Chapter 8:

Individual Choice, Collective Action, and the Problem of Training Reform: Insights from France and eastern Germany

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Introduction

This chapter assesses the ongoing reforms of the systems of vocational education and training in France and in eastern Germany. The two cases are geographically separated by the object that unites their training reforms: western Germany. The new institutions and practices of West German vocational training constitute just one of the many institutional transfers from western Germany that followed German unification in 1990. The French reform effort, of slightly older vintage, was hardly less overt in taking the celebrated German dual system of apprenticeship training as its benchmark when overhauling the system of in-firm initial training in France, beginning with the reforms of 1984 and culminating in the five-year law of 1993.

The comparison may strike some readers as odd. And in what follows, I shall not try to obscure the different nature of the challenges the two countries face. The reforms converge, though, in a common goal: to establish a system of in-firm training through which private companies in a market environment make substantial investments in the development of skilled labor. Divergent historical and cultural paths of development, different levels of overall investment and industrial modernization, radically different experiences with the market—all these and more affect the exact challenges facing the reform of vocational training in France and in the states of the former German Democratic Republic (Culpepper 1998b). Yet the fact that both tried over the last decade to increase in-firm youth training leading to certifiable skills provides a quasi-experimental design, imperfect though its controls may be, for examining the causal factors that lead to success or failure in institutional reform. In each case, governments have tried to increase the level and quality of in-firm vocational training, but the success of the reforms depended ultimately not on a government’s ability to pass laws, but on its ability to convince private actors (companies and workers) to cooperate with each other.
The German Democratic Republic had an established practice of industrial apprenticeship and shared with western Germany the historical roots of craft training in Germany. Unlike in France, therefore, the primary challenge was not to convince companies and personnel managers that apprenticeship was an attractive way to train highly skilled workers, nor was it to convince youths and their families that apprenticeship training was a viable port of entry to a respected and well-remunerated position in society. These factors, so difficult to put in place in France, were already part of eastern Germany’s historical heritage, a heritage not fundamentally altered by the nature of unification.¹ What was radically new in eastern German apprenticeship training after 1989, as in many other aspects of life in eastern Germany, was the primacy of the market in the making of company decisions. As discussed in more detail in Wagner’s chapter in this volume, the introduction of the market economy has dramatically reduced industrial employment in the new federal states, and thus, the need for future skilled labor. Many industrial companies in eastern Germany find themselves placed in severe market competition, a situation in which the guarantee of future skilled labor through apprenticeship may seem an unaffordable luxury.

In France, too, the challenge of in-firm training is to convince a large number of firms to invest in the development of the skills of their workforce through initial in-firm training. In-firm training has occupied a much less significant place in the French than in the German political economy: at the end of 1996 the number of students enrolled in purely school-based professional training still exceeded the number of apprentices and

¹ There are important practical differences between training as it existed in the GDR and in the Federal Republic: notable among these are the duration of apprenticeship (three years in FRG, two in GDR); the distribution of apprenticeships among different types of professions (in the GDR, industrial training was dominant and Handwerk training practically non-existent); and the fact that schools were located in plants in the GDR, as opposed to being maintained separately by the Länder in the Federal Republic. See Wagner (this volume) and Anweiler et al. (1990) for a discussion of some of the differences between eastern and western German training before the Wende.
the number of qualification contracts combined (Roullin-Lefebvre 1997, DARES 1997). The challenge in France is not therefore to convince companies to invest in a market context, which is nothing new to French companies, but rather to convince them to provide both quantitatively and qualitatively improved in-firm training (cf. Maurice et al. 1986). Quantitatively, governments introduced three reform waves of initial training (1984, 1987, and 1993) in an effort to increase company use of in-firm training in the battle against France’s very high youth unemployment (Chamard 1994); in particular, the government wanted to increase the meager participation of large companies in apprenticeship training.² Qualitatively, they hoped to increase the supply of skilled workers with recognized occupational qualifications available to French companies, a constant complaint of those companies over the past two decades (Goasguen 1994). Thus, the goal of recent training reforms in France is to convince firms to move from a model in which apprentices occupy a low social and economic position—and do not develop broad, transferable skills—to a pattern in which the companies take on a greater number of trainees than in the past and train them in broader skills than they have done before.

This fundamental problem is thus similar between the French and the eastern German cases: to convince firms to invest in sustainable, high-level youth training. The western German apprenticeship system overcomes this problem by persuading companies to invest in the provision of these skills and by convincing apprentices to accept low wages in return for learning a craft. If all companies invest in the provision of these skills, then all benefit from the pool of skilled labor that has allowed German firms to capture export markets for high value-added goods by relying on the comparative skill

² In 1992, for example, 50 percent of the youths in in-firm training contracts in France were employed in companies of fewer than ten employees. Only six percent were in firms with more than 500 employees (Chamard 1994: 3). The weak involvement of large companies in apprenticeship training and similar measures is a common observation in comparisons of the French and German training systems: “[t]he major difference between the two systems rests on
advantage of their workforce. Yet individual companies in such a system face the temptation not to invest, and instead to free ride on the investments of other companies by poaching their newly minted skilled workers; or they may choose to train only with low-cost methods that abuse the trust of their trainees, who are expecting to learn a craft that increases their long-term returns. If there are no costs to abusing this cooperation, it pays for the individual company to adopt a non-cooperative strategy.

The following analysis relies on interviews conducted with personnel and training managers from companies in France and eastern Germany in 1995-96. The sample used in this chapter includes 52 companies in the metal and electronics industries, all of which are members of the chambers of industry and commerce in their respective countries. The information was collected through interviews conducted on plant premises; supplementary information was frequently gathered through follow-up phone calls or documentation supplied by the company. The companies presented in this chapter were drawn from the French regions of Rhône-Alpes, Picardy, and Alsace and from the eastern German Länder of Saxony and Saxony-Anhalt. These data allow me to compare training practices of companies in the most important industrial sector in both France and eastern Germany with the benchmark they both seek to emulate: western German apprenticeship training.

In the next section of this chapter, I argue that two features of the political economy—the predominant organization of production and the exit options created by the existing educational system—structure differently the decisions facing companies

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3 The sample comprises almost entirely single-plant companies. Four of the largest companies (two in eastern Germany, two in France) have multiple plants for which personnel/training decisions are handled by a single office, and for these cases the data refer to total company employment managed through the single office. One French concern I visited was managed as two independent plants, producing for different sectors and with different strategies of human
trying to acquire skilled workers in the two cases. The third section summarizes the
criteria of western German training that will be used to assess these reforms. In the
fourth and fifth sections of the chapter, I present the firm-level training data to
demonstrate how companies of different sizes in eastern Germany and in France are
responding to government attempts to change the training system; while there are other
meaningful ways to divide the interests of firms, the size-based distinction turns out to be
especially relevant in both the political economies discussed here. The sixth section
nuances the argument about the importance of exit options and of pre-existing product
market strategies by considering the political factors that may help companies that face
seemingly difficult collective action problems to overcome them. Finally, in the
conclusion I develop the implications of the preceding analysis for policymakers
interested in effecting thoroughgoing reforms of a training system in the advanced
industrial countries today.

The Training Game

Because the central conceptual problem of the two training reforms is to
convince individual firms to invest in the provision of transferable skills, we need to
focus on the interests of these companies to understand their choices with respect to
apprenticeship training. While the reforms analyzed here were pushed by governments,
the principal peak associations of employers in both countries also actively pursued the
greater collective implication of private companies in youth training. Yet what business
wants collectively does not always equate to what individual firms want. This axiom of
collective action allows us to add a new twist to the analysis of Becker (1964) and others,
which posits that the amount of skills provided by the market will likely be socially sub-optimal because of problems of poaching and of adverse selection.

I argue that the structure of the stylized collective action problem facing companies differs according to their (historically developed) product market strategies and the educational systems through which they can procure skilled workers. The strategy of “diversified quality production,” on which western German companies have built their export competitiveness, demands the broad skills associated with the German dual system (Streeck 1991). To the extent that eastern German companies adopt DQP-style methods of production—which is certainly not an automatic product of German unification—we would *ceteris paribus* expect them to be even more likely to invest in the provision of broad skills for their workforce. French large firms have not, historically, had access to the dual system, and partly as a result have developed strategies based on different skill requirements than those of their German counterparts (Maurice et al. 1986, Géhin and Méhaut 1993). As opposed to DQP, large French firms have continued to cling to the tenets of Fordist production and trying to compete on the basis of price (Boyer 1995). Such a system of ‘flexible mass production’ puts the onus of flexible responses to changes in demand less on a broadly skilled manual workforce and more on technicians and mid-level management (Regini 1995, Hancké and Soskice 1996). As we

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4 The two variables are interdependent, in that companies develop product market strategies under the constraint of what skills are provided by the social system in which they are situated. Likewise, the educational system produces future workers, and it therefore faces more or less pressure to respond to the needs of companies in the private economy, which must rely on these workers. A prolonged mismatch between the skills produced by the system and the product market strategies of companies will put pressure on one or the other to change. However, there is no reason to think that the outcome of these pressures will be the most efficient possible combination of the two variables.

5 When talking about systems of production, like DQP, with reference to a whole economy, the claim is obviously not that every firm in the economy organizes production exactly this way. Instead, production regimes are heuristics that underline in ideal-typical form the differences in production between an average group of firms in one society with those in another. There is an ongoing debate about how the organizational innovations associated with lean production are affected by the traditional dual system model. See the contributions by Herrigel and Sabel and by Finegold and Wagner in this volume.
will see in the empirical sections, the historical development of these ideal typical product market strategies has influenced the way that large firms in the two countries respond to the current training reforms.

The other structuring difference between the two countries is the existing system of vocational education and training, and in particular the options for in-firm initial training. The German dual system has only apprenticeship regulations, whose procedures for updating and changing qualifications are standardized. If a company wants to train, it must do so under an approved qualification, and be certified by the relevant chamber (e.g., industry and commerce) to dispense training in that profession. France gives companies the choice of apprenticeship qualifications or professional qualifications through the qualification contract. Each of the French programs has associated procedures for changing qualifications and for ensuring that companies have the capacity to deliver that training. Yet these procedures differ from those in Germany in ways that can be important for training behavior.

To institute a change to the German metal-working professions—either to update an existing certification or to introduce an entirely new one—requires approval by a board of experts nominated in equal numbers by the IG Metall union and by the peak association of engineering employers, Gesamtmetall. A representative of the employers’ association characterizes the typical lines of divergence between the two in the following way: the union wants to ensure maximal breadth of the skill qualification (transferability), whereas the employers want to ensure the maximal specificity of the

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6 French companies can also hire graduates of the (numerically predominant) school-based vocational training system, although they have long expressed their disdain for the school-based track as being far-removed from the needs of production. The existence of the school-based track only exacerbates the problems recounted above by giving companies yet another exit option from high investments devoted to in-firm training contracts.

