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Business Start-ups by the Unemployed - an Econometric Analysis Based on Firm Data

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Non technical summary

In times of persistently high unemployment, labour market policy measures become increasingly important. Apart from traditional programmes such as continuous vocational training or re-education, the transition into self-employment is promoted in many industrialised countries. The aim is to shift people out of the unemployment status and to reduce the level of unemployment. In Germany, the transition from unemployment to self-employment is supported by the Federal Employment Services by so-called bridging allowances. Since August 1994, the conditions for receiving allowances were considerably eased, which led to a sharp increase in the number of people subsidised. In 1996, the transition of 90,000 unemployed people into self-employment was supported, compared to 25,000 in 1993.

A discussion of expected costs and benefits of self-employment gives reason to assume that the threshold of expected income at which a decision in favour of self-employment is made is lower for unemployed people. Opportunity costs of business formation by unemployed persons probably lie below those of an employed person with the same endowment of human and financial capital, while the sunk costs might be higher, depending on unemployment duration and expected labour demand. It can be expected that business start-ups by unemployed people are smaller, require less capital, are more risky and tend to occur in industries with lower market entry costs. However, not much is known about firm development.

This study compares firm survival and employment growth of start-ups by unemployed persons in East and West Germany as promoted by the Work Support Act with start-ups by non-unemployed. The empirical analysis is based on a sample of newly founded firms from the ZEW Firm Start-up Panel. The sample contains firms which were founded between 1993 and 1995 and could be observed at least one year after their foundation in 4 regions of East and 11 regions of West Germany. In the econometric analysis, self-selection effects are taken into account by using simultaneous models of start-up promotion and firm development. While firm survival seems to be negatively affected by foundation from unemployment, especially in the East German regions, an influence on employment growth is not evident. The results of the econometric analyses indicate that selectivity effects indeed seem to have some influence on firm survival, although not on employment growth. Start-ups from unemployment in the new federal states have a slightly significant, lower one-year survival probability. In terms of employment growth, they are no different from unsubsidised firms. In the old federal states, these start-ups show not worse survival probability and also no lower employment growth than other companies.

Business Start-ups by the Unemployed - an Econometric Analysis Based on Firm Data

by

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Abstract:

This study investigates firm survival and employment growth of start-ups by unemployed people in East and West Germany as promoted by the Work Support Act (so called *bridging allowances*). In 1994, the services provided were improved considerably, which led to a sharp increase in the number of start-ups by the unemployed. The empirical analysis is based on a sample of newly founded firms from the ZEW Firm Start-up Panel. The sample contains firms which were founded between 1993 and 1995 and could be observed at least one year after their foundation in 4 regions of East and 11 regions of West Germany. In the econometric analysis, self-selection effects are taken into account by using simultaneous models of start-up promotion and firm development. While firm survival seems to be negatively affected by foundation from unemployment, especially in the East German regions, an influence on employment growth is not evident.

JEL-Classification: C35, D92, J68, M13

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1 Introduction

In times of persistently high unemployment, labour market policy measures become increasingly important. Apart from traditional programmes such as continuous vocational training or re-education, the transition into self-employment is promoted in many industrialised countries. The aim is to shift people out of the unemployed status and to reduce the level of unemployment. This can happen directly by supporting the transition into self-employment and indirectly by creating further jobs in the newly founded firms. In Germany, the transition from unemployment to self-employment is supported by the Federal Employment Services by so-called bridging allowances. Since August 1994, the conditions for receiving allowances were considerably eased, which led to a sharp increase in the number of people subsidised. In 1996, the transition of 90,000 unemployed people into self-employment was supported, compared to 25,000 in 1993.

The aim of this study is to assess the effects of firm formation by the unemployed through transition money in terms of firm survival and employment growth using firm-level data. This can basically be made from either a labour market economics or an industrial economics perspective. From a labour market economics point of view, the focus is on the person and her occupational alternatives. The path to self-employment, whether with or without governmental support, competes with the return to a dependent employment relationship, if available.[1]

On the other hand, an industrial economics approach would place the market entry and the subsequent firm development in the centre of attention.[2] The two perspectives can be integrated. In this paper the development of new enterprises started from unemployment is compared with other starts-ups. In order to do this a regional sample from data collected by the ZEW Start-up Panel is combined with information on bridging allowances by the Federal Employment Services. The industrial and labour market economics approach are integrated, using firm specific and personal characteristics of the founder and any shareholders as well.

Econometric analyses in the area of start-up promotions are rather rare to date.[3] Due to an insufficient data availability, studies might suffer from a lack of an adequate

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[1] This is investigated in the literature on the determinants of self-employment, see for example Pfeiffer and Pohlmeier (1992). In this literature typically the role of human capital, minority status, family networks, liquidity constraints, etc. are used to explain occupational choice.

[2] Determinants for this are, among others, capital intensity, returns to scale and market entry barriers created by enterprises already active in the market, see for example Audretsch (1995).

[3] Brüderl et. al. (1996) examined, based on data of the Munich Founder Study, the effects of governmental start-up subsidies. Benus et al. (1994) investigated the effect of a social experiment of governmental start-up promotion. More recently, O'Leary (1998) evaluated self-employment promotion among the unemployed in Hungary and Poland. There are much more

control group for the group of subsidised companies or people. Therefore, selectivity effects can influence the measurement of firm development.[4] This study takes the selectivity effects into account and tries to avoid the bias created by selectivity effects through the use of simultaneous models. In order to determine the impact of foundation from unemployment on the respective firms, a model is estimated which simultaneously explains company development and the foundation from unemployment respectively the eligibility for subsidisation.[5] Further, the effect of promotion on employment growth can only be estimated in the sample taken among the surviving and thus potentially more successful companies.

The paper is structured as follows. In section two, theoretical aspects about the way the bridging allowance takes effect and about start-ups by unemployed or employed people are discussed. Section three contains a description of the data. The fourth section presents the econometric modelling of company development, taking into account promotion by the unemployed. In the subsequent chapter the estimation results are discussed. The final chapter summarises the results and ends with a preview of future research work.

2 Aspects of the microeconomics of start-ups and the institutional arrangements of bridging allowance

2.1 The transition to self-employment

An individual's decision to form a company, given prevailing governmental conditions[6], depends on the attractiveness of the available alternatives for making a living. This attractiveness is basically determined by initial financial endowment, human capital, the readiness to take risks, the wish for independence and the social and family networks. These factors are also closely related to the size of the company that self-employed people establish in Germany, see Pfeiffer (1994).

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studies for evaluating further vocational training and re-education measures, see for example Friedlander et al (1997).

[4] In the specific example of the "bridging allowances", the access to subsidies depends on the design of the programme, which is restricted to unemployed people. Only those unemployed people who can submit a sound business plan for the set-up receive subsidies. This is presumably not a random sample of all unemployed people.

[5] In the following subsidisation and foundation from unemployment is taken as equivalent. Other forms of firms promotion are not taken into account.

[6] According to the German economic and trade regulations in principle everybody is allowed to start a business in the private sector of the economy. However, in the craft sector as well as in some professional occupations (for example lawyer, doctor) special examinations or vocational degrees, and in the banking and insurance sector some minimum requirements with respect to initial capital are a necessary precondition for being self-employed.

An unemployed or employed person will decide in favour of self-employment if the expected benefits exceed her present benefits or, in the case of the unemployed person, exceed the expected benefit from permanent employment weighted with the probability of finding a job. The expected level of costs and benefits presumably differs between the unemployed and employed. At the commencement of a business start-up, a substantial input may be necessary which might possess the characteristics of sunk costs. Apart from investment in human capital and efforts made for the establishments of networks, this refers to financial needs which depend on both the legal form and on the particular trade or industry. The capital endowment has to be covered by savings of the founder or by funds from banks or by other sources. The expected, although uncertain, profits should generally be higher for previously employed founders due to their higher opportunity costs as wage workers.

Additional sunk costs are created by the fact that the unemployed founder has to reduce his search for permanent employment and thus may miss potentially more rewarding offers. Unemployed people might therefore experience higher sunk costs in starting a business than the employed, but lower opportunity costs in terms of foregone income. Microeconomic search theory provides a guideline for analysing search behaviour of the unemployed. As far as we know, the extension of this theory to include the choice of self-employment as an alternative to wage work is still to be made. Due to the diversity of the additional alternatives, it would certainly not be less complex. Instead of job offers, the unemployed person has to deal with market niches, product prices and production possibilities. One can assume that the information requirements of such a step lie above those of an employee.

The studies by Lucas (1978), Kihlstrom and Laffont (1979), Evans and Jovanovic (1989) model the role of management capabilities, risk preferences and the initial capital endowment for the decision between self-employment and wage work in the framework of market clearing, flexible wages. Unemployment, a form of imbalance, is not considered by these models. For authors following the tradition of J. A. Schumpeter, the ability to overcome imbalances points to the presence of entrepreneurial skills (see Schultz, 1981). A situation of economic imbalance, such as high unemployment, leads people to become entrepreneurs. This triggers a process which can bring about new economic equilibria. Human capital, risk preferences and initial capital endowment are also likely to give valuable hints for modelling the microeconomic decision situation of an unemployed person.

Schulz (1995) models the decision for self-employment status using life cycle models and stresses the role of capital market restrictions and qualification requirements for the particular point in time at which the transition to self-employment takes place. Although the state of unemployment is not explicitly modelled here, the considerations might well be transferred to the situation of an unemployed person. However, these models, which are based on control theory, should also become

significantly more complex when the unemployed person can choose between both alternatives: wage and salary employment and self-employment status.

Costs and benefits of company formations and alternative forms of earning a living are determined by aggregate economic factors. Thus, there is a differentiation between unemployment as a push factor and economic dynamics as a pull factor for company formations.[7] A shift from wage employment to self-employment is more likely to take place in a phase of general economic growth, since in such a phase, profit expectations are higher. Contrarily, a weak labour market can be a decisive factor for deciding upon self-employment. In times of increasing unemployment, an unemployed person might be more or less "forced" into self-employment due to the poor prospects of finding a job.[8]

The discussion of expected costs and benefits of self-employment gives reason to assume that the threshold of expected income at which a decision in favour of self-employment is made is lower for unemployed people than for the employed. The opportunity costs of business formation by an unemployed person *ceteris paribus*, i.e., given socio-demographic characteristics and capital endowment, probably lie below those of an employed person, while the sunk costs might be higher, depending on unemployment duration and expected labour demand. It can be expected that business start-ups by unemployed people are smaller, require less capital, are more risky and tend to occur in industries with lower market entry costs.

