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Many roads to flexibility

How large firms built autarchic regional production systems in France

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Abstract

This paper discusses the adjustment of large firms in France, in particular how they regionalized their production structures in the 1980s. Throughout the "Golden Age," large firms had geographically reorganized their activities: strategic planning remained in Paris, while the actual production was decentralized into the provinces, primarily to address cost and labour conflict issues. When the large firms faced a profitability crisis in the 1980s, and the traditional state-financed way out of the problems was no longer available, they saw in these proto-regional production systems a chance to become more competitive. They relied on the decentralization policies of the governments in the 1980s, and used the second-order effects of the new policies as a means to modernise their own operations.

1. Introduction

This article discusses a crucial aspect of industrial adjustment in France during the 1980s and early 1990s. Its central argument is that in their search for flexibility, large firms, mainly in the exporting sectors, constructed hierarchical regional production systems which allowed them to cope with the restructuring imposed by competitive pressures. To this effect, they redesigned existing government policies aimed at revitalizing regional industrial tissues, and exploited the possibilities hidden in these policies to upgrade their own, largely captive, regional supplier base.

This outcome contrasts sharply with dominant positions on industrial readjustment. A venerable family of arguments is built on the claim that France is stuck in an under-performing system because of the inability to reform the very institutions that keep it there. Recent literature on flexible adjustment, however, argues that trust, leading to the construction of symmetrical relationships between large firms and their suppliers, are the cornerstones of such a new system.

Both these positions are inadequate for understanding recent developments in French industry. The industrial restructuring that has taken place in France since the mid-1980s, has led to better economic performance than can be explained by the first argument. The trust-based view, however, is too optimistic: the new situation in France relies much more on power and hierarchy than the symmetrical relationships that are usually associated with this argument.

In their search for flexibility, the large exporting firms in France traced a new path, which went beyond both the old industrial model and the simple adoption of best practice solutions invented elsewhere. Yet it was not just managerial wisdom that got these firms there: in the process of adjustment, many of them turned to existing government policies on regional economic development for designing new relations

with their suppliers --one of the areas that had become crucial for successful industrial restructuring.

The balance of this article is organized in three sections. After discussing the literature on adjustment in the French economy, the article moves on to a detailed discussion of the reorganization of French industry and the role of regional policies in that process. The fourth and final section concludes by addressing the broader issues that follow from this analysis.

2. Understanding economic adjustment in France

The detailed material on the evolution of French industry since the mid-1980s presented here addresses two broad positions on industrial adjustment: historical institutionalism and political constructionism. The historical institutionalists start from the idea that the very conditions that propelled France into the top OECD-league in the post-war growth era, have turned into the main obstacles for flexible adjustment after 1973. The overwhelming presence of the central state, the single most important actor in post-war industrial adjustment (Berger, 1981; Boyer, 1992; Zysman, 1983; Hall, 1986; Crozier, 1964; Estrin and Holmes, 1983; Cohen, 1989; Cohen, 1992), created obstacles for decentralized modes of production. The absence of strong actors outside the state --most importantly labour unions to guide workplace democratization and regional industrial associations to steer regional economic policy-- jeopardized strategies built on decentralized liberalization (Ross and Jenson, 1988; Levy, 1999; Howell, 1992). The reliance on mass production, in turn, which resulted from an optimistic belief in the virtues of scale economies, can hardly be regarded as a successful product market strategy in a period when semi-customized products can be produced at the same cost (Piore and Sabel, 1984; Streeck, 1992; Coriat, 1995).

Since French industry has become better at doing things that are not any longer valued in world markets, these obstacles to adjustment should have accumulated into a series of profound problems for the French economy. Data on economic performance, however, tell a different story: with the exception of the unemployment rate, which has consistently been above the OECD average, French economic performance since the mid-1990s has been at least as good as, and in some cases superior to its G7 partners. The data presented in table 1, which lists averages on a variety of economic performance indicators for 1995-2000, illustrate the relative position of the French economy.

Table 1 about here

The reason why this position fails to understand French economic performance is intimately tied to its underlying notion of the relationship between economic actors and institutions. In the many sub-variants in which it appears in the debate, this perspective argues that path-dependencies lock national or regional economies into a narrow adjustment trajectory (Taddéi and Coriat, 1993; Boyer, 1997).¹ However, precisely this seems not to have taken place in France. The state has significantly reduced its direct role in the economy since the early 1980s, French exports have increased dramatically since the late 1980s, and tradable goods are now concentrated in flexible mass production segments of consumer goods such as cars, household appliances and consumer electronics, as well as in high-tech, complex engineering systems such as trains, nuclear power and civil engineering (Amable and Hancké 2001). Rather than stuck in a low-performing system, the French political economy has been able to adapt its institutional framework easily to the new challenges of an internationalized economy.

The second broad argument in the literature takes precisely this critique of institutionalism as its starting point. Instead of seeing France as endowed with

institutional features which lay down the tracks of economic development, this view argues that institutional trajectories incorporate multiple possible scenarios, and that one cannot simply 'read off' the outcomes from the institutional set-up (Sabel, 1993; Salais and Storper, 1993; Storper, 1997; Zeitlin and Herrigel 2000). While existing institutional frameworks may appear to preclude creative adaptation, these institutional obstacles themselves can in principle be overcome when actors become aware of alternatives and of how to construct these (Sabel 1993).

