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Problems on the road to high skill: a sectoral lesson from the transfer of the dual system of vocational training to eastern Germany

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discussion paper



WISSENSCHAFTSZENTRUM BERLIN
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Problems on the Road to „High Skill“:

A sectoral lesson from the transfer
of the dual system of vocational training
to eastern Germany

Pepper D. Culpepper

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Earlier incarnations of this paper were presented at a seminar of the Department of Economic Change and Employment at the WZB and at the conference on “The Distributive Dimensions of Political Economy” at the Center for European Studies at Harvard University. I benefited from the comments of participants in both, and especially those of Steve Casper, Peter Hall, Robert Putnam, Marino Regini, Charles Sabel, and David Soskice. Financial support for this project from the Center for European Studies at Harvard and from the WZB is gratefully acknowledged.

Abstract

The central challenge of transferring the dual system of education and training to eastern Germany is to convince companies to bear the in-firm costs of apprenticeship training. Two prominent explanatory variables in the social scientific literature - national institutions and social capital - offer certain predictions about which factors will be most important in facilitating the transfer of the dual system to eastern Germany. Data from interviews with thirty-four firms in the metal and electronics industry suggest that institutionalist theory mis-specifies the role of employers in "coordinated market economies." Employers' associations in both eastern and western Germany have neither the access to inside information nor the informal sanctioning capacity attributed to them in this literature, nor do they play any role in the regular diffusion of strategies of "best practice". Ownership by western German companies, however, appears to be of particular significance in the decision of eastern German companies to train, a link which may support the institutional emphasis on access to long-term finance. Social capital is unable to explain significant variance in the ability of companies to cooperate in order to create additional apprenticeship places. The role of policy design in the new federal states appears to have an important effect in explaining the ability of firms in some states to cooperate in training apprentices. The ability to craft effective policies depends on coordination among state governments and employers' organizations, but the distributive conflicts inherent in these subsidies can hamper cooperation among employers.

Zusammenfassung

Die zentrale Herausforderung bei der Übertragung des dualen Berufsausbildungssystems nach Ostdeutschland ist es, die Unternehmen davon zu überzeugen, die internen Kosten der Ausbildung zu tragen. Besonders zwei Variablen in der sozialwissenschaftlichen Literatur - das nationale Institutionengefüge und das Sozialkapital - weisen auf vorab benennbare Faktoren hin, die wichtig sind, um den Transfer des dualen Systems nach Ostdeutschland zu erleichtern.

Informationen und Daten aus Interviews in 34 Unternehmen der Metall- und Elektronikindustrie führen zu der Annahme, daß die Institutionen-Theorie die Rolle von Unternehmern in „koordinierten Marktwirtschaften“ mißinterpretiert. Unternehmensverbände in Ost- und Westdeutschland haben weder Zugang zu

Insider-Informationen noch eine wie auch immer geartete Sanktionsmöglichkeit - wie ihnen in der Literatur zugeschrieben wird -, und sie spielen auch keine Rolle in der üblichen Verbreitung von „best-practice“-Erfahrungen. Wenn ein Unternehmen in Ostdeutschland einem westdeutschen Unternehmen gehört, so scheint dies allerdings eine wichtige Rolle bei der Entscheidung für eine berufliche Erstausbildung in dem ostdeutschen Unternehmen zu spielen. Dies könnte in einem Zusammenhang mit der Diskussion um die Bedeutung von Institutionen und dabei um den Zugang zu langfristigem Kapital gesehen werden.

Die These vom „Sozialen Kapital“ kann die erheblichen Unterschiede in der Fähigkeit der Unternehmen, durch Kooperation zusätzliche Ausbildungsplätze zu schaffen, nicht erklären. Die je spezifische Art, wie politische Prozesse in den neuen Bundesländern gestaltet werden, scheint dagegen ein wichtiger Indikator zu sein, um die in einigen Bundesländern vorhandene Kooperationsfähigkeit von Unternehmen bei der Lehrlingsausbildung zu erklären.

Die Fähigkeit, wirksame politische Lösungen zu entwickeln, hängt von der Art der Zusammenarbeit zwischen Länderregierungen und Unternehmensverbänden ab, doch können Verteilungskonflikte, die immanent zu Subventionen gehören, die Kooperation zwischen Unternehmern behindern.

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1. Introduction

By incorporating the states of the former GDR into the West German "dual system"¹ of vocational education and training, the German government did many of its admirers around the world a great favor and gave social scientists a good natural experiment. In 1990 the German system of training was at its zenith of popularity among political economists and politicians, seen as the blueprint for industrial economies trying to create a system in which a broad base of high-skilled workers enables the maintenance of a high-wage export sector which can continually innovate its way into niche markets of international economy. The favor to admirers was the natural experiment: now those admirers who had been scratching their heads in bemusement, wondering how to set up such a system at home, could take notes while the West Germans tried to set up those institutions in the new federal states of the former German Democratic Republic. This paper reports some results gathered in the course of observing that natural experiment.

The defining feature of the dual system is the role of firms in financing the training of apprentices: it is a feature which adds much collective action piquancy to the question of training reform. Both firms and potential apprentices have to invest in the training relationship. The former invests money in an apprentice's skills, the latter invests time in developing those skills, while being paid a relatively low wage. Investments create sunk costs, and sunk costs create opportunities for exploitation by the partners to an exchange. An apprentice may fear exploitation in a training scheme which in reality provides a firm with cheap labor without increasing the individual's productivity. A firm fears bearing the costs of training an apprentice, only to lose the apprentice to another firm, which "poaches" the skilled worker without having had to invest in the development of these skills (Finegold 1992). If all the actors in this game can be persuaded to cooperate without defecting, then the way is open for the establishment of a "high-skill equilibrium," a situation in which the majority of firms in broad sectoral swathes of the economy invest substantially in the training of their workers, while the apprentices themselves have acquired the requisite general qualifications and are willing to accept apprenticeship wages in return for the development of skills that will yield them a significantly higher return over the life cycle. This is the situation that was said to characterize (especially the export-oriented sectors of) the German economy during the 1980s (Finegold and Soskice 1988). For eastern

¹ The duality in the German dual system refers to the division of apprentices' time between a vocational school (*Berufsschule*), which they attend one or two days per week and a firm where they have an apprenticeship contract.

Germany, the benefits of the high-skill equilibrium are obvious. What is not so obvious is how to establish a new training system such that the participants believe they will get to the win-win situation of the high-skill equilibrium without being duped.

So the stylized central problem of my dissertation is a collective action problem: how to move a political economy to a “high-skill equilibrium.” In reality, of course, the dependent variable—the degree of success or failure of a radical reform of the training system—is multi-dimensional. I have taken as central to the success of reform of the system in eastern Germany the key characteristic of the dual system in the former West Germany: that firms themselves are willing to bear the cost of training². Getting firms to train is a central objective of German policy in eastern Germany, and must be considered the single most important indicator of success.

But it is not the only one. One must also look at how the two parties to the training contract—managers (firms) and apprentices—view the central institutions of the dual system: the supervision provided by the chambers of industry and commerce, the functioning of the mediation (*Vermittlung*) of the Employment Offices, and the quality of the schools which provide instruction complementary to the in-firm training. Moreover, the quality of the skills imparted has to be satisfactory, both to the firms, who are the consumers of the skills, and to the young people themselves, who invest in the skills and want to have a good return on that investment over the life cycle.

Determining and passing judgment on the success or failure of the dual system in eastern Germany since 1990 is a book length project. My more restricted goal in this paper is to bring evidence from thirty-four firms in the German metal and electronics industry to bear on the question of how training reform in Germany has proceeded since 1990. Both whether, and how much, firms are training—as well as the perspective of the firms on the quality of the supervisory role of the employers' association and the chambers of industry and commerce (*Industrie- und Handelskammer*, or IHKs)—will be covered in this paper. I will also test five intermediate hypotheses with the goal of shedding some light on the relative importance of social capital and national institutions in explaining some of these outcomes.

² Cf. Osterman (1994) for a discussion of the problems of accounting for the real costs of firm training.

2. Theories and Hypotheses

2.1. Institutions

An important branch of the institutionalist research dealing with comparative political economy in the 1980s posited that the literature on neo-corporatism had focused too narrowly on wage bargaining institutions, as wage bargaining is only one of a set of institutions whose interaction affects national economic policy and outcomes (Zysman 1983, Scharpf 1984, Katzenstein 1985, Hall 1986). As well, the debates on corporatism and on macro-economic outcomes ignored the increasing importance of new firm strategies on the complexion of the national political economy (Piore and Sabel 1984) and, relatedly, neglected the importance of the preferences of business in constructing and maintaining systems for regulating the political economy (cf. Swenson 1989).

Building on this research, David Soskice has argued that different constellations of institutions constitute discrete "varieties of capitalism" (Soskice 1990a and 1990b; cf. Albert 1993). Certain constellations of the organization of business, the organization of labor, and the structure of the financial system provide a cooperative framework for competing social groups, resulting in "coordinated market economies;" other constellations which do not provide institutional forums for group negotiation yield "liberal market " (uncoordinated) economies. Each type of political economy has a comparative institutional advantage for some sorts of firm strategies, but it is clear that for solving problems of cooperation, like education and training reform, the institutions of the coordinated economy should be more conducive to success. It is only in the coordinated economies that the elements of the high-skill equilibrium are present (Soskice 1990a).

Among the prerequisites of a coordinated economy are strong and cohesive employers' associations and labor organizations, each of which should be able to make credible commitments on the behalf of its constituents, along with a financial system in which firms have easy access to long-term finance (that is, capital provided by the state or large banks, which limits the prevalence of corporate takeovers). *Primus inter pares* of the institutions of Soskice's causal model is the organization of business³. The employers'

³ Labor organizations serve a stabilizing function in Soskice's work: unions and works councils guarantee that the training system will not be transformed into a low-wage scam for exploiting the young, as unions must approve all revisions to the structure of job qualifications in negotiations with employers' representatives; the legal prerogatives of the works councils give apprentices a recourse in the case of perceived abuse; and the expertise of works councils in the technical aspects of training strengthens the hand of the union in negotiating revisions to the training regulations (cf. Streeck 1987). Moreover, an individual firm which wishes to use wage premiums to poach newly trained apprentices from other firms must negotiate these

association provides firms with a mechanism for coordinating their views and negotiating with the unions to update the skill requirements of professions, while continually diffusing "best practice" training strategies to firms (Soskice 1994). To fulfill this coordinating role, the business organization must have access to "inside information of firms," in order to factor this information into discussion over bargaining positions; it must be capable of diffusing best practices in areas like vocational training; and it must have a sanctioning capacity against firms which do not adhere to strategic positions (Soskice 1990b: 42-43; Hancké and Soskice 1994: 26).