2.2 Bridging allowances

Start-ups from unemployment are subsidised as part of active labour market policies in Germany. In order to allow and facilitate the transition into self-employment for unemployed people, the Federal Employment Services may pay a so-called “bridging allowance” according to §55a of the Labour Promotion Law.[9] The prerequisite for the bridging allowance is that the applicant has received “unemployment pay” or

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[7] The debate is about the relevance of unemployment push vs. demand pull factors for company formations, see Meager (1992) and Staber and Bögenhold (1993).

[8] The notion of demand pull and unemployment push is far from being conclusive. It is possible that people are forced into wage work as well as into self-employment. It is, of course, an empirical question whether higher unemployment rates or a rising number of unemployed lead to more people becoming self-employed.

[9] 'Überbrückungsgeld'. The bridging allowance in §55a was first introduced with the 7th amendment to the Labour Promotion Law (AFG) on January 1, 1986. Since the 1st of January, 1998, the legal foundation has changed and now is § 57 of the 3rd Social Security Code. The following countries also have programmes to smooth the path into self-employment for unemployed people: Australia, Belgium, Denmark, Finland, France, Greece, Great Britain, Ireland, Canada, Luxembourg, the Netherlands, Norway, Portugal, Sweden and the United States (OECD, 1995).

"unemployment assistance" for at least four weeks.[10] Not every form of self-employed work is supported. The activity has to comprise of at least 18 hours a week. A competent authority (for example, a chamber of commerce and industry, a trade or professional association or a tax consultant) has to assess the sustainability of the self-employment envisaged. This assessment is meant to ensure that the unemployed person, after a certain starting phase, earns a gross monthly income that is at least two thirds of the income of an employed person. These restrictions aim to prevent promotion of politically disputed "fictitious self-employment"[11] and those start-ups by unemployed people funded by the authorities which are badly prepared due to low opportunity costs.

The introduction of the Labour Promotion Law on the 1st of August, 1994, represents the most recent legal change in labour promotion, bringing with it a considerable improvement of promotion terms. Since August 1994, self-employment promotion through a bridging allowance is no longer limited to a maximum of 26 weeks. Allowances are generally granted for this period of time and for the amount of the last paid unemployed assistance.[12] In addition, during the time of the support the contributions to health and nursing insurance, as well as to the retirement fund are financed in an amount equal to the social security contributions which were last paid for the unemployed person.

In 1995, the financial expenditure with which a transition to self-employment was supported, was on average approximately 11,000 DM per unemployed person (see table 1).[13] After 1994, the improvement in the terms of promotion and the growing unemployment led to a significant increase in the use of the bridging allowance and thus also to an increase in total expenditures for this form of financial support.[14]

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[10] §55a (1) of the AFG. Supported are not only unemployed people, but also people threatened by unemployment, i.e. workers with reduced hours and employees who have participated in work creation measures according to § 91 to 96 AFG or measures according to §249h and §242s AFG. The latter ones are measures that support the reintegration of unemployed people by financing environmental protection, social and youth work.

[11] A self-employed person is considered fictitiously self-employed, if she is doing work which in fact has all the characteristics of wage work. There might be an incentive for classifying jobs as self-employment because then employers do not have to pay the social insurance transfers of about 21% of the wage bill.

[12] Since the introduction of §55a, the promotion terms were adjusted and changed several times. Phases of a rather restrictive interpretation (1988 - 1993) have alternated with phases of a rather liberal use (1986 - 1988 and from 1994 onwards).

[13] Table 1 furthermore contains the number of self- and unemployed people from 1991 to 1997, the number of receipts of bridging allowances and the total amount of money that it costs.

[14] The importance that is attributed by the government to bridging allowances can be seen in the comparison of the respective budgets for active labour market policy. In 1996, the expenditure amounted to 41.2 billion DM altogether, which was 30.1% of the total budget of the Federal

>>>Table 1 about here<<<

According to the terms of the promotion, an unemployed person does not lose his or her right to unemployment payments or assistance by a transition into self-employment. Thus, even with very low expected revenues, the transition into self-employment seems to be attractive for economic reasons, at least in the short run and for people facing poor prospects as wage workers or slack labour markets.

The novel element of this study lies in the assessment of firm foundation from unemployment subsidised with the bridging allowances for determining company success. In calculating the effect of the subsidised foundation, two adverse aspects to be taken into account. On the one hand, subsidised company formations might have a higher capital endowment than comparable formations that are not supported. This can have a positive influence on the development of the new enterprise. However, statements about the sustainability of the effect of an average promotional sum of 11,000 DM cannot be made based on theoretical reasons.

On the other hand, opportunistic behaviour cannot be excluded, as there are hardly any opportunity costs not applying for bridging allowances for some applicants. If promotional payments according to §55a are received, the right to unemployment payments or assistance is extended by six months. Insofar, a company formation could be initiated with the aim of receiving unemployment payments for half a year longer. Therefore, it is not possible to clearly determine the effects of the bridging allowance on company survival and employment growth by means of a theory.

2.3 Empirical studies on bridging allowance

In order to obtain results on both the use and success of bridging allowances, the Institute for Employment Research in Nuremberg (IAB) carried out several analyses of recipients of bridging allowances. The first sample contained people who received a bridging allowance between 1986 and 1988 (see Kaiser and Otto, 1990). The aim was to determine the influence of legislative changes on the granting of bridging allowances, the tendency to become unemployed again after the subsidisation and the socio-demographic structure of the bridging allowance recipients.

The second sample on bridging allowances began in 1994. The IAB obtained a full census of the founder cohort during 1994/95 in 15 selected labour market districts: Schwerin, Berlin (East), Dessau, and Pirna in the new German federal states, and Bremen, Hanover, Kassel, Essen, Hof, Bayreuth, Bad Kreuznach, Mainz, Deggendorf, Landshut and Göppingen in the old states. The 4,486 people who were subsidised can be subdivided into “old cases” (subsidisation in the 1st/2nd quarter of

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Employment Services. One billion DM was spent for the bridging allowance, compared to almost 18 billion DM for training measures.

1994 before the promotion terms were improved on August 1, 1994) and "new cases" (4th quarter 1994, 1st/2nd quarter 1995, after a further improvement to the promotion terms). For an analysis of the differences in the socio-economic structure of the recipients of payments, see Wießner (1998).

Of those who received a bridging allowance in the years 1994 and 1995, 38 weeks after the start of the promotion, 5.4% were again registered as unemployed; after expiration of 78 weeks or more, this figure rose to 6.9%. Basically this study could not find any differences between old and new cases. These company founders were surveyed again at a later point in time. One finding is that after three years, 70.4% of the subsidised people were still self-employed, 12% were working in an employment relationship that was subject to social security payments and approximately 13% were again registered as unemployed.

3 Data and descriptive statistics: ZEW Firm Start-up Panel

3.1 Samples and definitions

The basis of the econometric analysis is a regional sample of the ZEW Firm Start-up Panel.[15] The sample unit is the legally independent enterprise and not the operational facility. The ZEW Firm Start-up Panel contains newly registered enterprises in Western and Eastern Germany. Updated data relating to enterprises already contained in the database are also available. The information on the enterprises questioned includes their legal form, a five-digit industry code, number of employees and employee structure, date of formation (for take-overs also the date of formation of the predecessor company), date of the trade register entry, turnover, number of shareholders, debt composition and information on a shut-down other than by a bankruptcy or collection proceedings.

Since in the Federal Republic of Germany there are no official statistics which cover company set-ups completely, reliably, and with sufficient time disaggregation, statements on the degree to which new companies are contained in the Start-up Panel are only possible with limitations. Not all companies are required to be officially registered. The probability of being registered is influenced by firms' need for loans and the scope of their business relationships to other companies. Very small companies, agricultural enterprises and professionals in medicine, law, architecture are likely to be under-represented.

The sample used in this study is constructed in two steps. First, it consists of all people contained in the database which are involved in an enterprise and which

[15] The data of the ZEW Start-up Panel had been made available to the ZEW since 1989 every six months by the Association "Verband der Vereine Creditreform" (VVC). For further details on the concept of the ZEW Start-up Panel, see Stahl (1991) and Harhoff and Steil (1997).

address reside in the postal code area of the 15 labour market districts examined in the course of the §55a-sample of the IAB. In the context of a co-operative project with the Institute for Employment Research, by means of data comparison, those people in the sample who received bridging allowances are identified. In a second step, a sample of enterprises started by those people is compiled. Thus, this sample includes companies in which subsidised people are involved and companies for which this is not the case. An enterprise is categorised as being founded by promotion of an unemployed if at least one person involved in this enterprise received promotion. Only the cohort of companies which were set up between the 4th quarter of 1993 and the first half of the 3rd quarter of 1995 is considered.[16] Furthermore, only those companies are contemplated which are also eligible for subsidisation according to Labour Promotion Law. For example, non-profit associations are excluded. Last but not least, only companies of the same size as the largest subsidised enterprises are examined. These are start-ups with an initial maximum of 15 employees in the old German federal states and 18 employees in the new states.

After the selection, the sample taken from the eleven labour market districts in the old federal states lists 5,302 enterprises, of which 223 are promoted from unemployment. The sample from the four labour market districts in the new federal states lists 4,311 enterprises, of which 395 are promoted from unemployment (see Table 2).

