

Regional Specialization and Labor Mobility

An Empirical Analysis of German Microdata for 2000-2010

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Studien zum deutschen Innovationssystem

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Executive Summary

Spatial patterns of industrial strengths are of increasing interest since the rise of “smart specialization” strategies requires the identification of promising technologies and industries which might emanate from existing structures. The attraction of skilled labor is supposed to play an important role in this process: first, in order to strengthen the innovation potential at the interface between existing and prospective industries, and second, as a quantitative contribution to industrial employment growth. Against this background, this study analyses regional specialization and employment growth in German regions and provides evidence for the employees’ origin.

The approach is based on micro data of firms and employees for the period from 2000 to 2010. Firm level data is used to calculate specialization measures for 96 planning regions and 35 industries. Two indices are constructed for three major sectors in order to illustrate the spatial pattern. These broader sectors are non-knowledge intensive manufacturing (nkim), knowledge intensive manufacturing (kim), and knowledge intensive services (kis). Mappings of indices and employment shares of single industries provide detailed evidence on major and minor locations in Germany. Although the 50 percent sample of firms causes some incompleteness in the descriptive results, following patterns of specialization arise:

- Important locations of non-knowledge intensive manufacturing industries are mainly in rural and other non-urban regions. The distribution of skill intensity in this sector, however, is not correlated with the regional and national shares and makes a significant difference for employment growth as it is found later. A high number of regions is specialized in the manufacturing of food products, often accompanied by wood and paper production. This is especially the case for Northern regions. Regions in the West of Germany are often also specialized in the manufacturing of metal products. Only few regions, especially in the North of Bayern, show a diverse structure within this sector, i. e. they are important locations for bunch of different non-knowledge intensive manufacturing industries.
- Similarly, the specialization in the knowledge intensive manufacturing sector is frequently based on only one or two single industries, mostly (electrical) machinery in the South West of Germany. Manufacturing of motor vehicles and other transport equipment is concentrated on a small number of regions. In contrast to the non-knowledge intensive manufacturing sector, however, the distribution of highly skill intensive industries is positively correlated with other specialization measures. Therefore, skill intensity does not make a difference in the relative position of knowledge intensive manufacturing regions.
- Knowledge intensive services are found mainly in urban regions showing also a very spatially diverse structure within this sector. Further differences in skill intensities do not prevail within in this sector. Rural locations in structural weak areas are mainly based on media and culture which probably rather comprises public provision of cultural institutions than business oriented services among those.

By means of regression analyses at the industry-region level the effects of skill intensity and the regional share on employment growth in different (other) industries are tested. Co-incidence of specialization and growth between different industries is found especially in favor of employment dynamics in nkim industries and computer and related service activities. Growth in kim industries hardly benefits from specialization of any industry. Interestingly, the interaction of specialization and (higher) skill intensity spurs the growth of the “own” industry and is also positively related to growth of nkim indus-

tries. Effects (positive correlations) of certain industries are found with respect to a number of different sectors. These service industries are computer and related activities, media and culture as well as technical consulting and research. Their effects, however, partially depend on higher skill intensity.

The analysis of employees' origins in the preceding year aims to find out which industries are attracting workers from outside the local labor market. Five types of origin are distinguished: continuous employment in the same region, transition from local unemployment, job-to-job mobility, transition from unemployment in other regions, international migration. Since the reference outcome is continuous employment in the same region attraction is correlated with employment growth.

Applying multinomial logit regression analyses for total and high-skilled employment in each industry leads to three major results (first and second relate to total employment):

- Lower specialization in terms of regional and national shares increases the likelihood of recruiting workers from other regions, especially in non-specialized industries. Vice versa, highly specialized are less attractive.
- In contrast, skill intensity is positively correlated with attraction.
- Concerning only high skilled, especially migrant workers enter specialized industry-regions (in terms of skill intensity and national share) while workers from other German regions rather join locations with less specialization.

To sum up, regarding the attraction of workers highly specialized regions are not advantaged per se but rather regions with an intermediate specialization level. Since growth is spurred in combination with skill intensity the development of regional skill supply is still of importance. Although migration from abroad is still more attracted by the highly specialized regions, the total numbers are small. Furthermore, employment effects from other co-located industries are not systematically found. This might also be due to the fact that most regions are only specialized on one or two manufacturing industries – given the empirical restriction of a rough differentiation of industries. The results therefore suggest a differentiated view on the effects to be expected from smart specialization strategies. However, further research is required which overcomes the restrictions of the analysis imposed by data availability. For instance, the scope of specialization effects in this study is limited to the comparison between high and intermediate levels.

1 Introduction

The analysis of regional disparities in industrial structures was lastly done within the EFI indicator studies by Gehrke et al. (2010) mostly relying on data for 2007. Main aspects of their study were structural differences between East and West Germany as well as R&D intensity and profiles of industrial strengths at the lower regional level (planning regions). In the course of the new programming period for the EU structural funds 2014-2020 the notion of “smart specialization” spurred interest in further analyses of this kind (e. g. David et al. 2009, Foray et al. 2011, McCann / Ortega-Argilés 2013).

Simply updating the preceding study was not intended for several reasons. First, availability of necessary data has been restricted. Complete results of the national employment statistics (*Beschäftigungsstatistik*) are only provided at rough regional and industrial level. Second, analysis of structural developments is limited due to the introduction of the new classification of economic activities for the year 2008. The Establishment History Panel (see below) was then chosen as an alternative data source used to construct regional information although it has its own limitations. The panel also allows to overcome breaks in the classification and therefore enhances the investigation period back to the year 2000. Another new aspect compared to Gehrke et al. (2010) is the analysis of regional labor mobility.

The aim of this study is to provide evidence for actual specialization pattern of German regions and its relation to (employment) growth in other industries of the same region. The research question is motivated by “smart specialization” strategies which seek to build up on existing strengths in order to promote structural change driven by innovation at the interface between established and related (promising) technologies and industries. Related industries especially benefit from labor mobility as recent studies suggest (e. g. Boschma et al. 2009, 2013). Therefore origins of the industrial workforce are analyzed by means of individual microdata.

This study uses the weakly anonymous Establishment History Panel (*Betriebs-Historik-Panel*, BHP) (years 2000-2010, project number fdz796)¹ and the weakly anonymous Sample of Integrated Labour Market Biographies (*Stichprobe der Integrierten Arbeitsmarktbio grafien*, SIAB) (also years 2000-2010, fdz797)². Data access was provided via on-site use at the Research Data Centre (FDZ) of the German Federal Employment Agency (BA) at the Institute for Employment Research (IAB) and remote data access.

The BHP is a 50 percent sample of German firms with at least one employee liable to social security. We make use of the version which is stratified by firm size since important larger firms are possibly neglected in the non-stratified sample. SIAB is a 2 percent sample of people who have been registered in at least one of several administrative data sources. The most recent versions of both data sets provide information until 2010. The sectoral level are 35 aggregates, based upon the 3-digit level of the German classification of economic activities, edition 1993 (WZ93, see Figure A 1) which has been imputed for years usually covered by succeeding classifications (1998, 2003, and 2008 onwards, respectively) (Eberle et al. 2014).