Together, the institutions of the coordinated economy provide forums for negotiation among competing groups, systems of monitoring, and a sanctioning ability in the case of non-compliance. In the specific case of education and training reform, each of the three institutions of Soskice's model buttresses the others to facilitate the introduction of a new system of skill provision. By working with the labor union to establish and certify the skill content of training courses, the business organization eases labor's fears of an exploitative training system. By giving a firm access to patient holders of capital, who will bear the "uncovered" risk of costly training programs, the institutional arrangement facilitates a long-term perspective on the firm's investment in skilled labor. Finally, the organization of business gives firms a channel through which to punish other firms that systematically poach trained workers. These institutions solve the cooperative dilemmas of training reform not by relying on trust, but by providing firms with sources of technical expertise and advice while constituting a system in which mutual expectations among actors are clear and non-cooperative behavior can be discovered and punished.

The coordinated economy model is in its element when explaining stasis: why cooperative behavior can be maintained thanks to the mutually reinforcing institutions enumerated above. Since November 1989, though, eastern Germany has certainly not been in stasis. Equilibrium analysis is by definition ill-suited to explain change, although it points up many of the reasons why change is so difficult. So, in testing the utility of this model for explaining success or failure in the transfer of the institutions of the coordinated economy to eastern Germany, the static character of the model must be borne in mind. For a situation of radical change, the most appropriate analogy for the institutional mechanisms of change may not be that of equilibrium analysis (since in equilibrium, nothing ever happens), but may instead be that of nuclear fission. In order for the institutions of the coordinated economy to begin functioning with one another, thus producing predictable patterns of behavior

adjustments with the works council; and the works council is unlikely to allow the firm to pursue a strategy of poaching skilled workers trained elsewhere (Soskice 1994).

Thus, the stabilizing role of labor organizations in Soskice's equilibrium explanations cannot be ignored. However, this paper focuses only on employers' because of their preeminence in Soskice's work.

among the key actors of the economy, we first need to get a critical mass of interacting agents; the agents in this case being the financial and organizational infrastructure, along with the management of firms. Only once the number of agents interacting with each other in predictable ways reaches a certain amplitude can we reasonably expect the interactions to be self-sustaining.

For the eastern German political economy to reach critical mass, then, the institutional theory of the coordinated economy would predict, above all, the assumption by the employers' organizations of certain roles in the area of education and training. Left unsaid here, but very much in the background, is that managers and firms are more likely (if the model is valid) to interact in the predicted way with the employers' organizations if they have the access to long-term finance and they face a union movement strong enough to play the coordinating role on the labor side. Restricting our attention for this paper to the employers' side, though, the following three hypotheses should be true if the model of the coordination is to explain outcomes in eastern Germany:

H11: The employer's association and/or the IHKs provide firms with advice and guidelines for training, including the diffusion of best practice in different sorts of jobs.

One great advantage of the coordinated economy in the realm of training is its infrastructural support to the firms which train. While both the Chambers and the employers' association are seen to play a role in this system of information provision, it is the employers' association which Soskice clearly designates as the primary supplier of detailed information to firms, especially larger firms:

The close relationship between companies and employer associations, in vocational training, has significant consequences for the research, development, and diffusion of new training practices, and for the process of defining new and augmenting existing apprenticeships. It means that employer associations have expertise in working out training solutions for companies in many different situations, and it provides a good way of diffusing best practice (Soskice 1994: 34).

H12: In order to fulfill this role, employer's associations and/or IHKs have access to inside (potentially sensitive) information of firms; firms are willing to provide the association with this access.

Here the division of labor between the Chambers and the employers' association is fairly clearly cut. "The main roles of the employer associations are in developing new apprenticeships and modifying existing ones, as well as advising larger companies; the chambers are responsible for organizing the local apprenticeship system, approving and monitoring company training, and running the examination system" (Soskice 1994: 28). The Chambers need access to information to maintain the minimum standards of the system, while the employers' association needs access to detailed technical information to

help the larger firms keep their training policies on the cutting edge. And when it comes to sensitive information, “companies are often loath to be monitored by, or give detailed information to, government, because they distrust the use to which the information will be put. Employers’ organisations are in a better position to engage the co-operation of companies, because they are seen to be on the side of companies as a whole” (Finegold and Soskice 1988: 47-48).

H13: The employer's association possesses a sanctioning mechanism to identify and punish firms which poach the trained workers of other firms rather than (or in addition to) training their own apprentices.

This is the first lesson in Collective Action 101: the best way to keep individuals or firms from free riding is to be able to identify and punish free-riding. And, in a situation (as in the new federal states of eastern Germany) of trying to set-up the institutions of the “high-skill equilibrium,” we can expect the problem of poaching of skilled workers to be particularly acute⁴. With many companies facing enormous problems of competitiveness in the wake of monetary union with western Germany, poaching the skilled workers of other firms might allow those firms to economize on the costs of training while allowing them to upgrade the productivity of their workforce. In the idealized description of how the high skill equilibrium works in Germany, Soskice (1994: 34) comments that “employer associations, including chambers, have significant informal sanctioning ability over companies.” Thus, in order for the high-skill equilibrium to be firmly set-up in the unfamiliar terrain of eastern Germany, the employers’ association must have “resources (particularly in relation to training)...large enough to give them some power in relation to large companies” (Soskice 1990b: 60).

2.2. Social Capital

Soskice's conditions for successful coordination—deliberation, monitoring, and enforcement—are the conditions for exchange between atomized individuals (cf. Granovetter 1985). The institutions of the coordinated economy must be able to fulfill all these functions because the links between the individual actors

⁴ The problem of transition to the high-skill equilibrium is so difficult precisely because some of the self-reinforcing features of the equilibrium are not yet in place. Thus, in the case of poaching skilled workers, firms in western Germany could be particularly worried about the adverse selection situation known as the “lemon problem”; that is, when most large training firms retain their own best skilled workers (having invested quite a bit in their training), those skilled apprentices who are on the labor market may have problems which were detected by the firms which trained them, who therefore did not want to hire them (Soskice 1994 contains a subtle discussion of this problem). By way of contrast, since eastern Germany is only now in the process of taking over these features of the high skill equilibrium, potential poachers do not see this problem posed as dramatically as in the west.

are so tenuous that, without the guarantees that an institution provides, coordination could not take place among them. Coordination through a network, by contrast, would depend on the nature of the links that connect members to one another. These links can obviate some of the Prisoner's Dilemmas involved in cooperative situations, but they do so without the ironclad guarantee provided by institutional forms of monitoring and enforcement. Indeed, network ties create great opportunities for exploitation *by virtue* of their lack of formal monitoring and enforcement capacities: "The trust engendered by personal relations presents, by its very existence, enhanced opportunity for malfeasance" (Granovetter 1985: 491).

James Coleman used the concept of social capital to denote a resource constituted by the links among individuals in a society; members of that society can draw on this "social capital" to circumvent potential collective action problems and thereby increase their joint productivity (Coleman 1988 and 1990; Putnam 1993). In an extension of this sort of logic to the problem of explaining successful governmental performance, Putnam specifies two components to social capital: dense networks of civic engagement and norms of reciprocity (1993: 167-176). In this iteration of my project, I will try to investigate the empirical evidence which links network ties to the macro-indicators of "social capital" used by Putnam: survey data on trust, and the density of club networks. Before attempting to derive testable hypotheses of the effects of social capital on training reform, I discuss why I think network cooperation might differ from the formal associational ties characteristic of the coordinated economy model.

Unlike formal organizations, which facilitate cooperation among members on specified issues, network links are as conducive to decentralized, spontaneous cooperation over new issue areas as they are to collective action on issues regularly confronted by the group. These links comprise a combination of rational calculation with something else: that something else may be, for example, habituation, or a predominant cognitive template, or normative pressure. Something about network linkages not only makes it rational to cooperate, but also influences the way individuals think about the cooperative process. Whereas institutions concretize the relations among individuals, giving them an organizational resource upon which to draw to solve problems, networks provide the software of cooperative capacity without the hardware of formal organizations⁵ (that is, without the legal codification of the rights and responsibilities of associations with relation to each other, nor with the formal bureaucracy associated with large-scale employers' associations or unions)⁶.

⁵ I borrow the software/hardware analogy from Claus Offe, who has used it somewhat differently in his own work on reform in eastern Germany.

⁶ Critics will note, rightly, that bowling clubs are also formal organizations. This is true, but associations are a measure of social capital, not its substance. It is assumed that places with a high density of bowling clubs are also those places with plenty of cooperative capacity and social trust.

The least credulous readers may well pose the following question: why on earth should the number of clubs in an area have anything to do with the resolution of the problems of transition to the dual system of training in the context of a market economy in eastern Germany? There are two elements behind this question which I will address sequentially. First, there is the potential objection of those who may be convinced of the general explanatory power of social capital for problems of effective government and of collective action, but who cannot see the relevance for the strictly economic decisions related to training. Social capital may explain government effectiveness in Italy, they say, but there is no reason to expect such a general “social” phenomenon to enter into the individual calculus of firms and managers in making decisions about training. Agreed; social capital would have to be pretty pervasive stuff if it filtered down even to this specific level. If it were to be at work even at this level, though, we would expect firms in high social capital areas to be more willing to train—and enter the stylized collective action problem sketched above—than firms in low social capital areas.

However the promise of social capital in this realm, which is also the reason it is entirely legitimate to test it in such an area, is that the aggregate training behavior of firms in a region becomes a collective problem, which is addressed by collective actors. The Chambers of Commerce, for instance, are para-public bodies to which every industrial firm in a region must belong. Just as Putnam tested the effectiveness of regional governments in providing solutions to specific problems which do not directly affect every single member of a community—like child-care—we can fairly expect the collective institutions like the Chambers to do a better job in regions of high social capital. At this general problem solving level, the prediction of social capital advocates must be that the para-public institutions work better.

This brings us to the second group of objectors to the validity of testing social capital as a solution to problems of training reform. This group is largely unconvinced of the merits of any argument based on a generalized social capital and wonders why we waste any more time thinking about it. It is difficult to convince this group of the merits of testing the hypotheses derived from the social capital literature, because they have already made up their minds anyway. That is too bad, because the findings of Putnam (1993, 1995a and b) and others on the so-called “social virtues” of cooperativeness have generated a debate in the wider public discourse matched by no other single literature in American political science in the last five years. Such a concept can only make the transition out of the confines of the ivory tower into public debate when it is persuasively argued and empirically demonstrated, and when it resonates with the common sense of non-expert observers. Generating such a public debate can only be salutary, but the role of political scientists in this debate is to push these findings to their limits, trying to confirm or call into question the original findings while testing its limits of applicability. It is in this empirical spirit that this paper proceeds.

In applying this approach to problems of transferring the dual system of training, we can fairly expect social capital regions (if the hypotheses about social capital hold) to have more effective institutions for the resolutions of the problems thrown up by the implementation of the training system, and we can expect the production of more informal, spontaneous cooperative actions to tackle the problems of training reform. The following two hypotheses relevant to the resolution of training problems should be confirmed if social capital is in fact the panacea of social ills:

H_{SC1} : Small firms in regions of high social capital are more likely ceteris paribus to join together among each other or with a neighboring large firm to cover each other's deficiencies, thereby being able to take on a greater number of apprentices than they otherwise could.