7 The procedure is similar for all other professions, but in the metal professions the degree of autonomy enjoyed by Gesamtmetall and the IG Metall within their respective federations gives
skill qualification for that particular profession. This process is laborious and is sometimes decried by firms as being too slow to adjust to new methods or areas of production. However, there is no large-scale alternative mode of initial qualification to which individual firms in Germany firms can turn. The work of Albert Hirschman (1970) reminds us that, lacking the realistic possibility of exit from the system, the German company may of course use voice by lobbying for changes in the professions. But the bottom line is, if a firm in Germany wants to train apprentices, it must train them in one of the approved professions.

A French firm that wants to train in an in-firm youth training contract can choose between the apprenticeship and the qualification contracts. An actor that is much less present in the federalist German system dominates French apprenticeship: the national ministry of education. Attached to the ministry of education are parity boards (CPCs) which bring together sectoral representatives of the professional world in a consultative role only (d’Iribarne and Lemaître 1987). Unlike in Germany, these groups have no decision-making power. Thus, whereas in Germany the content of apprenticeship qualifications is determined by negotiations between employers and employees, and consequently depends on debates among experts on the qualifications for the Facharbeiter, the role of the professions in French apprenticeship is far more limited (cf. Jobert and Tallard 1995, Interview, Education Ministry). The dominant voice in French

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8 Firms are of course free to tailor their courses to more demanding standards (e.g., some of the European or TÜV standards). However, they must meet the minimal breadth and depth requirements laid down by the formal training regulations.

9 There are ‘pay-or-play’ taxes for apprenticeship and the alternating contracts in France, which could be interpreted as one way of blocking the use of the exit option. However, the apprenticeship tax and its collection has created much opportunity for graft without efficiently increasing the use of apprenticeship training (Chamard 1994). With respect to the payroll charge that supports alternating training, most large firms exceed the minimum with their continuing training budget in any case, and so are not affected by it; many small firms do not meet the minimum and prefer to pay rather than to train (Bertrand 1996: 27). These taxes are not a credible
apprenticeship is an education ministry which, historically, has been more concerned with the functions of the general education of French citizens than with their training as skilled workers.

The lack of real power accorded to the French social partners in decision-making about apprenticeship was one of the factors that led to the development of the youth alternance contracts in the early 1980s, most notably the qualification contract (contrat de qualification, or CQ). In the metal and electronics sector, the definition of the content of the qualifications awarded at the end of the process, the CQPM (certificat de qualification professionnelle de la métallurgie), is dominated from start to finish by the metal employers’ association, the UIMM. The CQPM qualifications are designed by companies and technical experts associated with the UIMM, sometimes in (informal) consultation with local representatives of the educational ministry. There is no set duration to the CQPM; it may last from six months to two years. In theory, the CQPM must be ratified by a collective agreement signed by at least one of the representative unions, but “in practice this negotiation is not systematically understood by all the sectors as a procedure to be realized simultaneously with the construction of the référent [qualification]. This [delay of the approval by collective agreement] can sometimes take up to several years” (Charraud 1995: 124; emphasis added). Rather than being a product of arduous negotiations between the experts of the unions and the employers’ associations, the CQPM is usually a product of experts primarily associated with the employers, which is only later presented to the unions for ratification.

10 CQ refers to the general qualification contract, which is available to all French industries; CQPM refers to the certifications awarded at the end of the CQ in the metal-working industry. There are three possible ways of determining a validation of training received by means of a qualification contract. Above I discuss only the method widely used in the metal and electronics branch, as that is the relevant one for this chapter. See Charraud (1995) for a comparative discussion of the three approaches.
The CQ system has proved to be more amenable to control by the French social partners, and is obviously much closer to the “economic world” than is the apprenticeship system, dominated by the French education ministry. It also confers on firms with good access to the employers’ association a flexibility and rapidity of innovation in qualifications that is absent from the German system. However, the balance of power between employers and unions in the definition of the CQPM is quite likely to result in a firm-specific training qualification, without a much wider transferability of those skills (cf. Charraud et al. 1996). The existence of CQs thus gives some French firms a legitimate, credible exit option from apprenticeship when considering the possibilities for youth in-firm training.

To summarize this difference, recall Becker’s distinction between general and firm-specific human capital (1964): the German system of apprenticeship combines these characteristics in a skilled worker qualification, such that firms must invest in some of the costs of general training in order to get the specific qualifications they need; in France, the twin system of in-firm youth training contracts does not marry the relevance of qualifications (for employers) with the breadth of skills acquired (by the trainees).

These differences have direct implications for the training decisions facing individual companies. If we take an “average” French industrial company, the odds are that the company has aimed itself at product market niches where a “flexibly Fordist” production strategy will be competitive. If we assume that the company is using increasingly sophisticated machinery, and so has greater technical needs than in the past, or that the company is implementing more team-based production methods, thereby calling for a higher “social competence” of the worker than in the past, then the company may be pushing the employers’ association to increase the availability of highly skilled

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11 For this reason, some firms in my French sample reported that the use of qualification contracts was distrusted by their workforce, seen as a source for replacing workers rather than for
workers. However, this does not automatically imply that the company will itself utilize the new training measures, which are actively supported by its own association. The company may have a political interest in improving the general supply of skilled workers, but it will not automatically train young people using the new system if doing so would not be in line with the immediate interests of the company.

If the arguments I have made in this section are right, then the collective action problem of training will be more difficult to solve in France than in eastern Germany. However, understanding the interests of firms represents only the first step in explaining the outcome of training reforms in the two countries. Training reforms are political projects, and the outcome of such reforms—which require the cooperation of private actors with each other—cannot be inferred solely from the distribution of interests among those actors. The interest distribution of firms only yields a prediction about the difficulty of reform; to explain success or failure in these reforms, we have to take into account two political actors: employers’ associations and governments (Culpepper 1998a). The distribution of interests relative to high-skill training only tells us something about the “raw material” these political actors have to work with. Political actors that face an adverse distribution of interests are, ceteris paribus, less likely to be able to facilitate successful transition to a high-skill equilibrium; but failure is not inevitable in the face of such an adverse interest distribution. The theoretical purpose of this chapter is

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12 Alternatively, we could say that the game facing German companies is more likely to resemble an assurance game—in which the highest individual and social payoffs accrue to cooperation—whereas the game facing French companies looks more like a prisoner’s dilemma, in which social and individual rationality do not coincide (cf. Heckathorn 1996).

But the argument laid out in this section is only valid to the extent that eastern German companies adopt diversified quality production methods and insofar as the rigidity of the dual system constrains employers from pursuing alternative methods of finding skilled workers. Having a labor market flooded with lots of skilled workers made redundant by the closing of their old companies would certainly provide one way to get around the latter problem, and the propensity to follow a DQP profile is not automatically one that will be chosen by eastern German companies. These are empirical questions, and we return to them below.
to illuminate that the organization of production and the exit options available through the existing educational system are variables that allow us to better understand the interest distribution of firms with respect to high-skill training. But the argument made here raises two empirical questions: first, do eastern German firms indeed benefit from such a favorable distribution of interests? And second, has the more favorable distribution of interests led to greater progress on the road to high-skill than in France? To answer these questions, we need to establish a metric of success, and it is to that task that I turn now.

**High Skill Training as a Measurement Problem**

I take as central to the success of reform of both systems the key characteristic of the dual system in the former West Germany: that firms themselves are willing to bear a significant share of the costs of training. Methodologically, it is quite difficult to assess the net investment that employers make in training, but scholars have made fairly sophisticated estimates of training costs and benefits in western Germany. Two of the results of this research are especially relevant for the problem of measurement in assessing training reforms: first, that the net costs to the company of training in the crafts sector are negligible; and second, that small companies on average invest a much lower amount per trainee than do large firms (see von Bardeleben et al. 1995 and Wagner, this volume, for a more complete discussion). Since craft (*Handwerk*) firms are on average smaller than industrial (IHK) firms, there is a great deal of multicollinearity between the effects of firm size and the effects of being an industry or crafts firm. While the exact contributions of the two factors remain unclear, both seem to make a significant

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13 This section draws on Culpepper (1996b and 1998b).
difference to the net costs of training to firms.

In effect, as argued in Soskice (1994), there are two sectors in the German training system: one comprising craft firms and one made up of industrial firms.\textsuperscript{15} For many craft firms there is no reason to worry about losing money by investing in the training of a worker who then absconds with her newly acquired skills to a competing firm; the net investment of the firm is often very close to zero. Industrial firms pay a lot more per apprentice than do craft firms, and it is logical that they will therefore maintain a lower proportion of apprentices than will the latter; the data in Table 9 in Wagner’s chapter in this volume provide empirical confirmation of this logic. Industrial firms will also be likely to retain a much higher percentage of those they train. They want to hire almost all the trainees in whom they have invested, and they do not want to make this substantial investment in someone whom they are not planning to hire. \textit{Handwerk} firms, on the other hand, lose little if anything in hiring apprentices; they will therefore maintain higher ratios of apprentices in relation to their total employment than will the industrial firms, and will have lower rates of post-apprenticeship retention.

It is relatively unproblematic for a government to implement a new system of training regulations when that system costs firms very little. The problems of cooperation associated with the wholesale reform of a training system will be most severe for the industrial firms that have to invest heavily in the development of their workforce, but these investments can also be the most fruitful. It is in the training patterns of industrial firms that we can observe the ideal-typical game in which the firm has to be willing to make the uncovered investment in the training of a skilled worker in order for

\textsuperscript{14} IHK is the abbreviation for the German chambers of industry and commerce, \textit{Industrie- und Handelskammern}.
\textsuperscript{15} David Soskice has influenced my thinking on this point, and the above paragraph relies largely on the account developed in Soskice 1994. In the real world, there is obviously a much less clean bifurcation of types of firm training: there are small firms in the \textit{Handwerk} sector where training is expensive and thorough and larger industrial firms where the level of training is quite low.
both to reap the payoff of the “high-skill equilibrium.”

I use two measures to assess the degree to which eastern German and French training practices approximate the stylized model of western German training: the ratio of apprentices to the total workforce and the rate of retention of apprentices after their training. In western Germany, the ratio considered by firms and by training experts in the metal and electronics industry as necessary to maintain the level of skilled workers is about six percent. That is, on average these firms need to train six apprentices per 100 total skilled workers to fill the gaps left by skilled workers moving on (to other firms), moving up (to management positions), or moving out (to retirement). The six percent figure is obviously approximate, so I use a margin of error of ± two percent in defining the target range (4-8 percent) in which I classify training in the metal industries in eastern Germany as conforming to western German training patterns. Those firms training above this level, unless they are growing at a very rapid rate, are training more workers than they will need to replace their workforce; those training below this level are shrinking or are not investing at a sufficiently high level to be able to replace the skilled workers lost to natural attrition. Either case represents a divergence of training patterns from those which maintain the dual system in the western Germany. Because it is widely available

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16 Because industrial company data are those most important for trying to establish that firms are investing in in-firm initial training, I concentrated on firms in this sector in structuring the comparison between France and eastern Germany. However, my firm sample in Germany, east and west, did include several Handwerk companies, whose training practices were very much in line with the two-sector discussion presented above. This chapter presents data only from firms currently belonging to the chambers of industry and commerce in France and in eastern Germany.