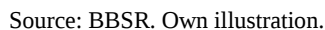
Planning regions, which are defined by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (*Bundesinstitut für Bau-, Stadt- und Raumforschung*, BBSR), are the regional level of the analyses. They follow functional considerations, e. g. commuter flows. Planning regions

¹ See also Gruhl et al. (2012).

² See also vom Berge et al. (2013).

serve as an important device for spatial analysis, forecasting and federal funding. Figure 1-1 shows the distinction of 96 regions into three region types of urbanization and population density. Most areas of East Germany are peripheral except Berlin and parts of Sachsen.³ In West Germany larger agglomerations are present between the Ruhr area and Köln / Bonn as well as between Frankfurt (Rhein-Main) and Karlsruhe (Mittlerer Oberrhein) / Stuttgart.

³ For reasons of legibility throughout the whole text we use German terms since translations are not consistently available for all regions.



2 Regional specialization in Germany

2.1 Patterns of regional specialization

Specialization can be measured in different ways. In this study the main indicator is the relative specialization of a region measured by the difference between the regional employment share of an industry and its national share, $\frac{Empl_{i,r,t}}{Empl_{r,t}} - \frac{Empl_{i,t}}{Empl_t}$. $Empl_{i,r,t}$ is the total number of employees in sector i , region r and the year t . The usage of the BHP for the descriptive analysis requires a spare use of data. For that reason, only industry-region cells are used where $\frac{Empl_{i,r,t}}{Empl_{r,t}} - \frac{Empl_{i,t}}{Empl_t} > 0$. Industry-regions without any signs of specializations are neglected. For reasons of data protection also industry-region cells based on less than 20 firms are not taken into account. This restriction implies the requirement of a critical mass of firms within the same sector which is also a reasonable argument to identify locations of quantitative importance.

However, especially concentrated sectors with large leading firms, such as manufacturing of motor vehicles, suffer from the limitations of the data base for two reasons. First, the loss of information is higher in these sectors due to the 50 percent sample. If the leading firm in a region is not included in the sample then the observed employment share deviates markedly from the actual weight of the sector and the region, respectively. Second, the required minimum number of observations is also a problem if regional sectors rely on a few numbers of powerhouses and the related supplier industries are very diverse.

The following introducing analyses are based on composite indices of sectoral employment shares. For this purpose we apply a rather rough sectoral distinction of non-knowledge intensive manufacturing (*nkim*), knowledge intensive manufacturing (*kim*) and services (*kis*). For each region we compute arithmetic means of the sectoral indicators:

- specialization, i. e. the deviation of the industry's regional share from the national average, $\left(\frac{Empl_{i,r,t}}{Empl_{r,t}} - \frac{Empl_{i,t}}{Empl_t} \right)$,
- national weight, i. e. the share of the regional sector within the national sector, $\left(\frac{Empl_{i,r,t}}{Empl_{i,t}} \right)$, and
- skill intensity in the regional sector, i. e. its deviation from the national average in the sector $\left(\frac{Empl_{i,r,t}^{HS}}{Empl_{i,r,t}} - \frac{Empl_{i,t}^{HS}}{Empl_t} \right)$, with $Empl_{i,r,t}^{HS}$ as the number of high skilled in the industry-region in year t .

Due to the aforementioned restrictions it is ensured that only industries with a critical mass are considered. Therefore we use the simple arithmetic mean instead of weighting single industries higher than others.

The index value of a region may ground on only one industry or on the averages of several industries of the same sector (e. g. knowledge intensive services). The indicator for the weight of the regional sector in the national sector is the only measure relating to the absolute size, although this also applies only for nationally important sectors.

The calculation of the indices X_r^S , with $S \in \{nkim, kim, kis\}$, is based on the values of the density function of z-standardized values for the three indicators. For the first index, the corresponding values for specialization, and the national share of the regional sector are multiplied. The second index is en-

riched by the skill dimension, i. e. the first index is multiplied with the corresponding values for skill intensity. The values of the latter index thus are a bit smaller. For each region only those industries are included, which fulfill the abovementioned restrictions, specialization and at least 20 firms. Therefore the selection of industries which enter the calculation of the individual index value X_r^s differs, depending on the region's specialties. For example, $X_{Bielefeld}^{nkim}$ only considers the specialization in one single industry: manufacture of basic metals and fabricated metal products, while $X_{Mittelhessen}^{nkim}$ takes into account the average specialization in two further industries of the non-knowledge intensive manufacturing (manufacture of food products, beverages and tobacco as well as manufacture of wood and wood products, pulp, paper and paper products).

Figure 2-1: Top ten specialized regions by sector

Rank	non-knowledge intensive manufacturing		knowledge intensive manufacturing		knowledge intensive services	
	specialization + national share	specialization + national share + skill intensity	specialization + national share	specialization + national share + skill intensity	specialization + national share	specialization + national share + skill intensity
1	Bochum/Hagen	Oberfranken-Ost	Braunschweig	Braunschweig	Rhein-Main	München
2	Bielefeld	Bochum/Hagen	Bremerhaven	München	München	Rhein-Main
3	Oberfranken-Ost	Duisburg/Essen	Köln	Stuttgart	Hamburg	Berlin
4	Oberfranken-West	Südsachsen	Oberfranken-West	Köln	Berlin	Stuttgart
5	Mittelhessen	Bielefeld	Schleswig-Holstein Ost	Schleswig-Holstein Ost	Stuttgart	Hamburg
6	Oberpfalz-Nord	Trier	Stuttgart	Donau-Iller (BW)	Köln	Köln
7	Saar	Oberpfalz-Nord	München	Industrieregion Mittelfranken	Düsseldorf	Düsseldorf
8	Franken	Münster	Bielefeld	Rheinhessen-Nahe	Mittlerer Oberrhein	Bonn
9	Mittelrhein-Westerwald	Saar	Rheinhessen-Nahe	Hamburg	Hannover	Unterer Neckar
10	Münster	Mittelrhein-Westerwald	Franken	Bodensee-Oberschwaben	Duisburg/Essen	Mittlerer Oberrhein

Source: BHP 2000-2010. Own calculations.

The first impression from this top ten table is that from the left (non-knowledge intensive manufacturing index without the skill dimension) to the right (knowledge intensive services index including skills) the kind of region changes: starting from former traditional industrial districts (like Bochum or Saar), and regions of less density (Oberfranken, Oberpfalz, Westerwald) to large agglomerations (München, Rhein-Main (Frankfurt), Berlin etc.). Regarding the manufacturing sectors some of the regions with high specialization and industries with national weight drop from higher positions when the skill dimension is added. In the non-knowledge intensive manufacturing, e. g., Oberfranken-West, Mittelhessen, and Franken, leave the top ten while Duisburg / Essen, and Südsachsen enter at a high position. Except Duisburg/Essen which only shows specialization in metal products etc., the remaining regions have four to five industries they are specialized in.

