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## Article

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## **The Hannover Firm Panel (HFP)**

By Knut Gerlach, Olaf Hübler, and Wolfgang Meyer

For a better understanding of the labour market it is necessary to look beyond the aggregates (McGuckin 1995). In Germany this is facilitated at the labour supply side since the early eighties by a household panel. Micro panel data describing the demand side became available approximately ten years later. The Hannover Firm Panel was one of the early data sets with firm level information (Brand et al. 1998). Since 1988 a team from the Institute of Quantitative Economic Research at the University of Hannover has planned and conceived an establishment panel in Lower Saxony. The aim was to survey, on a yearly basis, various quantitative and qualitative characteristics relating to employment, innovations, international and environmental activities of a fixed number of manufacturing establishments. Eventually, with the generous financial support of the Volkswagen Foundation a first project phase could be realised. The first wave started in 1994 with 1.025 enterprises and the number of participating firms decreased to 709 in the fourth wave (1997) due to panel mortality. Since funding terminated in 1997 there seemed to be no opportunity to extend the panel to additional years.

However, at the end of the nineties the IAB-Establishment Panel project group suggested an integration of the HFP with the IAB Panel (Bellmann 2002) as a regional subsample. This reduced the survey costs substantially and with new financial support by the Federal State of Lower Saxony a second project phase could be started in the year 2000. The integration of the HFP had two consequences: The sample was enlarged from manufacturing to all sectors of the Lower Saxonian economy and the list of issues analysed was scaled-down to employment and closely related topics. Since 2002 the Ministry of Economics, Labour and Communication of Lower Saxony is our new project partner and this collaboration will be a good basis for future waves of the HFP.

This paper describes the HFP in five steps. Firstly, it gives a sketch of the sampling design. A brief description of the informational content of the data set follows. Subsequently, selected empirical studies, using the HFP, are outlined and the access to the data is described. It ends with a look ahead.

### Sampling design

The Hannover Firm Panel is a project based on a sample survey of establishments located in the Federal State of Lower Saxony. Its main concern is to gain insights into the most important areas of operation and decision-making of the firms. In the first phase 1994–97 it was an independent panel of manufacturing establishments and in the second phase it was enlarged to all firms of Lower Saxony as a regional subsample of the IAB-Establishment Panel. According to the dual structure of the HFP there are differences in the sampling design for the two phases.

In the first phase, manufacturing establishments in Lower Saxony, which at the time of the first survey had at least 5 employees and in addition could be categorised as “producing”, were chosen as the statistical unit. The “establishment” (Betrieb) is a local unit in which major activities of an enterprise (Unternehmen) are conducted. This unit is appropriate to the scope of the research topics, since most decisions of interest are made there and the potential interview partners are involved in these decisions.

For the surveying of establishments, no public directories are available from which a suitable sample could be extracted. However, at Infratest Sozialforschung, Munich, a Master-Sample of Workplaces (Infratest 1991) exists, a file particularly created as a basis for interviews at firm’s level. This file served as the basis for the HFP sample. The planned sample size was 1.000 and the sample was stratified according to establishment size and industry. The design assured that after 4 waves with a normal attrition rate a sufficient number of cell entries remained and allowed for longitudinal and cross-sectional weighting. The net sample size from the first wave (1.025) was used as the basis for all following waves, except if the firms refused to answer, shutdown or relocated to a location outside Lower Saxony. Establishments that have been newly founded during the first project phase are not included in the data.

In the second phase, the HFP was integrated with the IAB-Establishment Panel as a regional subsample. Again the planned sample size was 1.000 and the sample was stratified according to establishment size and industry. At the first step, all remaining establishments of the HFP and all IAB Panel establishments located in Lower Saxony were taken as elements of the sample. Therefore, the sample of the second phase is directly connectable with former waves of both panels. At the second step, the sample was supplemented to attain the planned size and structure by establishments included in the employment statistics register according to the sampling method used by the IAB-Panel (Kölling 2000). This changed the structure of the HFP sample: The sample covers the entire economy of Lower Saxony, since it is enlarged to all sectors and to all establishments with one and more employees.

