

CHAPTER 17

**ELITE SCHOOLS, CIRCULATION OF ELITES  
AND ECONOMIC DEVELOPMENT: THE ENA CASE**

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**I. Introduction**

The research on the different factors that contribute to growth and development of countries has been, from Adam Smith on, the thrust of economists. Over the past decades it has become the major topic of research of the so-called “growth theory” that originated with the seminal work of Solow (1956).

In the 1960s, theories of growth have considered capital accumulation, investment and savings as the most important factors. In the last decade the emphasis has shifted to factors that are conducive for a self-sustained technological progress, such as human capital and research and development. Over time, however, non-economic variables came to the forefront of interest. These elements include, in particular, sociological factors as well as political and legal institutions. The list is quite wide, ranging from the effects of democracy and property rights to more recently, sociological factors as social mobility, minorities’ behavior, and the status of women. However, one variable that plays a major role in sociology but is still completely ignored by growth theory is the relationship between elites and growth.<sup>1</sup> This absence is puzzling since elites play a very important role in sociology. This chapter is an attempt to study the possible relationship between elites and growth and, more specifically, the effects of the recruitment of elites on the development and growth of countries.<sup>2</sup>

The recruitment of the elites is of crucial importance for the development and growth of the economy since it affects the quality of the rulers; having the best as the rulers permits efficient and correct choices. The pivot question is which method of recruitment induces the choice of the best civil servants, which in turn brings about higher growth rate. This chapter focuses only on the recruitment of civil servants, which from Pareto (1935) and Mosca (1939) on, has been considered as part of the ruling elites. (The ruling elite includes the bureaucrats and technocrats who are recruited and which are, de facto, considered in our society as the “power elite.”)

A priori, in a world of imperfect knowledge and information about talent and ability, it seems that selecting civil servants from schools that recruit its students by meritocracy will result in the best becoming the rulers. A prime example of such a method of recruiting civil

servants is France that, since 1945, has a special school for recruiting and training the top civil servants -- the National School for the Administration (*Ecole Nationale d'Administration*), best known by its abbreviation of ENA. However, despite its recruitment on a meritocratic basis, this elite school has been accused of being one of the reasons France has not been performing economically well over the past years. Alain Madelin, former Minister of Finance, even said, "Britain has the IRA, Spain the ETA, Italy the Mafia, and France the ENA!"

The purpose of this chapter is to analyze whether establishing schools for recruitment and training of elites, as in the case of France, is optimal. Although it seems obvious that a meritocratic choice lead that the best are chosen to enter public service, we show that these schools have a tendency to recruit in a non-diversified way and some classes of society are over-represented. In fact, a school that recruits in a meritocratic method on the basis of entrance exams does not lead to an entry from all classes of society according to their distribution of ability, and to the acceptance of the more talented.<sup>3</sup> It still has a bias toward the candidates coming from the elite milieu because this type of exam requires a pattern of aptitude and thinking that will favor the candidates from this social circle. Therefore the student body will be mostly based on a monolithic group and not be as open as it should to the general public despite its meritocratic choice, or in other words, we show that an elites school leads to a non-circulation of elites.

This term *circulation of elites* was coined by Pareto (1965) who claimed that elites, in recruiting themselves, choose subjects of increasingly mediocre caliber:

Merely a slowing down of this circulation may have the effect of considerably increasing the number of degenerate elements within the classes still possessing power, and -- by contrast -- of increasing the number of elements of superior quality within the subject classes... The decadence originates from the fact that the elite, in recruiting itself, chose subjects of increasingly mediocre caliber. (Vol. 1, Introduction.)

Our model emphasizes that, despite the meritocratic recruitment, elite training schools actually recruit people with less ability than that of the general population, however, since the model is not a dynamic one, it does not show how distribution of talent evolves over time, as implied by Pareto.

We then examine the consequence of this non-circulation of elites on economic growth which we term the "recruitment effect" on growth. We analyze whether this stratification due to meritocratic choice is optimal for the development of the country and show that it is dependent on the type of technological changes. During time of innovations, i.e., small changes in technology, this school of elites optimally fulfils its purpose, since the aptitude acquired at home by the children of the existing elites is an advantage in the given type of technology. These students are therefore better, on average, than students recruited from the general population. Thus, the non-circulation of elites does not hamper growth.

