureaucrats and care about letting the economy have the highest economic growth possible. The question raised by the existence of a market for *bureaucratic capital* is: Why does the political elite, for which economic growth is a priority, not find a way to prevent the bureaucratic elite from creating *bureaucratic capital*?

This paper shows that the political elite does not act to abolish abuse power and bureaucratic capital. On the contrary, it finds it optimal to let the bureaucratic elite create *bureaucratic capital*, which actually has a negative effect on economic growth.

The intuition behind this result is the following: Bureaucrats are heterogeneous in their abilities, and more able bureaucrats do a better job of regulation. A better head of an agency enables higher productivity of his sector, in turn enabling higher economic growth.

In order to recruit quality bureaucratic elite, governments should pay them well. However, salaries in the public sector are not very high. An easy way to let regulators have high income, so that they will be of high quality, is by legislators' closing their eyes to the fact that the bureaucrats can cash in on the bureaucratic capital they have created while serving as heads of agencies.

Thus, the political elite faces a tradeoff between having high-quality bureaucrats and letting them create bureaucratic capital. The optimal solution is a non-corner one, wherein bureaucratic capital is created. Creation of redundant regulations is accepted by the political elite, because it is pushing economic growth to a higher level.

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[5] Of course, this intertwining can also give place to wrong doing, but in the Western world, the amount of wrong doing and corruption of the bureaucratic elite is not wide. See Besley and McLaren (1993), and Mauro (1995). In many countries, there is a legal period of cooling-off in order to refrain corruption. See Brezis and Weiss (1997).

So the first result of this model is that in order to obtain higher rate of growth, it is necessary to accept the creation of bureaucratic capital. The second result of this paper is that the market equilibrium will not bring the economy to the highest rate of growth, and the level of bureaucratic capital is higher than the optimal one.

The paper is divided in five parts. In Part II, we present the related literature. In part III, we present the model. In Part IV, we present the equilibrium, and Part V concludes.

II. Related literature

The economic literature on the role of elites is not very large and is mainly centered around three topics. The first one is the elite structure, the second is the inter-relation between the elite and society, and the third one is the interconnection within elites, what is coined as intertwining, which is the topic of this paper.

The elite structure examines primarily the nature of the elite's social background, their recruitment and promotion pattern, as well as geographic or ethnic origin. The recruitment analysis investigates the openness of selection and the channels whereby such choice takes place. Some of the sociologists also explore the elite's attitude formation and behavior.[6]

The economic literature on the inter-relation between the elite and society pays a special attention to distributive conflicts and political institutions. The research in its different forms stresses that members of the elite, who have power and wealth, establish institutions that serve their own interests and exclude the masses from benefits.[7] For example, one line of research argues that wealthy elites with enough political power to block changes will not accept adopting institutions that would enhance growth, since they might hurt them. Acemoglu et al. (2001) developed this line of thought in relation to colonial impacts, showing that, wherever colonial governments were composed of few elite members, economic progress was reduced.

The third topic is the interconnection within elites, which have been mainly the field of research of sociologists. The literature is divided into two main lines of thought. On one hand, they are the sociologists who believe that in democracy, there is competition among the numerous types of elites and the interconnection has no strong effect on the economy.

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[6] which is coined as "positional and decision-making" in their jargon. On the relationship between recruitment pattern and economic growth, see Brezis and Crouzet, (2006).

[7] See Justman and Gradstein (1999), Sokoloff and Engerman (2000), Piketty (2003), Piketty and Saez (2003), Bourguignon and Verdier (2000), and Easterly (2001). It should be noted that in these last decades, this literature has mainly focuses on the transition process which occurred in Eastern Europe. It started by analyzing conflicts between the nomenklatura and the masses and went also to discuss more broadly social conflicts.

This "pluralist-democratic" position was presented by sociologists such as Dahl (1957), Aron (1960) and Parsons (1960, 1963). They argued that in Western democracy, the existence of groups within the power structure is not an empty fiction. Western social order is characterized by a dissociation and diversification of power, a "polyarchy," in contrast to the social order in the communist countries, where all such groups are unified in the single party system. This plurality of elites ensures competition, and that they do not form a "power elite" separated form the "mass society." This line of thought emphasizes that democracy should a priori impose some control on the power of the ruling elite. Indeed, Schumpeter (1954) claimed that the democratic process permits 'free competition among would-be leaders for the vote of the electorate' and that the masses can choose between various elites. But they all agree that in non-democratic polities there is collusion between elite which have political and economic power, and typically acts on behalf of their own interests.