The rules of the German training system call for firms to meet fairly stringent requirements with regard to the personnel and equipment necessary to be approved by the IHK (or *Handwerkskammer* [Hwk] for craft firms) before taking on apprentices. Especially for small firms, which may have much more limited equipment than that required to train a metal-working apprentice in every aspect of the basic training (pneumatics, hydraulics, etc.), these IHK equipment and staffing requirements are often onerous and pose a barrier to taking on apprentices. In the west, IHKs and private organizations have established their own out-of-firm centers which provide much of the basic metallurgy training for small firms in any given area.

The short time since German reunification has not yet allowed for the establishment of a comparable network of training centers to support in-firm training in the new federal states. We might therefore expect firms in the new federal states to cooperate to provide this function to each other. It is just this sort of spontaneous cooperation, not supported by formal institutions, which firms in regions of high social capital should be able to demonstrate.

H_{SC2}: Firms or firm representatives in regions of high social capital should be better able than those in other regions to work together to take over apprentices whose original firms face unexpected economic difficulty.

Since German reunification, the labor market in the new federal states has been flooded with skilled laborers who have been made redundant from companies that no longer exist. With the rapid changes which have occurred since the *Wende* in eastern German industrial structure (i.e., the dramatic fall in average enterprise size), lots of firms have found and continue to find themselves with apprentices whom they have trained but whom they are in no position to hire. Similarly, restructuring has also meant the collapse of many large firms in the east. In both situations, apprentices at the end or in the

middle of their training programs suddenly find the time they have invested there is worthless, as they are without a position.

Firms and managers have at least two reasons for wanting to avoid the development of this type of situation. The first is rather soft (or altruistic), but it is one at least claimed by almost all personnel managers with whom I have spoken: after investing in and working with a youth over the course of a 3-4 year apprenticeship, managers do not want to leave youths with no alternatives to unemployment. On a personal level, it is not easy to say “thanks a lot for working hard at these low wages, but we don’t have any jobs for you. *Auf Wiedersehen.*” The manager’s second reason for hesitating is more self-interested: apprentices and potential apprentices who see that their pay-off in the high-skill investment is not certain will be less likely to make that investment. Thus, from the incentive structure of the high-skill equilibrium, managers want to make sure they can get their best apprentices a job somewhere (if not in their own firm), because not doing so destabilizes the incentive structures for other apprentices in the future.

Thus, firms on average want their apprentices to get jobs, if they are in fact unable to hire them themselves—or, in the worst case, if they are unable to complete the apprenticeship contract because they are going bust. A further reason noted by firms, but also and especially by firm representatives (the chambers and the employers’ associations), is their fear that unions will seize on this point to enshrine in a collective agreement the demand that all apprentices be retained for at least a certain period of time after their apprenticeships. The better companies do at getting jobs for their trainees after the apprenticeship period, the lower the chance that they will be forced to lose a degree of flexibility in the negotiated wage agreement.

That is why firms want to get their apprentices hired, if they themselves do not have jobs for them⁷. Where we might expect social capital to enter the picture is in enabling firms to cooperate among themselves to deal with this problem. The links may be informal and one-off (I’ll call the personnel manager I know from the Elks’ Club and see if he possibly needs to hire a mechanic) or regularized (firms cooperate on a regular basis to find jobs for their apprentices whom they cannot hire on their own). Likewise, employers’ representatives may be able to play on the density of network linkages in regions of high social capital to deal with this admitted problem.

⁷ In section 4, I will discuss in some detail why some types of firms (small *Handwerk* firms) are likely to have lower average levels of training than other (IHK) firms. This distinction is important for reasons I will discuss below, but in this hypothesis I am trying to capture a phenomenon which is common to both types of firms: some exogenous shock (people staying in jobs longer than expected, sales collapsing dramatically, or a firm going bankrupt) which reduces the demand for skilled labor at the time when the apprentices finish their apprenticeship, which had not been forecast when they started.

3. Social Capital and Firm Selection

In selecting my regions for study, I prioritized 2 measurements of social capital which are those most emphasized by Putnam (1993, 1995a and b): social trust and membership in (and the density of) secondary associations. I originally relied on survey data which used the standard survey measure of social trust and questions on percentage of respondents belonging to at least one club (in these surveys, club membership was clearly distinguished from membership in a union or employer's association). These data vary from survey to survey, and generally lack large enough samples per *Land* to be able to assert strong differences among *Länder* on these measures. More succinctly: the variance among eastern states on conventional measures of social capital is erratic and statistically insignificant. What survey data do suggest, with a high degree of confidence, is that western Germans are on average both far more likely to belong to a club, and more likely to be trusting of people in general, than eastern Germans.

To ensure that I would in fact be able to compare regions with differing levels of social capital, I gathered more exact data on club membership in two eastern states which appeared likely from the survey data to have varying endowments of social capital, but that were not economically so dissimilar that comparing them in the realm of training was equivalent to comparing Germany to Bangladesh. The measurement I used here was the *Vereinsregister* maintained by all local courts in Germany. Because any club with six or more members acquires practical and legal advantages by registering officially, this number seems the best available measurement of club density in Germany.

I discovered that, as suspected, Saxony has fewer people per club (230) (inversely stated, more clubs per person, which means a higher measure of social capital) than Saxony-Anhalt (249), but the difference is meager indeed. Much more striking is the variance *within* each state. In order to look at this variance, I organized my inquiry along the lines of the *Arbeitsamtsbezirk*, which is the local employment office district. One of the jobs of the local employment offices is to coordinate the process of matching apprentices with apprenticeship places, and IHKs are sometimes organized according to *Arbeitsamtsbezirke* (although this may not be so true in the western part of Germany, where the Chambers and the Employment Offices were not established at the same period in time). Thus, many training programs and statistics are organized at this level—making it a relevant one for study in a project devoted to the reform of training.

As depicted in the table below, the intra-*Land* variance on people per club⁸ dwarfs the variances between Saxony and Saxony-Anhalt. Also, for purposes of increasing variance on the social capital variable, I gathered data for club density in a *Land*—Rhineland-Palatinate—which appeared from the survey data to be exceptionally well-endowed with trust and club-membership (I did not pick a low social capital region in R-P, because it would not have been particularly illuminating: the lowest social capital region in R-P would be among the highest social capital regions in Saxony or Saxony-Anhalt.)

Table 1: Regions and their club density

Arbeitsamtsbezirk	Land	People/Club
Leipzig	Saxony	263
Plauen	Saxony	193
Halle	Saxony-Anhalt	299
Sangerhausen	Saxony-Anhalt	209
Mayen	Rhineland-Palatinate	124

Within Saxony, the variance is 70 people per club between Plauen and Leipzig; in Saxony-Anhalt, Sangerhausen has 90 fewer people per club than Halle; and the difference between Plauen (the highest social capital region in these two eastern states) and Mayen (in the west) is as great as the variance between the high and low social capital areas in Saxony. If “social capital” as measured by density of associational membership is indeed a reliable predictor of the cooperative capacity of regions, we should expect markedly more cooperative behavior in the Mayen region than in the Halle region, and within each eastern state we should expect this capacity to evince itself in Plauen (Sangerhausen) more than in Leipzig (Halle).

⁸ Remember, people per club is an inverse measure of social capital: the fewer the people per club, the more clubs there are for any given level of population. This means that the more clubs there are per person, the higher we assume the likelihood to be that people are more engaged in several different social networks. I follow Putnam in using this index as a measure of the density of social networks.

The (so-far untested) assumption here is that clubs have on average equal membership. That is, some clubs may have 10 members, some 100, but it all comes out in the wash, and there is no *a priori* reason to assume that an aggregate measure of clubs per person refers to smaller (or larger) levels of membership at one point than at another. I do not know of work supporting this assumption (which would count the membership of individual clubs and show that membership fluctuations in any one club are very highly correlated with the number of clubs per person). This remains a problematic assumption, but I will for purposes of this paper not digress further on this subject.

One point worth making in this context is the presence of two larger cities in the two low-social-capital boxes. Employment office districts tend to be geographically encompassing (there are about ten districts per state in these states). But the city of Leipzig accounts for roughly two-thirds of the population of the entire Arbeitsamtsbezirk Leipzig, and Halle and its surrounding county (the Saalkreis) contribute fully three-fourths of the population of that district. German sociologists have reported a relatively higher percentage of club membership among small towns, although the data I have gathered are not conclusive on the effect of population (a colleague who is gathering similar data for all of Germany reports no correlation at all between club density and population size).

In my dissertation research I am looking at two sectors in each of these 5 regions: the savings banks in services and the credit industry, and the metal and electronics branch in the industrial sectors. This paper reports my results from the latter inquiry. I chose the metal and electronics branch because of its relatively even distribution in the states I was researching. Within this branch, I had hoped ideally to be able to select several mechanical engineering firms in each of the five regions which had similar product markets and were of similar size (measured by personnel and sales). This is where my research design met the real world. The east German industrial fabric has been shredded by the changes which have followed the monetary and political reunification of Germany: many firms have gone bankrupt, others have shed 90% or their personnel, and lay-offs and plant closings continue to be a way of life.

As a result, to get at least five firms from each region, my firm selection had to be much more wide-ranging (in terms of spectrum of size and product offered) than I had originally hoped. I ended up including firms from mechanical engineering, steel-making, and electronics, concentrating mainly on industrial firms (those registered with the IHK), but also including several who belonged to the artisanal Chambers (Hwk), or even firms who belonged to both. The firms ranged in size from 9 to more than 4500 employees. All firms who participated were guaranteed confidentiality, and so my data will necessarily have to be presented in broad categories to help shield their identity.

The one firm which agreed to have its name used in conjunction with this report was Siemens, because its situation is quite particular and is very easily identifiable among the others. While the headquarters of Siemens training is in Leipzig, the company is organized such that the Leipzig training center coordinates training for the entire southern half of the former GDR (including, e.g., a plant in Sangerhausen). Siemens was also the one firm which declared explicitly that the final decisions on how many apprentices would be hired were not taken within the Leipzig organization, but instead directly by the Munich central office. I include the Siemens results with the rest of the firm sample as a helpful point of comparison, but it must be borne in mind that the Siemens

training decisions affect several plants across southeastern German and these decisions are made in Munich.

Below I present a table comparing the average and median number of employees in the sample frame (potential firms selected for interview in the five regions) and the same statistics for the firms which finally agreed to participate in my study.

Table 2: Average (and median) number of employees in firms in the sample frame and in the final sample

Arbeitsamtsbezirk	Sample Frame Average (Median)	Sample Average (Median)
Leipzig	100 (40)	406 (200)
Plauen	226 (48)	364 (172)
Halle	160 (43)	337 (200)
Sangerhausen	162 (51)	82 (30)
Mayen	92 (43)	130 (48)

Note that in both the sample frame and in the final sample there is a significant degree of variance in the size of firms in the different regions.