When there are inventions, i.e., totally new technologies, the aptitude acquired by family education is useless, and this lack of circulation of elites is detrimental for the adoption of new technology. Therefore, in an era of invention, the recruitment of elites from the same social class (in schools for elites) leads to a lower growth rate.

In recent years, the ENA was criticized not only for the narrow social recruitment but also because most of the elites have an identical education. A similar mold, on one hand,

leads to a monolithic thinking in the economy, called by the critics, *la pensée unique*. On the other hand, it also is conducive for better coordination between the different government administrations since their members have prior acquaintance from their school days. We show that this shared education, that we term the “common education” effect, has positive effects during a period of innovation. But, in an era of invention and technological revolution, the opposite effect occurs.

In this chapter we propose a general model of elite schools that applies particularly to the ENA, since France is the only country in the West to have such a school. In the second section we describe the method of recruitment of the ENA, comparing existing conditions with the original goals. In the third section, a model describing the recruitment effect as well as the common education effect is presented. Section 4 concludes.

## 2. Historical Evidence

We open this research by examining the history of the ENA, its a priori goals and its a posteriori effects on the economy, and continue by briefly describing the system in other countries.<sup>4</sup>

### 2.1 The goals of ENA

After World War II, De Gaulle considered that the traditional bureaucrats had failed in their duties in the 1930s, as well as under the Vichy regime, and that there was a need to change the recruitment and training of civil servants. For these reasons it was decided to create the ENA (planned by Debré, who later became de Gaulle’s prime minister) which would recruit civil servants, and have three major goals.

The first goal was social openness and diversification of intellectual origins. It was thought that since recruitment would be meritocratic only the best would be selected. They would come from *all* classes, not only the Parisian bourgeoisie, in contrast to the previous system for recruiting members of the top civil service (the *Grands Corps*) which was restrictive from a social point of view. The *Grands Corps* is a typical French institution going back to the Old Regime which was abolished during the French Revolution and revived by Napoleon. It is composed, in particular, of the Council of State, Inspection of Finances, the Audit Office and the Foreign Service. Before World War II there was a separate competitive exam for each of the *Corps*, with few candidates and still fewer places every year. This system was condemned for being partial to young men (no women then!) from an upper-class background. Candidates for the Foreign Service were invited for tea in a drawing room and received a grade based on their social amenities!

The second aim was to rapidly develop a new elite that would be chosen for their talent rather than their link with the elite in power. The third aim was that it would foster better coordination between the different administrations, via the existing contact made at school.

Until 1991 the school was housed in Paris in an eighteenth century mansion on the Left Bank. At that time, Prime Minister Edith Cresson decided to move it to Strasbourg. This transfer was made in the name of decentralization; it was also hoped that it would lead to a broader geographical recruitment, although this did not happen.<sup>5</sup>

The idea of selecting and training the elites in special schools was not revolutionary, and the ENA is not the only elite school in France. It is, however, the only one to have a monopoly on training the “ruling elite” since the other schools (*Grandes écoles*) are mainly

for engineers. The first *Grandes écoles* were founded under the *ancien régime* in the eighteenth century, specifically to train civil and military engineers (the *Ecole des Ponts et Chaussées* in 1715, *Ecoles des Mines* in 1783). During the French Revolution, since the old universities had been abolished, new *Grandes écoles* were established on a larger scale e.g., the *Ecole Centrale des Travaux Publics* in September 1794 (just after the end of the Reign of Terror when the dirigist system was collapsing) which became the *Ecole Polytechnique* in 1795.<sup>6</sup> Its goals were overwhelmingly military, i.e., to train officers (after all, the country was at war) but also to train civil engineers in government service. During the Second Republic (1848) some plans for an ENA were proposed but not implemented; this had to wait until 1945. In the interval elites were trained in universities (especially in law schools) or in *Grandes écoles*.

## 2.2 *The system of selection and training*

The specificity of the ENA is that it breeds bureaucrats who will enter the public service, but it should be stressed that it is primarily a school for the selection rather than the training of elites, and has the monopoly on the recruitment of the top civil servants. The administration in which an alumnus (*énarque*) begins his employment, from the most prestigious (the *Grands Corps*) to the least attractive (Ministries of Education, Social Security Administration or Agriculture) depends on his ranking in the final comprehensive exam at the end of the second and last year.