>>>Table 2 about here<<<

3.2 Firm heterogeneity and promotion of the unemployed

The factors which characterise the heterogeneity of start-ups, and which are included in the econometric specification of the subsidisation equation explained in section 4, are: legal form, industry, the investment/shareholder structure and the economic diversification (see Table 3). Following the discussion in section 2, firms that are formed by unemployed people should, as a rule, be rather small, “easily” founded firms with low capital endowment[17] and for this reason likely to have the legal form of a *non-corporate firm* or a *sole proprietorship*.[18]

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[16] This means that the period analysed by the IAB is always extended by a quarter, because there is the possibility that an application for a trade register entry was filed before the subsidies were granted, or a company was formed some time after the support was granted.

[17] Brüderl et al. (1996) obtain an average capital endowment of 93,000 DM for companies formed by previously employed people and an average of 34,000 DM for companies formed by previously unemployed people.

[18] A trade business can be registered and closed down without major formalities, while the set-up of a limited liability company, which is in our context equal to corporations, requires an entry in

The legal form is divided into three categories: *trade enterprise and sole proprietorship*, *non-corporate firm* and *corporations*. In the old German federal states, 67.26 % of subsidised start-ups are *trade enterprises* and 13.45 %, are *non-corporate* firms. In the new German federal states *non-corporate* firms are represented more often, with 16.21 % among the subsidised start-ups.

>>>Table 3 about here<<<

Subsidised start-ups are more likely to be found in the service sector, in which market entry costs and capital intensity are relatively low, rather than in the manufacturing sector. In the estimates, ten industry dummies are used. The industries include *manufacturing*, *construction*, *automotive dealerships and repair service*, *retail trade*, *wholesale trade*, *hospitality*, *transportation/ communication/ insurance/ finance*, *data processing*, *business services* and *other services*.[19] The primary sector is excluded from the analysis, since agricultural enterprises are not eligible for promotion. In the old German federal states, the subsidised firms are often involved in *construction*, *automotive dealerships and repair service* and *data processing*. In Eastern Germany, subsidised firms are started more often in *automotive dealerships* and *business-related services*.

In the framework of this study, *networks* refer to business relationships and indicate whether the firm's most important shareholder is also a shareholder of one or more other firms. The persons involved in the start-up are called personal *shareholders* in the following. They are measured ranging from one additional *shareholder*, two, three and more. Subsidised start-ups from unemployment tend to have more personal *shareholders*, but a smaller number of them has a *network*. A company is regarded as *diversified* if it is active in more than one industry/economic area, measured on the basis of two-digit industry classification code.

Apart from business-related characteristics, firm foundation from unemployment depends on the economic environment which is included in the regression in the form of the regional *unemployment to vacancy ratio* three months prior to the start-up. The higher this factor, the lower the chances of the unemployed finding regular employment. Thus we hypothesise that, *ceteris paribus*, the probability for the decision for self-employment increases with a higher *unemployment to vacancy ratio*. The highest average value for the period of time examined is found in Bremen with 12.14, the lowest one is observed for Landshut with 0.72. In the labour market districts of Hanover and Kassel, the number of subsidised enterprises and the

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the trade register and the deposit of the nominal capital. As a rule this requires a notary certification.

[19] For the new German federal states, the areas of data processing and other services are combined for data reasons.

unemployment to vacancy ratio is relatively high (Table 3, Figure 1). In the new German federal states, there seems to be no obvious relationship between the two variables.

>>> Figure 1 about here<<<

For estimation of the probability that information on employment growth for start-ups exists (see section 4.3), the *credit worthiness* and the *payment history* of the company are considered in addition to the variables already mentioned. In the old German federal states, subsidised enterprises have more positive credit reports than non-subsidised ones. For about 19% of the subsidised, compared to 11% for the non-subsidised start-ups, a loan is granted without any restriction (see Table 3). For about 80% no credit experience is available. In East-Germany a three times higher percentage of firms have more positive credit reports. However, non-subsidised companies have more positive credit reports than subsidised ones. For about 50% no credit experience is available.

3.3 Survival probability and employment growth

For success variables, this study uses the mortality status of an enterprise and the employment growth one year after set-up. Due to processing delays, the data collection of June 1997 only has sufficient information available on companies up to the year 1996. Since the founder cohort of the years 1994 and 1995 are examined, the time frame for the observations is restricted to one year after the set-up.

A company can be closed down by choice or by force (insolvency).[20] For enterprises no longer active, the start-up database gives an exact date of death only for insolvency cases. For voluntary closures, the date of death can be determined only by means of approximation between two points in time at which the company was examined by the VVC. If there is a close-down notice at a point in time when the enterprise was examined, then the company died at some point between that and the previous time of examination. The period of time between the individual points in time at which enterprises are examined can vary significantly between samples and enterprises – ranging from a few weeks up to more than two years. For lack of an exact death date and the differing lengths of the intervals, the binary probability "that a company has survived at least one year" is used as measure for the success of a company. Those companies, which at an age of below one year do not have close-down notices and/or their first close-down is noticed after more than one year, were

[20] About 10% of the close downs were involuntary in nature. The percentage is somewhat higher in the new German federal states, but is not specific for firms started from unemployment.

excluded from the analysis.[21] The survival probability of the remaining companies lies at 90.3% in the old federal states for the subsidised and at 89.5% for the non-subsidised companies. In the new German federal states, 93.8% of the subsidised and 91.8% of the non-subsidised start-ups survive the first year (see Table 4).

>>>Table 4 about here<<<

Our second measure of company success is the employment growth rate *g*. It is defined as follows:

$$(1) \quad g = \frac{\ln B(t_2) - \ln B(t_1)}{t_2 - t_1}$$

with $\ln B(t_i)$ being the logarithm of the employment at the time of examination and t_i being the point in time.

When determining the growth rate, just as when analysing the survival probability, the problem arises that the data needed are not available for all companies in equidistant time intervals. The points of time t_1 and t_2 are chosen in a way that the point of time 1 of the earliest statement on employment and the second point of time corresponds to the number of employees determined last. Time dummies shall control for the different periods and lengths of the time intervals. The average growth rate is 18% for the subsidised in the western part of Germany and 15% for the non subsidised start-ups. In the eastern part, the growth rate for subsidised start-ups lies at 15% and for non-subsidised start-ups at 13% (see Table 4).

3.4 Factors influencing company growth

Companies formed by unemployed people possibly have, due to their comparably low endowment of tangible assets and human capital, worse chances for surviving and growing. The analysis takes into account the firm heterogeneity by including among others the legal form, industry type, the size at market entry and information on the human capital of the founder. Along with the sex of the most important person involved (*female*), *age* is used as a logarithm and as a polynomial of second order (*age squared*). A better human capital endowment promises a higher productivity of the founder (e.g. better management capabilities) and thus presumably a higher success of the enterprise.

[21] For these firms, about 40% of all start-ups, it cannot be said for sure whether they have survived the first year or not. Since this is a high number of missing data, the survival equation has been estimated also under the assumption, that 10%, 50% or all firms are in fact closed down after one year.

Companies which receive loans show a tendency to take higher risks after market entry, as they can shift their profit expectations to their benefit and at the cost of their creditors. This is especially true for limited liability companies, which are not liable to the full amount of their assets when they set up a risky company or one with little chances to survive.[22] On the other hand, the higher readiness to take risks can also result in higher profits when the company survives.

According to the liability of smallness hypothesis smaller firms have lower survival probabilities (see Brüderl et al. 1992). Due to higher sunk costs, bigger firms prepare their market entry better and put greater effort into the choice of their projects (see Troske 1995). In this sense, the initial size (*log size*, *log size squared*) represents an indicator for the otherwise unknown planning intensity. When analysing employment development, the initial employment also serves in checking the relevance of Gibrats Law, according to which the growth of a company is independent of its size (see Evans 1987, Hall 1987).

Subsidised firms in the old German federal states show a somewhat lower initial employment level, with two employees compared to the 2.3 employees of non-subsidised companies (Table 3). The same is true for the new German federal states, where the level of initial employment is 2.2 employees for subsidised and 2.7 employees for non-subsidised start-ups. The inclusion of *regional dummies* allows a control for the regional differences in start-up dynamics, capturing region-specific economic development or infrastructure.

When determining the survival probability, *bridging allowance* is included in the form of a qualitative variable in the regression. A further differentiation between old cases (start-up before August 1, 1994) and new cases (start-up thereafter) turned out to be insignificant. In the following section, we present an econometric model using data from the ZEW Start-up Panel for estimating the impact of the subsidised firm foundation from unemployment on survival probabilities and employment growth.

4 Econometric modelling of company success

4.1 Firm start-ups by the unemployed and selectivity

For the quantitative analysis of assessing the direct impact of social programmes, basically two methods are available, the experimental and the non-experimental (econometric) method.[23] Both methods aim at solving the fundamental problem of every assessment. This problem consists of the fact that one can view a person or a

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[22] See Stiglitz and Weiss (1981). For an empirical examination of the influence of the legal form on insolvency, see Harhoff et al. (1996).

[23] See Heckman and Smith (1996) or Friedlander et al.. The experimental method is not further discussed here.

firm at a given point in time either only as participant or as non-participant of a measure. However, the analysis of an effect is based on the difference between participation and non-participation. One would like to know what would have happened if a person had not participated in a programme or in terms of our study what would have happened if the company had been formed by a formerly employed person without subsidisation through bridging allowances. The aforementioned fundamental problem does not allow this direct comparison, and thus one has to resort to appropriate econometric methods. The main difficulty involves finding an adequate control group despite self-selection or programme selection.

The econometric framework of programme evaluation is also appropriate in this study. As discussed in section two firm foundation from unemployment is allied with various selection processes. For investigating the impact of subsidised firm foundation from unemployment, the econometric approach assembles the control group ex post from non-participants. In the case of self or programme selection, participants and the members of the non-experimental control group can differ in their success already before the start-up, that is, the two samples might not be random samples.

To study the influence of selectivity on outcome measures in what follows, Y_i^o represents the success of person or firm *i* without promotion. *d* stands for the promotion. $d_i = 0$, if the person has not received bridging allowances and $d_i = 1$, if she has. The expected outcome before market entry is different if it is assumed that:

(1) $E[Y_i^o | d_i = 1] \neq E[Y_i^o | d_i = 0]$,

The outcome Y_i of person *i* is given by:

(2) $Y_i = Y_i^o + d_i \gamma_i$ for start-ups promoted from unemployment, and

$Y_i = Y_i^o$ for the other start-ups,

where γ_i represents the effect of starting a firm with the help of bridging allowances from unemployment. Given the case that the impact is the same for all participants ($\gamma_i = \gamma$), it follows:

(3) $\gamma = E[\gamma_i | d_i = 1] = E[Y_i - Y_i^o | d_i = 1]$.