One obvious trend to explain is the greater size of firms (except in Sangerhausen) in the final sample as opposed to the sample frame. This I attribute to the division of labor in big firms. In companies with under 100 employees, I generally talked to the company manager; in firms with 100-250 employees, my interlocutor was generally the director of personnel; and in the largest firms, I usually spoke to directors of training. I believe it is accurate to say that the closer someone was to questions of training and personnel qualification in their everyday work, the more likely they were to be interested in my project (of course, there are training directors who refused to talk to me and managers of small firms who were happy to speak with me)⁹. The trend is not

⁹ There is a further source of potential bias in the firms who were willing to talk to me. One might assume that for a project on the reform of the training system, only the firms who trained would be willing to talk to me. To avoid this bias as much as possible, in the initial letter I sent out to firms, I pitched my project as dealing with training policies and general personnel development strategies inside the German metal and electronics industry. I underlined that I was also interested in the perspective of non-training firms. I was pleased to note that, when the dust had settled, there was at least one non-training firm in every regional sub-sample.

so sharp in Mayen because there are not that many very large firms there in the metal and electronics industries. The one exception to this trend was in Sangerhausen, where the biggest firms had all gone bankrupt, and only the smaller firms were left¹⁰.

The table below presents slightly more precise data on the distribution of the firms according to size (measured by number of employees) across the 5 *Arbeitsamtsbezirke*¹¹.

Table 3: Firm size (number of employees) by region

# of Employees:	Less than 50	50<x<150	150<x<250	More than 250
Leipzig	1	0	4	1
Plauen	1	2	1	2
Halle	1	2	2	2
Sangerhausen	4	1	2	0
Mayen	4	0	2	1

One point to reiterate here is the heterogeneity of the firm profile of the regions. Note that my firm samples for Mayen and Sangerhausen, two of the regions which ranked high on social capital, tend to be dominated by small firms and are essentially lacking very large firms (and in this respect, the samples are not wildly at variance with the actual industrial structures of the regions). In the subsequent tables I designate these four size categories as Small, Mittelstand₁, Mittelstand₂, and Large.

¹⁰Unemployment figures for the regions are also worth reporting. In June, 1996, Plauen and Halle both had unemployment rates around 16.5%, Leipzig 18%, Sangerhausen almost 22%, and Mayen less than 8%.

¹¹ In presenting the data about distribution of firms across the 5 regions, I have tried to balance the sometimes conflicting demands of shielding the identity of the firms while conveying as much information as possible. The size categories chosen here differ from those in an earlier draft of this paper because the arbitrary cut-off point of 200 employees put into separate categories firms which share many similarities. The category having between 50 and 150 employees, which I will designate as Mittelstand₁, includes the larger Handwerk firms and a disparate group of smaller industrial firms. The category having between 150 and 250 employees includes larger industrial firms which probably still consider themselves members of the Mittelstand (thus I call them Mittelstand₂). The large firms cover a wide range but tend to be on average much larger than 250.

4. Indices of Training

The willingness of firms to train—to take the plunge and invest in the potentially unrecoverable development of human capital—is one of the key indices of success of the training system. If the western German dual system is to be transferred successfully to the east, firms must be willing to bear the cost of training. There are a host of sticky methodological issues which complicate the measurement and analysis of levels of training. Most vexingly, the decision to train is both an economic one and a social one: that is, firms may train both because they need future skilled labor (or they think it is a way to get cheap labor) or because they view it as part of their duty as employers to provide entry-level positions for the young. Moreover, it is questionable whether the answers provided by managers or personnel chiefs in a two hour interview will accurately reflect which motives predominate. Despite the uncertainty which inevitably dogs such analysis, in this section I will discuss the two most straightforward measures and try to make sense of some of the results.

First, and most intuitively, is the binary division between those firms which train (at all) and those which do not (cf. Table 4 below). Seven of the 34 firms in my sample are not currently training. There is one non-training firm in every region in the sample, with three in Sangerhausen. All the non-training firms belong to the IHK (one belonged jointly to the Chamber of Crafts), and one of the non-training firms belongs to the employer's association. With one exception, the firms are in the Small category, the exceptional case belonging to the Mittelstand₁ category¹². Because all firms in my sample with over 100 employees were training at least one apprentice, the table below compares firms in only the Small (under 50 employees) and Mittelstand₁ (50-150 employees) categories.

¹² A 1992 survey of also found that the vast majority (around 90%) of non-training firms in the new federal states had less than 50 employees (Von Bardeleben 1993).

Table 4: To train or not to train? That is the question, for Small and Medium-Size Firms

Arbeitsamt	Size	Training Now?	Chamber	Employer's Association
Leipzig	SM	No	IHK	No
Plauen	SM	No	IHK	No
Plauen	M1	Yes	IHK	Yes
Plauen	M1	Yes	Hwk	No
Halle	M1	No	IHK	No
Halle	SM	Yes	Hwk	No
Halle	M1	Yes	IHK/Hwk	No
Sangerhausen	SM	No	IHK	No
Sangerhausen	SM	No	IHK/Hwk	No
Sangerhausen	SM	No	IHK	No
Sangerhausen	SM	Yes	Hwk	No
Sangerhausen	M1	Yes	IHK	Yes
Mayen	SM	No	IHK	Yes
Mayen	SM	Yes	IHK	No
Mayen	SM	Yes	IHK/Hwk	No
Mayen	SM	Yes	IHK/Hwk	No

The one observation relevant to regional differentiation here is the very high percentage of non-training firms in (high social capital) Sangerhausen. As noted earlier, Sangerhausen's unemployment rate exceeds 20%, and almost all of its big firms have disappeared since the *Wende*. More even than other regions of eastern Germany, the remaining firms in Sangerhausen can draw on a pool of skilled labor which is now unemployed. Overall, five of the seven non-training firms in my sample (and two of the three from Sangerhausen) cited an abundant supply of available skilled labor as a principal reason for which they had not hired apprentices. Three of the seven firms cited as well the lack of a qualified trainer or too thin a workforce to be able to spare a qualified worker to help with training.

A comparison of the smaller firms that do train with those that do not is illustrative: all the non-trainers are members of the IHK (one, a firm still owned by the successor organizations of the *Treuhandanstalt*, is a member of both the IHK and the Chamber of Crafts), while those small firms which do train largely train in craft job classifications (*Handwerksberufe*). In response to a question about whether there were a subsidy program whose introduction would induce them to train, the non-training firms answered unanimously in the negative: there was no state program which could convince them to train. In contrast, both the eastern German small *Handwerk* firms which do train receive training

subsidies from the *Land* government¹³. Thus, while smaller firms in eastern Germany are clearly the most hesitant to train, it appears that IHK firms are quite a bit more recalcitrant than Hwk firms to hire apprentices and less willing to accept a cash payment to get over their unwillingness.

This observation segues cleanly into a discussion of the differences in the costs of training and their implications for the behavior of firms in the German dual system. For all firms, the cost of training includes wages and social contributions for apprentices, the cost of employing extra trainers (or the opportunity cost lost by having skilled workers supervise trainees), necessary equipment and instructional materials, and miscellaneous administrative costs. The sum of these costs (including the wages of trainers) averaged close to 32,000 DM for IHK firms and 25,000 DM for Hwk firms in 1991 (Von Bardeleben et al 1995: 7-8). Yet these gross costs are deceptive for two reasons. First, depending on how early and to what extent they are integrated into the work process, the labor of apprentices also brings some benefits for the firm. They may be doing a job less well than a fully-skilled worker, but they are also getting paid less than a skilled worker. Second, the real costs of hiring a trainer depend on how much time (and when) a trainer is training. For example, in the training workshops of large industrial firms, there may be *Ausbildungsleiter* whose only job is to supervise the apprentices in the workshop; this trainer is doing almost nothing but training. This contrasts sharply with the case of a skilled worker who has an apprentice under his wing in the work process, but who is also doing his own job. He may well be able to spend his time giving intensive instruction to the apprentice during times of slack demand, that is, when he does not have much else to do anyway (Soskice 1994).

Such considerations are not equally pertinent for all firms. In particular, the size of a firm and whether or not it belongs to the Industrial or the Crafts Chamber affect the “net” costs of training. In general, the larger the firm, the more likely it is to have full-time trainers and a workshop area dedicated exclusively to the training of apprentices. The Federal Institute of Vocational Training (BiBB) recently conducted a study of the cost of training to firms, controlling both for the benefit to the firm of work performed by the apprentice and for the fact that many “trainers” are in fact skilled workers who would work for the firm whether or not it were training, using data provided by 1370 training firms for the year 1991. Thus calculated, the net cost of training for the smallest German firms in 1991 was 1,647 DM, or 12 per cent of the total cost of training for firms of this size (13,868 DM).

¹³ A survey of 1500 eastern German firms conducted in 1993-1994 by the Federal Institute for Vocational Training (BiBB) found that a slightly higher proportion of *Handwerk* than of IHK firms which were currently training would not have trained in the absence of public subsidies (Degen 1995).

In contrast, the total cost of training was over twice as high for firms having over 500 employees (28,197 DM), and *the net cost (17,886 DM) for these larger firms makes up over 60 per cent of this (higher) total cost* (Von Bardeleben et al 1995: 16). Similarly, as a result of lower average training wages in *Handwerk*, and the fact that *Handwerk* apprentices are integrated more quickly into the workforce and bring a higher level of productivity at an earlier stage than their counterparts in industry, the net cost of training for Hwk firms is significantly lower than for IHK firms. Thus, the same BiBB figures for 1991 reveal that, of an adjusted total training cost to IHK firms of 20,508 DM, the net cost to the firm is 9,193 DM (just under half the total); yet of a lower adjusted total cost to *Handwerk* firms of 12,936 DM, *the net cost to firms is only 400 DM* (three percent of total cost) (Von Bardeleben et al 1995: 15)¹⁴.

Since *Handwerk* firms are on average smaller than industrial firms, there is a great deal of multicollinearity between the effects of firm size and the effects of being an industry or crafts firm. There is unfortunately very little empirical work on this subject, aside from that already cited, so the exact contributions of the two factors remain unclear; both seem to make a significant difference in the cost of training to firms. The data presented above on training and non-training small firms in my sample suggests that IHK small firms have been less willing than Hwk firms to take on apprentices, although this fact also has more to do with the plentiful supply of skilled labor in the new federal states than with the direct costs of training. Partly because the craft sector was underdeveloped in the GDR (systematically de-emphasized relative to big industry) and partly because of this very favorable cost structure (including the possibility of public aid in several of the new federal states), in-firm training positions in *Handwerksberufe* have steadily increased in the new federal states over the past few years (BMBW 1995: 54; *Tagespiegel* 6 Sept. 1995). Although many of these craft firms are still subsidized, it is not in *Handwerk* that the transition of the dual system to eastern Germany is proving difficult.

In effect, as argued in Soskice (1994), there are two sectors in the German training system: one comprising *Handwerk* firms and one made-up of IHK firms¹⁵. As the discussion above has demonstrated, for many *Handwerk* 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;

¹⁴ These "adjusted total costs" are lower than the total costs reported for IHK and Hwk firms in the previous paragraph because they do not include some of the wage costs of "training personnel," who in fact have other jobs in the firm.