The desire to democratize recruitment was embodied in the creation of two separate entrance exams. One exam is for graduates coming directly from universities or the IEP (*Instituts d'Etudes Politiques*, better known as “Sciences-Po”) without previous practical experience, in which the written exam is largely based on broad general culture, though the writing of some papers on subjects like economics or international relations is requested.<sup>7</sup> At the orals, the ability to speak brilliantly about a subject one knows nothing about is crucial!

The other exam is for candidates who have spent some years (at least three) in the lower ranks of the civil service, with no competition from outside the administrations. It is a separate (but not very different) exam that affords an opportunity for those with a more modest background than university graduates to enter the ENA.<sup>8</sup> From time to time there were reforms in the recruitment policy. For instance, from 1979, two graduates per year from *Polytechnique* could enter the ENA without an exam.<sup>9</sup> However, unless given specific exemptions, it is necessary to pass one of these two entrance exams.

When comparing the recruitment of ENA with other *Grandes écoles*, the ENA recruits approximately one hundred students each year, while *Polytechnique* recruits almost 500.<sup>10</sup> Although other *Grandes écoles* have a specific technical curriculum, this school focuses more on recruitment than on training elites. ENA students spend their first year working as an intern in some public administration (regional administration, embassy, etc.). They return to the school for the second year, when the emphasis is again on “general culture” plus some training in social sciences, (though in recent years teaching at the school has been mildly “technicized”).<sup>11</sup> An essential aspect is the networking -- alumni have acquaintances in all departments of the civil service and in the world of politics.

## 2.3 *The evolution of ENA*

Fifty years after the establishment of this school the ENA has succeeded in almost

monopolizing the recruitment of the rulers of France. The graduates have participated in governments of all political leanings, as ministers, as members of ministers' staffs (*cabinets*) and at the top echelons of the bureaucracy. In 1994-1995, 11 *énarques* were ministers, 11 were on the personal staff of the French president and 75 in the office of the prime minister. From 1980, around 60 percent of the directors of *cabinet* (i.e., a vice-minister), and 35 percent of ministers are from the ENA.

Actually, there has been a gradual perversion of the ENA role in two ways. First, because a number of its graduates left the civil service to go into politics, some of them rising to the top (e.g., Presidents Giscard d'Estaing and Chirac, Prime Ministers Laurent Fabius, Michel Rocard, Alain Juppé and Lionel Jospin). Second, a number of alumni have become business leaders in both the public (state owned or nationalized) and the private sectors.<sup>12</sup> Forty-seven percent of the heads of the 200 largest French companies in 1993 came from the civil service (and from its "annexes" e.g., *cabinets* and Parliament), compared to 41 percent in 1985.

A recent study (Baverez, 1998) considers the origins of the leaders (CEOs, chairmen, directors) of the companies which have their shares' quotations on the Paris stock exchange used for compiling the "French Dow-Jones," the *CAC 40*. The main results are shown in table 1.

TABLE 1  
Origins of the Leaders of French CAC 40 Companies  
(percent)

	1981	1991	1997
Members of owners' families	43	23	20
Members of the <i>Grands Corps</i>	32	38	44
Civil servants who do not belong to the <i>Grands Corps</i>	5	11	11
Persons from the business world	20	28	25

This table is striking; it shows the takeover of large French companies by the "state nobility" (a well-coined expression, which alludes to the privileges enjoyed by those members from the *Grands Corps*, all graduates of the ENA). It also emphasizes how much their stranglehold has strengthened during the last two decades; the share of civil servants rose from 37 percent in 1981 to 55 percent in 1997. Their takeover has been helped by the double and inverse process of large-scale nationalization by Mitterand and the Socialist-Communist governments after they seized power in 1981, and by privatization by right-wing governments in 1986-1988 and 1995-1997. It should be noted that only 10 percent of the ENA alumni are working in the "competitive sector" of the economy.

As for the goal of democratizing recruitment, after World War II the first few promotions were open to all classes and open to reforms. At that time the ENA was synonymous with innovation and new blood in the administration, and there was a feeling that only the best were chosen. Ten years later, it was apparent that the recruitment was sociologically and geographically very narrow. The ratio of students in the ENA whose parents belonged to the *Grands Corps* was 44 percent in 1944, and rose to 63 percent in 1980.<sup>13</sup> From the 1970s there has been an auto-recruitment of the ruling class; 8 percent of the population supplies 60 percent of the ENA students, the next generation of rulers.