For the expected subsidisation success of a representative unemployed, one then obtains

(4) $E[Y_i | d_i = 1] = \gamma + E[Y_i^o | d_i = 1]$,

and for the other start-ups

(5) $E[Y_i | d_i = 0] = E[Y_i^o | d_i = 0]$.

As a difference between the two expected values one obtains

(6) $E[Y_i|d_i=1]-E[Y_i|d_i=0]=\gamma+\{E[Y_i^o|d_i=1]-E[Y_i^o|d_i=0]\}$.

The term in curved brackets {} depicts the selection bias. If this term equals zero, there is no difference between start-ups in terms of their success before market entry. Otherwise a comparison of success before and after market entry, however measured, will be biased. Part of the selection mechanisms might remain unobserved. The problem of selection based on unobserved variables (see Heckman and Hotz, 1989) arises when variables that are important for success and selection are not contained in the dataset. This problem cannot be ruled out totally for the current analysis, since variables characterising the founder's endowment of financial and human capital might be missing.

Neglecting selection effects can result in inconsistent estimates. To demonstrate this, equation (2) is extended as follows:

(7) $y_i = x_i'\beta + d_i\gamma + \varepsilon_i$,

where y_i shall again represent company success, x_i a vector of influential factors on company success, d_i bridging allowances and ε_i is assumed to be a normally distributed error term. In this formulation the success of the enterprise depends on promotion, other observable factors and an error term. The probability of being a firm promoted from unemployment shall be given by:

(8) $d_i^* = w_i'\delta + u_i$

where d_i^* represents a latent unobservable variable for which the following binary selection rule applies:

$$d_i = 1 \quad if \quad d_i^* > 0$$
$$d_i = 0 \ \text{otherwise}$$

w_i represents the vector of the variables determining the type of start-up, while u_i is assumed to be a standard normally distributed error term. The variance-covariance-matrix of the two error terms is given by

$$V = \begin{pmatrix} \varepsilon_i \\ u_i \end{pmatrix} = \begin{pmatrix} \sigma_\varepsilon & \rho \\ \rho & 1 \end{pmatrix}.$$

From this ensues the expected company success:

(9) $E[y_i \mid x_i, d_i] = x_i\beta + d_i\gamma + \underbrace{E[\varepsilon_i \mid x_i, d_i]}_{\neq 0}$.

where $\underbrace{E[\varepsilon_i|x_i,d_i]}_{\neq 0}$ corresponds to the term in the curved brackets in equation (6). Thus, for equation (9) the assumptions of the standard regression model are violated and OLS results in an inconsistent estimation of γ.

4.2 Modelling survival probability

The first measure of success is qualitative in nature and indicates whether the company is still active one year after it was formed. Starting from equations (7) and (8), the following system of two binary probit equations results:

(7a) $M_i^* = x_i'\beta + d_i\gamma + \varepsilon_{iM}$ (survival equation)

(8) $d_i^* = w_i'\delta + u_i$ (start-up from unemployment).

M_i^* and d_i^* represent unobservable latent variables for each of which the following selection rule applies:

$$M_i = 1 \quad if \quad M_i^* > 0, \textit{ enterprise survives}$$
$$= 0 \quad \text{otherwise}$$

and

$$d_i = 1 \quad \text{if} \quad d_i^* > 0, \text{ enterprise formed from unemployment}$$
$$= 0 \quad \text{otherwise}.$$

ε_{iM} shall be assumed to be standard normally distributed error term. The variance-covariance-matrix of the error terms is given by

$$V_M = Var\begin{pmatrix} \varepsilon_{iM} \\ u_i \end{pmatrix} = \begin{pmatrix} 1 & \rho_M \\ \rho_M & 1 \end{pmatrix}.$$

Maximum-likelihood estimation of the bivariate probit model takes into account the correlation of the error terms and results in a consistent estimate of ρ.

4.3 Modelling employment growth

The estimate of employment growth proceeds in a similar framework. However, two further selection problems have to be taken into account. First, the estimate can be carried out only for the surviving, i.e. the successful companies. However, what one tries to measure is an effect for all start-ups and not only for the group of surviving companies. An estimate using the sample of the surviving companies can overestimate effects on employment growth (“Survivor-Bias”). A second selection process might result from data problems, since information on employment growth is missing for 53.5% of the enterprises in the old German federal states and 46.6% in the new German federal states in the ZEW Start-up Panel. It cannot be ruled out that for companies with worse development more information is available, as these companies are better examined due to the specific objective of the set of data. Especially for enterprises with payment difficulties, inquiries to the VVC by suppliers and customers will be made more frequently.

Thus, when estimating employment growth, two concurring selection mechanisms are at work. The probability that there is a usable statement on employment for a firm depends, on the one hand, on the variables determining the survival probability, and, on the other hand, on the variables evaluating the payment histories and the credit worthiness of a company (equation (10), see section 3.4). From this the following, somewhat extended model ensues:

(10) $S_i^* = x_i'\beta_S + d_i\gamma_S + z_i'\omega_S + \varepsilon_{iS}$ (observation in the sample),

(8) $d_i^* = w_i'\delta + u_i$ (start-up from unemployment)

(7b) $g_i = x_i'\beta + d_i\gamma + \varepsilon_{ig}$ (employment growth)

where S_i^* represents a latent variable, z_i a vector of additional variables explaining whether information on employment is available. ε_{is} is assumed to be a standard normally distributed error term and ε_{ig} a normally distributed error term with the expected value zero. g_i stands for the growth rate of employment. For the latent variable S_i^*, the following selection rule applies:

$$S_i = 1 \quad if \quad S_i^* > 0 \quad observation\ in\ the\ sample$$
$$= 0 \quad otherwise$$

.

Employment growth is examined only if S_i=1. The simplified assumption that the random disturbance terms of the type of enterprise and observation equation are independent from each other leads to the following variance-covariance-matrix :

$$V_g = Var\begin{pmatrix} \varepsilon_{ig} \\ u_i \\ \varepsilon_{iS} \end{pmatrix} = \begin{pmatrix} \sigma_g & \rho_g & \rho_S \\ \rho_g & 1 & 0 \\ \rho_S & 0 & 1 \end{pmatrix}.$$

From this assumption, a partly recursive equation structure ensues, which can be estimated in two steps. In the first step, the probability is estimated that an observation for employment growth is available. The Inverse Mills Ratio calculated from a probit model is then included, in the second step, in the growth equation as an additional explaining variable. As in the model for the survival probability, this is estimated simultaneously with the promotion equation for the sample of those enterprises for which information on employment growth is available.

5 Results

5.1 Start-ups promoted from unemployment

First, the results of the equation determining the type of firm are discussed in the context of the bivariate probit analysis (equation (8); see Table 5).[24] The probability of belonging to the group of start-ups promoted form unemployment differs between the old and the new German federal states. As a whole, the model is better suited to explain promotion in the old German federal states than in the new ones. As the number of observations for both regions differ only slightly from each other, the result points to a greater similarity of the enterprises in the new German federal states independent of promotion.[25]

In the old German federal states, belonging to the group of enterprises started from unemployment is more likely in *non-corporate firms* and *trade enterprises* than *corporations*. The *unemployment to vacancy ratio* leads to a significantly[26] higher percentage of subsidised start-ups. In the new German federal states, the legal form plays no measurable role and the measure of regional labour market tightness acts in the opposite direction. A possible explanation for this unexpected result is a stronger competition between bridging allowances and other active labour market programmes for the unemployed in East Germany.[27]

In the old German federal states, subsidised start-ups can be found with a higher probability in the areas *construction*, *automotive dealerships and repair services*, *data processing* and *business-related services*. In the new German federal states, no sector-related differences can be observed. Both in the old and in the new German federal states, subsidised start-ups tend to involve several *shareholders*, which could point to the significance of social networks for firm foundation by the unemployed. In both regions, subsidised start-ups were begun significantly more often in the fourth quarter of 1994 and in the first quarter of 1995. This indicates that the extension of the services provided by bridging allowance indeed led to a considerable increase in the number of subsidised companies.

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[24] Despite substantially smaller samples, the coefficients of this equation in the employment model (see Table 7) differ only to a minor degree from the coefficients here.

[25] It is probably the case that some start-ups which were categorised as non-subsidised in this study have received other kinds of promotion. This might be one factor explaining the greater similarity between the two groups in East Germany, since considerable amounts of firm subsidies have flowed into the new German federal states.

[26] In the following, a coefficient is regarded as significantly different from zero when an error probability lies below 5%. At an error probability below 10%, the difference may be regarded as weakly significant.

[27] Especially vocational training, re-education as well as public works programmes.

5.2 Determinants of firm survival

In Eastern and Western Germany, the determinants of the probability of firm survival differ to a lesser extent than the coefficients explaining the type of firm (see table 5).[28] In the new German federal states, the probability of surviving the first year after commencement of business activities correlates with a value of 0.6 with the probability of having received bridging allowances. The high positive correlation points to the existence of variables not taken into account which favour *bridging allowances* as well as the survival chances. In the old German federal states, the correlation turns out to have also a positive value, which does not differ significantly from zero, however.

Both in the old and in the new German federal states, *subsidised foundation from unemployment* lead, with otherwise equal observable characteristics, to a reduced survival probability. However, this effect is not significant for the old German federal states. For the new German federal states, the significance level is 12%, which indicates that the simultaneous approach seems to be worthwhile.[29] Without taking into account the correlation, the subsidisation effect in the univariate probit model in the new federal states is not significant at all with a positive sign.[30]

The result provoke some explanations. One would expect that the correlation is negative due to important factors that are not available in the dataset. Those could be, for example, human capital variables and more detailed information on work history, such as the duration or frequency of the unemployment spells. But in fact the group of non-subsidised firms seems to be a group of firms with lower a priori survival chances after controlling for observable characteristics. One reason might be that the subsidised firms identified in the ZEW-Start-up Panel are not a random selection of all subsidised firms. That means after controlling for observable characteristics the subsidised perform better than the non-subsidised, because they are those with the best survival perspectives among all firms promoted with bridging allowances.

