

Firm Size and Job Quality: A Survey of the Evidence from Germany*

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ABSTRACT. Small firms provide and create a large proportion of jobs in Germany. Are these jobs worse than jobs in larger firms? The mosaic picture that emerges from a review of several recent empirical studies using German individual or firm level micro data shows that, all in all, wages are lower, non-wage incomes (fringes) are lower, job security is lower, work organisation is less rigid, institutionalized possibilities for workers' participation in decision making are weaker, and opportunities for skill enhancement are worse in small firms compared to large firms. The weight of evidence, therefore, indicates that, on average, small firms offer worse jobs than large firms. It is argued that there is no need for policy measures targeted to improve job quality in small firms, because higher incomes in large firms can in part be seen as compensating differentials for more rigid work organisation, and can follow from wage policies to reduce shirking and turnover that is more costly in large than in small firms. Furthermore, a lower level of remuneration, less protection against dismissals, a lower level of workers' participation, and less opportunities for further training all contribute to lower costs in small firms that might be needed to compensate for size-related cost disadvantages compared to large firms. Economic policy should concentrate on keeping barriers to entrepreneurs' entry to markets low to foster new firm formation and creative destruction.

1. Introduction

Most firms in the private, non-farm sector of the German¹ economy are small: in 1990, 86.9 percent of the 2,045,435 enterprises had 0 to 9 employees, 12.1 percent had 10 to 99 employees, 0.9 percent had 100 to 499 employees, and 0.2 percent had 500 or more employees. Employment shares of these four size classes were 18.3 percent, 27.9 percent, 17.7 percent, and 36.2 percent, respectively. Looking at the industry sector alone, 96.1

percent of all firms had less than 100 employees in 1990, and an employment share of 27.1 percent (European Commission, 1994, p. 111). Stockmann and Leicht (1994) provide evidence that small establishments have formed the backbone of the German economy for more than 100 years.

Given a high and persistent rate of unemployment, the role of small firms in the job generation process is a hotly debated topic. Recent studies based on U.S. data made clear that an answer to the question "Who creates Jobs?" can only be found by analyzing high-quality longitudinal data collected at the establishment level (cf. Davis, Haltiwanger and Schuh, 1993; Berney and Phillips, 1995). Evidence for Germany thereon, however, is scarce due to a lack of such data (more precisely, due to a lack of access to these data as regards researchers from outside the statistical offices). In a recently completed study (Wagner, 1995) that uses longitudinal establishment level data from official surveys covering all manufacturing firms that produced in at least one year between 1978 and 1993 in Lower Saxony, one of the old German Federal States, it has been found that gross job creation and destruction rates tend to decline with firm size, while net job creation rates and firm size are not systematically related when firms are classified according to their average number of employees in the base and end year. About 30 percent of all jobs created and about 25 percent of all jobs destroyed over the period were in firms with less than 50 employees, while the employment share of these firms was about 12 percent. Therefore, not the bulk, but a quite large and, compared to employment share, over-proportionally high share of new and lost jobs in manufacturing are from smaller firms.

Small firms, therefore, provide and create a large proportion of jobs in Germany. The focus, however, should not be on the *number* of jobs

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alone, but on their *quality*, too. As Davis, Haltiwanger and Schuh (1993, p. 26) put it, while there are many exceptions to the basic pattern, the weight of evidence for the U.S. indicates that, on average, small firms offer worse jobs in terms of wages, fringe benefits, working conditions, opportunities for skill enhancement, and job security than large firms.

Is this true for Germany, too? The aim of this paper is to summarize what we know about the variation of various dimensions of job quality over firm size in Germany. The rest of the paper is organized as follows: In section 2, we will consider wages, non-wage income, job security, work organisation, workers' participation, and opportunities for skill enhancement in small and large firms. Policy implications are discussed in section 3, and section 4 concludes.

2. The variation of job quality over firm size in Germany

2.1. Wages

Most, if not all, people who are working in private firms do so to earn their living. Therefore, earnings are an important, if not the most important, dimension of job quality. Do wages of blue collar workers and salaries of white collar workers – or, for short, wages – vary with firm size? We will look at the evidence for Germany in the next two sub-sections, summarizing results based on individual level and firm level micro data.

2.1.1. Employer size wage effects

It is a well-known stylized fact from official statistical surveys of labor costs that average wages per worker tend to increase with firm size. Setting the average earnings of an employee in an establishment with 500 and more workers equal to 100 percent, in Germany in 1987 (the year in which the latest census of production sites – *Arbeitsstättenzählung* – has been conducted) the average wages in smaller size classes were as follows: 45.5 percent in firms with 1 to 4 employees, 51.5 percent in firms with 5 to 9 employees, 68.9 percent in firms with 10 to 49 employees, 80.2 percent in firms with 50 to 99 employees, and 85.9 percent in firms with 100 to 499 employees. Similar patterns can be observed

in different sectors of the German economy (Schmidt, 1995).

When asking for evidence regarding the variation of earnings with firm size, however, the answer cannot be found by looking at this kind of data, because differences in the average wage between size classes can be caused by many factors: differences in the level of qualification of the workers, different numbers of hours of work per week, different working conditions asking for compensating wage differentials, etc. To put it differently, the existence of an employer size wage effect means that wages vary with firm size *ceteris paribus*, i.e., after controlling for all other determinants of wages.