## 2.4 Other countries

Frenchmen have made themselves unpopular everywhere by emphasizing their “exceptionalism” without realizing that they are often exceptional in the wrong way -- by choosing the wrong solutions. The ENA is an example of this negative exception in two aspects. First, no other developed country has only one school with a monopoly for recruiting all top civil servants, the bureaucratic elite (except, possibly, the University of Tokyo). Second, in no other developed country have graduates of a single institution held such a monopoly over the recruitment of the elites: political, economic and administrative power in France is in the hands of the *énarques*.

One could argue, of course, that this situation does not differ from the US or Britain. In the US a large number of managers in business have graduated from top business or law schools. In Britain, graduates from Oxford and Cambridge, mainly those who attended top public (i.e., private) schools, have built-in advantages at the start of their careers, particularly if they take the competitive exam for entrance into the higher levels of the civil service. However, in both countries the numbers of such “favorites of fortune” are much higher than the hundred odd graduates from ENA. In a single year those universities produce more graduates than the ENA has had in its entire existence.

Another important particularity of France is that in no other Western country have so many top managers come from the civil service. In Britain, only 5 percent of the leaders of the 200 largest companies come from the civil service. Some are former ambassadors, recruited after retiring from the Foreign Service. This background has given them the experience to direct companies with some competency. The other 95 percent are roughly divided equally between members of owners’ families, and people who have risen in the business world, generally “imported” from a different firm.

In Germany, two-thirds of the 200 top business leaders come from the business world, of whom one-half has risen within the firm they head and one-quarter from the owners’ families.<sup>14</sup> In the US, “businessmen consistently distrust the State” and rarely give top business jobs to civil servants or politicians with the exception of armaments companies which hire retired admirals and generals.<sup>15</sup> In Italy, also, the state has been in disrepute for a long time and privately-owned firms, often family business, almost never hire executives from the public sector. Moreover, Italy has neither an ENA nor engineering *Grandes écoles*. The elites are trained in the best universities (some of them private), where ambitious students study law, economics, management. The ENA is therefore an exception in the Western world. In the next section, we analyze the effects on the economy of training elites through a unique school, such as the ENA.

## 3. The Model

We incorporate in our model some of the elements specific to the elite school, ENA, which can be summarized by two assumptions:

1. There is an entrance exam to the elite school, based on very broad subjects rather than on specific technical knowledge.
2. After graduation, alumni of this elite school who received the same training and education are active in all sectors of the economy: bureaucracy, politics and industry,

including the private sector, resulting in some sector complementarity.

### 3.1 Recruitment of students

We assume that output is a function of the factors of production: capital,  $K$ , and labor,  $L$ ; of the technology level,  $A$ , and the average quality (that we term “value”) of the elites,  $\bar{V}$ , as displayed in equation (1).

$$Y = A\bar{V}F(K, L) . \quad (1)$$

Since the quality of the elites has a positive influence on output (human capital of the rulers affects output), one would like to have the most competent people in power positions in order to get higher productivity and output.<sup>16</sup> This is the *raison d'être* of a school of elites that recruits by meritocracy.

If information were perfect the exact value of a person would be known, and the elite school would then choose the best candidates. However, since this kind of information is imperfect the best proxy is student performance on the entrance exams.

We define  $I \in [0,1]$  as the minimum grade necessary to be accepted to the school. If the grade  $\alpha_i$  of student  $i$  is greater than  $I$  he is accepted to the elite school:<sup>17</sup>

$$\alpha_i > I. \quad (2)$$

The performance of a student on the test is based on two elements. The first is his ability; more able students get better grades on their exams. We assume that the ability  $a_i$  for all students is uniformly distributed on  $[0,1]$ , i.e., whatever the social class, the ability is distributed uniformly.<sup>18</sup>

The second element takes into consideration that tests are not perfectly objective, but reflect a culture related to the milieu of the elite with which the teachers at this school are associated. Therefore, students with an equivalent ability but who are born to the elite and raised in this milieu will perform better on tests.