This process has led to two complementary processes of organizational decentralization. The first is internal, whereby the vertically integrated corporation is divided into several more or less independent parts, often taking the form of business units. The second process is related to suppliers, with whom links are redefined in such a way that both firms have to open themselves up to the other in order to be able to cooperate. Since all parties have information on the other, mutual information exchange leads to mutual vulnerability, which in turn begets mutual convergence of large and small firms. Industrial adjustment will therefore lead to a more symmetrical relationship between large firms and their suppliers (Herrigel 1996; Zeitlin and Herrigel 2002).

Over the last decade, an important part of the literature on adjustment in French industry has focused on the construction of such trust-based supplier relationships (Baudry, 1994; Baudry, 1995; Lorenz, 1988; Lorenz, 1992; Lorenz, 1993), as well as new inter-firm relations that have steered industrial change onto a new path. Since they are usually close to the economic actors, these new governance mechanisms were often located in newly emergent regional economies (see the debate in Benko and Lipietz 1992).

This article agrees that institutional frameworks in principle open rather than close possibilities of adjustment, especially in highly volatile economic environments. The

problem is how to evaluate outcomes: while successful industrial adjustment is frequently equated to a situation of increased symmetry between large firms and their small firms interlocutors (Sabel 1993), this is not necessarily so. In France, industrial change led to a situation where the core elements of the old hierarchical relationship between large and small firms were almost entirely destroyed, but the new relationship that emerged was constructed with the elements that had characterized the previously existing hierarchical situation.

As one of the consequences of the historical development of regional production systems in France since the Second World War, suppliers had become existentially dependent upon their customers. The decentralization policies of the French government between 1950 and 1970 had given way to large green-field plants in rural areas, and by the mid-1980s, most of the regional production sites of the large firms had become the centres of local industrial mono-cultures, in which their suppliers were being treated as extended workshops (Rochard, 1987; Veltz, 1996). When large firms restructured in the 1980s, they did so from this position of power in these local economies, which allowed them to define the pace and direction of local industrial adjustment. Moreover, the nature of the new technical links between large and small firms militated against symmetry. Instead of designing products in such a way that they drew on the capabilities of their suppliers in product development, and adjust product specifications along the way to converge on a mutually agreed design (Ulrich, 1995; Teece, 1986; Casper, 1997), the large firms conceived of their new products as collections of interchangeable standardized modules. The reorganization of product development therefore both reinforced and was supported by the existing hierarchical structure of the regional production networks.

The next section presents detailed empirical material on France which will develop this argument in three steps. The first outlines the constituent elements of industrial

adjustment in France, the second analyses the regional government policies and how these became a failure, and the third a discussion of how the large firms exploited the opportunities offered by the regional policies to upgrade their own operations and those of their suppliers. Along the way, this led to autarchic regional production networks: regionally or locally embedded networks of legally independent production units organized around the needs and requirements of a single large exporting firm.

Two notes on the field of enquiry. The analysis concentrates on large manufacturing firms in exporting sectors, the core of the French production regime. In 1994 these firms accounted for 56% of exports, 34% of industrial employment, 49% of investment in industry, 44% of sales, and over 67% of industrial R&D (SESSI 1997:17, 52).

Secondly, this paper acknowledges that there are many different regional economic systems in France (Aniello and Le Galès 2001), but concentrates on the large firm-centred ones. The other regional systems grew out of very different concerns and their contribution to industrial adjustment in the exporting sector has been relatively small.

3. The search for flexible adjustment in the 1980s

By the mid 1990s --as the last empirical subsection of this article will show-- a large part of the French territory had been turned into a series of flexible regional industrial systems, organized around a single large firm in its centre. How did this happen? This section starts answering this question by developing the key elements of the French version of large firm flexibility, and then moves on to the (rather unsuccessful) attempts by French governments in the early 1980s to create a supply-side policy framework that would allow industry to adjust to changing international and domestic economic conditions. The failure of these policies are subsequently

reinterpreted in light of the restructuring process of large firms. The final subsection locates these case studies in broader developments through a statistical assessment.

3.1. Building flexible production networks

By the late 1970s, the French industrial structure was, in two senses of the word, highly dualist. As in many other post-war capitalist economies many SMEs had survived the large firm-centred mass production model, because of their intrinsic flexibility, which allowed them to fill the gaps in the large firm production schedules (Berger and Piore, 1980; Salvati, 1981). The second dualism was regional and more particular to France: as early as 1947, an influential book on economic geography had argued that France consisted of the highly developed Paris area, and that little economic activity took place in the provinces (Gravier, 1947; Veltz, 1996). To rectify this situation, the French state set out to reorganise the geography of industrial production and created an agency, the DATAR (Délégation à l'aménagement du territoire et de l'action régionale), with the task to plan economic development in the regions outside Paris.

In response to these territorial policies, many large firms set up green-field plants in the French *hinterland*, and built extensive local supplier networks around them. While this was in part related to the tight labour market in Paris and the northern regions (Oberhauser, 1987; Caro, 1993), some companies located in the provinces for other reasons as well: Peugeot had always had its most important plants in the east of the country (see Pialoux, 1996; Loubet, 1998), Michelin in the central area around Clermont-Ferrand, and the location of the aerospace industry in the south-west between Toulouse and Bordeaux followed a political decision to concentrate this security-sensitive industry far away from the German border (Aniello and Le Galès 2001; Dupuy et al., 1999). Thus, industrial production in France very early on

assumed a regionalized form--but the regional character of production was often simply a way for large firms to escape militant workers, labour market friction or space constraints.