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: some firms (including some in my sample) train in both Hwk and IHK job classifications, and the generalizations about the costs of training are obviously aggregate averages which will vary considerably from one firm to another—or even within one firm. There are of course small firms in the *Handwerk* sector where training is expensive and thorough, and larger IHK firms where the level of training is quite low.

the net investment of the firm is often very close to zero. We should then expect that there is a more concerted effort by the IHK than by the Hwk firms to retain their apprentices after training them. And in fact, the retention rate of German small firms (predominantly *Handwerk*, although we lack precise numbers here) is much lower than that in larger firms, where (as discussed above) the firm invests significantly more in the training per worker. Thus the retention rate of all 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; own calculations). That is, small firms retain on average six of every ten workers they train; large firms retain eight or nine of every ten they train. Small wonder, given the differential costs of the initial investment.

It is relatively unproblematic for a government to transfer a system of training regulations to a new environment, when that system costs the firms nothing and allows them to be in charge of training their own workers or having other means of sufficient access to skilled workers. And this, *grosso modo*, is the situation of training in the *Handwerk* sector in eastern Germany. The difficulties associated with the transfer of the training system will be most severe for the IHK firms, but also potentially the most fruitful. For it is in the training patterns of IHK firms that we can observe the ideal-typical game laid out in the introduction, whereby the firm has to be willing to make the uncovered investment in the training of a skilled worker in order for both to be able to reap the pay-off of the “high-skill equilibrium.”

The difference in the behavior of IHK and *Handwerk* firms in the area of training should be reflected in the second index of training which I will use: the ratio of apprentices to total employees in a firm. As we have seen in the above discussion, IHK firms pay more (a lot more) per apprentice than do craft firms, and they retain a much higher percentage of those they train. The correlate of this state of affairs is that IHK firms will maintain a lower ratio of apprentices to total employees than do Hwk firms. They want to hire almost all the trainees in whom they have invested and do not want to make this (substantial) investment in someone whom they are not planning to hire. *Handwerk* firms, on the other hand, lose little if anything in hiring apprentices and will therefore maintain (on average) higher rates of apprentices in relation to their total employment than the IHK firms (since they are going to let a higher percentage go after the training is completed).

In western Germany, the rate considered by industrial firms and training experts as that necessary to maintain the level of skilled workers is about six per cent; that is, on average industrial 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)¹⁶. In craft firms the rate is on average much higher (in excess of ten per cent, although this figure varies). Thus, in presenting the data on the ratio of apprentices to total employment, I consider that IHK firms are indeed training at the levels comparable to IHK firms in western Germany when the ratio is within the margin of error of ± 2 per cent around the average of 6 per cent. Those firms training above this level, unless they are growing at a phenomenal rate, are training more workers than they will need to replace their workforce; those training below this level are either still in post-*Wende* contraction 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 west.

Table 5 presents the data on training in firms in the five regions, with data on firm size, to which Chamber firms belong, and whether or not they belong to the main employer's association. The column labeled Trainees/Employment presents the data on the proportion of apprentices to total employment. I grouped together firms belonging exclusively to the *Handwerk* Chamber with firms belonging both to that chamber and to the IHK, because these firms having dual membership train almost exclusively in *Handwerksberufe*.

Table 5 contains a lot of information, but the following observations are particularly striking; I will discuss them in detail below. First, as expected, firms training in *Handwerksberufe* train at a higher average level (as a proportion of total employees) than IHK firms in all four of the regions where they are present¹⁷. Second, and most counter-intuitive (given the above discussion), is the fact that most of the IHK firms in Mayen (which is in western Germany) train below the target range which I have defined as typical of western Germany; only one firm there is training close to the six per cent number. Conversely, Siemens, a west German training firm *par excellence* (listed in Table 5 after all the other Leipzig firms) is training in southeastern Germany at a rate which far exceeds my target range. What is going on here? Third, among the eastern German cases, Sangerhausen is the only region in which no IHK firms are training in the target range. The smaller firms there are not training at all, and the those larger firms who are training in Sangerhausen are training at either

¹⁶ This figure is uncontroversial and was cited to me by a number of people familiar with training in the industrial firms (in the employer's associations, in the IHK, in firms themselves, and by academics). In using this measure to assess the patterns of training of firms in my sample, I use a margin of error of ± 2 per cent, since the six per cent is approximate.

¹⁷ My sample for Leipzig contained no *Handwerk* firms. However, in Leipzig there is one outlier IHK company whose proportion of apprentices/workforce is .465. That is, the firm has as many almost as many apprentices as workers. This firm was reorganized in 1995 after the break-up and privatization of a large *Kombinat*, and the firm has taken on all the apprentices of the entire former *Kombinat* to allow all the apprentices to finish their training and receive their certification. The newly reorganized firm has no intention of maintaining this ridiculously high proportion of apprentices to total workforce in the future.

very low or very high rates. Plauen has the most IHK firms in the targeted range (three), followed by Leipzig with two, and Halle with one.

Table 5: Trainees as a percentage of total employees, by region

Arbeitsamt	Size	Trainees/ Employment	IHK/HWK	Employer's Association
Leipzig	Small	0.0%	IHK	No
Leipzig	Mittelstand2	1.6%	IHK	Yes
Leipzig	Mittelstand2	2.9%	IHK	Yes
Leipzig	Mittelstand2	6.2%	IHK	Yes
Leipzig	Large	7.0%	IHK	Yes
Leipzig	Mittelstand2	46.5%	IHK	No
Leipzig	Large	12.0%	IHK	Yes
Plauen	Small	0.0%	IHK	No
Plauen	Mittelstand1	1.6%	IHK	Yes
Plauen	Large	4.9%	IHK	Yes
Plauen	Mittelstand2	7.0%	IHK	Yes
Plauen	Large	8.0%	IHK	Yes
Plauen	Mittelstand1	13.1%	Hwk	No
Halle	Mittelstand1	0.0%	IHK	No
Halle	Large	2.2%	IHK	No
Halle	Mittelstand2	2.3%	IHK	Yes
Halle	Large	5.4%	IHK	Yes
Halle	Mittelstand2	14.0%	IHK	Yes
Halle	Small	9.5%	Hwk	No
Halle	Mittelstand1	11.6%	IHK/Hwk	No
Sangerhausen	Small	0.0%	IHK	No
Sangerhausen	Small	0.0%	IHK	No
Sangerhausen	Mittelstand2	2.2%	IHK	No
Sangerhausen	Mittelstand2	14.0%	IHK	No
Sangerhausen	Mittelstand1	15.1%	IHK	Yes
Sangerhausen	Small	0.0%	IHK/Hwk	No
Sangerhausen	Small	16.7%	Hwk	No
Mayen	Small	0.0%	IHK	Yes
Mayen	Large	0.3%	IHK	No
Mayen	Small	2.5%	IHK	No
Mayen	Mittelstand2	2.6%	IHK	No
Mayen	Mittelstand2	5.5%	IHK	No
Mayen	Small	6.3%	IHK/Hwk	No
Mayen	Small	11.4%	IHK/Hwk	No

First, training at Siemens. Siemens' internal policy on training is to aim at a rate of apprentices equal to six per cent of the total number of skilled workers¹⁸. Between 1992 and 1995, after using this measure to determine its need for apprentices, Siemens hired one hundred extra apprentices (that is, above the calculated need for replacing their skilled workers) *per year* in eastern Germany, because of the lack of in-firm training places available to eastern German youth. Without these extra places, then, Siemens would be training very much in the target range.

Of the other large firms in the sample training in the target range, only two others claimed to be training above need. In Plauen, the firm with a proportion apprentices/employment of eight per cent claimed to be training slightly over need; and the large firm in Leipzig, which is in fact owned by the *Treuhand* and is in charge of decision-making for several plants in eastern Germany, trains far above need. In the latter case, the survival of the individual plants themselves is very much in doubt and they are all shedding labor, so the predicted future need for skilled labor is zero. Thus, only this *Treuhand* firm is a spurious entry for the firms training at the target level. I will return to the question of training over need below. But as a ballpark figure for IHK metal and electronics firms, the range around six per cent represents the best available rough average of the demand for apprentices which is necessary to replenish losses of skilled labor through retirement or attrition.

The Mayen results are, though, puzzling. Because my research question is concerned mainly with eastern Germany, I devoted the bulk of my time and resources there. As discussed in section II, the criterion used in selecting Mayen as a comparison case was the high levels of "social capital" measured there, not the typical nature of the training structure there. But these results cannot just be ignored. One explanation is that which was given by the firms themselves in the course of my interviews in Mayen: the four firms having the lowest ratios of trainees/employees all mentioned that they were in fact atypical in comparison with other industrial firms, in that their staff comprised a relatively higher proportion of engineers (or an especially high proportion of employees in development) to skilled workers than other firms in the industry. Their personnel recruitment strategies thus focused more on the recruitment of graduates from local *Fachhochschulen* or technical universities. Two of the four made reference to the advantage conferred in recruitment by having several of these technical institutes of higher education in the area.

A concentration of smaller firms relying on their ability to make specialized high-end products and drawing personnel from local institutions of higher

¹⁸ In fact, this policy is currently operationalized as three per cent of the total number of employees who are working for the firm who *have ever* been through a Siemens apprenticeship. The two rates are functionally equivalent, according to a Siemens director of training, because so many Siemens employees move into management positions later.

learning recalls the themes harped on by the observers of the famed industrial districts of the Third Italy and Baden-Württemberg (Piore and Sabel 1984, Sabel 1994b). However, those scholars who have done extensive work on these regional economies have grown increasingly skeptical of the “faded virtues”¹⁹ of the skill formation system associated with these regions in Germany. The dual system now, according to these critics, tends to instill invidious skill hierarchies whose inflexibility leaves German firms ill-suited to cope with the demands of cooperative production—the reintegration of conception and execution—which is afoot in some sectors of the industrial economies today. The dual system may produce great mechanics and great electricians, but it falls way short in producing a mechanic and an electrician who can easily work together in developing new product drawing on their shared expertise (Herrigel 1995, Sabel 1995). This raises the following question in the context of this study: am I using a static view of training in western Germany to assess the success of the transfer of institutions of training to the east, while, as in Mayen, western German firms are deserting the dual system because it fails to meet their current needs for workers who are as skilled in the art of cooperation as they are in the technical mastery of a mechanical specialty (cf. Regini 1996)?

While this question cannot be answered with certainty, given the paucity of comparative data for western German firms, the data available do suggest Mayen is more of an exception than a precursor of changes underway in the engagement of western German firms. First, as noted above, the firms following these strategies see themselves as being exceptional cases within their own industry. Second, results from a 1993 survey of west German firms indicate that a majority of firms are happy with the content of the technical *Berufe* in the dual system, and firms which pursue product market strategies based on rapid innovation plan to maintain or increase their use of apprentices in the future (BMBW 1995: 45-49). Finally, on an illustrative level, there is the example of one of the Mayen firms whose production supervisor was very consciously trying to adopt the innovations of production argued by Sabel (1995) to be incompatible with the German system of skill acquisition. This supervisor spoke proudly of the introduction of group work and of how a new facility had been built to allow the development and production workers to work together more closely, but also confirmed that apprentices continued to be the best source of skilled workers for the firm. In this firm, at least, there was no evidence of worries about the nefarious impact of skill hierarchies through the dual system. We should be wary, then, of drawing a doom-and-gloom story of the future of the dual system from the Mayen results²⁰.