The grade of student  $i$  who is not part of the “elite milieu” corresponds to his inherent ability, while the grade of a student from a family in the elite incorporates not only his ability, but also the cultural background from his family -- the inside knowledge specific to the elite milieu which we define as  $f$ . Without loss of generality, we assume that the relation is linear, the grade the student receives is therefore:

$$\begin{aligned} \alpha_i &= a_i && \text{for student } i \text{ outside the elite system,} \\ & a_i + f && \text{for student } i \text{ being raised in the milieu.} \end{aligned} \quad (3)$$

The percentage of accepted students from the entire population is:

$$\gamma_p = I - I \quad (4)$$

while for the students of elites milieu it is:

$$\gamma_E = I - I + f. \quad (5)$$

Let us call  $\beta$  the ratio of the percentage of the elite children in the elite school over the percentage of elite in the total population, then:

$$\beta = (1 - I + f)/(1 - I). \quad (6)$$

To give a sense of magnitude, let us take, for instance, that  $I = 0.99$ ,  $f = 0.20$ . We get that  $\beta = 21$ , which means that the percentage of children from the milieu accepted is 21 times higher than the percentage of children from the total population. Thus, under imperfect information, selection of students through tests leads to a bias, i.e., for the same objective ability, students who are not part of the elite milieu will not be accepted while a student of the milieu will be.

This simple model shows that the fact that, over time, individuals from the same milieu are accepted to a school for elites is not due to cronyism, but to the system itself, even if it is meritocratic. No system can be perfect when there is imperfect information on the genuine talent of people. A choice is necessary, and by choosing it automatically advances those who are educated inside the system.<sup>19</sup> This will be summarized in the next proposition which underlines that elites' schools freeze the circulation of elites. The auto-recruitment is not due to some favoritism, but to imperfect information on the true value of students.

#### *Proposition 1*

A school of elites based on meritocracy leads to homogeneity of groups. Children born in the elite are represented by higher percentages than their ratio to the population. Schools of elites restrain diversity of the elite.

Continuing with our example, if the population of potential entrants is 25,000 while the number of the children of elites that takes the exam is 500, one gets that 42 percent of the ENA students will be from the same milieu (and  $\beta$  equals 21). We have shown above that the ratio of students whose parents belonged to the elite was in average 50 percent; it is not very far from the percent we get in our example.

This effect of non-circulation of elites is unavoidable and raises the question as to whether schools of elites are the best method of choosing bureaucrats and rulers. An alternative solution would be for everyone to go to universities and the best students be culled from the graduating classes as is done in most countries. (At present, this solution might be unrealistic for France since the *Grandes écoles*, whatever their defects, are the only institutions providing quality higher education).

Is this type of meritocratic school optimal for the development of a country? In order to analyze its effect on development one has to focus on the production function. The analysis is divided in two parts. In the first, the consequence of proposition 1 (i.e., that elite schools do not lead to circulation of elites) on the productivity is analyzed. In the second, we focus on the consequences of the fact that all elites come from the same school and are educated in the same mold (an inherent element of the elite schools and of *dirigism* in the French system).

### *3.2. Elite schools and the production function*

Recall from equation (1) that the productivity level is a function of the value of the elites,  $\bar{V}$ , and technological progress,  $A$ . Technological progress can be due to a change in techniques but it also includes changes in methods of production, business culture and methods of management. The evolution over time of technological progress takes two different forms: innovation and invention. Innovation occurs in the context of a given technology; it leads to an increase in productivity based on the current technology and

infrastructure (bureaucratic, technocratic). In this type of progress (built on the same structure), the value of students that come from the milieu has a value added,  $f$ , since they already are familiar with this structure. We can therefore write that the value of a student  $i$  in time of inventions,  $V_i^n$ , is a function of its ability as well as the education received in its family environment, and without loss of generality, we assume that the influence of the milieu,  $f$ , enters  $V_i^n$  linearly.

$$\begin{aligned} V_i^n &= a_i && \text{for } i \text{ outside the elite system,} \\ &a_i + f && \text{for } i \text{ being raised in the milieu.} \end{aligned} \quad (7)$$

The other type of progress is inventions. While innovations are based on previous technology, major breakthroughs that change the nature of technology fundamentally require that one starts anew and all previous learning is lost. This means that the culture the elite has assimilated in his home is no longer useful (in some cases it could even be counterproductive, but not in this model). The only value that people have is their ability net. So the value of a student  $i$  in periods of inventions,  $V_i^v$  is:

$$V_i^v = a_i \text{ for all } i. \quad (8)$$

Thus, in periods of innovation the students' value is distributed on  $[I, 1+f]$ , while in periods of invention it is distributed on  $[I-f, 1]$ . (Since the students' ability is, in all cases, distributed on  $[I-f, 1]$ .) The average value of elites in periods of invention and innovation is respectively:

$$\begin{aligned} \bar{V}^n &= (1 + f + I)/2 && \text{for innovations,} \\ \bar{V}^v &= (1 - f + I)/2 && \text{for inventions.}^{20} \end{aligned} \quad (9)$$