17 This figure was cited to me by several people familiar with training in the German metal and electronics industry (in the employer’s associations, in the chambers of industry and trade, and in firms themselves). The former head of training for the French metal employers says the association would eventually like to see a ratio of apprentices/workforce of 4-5%, indicating that the German target range corresponds to the goals of French employers for high-level training. Wagner’s chapter in this volume presents data from firms in all sectors, which show that the average training ratio for western German companies fell from 7.0 percent in 1990 to 5.5 percent in 1995. Her data confirm moreover that larger firms maintain lower training ratios than smaller firms, as expected from the two-sector model. While the data are not limited to the metal and electronics sector, the figures lend further credence to the training range of 4-8 percent as being a reliable indicator of the training practices of the (West) German model.
and easy to calculate, this ratio represents the best single measure of training practices in companies in the metal and electronics industries.

Does France aspire to having its firms perform in the same range? Certainly the French government has encouraged its companies to mimic the use of in-company training contracts in western Germany. Yet French companies are also able to rely on general educational institutions and a further training system that has advantages over the German institutions (Regini 1995, 1997). We can expect that French companies will continue to rely on this comparative advantage by hiring more highly skilled graduates of the general technical education system than do German companies, even as they increase the use of in-firm training contracts—or in many cases, they will try to combine the two (e.g., by developing higher level apprenticeship contracts). Is it reasonable to use the western German standard to assess the training practices of French companies? It would seem so: in an interview with the author, the former head of training for the French metal employers said the association would eventually like to see a ratio of apprentices/workforce of between 4-5%, slightly below that enunciated in western Germany. If that is so, then the equivalent target range of French metal companies should be ± two percent around 4.5%; so the target range I use for French companies is 2.5%-6.5%, based on the statements of their own representative.

Do these two different target ranges capture the same, or analogous, phenomena? If the baseline is to be the idealized western German practice of high investment per trainee, it is helpful to adduce an additional criterion for the French companies, which should not vary from the western German standard. This criterion—the retention rate—also has its basis in the presumed investment of companies in the training of their apprentices. Companies that invest a lot in apprenticeship training want to secure the return on their investment by hiring the apprentice after training. As suggested by the
differential training costs of large and small companies, the retention rate of western German small firms is much lower than that of larger firms, in which the firm invests significantly more in training per worker: the retention rate of all western German firms with less than 50 workers is around .62, while the retention rate of firms having more than 500 workers is about .85 (Büchtemann 1989 cited in Soskice 1994: 37). More recent (1995) data on western German companies from an IAB panel show an average retention rate across all industrial firms of .68 (Pfeiffer 1997: 15). Rates of post-apprenticeship retention offer a second good measure of firm investment in youth training, and I take the .68 figure as a benchmark retention rate characteristic of western Germany. I am thus able to use this retention rate as a second indicator of firm investment in trainees in the French case. French apprenticeship ratios may be lower, because of the greater relative role of the two-year technical college track (bac+2), but there is no reason that French companies should retain fewer of those trainees they do train through in-firm contracts if they have incorporated in-firm training contracts as an enduring part of their strategies of human capital development.

The problem with using retention as a measure for eastern Germany is that if no apprentices finished in the last year, there is no retention rate. A large number of eastern German companies, which had only very recently started training again when I conducted

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18 The data from Büchtemann are somewhat dated, but I have not found more recent figures on retention rates for firms in different size categories. Results of a large IAB panel survey of companies in 1995 confirm that the retention rate continues to increase with firm size, without giving actual numbers (Pfeiffer 1997: 15). Thus the trend observed in Büchtemann’s data appears to hold true today.

The retention rate refers only to the period immediately following the successful completion of the apprenticeship and does not imply that skilled workers in Germany never move from their original training company, or that such immobility is a prerequisite of a high-skill training equilibrium. Harhoff and Kane (1996: 12) present data from 1992 showing that, even in western German industrial firms with more than 1000 workers, “50 % of those completing apprenticeships leave the firm where they were trained within 5 years.” Successful establishment of the high-skill equilibrium in fact depends on companies being able to draw on deep occupational labor markets to replace their skilled workers who occasionally leave the company; but the predominant track of training must be apprenticeship.
my interviews in 1995-96, had no data on retention. Moreover, many of the eastern German companies that did train during the early 1990s allowed their current apprentices to finish their training, in spite of large reductions in other parts of their workforce that reduced the availability of jobs for the apprentices after their training. Thus, some of the retention data that is available for 1995 reflects the decimation of employment several years earlier.

In the next two sections I use these criteria to analyze the training behavior of individual firms, with the objective of understanding where progress is being made in the French and eastern German political economies in their attempted moves to a high-skill equilibrium. The criteria are imperfect indicators of high-skill training, but they comprise a useful standard that can discipline the comparison I make among firms in different contexts. I supplement these data on apprenticeship ratio and retention rate with detailed information gathered from interviews with company representatives, which provide an additional window into firm decision-making relative to youth training. The evidence I have gathered suggests that the training policies of firms in similar size categories in the two political economies share some common features, and so the next two sections present the empirical material relevant to firms according to company size. The world looks similar to firms of different sizes, but it is nevertheless true that some of the most interesting variation in my sample is observed between firms of similar sizes; this is notably true of small French firms and medium-sized eastern German firms. To understand the dynamics of a training reform aimed at moving a political economy to a high-skill equilibrium, I need to be able to explain both the commonalities within size categories and this variation; it is to this task that I turn now.

19 Retention rate is the percentage of apprentices hired into a contract after successful (passing) completion of their apprenticeship exams.
Eastern Germany: Large Firms in the Lead, Subsidies in the Mittelstand

The standards of the dual system have been transferred inflexibly to the new federal states of eastern Germany. The evidence from my sample of 23 industrial companies in eastern Germany demonstrates that how company training practices have responded to these changes differs according the size of the firm in question. The rigidity and breadth of the qualifications associated with the dual system presents many companies with challenges in using the apprenticeship system to meet their needs. Large companies, relying on their ownership links to parent corporations in western Germany, have led the push toward a high-skill equilibrium in eastern Germany. Companies in the Mittelstand depend on subsidies to underwrite their training activities, as they find the breadth of demands imposed by the training regulations in the metal and electronics industry to be a heavy burden. The small companies, too, feel the pinch of these regulations; because of their relative lack of resources, they are the ones least likely to be able to take on apprentices and train them to western German standards.20

Large Firms

The five companies in my sample with more than 500 employees all maintain a ratio of apprentices to the total workforce well above the floor of the western German target range for sustainable training (see Table 1). One of the companies actually trains

20 No one would disagree that a firm with 2000 employees operates on a very different scale than one with 75 employees, but the problem with size categories is how to establish the boundaries between them. At the margins, conceptual categories depend on prior theoretical considerations, and my size categories in this chapter correspond roughly to my perceptions of the character of “bigness” in a company. The point is mostly presentational, and I present enough of the data that skeptical readers will be able to consider how, if at all, a different choice of size categories would affect the evidence. I use the same categories for both political economies: large firms are those employing 500 or more people; medium-sized firms are those with employment between 150 and 500 people; and small firms are all those having 150 or fewer employees. When I refer to the eastern German Mittelstand, I mean only medium-sized companies, not small companies.
above the western German target range, with an apprenticeship/employment proportion of twelve percent (company LG5 in Table 1). This company is part of a well-known western German conglomerate that is one of the paragons of virtuous dual training in the west. Between 1992 and 1995, after calculating its own ‘need’ for apprentices, the company hired one hundred extra apprentices (that is, above the calculated need for replacing their skilled workers) per year in its eastern German plants, because of the lack of in-firm training places available to eastern German youth.\textsuperscript{21} Without these extra (politically motivated) places, then, this firm would also be training in the target range.

\textbf{[Table 1 about here]}

The three largest firms in the eastern German sample train for different markets—engineering, consumer electronics, machinery—but all train and retain their apprentices at high levels. As with company LG5, another member of this elite group (LG2) also said that it had taken on extra apprentices in 1992 at the behest of the local IHK, when the crisis of the local labor market was particularly acute. As a result, the firm only retained 69 percent of its trainees in 1995 (when those who entered in 1992 finished), although all passed the final tests. However, a company representative noted that this outcome was unusual, saying the company normally retained all its trainees who had finished, and that the company tried not to take on more apprentices than it would need.\textsuperscript{22} For these three companies, apprenticeship training is an investment in future skilled workers, and only in exceptional cases are trainees who pass the final exam of the

\textsuperscript{21} As one of the most prominent German corporations, it is safe to conclude that the company faced very intense political pressure to take extra apprentices in the gutted eastern German youth labor market. The company certainly derives a public relations windfall from the extra training, and it makes this extra commitment very public in company literature about its training program.

\textsuperscript{22} The local IHK representative in fact lamented that company LG2, which has a high profile in its local economy, did not regularly train above need.
IHK not retained. In cases where the companies do train beyond their own projected skills needs, it is as a political action to respond to weaknesses in the local labor market.

Moreover, all three of these companies train in partnership with smaller companies that lack the machinery and/or personnel to train their own apprentices according to the broad requirements of the IHK training regulations. None receives subsidy support for its own training program, nor does any of the three receive direct public support to participate in partnership training schemes (although they are reimbursed for administrative costs).23 These three companies, owned by western German conglomerates, are model citizens of the new market world of eastern German training.

The other two large firms, which also train in the target range, both claim to be training at least somewhat beyond their need for future skilled labor. Both are involved in steel production, although with different levels of product differentiation. One of these companies (LG4) retained only 64 percent of its finishing apprentices in 1995, and the chief of apprenticeship there noted that training slightly above need increases pressure on apprentices to work hard, since all are not likely to be hired. What is interesting about this company, in comparison with the French firms examined below, is that apprenticeship nevertheless remains the overwhelming qualification path in the firm: 82 percent of the people working in the firm received their apprenticeship training there. Even for an eastern German firm not at the leading edge of industrial technology, apprenticeship is the dominant mode of skill acquisition.

The other steel firm (LG1), which is the only one not owned by a western German parent corporation, was still owned by the successor to the Treuhand in 1995.

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23 Large companies were eligible for a one-time subsidy program in 1993 aimed at modernizing their training facilities. This modernization subsidy increased the attractiveness of large firms as poles around which training partnerships with smaller firms could be constructed (Culpepper 1998a and 1998b).
This company was in fact training far above its own future need for workers and was doing so only because its training was subsidized and encouraged by the Treuhand. It hired none of its apprentices who finished their training in 1995 and voiced no plans to retain any of its younger apprentices when they finished their training. Anticipating further lay-offs in order to make the company an attractive privatization candidate, the appearance of company LG1 in the target range is a spurious reading on the high-investment metric: the firm is neither investing itself in the training of apprentices nor planning to use them as future workers.