The standard approach to test for the existence of a nexus between firm size and wages is to use large sets of individual level micro data to estimate an earnings function with the (log of the) wage as endogenous variable and a set of exogenous variables controlling for human capital endowments, hours worked, working conditions, region, industry, etc., *plus* firm size. Usually, firms are classified into a number of size classes, and the statistical significance of the size class dummy variables is tested. Furthermore, the estimated coefficients of the size class dummies are used to estimate the *ceteris paribus* percentage effect of working in a firm from one size class compared to a reference size class.

Based on data collected in 1985 for 11,075 German male full-time blue and white collar workers Wagner (1991) estimated the following employer size wage effects using the method described above after controlling for schooling, experience, tenure, disability, hours worked, five types of working conditions, 11 regions, and 24 industries: compared to workers in very small firms with 1 to 4 employees, the *ceteris paribus* percentage gain is 3.56 percent in firms with 5 to 9 employees, 9.42 percent in firms with 10 to 49 employees, 12.75 percent in firms with 50 to 99 employees, 15.37 percent in firms with 100 to 499 employees, 21.05 percent in firms with 500 to 999 employees, and 24.23 percent in firms with 1,000 and more employees.

Schmidt (1995) surveys 11 econometric studies of this type using various sets of German individual level micro data, and presents a comprehensive set of new results. While estimates differ

from study to study due to different data sets from different years and different specifications of earnings functions, the bottom line is that only a part of the wage differential between small and large firms can be explained by differences in observed and unobserved characteristics of workers and jobs. To put it differently, we have evidence from these studies that workers earn more in large firms than in small firms in Germany, *ceteris paribus*. However, one should keep in mind that this conclusion is based on a set of *estimates* from econometric models (earnings functions) which are only valid if the assumptions underlying these models are true, and there are good reasons for some scepticism here (cf. Wagner and Lorenz, 1988; Wagner, 1992).

Bellmann and Kohaut (1995) apply an alternative approach to test for an employer size wage effect in Germany. They use firm level data from the first wave of the so-called *IAB-Betriebspanel* (a longitudinal study of firms conducted for the research institute of the German Federal Labor Office 'Bundesanstalt für Arbeit') collected in 1993 and compute the average monthly wage per employee in various establishment size classes. Wages tend to rise with firm size, although not strictly monotonically; the highest average wage was paid in firms with 2,000 to 4,999 employees (4,519 DM), and it was some 76 percent higher than the lowest value (2,555 DM) in firms with 5 to 9 employees. In an empirical regression model estimated with data from more than 3,000 firms with the average monthly wage in a firm as the endogenous variable, controlling for vacancies, percentage of women, qualified workers, and part time workers, seniority wages, pension plan, works council, degree of modernization of capital stock, holiday allowance, quit rate, industry, and region, Bellmann and Kohaut (1995) find no strictly increasing firm size wage effect: Using the largest firms (5,000 and more employees) as the reference group, the estimated coefficients of the firm size class dummies do *not* rise monotonically from the lowest to the highest firms – they do so only in the range of 5 to 99 employees (i.e., over four size classes), going up and down afterwards. Unfortunately, Bellmann and Kohaut (1995) do not report the numerical values of their estimates but only plot them in a figure, and, therefore, a comparison with estimates based on

individual level micro data reported above is not possible.

Bellmann and Kohaut (1995) argue that their results tend to question findings of an employer size wage effect from econometric studies estimating earnings functions with individual level micro data. However, they point to a number of problems as regards their data and measurement errors in their endogenous variable (average monthly wage). Furthermore, the specification of the empirical model is *ad hoc*, and the data set does not allow to control for differences in the qualification of the employees and for work place characteristics adequately.

2.1.2. Firm size and wage gap

An alternative way to search for an employer size wage effect is to look at the difference between negotiated wages and effective wages in establishments from different size classes. To see why, remember the following central elements of the wage setting process in Germany:

Wage formation is highly institutionalized. Collective bargaining is mostly conducted at the industry level for a region. Regional negotiations between trade unions and employers' federations are closely co-ordinated by their national peak organizations, and, therefore, interregional variations are small. Although only some 80 percent of all firms are members of an employers' federation, and union density does not exceed 40 percent, more than 90 percent of the German workforce are covered by collectively negotiated wage contracts due to two institutional features: any different treatment of unionized and non-unionized workers (e.g., different wages, or closed shops) is ruled out by constitutional law, and, although there is no minimum wage legislation in Germany, contract wages are regarded as minimum wages that can be (and often are) extended by government regulation to all employers and workers in the industry, including those not represented in the original negotiations (Carruth and Schnabel, 1993, p. 298f.).

Actual wage increases, however, are often higher than the centrally negotiated increases due to a *wage gap* at the firm level. Firms may pay wages above the negotiated (minimum) wages due to specific conditions in the local labor market or the product market, bargaining power of the

workers in the firm, and efficiency wage considerations, i.e. to reduce labor turnover and shirking, for reasons related to adverse selection, and to increase productivity by paying “fair wages” (see Schnabel 1994, p. 10ff.). Given that firm size does not matter at all in collectively bargained contracts, an employer size wage effect should show up in the wage gap (Meyer, 1995).