In the early 1980s, the centralized French production regime faced a dramatic crisis. Even though they were European market leaders in many sectors, the large exporting firms posted large losses: productivity dropped sharply, profits fell as a result, and to many it became obvious that the French version of Fordism had run its course (Boyer, 1979; Levy, 1999; Howell, 1992). Between 1980 and 1984, the '*fleurons*' of French industry collapsed under their own weight: unable, under the inflationary growth regime of the 1960s and 70s, to retain capital for investment, they found themselves in a structural crisis by the early 1980s (Smith, 1990; Schmidt, 1996; Smith, 1998; Glyn, 1997). The economic policies of the socialist government during those years exacerbated the financial situation of the large firms. Since the companies had been unable to build up reserves before, and relied on banks and the state for credit, they faced a gigantic debt burden (Zysman, 1983; Hall, 1986; Taddéi and Coriat, 1993). The macro-economic stabilization policies after 1983, which pushed up interest rates (Halimi, 1992; Cameron, 1996; Halimi, 1996), created significant problems for the highly uncompetitive large firms.

This broad economic context offers the background for the mobilization of the previously existing regional production structures. In contrast to an earlier period, when suppliers were regarded primarily as solutions to internal labour problems, suppliers began to play a key role in the large firms' search for external flexibility after 1985. One of the first things tried out was the generalization of just-in-time (JIT) manufacturing methods. As early as 1982, Renault started experimenting with KanBan systems (Labbé, 1992), and other large firms rapidly followed suit. By the mid-1980s, all industries where some form of JIT production systems could be

implemented --such as cars, electronics, household appliances, and engineering-- were experimenting with new supplier configurations (Gorgeu and Mathieu, 1993). Since JIT systems implied a reorganization for the suppliers as well if they did not want to find themselves saddled with the prohibitive costs of inventory, the large firms discovered that their success depended crucially upon the capacities of the suppliers to reorganise to meet these requirements.

The second step in the adjustment built on the first: in order for the JIT systems to work as planned, large firms imposed stricter quality norms upon their suppliers. Suppliers thus regularly had to subject themselves to quality audits, quality checks, quality consulting, and sometimes contract renegotiations as a result. (Gorgeu and Mathieu, 1993; Lorenz, 1993; Baudry, 1995; Gorgeu and Mathieu, 1996). The large firms also helped them upgrading quality, training workers, obtaining licenses, and organizing technology transfer. The final step consisted of attempts by the large firms to merge their suppliers into larger firms, capable of taking over product development, and providing training alone, without help from the large firms (Hancké, 1998).

However, the asymmetric relation between large and small firms that had characterized the old regime had not disappeared. By the time the large firms were experimenting with JIT, the decentralized plants that played a key role in that strategy, had in fact become the core of regional industrial monocultures. The introduction of JIT therefore allowed the large firms to treat their suppliers as extensions of their own production operations in these regions. The result was that the technical integration, which offered the much weaker small firms ways to upgrade, tied the latter's fate more closely to that of the large firms.

While the fate of the small firms became more dependent upon the large firms, the converse was not the case. Since technical upgrading started from an extremely low

level, and was guided entirely by the strategic interests of the large firms, the latter structured the relationship in such a way that they managed to avoid paying the price of establishing long-term relationships that they would have to do in other, more symmetric systems (see Aoki, 1988; Sabel, 1993). Most importantly, they designed new products so that they standardized most of the parts, modules and services they bought from their suppliers and subcontractors, thus reducing their unilateral dependence upon the latter. And since many of the suppliers remained captive suppliers located in the large firm-centred regional economies, the large firms were able to reap the benefits of having a well-performing local supplier system without having to offer increased long-term loyalty in return.

In a few years time, and in response to a dramatic competitiveness crisis, large firms in France thus reorganized their supplier links to become state-of-the-art JIT systems. Given the well-documented institutional blockages to adjustment in French industry, how did the large firms accomplish this modernization of their suppliers networks and their subsequent quasi-integration? The answer lies in the conjunction of their dramatic crisis with a series of government policies aimed at giving sub-national government levels a more important place in economic policy-making. While these decentralization policies failed in their stated goals of creating dynamic local industrial systems, they offered large firms a novel institutional framework for their modernization.

3.2. The institutional technology: the regional policies of the 1980s

The post-war history of French industry is organized around protectionism, state aid and subsidies, and as late as the early 1980s, the state was still the central actor in French economic life. There were good reasons, therefore, to believe that large firms would be unable to reorganise on their own. Judging from the experiences of the

1970s, in fact, it was almost certain that any reorganization of industry would have to take place through the state (Berger, 1981; Cohen, 1989). In order to move out of the low-trust, low-tech equilibrium in which they were trapped after the French version of Fordist mass production had run its course, the large firms needed more than just goodwill and detailed plans.

The French state initially saw things the same way. Almost at the same moment that the Fabius government imposed hard profitability criteria on the large firms after the 1983 turn from an expansive to a restrictive macro-economic policy, a series of changes in the organization of the state and particularly the planning apparatus took place (Schmidt 1990; Levy, 1999). In their wake, responsibility for training, SME support and technology transfer was regionalized and financial instruments were developed to support the local development policies.