The headline finding in this size category is that large firms in the eastern German sample that are owned by western German corporations do in fact train at levels associated with the high-skill equilibrium. Ownership by a western German company may entail certain attributes, which make these firms more likely than others to train. As argued by Carlin and Mayer (1995), the collateral and reputational effects that east German firms gain by having western ownership structure can greatly ease their access to long-term finance. The importance of such access to finance would certainly conform to arguments about the importance of long-term finance in sustaining the “high-skill equilibrium” (Soskice 1990b, 1994, Finegold and Soskice 1988). Of equal significance may be the access of these companies to the rich internal networks of information exchange of the large western German conglomerates; these networks are a resource for eastern German managers who may be skeptical of western German training practices, but who can draw on these informational resources both to increase their knowledge of the system and to increase their confidence in its functioning. The relative roles of these two factors in explaining the link of western German ownership to virtuous training practices are difficult to disentangle, given the limits of this evidence; clearly, though, the strong association between ownership and high-skill training merits further study.
Medium-Sized Firms

Eight of the ten companies in the sample with between 150 and 500 employees receive subsidies to train apprentices. Despite this aid, these companies still maintain a lower training ratio than large firms in eastern Germany. As it turns out, some subsidies seem better able than others to respond to the needs of firms in this size bracket that want to offer apprenticeships. Direct subsidies, though, are anathema to the principle of firm responsibility for the in-firm costs of training that is dominant in the west, and their widespread use in eastern Germany could potentially dilute the extent to which firms invest in the development of human capital through apprenticeship. I return to this theme below.

Table 2 demonstrates that only one of the seven privately-owned Mittelstand companies is training in the western German target range (MG9). For two more, 1995 was the first year in which they had begun training again since the Wende. If they reach a full complement of apprentices (that is, having trainees in the first through fourth years)—and both planned to take on new trainees in the upcoming years—they will be at or even above the target western German range. Two firms, which were already training below the target range, planned to further reduce or phase out apprenticeship entirely. Representatives of one of these companies, now owned by a British corporation, claimed that the management of the company had decided that apprenticeship no longer fit the skill production strategy of the firm. The other, smaller company was owned by a western German firm, and was located in a labor market characterized by unusually high

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24 Company MG10 in Table 2 has a training ratio of 46.5 percent, meaning that almost one of two employees of this company is an apprentice. This bizarre case is heavily subsidized, and the situation results from the break-up of a much larger former Kombinat into several different companies. The one company depicted here took on all the former apprentices still under contract at the old Kombinat and received direct EU and state government to support the cost of this
official unemployment (over twenty percent). This company reported that it found sufficient skilled workers on the local labor market, because so many trained people in the metal professions were unemployed (Culpepper 1996b).25

[Table 2 about here]

Turning to the publicly-owned companies, the high training ratios of two of the three Treuhand firms are eye-catching (MG2 and MG3). Company MG2 received from the successor to the Treuhand 25,000 DM per apprentice per year for more than half of its apprentices (guaranteed for three years). This aid, which is by far the most generous subsidy of which I am aware for in-firm apprenticeship training in eastern Germany, is used to finance the hiring of apprentices beyond the ‘need’ of the company—a need that, given the uncertainty of the company’s ownership status, is currently difficult to estimate. The second firm training at an excess level (by western German standards) claimed to be training to need and had not therefore taken the available aid for extra places; this company had retained 78 percent of those apprentices who finished their training in 1995.26 Knowledge of these subsidies is not widespread; in fact, the personnel chief at the third Treuhand firm in the size range (MG1) claimed to have no knowledge of the existence of Treuhand aid, lamenting the firm’s inability to train more. Because the future ownership situation of these firms was unclear at the time of interview, my training until these apprentices finish their training. Since the case is so unusual, I exclude it from the average calculated for the rest of the companies in this size range.

25 In the two years prior to the interview in the fall of 1995, this firm had hired forty workers directly off the labor market but only three of its own apprentices. A large industrial Kombinat in the area closed down in 1994, accounting for much of the glut on the labor market.

26 While this firm took no Treuhand aid, it had been able to get 170,000 DM in subsidies from the state government of Saxony-Anhalt for “equipment,” subsidies which are tied to the number of trainees. This works out to over 6000 DM per apprentice trained.
interlocutors at the companies did not portray this subsidized training as part of any long-term strategy to guarantee future skilled labor.

Although the federal government refuses to provide direct subsidies for in-firm training places, governments in the new Länder, regardless of their political complexion, have not felt constrained by this principle. All five of the new Land governments and that of Berlin have developed subsidy programs for in-firm training places: in 1995, almost 60,000 in-firm apprenticeship places in eastern Germany—which is more than half the total in-firm places in the new federal states—were supported by some of this public money (BMBW 1996: 6). Yet devoting all that money to in-firm training has not led to good results everywhere: many firms continue to train not at all or at levels below those characteristic of the west. The results presented in this section suggest that only privately owned Mittelstand firms in Saxony—not Treuhand firms, and not Mittelstand firms in Saxony-Anhalt—have used subsidies to begin training at levels consistent with the high-skill equilibrium in western Germany.

The reason lies in the different design of subsidies in Saxony (for a fuller discussion of the Saxon policy and its development, see Culpepper 1996a and 1998a). The Saxon government in 1995 introduced a program for sponsoring training alliances among companies that lack the “organizational and technical prerequisites” necessary to hire an apprentice in a so-called Ausbildungsverbund (SSWA 1995). This policy recognizes that the broad standards set by German training regulations, particularly in the first year of an apprenticeship in the metal professions, require access to machinery that

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27 The Treuhand aid described above could be construed as an exception to the policy of the federal government not to pay directly for the costs of in-firm training. Leaving aside the important technicality the THA and its successors are independent agencies, aid funneled through the THA is opaque, and not easily monitored by the federal government.

28 The program aims to help the smaller companies that are most likely to need help to be able to meet the requirements of German training regulations, and it thus limits aid to companies with less than 500 employees. Larger companies can participate as the training center for the partnership, but they are only reimbursed for the organizational costs entailed in this role.
many smaller companies do not possess. While in the states of western Germany, many IHKs provide out-of-firm training centers that give smaller firms access to a broader range of machinery than they themselves possess, such a network of out-of-firm technical centers has not yet developed fully in eastern Germany. The *Verbund* mimics this function by giving companies in the *Mittelstand* access to the machinery and use of other (larger) company trainers that can help them to fulfill those IHK requirements. In so doing, the policy not only allows these firms to meet these material requirements; it also establishes information linkages between these and other training companies, information that gives them more confidence that they can use the training system effectively and that provides them with demonstration-effects of the benefits of training at other companies.

The amount of money given by the subsidy does not explain the success of the *Verbund* program. The aid supplied by the program is certainly generous, but it is less then 1/6 of the amount given to the THA firm discussed above (MG2 in Table 2). Likewise, the government of Saxony-Anhalt spends more per capita on the subsidization of apprenticeship, and subsidizes more places per capita, than does the Saxon government (BMBW 1997: 226). Rather than depending on the amount of the subsidy, the success of the *Verbund* appears to lie partly in the fact that it lowers the barriers confronting smaller firms wanting to train apprentices without exempting them from the rigorous breadth of the skill requirements demanded by the training regulations of the dual system.\(^{29}\) I return below to the question of why the *Verbund* policy in Saxony seems to have accomplished the goal particularly effectively.

It remains to be seen whether the subsidies given to eastern German companies will indeed be withdrawn as the economic situation there improves, or whether instead a mentality of subsidy-dependence is developing. The dependence of companies in the
eastern German *Mittelstand* on subsidies to support apprenticeship represents a sharp contrast with western German practice and a break with the foundation of the dual system: company responsibility for the costs of in-firm training. Among these subsidies, though, the *Verbund* policy of Saxony alone had spurred companies in my sample to begin training in a manner consistent with western German training practice.

**Small Firms**

The bleakness of the apprenticeship market in eastern Germany is especially apparent in Table 3, which shows the situation of firms in my sample having 150 employees or fewer. Only one-fifth of these companies are training apprentices at all. The obstacles that hinder firms in the *Mittelstand* from training are more daunting still to small industrial companies in the new federal states of eastern Germany. The non-training small firms cite two principal reasons for not training apprentices. First, five of six report an abundant supply of the skills they need on the external labor market as the reason they chose not to train apprentices. Second, three of the six cited lack of a qualified trainer, or inability to spare a worker to supervise an apprentice, as the reason they had not trained. Moreover, all answered that there was no subsidy program which could convince them to train, suggesting that cost is not the principal obstacle to training for firms in this size range.

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29 A BiBB survey finds that one-third of companies currently training across eastern Germany name training in a *Verbund* as a condition that would allow them to increase their level of training (BMBW 1996: 10).

30 In an earlier, larger survey of non-training firms in the new federal states, von Bardeleben (1993: 49) found availability of skilled labor as the most frequently cited reason for not training, chosen by one-third of firms. In a later round of the panel (1993-94), the non-training companies citing easy supply of skilled labor was cut in half, named by only seventeen percent as their ground for not training (von Bardeleben 1995: 84-85). These findings are consistent with the proposition that the number of skilled or easily trainable workers has dropped significantly since unification, and that therefore firms demanding skilled workers in eastern Germany will find it increasingly difficult to meet their future personnel requirements without training their own workers. Only time will tell if this hypothesis is accurate.
The two exceptional cases in this size bracket—firms that do train—underscore the probable inability of subsidies to solve the problems of eastern German small firms: neither of these companies receives any subsidies to train apprentices. The one company (SG1) that maintains a high ratio of apprentices/workers (over fifteen percent) in 1995 retained none of its trainees. This firm, which in the GDR fell under the *Handwerk* property law, conforms more closely to the artisanal model discussed earlier, in which firms train at a higher proportion of workforce, retain a much lower proportion of their trainees, and have very low or zero net training costs. The second training company among the small firms was growing and had invested substantially in the development of new plant. Owned by an international parent company and producing goods for export to the advanced industrial countries, the only reason this company’s training does not land in the target range is, ironically, because it has been unable to find the qualified apprentices it seeks. This company paradoxically behaves more like the large companies in the sample, with its ownership links to a parent company permitting substantial investment in new machinery; difficulties in attracting skilled labor also characterize the large eastern German companies. While an attractive model, this company has little in common with the other eastern German small firms.

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31 There were several *Handwerk* firms in my eastern German sample, which I exclude from this presentation for the sake of direct comparability with the French firms in my sample (all of which belong to the chambers of commerce and industry). However, the *Handwerk* firms in the German sample have training ratios which conform to the predictions of the Soskice model: those which trained had an average training ratio of 14.5 percent. The newly declared IHK firm discussed above thus fits squarely in the *Handwerk* training pattern.

32 Located in a small town near the border with the Czech Republic, the company’s manager put down his problems to attracting skilled workers to the location’s distance from the large cities.
Surveys by the German Federal Institute for Vocational Training, while not specific to the metal and electronics industry, confirm that small companies in eastern Germany find it especially difficult to train apprentices according to western German standards (von Bardeleben 1995). These surveys yield some contradictory results with respect to why these companies do not train, and whether subsidies can solve those problems. Von Bardeleben’s 1993-94 survey of non-training firms found that only sixteen percent gave “apprenticeship too expensive” as their reason for not training, an answer given less frequently than “inability to fulfill training regulations” or “no time” (1995: 84-85). However, two-thirds of them named “financial aid” as the measure most likely to entice them to train more.33 Certainly, the experience of small firms in this sample rejects the idea that the mere introduction of indiscriminate subsidies would suffice to enable them to train apprentices in ways characteristic of a high-skill equilibrium.