Unfortunately, from official statistics we have no evidence as regards the amount of the wage gap in firms from different size classes in Germany (Meyer, 1995). Five recent studies use either information collected in surveys of firms, or are based on data supplied by a regional employers organization:

In three surveys of firms respondents were asked to estimate the average wage gap in their firm, defined as the percentage difference between negotiated and effective wages. Based on data for 185 establishments from two different surveys Meyer (1995) reports an average wage gap of 11.2 percent for firms with less than 50 employees, 11.1 percent for firms with 50 to 250 employees, and 11.2 percent for firms with more than 250 employees in 1989 and 1991. According to these results the wage gap is not related to establishment size. These findings are corroborated by results from regression analyses based on subsamples from these data: Addison, Kraft and Wagner (1993) and Meyer (1995) find no statistically significant influence of firm size on the average wage gap after controlling for various characteristics of the firm, the product market, and the labor market.

Bellmann and Kohaut (1995) use data for more than 3,000 firms from the first wave of the *IAB-Betriebspanel* collected in 1993. They do not find that the wage gap rises monotonically with firm size: although for all firms covered by collective bargaining the value is rather small in firms with 1 to 4 employees (4.9 percent), the highest values (between 9.2 percent and 8.5 percent) are reported for firms from the next three size classes (having 5 to 49 employees), and the wage gap declines afterwards over the next six size classes from 7.1 percent to 4.6 percent; the largest firms with 5,000 and more employees report a relatively high wage gap that amounts to 7.2 percent and is about equal to the value reported by firms from class 5 (50 to 99 employees). In an empirical regression model

with the average wage gap in a firm as the endogenous variable, controlling for vacancies, percentage of woman, qualified workers, and part time workers, seniority wages, pension plan, works council, degree of modernization of capital stock, holiday allowance, quit rate, industry, and region, Bellmann and Kohaut (1995) find that the wage gap tends to *decline* with firm size from the second to the last but one size class, while it is higher in the largest firms compared to the smallest (but note that the maximum is not found for the largest size class). They argue that this evidence, too, questions findings of an employer size wage effect that are based on econometric studies from individual level micro data.

To summarize, studies using data from surveys of firms find no evidence that in Germany the wage gap tends to increase with firm size. Obviously, however, these studies can be criticized for using an imprecise measure of the wage gap – the percentage difference between negotiated and effective wages is not actually computed but is instead based on management estimates, and it is an estimate for the average gap over all employees.

Schnabel (1994) uses data supplied by a regional employers' federation from a German industry that are not subject to the mentioned drawbacks of the survey data. These data are based on reports from some 160 member firms of the federation giving information on the effective wages paid to blue and white collar workers in each of the qualification groups that are codified in the collective bargaining contract (*tarifliche Lohn- und Gehaltsgruppen*). From the effective wages and the negotiated wages the percentage wage gap was computed, and average values for groups of workers and firm size classes were reported for April 1993. (Note, however, that Schnabel was not allowed to use the confidential firm level micro data itself). Schnabel (1994, p. 37f.) finds a wage gap that always lies below average in small firms with less than 20 employees, and above average in large firms with 1,000 and more employees. Over the size classes in between, however, the wage gap may rise or fall with increasing firm size depending on the group of workers under consideration. Schnabel argues that this reflects only in part the finding of an employer size wage effect emerging from eco-

nometric studies using individual level micro data.

At the bottom line, given that we lack results from econometric models based on comprehensive combined panel data for individuals and firms that allow to control for observed and unobserved heterogeneity at the individual and firm level adequately, we cannot be sure about the exact amount of the employer size wage effect in Germany. An explanation for the puzzle that there seems to be no employer size wage effect in the wage gap might be that larger firms tend to allocate identical workers to higher paid wage groups than smaller firms. This, however, is only corroborated by anecdotal evidence. The evidence we have, all in all, tends to show that, although the relationship might not be monotonous, large firms do pay higher wages than small firms.

2.2. Non-wage income

For most employees monthly wages are by far the most important part of income from working in a private firm. Often, however, there are other payments as well, some of them being of a considerable amount. How do these non-wage payments vary with firm size in Germany?

Detailed evidence on the average amount of various forms of non-wage income per employee in firms from different size classes in Germany is available from the labor cost surveys (*Arbeitskostenerhebungen*) conducted regularly by the Statistical Offices on behalf of the European Commission. While results from the most recent survey for 1992 are not yet available, results for 1988 are published in Kaukewitsch (1990). The survey covered a 15 percent sample of all industrial enterprises with 10 or more employees, and results are reported for six size classes (10 to 49 employees, 50–99, 100–199, 200–499, 500–999, and 1000 and more employees).

Extra payments, i.e. annual payments for christmas allowances, a thirteenth monthly pay check (*dreizehntes Monatsgehalt*), profit sharing, bonuses, extra holiday allowances, and payments related to creation of wealth (*vermögenswirksame Leistungen*), were 3,149 DM (or 10.7 percent of the average wage) on average per employee in 1988 in the smallest size class and 7,032 DM (or

18.6 percent of the average wage) in the largest size class, and these extra payments per employee increased monotonically with enterprise size.