Following the Left electoral victory of 1981, decentralization and regional industrial policy received a new impetus (Schmidt, 1990). The reforms of the 1980s are strongly associated with the name of Gaston Defferre, the then mayor of Marseille, who seized the political momentum to propose legislation to reshape the relation between Paris and the regions. The background to the reforms was at least threefold. First, it was political, by ridding large city-mayors of the central state's irritating micro-management. Secondly, it was social, in that the reforms should be regional development instruments aimed at reducing the territorial inequalities that had built up over the post-war period. Finally, but as an afterthought (Levy, 1999), their rationale became economic as well, since the policy makers realized that France's overall economic performance was heavily dependent upon a dense tissue of sophisticated SMEs, and creating a local support structure for such small firms was impossible to organise from Paris. Thus the reforms installed a network of regional

and local institutions to assist small firms in their modernization drive and create new opportunities for regional economic growth.

Analytically, the reforms entailed, beside a regional extension of the traditional financial aid to companies, a regional planning system, envisioned as the regional *pendant* of national industrial policies, which implemented broad centrally defined goals in several mutually reinforcing areas. The policies sought to encourage innovation through the dissemination of information and the organization of technology transfer and licenses. Regional technology centres were founded or revamped, and the Ministry of Industry regionalized part of its operations through the regional industry directions DRIR(E) (Direction de l'Industrie, de la Recherche et de l'Environnement) (Vavakova 1999) and the ANVAR (Agence Nationale de la Valorization de la Recherche) and ADEPA (Agence de Développement de la Productique Appliquée) (Levy, 1999). In addition, regional authorities would help small firms with their search for (export) markets; again the DRIRE, in cooperation with the Ministry of Foreign Trade, would be the institutional actor on the terrain (Grefe, 1992). In addition, the professional training system was gradually regionalized, allowing the regions to adapt their training system to local needs. Furthermore, in the wake of the financial reform of 1984, attempts were made to redesign the financial system in order to bring creditors closer to the under-financed and financially isolated SMEs (see Grefe, 1992; Chanel-Reynaud and Cieply, 1996). Finally, the relations between the regions and the central state were formalized in contract-like fashion, linking regional and central planning goals and instruments.

While some evaluations of the regional policies point toward positive effects --not least simply local diversity across the otherwise highly centralized French polity (Schmidt, 1990; Montricher, 1995; Grefe, 1992)-- most analyses demonstrate how the institutional heritage associated with the central state shines through in almost every

success (Giblin, 1995; Levy, 1999). On balance, and with, perhaps, the regionalization of the training system as an exception (see Hillau and Caro, 1996; Lamanthe and Verdier, 1996; Mouy, 1996), most authors seem to agree that the regionalization policies have come up short of what they promised (Culpepper 2001; Aniello and Le Galès 2001; Levy, 1999).

Technological innovation is a clear case in point. Even though there are hopeful examples, a consensus is growing that the newly emergent regional innovation systems are incapable of providing the type of technology expertise required by small firms. While more research and development activities are taking place outside the Paris basin today (even though half the state's R&D effort remains concentrated there), the actual link with the regional economies is very weak (Vavakova 1999). Most of the research institutes in the provinces have contacts with (large) firms in Île-de-France instead of local (small) firms. Moreover, since regional governments concentrate their budgetary efforts in high-tech industries and science parks, the impact of the decentralized research programs on traditional industrial SMEs is insignificant (Vavakova 1999).

The decentralization policies in general put the entire institutional arsenal in place in the regions, but ignored the weakness of the actors who ensured that the system also performed as designed. Why the social actors who ought to provide these translations between different industrial worlds (Rivaud-Danset and Salais, 1992; Salais and Storper, 1993) were not there, is related to the historical lack of strong intermediary associations in France (Levy, 1999); the post-war state-centred industrial and economic policy system exacerbated this problem by degrading interest groups into handmaidens of the state. As a result, when the state wanted to decentralize its own operations, and delegate authority to groups in civil society, there was nobody there

to actually carry the policies through (Levy, 1999). Judging the decentralization reforms by their stated intentions, therefore, the policies were failures.²

3.3. The resurgence of the large firms

Such a narrow institutionalist interpretation, however, misses several inadvertent effects of the decentralization policies: it ignores that a wide array of novel institutions in the provinces were created: training institutes, technology centres, local employment antennas and regional development funds. Furthermore, in many of these regions important local actors were eagerly searching for a way to upgrade their supplier base through retraining, technology transfer and organizational innovations: the large firms. As the short case-studies below will document, the *rendez-vous* between these new institutions and the large firms resulted in the policies being redefined so that they provided solutions for the problems that had arisen between the large firms and their suppliers. Precisely because the large firms had been the most important local economic actors, they were able to fill the institutional void left as a result of the policy misconception, by providing a translation on their own terms of the policy instruments for their dedicated suppliers.

In a detailed case study, Levy (1999: 180 ff.) reports how the car maker Peugeot SA (PSA) used its local monopoly power to turn a regional technology policy centre into a tool for the modernization of its own supplier base. In the region of Franche-Comté, the PSA plants in Sochaux and Mulhouse account, directly and indirectly, for roughly two-thirds of all industrial employment (Pialoux, 1996; Le Monde 7 March 1996). Around 1990, the local engineering school and University, the regional industrial development agency DRIRE, and a few other local agencies had set up a technology centre to provide the local small and medium-sized companies with access to state-of-the-art technology. As part of a wider economic evaluation study of the region, the

local authorities had identified iron and steel surface treatment as a pilot area of intervention, because the industry was extremely polluting and dangerous and these companies.