In contrast to the view of the "pluralist-democratic", classical elite theorists such as Mosca (1939), Pareto (1935), Michels (1915) and Mills (1956) emphasized that despite the democratic character of a given regime -- where power is meant to reside in the *demos* (the people) -- power is really concentrated in the hands of a few, the oligarchy, which Mills (1956) called the "power elite".[8]

Michels has coined this view as the "iron law of oligarchy", claiming that to be ruled by an elite, an oligarchy is inevitable within any organization as part of the "tactical and technical necessities" of organization (Michels, 1915).

This view was followed by Hunter (1959) and Domhoff (1970) for the US, and Aaronovitch (1961) and Miliband (1969) for England. In consequence, there can be collusion even in democracies. Numerous elites may not be mutually competitive and may not control and balance each other; instead, they may be intertwined as a unanimous, cohesive power elite.[9]

A strong interconnection among elites has the consequence that all sectors of the economy are ruled by a group that thinks in a monolithic way. Two lines of thoughts have related a monolithic group to economic growth. The first one underlines that a monolithic group leads to the stagnation of ideas and attitudes, which in turn may prevent the adoption of major technological breakthroughs (Bourdieu, 1977). The second line focuses on the lack of competition in a monolithic powerful group, generating corruption, which has harmful consequences for growth.

Following the same line of reasoning, Acemoglu and Robinson (2000) and Gradstein (2007) stressed that elite plurality, in which the political and economic elites are separate,

[8] A good synthesis of these different views can be found in Dye et al. (2011).

[9] For a summary on the economic consequences of the absence of elite competition, see Brezis and Temin, (2008).

explains the adoption of political franchise and industrialization in western Europe; while 19th-century eastern Europe, where elite unity was strong, did not adopt growth-enhancing institutions, since its elites held on to their wealth and power.

The sociological literature on the role of bureaucratic elite in promoting economic growth has followed the pioneering work of Weber (1968). [10] The economic literature on the bureaucratic elite related to the revolving door started with the works of Stigler (1971) and Peltzman (1976) followed by Eckert (1981). They have developed the models of *regulatory capture*.

Most researchers in this field have focused on the potentially undesirable effects of corruption and regulatory capture, and solutions that could be implemented (Spiller, 1990, and Brezis and Weiss, 1997). [11] However, there are also works that show that there may be positive aspects to the revolving door that should not be overlooked (Salant, 1995, and Che, 1995).

In the next section, we present a model which relates the interconnection of elites to the abuse of power of the bureaucratic elite.

III. The Model

1. Introduction

In this paper, I develop a small model that enables analyzing the interconnection between the various power elites, and explaining why we face such a strong relationship between them. This relationship leads to the creation of abuse of power and redundant bureaucracy, which we term *bureaucratic capital*.

The specificity of this paper is to develop a model that includes a new market: the market of bureaucratic capital. The *supply* of bureaucratic capital is determined by the bureaucratic elite, while the *demand* is determined by the business elite; and the equilibrium between supply and demand determines the level of bureaucratic capital. The third party -- the political elite -- appoints the optimal bureaucrat given the entire economic constellation. This is the first result of the paper.

Then, the model analyzes whether this equilibrium leads to the highest rate of economic growth, which is the political elite's goal. Since regulators are heterogeneous in their abilities, and their abilities affect the productivity of the workers in the R&D sector, we obtain that the rate of economic growth is a function of two elements related to the bureaucrats: their abilities, and their levels of bureaucratic capital.

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[10] For a synthesis on the sociological literature, as well as an analysis on the Weberian structure, see Evans and Rauch (1999).

[11] For works on corruption, see Shleifer and Vishny (1993), Mauro (1995) and Bardhan (1997). See also Niskanen (1975), Margolis (1975) and Banerjee (1997).

This paper shows that from the point of view of the political elite, it is optimal to allow the bureaucrat to create bureaucratic capital. However, the level of bureaucratic capital determined by the bureaucratic and business elites is higher than the optimal one for the political elite.

The model will be presented in the following way. We begin by presenting the production functions, we then address the behavior of the various elites; and then we display the rate of economic growth as a function the elites' behavior.