The top three regions in the knowledge intensive manufacturing sector Braunschweig (motor vehicles), Bremerhaven (other transport equipment) and Köln (motor vehicles and chemicals / pharmaceu-

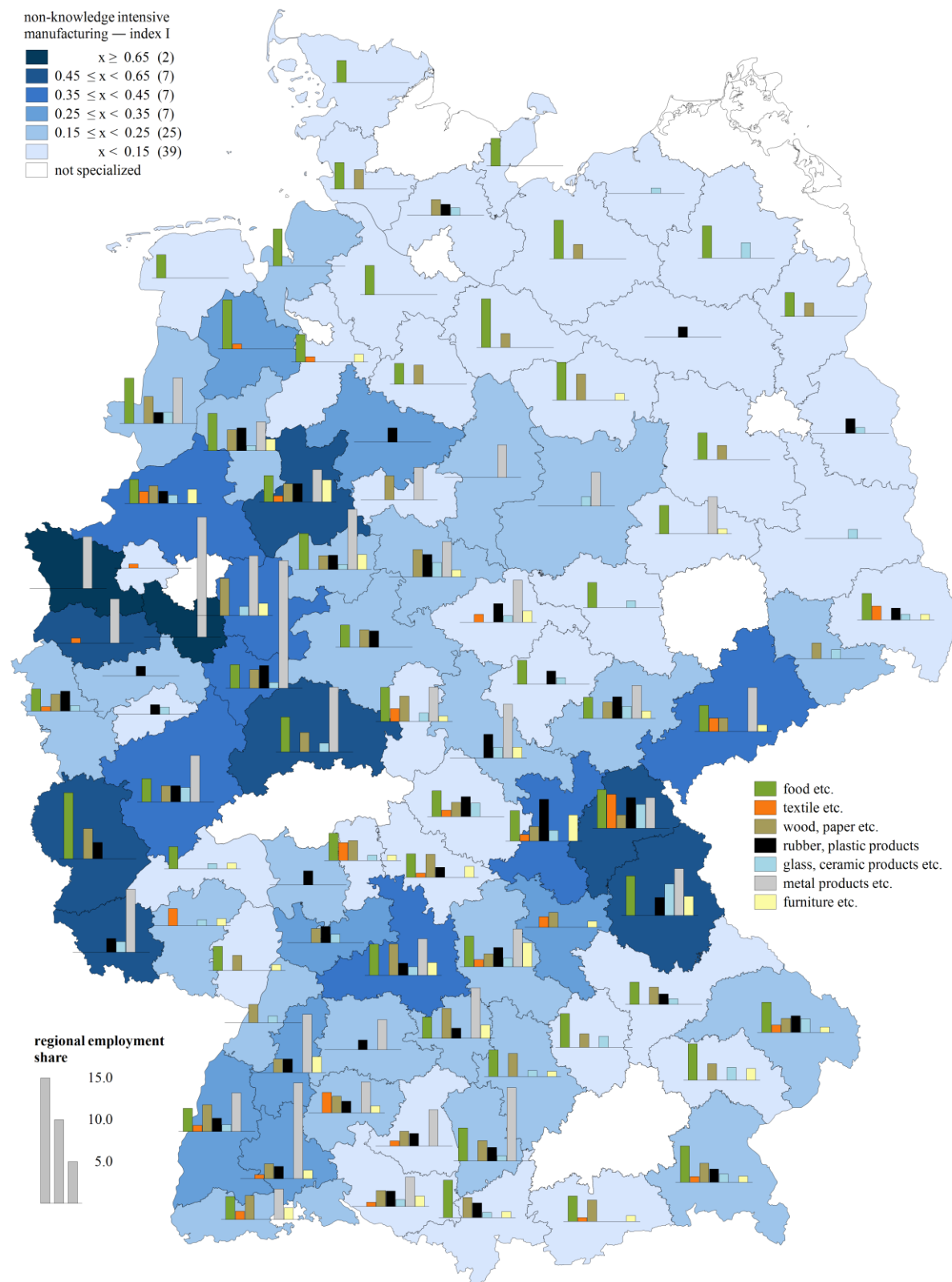
ticals) reached their position due to only one to two industries. However, adding the skill dimension, Bremerhaven (no. 2) totally leaves the top ten while six other regions, inter alia München (media and communication equipment etc., electrical machinery, and medical, precision and optical instruments etc.), and Stuttgart (with five out of eight industries in this sector) climb up the list.

Finally, in the knowledge intensive services the top seven consist of the largest agglomerations in Germany. The addition of the skill dimension changes their order only to a small extent. The industrial variety is larger, there are at least three industries with specialization characteristics per region. In Hamburg, München, Rhein-Main, and Stuttgart all five industries of this sector are found. Also the other regions at position eight to ten have at least two industries (Unterer Neckar), maximum of four (Hannover, Mittlerer Oberrhein) entering the calculations.

The detailed results of the analyses are shown in the following six maps: two indices for each of the three sectors. The color of each area represents the index value which was used in the “top ten” lists described above: The darker an area is colored, the higher its index. Moreover, the regional employment shares of single industries belonging to that sector indicate which industries affect the regional index value. Due to the data restriction only industries with numbers of observations exceeding the aforementioned thresholds are shown, i. e. missing columns do not mean that the concerning is not represented in a region but that at least there is no specialization on that industry.