France and the Possibility of New Cooperation in Training

This section lays out the broad patterns of in-firm youth training in French companies, categorizing them according to the same size brackets used in the previous section. One of the prime objectives stated in debates around the French reforms was to increase the use of the youth training contracts by large firms. While, quantitatively, the number of apprenticeship and qualification contracts in companies of more than ten people is creeping upwards (DARES 1996), the data I gathered from 29 industrial companies in France suggests the reform has in this respect failed, at least thus far. Large companies in France do not carry the same training load as their eastern German

33 Von Bardeleben himself questions the validity of this result, saying that “it shows only that many firms in the new federal states, as a result of their lack of economic experience with in-firm training and the lack of a longer-term apprenticeship culture, do not at all see the middle- and long-term advantages of apprenticeship training” (1995: 86).
counterparts and retain few of those they train. Medium-sized French firms do somewhat better in terms of training ratios, but their rates of retention are far below those we would expect for firms making a high net investment in youth training. Small firms, though, are as a group relatively more involved in using in-firm youth training contracts than is true of their counterparts in eastern Germany. Even more striking are both the level and quality of training in small firms producing for the bar-turning industry in the Valley of the Arve, which represents one of the few bright spots on the in-firm training landscape in France. If we can understand how successful cooperation was created in the Arve, we gain significant analytic purchase on the question of how high-skill training patterns can be created from scratch.

**Large Firms**

Table 4 depicts the training practices of the nine French companies in the sample that have employment of at least 500. Only one of these companies trains in the target range, and that firm in 1996 retained *none* of its apprentices who finished their training that year. In eight of the nine companies, some young people had finished their training contracts in 1996, but only half of these hired even one of these trainees into permanent contracts. While most of these companies have used the policy tools available for youth training in a deliberate strategy to maintain or upgrade the skill base of their workforce, the ways in which they have done so bear little resemblance to the practices of the largest eastern German companies and to the practices of the dual system in western Germany.

[Table 4 about here]
Three of the firms—LF2, LF5, and LF6—produce complex mechanical goods, and youth training at these firms demonstrates some common characteristics of the largest, most technologically advanced manufacturing companies in my French sample. All three report having developed specific strategies of youth training to cope with new product development and consequently increased skill demands, or in order to replace the know-how of existing workers nearing retirement. Yet the training measures used in these firms were generally special initiatives to replace or create new workers of a certain skill level, rather than sustained programs of bringing in young workers to replace the old on a continuous basis. Two of the firms (LF5 and LF6) had a training ratio equal to about three percent of their workforce and retained roughly 60 percent of those who completed their training program in 1995 and/or 1996. These ratios are at the low end of the target range for France, but they are at least in the target range. However, their retention rates bespeak a low net investment in human capital through in-firm training contracts: they retain their trainees at a rate more characteristic of small craft firms in Germany.

Such low retention rates would be irrational if these firms had a heavy net investment in youth training; but they do not. Instead, given the level of state subsidies available for youth training, they are probably breaking even or better from their youth training. Only one firm in my sample reported conducting a systematic analysis of the costs of youth training, including estimates for the productivity of the youth in the firm (but excluding the factors shown by von Bardeleben et al. (1995) to reduce the net cost of apprenticeship training). To the surprise of the personnel director, these calculations show that the firm in 1995-96 was making a slight profit from the training program, thanks to generous government subsidies. This firm and the other, slightly larger
mechanical firm training at a rate of roughly three percent of its workforce, indicated that they might reduce their training in the absence of government subsidies.

The third large mechanical goods firm, the largest single plant in the sample (LF2 in Table 4), has a higher retention rate than any other plant in the large or in the medium size range. However, the experience of company LF2 is not indicative of a long-term, high investment in initial youth training. Instead, the training program developed there was targeted very narrowly at meeting a minimal level for the company’s skill requirements over a short time period. In conjunction with the development of a new product line, the company embarked on the training program because the existing local labor market would not be able to meet its needs for skilled labor. Whereas the firm had previously hired production workers with no qualifications and had not engaged in any programs for training young people, the new technology and production methods required the company to impose a minimum of CAP qualification for production workers, with a long-term goal of establishing the bac (the final secondary school qualification) as the minimum level of hiring for workers in production. But the decision to train was a stop-gap measure, rather than a durable change in the way the company does business.

Cognizant that such qualifications were not available in sufficient quantity on the local labor market, the company entered negotiations with regional government and public education officials to develop a qualification program which met the company’s need for math, technology, and industrial design qualifications. After a year, the firm broke off the negotiations, unable to agree with education officials on a diploma-granting program. The firm turned to the UIMM, the French sectoral employers’ association for

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34 The central point of disagreement was the content of the program. Officials of the company wanted only technical subjects relevant for production, while education ministry officials insisted on including broader training requirements; the broader requirements also would have required that the trainees spend more time in a training center.
the metalworking industries, which succeeded in negotiating a CQPM with the regional *direction du travail* that concentrated training requirements in only the technical skills demanded by the firm.

Between 1991 and 1996 company LF2 trained over 250 youth through the CQ program, hiring all who succeeded in passing the final test (the plant almost doubled its total employment during this time; roughly one-fourth of the new hires came by way of the youth training program). However, the final group of trainees finished this program in 1996, and the company has discontinued its training program at the level of the qualification contract, while continuing to take a small number of apprentices each year. “[Now] we hire fewer and fewer [trainees], it is easier to find people with diplomas…. if in 1997 we need 37 workers, we would find them on the labor market; we will not do any more qualification contracts.” In 1995, while the company was still actively engaged in this youth training initiative, the proportion of young trainees there represented just over two percent of the total workforce; and this, at the peak of their extra-ordinary training initiatives. At the time of interview in 1996, the ratio of trainees to total employment had returned to its normal level of only 0.4 percent. The company’s training director is quite satisfied with the training program and the flexibility afforded by the qualification contracts. The company does train in apprenticeship, but in numbers that are tiny by comparison to its German counterparts; for this firm, as for the other two very large firms discussed above, routine youth training plays a subsidiary role in strategies of recruitment.

The remaining six companies in the large size category all have lower skill demands than the companies just discussed. While a heterogeneous bunch, these companies as a group tend to have few youths in training contracts and to retain few of those they do train. Those that train the most retain the least. Illustrative of the general
trends in this group are the practices of two firms (LF4 and LF7) that occupy similar product markets, in which the skill demands put on the workforce are extremely low. Both characterize their training as more of a “social” mission than one that fills an economic need for future skilled labor. A personnel director at one of the firms notes that “for us, by contrast to [the practice in] other firms, training is a question of, [creating] the necessary qualifications, but also of managing the evolution of [the careers of] the other personnel here; of these people, maybe one in ten will be trained for promotion…. Thus, the fact is that we have to manage this frustration.” Both these firms retained none of the youths they trained over the past year.35

These cases are exemplary of the behavior of many French large companies, for which training is more often considered a cost than an investment. For those firms with higher skill demands (the minority in my sample), in-firm youth training contracts have on occasion been used to bridge current or predicted shortages of skilled labor. Yet these programs are generally temporary and do not fit into any larger pattern of skill development in the companies. Moreover, the existence of the CQPM has allowed several companies to tailor qualifications very specifically to their own needs, without requiring them to bear the costs of conferring broader, more portable skills on trainees. And, even when investing in youth training contracts like these, French large firms train a lower proportion of workers, invest a lower amount per youth trainee, and retain a lower

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35 One of the two firms (company LF7 in Table 4) has constructed a special training school for apprentices, as a result of a deal with the unions signed in 1995. The firm agreed to take on a group of apprentices from disadvantaged neighborhoods in exchange for an agreement that gives management flexibility as to when the apprentices attend training; demand in the industry is highly seasonal. Trainees forego training in the winter months of peak demand and spend more time in the training center during summer periods of slack demand. The firm’s personnel director notes that the program was begun with an eye towards the retirement of some older workers; the firm wants to replace them with younger workers at a minimum level of CAP (the lowest level French vocational certificate). However, he makes clear that the purpose of the program is not to retain trainees at a high rate: “we will not necessarily [hire them after apprenticeship], but at least they will have the diplomas, and would do better on the labor market [than without any training].” Asked if the firm would train in the absence of state subsidies for training, the personnel director
proportion of young people trained in such programs, than do their counterparts in Germany.

Medium-Sized Firms

The next size group, including six firms with between 150 and 500 employees, maintains a higher average training ratio than the large companies in the sample, and two-thirds of these companies maintain a training ratio within the target range between 2.5 and 6.5 percent of total workforce (see Table 5). Because they are in such different markets, it is hard to generalize about these firms. However, using the criteria of the training ratio and retention, it is helpful to distinguish the larger two companies (MF2 and MF3) from the smaller four. 86 percent of the trainees at the larger two companies are in qualification contracts, the majority at the CAP (i.e., the lowest possible) level. Company MF3 has many workers nearing retirement and finds itself in a position analogous to that of company LF2 (discussed in the previous section), which used the qualification contract as a flexible tool capable of being rapidly structured to the needs of the firm at low cost.36

[Table 5 about here]

The four smaller firms in this group, all of which have between 200 and 250 employees, show a greater resemblance to patterns of German training. Three of the four train within the target range, and each of the firms trains at a variety of different levels of

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36 Both LF2 and MF3 are located in Alsace, and thus are far more likely than other French companies to suffer from tight labor markets. Unemployment in Alsace was about eight percent at the time this research was conducted, compared with a national unemployment rate close to thirteen percent.
certification (BEP, bac, and DUT). Yet their retention rates are lower than one might expect to see from firms making a heavy net investment in youth training. The average retention rate of the four firms is .48, meaning that less than half of youth trainees are hired by these companies after the end of their training contracts.

For one of the four, a high-end mechanical goods producer (company MF6), low retention is partly a product of the difference between training for office jobs and for production jobs. “If we train somebody in the workshop, we do it to hire them. In the offices, our policy is different: he [the trainee] can give us a little help, it’s nice to have young person to lend a hand….[at the end of the training period] we would rather take another young trainee than to hire somebody…. On the shop floor, we keep them because we need them; in the office, we are not looking to increase the number of office workers.” For this firm, at least, technically trained apprentices are valuable and are retained; but those who pursue office qualifications are principally a source of cheap labor.

The training patterns of French firms in this size range are heterogeneous. Most interesting is the division between the two larger and the four smaller companies in their use of the CQ and the apprenticeship contracts. At the two largest companies, most of the contracts are CQs; in the four smaller companies, three-fourths of the youths in training contracts are in apprenticeship contracts, with qualification levels running the gamut from lowest to highest. As the discussion below explores more thoroughly, larger companies are more likely to be able to use the CQ for the development of narrowly defined firm-specific skills. Medium-sized companies like these, lacking both the personnel and the political resources to develop firm-specific qualifications, are less able to use the “exit option” presented by the CQ, and thus more likely to rely on apprenticeship. Even so, these companies still retain their apprentices at a rate that
suggests that their net investment in training is low, and that in-firm youth training is not their primary means of attracting skilled workers.