2. The final good sector

Following Romer (1990), the economy produces one final homogenous good, Y which is consumed. This good is produced with labor and intermediate goods, and the production exhibits constant returns to scale. The intermediate goods x_j consists of monopolist firms, and the only factor that leads to growth is the increase in the number of new technologies existing, which are developed in the R&D sector, and which are embedded in new intermediate goods available on the market. There is no growth of population, and capital is constant.

The workers can work in two sectors: the production sector, and the R&D sector. The workers are homogenous in their ability and get wages determined endogenously in the model.

The production function of the final good is:[12]

$$Y = L_y^{1-\alpha} . \int_0^A x_j^{\alpha} dj \qquad (1)$$

where Y is the output at each period; L_y - the number of workers in the production sector; x_j the number of intermediate goods/machines from type j; and A, the level of technology, measured by the range of capital goods available.

While the final good is produced in a perfect competitive environment, the intermediate-goods sector consists of monopolistic firms, which each produce a specific intermediate good, x_j.

The firms involved in the production sector, Y are maximizing profits:

$$Max\, L_y^{1-\alpha} . \int_0^A x_j^{\alpha} dj - w_y L_y - \int_0^A p_j x_j dj \qquad (2)$$

[12] The production functions follow the adaptation of Jones (1995) to Romer's model (1990).

w_y are the wages paid for labor in sector Y, and p_j is the price of the intermediate good x_j.

From the profit maximization in the production sector, we get:

$$w_y = (1-\alpha)\frac{Y}{L_y} \tag{3}$$

and

$$p_j = \alpha L_y^{1-\alpha} x_j^{\alpha-1} \tag{4}$$

3. The Elites

In the previous section on the related literature, we have presented the classical elite theory, and the iron law of Oligarchy stressed by Michels. Following this sociological literature, we assume that society is split up into the elite, and the demos/workers. The elites themselves are not homogenous and split up into those with power, the power-elite, and those without power, which is composed of independent employees as lawyers, doctors, for whom their income is a function of their ability. Following the literature in which income is a positive function of ability, we assume that, in this social stratum, income is a function of ability (see Weiss, 1980).

The power elite itself is composed of political, business and bureaucratic elite. We now turn to develop more specifically the role of each elite.

3.1 The bureaucratic elite and the supply of bureaucratic capital

The intermediate-goods sector consists of monopolistic firms and in consequence, they are regulated by the bureaucratic elite, who consists of regulators nominated by the political elite. The regulators maximize the present value of their income, while the business elite maximizes profits of the regulated firms.

During his time in office, the regulator regulates and get paid an income, but at the same time, he creates *bureaucratic capital*. The regulator has better knowledge of the ins-and-outs of the system, and of any loopholes that might exist. This knowledge is valuable to the firms in the industry, and thus, once he has left the public service, the regulator can cash-in on this bureaucratic capital.

The structure of the model is simple. During his term as a regulator, he acquires bureaucratic capital of size H_i, which costs him effort of size E_i in monetary terms. We

assume that the level of bureaucratic capital is a concave function of the amount of effort invested: [13]

$$H_i(E_i) = [(1+\gamma)E_i]^{1/1+\gamma} \quad \gamma > 0 \tag{5}$$

Then comes another regulator, who succeeds him. After leaving his job as regulator, the bureaucrat works for a period of length τ, in the industry that he regulated. He receives in top of his "regular" salary, a rent related to the "bureaucratic capital", H_i he has accumulated.

The regulator maximizes his lifetime income which consists of (i) earnings which are not related to the creation of bureaucratic capital, denoted Ω, and (ii) of income related to the creation of bureaucratic capital, which equals to the net income he gets when having entered the industry. He will be able to sell his bureaucratic capital, H_i at price q for a number of years τ so that his total income is:

$$V_i = \Omega - E_i + \tau q H_i(E_i) \tag{6}$$

Equation (6) can be rewritten as a function only of the level of bureaucratic capital, by substituting E from equation (5). We get:

$$V_i = \Omega - \frac{H_i^{1+\gamma}}{1+\gamma} + \tau q H_i \tag{7}$$

From the point of view of the bureaucrat, there is an optimal level of bureaucratic power, $\hat{H}$ he wants to stock, which maximize his income - equation (7) and is:

$$\hat{H}_i = (\tau q)^{1/\gamma} \tag{8}$$

Equation (8) describes the "supply" function of bureaucratic capital by the bureaucratic elite as a function of the price q. It is an increasing function of q and it is displayed as the S function in Figure 1, part (I). We now turn to discuss the behavior of the business elite and its demand for bureaucratic elite.