Among the various forms of extra payments mentioned *profit sharing* is a debated topic in economics and politics due to its consequences with regard to unemployment, productivity and motivation of employees. From official statistics we have no evidence on the share of firms with and without profit sharing (PS) in various size classes in Germany. In an econometric study using data from a small sample of firms from the metal working industries FitzRoy and Kraft (1987a) find no significant effect of firm size on profit share income per employee after controlling for various characteristics of firms and their work force, although they report that profit-sharing firms are larger than firms without sharing. Based on data for 1989 from a sample of 136 manufacturing firms from two German federal states Carstensen, Gerlach and Hübler (1995) find that firms with PS are on average larger than their non-PS-counterparts. From econometric estimates of a 'PS-participation-function' explaining whether a PS scheme is present in a firm or not Carstensen, Gerlach and Hübler (1995) conclude that larger firms are more often engaged in PS than smaller ones, *ceteris paribus*, after controlling for various characteristics of the firm, the product market, and the work force. The authors explicitly point out that their results are preliminary in the sense that they are based on a small data set only. Their results, however, are corroborated by findings from Hart and Hübler (1991) based on data from the first two waves of the German household panel (German Socio-Economic Panel) collected in 1984 and 1985: looking at 3,628 individuals, they found 196 persons that participated in profit sharing, and while the frequency distribution on non-PS-workers across firm size displays a roughly equal share in each size class, the distribution with respect to PS-workers increases markedly with firm size from 5.1 percent of them working in firms with less than 20 employees over 14.9 percent in firms with 20 to 199 employees and 21.5 percent in firms with 200 to 1,999 up to 58.5 percent of all individuals with PS being employed in the largest firms with 2,000 and more employees.

Holiday allowances amounted to 3,840 DM (or

13.1 percent of the wage) in the group of the smallest enterprises surveyed, and they increased monotonically over the size classes to 5,585 DM (or 14.8 percent of the wage) in the largest enterprises.

Payments related to firm specific pension plans (Aufwendungen für die betriebliche Altersversorgung) were only 594 DM (or 2 percent of the wage) in the smallest size class, but increased monotonically to 4,677 DM (or 12.4 percent of the wage) in the largest size class. In the recent survey of pension plans (*Erhebungen über Art und Umfang der betrieblichen Altersversorgung*) it was found that the share of firms with a pension plan and the proportion of employees covered by a plan tends to increase with increasing firm size (Heppt, 1995).

Evidence from the labor cost survey, therefore, clearly shows that the average amount of fringe benefits per employee is of a considerable amount, and that it tends to increase monotonically from small to large firms both in absolute terms and as a percentage of the wage. Note that these results are not *ceteris paribus* – they are average values for all employees that are computed without taking differences in human capital endowments of the individuals or work place characteristics in the firms into account. However, Gerlach and Schmidt (1989) used individual level micro data from the first four waves of the German Socio-economic household panel to estimate earnings functions including and excluding fringe benefits in the endogenous variable, and they report an even higher employer size wage effect (after controlling for human capital endowments etc.) when fringe benefits are included. Therefore, we have evidence that, *ceteris paribus*, employees get higher fringe benefits in larger than in smaller firms.

2.3. Job security

Even if income – wages plus fringe benefits – is the most important dimension of job quality for most employees, there are other important non-monetary dimensions as well. Especially in times of persistently high rates of unemployment many workers would be willing to pay a non-negligible explicit or implicit premium to insure against an involuntary loss of their job. Job security,

therefore, today is another important job characteristic.

On average, employment stability tends to be rather high in Germany. According to evidence recently published by OECD in 1990 some 41 percent of all German employees had a current tenure with their employer of ten years and over, while one sixth of all workers has been in their current firm for twenty years or longer. Average tenure in Germany was 10.4 years, median tenure 7.5 years (see Organisation for Economic Co-operation and Development 1993, p. 123). Furthermore, we have evidence that in many countries matches of workers to jobs in large firms generally are considerably more stable than in smaller ones (Buechtemann, 1993a, p. 20; Organisation for Economic Co-operation and Development, 1993, p. 139). The topic to be discussed in this section is how job security varies over firm size classes in Germany. Although we have no information on this from official statistics we can draw on evidence reported in recent empirical studies using firm and individual level micro data.

Given that long lasting employment opportunities existing in a firm are a necessary (but, evidently, not sufficient) condition for long lasting worker-job matches or stable employment relationships with long periods of tenure, we look at the age distribution of employment opportunities (jobs) and its nexus with firm size first.

Based on longitudinal establishment level micro data collected by the Statistical Office covering all manufacturing firms in the federal state of Lower Saxony Wagner (1994) calculated the age distribution of employment opportunities of jobs in 1992. For the so-called *old firms* (i.e., all firms that existed when data collection started in 1978 and that were still active in 1992) that formed the majority of firms nearly three out of four jobs were at least 14 years old in 1992. Controlling for firm status, industry, and technological intensity in an empirical model *no* relationship between firm size and the proportion of these long lasting jobs in the firm showed up. In other words, for these firms their size does not contribute to an explanation of the inter-firm differentials in the proportion of old jobs. As regards the role of firm size for the proportion of long lasting jobs in the much smaller group of *new firms* (defined as firms that entered between 1979 and 1982, and that survived until

1992) Wagner (1994) reports a statistically significant negative impact of current firm size on the proportion of jobs aged 10 to 13 years controlling for firm status, industry, and technological intensity. This, however, comes close to a truism, because on average new firms start small, and surviving new firms tend to grow, so only a small proportion of jobs existing in 1992 existed in these firms when they were founded 10 to 13 years earlier.

Given that the proportion of long lasting jobs is independent of firm size in the majority of firms (at least in manufacturing firms in Lower Saxony), what about the distribution of the duration of worker-job matches? Schasse (1991) investigated this question in his comprehensive study of the determinants of the length of tenure using two large sets of individual level micro data, the first four waves of the German household panel collected between 1984 and 1987, and a survey of a sample of workers in the federal state of Bremen conducted in 1981. A descriptive analysis shows that tenure tends to increase with firm size. This holds *ceteris paribus*, too, after controlling for various characteristics of the individuals (including, among others, sex, schooling, experience, wage, and union status) in empirical models estimated applying various regression and duration analysis methods. One can argue, therefore, that job security (defined as the duration of worker-job matches) tends to increase with firm size in Germany.