The interpretation of equation (9) is that during periods of innovation, but not of technological revolution, the students from the milieu contribute an average value of  $(1+f+I)/2$ , which is a higher value than the average population accepted in the school  $(1+I)/2$ . Those from the milieu increase the average value of the elite in times of innovations, and which results in a higher output (or growth rate). By contrast, during periods of inventions, i.e., of technological revolutions, the home culture is not useful, and only pure ability has an effect on output. The students from the milieu reduce the average ability and therefore the average value of the elites. We summarize this effect in proposition 2.

### *Proposition 2*

When the world faces innovations, the best elite is the one coming from the elites' school; although, when the world faces inventions and large changes, diversity of elites is optimal. Homogeneity is, therefore, bad for growth, and elites schools are not optimal. Non-circulation of elites resulting from elite schools hampers growth during periods of invention while it enhances it in times of innovation.

### *3.3. Interactions of sectors*

The two main characteristics of elites' schools are that they lead to narrow recruitment,

and that the elites have been educated at the same school. In the above section the consequence on growth of the first characteristic was analyzed (it was shown that elite schools have different effects if progress occurs due to innovation or invention). The second one will now be discussed.

We show that similar education for the elites has two opposite effects, but at different periods of time. While networking is optimal at times of innovation, it will slowdown and restrain the adoption of revolutionary techniques, i.e., inventions. Countries with elite schools will adopt new technologies and systems of productions less rapidly than countries where the system of recruitment for key positions comes from different types of education.

Since this section analyzes the inter-relations between sectors, one has to disaggregate the total output between  $S$  sectors. Instead of a mere division between sectors of production (e.g., industry, agriculture or service) we consider instead a division between the different private and public (state owned or nationalized) sectors, and the civil service (e.g., public finance, the different regulation agencies, etc.). Total output is the sum of the output in each sector:

$$Y = \sum Y_s, \quad (10)$$

$Y_s$  being output of sector  $s$ .

The output of sector  $s$  is a function of the technology used,  $A$ , the elite value, the factors of production, but also the interaction and inter-relation of elites between the different sectors of the economy. The elite school has taught them some specific methods, systems and structures, so that when the sector's leaders are alumni from the elite school they will have connections with other sectors in which the alumni also have control. There is complementarity between the sectors, i.e., when all use the same methodology, there is a positive externality from the other sectors on sector  $s$ .

This interaction between sectors, defined as  $\delta^s$  depends on which techniques are used in the different sectors. Let us assume that the elite has been taught technology  $j$ . If, while all the other sectors use technology  $j$ , sector  $s$  adopts a new technology called  $j+1$ , the externality effect from the other sectors on sector  $s$  disappears, and the interaction,  $\delta_{j+1,j}^s$  equals to 1. When sector  $s$  also uses technology  $j$  as the other sectors the external effect on sector  $s$  exists, and the interaction,  $\delta_{j,j}^s$  equals  $\delta$  that is greater than 1, that is:

$$\begin{aligned} \delta_{j+1,j}^s &= 1 \\ \delta_{j,j}^s &= \delta > 1. \end{aligned} \quad (11)$$

The production function in sector  $s$  is therefore:

$$\begin{aligned} Y^s &= A_j \bar{V} \delta_{j,j}^s F(K, L) && \text{if sector } s \text{ stays with technology } j. \\ Y^s &= A_{j+1} \bar{V} \delta_{j+1,j}^s F(K, L) && \text{if sector } s \text{ adopts technology } j+1. \end{aligned} \quad (12)$$

Let us analyze the evolution of output during technological changes. Assume that the economy is using technology  $j$  (students in the elite school are also educated in the surroundings of the technology  $j$ ). Innovations that occur over time and that take place inside the given system of technology  $j$  do not lead to a change of environment and the sectors continue to use it. Innovation implies that, over time,  $A_j$  increases but there are no drastic

changes in technology. The output of sector  $s$  during innovation (while the other sectors still use technology  $j$ ) is:

$$Y^s = A_j \bar{V}^n \delta_{j,j}^s F(K, L) = A_j (1 + f + I) \delta F(K, L) / 2. \quad (13)$$