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[13] We are aware that for some bureaucrats, who are either more social, or with less "ethical values", it is easier to either create connection with other people, or create redundant regulations. For purpose of simplicity, we assume that bureaucrats have the same "production" function of bureaucratic capital, and that these social factors are not linked to ability, since removing this assumption does not affect the results. Moreover, the "effort" which describes either social or ethical costs, are in monetary terms.

3.2. The Business elite and the Demand of Bureaucratic Capital

The business elite is composed of entrepreneurs, who are at the head of intermediate-goods firms, who own a patent developed by the R&D sector, and who produce goods, x_j, in a monopolistic competitive environment.

The output is a function of two factors of production. The first is capital, k_j; Following the standard Romer model, we assume that the production function takes the simple form:

$$x_j = k_j .$$

However, in our model, the output x_j is also function of a second factor of production, which is the level of bureaucratic capital the firm gets from the ex-regulator it has hired. When a firm j hires a bureaucrat with a bureaucratic capital H_j, the production of output j becomes more efficient. This is so, because the regulator has a better knowledge of the system and of the loopholes that exist. But, the effect of this bureaucratic capital in firm j depends on the level of bureaucratic capital of other firms, since what matters is the *relative* effect of the regulator. In fact, it depends on the relative level of bureaucratic capital by the different regulators of the different sectors.

So the production function in sector *j* takes the form:

$$x_j = k_j \left(\frac{H_j}{H_a}\right)^{\phi} \quad \phi > 0 \qquad (9)$$

where H_j is the level of bureaucratic capital produced by the regulator of firm j, and H_a is the average level of bureaucratic capital owned by the other firms.

Note that if $H_j = H_a$, then the output is just: $x_j = k_j$, no matter the average level of bureaucratic capital. Although having hired a bureaucrat to increase the productivity of the firm may bring advantage from an individual point of view, it is pure waste from a social point of view.

So the profit maximization for an intermediate good firm is:

$$Max\,\pi_j = p_j(x_j)x_j - rk_j - qH_j \qquad (10)$$

The two costs of factors of productions are (i) capital, k_j where r is the cost of real capital, and (ii) the bureaucratic capital. The last term in equation (10) is the amount paid to the regulator for his bureaucratic capital. Each year, the bureaucrat who owns bureaucratic capital of level H will "sell" it to the firm. The "price" q, for which this level of capital is purchased is endogenous. This last term is also included in the life income of the bureaucrat (equation 7).

Each firm maximizes profits by finding the optimal amount of output, x_j and bureaucratic capital, H_j. Note that equation (10) can be rewritten in the following way:

$$Max\,\pi_j = p_j(x_j)x_j - rx_j(\frac{H_j}{H_a})^{-\phi} - qH_j \qquad (10a)$$

where p_j is given by equation (4). Since the business elite are monopolists who see the price of their good as negatively related to the demand, the two first-order conditions for maximizing profits are:

$$p'_j(x_j)x_j + p_j(x_j) - r(\frac{H_j}{H_a})^{-\phi} = 0 \qquad (11)$$

$$qH_a = \phi\, r x_j(\frac{H_j}{H_a})^{-\phi-1} \qquad (12)$$

From equation (4), we note that the demand elasticity of $p_j(x_j)$ is equal to α*-1*. Substituting into equation (11), and in a symmetric equilibrium all H_j are the same. Thus we get that:

$$p_j = p = \frac{1}{\alpha} r \qquad (13)$$

$$H_j = H_a = \frac{\phi r K}{qA} \qquad (14)$$

where the total amount of capital in the economy K is given, and

$$K = \int_0^A k_j dj \ .$$

Moreover, since all intermediate-goods firms sell for the same price, p, we get that: $x_j = x$, and $k_j = k$.

Equation (14) represents the demand for bureaucratic capital, as a decreasing function of q, which is displayed as the D function in Figure 1, part (I).

3.3. The equilibrium of bureaucratic capital

From the side of the bureaucratic elite, described in section 3.1, we get the supply equation of bureaucratic capital (equation 8), and from the side of the business elite, described in section 3.2, we get the demand for bureaucratic capital (equation 14). By equating demand with supply we get the equilibrium stock of bureaucratic capital:

$$H^* = (\tau\phi rK / A)^{1/1+\gamma}$$
and (15)
$$q^* = [\frac{(\phi rK / A)^{\gamma}}{\tau}]^{1/1+\gamma}$$

This equilibrium is presented in figure 1, part(I). Some parameters are interesting to stress, and the results are quite intuitive. First, we note that when the parameter which represents the effect of regulation on the firms, ϕ increases, then the level of bureaucratic capital increases. Moreover, if bureaucrats are less efficient in producing bureaucratic capital, (for instance, bureaucrats who are not good at networking), then γ increases, and the level of bureaucratic capital decreases. The last interesting variable is the number of years working for the firms, τ . When τ increases, then the level of bureaucratic capital increases.