Small Firms

It is only among some of the small enterprises, those with fewer than 150 employees, that we find firms in the French sample that frequently train and retain their trainees at very high levels. The firms that tend to exhibit high-skill training characteristics are located in the Arve valley and produce for the bar-turning industry. Sixty percent of the production of the French bar-turning industry is concentrated in the valley of the Arve river, on the border with Switzerland, with production dominated by small firms; bar-turning refers to the mechanical production of large or small cylindrical components for use in larger, more complex mechanical goods. These firms are typically suppliers to larger producers, especially in the automobile industry. Over the past decade, despite high average youth unemployment, bar-turning and many other mechanical industries in France have experienced a shortage of skilled labor. Representatives of the firms in this industry whom I interviewed repeatedly mentioned conditions under which they competed with other firms for labor and feared the poaching of their own skilled workers by other companies. Yet the bar-turning firms in the Arve have, despite the acknowledged threat of poaching, have been able to invest collectively in the use of the in-firm skill contracts as a way to train their own future skilled workers.

As shown in Tables 6a and 6b, small firms in the valley of the Arve maintain a substantially higher ratio of trainees as a total proportion of the workforce (5.6%), and retain a higher proportion of their apprenticeship graduates (.88), than do small firms in other metal-working sectors in France. The sorts of figures that we see among firms in the Arve are characteristic of western German firms making a substantial investment in
youth training. Attitudes towards subsidies, and whether a firm would train less in the absence of subsidies, further support this finding. Four of the small firms not located in the valley of the Arve—including one company producing for the bar-turning industry but not located in the Arve valley—would train fewer or no young people in the absence of state subsidies; none of the training firms in the valley would take on fewer young trainees in the absence of public subsidies to training.

[Tables 6a and 6b about here]

Moreover, the companies in the Arve use the available skill contracts, particularly the CQ, to attract trainees of higher educational qualifications than do other small firms in France. The companies in the Arve valley have used the qualification contract to create skill categories at high levels—bac and bac+2—which prove more satisfactory than apprenticeship to these firms, while also providing them with more highly skilled workers. Among companies in the bar-turning industry in the sample, 60 percent of the youth training contracts are CQs; in the non bar-turning industries, only 24 percent of contracts are CQs, equal to the percentage for the overall French firm sample. Also notable is the fact that almost all the CQs in bar-turning are in technical fields, whereas the majority of CQs in other small firms are in service qualifications. Most importantly, the bar-turning firms in the Arve valley use the CQ to attract trainees of much stronger educational background than is the norm in small firms in other parts of France: 70 percent of the trainees in Arve valley firms possessed a qualification at least at the level of the bac, and over half of those had two additional years after the bac; in the small firms in the rest of France, 75 percent of trainees had qualifications below the bac level.
All the firms in the Arve that train cite one of two connected reasons for their heavy reliance on the CQ. First, the qualification has a professional skill content: as noted at one firm, “apprenticeship is more general, the diploma [it gives] is scholastic….while the content of the qualification contract is completely professional.” But this difference in content is not unique to either the bar-turning industry or the Arve valley, and it could indeed serve as a blanket description of the distinction between the two qualifications for all industries. The second element that attracts firms is the level of training equipment available at local training center located in the Arve. “Personally,” said one manager, “I prefer the qualification contract because the [training center] is much more technically advanced than the [vocational] high school, much more up to date.” The combination of degrees appropriate to firm demands and high level machinery and instruction available through the local training center has made the qualification contract a preferred measure for companies in this small corner of France. To understand the way in which the CQ has come to be widely used in the companies in the Arve valley, we will in the next section examine more closely the role of the bar-turning trade association, whose offices are located in the valley, in lobbying for the development of qualifications considered relevant and useful for firms in this industry and in putting at their disposal training facilities whose technical endowments the companies appreciate (Culpepper 1998a).

Before analyzing why the companies in the Arve valley have largely succeeded in moving to high-level training practices, a word about the firms which choose not to train at all in youth training contracts. As in the sample from eastern Germany, it is among the small firms that we find a concentration of firms that have no trainees. Three firms in my sample, ranging in size from 40 to 107 employees (and including one located in the Arve valley), did not have any young people in training contracts. While all three
noted that they did not have much turnover in their personnel, each had hired production-level workers on the external labor market in 1995 and 1996. All three cited the amount of time required to train young people, namely the time devoted by other workers to supervise and assist the trainees, as the principal reason they did not have youth training contracts. As one noted about youth training, “we lack time. Our people in charge no longer want to train [in youth contracts], it is a heavy burden.” Unlike in eastern Germany, none of these firms cited the abundance of skilled labor available on the labor market as reasons they chose not to train.

**Exit Options and Firm Choices**

The differences observed between the patterns of training in companies of different size categories in France and eastern Germany are striking, but so too are those within the eastern German *Mittelstand* and small firms in France. In this section, we return first to the explanatory axes of the organization of production and the structure of the educational system to try to make sense of the inter-category differences. In the second part of the section we then consider the elements of policy design that allow some firms to overcome the collective action problems involved in training reform more easily than others, holding these variables constant. The two dimensions of variation create an easier collective action problem for large firms in eastern Germany than for those in France; yet the rigid framework of the dual system, which is what has made cooperation for eastern German large firms easier, also makes it difficult for smaller companies in the new federal states of eastern Germany to use apprenticeship to procure skilled labor. In the second part of the section, I analyze how the Saxon *Verbund* policy helps companies overcomes these difficulties by crafting aid in such a way that companies using it
cooperate with other companies while gaining confidence in the functioning of the training system. In fact, these are exactly the conditions of subsidized aid that the bar-turning trade association has been able to create in the French valley of the Arve, which has enabled firms in the valley to overcome the collective action problems that bedevil the training reforms in most other parts of France.

*Training Systems and the Possibility of Exit*

The contrast between the training behavior of large companies in eastern Germany and in France aptly illustrates the way in which the nature of the educational system, along with the existing product market strategies of companies, structures firm preferences for training. The largest firms are numerically in the minority in the overall apprenticeship training populations of both France and Germany, but they constitute the most powerful members of the employers’ associations and thus occupy a central political role for the outcome of training reforms. Because large, western German-owned firms have played a leading role in apprenticeship training in the eastern German economy and because the broad skill requirements of the dual system suit their existing product market strategies, there has been no significant political pressure for loosening the requirements of the German training regulations. For these companies, with deep pockets and excellent access to information through the training networks of their parent corporations, the qualifications supervised by the IHK are a baseline on top of which they are able to develop their own firm-specific specialization of training standards. This allows them to compete in product markets where their skill resources give them comparative advantage by facilitating incremental product customization (Streeck 1992, Carlin and Soskice 1997). Given their dominant voices in the employers’ association and
the IHKs, these companies are well-placed to press for new professions (or changes in old ones) that respond to their new requirements.

Large firms in France, as represented in my sample, mostly remain indifferent to reforms encouraging them to train more apprentices. This choice stems from the options available to them through the bifurcated structure of the French initial in-firm training system and from their implication in a given organization of production. The existence within the French system of the CQ, which allows large firms in pressing need to pursue extremely firm-specific upskilling, provides an exit option should the apprenticeship system, dominated by the national education ministry, prove insufficiently pliable to firm demands for new skills. In addition, the CQ provides firms of all sizes with a means to hire workers with a sound foundation of general skills at the \textit{bac+2} level, and to give them firm-specific training while paying a fairly low wage. In some cases the CQ serves as a 2-year probationary period for workers who, once permanently employed, entail high wages and social charges on the company’s payroll.

Developing a tailor-made qualification requires extensive aid from the employers’ association (Charraud et al. 1996). This aid is much less likely to be available to individual small firms than to large conglomerates, as the former pay much lower membership fees than the latter. Two relatively large firms (with employment of 400 and 700) employed the large majority of the CQs training in technical professions from my entire sample. They each trained their workers at the lowest level (CAP) and retained only two-thirds of them. The personnel manager from one of the firms derided the skill level of the participating youths as “quite lamentable.” For each of these firms, the training adopted was a low-level, firm-specific qualification: the lowest-cost way to acquire the workers necessary for semi-skilled jobs. As in the case of company LF2,

\footnote{The availability of the technical and professional \textit{bac} and \textit{bac+2} degrees in France further amplifies the number of alternative training options available to French companies.}
these firms were able to use the qualification contract to tailor their “training” as specifically as possible to the firm’s needs.

The addition of the CQ has increased the ability of French large firms to have more input over the construction of relevant qualifications without surrendering a significant voice to French unions. Eastern German firms, in contrast, have not only the carrot of incentive, but also the stick of constraint. The most notable of these is the legally enforced presence of labor representatives at every level of standards development and certification through the dual system. Their role in defining national standards, in concert with the representatives of the employers’ association, is paramount, but it is supplemented by parity representation in the training committee of the IHKs, which supervise all elements of regional training regulation, and in the Land committees that advise regional governments on training policy and problems. Finally, the works council has the authority to challenge abusive apprenticeship practices observed or reported at the firm-level. While works councils in eastern Germany have proved less confrontational than their western counterparts (cf. Hyman 1996), they nevertheless retain a shopfloor capacity for intervention that sets up one more obstacle to the exploitation of trainees.

In France, without the acquisition of relevant working qualifications being tied to the requirement that those qualifications be broad, the innovation of the CQ becomes either a source of cheap labor or a stop-gap measure for meeting temporary labor shortages. In the absence of a union movement able and willing to push for broad qualifications, large French firms have developed a strategy that makes best use of the qualities passed on through the school-based technical training system. These skills are supplemented by mandatory further training expenditures, which allow companies to impart firm-specific skills to their workforces on continual basis (Géhin and Méhaut
The existing educational system and the exit options it creates for large French firms do not entice, nor do they force, those firms to move away from their equilibrium strategy of reliance on “flexible Fordist” production strategies that do not require a broadly skilled workforce (Boyer 1995).

Because their ownership links to western German companies have allowed them to pursue DQP strategies, large firms in eastern Germany that have been incorporated into German conglomerates have very little to gain by defection in the training game: they do not have a credible alternative means of attracting skilled labor to produce the sort of good they would like. The fruits of defection are lower than the returns to cooperation, which means that training for them is an assurance game. They do not want to train if no other firm does, but if they are assured that others will train, they prefer the payoffs of the cooperative outcome. If they have an effective mechanism for information circulation—which, through eastern German employers’ associations, they do—the hurdles on the path to cooperative training are therefore low. By contrast, as long as large French firms face a system in which a majority of firms view their productive advantage as lying in competition along flexible Fordist lines, then it pays not to invest in high-level in-firm training, even if other companies are cooperating. To get the skills that they need for this sort of production, neither the structure of the educational system nor the power of the unions in France is enough to force them to provide broad skills at the same time they provide firm-specific training. This is the problem facing French policymakers.