Infratest Sozialforschung, Munich, was responsible for the fieldwork of the HFP and the IAB Panel. This facilitated the integration of the HFP with the IAB Panel in phase II. In both phases the survey relied on individual oral interviews by professionals from the survey institute, which considerably improved the panel participation and the quality of the data.

### **Information in the survey**

The main concern of the survey is to gain insights into the establishment's most important areas of operation and decision-making. To get information for the analysis of the various topics the questionnaire was divided into two parts in the first phase. The core questions have been posed annually. They relate to the volume of sales, volume and structure of employment, intermediate consumption, wage costs, working time, training, assessment of the profit situation and importance of environmental measures. In addition to this core, questions regarding specific topics have been included biannually. In wave 1 (1994) and 3 (1996) the focus laid on "labour market, employment and remuneration" and wave 2 (1995) and 4 (1997) concentrated on the areas of "international co-operation, market and innovation dynamics, and environmental measures". Since data for at least two years are available for each area of interest, panel data analysis is possible.

In the second phase, the project team of the IAB Panel determines the questions posed. Their interest is focussed more narrowly on employment. This coincides approximately with the former areas "labour market, employment and remuneration" and "innovation dynamics". The other areas are not covered by the IAB-questionnaire. The structure of the questionnaire is similar to that of the first phase; i. e. core questions are posed annually and other topics biannually or triennially. Additionally, every year an issue of specific actual interest is addressed. In 2000 information on the insufficient supply of qualified employees was gathered, for instance.

Part of the information covered by the HFP is available at other panel data sets, too, e. g. the already mentioned IAB-Establishment Panel or the NIFA Panel (Widmaier 2001). This is especially valid for the core variables describing employment and the structure of the firm. However, the advantage of the HFP is that the core information can be combined with more establishments' characteristics than in other studies.

### **Selected studies with information provided by the HFP**

An empirically unresolved issue concerns the role of works councils in supporting or impeding the performance of firms. Addison, Schnabel and Wagner

(2001) using the data from the first wave of the HFP analyse the effects of works councils on labour fluctuation and productivity, profitability, wages and innovation within single equation models. Estimates are obtained for the overall sample and a subsample of small firms with 21 – 100 employees. The results are mixed. The estimates based on all establishments demonstrate negative effects on labour fluctuation and profitability and positive effects on productivity and wages, while no impact on innovation can be observed. The restriction of the sample to small establishments leads to less stringent results retaining only positive wage and negative profitability effects. Additionally, Jirjahn's investigation with pooled data for 1994 and 1996 shows positively significant works council's effects on productivity for small firms (Jirjahn 2003). Novel insights are obtained by dividing the sample into establishments with and without a works council on the one hand and into establishments covered and not covered by a collective agreement on the other hand (Hübler / Jirjahn 2003). Following a three stage game-theoretic approach the existence of a works council and the coverage by a collective bargaining agreement are modelled as endogenous decisions which are utilised as bivariate probit estimates in the empirical approach. The wage and productivity estimates incorporate interdependent selection terms based on these two decisions. The results demonstrate that positive wage effects of works councils are limited to uncovered firms and positively significant effects on productivity are only detected in covered establishments.

The relationship between works councils and variable payment schemes is significant for the debate concerning the modernisation of compensation in Germany. Junkers (2002) does not find works councils' effects on the existence of profit sharing, works councils, however, increase the probability of abolishing an established profit sharing system. Heywood, Hübler and Jirjahn (1998) investigate the determinants of piece rate on the one hand and profit sharing schemes on the other hand. The effect of works councils on both payment systems is only positively significant in establishments with a collective bargaining agreement. Heywood and Jirjahn (2002) supplement this result by showing that the existence of a works council is also a positive determinant of individual and group premium pay. However, under multinomial logit estimates the effects on premium pay are less obvious (Hübler / Jirjahn 1998). Investigations of variable payment schemes have contributed additional interesting results. Studies show that teamwork has a positive effect on the probability of the existence of profit sharing, piece rates, and premium pay. Firms with a large proportion of female employees tend to apply piece rates and profit sharing, while no effects on the use of premium pay can be detected. Furthermore, large firms have a stronger preference for variable payment schemes while firms in concentrated industries are reluctant to install piece rates or group premium pay.