This finding can only be reconciled with the results that the age distribution of employment opportunities tends to be independent of firm size, if either the rate of dismissals or the quit rate is lower in larger than in smaller firms, or both. This, indeed, seems to be the case: Frick (1994) studies the determinants of dismissals and quits using micro data collected in 1988 from 2,392 private sector firms from all sectors of the German economy except agriculture and forestry. In empirical models he finds that both the quit rate and the dismissal rate declines as firm size increases, *ceteris paribus*, i.e., after controlling for, among others, industry, firm age, and qualification of the work force. Furthermore, based on individual level micro data from the first four waves of the German Socio-economic household panel (collected in 1984 to 1987) Gerlach and Schmidt (1989) report

that the highest rates of fluctuation are found in the lowest firm size class, and that the fluctuation rates do decline significantly with increasing firm size classes. Most movers between firms from different size classes went from smaller to larger firms.

While a lower quit rate in larger firms might be due to, among others, higher wages and fringe benefits paid by large firms compared with small firms (see evidence discussed in sections 2.1 and 2.2 above), one reason for a higher rate of dismissals in small firms might be found in a differential treatment of small and large firms in the German job protection legislation. The core regulations of dismissal protection in Germany are stated in the Dismissal Protection Act (*Kündigungsschutzgesetz*) which according to §23(1) covers only workers in establishments with at least six employees, not counting apprentices and marginal workers whose weekly (monthly) working time does not exceed ten (45) hours. Under the act, all ordinary dismissals must be grounded in *just cause*, e.g., misconduct, unsatisfactory work performance, unjustified absence from work, or economic necessity due to lack of demand or technological restructuring (Buechtemann 1993b, p. 274ff.) Folklore has it that often it is easier to get rid of a wife (or a husband) than of an employee due to a comprehensive system of laws, court decisions, and collective agreements that covers most of the labor force. Small establishments that are not covered by the Dismissal Protection Act remain subject to the provision in the Code of Civil Law (*Bürgerliches Gesetzbuch*) only according to which each party to the employment contract can bring the employment relationship to an end by adherence to a specified time limit, without specific justification grounds having to exist (Buttler *et al.* 1992, p. 17). Note that by excluding apprentices and marginal workers from the count “at least six employees”, the number of small firms not covered by statutory dismissal protection is increased; according to Buechtemann (1993b, p. 275) in 1987–88 some 12 percent of the total dependent work force in Germany was beyond the range of the Dismissals Protection act.

2.4. Work organisation

Small and large firms are not different merely in terms of size, they also differ in the way they organise the production process. In large plants production processes can be subdivided to a greater extent to gain from the advantages of a greater division of labor. However, this tends to make control and coordination of all the various phases of production more difficult for managers. Consequently, more formal rules are implemented, and working conditions are characterised by a higher degree of rigidity in large compared to small firms. Workers in large firms tend to have less flexibility and less room for decision making on their jobs, and this is often considered to be psychically demanding.

Empirical evidence on the variation of working conditions over firm size classes in Germany is scarce. Studies from industrial sociology argue that while physically demanding working conditions (e.g., noise, dust) are prevalent to the same extent in small and large firms, monotonous and inflexible work is more often found in medium sized and large firms (Schmidt, 1995).

Based on subjective assessments of working conditions by German employees in two large sets of individual level micro data collected in 1979 and 1985 Schmidt (1995) tests in a multivariate study whether the prevalence of psychically demanding working conditions differs between firm size classes. After controlling for, among others, industry, hours worked, white vs. blue collar job, schooling, experience, tenure, disability, and marital status she finds that, indeed, jobs in larger firms are more often characterized by a higher degree of rigidity and less room for own decisions. Schmidt (1995) argues that these bad working conditions lead to a compensating wage differential that can partly explain the employer size remuneration differential observed in Germany, that is discussed in sections 2.1 and 2.2 above.

To summarize, we have evidence that compared to smaller firms work organisation in larger firms tends to be more rigid, leaving less room for discretionary decisions by employees. Maybe, however, these differences will be less significant in the future due to a tendency towards a more 'lean' production and the ongoing introduction of 'team work' structures in large firms.

2.5. Workers' participation

The extent to which it is possible for workers to participate in decisions that are related to various aspects of their job is another important non-monetary dimension of job quality. For Germany, the most relevant institution to be considered at the plant level here is the works council (*Betriebsrat*). To see why differences according to firm size are to be expected in this respect, a modicum of institutional detail regarding the legal framework within which the German works council operates is needed (see Addison and Wagner, 1995, p. 1ff.):

The German *Betriebsrat* differs markedly from works councils in most other European nations in that it is an integral part of that country's code-termination system, with negotiating rights in addition to the more familiar advisory and consultative functions. The legal basis governing the operation of works councils is the Works Constitution Act (*Betriebsverfassungsgesetz*). Works councils are mandatory in firms with five or more permanent employees only, but they are not automatic, because workers or a union represented in the establishment have first to petition. In smaller firms with twenty or fewer employees a single works councillor (*Betriebsobmann*) is elected, who has more limited rights than accrue to a works council proper; the number of employee representatives increases with employment level. Although no seats are reserved for trade unions and although works councils are representative of the entire workforce and are elected on the basis of proportional representation, the majority of successful candidates are union members and union nominees. In the latest works council elections, held in 1994, some 73.5 percent of councilors were union members at a time when union density stands at just 33 percent.