Summarizing this section, the intertwining of the bureaucratic and business elite have led to the formation of bureaucratic capital of level H*. The creation of this capital has permitted to the bureaucratic elite to cash in after leaving his job, and entering the business he has regulated. The intertwining between the bureaucratic and business elite is thus the consequence of the supply of bureaucratic capital by the bureaucratic elite, and its demand by the business elite.

Is this level of bureaucratic capital optimal from the point of view of the political elite? In the next sections, we show that this is not the case, but we also show that the optimal level from the point of view of the political elite is not zero. In order to do so, we define the rate of growth of the economy which is determined by the R& D sector, and we describe the behavior of the political elite.

4. The R&D sector

Following Romer, (1990), the R&D sector develops new designs for new intermediate goods. The only factor that leads to growth is the increase in the number of new technologies existing. We assume that the number of new inventions is a function of the size of the labor force in the R&D sector, and also of the amount of machines already in existence, A. This assumption is the usual externality of spillover effects which leads to a "size effect" in economic growth.

Moreover, based on Mauro (1995) and La Porta et al. (1999), who have shown that the quality of government affects the performance of firms, we assume that the ability of the regulator affect the productivity of the workers and we get that the number of new inventions is:

$$\dot{A} = \delta(Q_i)L_r A \qquad (16)$$

where δ is a positive parameter function of the quality of the bureaucrat i, Q_i, $\delta' > 0$ and $\delta'' < 0$. L_r is the size of the labor force in the R&D sector, and A the amount of machines already in existence. In consequence we get that, in steady state, the rate of growth of the inventions, g, which is also the rate of growth of the economy, as it will be shown later on, is constant:

$$g = \frac{\dot{A}}{A} = \delta(Q_i)L_r \qquad (17)$$

The two elements affecting economic growth are the size of the labor force in the R&D sector, and the ability and quality of the bureaucratic elite. In the next section, we explain how the political elite appoints the bureaucratic elite.

5. The political elite

Models of political economy of different degrees of sophistication set, as the main goal of politicians, to be elected again, and therefore to take into account the well-being of citizen. In consequence and for matter of simplicity, I assume that the political goal of the elite is to maximize the rate of growth of the economy given by equation (17), in order to be reelected.[14]

One of instruments in the hand of the political elite is to determine the regulation in the economy. The political elite, i.e., the government appoints the bureaucratic elite, i.e., the regulators who regulate the monopolistic firms. Regulators are usually appointed for a given period of time, and then, new regulators succeed them.[15]

Candidates for the regulatory post are heterogeneous in their ability, and have also the opportunity to work in the alternative sector in which income depends on the ability of the person, as explained above. This sector comprises for example lawyers, doctors, financiers, etc.

As emphasized by Weiss (1980), when ability affects the productivity of a person, then wages are not equal for all: "workers' wage is an increasing function of his ability". Individuals with high ability and quality earn more than ones with less ability.

[14] Another alternative is to assume that the political elite is benevolent.

[15] In some countries, the regulator can be re-appointed for one more term, so that the period will be of two consecutive terms. In this paper, we ignore this possibility, and the length of the term is known to all.

In consequence, without loss of generality, we assume the following form:[16]

$$W_s = \xi Q_s \tag{18}$$

where W_s is the life income of an individual working in the alternative sector, and Q_s is the ability of this individual.

Since quality of the regulator affects economic growth, the political elite wants to choose the regulator with highest ability possible among the set of people in the economy who can play this role, and who can get in the alternative sector an income given by equation (18). We assume that the legislator possesses perfect knowledge of each candidate's ability.