The relative large coefficient of *subsidised foundation from unemployment* might be due to the possibility that in the bivariate probit model the two equations are similar in terms of the specification and the left hand side variable (see Greene, 1998).[31] To

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[28] Additional estimations with a reduced set of variables (groups of variables which are insignificant at the 10 % level had been excluded) are presented in Table 5a. There are no major qualitative differences between table 5 and 5a.

[29] Slightly altered specifications revealed a negative effect for the new federal states at a significance level of 6%. So we regard the effect as preliminary, but weakly significant. The estimate can be obtained upon request.

[30] The estimates can be obtained upon request.

[31] A two-step estimation, which was performed in order to get a more robust result, also yielded a negative but smaller (-0.12 for eastern Germany) coefficient.

derive quantitative results one has to compute the marginal effects.[32] In East Germany firms starting from unemployment have a 1.8% lower survival probability. Other start-ups would have a 16% lower survival probability in the case they would have been promoted with bridging allowances. Although the interpretation of this latter effect is not clearly obvious (see Greene 1998), the unemployed might in fact have a 1,8% to 16% higher probability of failure. This possibly could be attributable to opportunistic behaviour with respect to the bridging allowances scheme. Alternatively, it is also possible that the end of transition money after six months leads to a revision of plans and to close down the enterprise because of changing expectations on costs and revenues.

The sensitivity analyses with respect to missing information on the mortality status seem to confirm the negative results for East Germany. In West Germany, however, the coefficient of bridging allowances became significantly positive under the assumption that all firms with missing information where not alive. The results, which are summarised in Table 5b, therefore, confirm the difference in firm development in East and West Germany.

>>>Table 5 and 5a about here<<<

The remaining results shall be briefly summarised. The hypothesis of the higher mortality of *corporations* compared to *non-corporate firms* does not hold true. For corporations, close-downs as a form of market exit play a less important role. The sample contained mainly voluntary shut-downs instead of insolvencies. In contrast, *sole proprietorships* show a higher mortality rate than *non-corporate firms*.

The *size* of a company, measured by its initial number of employees, has no measurable influence on survival probability. This result withdraw the often by the small business literature mentioned hypothesis that newly founded small businesses could improve their survival probability due to a larger number of initial employees (see Brüderl et al., 1996). In *construction*, *manufacturing* and *retail trade* , firms in the old federal states revealed the highest survival probabilities relative to *hospitality*

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[32] The marginal effects consists of direct and indirect effects and have been computed according to the following equation (Greene 1996):

$$\partial BVN(\Phi(x_i'\beta+\gamma, w_i'\delta, \rho)/\partial x_{ik} = \{\phi(x_i'\beta+\gamma)\Phi((w_i'\delta-\rho(x_i'\beta+\gamma))/\sqrt{1-\rho^2})\}\beta_k \quad \textit{direct effect}$$
$$+\{\phi(w_i'\delta)\Phi(x_i'\beta+\gamma)-\rho(w_i'\delta)/\sqrt{1-\rho^2})\}\delta_k \quad \textit{indirect effect}$$

where BVN(.) is the bivariate normal distribution, $\Phi(.)$ the cumulative standard normal distribution and $\phi(.)$ the standard normal density. The marginal effects are computed conditional on $E[M \mid d=1]$ or $E[M \mid d=0]$, i.e. either on the group of subsidised or non-subsidised start-ups.

. In the new German federal states, survival probabilities in *retailing* and in *business-related services* are higher than in *construction*.

The human capital variable, *age* of the most important person involved in the start-up, has in the old federal states a significant, non-linear influence on survival probability of the start-up. The survival probability reaches its peak at an age of 36.5 years. Both in the old and the new German federal states, company *networks* reduce the survival probability of start-ups. In both parts of Germany, start-ups by a woman, as the most important person involved, have a slightly significantly lower survival probability.

5.3 Determinants of employment growth

The results of the estimate of the employment equation are listed in Table 7.[33] Both for the old and the new Federal states, the foundation from employment has no effect on growth. The probability of being a start-up with bridging allowances also does not correlate significantly with the level of employment growth.[34]

>>>Tables 6, 6a and 7, 7a about here<<<

For the new and the old federal states, Gibrat´s 'Law' can be abandoned. At first, company growth declines with ascending initial employment and then increases again, in the old federal states from ten employees and in the new federal states from 124 employees.[35] In West German firms, *corporations* grow up to 23% faster than *non-corporate firms* or *sole proprietors*. In the new states, the differences are smaller. Between *non-corporate firms* and *corporations*, no significant differences can be noticed in this part of Germany. With this result, the hypothesis that corporations have the greater growth potentials if they survive cannot be confuted.

Company *networks* increase the growth in the new federal states by 10%, while *diversification* has a slightly significant negative influence. In the old federal states, *networks* have no differential growth effect. *Age* and gender (*female*) of the most important person involved in the start-up are insignificant.

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[33] See table 6 for the estimates of the probability that information on employment is available. See Table 6a and Table 7a for the estimates without insignificant groups of variables. In East Germany, the equation with the reduced vector of variables had to be estimated with a two-stage method. Again, there are no major qualitative differences between the tables; so the results of table 6 and 7 are discussed in the text.

[34] The results of the simultaneous estimate and a simple estimate which takes promotion for unemployment as exogenous do not, therefore, differ from each other.

[35] This is also the result of other studies, e.g. Evans (1987). As by far the majority of companies has less than ten employees, the smallest enterprises grow the fastest.

The Inverse Mills Ratio, which is calculated from the probit model for the determination of the probability that information on employment is available (see table 6), has a negative influence only for the new federal states (see table 7). The counter-moving selection effects described in section 3.4 thus obviously offset each other in the old federal states.

6 Conclusions and preview

The objective of this paper was to estimate whether start-ups from unemployment perform different with respect to survival and employment growth. The database was a regional sample of enterprises founded in 1993 to 1995 and contained in the ZEW Firm Start-up Panel. Those start-ups which involve unemployed people promoted with bridging allowances were compared to a group of firms which was not aided by this instrument. In the context of bivariate probit models, an attempt was made to model the selection effects accompanying the promotion and market entry from unemployment, in order to estimate the impact of the employment status of firm founders. For the growth analysis, a further selection effect, which ensues from the fact that only the successful companies survive and grow, was considered.

The results of the econometric analyses indicate that selectivity effects indeed seem to have some influence on firm survival, although not on employment growth. Therefore, the use of more appropriate techniques, like simultaneous models are warranted. Start-ups from unemployment in the new federal states have a slightly significant, lower one-year survival probability. In terms of employment growth, they are no different from non-subsidised firms. In the old federal states, these start-ups show no worse survival probability and also no lower employment growth than the other companies.

The absence of any significant impacts on employment growth and only a slightly significant negative impact on firm survival does not justify the conclusion that the bridging allowance has missed its aim. Founders from unemployment with transition money seem to have no worse perspectives than the other founders in West Germany and slightly worse perspectives in East Germany. This could not be expected a priori. In that way bridging allowance maybe supported unemployed founders to have the same chances as founders from employment due to a higher capital endowment. The negative results for East Germany hint to the possibility of opportunistic behaviour which should be investigated further (Wießner 1998 found that 41% of the unemployed would have also started a business without bridging allowances).

Be that as it may, one should keep in mind that the group of companies formed by the unemployed and contained in the ZEW Firm Start-up Panel, probably does not represent a random selection from the group of all enterprises subsidised through the bridging allowance. It can be assumed that this group is rather one that is especially active and successful. Finally, in the face of the methods used, the effects should not be interpreted too hastily. Parametric methods for estimating selectivity effects

require comparably restrictive assumptions with respect to the distribution of the error term and model specifications. Future studies based on longer firm histories could attempt to compare the results of parametric approaches with non-parametric methods, such as the matching approach (see Heckman et al, 1998).

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Tables

Table 1: Self-employment, unemployment and bridging allowances from 1991 to 1997

year	number of self-employed people (millions)	number of unemployed people (millions)	subsidised unemployed	amount (‘000 DM)
1991	3.037	2.727	13,014	90.3
1992	3.091	2.979	31,587	136.4
1993	3.175	3.419	25,835	98.5
1994	3.288	3.698	37,297	194.8
1995	3.336	3.612	70,634	822.0
1996	3.409	3.965	89,744	1,063.0
1997	3.528	4.385	78,824	944.0

Source: Statistical Yearbook of Germany; Wießner (1998).

Table 2: Sample sizes of the different models

Region	Western Germany		Eastern Germany	
Model	non subsidised	subsidised	non subsidised	subsidised
Whole sample	5079	223	3916	395
Survival probability (Table 5)	2237	124	2044	196
Employment growth (Table 7)	1774	105	1609	1793

Source: Regional sample of the ZEW Firm Start-up Panel.