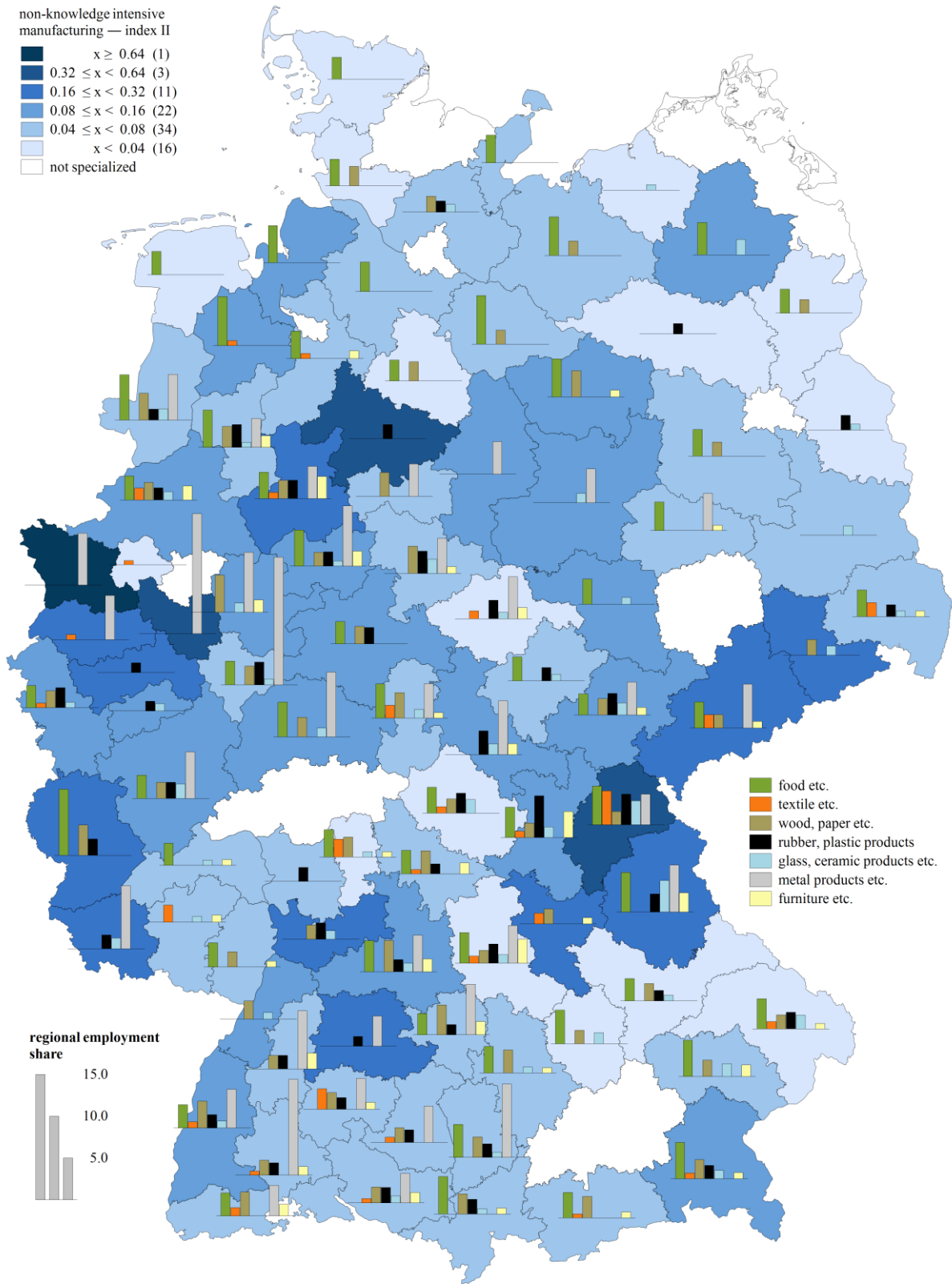
Regional specialization within the non-knowledge intensive manufacturing is frequently accompanied by relatively high employment shares in food manufacturing. The high number of specialized regions probably stems from the absence of large urban labor markets (and their high employment weight within the national average) in this industry. Furthermore, food manufacturing often constitutes the only industrial specialization, sometimes together with the manufacture of wood and paper products. These two industries are localized in the northern parts of Germany. In contrast, other industries like textile manufacturing, rubber and plastic products, and manufacturing of furniture are more frequently present below the axis from Bielefeld to Dresden (Südsachsen). Regions with specialization in most of the non-knowledge intensive manufacturing sectors are in the north of Bayern and bordering regions of Baden-Württemberg and Hessen. Finally, the industry with the highest employment shares of up to 10 percent is manufacturing of metal products, which is mainly present in Nordrhein-Westfalen but also in Hessen, Baden-Württemberg, and northern Bayern. Adding the skill dimension to the index slightly reduces the disparities: While some regions in Nordrhein-Westfalen drop to lower classes, which other regions in East Germany now achieve.

The number of regions specialized in non-knowledge intensive manufacturing outnumbers the regions specialized in knowledge intensive manufacturing industries. Especially the North East of Germany lacks specialized regions. Oderland-Spree, located between Berlin and the Polish border in the very East (here: media and communication equipment) is the only exemption. The reason for the smaller number of specialized regions lies in the stronger participation of some (larger) intermediate and urban areas shifting the average and leaving smaller regions behind. The most prominent examples are Braunschweig (motor vehicle production), Stuttgart and München including other industries. Comparing the two indices (index II including high skill intensity) for the knowledge intensive manufacturing sector does not change the pattern substantially. The relative position of the southern regions and to some extent also regions in Niedersachsen and Schleswig-Holstein improve.

Figure 2-2: *Regional specialization in non-knowledge intensive manufacturing (index I)*

Source: BHP 2010. Own calculations.

Figure 2-3: Regional specialization in non-knowledge intensive manufacturing (index II)



Source: BHP 2010. Own calculations.

Regarding the dispersion of single industries the manufacture of machinery is widely spread over West Germany with the highest employment shares in Baden-Württemberg. Electrical machinery follows a similar pattern, but to a lower extent. In contrast, other transport equipment has only a small number of locations. The spatial pattern of this industry suffers from the exclusion of regions that are affected by data restrictions, i. e. the 50 percent probability of including leading firms and the minimum number of 20 firms within the industry-region cell of the original tables. Therefore, missing information for some known locations, e. g. the manufacture of airplanes and ships in Hamburg, affect the descriptive results. The distribution of other knowledge intensive manufacturing industries follows different patterns:

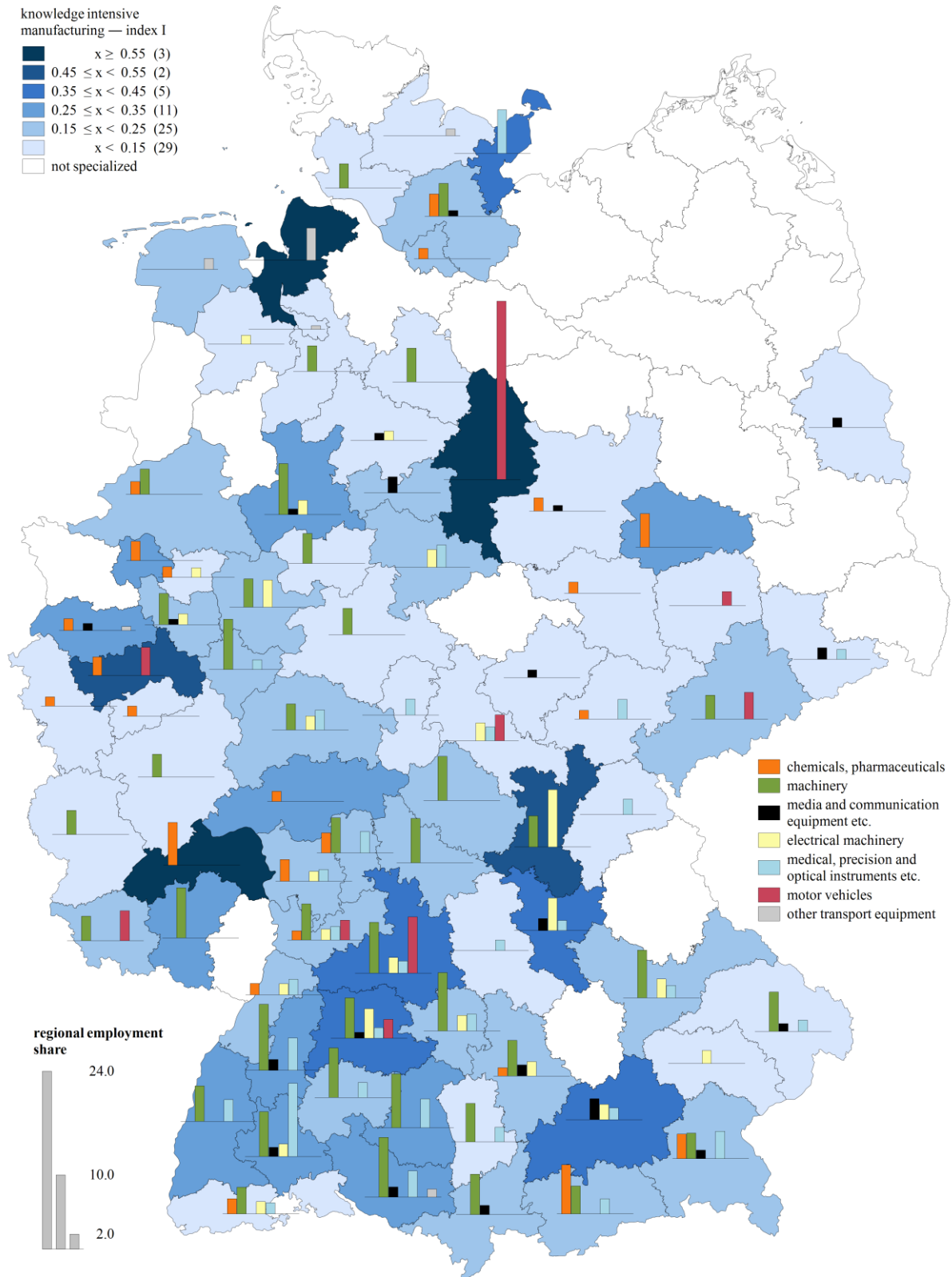
- Manufacture of chemicals and pharmaceuticals has spots of several regions in the very West of Nordrhein-Westfalen, in traditional manufacturing regions of East Germany, along the middle and upper Rhein river, and at the Austrian border.
- Specialized regions with an emphasis on media and communication equipment are found in the south of Baden-Württemberg and Bavaria, and also (but less frequent) in Nordrhein-Westfalen, Niedersachsen and in isolated regions of East Germany.
- Manufacture of medical, precision and optical instruments etc. is concentrated especially in the southern regions, but also between Hessen and Thüringen. Single locations are found in Schleswig-Holstein and in the South of Niedersachsen (Göttingen).