Public Policy and Collective Action

Yet the German alternative—a rigid system with no credible prospect for exit—is not without risks. Small and medium-sized companies in eastern Germany find the
qualifications imposed by this system quite onerous; and as a result, they either do not train (small firms) or require subsidy assistance to do so (Mittelstand). As the availability of unemployed, well-qualified skilled labor decreases in eastern Germany, the small and medium-sized firms that want to train young workers will face increasing pressure to take on apprentices through the dual system. The Saxon Verbund policy was deftly designed in that it focused public money on the specific problems of firms in the Mittelstand: meeting the broad IHK requirements for the metal professions during (especially) the first year of training. What is clever about the design of the Saxon policy is the fact that it channels this aid to medium-sized companies in a format that brings them into close cooperation with other training companies. Thus, not only do they benefit from the subsidy in overcoming technical obstacles to training, but they build links with other training companies that serve to lengthen their time horizons (by opening up the future possibility of cooperation) and that reinforce their confidence in the functioning of the German skill provision system. The Verbund works because it lowers costs by increasing cooperation, not by lowering standards.

If the argument I have made about the prisoner’s dilemma of French training is right, then how have small companies overcome this problem in the valley of the Arve? First, as we would expect from the theoretical discussion above, they are nudged towards cooperation by their product market strategies in combination with how the educational system looks to them. As an industry of suppliers dependent on orders from larger producers in the automotive and other mechanical industries, the bar-turning firms of the Arve have been forced to maintain their technological edge in order to remain internationally competitive. Companies in this industry manufacture for a wide variety of markets, and in varying production runs. What all share is a reliance on families of CNC machinery that are at the center of bar-turning work. Since the 1980s, the trade
association of the industry has sought numerous ways to meet the demand for highly skilled technical labor to run these machines.

The organization of production in bar-turning should not be confused with the breadth of skill requirements associated with the large DQP firms in Germany. However, the need to stay abreast of technically sophisticated methods of production in order to compete in world markets helps to make cooperation a more attractive proposition to bar-turning companies (raising the payoffs to cooperation and lowering the payoffs to defection). Moreover, the bar-turning industry in the Arve valley is dominated by small units of production (SESSI 1996),\(^{38}\) to which the educational system appears very different than to large firms. While large companies in France may tailor a CQ to their exact specifications, no firm in the bar-turning industry holds this kind of sway with the general metal employers’ association (UIMM), which helps design and authorize CQs. This density of firms with similar needs for basic and advanced technical skills (from the lowest level, CAP, to the \textit{bac+2}), has led even small firms to develop a close relationship with the national trade association for bar-turning, whose offices are located in the heart of the Arve valley. With a multitude of small firms, each using different manufacturing techniques and strategies, the CQs produced under trade association pressure lack the firm-specific traits of the CQs negotiated by larger companies. The certifications, to be sure, are very specific to bar-turning industry; they do not contain the broad initial year’s training of German metal-working apprenticeships. But the balance of many competing small firms has produced unusually transferable qualifications from the routinely firm-specific CQ in France.

Thus, both the organization of production and the way the educational system looks to small firms move the bar-turning firms in the valley of the Arve towards an

\(^{38}\) Firms with over 100 employees account for only ten percent of total employment in the French bar-turning sector, and three-quarters of companies in the industry have less than 20 employees.
assurance game and away from the prisoner’s dilemma. The acute labor shortage in the companies in the valley, which was the reason for which the association aggressively pursued the elaboration of the CQ, also mimics the constraint function played by unions in Germany. These companies may not have strong works councils to watch over firm-level training, but they have competitors who are also in search of labor, which strengthens the hand of the trainee worried about getting low-quality training: he can always find another bar-turning firm down the road that will hire him. In these structural respects, then, the bar-turning industry in the Arve valley has some of the features that ease collective action among German firms in the area of training. However, the Arve valley is not alone in having tight labor markets—indeed, labor markets in Alsace are tighter than in any other part of France, but firms in Alsace (as represented in my sample) have shown little evidence of cooperative training practices.  

The distinctiveness of the Arve case lies in the role played by the local association of bar-turning companies and its affiliated technical center. The association decided in the in the 1980s that the technical center (called the CTDEC) should take on the role of training center for local companies in response to the chronic shortage of skilled workers and technicians in the bar-turning industry. The CTDEC made a massive investment in machinery that is specific to the industry, financed by member firm contributions. Access to these high-level machines and the trainers of this center are one prominent reason why smaller companies in the Arve valley opt to train through the qualification contract. They are also willing to train using the qualification contract because the association devised qualifications that responded to their needs for

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39 A reviewer of this chapter suggested that the proximity of the Arve to Switzerland, which also has a German-style dual system, might explain how companies in the Arve succeeded in achieving cooperation where other firms in France failed. Yet the almost total failure of firms in Alsace to move towards high-skill training practices—when Alsace sits on the German border and even retains many legal vestiges of the German training system from its days under German
production, which required that the association have the capacity to gather information from a broad spectrum of companies and deliberate effectively about the most suitable skills to include in these certifications (Culpepper 1998a). Then, the CTDEC makes available to small firms in the Arve the gamut of machinery used in the industry.

Having developed appropriate qualifications and a well-functioning training center, the association of bar-turners in the Arve is able to lobby members to use national subsidy money to begin investing more heavily than they have before in high-skill training practices. These national subsidies, which are available to almost all firms in France, have thus been joined through a mechanism of employer coordination to a training center that has identified the problems of companies and that tries to respond to them. Like the Verbund aid in the state of Saxony, the existence of such a training center gives smaller companies access to a broad range of machinery that they could not afford to provide on their own, which in turn allows them to train in broader qualifications than what is strictly necessary for their own firm. And as in the Saxon case, this material aid is provided in the context (a joint training center) in which firms witness other firms training; in the assurance game, this assurance that other actors will also cooperate is the key to reaching the cooperation that is the most desired outcome for all parties. Thus have the bar-turning companies in the valley of the Arve been able to escape the sub-optimal outcomes characteristic of training reform in many other parts of the French political economy.

**Conclusion**

rule—certainly calls into question any sort of argument about cooperation based solely on proximity to a dual system.

40 Lest this “functional equivalence” of Verbund aid and the bar-turning technical center seem an overly stretched parallel, recall that Verbund aid fills a gap left by the absence of IHK out-of-firm centers in eastern Germany.
The evidence in this chapter buttresses the argument that the predominant organization of production and the exit options offered by the existing educational and training system structure firm choices about the use of in-firm training contracts. In this respect, large, privately-owned eastern German firms face a less difficult collective action problem than do their French counterparts in trying to adopt the practices of the high-skill equilibrium. However, the evidence also documents that many eastern German firms do not train at high levels, and that some French firms do. These two broad variables thus determine the stylized payoffs to cooperative training patterns, but they do not determine the choices of companies. Some companies are able to overcome the obstacles to cooperative training in order to reap the rewards of a high-skill strategy, despite the perceived threat of opportunism by other firms that could poach their skilled workers.

Large companies in eastern Germany have engaged themselves at high rates in the dual system, accepting the rigidity of German apprenticeship qualifications there rather than using the new context to bargain this rigidity downward. Smaller eastern German industrial firms have encountered greater difficulties in using this system of broad qualifications, because of the machinery and personnel demands it makes on them. The Verbund policy has been one state-level solution for making entry into dual training practices less onerous for the companies of the Mittelstand, combining subsidy assistance in a package that encourages newly training companies to cooperate with other training companies.

In France, successive measures to make in-firm youth training contracts a more attractive tool for skill provision have failed to have a major impact on the training strategies of large companies. The use of broad, higher-level degrees is almost as marginal in 1998 as it was when the 1993 reform law was passed. Large companies have used the CQ to their advantage, but not as the measures of broad skill acquisition that its
proponents intended when the contracts were originally introduced. In the bar-turning industry in the valley of the Arve, however, the inability of companies to use the CQ as a purely firm-specific training tool and the need for skilled workers have facilitated the push by the bar-turning association to convince companies to train and to retain their trainees at high levels. French policymakers could draw from this evidence the inference that subsidies and tax relief alone will not persuade companies to begin engaging in patterns of high-skill training. These enticements have been the primary element of French policy thus far. On the one hand, my analysis suggests that, so long as companies perceive their competitive advantage to lie in the Fordist organization of production and so long as they face an educational system that presents them with easy exit options for acquiring the skills they need, it will be difficult to extend the success observed in the valley of the Arve to other parts of the French political economy. On the other hand, the story of the Arve suggests that policies designed in consultation with employers’ associations may be better able to attract potential new training firms than are the indiscriminate subsidies that France currently offers to any firm to take on apprentices.

Governments in the advanced industrial democracies that want to persuade companies to increase their investment in the development of intermediate skills have a problem: how to convince companies to take the cooperative step in a potentially one-period game, leaving them open to defection. If a government is to solve this problem, it needs to make the first cooperative step less costly for companies. In all the cases of success discussed in this chapter, employer associations attempted to mobilize public money (national or regional) to facilitate the training decisions of private companies. For the eastern German large companies, the aid came early on, through one-time federal subsidies that allowed them to update their machinery and training facilities (Culpepper 1998a). The Saxon Verbund policy built on this success by procuring state money to
enable medium-sized companies to have access to modern technology and experienced trainers. The small bar-turning firms in the valley of the Arve had access to the general subsidies of the national government to lower the costs of their training. This investment was abetted by their development of a training center with the latest equipment and qualified trainers, giving these small firms access to training expertise that would not have otherwise been available to them.

Based on the success of the large, western-German owned companies in eastern Germany, it seems that the establishment of a network of large companies training at high levels may facilitate the move to the high-skill equilibrium. There are at least three reasons supporting this hypothesis: first, a network of large companies can circulate information and make possible access to machinery that can enable other, smaller companies to make the decision to invest. Second, large companies among themselves, by virtue of their large size and small numbers, face lower obstacles to collective action in the absence of strong existing institutions of employer coordination. Thus, in political economies like the United States that are largely bereft of strong employer coordinating capacity, consortia of large companies may be able to jump-start mini-experiments in high-level vocational training.41 And third, establishing a critical mass of large companies making the sorts of skill investments required for a regime of diversified quality production may provide both a demonstration effect (of the merits of DQP skills investment) and the establishment of inter-firm networks that facilitate cooperation on questions like vocational training in western Germany. For this reason, Carlin and Soskice (1997: 70-74) rightly note that the paucity of large firms in eastern Germany presents an obstacle to the wider diffusion of the high-skill equilibrium model to the new

41 Some of the most promising experiments with vocational training reform in the US have grown out of employer-run consortia of this sort. See the chapter by Parker and Rogers in this volume and Osterman (1994) for examples of consortia-led experiments in vocational training.
federal states, as a critical mass of large companies has not emerged there to serve as the cornerstone of high-level training.