The rights of the works council cover the dimensions of *information*, *consultation*, and *participation*. Beginning with information, the employer has to provide the works council "in good time" with comprehensive information on all matters concerned with the discharge of its duties, including all documentation relating to the proposed introduction of new technology. In firms with more than 100 employees an Economic Committee (*Wirtschaftsausschuß*) has to be set up,

appointed by the works council, which is to be given information on a wide range of economic and financial matters, including production, sales, and profits, investment programs, rationalization plans, plant closings and partial closings, and changes in working methods. Furthermore, in all firms with more than 20 employees, proposed changes involving reductions in operation, closures, transfers, and the introduction of new working methods have to be communicated to the works council.

Correspondingly, the employer has the duty to *consult* the works council on a variety of issues covering decisions relating to manpower policy, vocational training, and technical production facilities. Changes in operations involving the introduction of new technology, downsizing, closures, new working methods, and other significant changes in the organization of work require prior consultation. Furthermore, in firms with more than 20 workers the works council has the right to demand compensation for any proposed changes likely to involve substantial disadvantages to employees. In addition, the works council has to be consulted on each and every dismissal.

The works council also has far-reaching *code-termination* rights on so-called social issues: the organization of working time; pay procedures; the scheduling of holidays and individual leave arrangements; the introduction and deployment of performance assessment devices; health and safety measures; social services specific to the establishment, company, or group; principles governing remuneration and changes in methods; and the fixing of job and bonus rates and other forms of performance-related pay. If no agreement can be reached between employer and works council on any of these matters a conciliation panel decides.

Note that the Works Constitution Act specifically excludes the works council from reaching agreement with the employer on wages and other working conditions that are settled or normally settled by collective agreements unless the latter explicitly authorize works agreements (*Betriebsvereinbarungen*) of this type (which is, in fact, increasingly the case). Furthermore, strike activity on the part of the works council is excluded by the law.

The institutional details summarized above show that, on the one hand, works councils are not

mandated in small firms with less than six employees, and that, on the other hand, their rights are more comprehensive in firms with more than twenty workers compared to smaller firms, and in firms with more than 100 employees compared to firms with less employees.

These differences according to firm size in workers' participation rights via the works council are strengthened by the fact that the probability of having a works council is much lower in small firms (with more than 5 employees, i.e. where works councils are mandatory) than in larger ones. Although we have no information on this from official statistics, a clear picture emerges from surveys of firms:

Data from a representative sample of some 1,000 manufacturing establishments with five or more employees located in the federal state of Lower Saxony that were interviewed by Infratest Sozialforschung on behalf of the Firm Panel Research Group at the University of Hannover in 1994 in the first wave of the longitudinal study "*Das Hannoveraner Firmenpanel*" show that the proportion of firms with a works council increases monotonically from 8 percent among firms with a volume of sales of up to 5 Million DM in 1993 to 55 percent among firms with 10 to 25 Million DM, and to 94 percent in the largest group of firms with shipments of 50 Million DM and more (Infratest Sozialforschung 1995). Using data from a survey of 2,392 private German enterprises with at least five employees conducted in 1988 Frick and Sadowski (1995) estimate a logistic regression with the variable 'presence (or otherwise) of a works council' as the dependent variable. They find that the probability that a works council has been elected increases with firm size, *ceteris paribus*, after controlling for firm age, industry, qualification of the work force, and other factors. These findings are corroborated by results reported in FitzRoy and Kraft (1987b) and in Addison and Wagner (1995) based on data from much smaller samples of firms.

Worker participation at plant level is complemented by statutory participation systems at company board level in large firms. According to the Works Constitution Act any joint stock or limited liability company which regularly employs more than 500 but not more than 2,000 workers must assign one-third of the seats on the supervi-

sory board (*Aufsichtsrat*) – that oversees the management of the company and appoints the executive board (*Vorstand*) – to workers' representatives. The Workers' Codetermination Act (*Mitbestimmungsgesetz*) requires that worker representatives constitute 50 percent of the supervisory board in companies with more than 2,000 employees; however, shareholders appoint the chairman who has a double vote in the event of a tied vote (somewhat different rules apply to large coal, iron, and steel companies).

Other forms of workers' participation include *quality circles* and *team work*. Based on data from a sample of firms collected in 1993 Gerlach *et al.* (1995, p. 15) argue that firms with a quality circle are significantly larger than firms without. However, this is not true for firms with and without team work. This last finding is confirmed by Infratest Sozialforschung (1995) reporting a higher share of firms with team work among the largest firms compared with the smallest, but a smaller share for the largest firms compared to the three size classes in between.

The bottom line then is that workers in small firms tend to have significantly less institutionalized possibilities to participate in decisions that are related to various aspects of their job, in part due to the law that discriminates against them. However, it might be the case that in a considerable number of small firms without a works council informal habits and customs exist that lead to a more favourable picture.