When invention occurs, the entrepreneurs of sector  $s$  face the decision to either adopt the new technology  $j+1$ , or to continue to use  $j$ . If the sector  $s$  adopts an invention  $j+1$ , while the other sectors still use the technology  $j$ , on one hand it loses the externality of the connection between sectors, but on the other hand technological progress,  $A_{j+1}$ , is higher. The output becomes:

$$Y^s = A_{j+1} \bar{V}^v \delta_{j+1,j}^s F(K, L) = A_{j+1} (1 - f + I) F(K, L) / 2. \quad (14)$$

Sector  $s$  will adopt the invention  $j + 1$  only if:

$$A_{j+1} (1 - f + I) > A_j (1 + f + I) \delta. \quad (15)$$

From the point of view of the entire economy, it is optimal to adopt the new technology if  $A_{j+1} > A_j$ , a condition that is different from equation (15). This externality between the leaders in the different sectors leads to less frequent adoption of inventions than it should be for the welfare of the country. Since elites are trained in a unique school, it is less attractive for a specific sector to adopt new methods and structures.

### Proposition 3

While the school of elites resulting in a common education of the elites encourages an increase in growth during periods of innovations, during periods of invention it leads to a restraint in adopting them. The economy remains with archaic methods and structures; the elites school acts as a brake on the growth of the economy.

## 4. Conclusion

From the time of the French Revolution and Napoleon, France has had a tradition of intervention, not only in the economy, à la Colbert, but also in education. This may explain why France is the only country to have a specific school for the recruitment and training of its elite, the ENA. No other country in Europe and the US has a unique school that has a monopoly for recruiting all top civil servants, the bureaucratic elite. Moreover, in no other advanced country have graduates of a single institution secured such a stranglehold over the recruitment of the bureaucratic, political and economic elites.

This school has therefore been accused of being one of the reasons for France's gloomy social and economic climate. The grievances against ENA are that it leads to a narrow social recruitment of the elite, to the *pensée unique*, and to elites who are out of touch with structural changes (some of whom exhibit excessive arrogance and self-confidence).

This chapter has shown that, indeed, a school of elites will lead to all these consequences. These effects are not always bad for the economy, since in periods with no major technological and structural changes, such a school is appropriate and brings about an increase in growth. However, in periods of invention and structural changes it will cause a slow down in the adoption of new techniques.

The 1990s have seen profound changes in techniques, but also in economic structures, environment and relations such as the widespread use of computers, the globalization of the

economy, and the adoption of TQM technique in management. The ENA, which has educated France's rulers of today, is not geared to these changes in the structure of the economy. We have shown that the narrow social recruitment is a negative factor in time of invention (proposition 2).

Proposition 3 states that economic sectors will not have the right incentive to adopt new structures. The strength of this system of recruitment during periods of small changes becomes its weakness during periods of inventions and prevents rapid adaptation to new systems. The economy, compared to other countries, will display a gap in technology and growth that will widen in periods of inventions. This chapter offers an explanation why, during the 1990s (a period of profound changes), the ENA has so much fallen into disrepute.

There are two other negative effects of an elite school that we have not discussed. The first is the large amount of cronyism and ill-advised *esprit de corps* among the ENA alumni who have made serious mistakes (e.g., running state-owned firms into heavy losses), and actually managed to get off "scott-free." It might be that the connections, resulting from the fact that these alumni are in politics, the civil service and in the private sector, are conducive for decision making that takes into consideration the welfare of the appointees rather than of the economy.

The second point that should be raised is whether ENA alumni, who are trained to be civil servants, are fit to lead business firms in a world of open markets, privatization and deregulation. The spectacular series of disasters suffered by large state-owned French companies -- Crédit Lyonnais or "Discrédit Lyonnais" (which, in 1913, was the largest bank in the world), Air France, SNCF, etc., are too well-known to need comment. It might be that belonging to an elite school has consequences on the behavior of the chosen. It might, for example, perpetuate the continuation of the role of their peers, give importance to hierarchy, and lead to a conformist behavior, rigidity and archaism. There is no doubt that those who enter are talented but do not necessarily have the qualities needed to be businessmen. The passage of ENA alumni from the civil service to the economic sector is one of the perversions of this elite school.

Unless France again has a "revolution" and dismantles this school a serious reform should be implemented at the ENA.<sup>21</sup> A simple way would be not to permit civil servants who have gone into politics or business to return to the civil service if they lose their seat in Parliament or are fired by their firm. They presently have a parachute against all accidents which stimulates the "revolving door." The invasion of ENA alumni in the economic sector should be restrained, especially in times of economic changes in the world of the type we have witnessed in the past few years. The influence of the ENA has grown too wide.