Even if large companies do establish themselves in greater numbers in eastern Germany, we must remember that large firms in Germany provide only about ten per cent of the total apprenticeship places; the \textit{Mittelstand} customarily provides the bulk of the total places. In order to achieve a successful overall transformation of the eastern German training system, then, small and medium-size companies are going to have to carry a larger proportion of trainees than they have done up to now. The capability of employers’ association to circulate information to, from, and across companies will be an asset for these companies in the formulation of their individual training strategies. As shown by the Saxon example, the problem is not just one of getting money from the state, although that matters; in addition, the form of the subsidy must be well-crafted, so as to meet the demands of the companies that are most likely to want to engage in high-skill-training (Culpepper 1998a). In eastern Germany, smaller companies need access to the broad range of machinery required for training in all metal qualifications, especially in the first year. The Saxon employers’ association recognized this need and pushed for specially targeted aid, which not only lowered the net cost of training, but did so while giving companies a way to meet the rigorous requirements of the German qualifications.

Yet the Saxon \textit{Verbund} policy, despite its apparent success, nevertheless undercuts the central pillar of the German dual system: that employers pay the full costs of in-firm apprenticeship training. Although cleverly crafted, it remains unknown whether the policy will succeed in establishing a pattern of high-level training that can survive the withdrawal of subsidy support, as the precarious situation of eastern German companies improves. While the subsidy program is a success in relation to other programs, it remains to be seen whether the trend established under subsidy will continue
in the absence of government assistance. The success achieved in the valley of the Arve, although partly subsidized, seems less likely to create subsidy dependence because most firms there deny that the absence of the subsidy would change their training behavior. The problem of replicating the Arve’s success across France is not so much a function of the particularity of the bar-turning industry as it is the weakness of French employers’ associations (Bunel 1995, Levy 1994). The organizational splintering of French unions does not compel employers’ organizations to move from the provision of specific goods to the provision of collective goods. Nor do the existing product market strategies of many French companies lead them to push actively for the provision of such goods.

While the government can exert little direct influence on the product market strategies that dictate the demand for labor, it can intervene in the facility with which firms can use the CQ as an exit option from apprenticeship. However, recent attempts in this direction (most recently in 1993) have failed (Culpepper 1996a), and the area of education and training has proved notoriously treacherous for reform-minded French governments of any political stripe.

The general, sober lesson to be drawn from these cases is that the best way to overcome collective action problems like the prisoners’ dilemma is to turn them into more easily soluble assurance games. Given the path-dependence of the structures necessary to change the payoff matrix of employers, this counsel may be cold comfort for would-be reformers. It is important to recognize, though, that the successful cases of training reform are impressive, especially given the high unemployment currently bedeviling both the eastern German and French political economies. We can summarize two general lessons from these cases. First, to encourage employers to make substantial, uncovered investments in skill provision demands that the employer have some confidence that he or she will be able to exert influence over the nature of certifiable
skills. Well-functioning institutions of employer coordination appear to provide the best practical form of this assurance. Second, lowering the costs of a company’s initial investment can be most effectively achieved through judicious public intervention, developed in close collaboration with these employers’ associations. Neither national nor state governments are likely to possess detailed knowledge of the needs of struggling companies in transitional economies; this information circulates best through private networks of coordination. In the game of training reform, these two elements offer the best possibility of generating the cooperative behavior on which the successful transition to a high-skill equilibrium ultimately depends.
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Tables

Table 1: Eastern German Firms, employment>=500

<table>
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<tr>
<th>Firm</th>
<th>Training Ratio</th>
<th>Ownership</th>
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<tr>
<td>LG1</td>
<td>7.0%</td>
<td>th</td>
</tr>
<tr>
<td>LG2</td>
<td>4.6%</td>
<td>w</td>
</tr>
<tr>
<td>LG3</td>
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<tr>
<td>LG5</td>
<td>12.0%</td>
<td>w</td>
</tr>
<tr>
<td>AVG</td>
<td>7.4%</td>
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</table>

Source: Interviews conducted in 1995 and 1996 in France and Germany. All companies are members of the chambers of industry and commerce. For eastern German firms, the training ratio equals apprentices as a proportion of total employment. For French firms, the training ratio equals the sum of youth with apprenticeship or qualification contracts as a proportion of total employment. Firms are sorted by ownership category.

Ownership key for both eastern German and French tables: w: owned by a western German firm or conglomerate; th: owned by the Treuhand’s successor organization; c: owned by a non-German firm or conglomerate; i: an independently owned eastern German firm or French firm; h: a former Handwerk cooperative, with cooperative private ownership.

Table 2: Eastern German Firms, employment>150 and <500

<table>
<thead>
<tr>
<th>Firm</th>
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<tr>
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<tr>
<td>MG2</td>
<td>14.0%</td>
<td>th</td>
</tr>
<tr>
<td>MG3</td>
<td>14.0%</td>
<td>th</td>
</tr>
<tr>
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<td>c</td>
</tr>
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<td>1.5%</td>
<td>w</td>
</tr>
<tr>
<td>MG6</td>
<td>1.6%</td>
<td>w</td>
</tr>
<tr>
<td>MG7</td>
<td>2.2%</td>
<td>w</td>
</tr>
<tr>
<td>MG8</td>
<td>2.9%</td>
<td>w</td>
</tr>
<tr>
<td>MG9</td>
<td>6.2%</td>
<td>w</td>
</tr>
<tr>
<td>MG10</td>
<td>46.5%</td>
<td>i</td>
</tr>
<tr>
<td>AVG*</td>
<td>5.2%</td>
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</tr>
</tbody>
</table>

*This average excludes MG10, which has an abnormally high training ratio. The situation results from the break-up of a much larger former Kombinat into several different companies; company MG10 took on all the former apprentices still under contract at all the companies of the old Kombinat and lobbied for direct EU and regional aid to support the cost of this training.
Table 3: Eastern German Firms, employment<=150

<table>
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<tr>
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<td>15.1%</td>
<td>h</td>
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<tr>
<td>SG2</td>
<td>0.0%</td>
<td>th</td>
</tr>
<tr>
<td>SG3</td>
<td>0.0%</td>
<td>i</td>
</tr>
<tr>
<td>SG4</td>
<td>0.0%</td>
<td>i</td>
</tr>
<tr>
<td>SG5</td>
<td>0.0%</td>
<td>i</td>
</tr>
<tr>
<td>SG6</td>
<td>1.6%</td>
<td>c</td>
</tr>
<tr>
<td>SG7</td>
<td>0.0%</td>
<td>w</td>
</tr>
<tr>
<td>SG8</td>
<td>0.0%</td>
<td>w</td>
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</tbody>
</table>

**AVG** | 2.1%

Table 4: French Firms, employment>=500

<table>
<thead>
<tr>
<th>Firm</th>
<th>Training Ratio</th>
<th>1996 Retention</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF1</td>
<td>3.2%</td>
<td>0.00</td>
<td>i</td>
</tr>
<tr>
<td>LF2</td>
<td>0.4%</td>
<td>0.96</td>
<td>c</td>
</tr>
<tr>
<td>LF3</td>
<td>0.7%</td>
<td>0.00</td>
<td>c</td>
</tr>
<tr>
<td>LF4</td>
<td>1.0%</td>
<td>0.00</td>
<td>c</td>
</tr>
<tr>
<td>LF5</td>
<td>3.0%</td>
<td>0.60</td>
<td>c</td>
</tr>
<tr>
<td>LF6</td>
<td>3.0%</td>
<td>0.57</td>
<td>c</td>
</tr>
<tr>
<td>LF7</td>
<td>6.4%</td>
<td>0.00</td>
<td>c</td>
</tr>
<tr>
<td>LF8</td>
<td>0.2%</td>
<td>na</td>
<td>w</td>
</tr>
<tr>
<td>LF9</td>
<td>1.7%</td>
<td>0.67</td>
<td>w</td>
</tr>
</tbody>
</table>

**AVG** | 2.2% | 0.35

Table 5: French Firms, employment>150 and <500

<table>
<thead>
<tr>
<th>Firm</th>
<th>Training Ratio</th>
<th>1996 Retention</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>MF1</td>
<td>2.9%</td>
<td>0.80</td>
<td>i</td>
</tr>
<tr>
<td>MF2</td>
<td>1.0%</td>
<td>0.00</td>
<td>c</td>
</tr>
<tr>
<td>MF3</td>
<td>2.7%</td>
<td>0.64</td>
<td>c</td>
</tr>
<tr>
<td>MF4</td>
<td>6.5%</td>
<td>0.25</td>
<td>c</td>
</tr>
<tr>
<td>MF5</td>
<td>7.0%</td>
<td>0.67</td>
<td>c</td>
</tr>
<tr>
<td>MF6</td>
<td>3.8%</td>
<td>0.18</td>
<td>w</td>
</tr>
</tbody>
</table>

**AVG** | 4.0% | 0.42
### Table 6a: French Firms, employment<=150, Outside the Arve

<table>
<thead>
<tr>
<th>Firm</th>
<th>Training Ratio</th>
<th>1996 Retention</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>SF1</td>
<td>0.0%</td>
<td>na</td>
<td>i</td>
</tr>
<tr>
<td>SF2</td>
<td>0.0%</td>
<td>na</td>
<td>i</td>
</tr>
<tr>
<td>SF3</td>
<td>0.9%</td>
<td>0.50</td>
<td>i</td>
</tr>
<tr>
<td>SF4</td>
<td>1.1%</td>
<td>1.00</td>
<td>i</td>
</tr>
<tr>
<td>SF5</td>
<td>1.9%</td>
<td>na</td>
<td>i</td>
</tr>
<tr>
<td>SF6</td>
<td>3.4%</td>
<td>1.00</td>
<td>i</td>
</tr>
<tr>
<td>SF7</td>
<td>4.0%</td>
<td>1.00</td>
<td>i</td>
</tr>
<tr>
<td>SF8</td>
<td>5.0%</td>
<td>0.67</td>
<td>i</td>
</tr>
<tr>
<td>SF9</td>
<td>9.1%</td>
<td>0.50</td>
<td>i</td>
</tr>
<tr>
<td><strong>AVG</strong></td>
<td><strong>2.8%</strong></td>
<td><strong>0.78</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Table 6b: French Firms, employment<=150, Valley of the Arve

<table>
<thead>
<tr>
<th>Firm</th>
<th>Training Ratio</th>
<th>1996 Retention</th>
<th>Ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFA1</td>
<td>0.0%</td>
<td>na</td>
<td>i</td>
</tr>
<tr>
<td>SFA2</td>
<td>2.9%</td>
<td>1.00</td>
<td>i</td>
</tr>
<tr>
<td>SFA3</td>
<td>3.0%</td>
<td>1.00</td>
<td>i</td>
</tr>
<tr>
<td>SFA4</td>
<td>8.7%</td>
<td>0.50</td>
<td>i</td>
</tr>
<tr>
<td>SFA5</td>
<td>13.3%</td>
<td>1.00</td>
<td>i</td>
</tr>
<tr>
<td><strong>AVG</strong></td>
<td><strong>5.6%</strong></td>
<td><strong>0.88</strong></td>
<td></td>
</tr>
</tbody>
</table>