The regional authorities faced a complicated problem, however: how could they closely involve the small and medium-sized companies in this industry so that their genuine needs were met, and then co-operate with them to design and implement new programs? Normally, this type of mobilization is the responsibility of a chamber of commerce or a local industry or trade association. The problem in this case was that none of those were present. In the absence of local industrial actors, the local authorities organized public hearings, surveys, and tried to identify the response to training and quality control programs. As a result, only a small fraction of the local firms signed up for the training programs and quality courses, disproportionately recruited among the suppliers to PSA.

The reason for the high participation rate of the car maker's suppliers was directly related to their dependence upon PSA, who forced them to participate, since it fitted perfectly with a technological jump that the company was preparing. At about the same time that the local authorities tried to help the small firms in technological development, PSA was upgrading its corrosion standards, and an internal study had suggested that the existing steel suppliers were probably not ready to meet these. An external evaluation study by the University of Franche-Comté confirmed this, but suggested that the local suppliers would be capable of meeting these new standards if they upgraded the skills of their workforce, and if they introduced more formalized production methods and standardized quality control instruments.

PSA thus managed to define the exact needs of its supplier firms, and then use these results to modernise part of its supplier base with the help of the regional authorities. The company not only determined what exactly the problems of the suppliers were,

but also managed to impose solutions using the regional policy apparatus. PSA filled the void in the policy design because of its pivotal role in the triangle constituted between the large firm, the small firm and the technology centre.

Something similar happened in the steel industry near Marseille, as Hildebrandt (1996) details. Very few large firms are located in the region Provence-Alpes-Côte d'Azur (PACA), in the south-east of France: statistically, the area is the third-lowest industrialized region in France (out of 22). Sollac, a subsidiary of the USINOR-SACILOR conglomerate, employed roughly 4000 workers in 1994, and roughly the same number indirectly in supplier firms, which made the company one of the most important industrial employers in the region.³

In view of a restructuring plan, the company drew up a profile of its workforce, and came to the surprising conclusion that the majority of its workforce lacked basic skills, and was definitely under-qualified for the high value-added direction that the company was going. Very early on, it was decided that changes in the skill structure would have to be accomplished with the existing workforce. The first step in the re-qualification program was simply to put all the low-skilled workers into the regular state-organized technical education system, in order for them to obtain the minimal educational level deemed necessary by management.

The second step came when the company felt the need to reorient the training program and bring it closer to the needs required in the steel industry. Sollac wanted more industry-specific training, and, with this in mind, created, in cooperation with the education ministry, a local training institution that set up specialized vocational and technical training programs, which led to state-recognized diplomas.⁴ The training was done not in the local technical *lycées*, but in Sollac's own training centre, with its own engineers and foremen as teachers. The company also demanded from its suppliers that they upgrade the skills of their workforce. In a move parallel to the

colonization of the further training program described above, the large firm used some of the regional resources to help retrain its suppliers' workforce: the in-house training program offered courses in new production techniques to its suppliers. In short, both directly and indirectly, Sollac put many of the regional resources to very good use --for itself, first of all, but also for its suppliers, and therefore indirectly for the rest of the region as well.

This analysis of PSA and Sollac can easily be extended to many other large companies in France. When forced to adjust, they relied on regional institutions that had been introduced with great fanfare in the 1980s, but failed to live up to their promises.

When Renault faced the crisis that threatened the company's survival in the first half of the 1980s, for example, the way it dealt with it, had important implications for its suppliers. Historically, Renault had been among the first to decentralize production when growth imposed such a move. The mother plant in Paris-Billancourt was bursting at the seams with the production of the 4 CV and Paris real estate prices were far above what Renault --like other car manufacturers-- could afford. In the 1950s, the company thus began moving assembly and parts production out of the immediate Paris area --in 1952 to the Flins plant 40 km west of Paris and in 1958 to Cl on about twice as far west (Freyssenet, 1998)-- a process continued in the 1960s and 70s, with new plants in Sandouville (1964) and Douai (1972) (Loubet, 1995: 98).

By the early 1980s, when Renault reorganized its factories by redrawing links with suppliers, most of its plants and their suppliers dominated the regions where they were located. While Renault planned much of this itself (Gorgeu and Mathieu, 1995; Freyssenet, 1998; Hanck , 1998), the modernization of the supplier links would have been much harder without a strong regional component. The state agencies for local development, starting with the central agency DATAR and the regional bodies MIRE and DRIRE, were mobilized by Renault to organise training and technology transfers

to the suppliers. Alongside this, Renault started up an internal service, which closely tracked how the most important suppliers were performing and imposed stringent quality standards upon its suppliers (Gorgeu and Mathieu, 1995). This combination of internal and external resources allowed Renault to rapidly upgrade its supplier base around the plants and demand both high technical and organizational standards from its suppliers. By the beginning of the 1990s, all Renault suppliers were certified according to ISO 9000 standards.

What is said about Renault at the national level --'when Renault gets a cold, all of France coughs'-- is equally true of Citroën in Brittany. In the area around Rennes, the regional capital, Citroën is the most important company, employing over 20,000 people directly and in the supplier firms. This local position of power allowed it to become a major actor in industrial modernization in the region. As part of an economy drive that PSA, the mother company since the late 1970s, imposed throughout the company, the two plants in Rennes were forced to reorganise production and install JIT links with their suppliers. Along the way, Citroën discovered that its main suppliers were in fact ill-equipped for the organizational complexities associated with this task.