The knowledge intensive service sector is present in urban regions. There is also a weak specialization in some rural regions in East Germany and surrounding Hamburg. These sites are mainly shaped by media and culture industries that are the spatially most disperse branch of the knowledge intensive service sector. Presumably, this results stems from structural weaknesses in other industries leading to a higher weight of mainly public culture services. Media and culture services are also located in some regions in Nordrhein-Westfalen.

There are a number of regions only specialized in one of the knowledge intensive service industries. This is not only the case for media and culture, but also for financial intermediation, technical consulting and research and to some extent also computer and related activities. The latter, however, is spatially less disperse and often found around larger agglomerations, i. e. Berlin, München, and in South West Germany. In contrast, non-technical consulting and research is mainly located in regions with large cities.

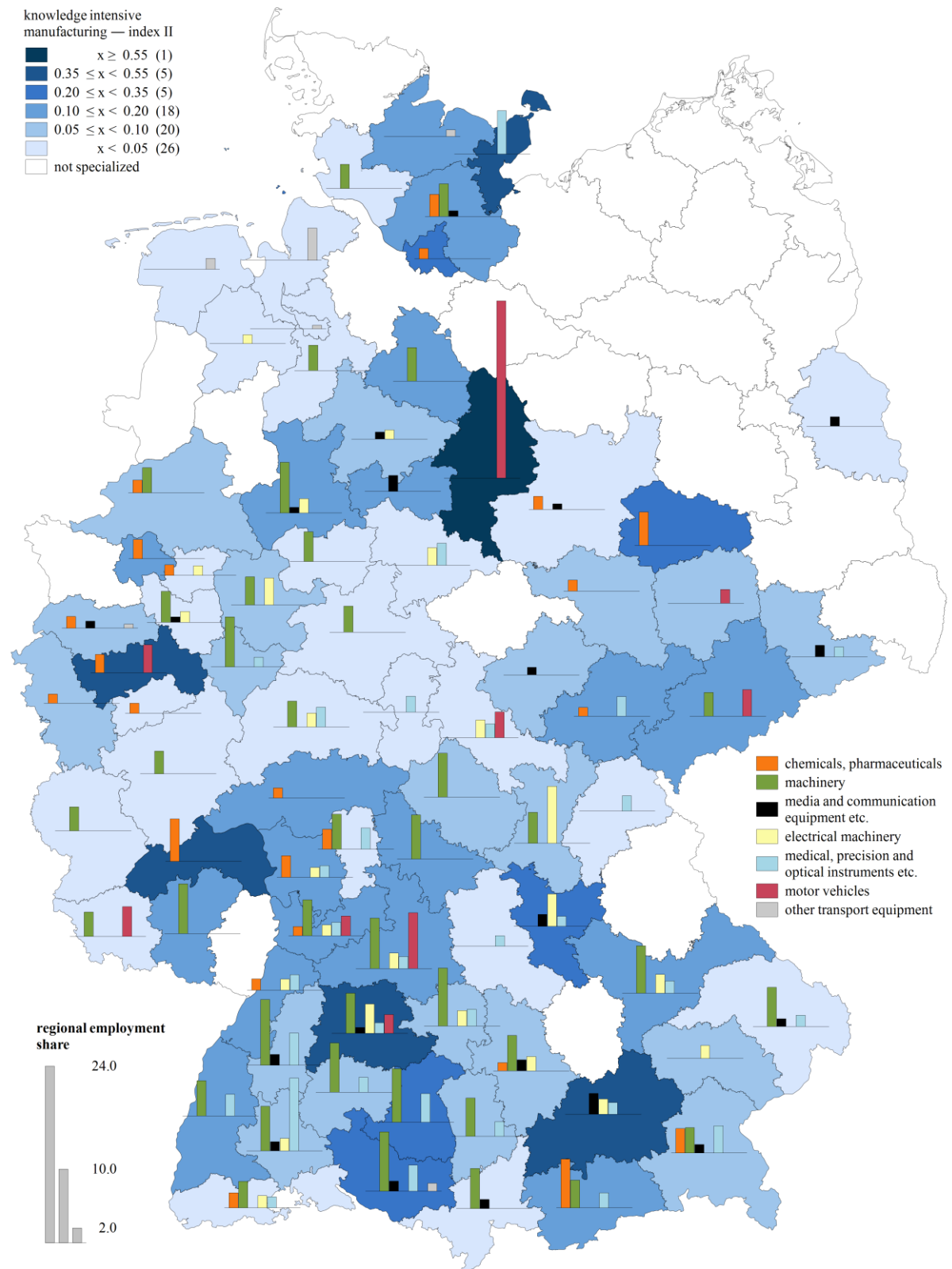
The difference between the two indices is small compared to the other two sectors. The relative positions of the regions are strictly held indicating that there is only low variation of skill intensity between the regions which are specialized in knowledge intensive service industries.