¹⁹ The title of an article by Horst Kern and Charles Sabel (1994) on the crisis of the German model of production.

²⁰ In comments on an earlier draft of this paper, Sabel objected that he does not argue that the German system is incapable of change, but rather that the current system should not be having the problems he has observed, if it indeed continues to have the virtues of flexible adjustment attributed to it by Soskice and Streeck. He argues that the system may well be able to adapt, but only by departing from some of the stabilizing (craft) features lauded by its admirers (cf.

What we fail to see in the Mayen firms, as in the firms from the four regions of eastern Germany, is any pattern of correlation between social capital and the willingness of firms to train. No surprise there, since even the hardest social capital advocate would be recalcitrant to say that embeddedness in a cooperative milieu is the number one factor determining the willingness to and level which firms will train. Rather, the social capital variable can fairly be expected to come into play in the cooperative solutions of problems among firms, as elaborated in the first section. I will discuss the evidence on these particular hypotheses in the following section.

One variable of particular importance in the training decision of a firm appears to be its ownership structure, and in particular, whether or not it is owned by a company in western Germany.

Table 6 presents the list of firms in my sample owned by firms in western Germany²¹. With one exception—that of the Leipzig firm owned by the successors of the *Treuhand*, whose specificity I noted above—all the IHK firms which train in the target range are owned by western German firms. This is perhaps not surprising, given that ownership of eastern German enterprises tends to be concentrated (concentration increasing with firm size) and that western German firms and families are the biggest owners of eastern German firms (Carlin and Mayer 1995). According to Carlin and Mayer, one of the primary benefits of this ownership structure for eastern German firms is the access to long-term finance conferred by the collateral and reputational effects of their western German owners. This argument with these data certainly provide correlational evidence that, as predicted by the coordinated economy model, the access of firms to long-term finance is an important facilitating variable in allowing them to choose training strategies consonant with the high-skill equilibrium. This is only a correlation, and in my study I did not gather the micro-level data which would be necessary to tie a firm's training strategy to its access to finance. But the notable correlation does provide a potential confirmation of the predictions of David Soskice's institutional model.

Sabel 1994a: fn 4). The object of my anecdote from Mayen is to question the (supposedly calamitous) effect of skill hierarchies in impeding the integration of conception and execution.

²¹ Table 6 presents ownership of firms as of the time of interview (winter 1995-96). Two firms still owned by the *Treuhand* were in the process of privatization, but the sale was not final at the time of interview; these firms are excluded from this table.

Table 6: IHK firms in eastern Germany, owned by western German firms

Arbeitsamt	Size	Trainees/ Employment
Halle	Large	5.4%
Leipzig	Mittelstand2	1.6%
Leipzig	Mittelstand2	2.9%
Leipzig	Mittelstand2	6.2%
Leipzig	Large	12.0%
Plauen	Large	4.9%
Plauen	Mittelstand2	7.0%
Plauen	Large	8.0%
Sangerhausen	Mittelstand2	2.2%

However, as shown in Table 6, there are some exceptional cases, where western ownership does not suffice for the firm to train at western levels. First, in Leipzig, two IHK firms classified as Mittelstand₂ are owned by western owners, and exports constitute more than half their sales markets; yet their proportion of apprentices to employment remains below the targeted range. There is an easy explanation: 1995 was the first year that these two firms hired apprentices. If they continue to hire apprentices at this rate over the next three years (which they intend to do), they will be training at or even slightly above the target range. Both, however, receive very generous support from a subsidy program of the Saxon government, a subject to which I will return later. The Sangerhausen firm owned by a company in western Germany is training under the target range because the extraordinarily high unemployment in Sangerhausen has enabled the firm to meet its needs for skilled labor off the free labor market²².

Finally, there are three IHK cases (besides the two special cases explained above) which train (far) in excess of the target range. Two of these are firms owned by the successor to the *Treuhand*; one is a former PGH (*Produktionsgenossenschaft des Handwerks*) whose ownership is parceled up among a large number of individuals. Recall from the discussion above that firms training above the eight per cent barrier are probably training above the level necessary to replenish their workforce. Thus, they are likely either to be growing very rapidly, paying less per trainee than the IHK average, or making training decisions based on criteria different from those of narrow profit-maximizing. None of these three firm is growing rapidly; in fact two have cut their labor forces quite dramatically in the years since the *Wende*. Instead, a combination of the second and third reasons come into play—on the one hand,

²² Over the past two years, this firm had hired only three apprentices but had hired forty workers directly off the labor market.

the costs of training at the *Treuhand* firms has been subsidized massively; on the other hand, two of the three firms located in Sangerhausen are training above their estimated need for the future.

To summarize the results of this section: it appears that IHK firms owned by western German firms—that is, those already embedded in the institutional system of the west, notably with the access to long-term finance which that entails—are those most likely to train at the levels associated with high-skill equilibrium. In the next section, we examine evidence on some of the more specific hypotheses laid out in the first section.

5. Evidence from the firm interviews

5.1. Institutional Hypotheses:

H11: The employer's association and/or the IHKs provide firms with advice and guidelines for training, including the diffusion of best practice in different sorts of jobs.

The evidence on this hypothesis is mixed. In all the regions and across all firm sizes, those firms which trained generally judged the guidelines regulated by the IHK as satisfactory. In several cases (especially in the larger firms), the firms said that they crafted these "very general" guidelines to meet their specific needs, by doing supplementary courses or including supplementary qualifications. The general guidelines have been negotiated at national level by representatives named by the employers' associations and the unions (for metal industries, by Gesamtmetall and the IG Metall) under the auspices of the Federal Institute for Vocational Training. Some managers, particularly those in small firms, evinced dissatisfaction with the multiplicity of requirements. Not every worker needs to have a 3.5 year apprenticeship, they claimed, and these requirements either impeded them from hiring in the first place, or made it difficult for them to hire less qualified candidates whom they might otherwise have hired.

Where the evidence diverges from the coordinated economy explanation of the governance of training is in the relative importance of the employers' association—which is private and has voluntary membership--and the IHK, which is semi-public and to which all firms must belong. The employers' association does play a role in negotiating the guidelines established and overseen by the IHK; this is regulated by law. However, the negotiation of new

certifiable professions (*Berufe*) is a relatively rare event. Once the guidelines are established, the employers' association appears to play little role in the continual diffusion of new ideas and of "best practice" in training. Its only role is to be the political arm of the firms if they want to negotiate changes in the guidelines to the *Berufe*. Firms made reference far more often to their meetings and information exchanges with other trainers in other firms through the IHK.

The value placed on these contacts through the IHK with other training firms varied. Almost all IHK firms which trained agreed that the IHK was a necessary supervisory agency over training practices, to make sure firms adhered to reasonable standards and to test and certify apprentices at the end of their training. Most training or personnel directors from medium or large companies played a role on the IHK testing committees. Some of these thought the supplementary contacts to training personnel in other firms was helpful, others (in half the very large firms) thought the IHK was more important as a resource for small or medium size companies.

To summarize my findings on the first institutionalist hypothesis (H_{11}): aside from its role in negotiating the content of new *Berufe*—which is not irrelevant, but which is also quite general—the employers' association plays only a minor role in the diffusion of advice relevant to training, and there is no evidence to show that it systematically diffuses information about "best practice" in training. In comparison with the employers' association, the IHKs play a more visible and relevant role in the supplying of information for firms on questions of training. On the question of "best practice," firms tend to rely more on themselves and do not suggest that the IHK regularly gives them useful advice in the best way to construct their own training program. So advice and guidelines are provided, but this advice is not central to the management or establishment of training programs within a firm.

H₁₂: In order to fulfill this role, employer's associations and/or IHKs have access to inside (potentially sensitive) information of firms; firms are willing to provide the association with this access.

First, it bears noting that most firms thought that there was very little inside information associated with training which they considered sensitive²³ (I have heard that some banks do regard their training curricula as highly sensitive, but not in the course of this inquiry).

When pressed—"say there were some piece of information you considered relatively important, in the realm of training, for maintaining the competitive

²³ The BDA representative to the general committee of the federal training institute noted, in response to a question about inside information impeding inter-firm training cooperation, that "everywhere firms cook with water, and in any case secrets are not exchanged [in such cooperation over apprenticeship]" (BiBB 1995:30).

position of your firm. Would you trust the employers' association with such information?"—I received no evidence that supported H₁₂. Firms neither feel the need for information from the employer's association nor do they demonstrate an overwhelming propensity to share it.

Academic partisans of the employers' association can point to two characteristics of my sample in order to discount its findings relative to H₁₁ and H₁₂. First, few of these firms are likely to be at the cutting edge of innovation, since most of the sample firms are in eastern Germany; and second, there are very few large firms in my sample, and it is the very large firms which most use and benefit from the services of the employers' association²⁴. The first response is only partially valid: as depicted in the last column of Table 5, several of the larger Mittelstand firms from Rhineland-Palatinate are very much on the cutting edge of technology in volatile markets, and none of these firms has felt the need to join the association (one of the firms quit the association in 1994 because they felt that it catered more to the needs of mass producers than to their specialized line of production). Second, while it may be true that the majority of the most innovative firms are in western Germany, several of the firms in my sample have made massive investments since 1990 and are now very confident that their plant and workers will out-perform those in western Germany in the years to come.

To give this critique its due, however, I cite in this paragraph the views of the officials in charge of training at the three eastern German firms in my sample with more than 1000 employees—all owned by well-known western German conglomerates—plus one interview with an equally large firm (also part of a western German conglomerate) in Berlin and Brandenburg. One of the interviewees belongs to the national level working group of Gesamtmetall, which he said meets two or three times per year and in which the topics are "political; nothing technical is discussed." Another, in talking about the regional working of the employer's association which meets twice a year, agreed that these meetings provided a chance to exchange information with colleagues at other firms, adding "but our competitors are there, so there is information that we hold back." A third trainer from a very large firm said that in fact the IHK was "closer to home" than the regional employers' associations and that he had information exchanges twice a year with other trainers through the IHK, commenting that at such meetings, "firms do learn from each other and try to help each other, but if they were in competing sectors there might be taboo areas."²⁵ The fourth summarized the role of the employers' association as drumming up extra in-firm training places (when they are lacking, as in eastern

²⁴ Thanks to Steve Casper for playing the devil's advocate in this case.

²⁵ Those with exceedingly short memories will say that, in fact, the German model of competition is based on firms which do not compete head-on, so the theoretical problem of "taboo areas" of information exchange does not arise in reality. I refer such commentators to the previous sentence above, in which it is clear that at least some big firms are competing head-on and therefore withholding information from the association.

Germany) or proposing official changes to the content of the *Berufe* (which, as noted above, have to be negotiated with the union at a national level). Thus, the big firms in my sample agree: there is no diffusion of best practice through the employers' association, and some hesitate to share information with either the employers' association or the IHK.