In consequence, the political elite knows that the reservation income of the potential bureaucrat is given by (18) and therefore the choice faced by the political elite is to hire a bureaucrat with ability such that:

$$Q_i = Max\left\langle Q_s \,\middle|\, \xi Q_s \le V_s \right\rangle \tag{19}$$

and the solution is:

$$Q_i = \frac{1}{\xi} V_i \tag{20}$$

where V_i is the lifetime income of the bureaucrat *i*. Substituting equation (20) into equation (7) we get the relationship between ability and level of bureaucratic capital faced by the political elite and the public:

$$Q_i = \frac{1}{\xi}[\Omega - \frac{H_i^{1+\gamma}}{1+\gamma} + \tau q H_i] \quad \text{(The QH curve)} \tag{21}$$

This QH equation describes the trade-off faced by the political elite while choosing the bureaucratic elite: Appointing a regulator with higher ability means letting him accumulate a higher level of bureaucratic capital. This equation is therefore the production possibility frontier between bureaucratic capital and ability faced by the

[16] We are aware that there are models in which this relationship in not linear. For instance in the theory of "winners take it all". But except for the very top (which then, will not take a post in the public sector), the assumption of linearity seems reasonable. See Greenwald, (1979).

political elite. This QH equation (which is described for the equilibrium price q*) is depicted in figure 1, quarter (II).[17] The maximum amount of quality is reached at H=H*.

In the next section, we develop the equilibrium rate of growth faced by the political elite.

IV. Determination of the equilibrium and of the rate of economic growth

In this model, the determination of the equilibrium is as in Romer, by equating wages earned by workers in both sectors: output and the R&D sector. So, we get:

$$w_r = w_y \tag{22}$$

where w_r and w_y are wages in the R&D and production sectors respectively. As previously mentioned, the total labor force working in the production and the research sectors is constant and denoted by $\overline{L}$.

$$L_r + L_y = \overline{L} \tag{23}$$

where L_r is the size of the labor force in the R&D sector, and L_y the labor force in the output sector.

Since the salary earned by workers in the R&D sector is the value of the patent of their invention, we have that:

$$w_r = \frac{\dot{A}}{L_r} P_r \tag{24}$$

where P_r is the price of a new-design patent, and $\dot{A}$ is the number of new inventions developed.

Moreover, remember that:

$$w_y = (1-\alpha)\frac{Y}{L_y} \tag{3}$$

[17] The QH equation describes the amount of income (and therefore ability) the regulator gets for each amount of H he produces. For the amount H*, the price faced by the regulator is q*, but what price does he take into account for each amount of H which is not the equilibrium H*? Following, the theory of focal point (and correlated equilibrium), the most obvious price is still q* (see Aumann, 1987).

In order to solve equation (22), we use the relationship between profits and price of the patent. By applying the asset pricing arbitrage equation, we get that:

$$rP_r = \pi + \dot{P}_r \tag{25}$$

Since there is no increase in population, output *Y*, and inventions, *A* grow at the same rate, so that patent prices also are constant, and we get:

$$P_r = \frac{\pi}{r} \tag{26}$$

Moreover, from equations (13), (1) and (4) we get that the profit for each of the business elite, equation (10) becomes:

$$\pi = \alpha(1-\alpha)\frac{Y}{A} - qH \tag{27}$$

Equating equations (3) and (24) and substituting π from equation (27), and using the fact that by substituting x, output can be written in the following way (see appendix):

$$Y = A\beta L_y \quad where\ \beta = \frac{\alpha^{2\alpha/1-\alpha}}{r^{\alpha/1-\alpha}} \tag{28}$$

we get:

$$L_y = \frac{r}{\alpha\delta(Q)} + \frac{qH}{\alpha(1-\alpha)\beta} \tag{29}$$

and in consequence the rate of growth in the economy is:[18]

$$g = \delta(Q)[\bar{L} - L_y] = \delta(Q)[\bar{L} - \frac{r}{\alpha\delta(Q)} - \frac{q^* H}{\alpha(1-\alpha)\beta}] \tag{30}$$

Equation (30) describes the growth rate of the economy in all the states in which Q and H are exogenously given, and all the other variables corresponds to the first order conditions described above. In other words, equation (30) shows the rate of growth the

[18] Interest rate is determined on the demand side, and in a simple model equals the discount rate, and is not a function of the endogenous variables of equation (30). Therefore, for simplicity, we do not develop the demand side of goods.

market economy will be at, as a function of the behavior of the bureaucrat described by H and Q.

It is easy to see from equation (30) that the rate of growth in the economy is a positive function of the ability of the bureaucrats, and a negative function of the level of bureaucratic power, H. In figure 1, quarter (II), we present the iso-growth curve as a function of Q and H. The rate of substitution is positive, and given the fact that $\delta'' < 0$, we get that the iso-growth curves are concave.