Figure 2-4: Regional specialization in knowledge intensive manufacturing (index I)



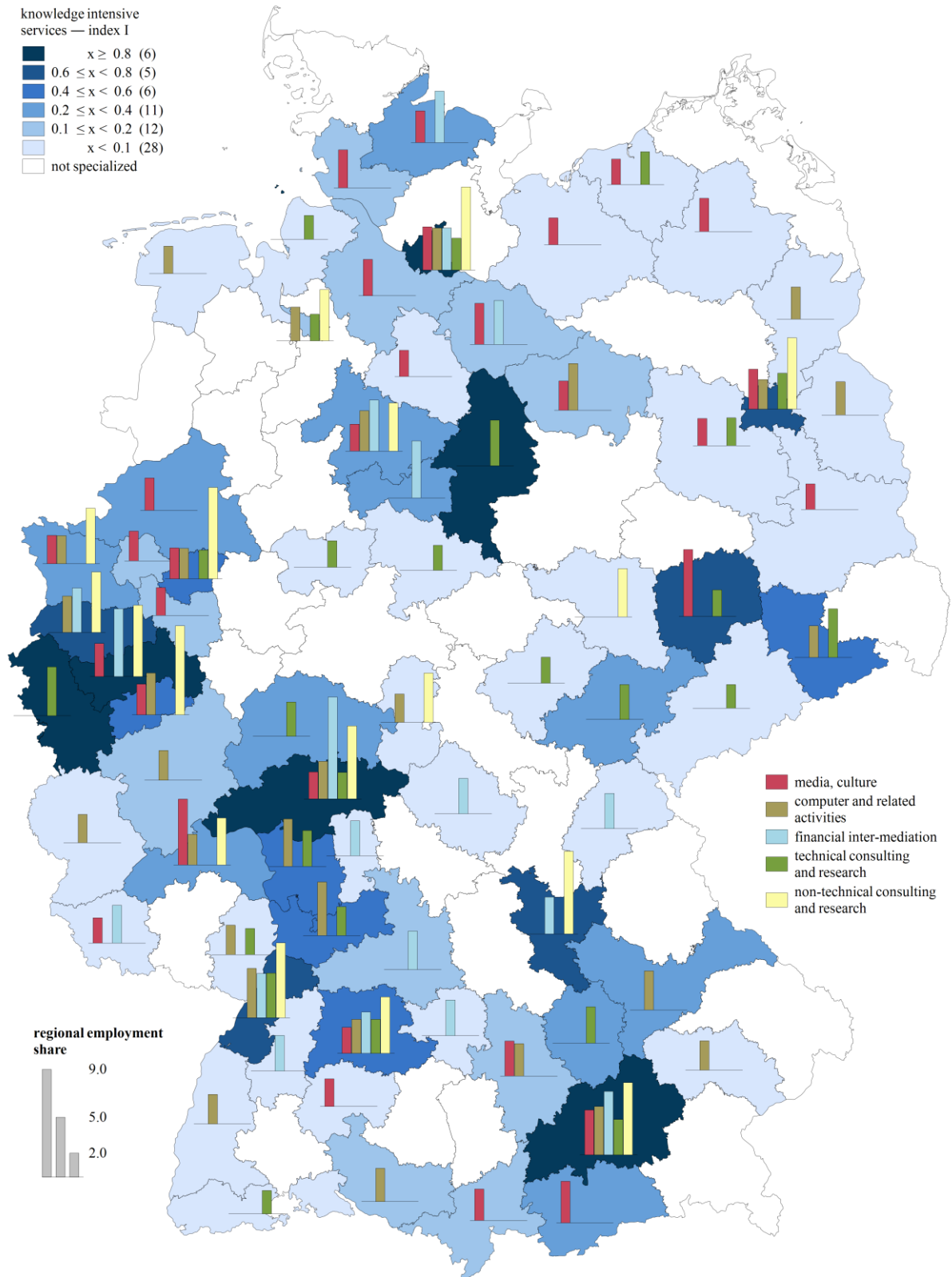
Source: BHP 2010. Own calculations.

Figure 2-5: Regional specialization in knowledge intensive manufacturing (index II)



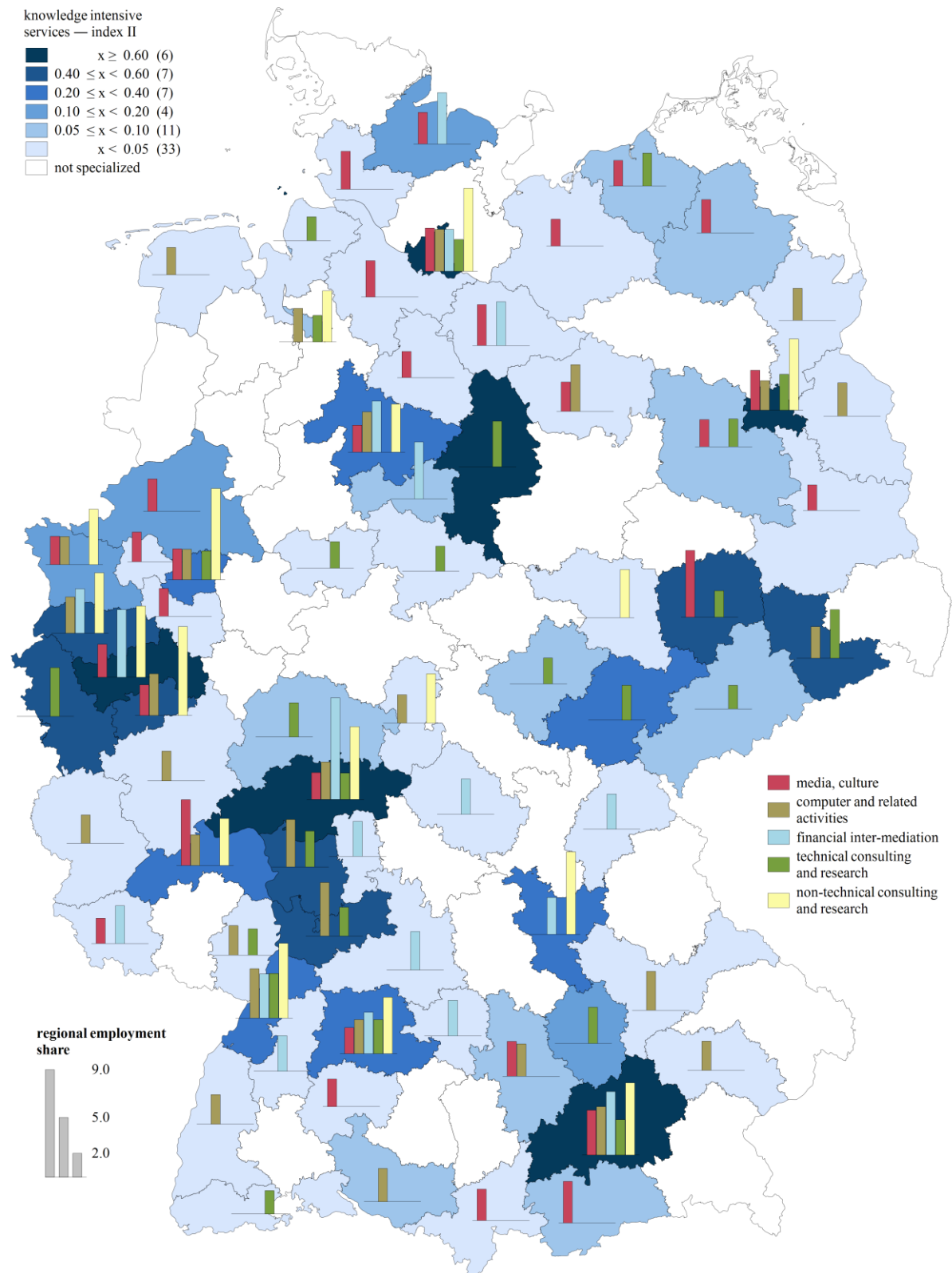
Source: BHP 2010. Own calculations.

Figure 2-6: Regional specialization in knowledge intensive services (index I)



Source: BHP 2010. Own calculations.

Figure 2-7: Regional specialization in knowledge intensive services (index II)



Source: BHP 2010. Own calculations.