H13: The employer's association possesses a sanctioning mechanism to identify and punish firms which poach the trained workers of other firms rather than (or in addition to) training their own apprentices.

Other than expulsion, the employer's association possesses no sanctioning capacity. Even very large firms in my sample admitted to the lack of recourse available through the employers' association to punish firms which poached their most highly skilled workers. In one case, one of the very large eastern German firms raised its wages to parity with the western rate in 1991, because it had no other means of holding onto its skilled workers, who were being poached by firms in the west.

It should also be noted that the very concept of poaching appeared risible to many eastern German employers; in such a collapsed labor market, the prospect of poaching was the most academic of questions. In Mayen, firms admitted to having poached or having been poached from, but again said there was no recourse for a firm which loses an apprentice or employee this way. The employers' association provides no sanctions in these cases.

5.2. Social Capital Hypotheses

Hsc1 : Small firms in regions of high social capital are more likely ceteris paribus to join together among each other or with a neighboring large firm to cover each other's deficiencies, thereby being able to take on a greater number of apprentices than they otherwise could.

Table 7 (below) depicts the percentage of the firms who are training in partnership with other firms, as a percentage of the firms who are training at all. We should expect, as suggested in the first social capital hypothesis, that cooperative efforts among firms will be relatively more prevalent in areas of high social capital.

The evidence in Table 7 clearly refutes the second hypothesis. In both eastern states, the lower social capital regions have a higher percentage of firms who train in partnership with other firms than do the higher social capital regions. This is unlikely to be a product of the heterogeneity of the firm sizes in

each region, because either large firms or small firms can be involved in a partnership—the large firms tending to play the role of the *überbetriebliche* centers in the west. A potential counter-argument, though, could posit that the absence of large firms in Sangerhausen makes it significantly more difficult to establish firm partnerships centered on a large firm. While this is reasonable, it is contradicted by the evidence from Plauen and Leipzig: Plauen, with larger firms on average than Leipzig, has fewer partnerships (as a percentage of total firms training). The evidence on this hypothesis is clear: the existence of a high density of clubs does not predispose firms to cooperate to establish partnerships in training.

Table 7: Firms which train in partnership as a percentage of all training firms in a region

Arbeitsamt	Size (general)	Azubi Quote	IHK/HWK	Partnership?
Leipzig	Mittelstand2	1.6%	IHK	Yes
Leipzig	Mittelstand2	2.9%	IHK	Yes
Leipzig	Mittelstand2	6.2%	IHK	No
Leipzig	Large	7.0%	IHK	Yes
Leipzig	Mittelstand2	46.5%	IHK	Yes
Leipzig	Large	12.0%	IHK	Yes
Plauen	Mittelstand1	1.6%	IHK	No
Plauen	Large	4.9%	IHK	Yes
Plauen	Mittelstand2	7.0%	IHK	Yes
Plauen	Large	8.0%	IHK	No
Plauen	Mittelstand1	13.1%	Hwk	No
Halle	Large	2.2%	IHK	No
Halle	Mittelstand2	2.3%	IHK	Yes
Halle	Large	5.4%	IHK	Yes
Halle	Small	9.5%	Hwk	No
Halle	Mittelstand1	11.6%	IHK/Hwk	No
Halle	Mittelstand2	14.0%	IHK	No
Sangerhausen	Mittelstand2	2.2%	IHK	No
Sangerhausen	Mittelstand2	14.0%	IHK	No
Sangerhausen	Mittelstand1	15.1%	IHK	No
Sangerhausen	Small	16.7%	Hwk	Yes

Siemens trains in partnership in its plants in Sangerhausen and in Leipzig.

80% of the training in Leipzig (excluding Siemens) are training in partnership.

40% of the firms training in Plauen are training in partnership.

33% of the firms training in Halle are training in partnership.

25% of the firms training in Sangerhausen (excluding Siemens) are training in partnership.

The data on partnership require one other comment as well. It is clear from the table that firms in the two regions in Saxony are more likely to train in partnership than either region in Saxony-Anhalt. The reason is very simple: money. The most lucrative form of public subsidy for training in the new federal states (excluding Treuhand aid) is the program for training partnerships passed in 1995 by the state government in Saxony. One of the firms in Sangerhausen, in fact, complained about the unwillingness of the state government in Saxony-Anhalt to provide financial support for a proposed partnership which had been organized among local firms. I have not yet looked in detail at the various sorts of programs used by different firms in different regions, so I am not yet able to speak definitively to this issue. What is clear from the Saxon example, though, is that clever (or just generous) policy design may be more effective than deep and dense networks of associational life in helping firms to work together with one another in the area of training.

H_{sc2}: Firms or firm representatives in regions of high social capital should be better able than those in other regions to work together to take over apprentices whose original firms face unexpected economic difficulty.

The second hypothesis on social capital fares slightly better than H_{sc1}. First, in high unemployment Sangerhausen (where we would most expect to see such action among firms, given the very high unemployment there), the IHK served as the coordinating center for finding places for the apprentices of SAMAG, the largest metal firm in the area, which went bankrupt in 1994. Within my sample, three of the four training firms agreed to take on SAMAG apprentices in the middle of their contracts, in order to allow them to finish their apprenticeships. The firms which agreed to take on the apprentices were promised compensation by the *Land* government, but the compensation is to be paid only at the end of the apprenticeships (and some of the apprentices had only just begun in 1994 when the firm went belly up). Some of the firms expressed doubts as to whether or not they would ever actually see the money from the state. The presence of SAMAG apprentices is part of the explanation for the very high ratio of trainees to employees at the two IHK firms training at a high level in Sangerhausen.

This evidence is pretty weak, alone: sure, the firms agreed to take on the apprentices, but only to let them finish their apprenticeships (with no guarantees of jobs at the end), and the state was going to subsidize them as well. And maybe such an event could have happened in other regions, if they were in as economically catastrophic a state as in Sangerhausen. However, in the employment champion of my sample—Mayen, in Rhineland-Palatinate—the largest employers in the area (across several different sectors) have, at the behest of the IHK, formed a committee to deal with apprentices whose companies have to release them during the course of apprenticeship because of economic difficulty. Having set up the committee, the IHK has withdrawn

from its functioning; the manager of the largest firm in the area is now the chairman of the committee, and it remains as an independent and voluntary club of the employers in the area to deal with apprentices in this situation.

In Plauen, I saw no evidence of such an organizational response as witnessed in Mayen or in Sangerhausen. However, in the largest firm in my sample in Plauen, there was an inordinately high number of apprentices who finished last year, because the firm had taken on an unusually high number of apprentices in 1991-2, under pressure from the IHK and the employment office (a year when the apprenticeship market was in particular crisis). In this case, the firm's director of training intervened through the local employment office and ensured that all eight (extra) apprentices received jobs. Several firms had this problem in the various regions of my sample, but this case in Plauen was the only one in which a manager reported taking action through local agencies and having success. Is the case more than anecdotal? Hard to say. What I can say is that no firms in either Halle or Leipzig reported such activity, either organizationally or individually, aimed at finding places for their own apprentices they were unable to retain because of downsizing of the workforce.

Nevertheless, we must be extremely cautious about drawing any broader conclusions from this scanty evidence. It is certainly within the realm of possibility that this correlation is random. However, using the same semi-structured questionnaire at all 34 firms, I only uncovered the cases noted above in those three regions. What I did not uncover is any systematically higher rate of satisfaction or greater frequency of interaction with the IHKs or with the employers' associations in these regions.

Thus, my conclusions about the effect of social capital must be extremely modest at this point. With respect to H_{sc2} , firms in high social capital regions have shown a greater creativeness and resourcefulness in coping with problems of the training system. But a high endowment of social capital does not lead to the more efficient functioning of the principal institutions of training. The impact of social capital appears marginal, rather than central, in helping firms or institutions to cope with the problems of training reform.

6. Discussion

These data, as noted throughout, do not tell a clear story. The heterogeneity of my firm sample makes all comparisons across regions problematic. Yet, for all the product market variation among firms, the firm sub-samples are not inconsistent with their regions: there are very few large metal firms in the Mayen area, and the changes since the *Wende* have eliminated all big firms

from the Sangerhausen region. It is probable that this small firm structure bears some relation to the data on club density, although I am not prepared to speculate further on those causal links right now. As the Plauen case suggests, though, the presence of big firms is not inconsistent with the presence of high club density. But, given these caveats, on to some (still cautious) speculation about what these data might mean for the two theories I have been testing.

As regards the diffusion of information and advice to companies, firms in the east, like those in the west, do indeed seem to use and (in some cases) appreciate the advice of the IHKs and the employers' associations. The level of detail of this information, however, is somewhat less than that hypothesized by Soskice—in both the east and the west. Negotiated guidelines regulated by the IHKs form the framework of the system, but this regulation does not translate into the repeated diffusion of information about best practice and the latest innovations in methods of training.

Moreover, and this is especially true for smaller firms, the prime mover in the training system is not the employers' association, but rather the IHKs. Member firms regard the employer's association as particularly helpful for getting information about available government subsidies. Also, some firms prefer to go the employers' associations rather than the IHKs for legal advice relevant to training, although the evidence here is mixed. For technical advice, though, firms do not go to the employers' associations; they go to the IHKs, or more often, rely on connections within their conglomerates (in the case of large firms), or to the community of trainers that antedate the *Wende*.

In neither the exhortative nor the punitive role has the employers' association shown the capacity attributed to it in the (employer-dominated) coordinated market economy model. Very few firms report receiving—and none reports responding favorably to—appeals from the employers' association to create extra training places. And the sanctioning capacity of the association against members that poach is nil.

The greater relative importance of the IHKs for training, *de facto* as well as *de jure*, is more than a semantic quibble about what organization of employers is managing the "coordination" of the economy. Gesamtmetall and the BDA, as agents of (especially the large) private firms, have voluntary membership and are political representatives of their member firms. The IHKs have a nebulous, para-public status. All industrial firms must belong (*Zwangsmitgliedschaft*), and many questions of local training policy go through the *Berufsausbildungsausschuß* of the IHK, in which the unions have voting

representation equal to that of the employers²⁶. While the difference with the coordinated market economy model should not be drawn too starkly, this evidence suggests that coordination of training in Germany is a bit less employer-coordinated, and a bit more negotiated by public bodies comprising equal representation of capital and labor, than that model would posit.

Compared to the findings on social capital, however, the predictions of the coordinated economy model stand up relatively well. Neither the IHKs nor the regional employers' associations perform more effectively in the regions of high social capital than in the regions of low social capital. As demonstrated in the discussion of H_{sc1} , the cooperative capacity of firms does not seem to be increased by being imbricated in a club-rich region. It may be that Sangerhausen's very high unemployment swamps any network effect, but for whatever reason, bowling clubs don't lead to training partnerships. The discussion of H_{sc2} suggests, though, that firms in high social capital regions do outperform firms in other regions in using collective action to find places for apprentices when their original firms cannot complete the apprenticeship, or cannot hire the apprentices afterwards. Yet the evidence here is rather thin.

Thus, if the measurement of club density is accurate and indicative of the presence of trust and networks of civic engagement which constitute social capital, it does not appear that firms in these regions regularly draw on these social resources in order to solve the wide range of problems associated with training reform.