On one hand, there is the economic growth determined by the market economy in terms of quality Q, and bureaucratic capital H, which is represented by the iso-growth curves, and on the other hand, there is the production possibility frontier by the bureaucrat also in terms of quality and bureaucratic capital, the QH equation. This permits us to find the optimal level of bureaucratic capital and maximal economic growth rates.

1. Maximum rate of growth of the market economy

In the following proposition, we present the optimal level of bureaucratic capital for the political elite.

Proposition 1

From the point of view of the political elite, which wants high economic growth, the optimal level of bureaucratic capital is non-zero: It is in their interest to allow the bureaucratic elite to create bureaucratic capital.

Proof

The best solution from the point of view of the political elite is given by M in figure 1. (Remember that moving towards the right is to increase economic growth). At this point, the level of H is positive.

This proposition stresses that despite the negative effects of bureaucratic capital on the economy, the political elite have no other choice but to accept it. The economy has an optimal mix of level of redundant bureaucracy and the quality of the bureaucrat. The political elite could restrict the possibility of "revolving door", but this would mean to reduce the level of the bureaucrats in the economy, which is not a good solution. In other words, this proposition stresses that a market equilibrium, which leads to the highest rate of growth, is attained when there is a creation of bureaucratic capital which is non zero. The reason for this result is that in order to hire bureaucrats of high quality, the government has to pay them higher income. The way to propose higher income is to let

the bureaucrats accumulate bureaucratic capital, which will permit them to cash in, in the future.

It should be noted that this result bears some similarity to those of Besley and McLaren (1993), who showed that when governments cannot pay high wages to regulators, they allow a certain level of corruption. Besley and McLaren's structure fits developing countries, where corruption is widespread. The structure presented in this paper better fits the developed world, wherein bureaucrats do not ordinarily behave in a corrupt way; they simply behave unethically, selfishly, and by doing so abuse their power.

2. Equilibrium of the economy

Although point as M reaches the highest economic growth the market economy could attain, is there a way that the system will bring the economy to such a point? In the next proposition, we show that the bureaucrats will always choose an level of bureaucratic capital which is higher than the one, the political elite would prefer.

Proposition 2

The level of bureaucratic capital chosen by the bureaucratic elite is higher than the level the political elite would choose.

Proof

The bureaucratic elite chooses to create bureaucratic capital at the level of H*, where the derivative dQ / dH is zero, and different than the rate of substitution of the political elite. In consequence, the political elite can attain a higher level of economic growth by reducing the amount of bureaucratic capital.

This proposition stresses that the will of the bureaucrats leads to a higher level of bureaucratic capital than that favored by the political elite as shown in Proposition 1. In consequence, this model shows that the possibility of the revolving door and *pantouflage* leads the system to have bureaucrats with high ability, yet producing too much bureaucratic capital. The equilibrium is at a point wherein ability is at its maximum. The political elite would rather have less bureaucratic capital, even at the price of having less able bureaucrats.

V. Conclusion

This paper has analyzed the intertwining between the three power elites and its effect on economic growth. This paper has stressed the rationale of the elites' behavior, and why the revolving door from the bureaucratic elite into the business elite is so widely in use in

the Western world. This paper has stressed that revolving door does not have to be due to *regulatory capture* which is unlawful; It can be due to *abuse of power* which is merely unethical, and in fact optimal for the economy.

Indeed, this paper has shown that the political elite finds it optimal allowing the existence of the revolving door and the creation of bureaucratic capital. The political elite could restrict the possibility of the revolving door, but this would mean to reduce the ability of the bureaucrats in the economy, which would lead to lower economic growth. In other words, this paper has shown that the creation of bureaucratic capital is necessary in order to get an equilibrium with higher economic growth. However, we also have shown that the level of bureaucratic capital selected is higher than the optimal level for the economy.

In consequence, this paper has shown that abuse of power and bureaucratic capital is at a level which is not optimal for the economy. The unethical behavior of the financial sector which takes place this last decade might in part be explained by bureaucratic capital and the abuse of power emphasized in this paper. We leave the analysis of this specific market for further research.

This paper has focused on the relationship between the various power elites. The standard political economy literature has focused mostly on conflicts of interests either among the elite, or between the elite and the public, and has shown the negative effects of these conflicts on economic growth. In this paper, I have shown that harmony of interests and promiscuous elites are no less pernicious and can also have negative effects on economic growth.