Very rapidly, the local chamber of commerce was mobilized by Citroën to set up a new institute that would provide training to the workers in the supplier firms and help them reorganise to address quality issues related to JIT delivery, by making available the know-how of its own engineers to local subcontractors and other small firms as consultants (Le Bourdonnec, 1996: 205 ff.; Liaisons Sociales May 1996). For its turn toward modern production techniques, therefore, Citroën relied on local education institutes, technology centres and was awarded a subsidy as well as tax advantages by the regional authorities. In the end, the regional authorities gathered, the initiatives by Citroën helped attract other companies, by providing them with a

dense tissue of dynamic small firms (interview with Pierre Méhaignerie in *Auto-Hebdo*, hors série, 1992; Le Bourdonnec, 1996: 185 ff.).

Other local industrial networks in France, primarily but not only in the late-industrializing south-western half of the country, went through a similar process. The tire maker Michelin, the second largest in the world in 1999, looms large over the centrally-located Auvergne region around Clermont-Ferrand. In the early 1980s over half of the city's active population was directly employed by Michelin, the company accounted for 44% of local taxes, and over 600 local companies were subcontracting with Michelin (*Le Monde* 5 July 1984). Indeed, as in so many other localities, the expression 'when Michelin catches a cold...' was used as a shorthand for the central place of Michelin in the local economy. This local dependence on Michelin lasted into the 1990s: even after almost ten years of lay-offs, far over half of the workers, technicians, and engineers in Clermont-Ferrand were estimated to work for Michelin (*Tribune de l'Expansion* 16 Oct 1991).

Michelin's restructuring throughout the 1980s and 90s is a telling case of how large firms in France relied on public resources to rid themselves of the costs of adjustment. Between 1980 and 1995, Michelin tapped government funding for no less than seven social plans, totalling over 25,000 'soft' lay-offs. These social plans, funded by the government, allowed the company to reduce its total workforce as well as channel the resources freed up through this implicit government subsidy into innovation. In 1995, Michelin was reported to have invested a significant amount of cash in the development of new production machinery that allowed productivity increases of over 40%, and cost gains of 90% in space and 85% in production time, while cutting material inventory to a JIT-based minimum (*Le Point* 21 Feb 1988).

Anxious to keep its industrial secrets to itself, Michelin refused direct subsidies; however, the company welcomed local initiatives to soften the social impact of its

own restructuring through regional reconversion funds designed primarily to aid ex-Michelin workers in setting up their own company --which in turn was subcontracting for Michelin, and could rely on logistical and technical support as well as the vast commercial and supplier network of the company (Le Parisien 8 Nov 1993).

Such extreme regional dependence did not always lead to a benign outcome for small firms. The region around Toulouse is, with the exception of a small but relatively insignificant textile district at the foothills of the Pyrenées, entirely dependent upon Airbus and its suppliers. In the 1960s, the French state decided to build an aerospace centre in the region between Bordeaux and Toulouse, two cities about 200 km apart in the south-west of the country. As a result of decisions to locate the top aerospace research institute CNES and the top aerospace engineering school in Toulouse, and build new plants for the state-owned aerospace companies, the area ended up solely dependent upon a small number of very large airplane companies (Airbus, Dassault, SNECMA) and their suppliers (such as Marconi and Matra) (Dupuy et al., 1999; Aniello and Le Galès, 2001). In 1995, as a result of this concentration, over 30% of the local industrial workforce in the area was employed in an aerospace-related company (Quélenec, 1997).

When Aérospatiale, the Airbus assembler, redesigned its airplanes as well as its assembly process in the late 1980s, it faced the cumbersome task of upgrading its existing supplier base to make the technological jump with it. Instead of investing in this regional structure, however, the company chose to simply replace it with larger, high-tech suppliers (Morin, 1994). Supported by the regional authorities, the large aerospace companies between Bordeaux and Toulouse attracted a group of strong, often international suppliers (Dupuy et al., 1999). As a result, a high-tech industrial

district-like regional economy emerged, which depended crucially on the aerospace companies.

Even state-owned public utility companies such as the electricity provider Electricité de France (EDF) relied on regional resources offered by the state for its own internal reorganization. *Vis-à-vis* its subcontractors, EDF used its monopoly power as a means to upgrade them, and was able to rely directly on the authority transferred to it by government for that. Technical standards were set by EDF through the state agency AFNOR (Agence Française de Normalisation), and quality standards through AFNOR and the private (but indirectly state-sanctioned) AFAQ (Agence Française d'Assurance Qualité) (Hancké, 1998). Using these instruments, EDF upgraded the technical and organizational capacities of its subcontractors rapidly, so that the latter were able to meet the technical demands imposed upon them by the company. Moreover, since the nuclear power plants had become more or less autonomous large plants in previously largely rural areas following EDF's internal decentralization (Duclos and Mauchamp, 1994), its weight in the regional economies forced the company to consider its local impact. EDF did so by deploying its own resources, concentrated in a specialized local development department, in conjunction with local government resources. As a result, EDF was able to impose high quality standards on its suppliers, and simultaneously helped them meet those requirements.

These cases, drawn from different industries and regions, suggest that industrial adjustment and regionalization were tightly linked in France. In all the cases discussed above, large firms used the regional policies as a way out of a problem that, ironically, they had found themselves in as a result of the government policies that had favoured them so much in the past. Unable to rely on autonomous dynamic small firms in the regions where they were implanted, they created, with the help of government policies that furthered regional development, an institutional equivalent

that relied on the existing hierarchical dependencies between large and small firms. The outcome was that the regional dependence upon large firms increased as a result of this adjustment process.