Most of the German firms with which I conducted interviews, especially those training in the target range, did underline the importance of information exchange or regular contacts among trainers from different firms. But the density of these links had nothing to do with social capital measurements, and even for a majority of members of the employers' association, the association was not the principal organizational conduit for exchanging information with other firms. The very large firms which belonged to western conglomerates found the regularly scheduled opportunities for information exchange with other firms in the conglomerate particularly helpful. Trainers (or personnel managers) from large and medium size firms were almost all involved in the testing commissions of the IHK for one of the *Berufe* in which they trained, and all agreed that this role constituted an excellent way to get to know the trainers and (sometimes) the training practices of firms in the area. Medium size firms thought this information helpful for the improvement of their own training, whereas trainers from the largest firms placed a higher value on the information

²⁶ The German unions, despite their equal representation in the training committees of the IHKs, maintain that the IHK is fundamentally an employer organization, and would like to see the governance of training moved more directly under the control of the state.

gleaned through their own conglomerates or through personal links with other trainers.

My data suggest that the possibilities for exchange afforded by an active role on the testing commission were among the connections most frequently cited by trainers as useful. In some medium size firms in eastern Germany, though, trainers or personnel managers were involved in a network of people with whom they had associated through the local community of trainers in the GDR. The administration of the GDR training system brought trainers from different firms (sometimes in the same *Kombinat*, sometimes not) together on a more regular basis than occurs under western German training regulations. The links established during that time have been helpful for the learning process involved in the adjustment to western German practices. Some individuals indicated that they maintained links with trainers in other (now independent) firms that had belonged to the same *Kombinat* before 1989-1990, but the majority of firms in the east said such links through the network of the former *Kombinate* are of little (or declining) importance for them. These firms in the east are clearly using a variety of formal and informal networks to gather information in the implementation of training policy; but these networks are not those which the theoretical literature in political economy have emphasized.

A final variable which my discussion has avoided until now is the role of public policy and public money. The West German dual system relies on firms to pay for their own training; as a result, there are no direct subsidies for in-firm training²⁷. The system in eastern Germany has not worked on this no-aid principle, but has instead been supported by a raft of European Union, federal, *Treuhand*, and *Land*-level programs (cf. Johnson 1995). Officially, the federal and EU aid has been aimed exclusively at creating out-of-firm training places for those would-be apprentices who could not find a position in a firm. This aid through the *Gemeinschaftsinitiative Ost* (GIOst) created 6093 extra places in 1993, 12,070 places in 1994, and 12,940 places in 1995 (BMBW 1996: 29). The cost of the 1995 aid alone was estimated, over the course of the apprenticeships funded, to cost around 870 million DM (*Tagespiegel* 31 August 1995).

This GIOst aid has only sponsored out-of-firm places. The federal government has insisted on this point in order to assure that the principle of the dual system, in which firms pay for in-firm training, remains sacrosanct. Within *Gesamtmetall*, the national employer's association in the metal-working industries, the government's policy has been fiercely debated, but was opposed

²⁷ Some smaller firms are able to circumvent this problem by getting public financial support for the modernization or expansion of their plant, aid which is tied to the size of employment (and thus increases with the hiring of additional apprentices). Only one small *Handwerk* firm in my western German sample had been able to use this means of financing, so the stylized fact of no supported in-firm training in the dual system remains basically correct.

by the association at the national level talks in 1995. The employers' association argues that, while public subsidy support of in-firm training is undesirable in principle, it is better to support one in-firm place that would not otherwise have been created than to create an out-of-firm place, in which the apprentice is not in a real firm and the skills learned are less likely to be those demanded by companies in the private economy (Culpepper 1996).

In making their own decisions about subsidies to support apprenticeship places, the governments of the new *Länder*—regardless of their political complexion—have not felt constrained by the principle of no aid for in-firm training. All five of the new *Land* governments and that of Berlin have developed subsidy programs for in-firm training places, based on various criteria such as creating “supplementary” places (those places offered by firms, even though they foresee no need for the future labor) or creating places for especially disfavored groups (e.g., women in technical professions). In 1994, roughly 45,000 in-firm places were supported by some of this public money; that is, almost half the new in-firm places in the new federal states in 1994 were publicly subsidized (BMBW 1995: 6). The dual system is certainly not yet working in eastern Germany exactly like it used to in the west.

As we saw in section 4, however, pouring all that money into in-firm training has not led to good results everywhere: many firms continue not to train at all or at levels below those characteristic of the west. From the sample of firms in this paper, only one firm in Saxony-Anhalt was training in the target range on western standards, and that firm received no training aid from the state government. Of the five firms training in the target range in Saxony, three had received public subsidies to do so. Also, both of the firms in Leipzig which began training this year—at rates which will bring them into the target range (if generalized over three and a half years)—received aid from the Saxon state government to do so. Including these firms in our calculations, then, the state subsidizes apprenticeship training in five of the seven IHK firms in Saxony that train at western German levels.

The difference in outcomes has nothing to do with the total number of apprenticeship places supported by subsidies in the two states. In 1995-1996, the government of Saxony-Anhalt subsidized the creation of *more* apprenticeship places per capita than did the Saxon government (BMBW 1996: 195). We may well ask why the Saxon government is so much better than the government of Saxony-Anhalt at using state subsidies to incite its firms to train.

The answer lies in the different design of policy in the two states. Both states offer the standard palette of programs for supporting “supplementary” in-firm training places, or those targeted at specific groups. In Saxony, however, the *Land* government in 1995 introduced a program for sponsoring the cooperation of small and medium size firms with larger firms in a so-called

Ausbildungsverbund, if the former lack the “organizational and technical prerequisites” necessary to hire an apprentice (SSWA 1995). Companies training in technical professions can receive support for up to 52 weeks of the three and a half year training course, with the bulk of the support coming in the first year; given a maximum possible support of 225 DM per week per apprentice, a firm can, over the 3.5 year course of a single apprenticeship, receive up to 12,150 DM. The definition of small and medium size firms is also quite expansive: firms with up to 500 employees are eligible to receive the aid²⁸.

The existence of this new program in Saxony does much to explain the fact (see Table 7) that in both Plauen and Leipzig a high proportion of training firms are training in partnership. In Saxony-Anhalt, there is no comparable program. In fact, the personnel manager of one of the larger firms in the Sangerhausen district attempted in 1994 to establish a *Verbund* with smaller firms in the area. Between fifteen and twenty smaller firms expressed their willingness to participate, and this group secured the backing of local unions, the works council of the larger firm, the IHK, and the *Landrat*. However, when this coalition submitted its proposal to the *Land* government, it was rejected. Firms in this case evinced quite a considerable cooperative capacity, but without the financial participation of the state government, the project was a non-starter.

In designing aid for training, Saxony is meeting the needs of its industrial firms more effectively than Saxony-Anhalt. Two variables are especially important for understanding why Saxon policy is so well-attuned to the demands of Saxon companies: the organization of employers and the presence of a sympathetic government²⁹. Both the IHKs and the state employers’ association, which is also the state affiliate of Gesamtmetall, agreed on the desirability of adopting support for *Ausbildungsverbünde* at the state level. The CDU government of Saxony, under Kurt Biedenkopf, has shown itself to be extremely solicitous of employers’ views in crafting new policies to attenuate the problems of apprenticeship training in eastern Germany. Moreover, with the support of the *Land* level affiliate of the DGB, the *Ausbildungsverbund* subsidy program has been relatively uncontroversial in Saxony.

Despite the success of employers in the Saxon case, the level of subsidies of eastern German training may well engender fissures in the employers’ camp as to who is bearing the load of training. Larger eastern German firms (generally, those with more than 250 employees) complain that the structure of these subsidy programs unfairly favors smaller firms, especially given the

²⁸ Larger firms can serve as the training center for the partnership, but they are only reimbursed for the administrative and organizational costs of serving as the training clearinghouse.

²⁹ I develop these themes at much greater length in Culpepper 1996, on which the above paragraph draws.

frequent lack of experience of small firms in training apprentices (Schober 1994: 8). And it is precisely these large firms which, in the new federal states, foresee a significant further curtailment of their training capacity in the future (BMBW 1996: 41; Degen and Walden 1995: 74). These are the firms most subject to the incentives—financial connections and information flows through western German owners—and the constraints—works councils with greater muscle than those in smaller firms in the east, attachment to the negotiated wage bargain—which characterize firms in western Germany. Unlikely to get access to public funding of training through state governments in eastern Germany, these firms have no inherent interest in continuing the subsidy programs, which (indirectly) tax them.

All the medium size (Mittelstand₂) companies in my sample that are training in the target range are receiving very substantial subsidies to do so. The smaller IHK firms in the east have trouble training at all. Until now, the perennial demands of the German unions for a mandatory training charge on all firms has been brushed aside with great success by the employers. And it is a safe bet that the IHKs and the DIHT (the peak association of the IHKs) will continue resolutely to oppose its introduction, for two reasons. First, the median constituent of the IHKs is the small and medium size firm, and these firms certainly do not want to be saddled with a further rigidity in their labor costs. Second, the role of the IHKs in “governing” training is perhaps their single most important *raison d’être*. The introduction of a mandatory training charge, not controlled by the IHKs, would greatly dilute their authority as the bodies responsible for training governance. Firms are already complaining about the productivity of their required membership dues to the IHKs; without their role as the leading institution in training, the worth of the services provided by the IHKs would seem even more questionable.

The employers’ associations, meanwhile, have their own problems of declining or stagnating membership (cf. Silvia 1994, Ettl and Heikenroth 1995). The large firms which continue to train at western levels, unsubsidized, in eastern Germany, are not going to quit the employers’ association, given the strike protection it provides them. Lacking the exit option, they are likely to exercise voice; and in the employers’ associations, it is always the largest firms who have the most important voices. At least from its eastern members, the employers’ association will face increasing demands for the small and medium size firms to “do their part” and begin training at higher levels. As local taxpayers, large firms are contributing to the state government largesse which is going into the pockets of medium size training firms. And if exhortation does not work, the associations could find themselves facing demands from some of their members to join the call for the *Umlage* (sharing of costs) in training, as

one of the points on which their interests would not be weakened in accepting union demands³⁰.

The financial subsidies for in-firm training in eastern Germany, at least as currently conceived, exacerbate the organizational problems faced by employers' organizations, in that they introduce a new distributive conflict among companies. The Saxon example demonstrates that subsidies crafted in consultation with employers will undoubtedly work better in achieving the transitional aims of getting eastern firms to train at western levels. What is not clear at this point is whether financial subsidies for training are going to constitute a crucial, but temporary, measure, while the western German institutions take root, or whether instead the presence of subsidies will introduce new dynamics of inter-employer conflict and rent-seeking which could subvert the principle of firm responsibility at the heart of the dual system.

³⁰ The umbrella union federation, the DGB, has been vocal in denouncing financial support for training. The DGB argues that if companies are not willing to pay the costs of training and assume their responsibilities, then the training system should be moved directly into the public sector.

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