2.6. Opportunities for skill enhancement

Last, but not least, we will consider variations over firm size classes in opportunities for skill enhancement. Evidently, this is important for individuals, firms, and the economy as a whole: for an individual skill enhancement can lead to increased productivity and, therefore, to higher remuneration and better career opportunities; for a firm higher skilled and better trained workers with higher productivity can enhance competitiveness, and the same holds true for the economy competing with others on the world market. The next two sub-sections will present the evidence we have for two forms of skill enhancement, apprenticeships and further training, in various firm size classes in Germany.

2.6.1. Apprenticeship

The majority of young people in Germany go through a highly structured apprenticeship that begins between the ages of sixteen and eighteen years and usually lasts for three years. According to Soskice and Schettkat (1993, p. 108) about 60 percent of youth are apprenticed, 30 percent go on to higher education (with some doing both), and 10 percent leave at the age of sixteen and receive no further education or training. During an apprenticeship three or four days a week are spent in the firm and one or two days at a public vocational training school providing more theoretical education. Apprenticeships are highly regulated and end with both written and practical exams conducted by the relevant chamber, and after passing the exams the former apprentice becomes a certified skilled worker.

The proportion of firms offering apprenticeship varies with firm size. From the representative sample of some 1,000 manufacturing establishments with five or more employees that were interviewed in 1994 in the first wave of the firm panel study conducted by the Firm Panel Research Group at the University of Hannover one can see that about 60 percent of all firms in the lowest turnover size class report no apprentices, and this proportion declines monotonically with rising firm size to only 12 percent of all firms in the largest size class (Infratest Sozialforschung, 1995). This is corroborated by findings from the first wave of the *IAB-Betriebspanel* based on data for a large sample of firms from all sectors of the German economy collected in 1993: the proportion of firms who offer apprenticeship positions rises monotonically from 17 percent in the lowest size class with 1 to 4 employees over 65 percent in firms with 50 to 99 employees to 93 percent of all firms with 5,000 and more employees. However, nearly 90 percent of all firms with apprentices are small, having less than 50 employees, and slightly less than half of all apprentices are trained in these small firms. The proportion of all employees that are apprentices does *not* vary systematically with firm size class, it is about the same in the lowest and the highest size class, going up and down in between (Projektgruppe "IAB Betriebspanel", 1994, p. 3).

While this evidence shows that the *quantity* of apprentice positions offered (in the sense of the

proportion of employees that are apprentices) is neither systematically higher nor lower in small or large firms, there seem to be differences in the *quality* of apprentice jobs over firm size classes: Firms are free to train apprentices beyond the minimum standards required for certification, and Soskice and Schettkat (1993, p. 108) argue that in practice larger companies have training programs to match their more sophisticated requirements. Franz and Soskice (1995) point to the fact that how training is actually managed within the firm depends, among other factors, on the size of the firm: while in small firms or craft businesses training usually takes place directly on the job, large firms often have established specific training centres exclusively designed for training apprentices and not for producing goods to be sold on the market.

To summarize, we have evidence that not the quantity, but the quality of apprenticeships tends to rise with firm size in Germany.

2.6.2. Further training

Usually, skill enhancement does not come to an end after passing the final exam in an apprenticeship program or a school. Besides *learning by doing* on the job there are formal programs and courses for further training inside and outside the firm. While some of these are paid by the employees and taken during leisure, an important dimension of job quality can be seen in the opportunity of having access to further training paid by the employer and performed during normal working hours.

The probability that a firm finances further training courses increases with firm size: Data from the first wave of “*Das Hannoveraner Firmenpanel*” show that this proportion increases monotonically from 24 percent of all firms in the lowest turnover size class to 93 percent in the highest size class (Infratest Sozialforschung, 1995). From data collected in the first wave of the *IAB-Betriebspanel* it is reported that about 8 percent of all employees in small and medium sized firms, but about 10 percent of the employees in large firms receive further training (Projektgruppe “IAB-Betriebspanel”, 1994, p. 6).

This evidence from firm level micro data is corroborated by evidence based on individual level micro data: Using data from the first wave of the

German household panel collected in 1984 Gerlach and Schasse (1990, p. 268) find that firm size enhances current training opportunities *ceteris paribus* after controlling for various individual characteristics including sex and years of schooling; the estimated coefficient of the firm size dummy, however, is not statistically significant at the 5 percent level. Similarly, Büchel and Pannenberg (1994) using data from the first eight waves of the German household panel collected between 1984 and 1991 show that the probability of on-the-job training increases with firm size *ceteris paribus*, especially when comparing firms from the smallest and the largest of the four size classes.

To summarize, we have evidence that the chances to take part in formal further training on the job are better for employees in larger firms compared to those who work in small firms.

2.7. Summary

The mosaic picture that emerges from reviewing the evidence we have on the variation of various dimensions of job quality over firm size in Germany looks similar to the one sketched by Davis, Haltiwanger and Schuh for the U.S. referred to in the introductory section: on average, while work organisation in larger firms tends to be more rigid, leaving less room for discretionary decision by employees, small firms offer worse jobs in terms of wages, fringe benefits, job security, workers’ participation, and opportunities for skill enhancement than large firms. All in all, for jobs in large firms in Germany tends to be true what Oi (1990) said about them in the U.S.: “It’s nice work, if you can get it”.

3. Policy implications

Given that, on the one hand, we have evidence that jobs in large firms are better in various dimensions compared to jobs in small firms, and that, on the other hand, most firms in Germany are small, employing a large share of workers, the question arises whether there is any need for policy measures targeted to improve job quality in small firms. There are good reasons that the answer to this question should be *no*.