3.4. Autarchic regional industrial systems in France

To what extent do these case studies suggest a more general pattern of industrial adjustment in France? Aggregate industrial statistics suggest that they indeed reflect a more general process. As table 2 shows, in almost half of the 22 regions of France the three largest employers accounted for over 10% of all industrial employment in 1995 and, with one exception, the top three firms for over 5% of regional industrial employment. Note that the unit of observation 'region' is a purely administrative unit, covering a territory roughly comparable to the German federal states. This underscores the local dependence upon large firms: in very few countries employment in an area of that size is concentrated in one firm.

Table 2 here

The second conclusion from table 2 reinforces the first point. In eight out of 21 regions, the largest firm in a region accounts for over 10% of all industrial employment. To a large extent, these are the examples discussed above in detail: PSA, Citroën, Renault, Michelin, and Aérospatiale. While such a geographic concentration is an impressive figure in its own right, it hides an even more dramatic distribution. In order to give a more realistic idea of the local impact of these firms, employment in the supplier firms to the large plants should be added to these figures. Since between 50 and 80% of value-added is outsourced today, and given the increasing role of outsourcing in assembly industries, doubling employment figures is therefore a conservative estimate, but leaves little doubt about the regional employment impact

of large firms. In 8 out of 21 regions, one firm is directly responsible for more than 10% of industrial employment, and in some regions this goes up to over 30%. Moreover, as a glance at a map of France reveals, these large firms are neatly spread over the entire territory: PSA in the north-east, Aérospatiale in the south-west, Citroën in Brittany, Renault in Upper Normandy, Sollac and Eurocopter around Marseille, and Michelin in the centre of France.

Detailed econometric analysis of geographic concentration confirms this picture (Maurel and Sédillot, 1999). The geographically concentrated industries are both the very old ones (steel and mining in the north and north-east of France) and the very new high-tech sectors (such as semiconductors in the Rhône-Alpes region). However, the industries that were at the basis of industrial adjustment in the 1980s and 1990s – for example, chemicals, cars and other consumer goods-- have among the lowest geographical concentration indices in France: firms in these sectors are found over the entire territory, where each 'occupies' a local economy without much interference from other large companies.

While this first statistical assessment is highly suggestive, a finer geographical lens produces conclusive evidence of both spread and local dominance by the large firms. Table 3 lists the number of large industrial plants (those employing more than 500 workers) per travel-to-work area in 1995 ('zone d'emploi' or ZE in the text). Leaving out the ZE which house no large plants at all (131 ZE), over one third of all ZE have only one large plant, and nearly two-thirds (61%) have only one or two large plants. Put differently, as soon as there is some industry in an area, it tends to be geographically dispersed to such an extent that only one or two large plants cover one ZE.⁵

A closer look at the ZE with three or more large plants offers additional insights. Many of these ZE are in fact highly regionalized networks, concentrated in three

industries. The first is the car and car parts industry, which accounts for 37% of the very large plants (+1000 workers), all of which are organized in tight JIT structures: final assembly plants, tire manufacturers, electronics, glass, steel and seats producers. The second is the aerospace industry, located in the south-west, between Toulouse and Bordeaux, around Paris, and in the Nantes-St Nazaire area. Together, the aerospace plants in these three areas account for 17% of the very large plants, including final assembly plants as well as high-tech parts suppliers who produce such systems as lasers, radars, and turbines. Finally, the chemical industry, which is concentrated around Lyons and in the area north of Paris, accounts for roughly 10% of all very large plants (+1000). Combined, these three industries, which consist of highly regionally integrated production networks, with many suppliers to one or a few large plants, account for almost two-thirds of the very large plants in France (see also Baleste et al., 1993; Baleste, 1995 for summary treatments).

Table 3 here

These statistical assessments complement the case studies presented earlier. They demonstrate that the local dependence on large firms is not an isolated phenomenon in a few well-chosen cases, but indeed provides a broad background that helps understand how large firms used regional institutions for their own purposes. Precisely because of the central position that (large) plants of large companies have had over the entire French territory, and because of the relative insignificance of smaller firms, the regional policy instruments did not fall on dry soil. In the local economies, they became the building blocks for readjustment of the local plants of large firms. Throughout this process, industrial adjustment in France over the last two decades thus followed a large firm-led regional path toward flexibility, which combined previously existing inter-firm hierarchies with new, flexible, models of inter-firm relationships.

4. Conclusion

This article has presented a detailed analysis of the interaction between industrial adjustment and regional economic development in France since the early 1980s. Analysing how large firms redefined the hidden opportunities embedded in regional policies to their own advantage, it addressed both overly pessimistic accounts as well as overly optimistic interpretations of the French political economy. France was not stuck in a 'bad' institutional straightjacket; its export sector went through an impressive adjustment process in the late 1980s and 1990s. Yet this search for flexibility did not lead to a new industrial model based on symmetrical relations between firms, but instead led to a modernized version of the centralized supplier relationships that existed before.

The central place of the large firms in the post-war French political economy elevated them to the key actors of adjustment. As a result of their dominant position in local economies, they were able to exploit that pilot role by aligning the actions of other relevant actors --state and regional authorities as well as small firms-- with their interests. That is how the cases presented above should be read: in their search for flexibility, the large firms used the regional institutions to fill the holes in their own structures to pursue their own strategies --and along the way they reshaped many of the French regional economies.