Table 3: Descriptive statistics of the business start-ups

	Western Germany		Eastern Germany	
	non subsidised	subsidised	non subsidised	subsidised
Start-up employment (quantiles)				
10 %	1	1	1	1
50 %	1	1	2	1
90 %	5	4	6	5
Missing values (in %)	16.30	7.62	4.65	2.28
Legal form as (as percentage shares)				
Trade enterprise / sole proprietorship	60.38	67.26	74.08	72.15
Non-corporate firm	8.07	13.45	11.49	16.21
Corporate firm	31.54	19.28	14.43	11.64
Sector (as percentage shares)				
Manufacturing	8.13	9.59	5.42	6.14
Construction	15.14	19.18	24.00	22.76
Auto dealerships & repairs services	3.74	8.22	3.89	6.91
Wholesale trade	8.03	7.76	7.44	9.72
Retail trade	21.21	22.83	18.29	18.93
Hospitality	10.02	6.39	8.94	7.16
Communic./Transp./Finance/Insuran.	6.76	5.02	10.13	9.46
Data Processing	2.67	4.57	0.88	1.28
Business -related services	12.59	9.59	8.53	9.46
Other services	11.72	6.85	12.49	8.18
Missing values	2.70	1.79	1.46	1.01
Diversification (business in more than one sector) (as percentage shares)				
Non diversified	93.50	94.17	90.60	92.41
Diversified	6.50	5.83	9.40	7.59
Number of additional shareholders (as percentage shares)				
0	69.64	69.51	78.19	73.42
1	21.93	17.04	16.42	19.49
2	5.71	10.31	3.80	5.57
3 and more	2.72	3.14	2.41	1.52
Number of associated firms (Networks) (as percentage shares)				
No associated firms	86.84	91.48	73.57	88.10
One or more associated firms	13.16	8.52	26.43	11.90
Missing value	0.18	0.00	0.10	0.00

Table 3 continued

Unemployment to vacancies ratio	3.81	4.27	3.44	2.86
Labour market district (as percentage shares)				
Bremen	12.72	11.66	---	---
Hanover	15.57	24.66	---	---
Kassel	9.39	14.35	---	---
Essen	8.78	5.38	---	---
Hof	4.43	6.73	---	---
Bayreuth	4.35	4.48	---	---
Bad Kreuznach	5.61	1.79	---	---
Mainz	12.40	4.04	---	---
Deggendorf	6.60	6.73	---	---
Landshut	5.83	4.48	---	---
Göppingen	14.31	15.70	---	---
Schwerin	---	---	39.22	40.00
East Berlin	---	---	12.54	16.20
Dessau	---	---	23.26	18.99
Pirna	---	---	24.97	24.81
Age				
10 %	25.71	25.78	24.87	26.25
50 %	35.30	34.39	35.45	35.80
90 %	51.77	47.77	50.93	50.88
Missing value (in %)	17.25	17.04	25.54	29.87
Gender (as percentage shares)				
Male	74.99	88.99	76.03	74.42
Female	25.01	11.01	23.97	25.58
Missing value	2.78	2.24	1.15	1.01
Credit worthiness (as percentage shares)				
No credit experience	84.08	78.48	38.48	44.55
Credit advised or possible	7.60	11.21	12.05	11.14
Limited credit	4.61	8.07	44.51	42.28
Secured credit	0.61	0.45	1.00	0.51
No credit recommended	3.11	1.80	3.96	1.52
Payment histories (as percentage shares)				
No experience with respect to payment behaviour	90.91	91.93	54.01	60.25
Payment within 30 days	0.18	0.00	0.20	0.00
Pays bills without delay	4.51	4.94	38.97	36.71
Payment takes longer	1.03	1.35	2.86	1.51
Pays slowly	0.51	0.00	0.65	0.00
Payment after reminder	0.32	0.00	0.33	0.00
Payments overdue	2.56	1.79	2.99	1.52

Source: Regional sample of the ZEW Firm Start-up Panel.

Table 4: Firm success

	Western Germany		Eastern Germany	
	non subsidised	subsidised	non subsidised	subsidised
Status one year after start-up (shares in %)				
Survived	89.48	90.28	91.80	93.77
Not survived	10.52	9.72	8.20	6.23
Missing values	47.96	35.43	29.34	30.89
Annual employment growth rate (in percent)				
10 %	0	0	-0.07	0
50 %	0	0	0	0
90 %	0.63	0.62	0.64	0.56
Mean	0.15	0.18	0.13	0.15
Missing values	53.99	42.60	46.81	44.05

Source: Regional sample of the ZEW Firm Start-up Panel.

Table 5: Bivariate Probit Model: probability of survival and subsidisation

	Western Germany		Eastern Germany	
Number of observations	2361		2240	
Log likelihood function	-1117.66		-1235.24	
Mean of survival probability	90.68%		91.79%	
Survival equation				
Variables	Coefficient	z-value	Coefficient	z-value
Bridging Allowance	-1.214	-1.15	-1.279	-1.55
Log size	0.112	0.73	0.126	0.87
Log size squared	-0.023	-0.31	-0.072	-1.14
Corporate firm	Reference		Reference	
Non-corporate firm	-0.144	-0.89	-0.169	-1.07
Trade enterprise/ sole proprietorship	-0.398	-3.99	-0.291	-2.28
Manufacturing	0.058	0.35	0.156	0.89
Construction	Reference		Reference	
Auto dealerships & repair services	-0.080	-0.42	0.148	0.73
Wholesale trade	-0.041	-0.26	-0.007	-0.05
Retail trade	0.193	1.47	0.269	1.98
Hospitality	-0.584	-3.89	-0.192	-1.29
Communic./Transp./Finance/Insuran.	-0.076	-0.44	0.071	0.48
Data Processing [a]	-0.272	-1.26		
Business-related services	-0.234	-1.61	0.270	1.65
other services	-0.021	-0.14	0.044	0.33
Network	-0.169	-1.64	-0.292	-3.32
Diversification	0.039	0.28	0.099	0.73
Bremen	Reference		---	---
Hanover	-0.048	-0.34	---	---
Kassel	0.384	2.17	---	---
Essen	0.122	0.75	---	---
Franken	0.248	1.39	---	---
Rhein-Hessen/Pfalz	0.143	0.95	---	---
Lower Bavaria	0.106	0.68	---	---
Schwäbische Alb	0.370	2.13	---	---
Schwerin	---	---	Reference	
East Berlin	---	---	0.329	2.27
Pirna	---	---	0.049	0.51
Dessau	---	---	0.356	3.43
Female	-0.147	-1.62	-0.176	-1.81
Log Age	12.098	4.03	-0.105	-0.32
Log Age squared	-1.681	-4.02	0.034	0.68
Constant	-20.094	-3.75	1.535	2.34
Correlation survival & subsidisation	0.528	1.20	0.634	2.07

Table 5 continued

Subsidisation equation				
Percentage of subsidised start-ups	5.25%		8.75%	
Variables	Coefficient	z-value	Coefficient	z-value
Unemployment to vacancy ratio	0.037	3.11	-0.031	-1.49
Corporate firm	Reference		Reference	
Non-corporate firm	0.666	3.74	0.033	0.23
Trade enterprise/sole proprietorship	0.512	3.18	0.256	1.47
Manufacturing	-0.190	-1.00	0.162	1.02
Construction	Reference		Reference	
Auto dealerships & repair services	0.080	0.39	0.215	1.16
Wholesale trade	-0.320	-1.58	0.184	1.28
Retail trade	-0.175	-1.25	0.028	0.22
Hospitality	-0.473	-2.09	-0.001	-0.01
Communic./Transp./Finance/Insuran.	-0.229	-1.01	-0.241	-1.46
Data Processing [a]	0.358	1.5	---	---
Business-related services	0.043	0.25	0.018	0.12
other services	-0.367	-1.82	-0.261	-1.80
Quarter 93.IV	-0.617	-3.37	-0.608	-3.62
Quarter 94.I	-0.169	-1.12	-0.400	-2.96
Quarter 94:II	-0.565	-3.57	-0.700	-4.74
Quarter 94.III	-0.650	-2.96	-0.521	-3.51
Quarter 94:IV	Reference		Reference	
Quarter 95.I	0.043	0.32	-0.231	-1.81
Quarter 95.II	-0.453	-2.41	-0.891	-5.54
Quarter 95.III	-0.947	-3.25		
No additional share holder	Reference		Reference	
1 additional share holder	-0.055	-0.31	0.483	2.57
2 additional share holders	0.497	2.40	0.505	2.24
3 and more additional share holders	0.152	0.50	0.510	1.68
Constant	-1.752	-8.60	-1.117	-5.64

Note: Maximum likelihood estimation using a regional sample of the ZEW Firm Start-up Panel; [a] for Eastern Germany the sectors data processing and other services were combined.

Table 5a: Bivariate Probit Model: probability of survival and subsidisation

	Western Germany		Eastern Germany	
Number of observations	2411		3036	
Log likelihood function	-1164.499		-1700.886	
Mean of survival probability	90.21%		91.96%	
Survival equation				
Variables	Coefficient	z-value	Coefficient	z-value
Bridging Allowance	-1.020	-0.81	-1,049	-1,61
Corporate firm	Reference		Reference	
Non-corporate firm	-0.256	-1.67	-0,252	-2,03
Trade enterprise/ sole proprietorship	-0.458	-4.93	-0,232	-2,26
Manufacturing	0.034	0.21		
Construction	Reference			
Auto dealerships & repair services	-0.146	-0.80		
Wholesale trade	-0.068	-0.44		
Retail trade	0.142	1.14		
Hospitality	-0.586	-4.01		
Communic./Transp./Finance/Insuran.	-0.111	-0.65		
Data Processing [a]	-0.255	-1.19		
Business-related services	-0.244	-1.74		
other services	-0.093	-0.63		
Network	-0.202	-2.06	-0,297	-3,98
Bremen	Reference		---	---
Hanover	-0.085	-0.61	---	---
Kassel	0.367	2.12	---	---
Essen	0.064	0.40	---	---
Franken	0.210	1.20	---	---
Rhein-Hessen/Pfalz	0.110	0.73	---	---
Lower Bavaria	0.082	0.53	---	---
Schwäbische Alb	0.246	1.50	---	---
Schwerin	---	---	Reference	
East Berlin	---	---	0,251	2,15
Pirna	---	---	0,081	0,98
Dessau	---	---	0,318	3,57
Log Age	11.898	4.03		
Log Age squared	-1.658	-4.02		
Constant	-19.586	-3.70	1,623	14,57
Correlation survival & subsidisation	0.463	0.86	0,539	2,10

Table 5a continued

Subsidisation equation				
Percentage of subsidised start-ups	5.14%		8.99%	
Variables	Coefficient	z-value	Coefficient	z-value
Unemployment to vacancy ratio	0.038	3.19	-0.025	-1.47
Corporate firm	Reference			
Non-corporate firm	0.671	3.73		
Trade enterprise/sole proprietorship	0.508	3.16		
Manufacturing	-0.194	-1.03		
Construction	Reference			
Auto dealerships & repair services	0.075	0.37		
Wholesale trade	-0.321	-1.59		
Retail trade	-0.184	-1.31		
Hospitality	-0.483	-2.13		
Communic./Transp./Finance/Insuran.	-0.246	-1.07		
Data Processing [a]	0.357	1.51		
Business-related services	0.026	0.16		
other services	-0.378	-1.88		
Quarter 93.IV	-0.620	-3.38	-0.609	-4.29
Quarter 94.I	-0.175	-1.16	-0.447	-3.82
Quarter 94:II	-0.567	-3.58	-0.662	-5.38
Quarter 94.III	-0.659	-2.97	-0.490	-3.90
Quarter 94:IV	Reference		Reference	
Quarter 95.I	0.043	0.31	-0.151	-1.40
Quarter 95.II	-0.460	-2.45	-0.881	-6.65
Quarter 95.III	-0.947	-3.25		
No additional share holder	Reference		Reference	
1 additional share holder	-0.067	-0.39	0.189	2.28
2 additional share holders	0.487	2.36	0.292	2.08
3 and more additional share holders	0.136	0.45	0.070	0.29
Constant	-1.749	-8.60	-0.871	-9.72

Note: Maximum likelihood estimation using a regional sample of the ZEW Firm Start-up Panel; [a] for Eastern Germany the sectors data processing and other services were combined.