## Notes

1. Two papers dealing with elites and growth are Verdier and Ades (1996) and Justman and Gradstein (1999).

2. The notion of elites is quite ambiguous; it means the most capable and talented in society (which we will define as "natural" elites), but it also means in Mougel's words (1987, p. 20), "a relatively small group of individuals, relatively coherent sociologically, who exercise a function of power, directly or indirectly (through influence), within a society," the "power elites."

3. The opposite choice, that is, the method applied by former Communist countries, where the children of bourgeois families were prevented from entering universities (while the scions of *apparatchiks* were privileged) is, of course, also not optimal.

4. The ENA is only one part of the elite schools system of France, but the others mainly train engineers of high caliber, while the ENA's mission is to train civil servants, the ruling elite. We therefore focus on this school.

5. However, expenses rose since traveling costs of faculty and many experts who give occasional lectures and live in Paris, are an expensive outlay.

6. New universities slowly emerged only in the nineteenth century and for a long time they did not have adequate faculties of sciences. This explains that a number of new *Grandes écoles*, for training engineers, were gradually established, some of them by private initiative, (e.g., *Ecole Centrale* in 1826).

7. After graduating, they do not immediately take the ENA exams; most student-candidates spend a year or two in classes that give special preparation for the ENA exam. This preparation is mainly at the IEP of Paris.

8. Generally speaking, persons who entered the ENA through the bureaucrats' exam were less successful in their later careers than the ones taking the students' exam because they did not do as well on the final comprehensive exam (which is the same for all students). Presently 60 percent of entrants are "students," and 40 percent "civil servants."

9. This favor was later abolished.

10. The first *promotion*, in 1946, had 90 members; in 1995, 108 persons were admitted. In the interval, enrolment has been smaller in some years. While the ENA recruitment in the 1950s was mostly students with rightist positions, nowadays ENA is including both rightists and leftists, with possibly a majority of leftists.

11. It is often said that the internship during the first year is very useful, while students do not learn much during their second year, at the school itself.

12. There are two ways for civil servants to enter the business sector. The first is the so called "revolving door" i.e., directly from the civil service into business. However, a cooling off period exists obliging civil servants to "sit on the side" for five years before being allowed to enter the regulated sector; but they can enter a different private sector (see Brezis and Weiss, 1997). The second is indirect; after having spent some time either as a member of parliament or in the personal staff of a minister one can be appointed by the government to direct a state-owned firm or be "imported" by a large private company (which has appreciated one's talents) to which one's connections in politics and in the bureaucracy can be useful. Membership in the political party in power, especially under the Socialists, is quasi-necessary for appointments in state-owned firms.

13. See Gaillard (1995, pp. 105-108). However, each graduating class includes a few persons with a modest background and some of them hold brilliant careers.

14. See Bauer and Mourot (1996).

15. Zunz (1996, p. 209).

16. For simplicity, we have assumed that the value of elites influences the level of output but we could have instead assumed that it influences the growth rate of output. We will, therefore, in this chapter, refer to the effect of elite either on output or on the growth of output indifferently.

17. We assume that the entrance exam is based on grades although, at the ENA, the exam is a competitive one. This simplification does not affect the results since there is a one-to-one relation between the number of accepted students and a passing grade. The only difference would be a fluctuation of the number of accepted over the years but, on average, it would be equivalent.

18. We are aware that there exist some empirical results on the Bell curve showing that ability is not uniformly distributed, and some theoretical models, explaining why effort, and therefore ability, would be different in the different social classes (see for instance Durlauf, 1999). However, the assumption that ability is uniformly distributed is often adopted in models on mobility; see, for instance, Galor and Tsiddon (1997).

19. One might think that the two different entrance exams for ENA are "repairing" this bias. It would be true if there were no final exam where the 20 best are immediately chosen to enter the *Grands Corps*, so that our proposition holds for the final exam.

20. In equation (9), the average value of elites is given only for students belonging to the elite milieu, and

we did not take into consideration the other students since their average value, during periods of inventions or innovations, is always  $(1+I)/2$ .

21. A recent report (May 1998) by a committee chaired by Jacques Attali proposed a reform of the *Grandes écoles* which would actually abolish them by integrating them into universities.

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