Two broader conclusions follow from this analysis. The first addresses a question at the heart of contemporary political economy. Up until recently, any analysis of economic adjustment in France carried with it the image of a strong state looming over the economy. Even if one could argue now that this image was always an exaggeration, its persistent salience presents us with a framework for interpreting the

material presented here. Understanding the exact role of the state in industrial adjustment in France over the last two decades requires a distinction between passive and active adjustment policies. There is little doubt that the state still plays a crucial role in France as a result of its welfare and labour policies (Levy, 2000; Trumbull, 2001): through early retirement programs, working time initiatives, education and training policies, and technology policies more generally, the state offers critical support for economic and industrial adjustment. However, the active adjustment -- the central 'steering' of the economy that we have traditionally associated with the French model-- appears no longer within the remit of the state. Instead of being at the centre of active economic adjustment, the state withdrew and left the initiatives to the large firms, who are now the key drivers (Hancké, 2002).

This suggests that there is more to be learned from the French case. If even in a country where the state traditionally played a strong role in the economy, the state's actual part in industrial adjustment was primarily supportive of initiatives that originated in large firms, this perspective must have wider relevance. Understanding the adjustment path of large firms, and analysing how their strategies set signposts for other actors and even government policies ought to be a useful approach for other countries as well.

The second broader point is related. Whatever the disagreements between different approaches to contemporary capitalism, there seems to be substantial agreement that the internal reorganization of large firms is leading to new relations between large firms and their suppliers (as well as with workers and owners, see, for example, Milgrom and Roberts, 1992; Hall and Soskice, 2001; Sabel, 1993). This article has demonstrated the need for an historical and institutional understanding of this process: the French version of large firm-centred flexibility was itself logically related to the construction of the post-war French political economy around large firms.

Large firms, however, did more than simply act out unwritten institutional scripts: despite the lack of institutional resources and historical preconditions that made the south-west of Germany and the Third Italy a competitive success, French exporting industry none the less managed to develop a viable competitive model. By articulating decentralized production and closer links with suppliers --the elements of success in the other models-- with the existing hierarchical and centralized French system, large firms moulded these strategies to fit the institutional environment they found themselves in. Even countries that are not endowed with a strong district-like industrial structure might therefore be able to develop competitive strategies. There are many roads to flexibility indeed.

Notes

1. The debate is related to Putnam's book on social capital (Putnam, 1993), and Pierson's work on how feedback mechanisms operate in political economy (Pierson, 1999). Locke (1995) and Levy (1999) provide insightful critiques of these positions.

2. This summary paragraph may put things too bluntly. In some localities, associations existed which were able to carry through reforms, and in these cases the outcome is considerably more positive. Culpepper (2001), for example, reports on the success of training in the Vallée de l'Arve, a metalworking district in the east of the country, and relates this to the organizing capacity of the local (which also happens to be the national) employers' association. And in a wide-ranging review of local systems of economic governance, Aniello and Le Galès (2001) argue persuasively that there are different local systems in France. However, both studies also seem to agree that these local successes have little to do with the regionalization policies, but are exceptions that prove the rule that reforms fail if there are no strong local actors to carry them through. The regions, in fact, are relatively unimportant administrative actors in economic development.

3. The company remained anonymous in the study by Hildebrandt (1996), but statistics on regional industrial structure leave little doubt about its identity.

4. More clarity in the jungle of acronyms covering different types of diplomas and training certificates in France can be found in Möbus and Verdier (1997).

5. Data are taken from SESSI 1999. The statistical definition of ZE is independent of the presence or absence of large firms.

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Table 1: Economic performance OECD G7, averages 1995-2000

	GDP Growth	Inflation	Unemployment	Productivity Growth	Investment as % of GDP [°]	Exports as a % of GDP*
France	2.4	1.3	10.4	1.5	2.0	24.7
Germany	1.7	1.4	7,3	2.5	1.2	27.1
Italy	1.9	2.9	9,8	1.5	2.9	26.3
UK	2.8	2.8	9,5	1.7	5.6	27.6
USA	4.1	2.5	6,3	1.6	9.9	9.1
Canada	3.6	1.8	9,6	0.8	7.2	40.5
Japan	1.3	0.2	2,5	0.6	-0.4	10.4
G7	2.9	2.0	7,9	1.5	4.0	23.7

[°] Real Gross Fixed Capital Formation 1992-2000

* 1995-99

Source: OECD Main Economic Indicators; OECD Historical Statistics

Table 2. Proportion of industrial employment per region in the three largest industrial firms, 1995

Franche-Comté	28%
Auvergne	22%
Basse-Normandie	15%
Britanny	15%
Alsace	12%
Haute-Normandie	12%
Limousin	12%
Midi-Pyrénées	12%
PACA	10%
Aquitaine	9%
Lorraine	9%
Nord-Pas-de-Calais	9%
Poitou-Charentes	8%
Champagne-Ardenne	7%
Languedoc-Rousillon	7%
Pays de la Loire	7%
Bourgogne	6%
Centre	5%
Ile-de-France	5%
Rhône-Alpes	5%
Picardie	3%

Source: Calculated from Quélenec (1997)

Table 3: Distribution of large firms per travel-to-work area (ZE) in 1995

Number of large firms	total ZE	Percent
1	82	39
2	46	22
3	19	9
4	21	10
more than 4	42	20
total	210	100

source: own calculations based on SESSI 1999