Table 5b: Mortality rates and estimates of bridging allowances with alternative assumptions about failure for unknown status

Region	Western Germany		Eastern Germany	
Sample	non subsidised	subsidised	non subsidised	subsidised
10% failure	9.9%	9.9%	8.4%	6.3%
selected by chance	-1.62 (t-value -1.98)		-1.06 (t-value -1.78)	
50% failure	29.2%	22.4%	20.4%	20.8%
selected by chance	0.18 (t-value 0.20)		-1.35 (t-value -3.15)	
100% failure	53.4%	41.7%	35.1%	35.2%
	1.27 (t-value 3.97)		-1.17 (t-value -3.35)	

Source: Regional sample of the ZEW Firm Start-up Panel. The table shows the ratio of firms, which did not survive the first year and the coefficient and t-values of bridging allowances on the probability of survival.

Table 6: Probit model: existence of adequate information on employment

	Western Germany		Eastern Germany	
Number of observations	3719		3016	
Log likelihood function	-2424.59		-1921.81	
Chi square value	306.05 (36)		312.52 (29)	
Variable	Coefficient	z-Value	Coefficient	z-Value
Bridging Allowance	0.245	2.40	0.119	1.42
Log size	0.310	3.54	0.234	2.48
Log size squared	-0.057	-1.36	-0.027	-0.62
Corporate firm	Reference		Reference	
Non-corporate firm	-0.143	-1.67	0.009	0.09
Trade enterprise / sole proprietorship	-0.220	-3.87	-0.061	-0.77
Manufacturing	Reference		Reference	
Construction	-0.138	-1.49	-0.104	-0.94
Auto dealerships & repair services	-0.085	-0.74	-0.048	-0.38
Wholesale trade	-0.032	-0.35	-0.237	-2.39
Retail trade	-0.034	-0.47	-0.004	-0.05
Hospitality	-0.695	-7.99	-0.569	-5.72
Communication/Transporting/Finance/Insurance	-0.223	-2.34	-0.408	-4.55
Data Processing [a]	-0.448	-5.08	---	---
Business-related services	-0.266	-1.90	-0.234	-2.44
Other services	-0.423	-5.02	-0.375	-4.48
Schwerin	---	---	Reference	
East Berlin	---	---	-0.346	-3.98
Pirna	---	---	-0.110	-1.72
Dessau	---	---	-0.042	-0.64
Bremen	Reference		---	---
Hanover	-0.144	-1.56	---	---
Kassel	-0.080	-0.73	---	---
Essen	-0.038	-0.38	---	---
Franken	0.004	0.04	---	---
Rhein-Hessen/Pfalz	-0.064	-0.70	---	---
Niederbayern	-0.068	-0.68	---	---
Schwäbische Alb	-0.132	-1.32	---	---
Diversification	0.170	2.03	0.206	2.55
Network	0.038	0.59	-0.097	-1.69
Log age	4.709	2.56	-0.200	-0.82
Log age squared	-0.700	-2.72	0.051	1.38
Female	0.010	0.20	-0.198	-3.22
Pays Bills Without delay	Reference		Reference	
No Experience With Respect to Payment Behavior	0.073	0.58	0.168	2.32
Payment within 30 Days	-0.510	-1.13	0.885	1.68
Payment takes longer	-0.258	-0.57	0.367	1.08
Pays slowly [b]	-0.257	-1.13	-0.551	-1.74
Payment after reminder	1.996	2.79	---	---
Payments overdue	0.687	1.09	---	---

Table 6 continued

Credit advised or possible	Reference		Reference	
Limited credit	-0.288	-2.63	0.081	0.77
Secured credit	-0.086	-0.69	0.087	0.97
No credit recommended	-0.340	-0.87	-0.565	-1.59
No credits recommended	-1.891	-3.07	-0.662	-2.10
Constant	-7.344	-2.23	0.049	0.10

Note: Maximum likelihood estimation using a regional sample of the ZEW Firm Start-up Panel; for Eastern Germany: [a] the sectors of data processing and other services were combined; [b] Pays slowly, Payment after reminder and Payments overdue were combined.

Table 6a: Probit model: existence of adequate information on employment

	Western Germany		Eastern Germany	
Number of observations	3746		4050	
Log likelihood function	-2445.761		-2586.025	
Chi square value	301.227 (27)		384.943 (24)	
Variable	Coefficient	z-Value	Coefficient	z-Value
Bridging Allowance	0.228	2.26	0.105	1.50
Log size	0.299	3.47	0.254	3.30
Log size squared	-0.054	-1.29	-0.031	-0.87
Corporate firm	Reference			
Non-corporate firm	-0.140	-1.66		
Trade enterprise / sole proprietorship	-0.224	-4.04		
Construction	Reference		Reference	
Manufacturing	-0.136	-1.49	-0.081	-0.83
Auto dealerships & repair services	-0.083	-0.72	-0.080	-0.75
Wholesale trade	-0.026	-0.29	-0.200	-2.30
Retail trade	-0.033	-0.48	0.025	0.37
Hospitality	-0.659	-7.72	-0.510	-6.09
Communication/Transporting/Finance/Insurance	-0.213	-2.24	-0.323	-4.11
Data Processing [a]	-0.441	-5.04	---	---
Business-related services	-0.261	-1.88	-0.307	-3.69
Other services	-0.414	-4.99	-0.371	-5.09
Schwerin	---	---	Reference	
East Berlin	---	---	-0.444	-5.93
Pirna	---	---	-0.132	-2.41
Dessau	---	---	-0.092	-1.63
Diversification	0.168	2.03	0.191	2.65
Log age	4.516	2.46		
Log age squared	-0.672	-2.63		
Female			-0.194	-3.75
Pays Bills Without delay	Reference		Reference	
No Experience With Respect to Payment Behavior	0.102	0.85	0.282	4.53
Payment within 30 Days	-0.526	-1.17	0.895	1.73
Payment takes longer	-0.266	-0.59	-0.106	-0.82
Pays slowly [b]	-0.286	-1.27	-0.395	-1.49
Payment after reminder	1.990	2.79	---	---
Payments overdue	0.665	1.06	---	---
Credit advised or possible	Reference		Reference	
Limited credit	-0.334	-3.50	-0.014	-0.16
Secured credit	-0.109	-0.92	-0.017	-0.22
No credit recommended	-0.343	-0.88	-0.312	-1.21
No credits recommended	-1.901	-3.09	-0.719	-2.73
Constant	-7.062	-2.15	-0.096	-1.08

Note: Maximum likelihood estimation using a regional sample of the ZEW Firm Start-up Panel; for Eastern Germany: [a] the sectors of data processing and other services were combined; [b] Pays slowly, Payment after reminder and Payments overdue were combined.

Table 7: Simultaneous model of employment growth and subsidisation

	Western Germany		Eastern Germany	
Number of observations	1879		1371	
Log likelihood function	-1460.89		-1246.94	
Mean employment growth rate	16.27 %		15.70 %	
Variable	Coefficient	z-value	Coefficient	z-value
Growth equation				
Bridging Allowance	0.018	0.08	0.036	0.25
Log size	-0.361	-5.87	-0.318	-5.26
Log size squared	0.078	3.06	0.033	1.24
Corporate firm	Reference		Reference	
Non-corporate firm	-0.163	-2.86	-0.080	-1.37
Trade enterprise / sole proprietorship	-0.227	-6.09	-0.124	-2.90
Manufacturing	0.030	0.68	-0.015	-0.24
Construction	Reference		Reference	
Auto dealerships & repair services	0.023	0.41	-0.091	-1.19
Wholesale trade	-0.079	-1.44	-0.166	-2.84
Retail trade	-0.101	-2.38	-0.247	-5.21
Hospitality	0.045	0.45	0.105	1.52
Communic./Transport./Finance/Insurance	-0.054	-0.98	-0.135	-1.82
Data Processing [a]	0.008	0.12	---	---
Business-related services	0.026	0.39	-0.139	-2.59
other services	-0.076	-1.23	-0.217	-3.58
Schwerin	---	---	Reference	
East Berlin	---	---	0.136	2.59
Pirna	---	---	0.159	4.22
Dessau	---	---	0.180	4.49
Bremen	Reference		---	---
Hanover	-0.036	-0.76	---	---
Kassel	-0.014	-0.29	---	---
Essen	-0.113	-2.18	---	---
Franken	-0.076	-1.44	---	---
Rhein-Hessen/Pfalz	-0.047	-1.07	---	---
Niederbayern	-0.091	-1.86	---	---
Schwäbische Alb	-0.045	-0.99	---	---
Diversification	0.013	0.28	-0.078	-1.75
Network	0.014	0.41	0.067	2.03
Log age	1.608	1.13	0.005	0.00
Log age squared	-0.239	-1.19	0.003	0.02
Female	-0.007	-0.21	-0.008	-0.18
Constant	-2.101	-0.82	0.628	0.25
Inverse Mills Ratio [c]	-0.047	-0.25	-0.292	-2.29
Correlation growth & subsidisation	-0.024	-0.08	-0.183	-0.93