2.2 Sectoral Growth effects

A series of sectoral growth regressions on specialization measures of each regional sector addresses specialization and differentiation. For example, the effect of specialization in sector 1 on subsequent growth of sector 2 is investigated. The model includes the share of high skilled employees with an academic degree within each regional sector as well as an interaction term between specialization and high skilled employment.

The underlying hypothesis for the skill indicator is that a higher skill intensity of a certain regional sector constitutes an own source of spillover effects from this sector regardless of its relative weight with a region (the specialization). In other words, the more high skilled are employed, the higher is the quality of what this sector may contribute to other sectors. High-skilled employment is supposed to be an important channel / transmitter for knowledge spillovers.

However, in order to spur growth in other sectors, it is possible that both specialization *and* skill intensity is needful. If specialization is high due to a large manufacturing plant without any headquarter or R&D functions, then there is only a small scope of strategically important tasks exhibiting spillover effects.

This model does not account for the endowment or other characteristics of the region. Therefore, it measures co-location and co-development, respectively, rather than causal impacts on sectoral growth. The effects on sectoral growth may therefore result from a common locational factor affecting both: the specialization in one and the growth in another sector. Any interpretation of the results has to consider these restrictions. However, for simplicity of illustration, the following description neglects these semantic differences.

The regression for the biannual regional growth of a certain sector takes the form:

$$\begin{aligned} & \frac{Empl_{i,r,t+2} - Empl_{i,r,t}}{Empl_{i,r,t}} \\ &= \beta_i^0 \\ &+ \sum_{i=1}^{35} \beta_i^1 \left(\frac{Empl_{i,r,t}}{Empl_{r,t}} - \frac{Empl_{i,t}}{Empl_t} \right) + \sum_{i=1}^{35} \beta_i^2 \left(\frac{Empl_{i,r,t}^{HS}}{Empl_{i,r,t}} \right) \\ &+ \sum_{i=1}^{35} \beta_i^3 \left(\left(\frac{Empl_{i,r,t}}{Empl_{r,t}} - \frac{Empl_{i,t}}{Empl_t} \right) * \left(\frac{Empl_{i,r,t}^{HS}}{Empl_{r,t}} \right) \right) + D_i + \varepsilon_i. \end{aligned}$$

D_i is a set of dummy variables for the even years between 2000 and 2008.

The model is estimated by a fixed effects panel regression for five biannual growth rates between 2000 and 2010. Due to potential heteroscedasticity emanating from the level effect on growth rates (large and erratically varying rates at low absolute levels) robust variance estimators are used.⁴

The results for the 35 sectors and therein 35 effects for sectoral specialization, skill intensity and the interaction are aggregated within a single matrix indicating positive and significant (at the 10 percent level) coefficient estimates.

⁴ The model was estimated with Stata version 13 using the command `xtprobit, options fe and vce(cluster)`.

Figure 2-8: Sectoral effects of specialization, skill intensity and its interaction on sectoral growth

	food etc.	textile etc.	wood, paper etc.	rubber, plastic products etc.	glass, ceramic products etc.	metal products etc.	furniture etc.	printing, coke etc.	chemicals, pharmaceuticals	machinery	media & communication equipm. etc.	electrical machinery	medical, precision & optical instrum.	motor vehicles	other transport equipm.	computer and related activities	media, culture	financial intermediation	technical consulting & research	non-technical consulting & research
food etc.		x			x					*		x						x		
textile etc.			*			x											*			
wood, paper etc.	+			x				*		x		*								
rubber, plastic products		+					*		*						+				x	
glass, ceramic products etc.																	x			
metal products etc.	+																	*		
furniture etc.	x	+											*			+				
printing, coke etc.	+	x				x		*								+		*		
chemicals, pharmaceuticals	+								x			+					x			
machinery							*													
media and communication equipment etc.	+						x				*	*							*	
electrical machinery	+		*	*									*		*	+				
medical, precision and optical instruments etc.								*						*	x					
motor vehicles	+				x													+		
other transport equipment		+													x					
computer and related activities	+						+			*							*			
media, culture			x	x	*											+	*			
financial intermediation		+		*															*	
technical consulting and research						*					+				x					
non-technical consulting and research								+	*							+				

Remarks: Columns represent dependent variables (industrial employment growth), independent variables are in rows. Signs indicate positive and significant (at the 10 percent level) coefficient estimates for sectoral specialization (+), share of high skilled employment in a sector (x), and their interaction (*). Colored cells indicate non-knowledge intensive manufacturing, knowledge-intensive manufacturing and services. Source: BHP 2000-2010. Own calculations.

To sum up the results, several groups of sectors are distinguished which often exhibit certain effects or are affected by those effects, respectively. The description focuses on sectors with at least four sectoral effects of one category (specialization, skill intensity, and interaction).

- Several non-knowledge intensive industries are often positively affected by specialization effects (food products etc., textile products etc.). This mainly concerns specialization in other non-knowledge intensive industries. Locations with specialization on knowledge intensive industries (except for machinery, instruments, and other transport equipment, also computer and related activities) are especially effective to drive growth in the manufacturing of food products etc.
- IT services – as a multipurpose service industry – benefit from specialization effects from very different sectors, e. g. manufacturing of furniture etc., printing, and electrical machinery as well as media and culture, and non-technical consulting and research.
- While skill intensity effects are hardly found, the interaction especially affects printing, IT services, and financial intermediation.
- However, there are no effects on knowledge intensive manufacturing.
- The mutually enforcing (interaction) effects of specialization and skill intensity emanate from three knowledge intensive manufacturing sectors: media and communication equipment, electronical equipment, and the mixed sector including printing, coke, and refined petroleum products. Most interestingly, all these three sectors spur their “own” growth by interacting specialization and skill intensity. The further effects are present in different non-knowledge intensive manufacturing sectors.
- Effects from the business and knowledge intensive service sectors mainly emanate from
 - computer and related activities (affecting food products, and textile products via specialization, as well as machinery via interaction with skill intensity),
 - media and culture (affecting wood and paper products, and rubber and plastic products via skill intensity, as well as glass products etc., and computer services via the interaction), and
 - technical consulting and research (affecting electrical machinery via specialization, other transport equipment via skill intensity, as well as electricity, gas and water supply, and metal products via interaction of the two effects).

Generally spoken, effects of single industries or certain measures of specialization in favor of differentiation processes are not regularly found. Most promising effects emanate from a combination of specialization and skill intensity, though not systematically. Against this background, the origins of (skilled) workers which might contribute to the regional employment effects are of special interest. Therefore the following chapter deals with the question of how regional industries attract employment.

3 Labor mobility

The availability of labor is one major determinant of sectoral growth. The subsequent analysis therefore focuses on the origin of employees one year ago.⁵ We distinguish five kinds of origin: employment and unemployment of people who already resided in the region of work one year later on, employment and unemployment in another region, and migration from abroad.