To see why, let us consider wages first. Should

policy measures be implemented to raise wages in small firms by, e.g., introducing minimum wages that are high enough to close the gap between wages paid in small and large firms for identical workers? Problems of measurement what constitutes an “identical” worker aside, any such policy would be subject to (at least) four caveats:

- (1) The employer size wage effect is (or could be) at least partly a compensating wage differential for more rigid work organisation in larger firms, so it is neither due to market imperfections nor to market failure.
- (2) Higher wages in larger firms may be caused by profit maximising behavior of employers based on efficiency wage considerations (to reduce shirking and turnover, to select the best workers etc.). Again, no market failure.
- (3) From a more dynamic point of view one can argue that small firms who are operating in an industry that is characterised by increasing returns to scale must be able to compensate for their size-inherent cost disadvantage through pursuing what Audretsch *et al.* (1995) termed ‘a strategy of compensating factor differentials’, that is by remunerating and deploying factors of production differently than their larger counterparts. To put it differently, many small firms can only survive by paying less to their workers. If they do so successfully, however, they will grow and provide more and better paid jobs in the future. Any minimum wage type policy that aims to erode this possibility of overcoming the cost disadvantage of small firms today runs into danger of eroding the basis of better jobs tomorrow.
- (4) Last, but not least, any such policy would interfere with the fundamentals of the wage setting process in Germany that is governed by the principle of *Tarifautonomie* – non-interference of government in collective bargaining between unions and employers’ organisations. The consequences of such non-marginal policy measures are open for debate.

All four points mentioned apply to non-wage income as well.

What about job stability? While the higher quit rate in small compared to large firms is beyond the scope of government policy, one could think

of reducing the higher rate of dismissals in small firms by extending the dismissals protection act (*Kündigungsschutzgesetz*) to all firms. However, two arguments raise doubts that this would be a meaningful policy: First, if training costs are higher in larger firms, large firms will still tend to pursue a strategy of labor hoarding during business downturns while small firms will dismiss workers due to economic necessity, a *just cause*. Second, dismissal protection is a cost, and the argument related to small firms’ compensating factor differential strategy mentioned above applies here, too.

Regarding size related differences in institutionalized forms of workers’ participation, or opportunities for skill enhancement, the case against government intervention again can be made referring to the costs it would put on small firms to equalize the job conditions. Niedenhoff (1994), however, shows that the costs of a works council are rather small – on average, they amounted to about 270 DM per employee and year in 1992/93.)

But what about tax allowances or subsidies provided to small firms to improve the quality of the jobs for the majority of workers? All important problems of financing these measures aside, such targeted policy proposals lead to conflict over the precise structure of subsidies, tax breaks, etc. As Davis, Haltiwanger and Schuh (1993, p. 27) argue, these conflicts are costly because they lead to resource-consuming struggles over the redistribution of society’s wealth, and the outcome usually reflects the relative political strengths of the parties to the conflict, rather than the economic criteria that shaped the original policy proposal. Furthermore, any such targeted policy measure for small firms with less than, say, x employees may hinder job creation, because for any firm with $x - 1$ employees hiring costs to the next employee will include the opportunity costs of the foregone subsidy etc., and for any firm with $x + n$ employees firing costs for $n + 1$ employees are lowered by the expected gain from the subsidy. Given high rates of unemployment, this surely is not appropriate.

To summarize, there are good reasons that *no* policy measures targeted to improve job quality in small firms should be implemented. Furthermore, as far as the better job quality in large firms is due

to rents earned by these firms in markets with high barriers to entry or due to subsidies, policy measures should be implemented to remove these barriers and subsidies. However, the proportion of the wage gap etc. that can be explained by such rents is unknown as yet. And remember that, after all, firm size of the employer is a choice variable for the employee, even if the choice set is much smaller in times of high unemployment.

4. Concluding remarks

In the review of the German evidence given in this paper it is argued that, by and large, various dimensions of job quality vary inversely with firm size, and that there are no good economic reasons for implementing policy measures to shorten this distance. To put this line of argument into a wider perspective, some concluding remarks on the crucial role of small firms are in order:

It is a truism, but true, that small firms do play an important role in economic dynamics. As Bruce Kirchhoff (1994, p. 3) recently put it, the dynamics of firm formation, growth, decline, and termination create a cycle of renewal that is the driving force of capitalism. Small, agile, and crafty entrepreneurs seek and find weaknesses in the strongest of the giants, penetrate their markets, and win away their market shares, introducing innovations that create new demand, reallocating capital and labor and increasing efficiency. Successful new firms grow large and become new giants – targets for the next generation of innovative entrepreneurs.

A necessary condition for this process to continue is that market entry opportunities exist, and this is where economic policy has its place: Government policy must keep barriers to entrepreneurs' entry to markets low to foster new firm formation, creative destruction, and wealth creation (cf. Kirchhoff, 1994, p. 199). As has been argued in section 3 above, this might include the acceptance of lower levels of job quality in small compared to large firms, at least temporarily.

The story told by David Audretsch *et al.* (1995, p. 5) that both the compensation differential and the productivity differential between large and small firms tends to disappear as sub-optimal firms age over time is, however, not completely convincing, because it is based on regression

results using cross section data. Future research should be based on firm level panel data to produce evidence how job quality changes when firm size varies over time.

Notes

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¹ In this paper, Germany refers to West Germany and West Berlin, i.e. the new Federal States from the former German Democratic Republic are not included due to missing information.

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