Table 7 continued

Subsidisation equation				
Share of subsidised start-ups	5.59 %		9.92 %	
Unemployment to vacancy ratio	0.041	2.37	-0.022	-0.59
Corporate firm	Reference		Reference	
Non-corporate firm	0.724	3.37	0.044	0.23
Trade enterprise / sole proprietorship	0.331	1.46	0.253	1.17
Manufacturing	-0.134	-0.61	-0.063	-0.32
Construction	Reference		Reference	
Auto dealerships & repair serv.	0.025	0.11	-0.062	-0.25
Wholesale trade	-0.221	-1.00	-0.041	-0.20
Retail trade	-0.262	-1.68	-0.021	-0.14
Hospitality	-0.664	-2.28	-0.293	-1.14
Communic./Transport./Finance/Insuran.	-0.230	-0.91	-0.450	-1.84
Data Processing [a]	-0.023	-0.11	---	---
Business-related services	0.437	1.58	-0.024	-0.12
Other services	-0.423	-1.74	-0.360	-1.73
No additional share holder	Reference		Reference	
1 additional share holder	-0.175	-0.73	0.399	1.73
2 additional share holders	0.316	1.13	0.142	0.45
3 and more additional share holders	0.081	0.21	0.649	1.87
Quarter 93.IV	-0.519	-2.41	-0.650	-2.72
Quarter 94.I	-0.080	-0.44	-0.305	-1.50
Quarter 94:II	-0.424	-2.29	-0.767	-3.79
Quarter 94.III	-0.509	-2.06	-0.609	-3.06
Quarter 94:IV	Reference		Reference	
Quarter 95.I	0.106	0.64	-0.190	-1.10
Quarter 95.II	-0.347	-1.64	-0.967	-4.65
Quarter 95.III	-0.889	-2.58	---	---
Constant	-1.639	-5.31	-0.942	-3.95

Note: Maximum likelihood estimation using a regional sample of the ZEW Firm Start-up Panel; [a] for Eastern Germany the sectors of data processing and other services were combined; [c] selection for *existence of information on employment growth*. Furthermore 9 time dummies for the different observation intervals are included.

Table 7a: Simultaneous model of employment growth and subsidisation

	Western Germany [c]		Eastern Germany	
Number of observations	1890		1783	
Log likelihood function	---		-1791.802	
Adjusted R-squared	0,101		---	
Mean employment growth rate	16.16 %		15.39 %	
Variable	Coefficient	z-value	Coefficient	z-value
Growth equation				
Bridging Allowance	0.075	0.32	-0.013	-0.07
Log size	-0.382	-8.64	-0.338	-6.05
Log size squared	0.080	4.17	0.050	2.04
Corporate firm	Reference		Reference	
Non-corporate firm	-0.145	-3.47	-0.095	-1.77
Trade enterprise / sole proprietorship	-0.207	-7.40	-0.149	-3.63
Manufacturing	0.035	0.84	-0.045	-0.71
Construction	Reference		Reference	
Auto dealerships & repair services	0.018	0.35	-0.108	-1.34
Wholesale trade	-0.088	-2.13	-0.129	-2.69
Retail trade	-0.108	-3.33	-0.239	-6.12
Hospitality	0.114	1.87	0.039	0.67
Communic./Transport./Finance/Insurance	-0.044	-0.94	-0.173	-2.68
Data Processing [a]	0.035	0.69	---	---
Business-related services	0.014	0.21	-0.134	-2.36
other services	-0.039	-0.82	-0.262	-4.78
Schwerin	---	---	Reference	
East Berlin	---	---	0.102	1.96
Pirna	---	---	0.130	3.65
Dessau	---	---	0.159	4.39
Constant	0.622	8.94	0.655	7.02
Inverse Mills Ratio [d]	-0.176	-1.96	-0.170	-1.62
Correlation growth & subsidisation	-0.043	-0.38	-0.075	-0.32

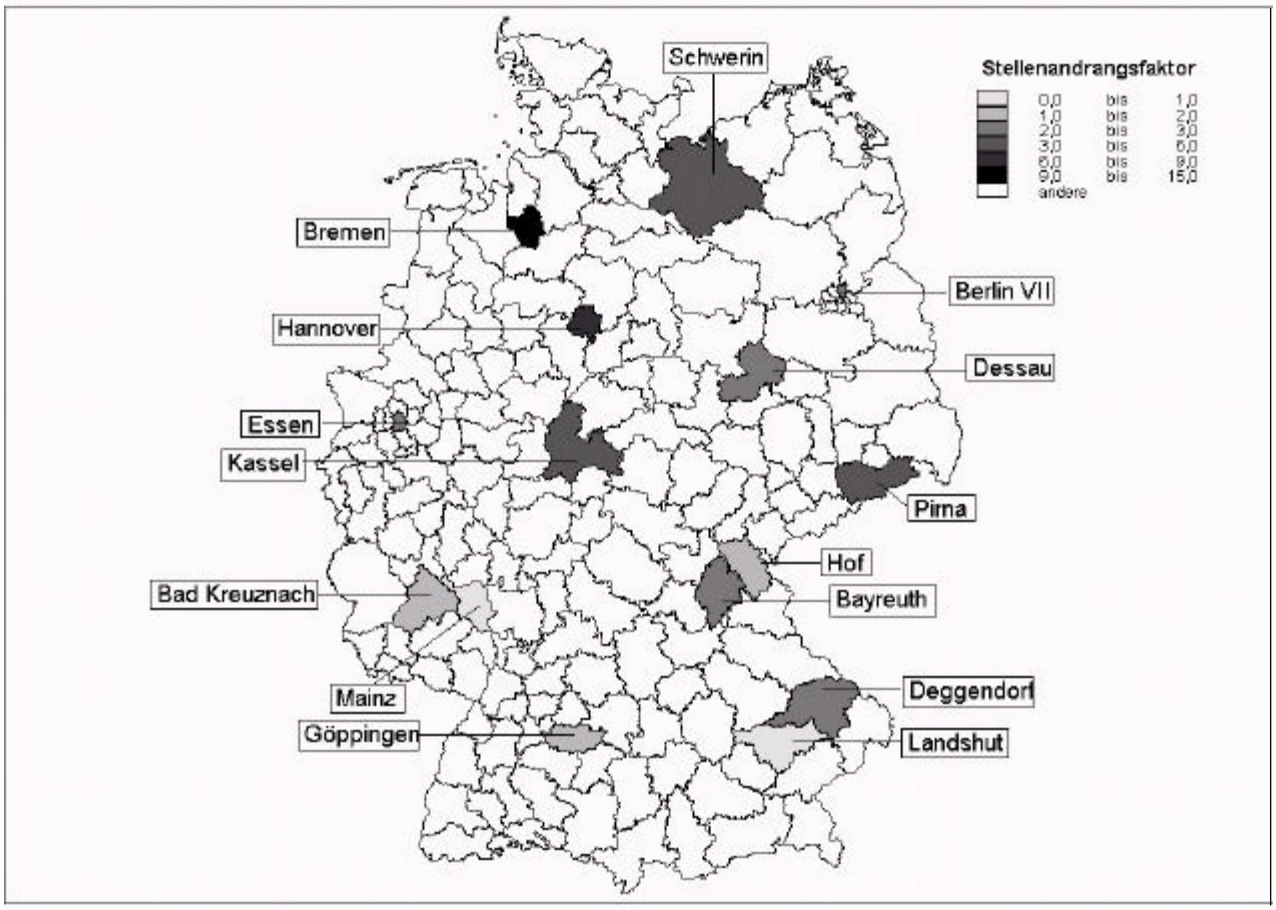
Table 7a continued

Subsidisation equation				
Log likelihood function	-371.824		---	
Share of subsidised start-ups	5.56 %		9.83 %	
Unemployment to vacancy ratio	0.042	3.11		
Corporate firm	Reference			
Non-corporate firm	0.635	3.71		
Trade enterprise / sole proprietorship	0.318	2.55		
Manufacturing	-0.143	-0.73		
Construction	Reference			
Auto dealerships & repair serv.	0.015	0.07		
Wholesale trade	-0.213	-1.06		
Retail trade	-0.259	-1.77		
Hospitality	-0.688	-2.54		
Communic./Transport./Finance/Insuran.	-0.205	-0.91		
Data Processing [a]	-0.015	-0.08		
Business-related services	0.386	1.51		
Other services	-0.408	-1.80		
Quarter 93.IV	-0.505	-2.48	-0.742	-4.19
Quarter 94.I	-0.077	-0.45	-0.383	-2.66
Quarter 94.II	-0.431	-2.49	-0.747	-4.75
Quarter 94.III	-0.516	-2.22	-0.499	-3.07
Quarter 94.IV	Reference		Reference	
Quarter 95.I	0.102	0.66	-0.122	-0.88
Quarter 95.II	-0.353	-1.78	-0.924	-5.68
Quarter 95.III	-0.902	-2.99	---	---
Constant	-1.635	-9.26	-0.810	-7.59

Note: Western Germany Two-stage-least-square-Estimation and Eastern Germany Maximum likelihood estimation using a regional sample of the ZEW Firm Start-up Panel; [a] for Eastern Germany the sectors of data processing and other services were combined; [c] the 2SLS estimation for Western Germany reports the Adjusted R-squared, the correlation between subsidisation and growth is represented by the Inverse of the Mills Ratio and the Log-Likelihood value for the separated subsidisation equation is also reported; [d] selection for *existence of information on employment growth*. Furthermore 9 time dummies for the different observation intervals are included.

Figures

Figure 1: Mean U/V ratio of the 15 research labour market districts from July 1993 to May 1995



Source: Regional sample of the ZEW Firm Start-up Panel, Bureau of Labour, own calculations; *Stellenandrangsfaktor* means *unemployment to vacancy ratio.*