Increased wage inequality between skilled and unskilled workers is a stylised fact in many developed countries. In addition to other explanations a

decreasing importance of industrial relations institutions is mentioned as a causal factor. Hübler and Meyer (2001) investigate in a three-step procedure whether the latter determinant is influential. The study controls for additional relevant explanations and implements industrial relations by three components – coverage of collective bargaining, existence of a works council, and union density – within a four-equation model. The major result is an insignificant influence of union density. Works councils, however, compress the wage differentials between skilled and unskilled blue-collar workers while coverage by a collective bargaining agreement widens the wage structure between these groups of workers.

The withdrawal of firms from collective sectoral contracts is indicative of some dissatisfaction with the prevailing system of industrial relations. While the proportion of firms subject to collective sectoral contracts has declined from 50 (1994) to 43 percent (1997), the number of firms with a collective agreement at the firm level has more than doubled in this period. Interestingly, the decision of firms to exit from a collective contract is frequently not a permanent one since many firms revise it after one or two years. The analysis of the determinants of a withdrawal indicates that larger and older firms with a works council in place are less inclined to exit, while neither the economic performance nor the firm's average wage bill has an impact on the decision to opt out a collective agreement. However, an interdependence between the implementation of longer weekly working hours and the decision of firms to exit from a collective contract can be detected. The negative incentive effects of an extended working time might be less severe than a reduction of wages (Gerlach/Meyer/Lehmann 1998, Lehmann 2002).

Employer provided further training has an impact on the economic performance of firms and the wage profiles of employees. During the four-year period 36 (23) percent of all firms were always (never) involved in training activities, while the rest of the firms changed their training decisions in each biannual period. Further training is positively correlated with the size of an establishment, the existence of a works council, the level of qualification of the workforce, the use of advanced technology and forms of participative work organisation (Gerlach/Jirjahn 2001).

The impact of works councils on environmental investment within establishments is a neglected field of empirical investigations. In a novel study the major finding is a strong and robust relationship between investments in improving local environmental quality and the activities of works councils (Askildsen/Jirjahn/Smith 2002).

Employment stability and measures to increase the flexibility of firms are often interpreted as contradictory. However, it can be demonstrated that flexibility increasing measures like further training, profit sharing by management

and a compensation above contractual wages exert a positive impact on employment stability (Gerlach/Hübler/Meyer 2001).

### Data access

The contract between Infratest Sozialforschung, which conducted the interviews, and the Institute for Quantitative Economic Research of the University of Hannover specifies that the establishment level data are strictly confidential. This implies that research results preclude the identification of establishments. The complete data set is available to the scientific community, however, with the restriction that research is performed in the HFP office of the Institute for Quantitative Economic Research. A timely check of the output is indispensable for reasons of confidentiality. Domestic and international researchers have used this method of access to the data and it has the advantage that the staff of the HFP can respond to specific problems and questions. The HFP data are available as STATA files and the most recent version of STATA is installed. We encourage researchers interested in using this unique data set to contact us (gerlach@mbbox.iqw.uni-hannover.de) and we would be happy to welcome them in our Institute.

### A look ahead

Since the integration of the HFP with the IAB-Betriebspanel some variables, which contributed to the analytical value of the HFP, can only be sampled intermittently or had to be excluded entirely from the survey. The advantage of the collaboration, however, is that about 400 firms from the original sample continue to participate in the annual survey. Therefore, it is possible to analyse longer-term effects, for example, on the performance of firms, which are caused by changes in payment systems or work organisation introduced in the period 1994 to 1997. This unique characteristic of the HFP in conjunction with the IAB-Betriebspanel guarantees that this data set will retain a specific value for a host of research issues in future years.

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