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Appendix 1: Proof of equation (28).

From equating equation(13) and (4), we get that:

$$\frac{1}{\alpha} r = \alpha L_y^{1-\alpha} x^{\alpha-1}. \tag{A1}$$

Since equation (1) can be rewritten as:

$$Y = A L_y^{1-\alpha} x^{\alpha}. \tag{A2}$$

By substituting x into equation (A1) we get:

$$x = \frac{Y\alpha^2}{Ar}. \tag{A3}$$

By substituting into equation (A2) the term x from equation (A3) we get:

$$Y = A\beta L_y \quad where\ \beta = \frac{\alpha^{2\alpha/1-\alpha}}{r^{\alpha/1-\alpha}} \tag{28}$$

Appendix 2: Proof of equation (29).

From equation (22), (24), (16), (26) and (27), we get that:

$$\frac{(1-\alpha)Y}{L_y} = \frac{\delta A}{r}\left[\frac{\alpha(1-\alpha)Y}{A} - qH\right]. \tag{A4}$$

By substituting Y from equation (28), we get:

$$L_y = \frac{r}{\alpha\delta(Q)} + \frac{qH}{\alpha(1-\alpha)\beta} \tag{29}$$

Table 1. Examples of Revolving Door from the Bureaucracy to the Business sector

The Elite	Government Employer	Private Sector Employer
Alan Greenspan	Chair, Fed	Paulson and Co.
Glenn Hubbard	Treasury Department	KKR Financial Co.
Robert Zoellick	State Department	Goldman Sachs
Larry Summers	Treasury Secretary	Goldman Sachs
Mark Gitenstein	Chief Counsel (Biden)	Semi-Conductor equip. and materials
Jacob Lew	Office of Management and Budget, Director	Citigroup, CEO/alt-investments
Todd Stern	Treasury Department	Wilmerhale
Madeleine Albright	White House	Albright Stonebridge Group (ASG)
Samuel Berger	NS advisor-WH	ASG
Warren Rudnam	WH	ASG
Dick Cheney	Defense Secretary	Halliburton Co.
Justin McCarthy	USTR - Assistant USTR for Congressional Affairs	Pfizer, Assistant Director of Government Relations
Billy Tauzin	U.S. Congress	PhRMA, President
Claude Burcky	USTR	Abbott Laboratories,
Sean Darragh	USTR	Biotechnology Industry Organization, PhRMA
Randall L. Tobias	White House - Global AIDS Coordinator	Eli Lilly
Michael Friedman	Food and Drug Administration, Acting Commissioner	PhRMA Pharmacia
Donald Rumsfield	Secretary of Defense	Gilead, G. D. Searle
Mitchell Daniels Jr.	Director, Office of Management and Budget	Eli Lilly
Raymond V. Gilmartin	Bush Transition Team for the Department of Health and Human Services	Merck
Anne Marie Lynch	Bush Transition Team for the Department of Health and Human Services	PhRMA
Bill Walters	Bush Transition Team for the Department of Health and Human Services	PhRMA
Dr. Harvey E.	USTR	IFPMA

Bale, Jr		
Alan F. Holmer	Deputy Assistant to the President for Intergovernmental Affairs, Deputy Assistant Secretary for Import Administration-Commerce Department, General Counsel-USTR, Deputy U.S. Trade Representative	PhRMA
Susan K. Finston	State	PhRMA

Sources: Cptech.org and OpenSecrets.org.

Table 2. The 20 Financial Services Sector Organizations employing the most "revolving door" lobbyists.

Organization	Number of "revolving doors" lobbyists
Citigroup Inc	60
Visa Inc	50
American Bankers Assn	49
Prudential Financial	47
Goldman Sachs	47
Securities Ind. Assn	43
Nati. Assn. Real Estate Investment Trusts	39
SLM Corp.	36
Private Equity Council	36
Managed Fund Assn	34
JP Morgan Chase and Co	33
Investment Co Institute	33
Genworth Financial	32
Zurich Financial Services	32
Credit Suisse Group	31
Ernst and Young	30
American Institute of CPAs	30
Federal Home Loan Bank	30
American Council of Life Insurers	30
Fortress Investment Group	27

Source: OpenSecrets.org. 2010
Note: The data is for 2009 and 2010.

Figure 1. Supply and Demand of Bureaucratic Capital, and the Trade-off between Quality and Bureaucratic Capital