The analysis is based upon the Sample of Integrated Labour Market Biographies (*Stichprobe der Integrierten Arbeitsmarktbiografien*, SIAB) provided by the research data centre (*Forschungsdatenzentrum*, FDZ) of the German Federal Employment Agency (*Bundesagentur für Arbeit*, BA) at the Institute for Employment Research (*Institut für Arbeitsmarkt- und Berufsforschung*, IAB). It is a 2 percent random sample of the registered labor force gathered from different administrative records. Since the time dimension is on a day-to-day basis we had to define annual employment. Employment is defined by a spell of at least half a year. Unemployment is defined by not being employed and a continuous a spell of at least 90 days (three months) in one of several different subtypes of unemployment considered in the data. Mobility results from a comparison of the planning regions in the concerning year and one year ago. The identification of migration from abroad is indirect in the sense that it covers all people at the minimum age of 35 years with a foreign nationality and no preceding record in the data. The age restriction was imposed in order to minimize the number of graduates with a foreign nationality originating from the national education systems and not from abroad. The age restriction was applied to the whole sample for reasons of comparability. Another possible distinction could have been made between resident workers who changed their employers in contrast to those who did not. However, the small number of observations does not permit a further differentiation.

First, descriptive results of different origins (regional mobility, transition from unemployment) are presented for single industries and differentiated for total employment and high-skilled employment. Then, an econometric analysis of the determinants for different origins is conducted in order to find out in more detail which kind of employees are moving into the respective industries. The variables of interest, however, are indicators for regional specialization that are expected to promote mobility.

3.1 Descriptive analysis

Three periods between 2000 and 2010 are distinguished. The period 2000 to 2006 comprises a downswing of employment which was moderated by the labor market reforms in the mid-2000s and the beginning of the upswing from 2006 onwards. The period from 2008 to 2010 then covers the most recent years including the 2008/09 recession which, however, hardly affected employment, and the subsequent uptake of the employment growth.

Continuous regional employment is most important in the **production sector**, especially in knowledge intensive production industries about 95 percent of the employees already worked in their actual re-

⁵ The importance of mobile and / or previously unemployed workers is of course higher when period of possible changes is extended from one year to multiple years. However, due to necessary definitions and restrictions the total number of observations where past information is available decreases with the number of preceding years. It is expected that a longer time span increases the probability of originating from other employment states compared to an unchanged working place.

gion one year ago (Figure 3-1). The production of motor vehicles exhibits the highest rate of about 97 percent in the two periods from 2006 to 2008 and 2008 to 2010. The shares remain constant through all periods. Previous unemployment has been experienced twice as often in the non-knowledge intensive production sector compared to the knowledge intensive production sector (4.2 and 2.2 percent, respectively). The relatively lowest absolute number is found in motor vehicles manufacturing (1.7 percent), the highest in food manufacturing, recycling, and in the construction sector (4.9 to 5.8 percent). The trend is slightly decreasing.

Concerning attraction from other regions, there are smaller shares of about 2 percent of the employees in the production sector, 1.6 percent in the knowledge intensive, and 2.0 percent in the non-knowledge intensive production industries. Again, employment shares of mobile workers are lowest in motor vehicles manufacturing (0.9 percent). In contrast, the mining industry shows relatively high shares of job-to-job mobility (3.6 percent) compared to other industries, probably resulting from closure of old mines and relocation of employment to existing sites within the scope of the operating company. Previously unemployed workers from other regions are of minor importance. Usually not more than 1 percent of all employees was unemployed one year ago. The same number applies to foreign immigrants.

In the **knowledge intensive services** the share of resident and continuously employed workers is a bit smaller but still of major importance (91.2 percent). The number varies from 85.9 percent in media and culture services to 94.1 percent in financial intermediation. Accordingly, the step from unemployment into employment is more frequent in the former (7.0 percent) than in the latter (2.5 percent). The average of 3.9 percent of employees who were previously unemployed therefore matches especially other knowledge intensive service industries, e. g. computer and related activities or non-technical consulting and research. The share of employees who changed their job by moving to a new region is slightly higher than in the knowledge intensive production sector (2.6 percent), whereby previously unemployed from other regions or foreign immigrants (1.1 percent each) are of similarly low importance as in the production sector.

The origin of the workers in the previous year is most disparately distributed in the non-knowledge intensive service industries. About 15 percent of the employees did not work in the respective region one year ago. Correspondingly, the share of unchanged working places amounts to 84.6 percent. The numbers of workers who were unemployed are markedly higher than in the other sectors: 6.9 percent from the same region, 2.6 percent from another planning region within Germany. The share of previously employed workers who moved is more than twice as high as the national average (3.8 vs. 1.7 percent) and also recent immigrants from abroad are more frequently employed in the non-knowledge intensive services (2.2 percent).

The service sectors are generally more open and attractive to unemployed as well as national and international migrants. This is a result of the stronger employment growth experienced in the past decade which required the recruitment of new workers while the low employment dynamics in the production sector probably increased the weight of the already employed work force. However, the stable pattern over time and thus during different growth periods indicates that differences between sectors are not only explained by expanding labor demand.

Figure 3-1: Sectoral structure of employees' origin in the preceding year

sector	resident workers						mobile workers						migrants		
	employment			unemployment			employment			unemployment					
	08-10	06-08	00-06	08-10	06-08	00-06	08-10	06-08	00-06	08-10	06-08	00-06	08-10	06-08	00-06
knowledge intensive production	94.8	94.8	94.5	2.2	2.2	2.5	1.6	1.7	1.8	0.5	0.5	0.5	0.8	0.7	0.7
printing, coke etc.	94.9	96.1	95.1	1.8	1.0	2.2	1.9	1.0	2.0	0.7	1.0	0.3	0.7	1.0	0.3
chemicals, pharmaceuticals	94.8	95.0	94.4	2.2	2.1	2.3	1.7	1.8	2.0	0.4	0.4	0.5	0.9	0.8	0.7
machinery	94.8	94.5	94.7	2.2	2.3	2.3	1.7	1.9	1.9	0.6	0.7	0.6	0.7	0.6	0.5
media and communication equipment etc.	93.2	93.3	92.5	2.7	2.4	2.9	2.2	2.5	3.0	0.8	0.7	0.6	1.1	1.1	1.0
electrical machinery	94.8	94.0	94.2	2.0	2.4	2.4	1.7	2.1	2.0	0.5	0.4	0.5	1.0	1.1	0.9
medical, precision and optical instruments etc.	94.0	94.1	93.2	2.6	2.5	3.1	1.9	1.9	2.2	0.6	0.6	0.7	1.0	0.9	0.9
motor vehicles	96.7	96.9	96.4	1.7	1.6	1.8	0.9	0.8	1.0	0.2	0.2	0.3	0.5	0.4	0.5
other transport equipment	94.2	94.5	94.6	1.9	2.0	2.3	2.6	2.3	2.0	0.7	0.4	0.5	0.7	0.8	0.6
non-knowledge intensive production	91.6	91.1	90.5	4.2	4.5	4.7	2.0	2.0	2.2	1.2	1.4	1.3	1.1	1.1	1.2
mining	93.5	92.4	93.2	1.9	2.0	2.4	3.6	4.6	3.6	0.6	0.8	0.5	0.5	0.3	0.3
food etc.	90.5	91.1	89.4	4.9	4.6	5.2	1.7	1.7	2.2	1.2	1.1	1.2	1.8	1.6	2.0
textile etc.	92.2	93.2	92.5	4.3	4.0	4.5	1.5	1.2	1.1	0.9	0.6	0.8	1.2	1.0	1.1
wood, paper etc.	93.7	93.1	93.3	3.2	3.6	3.4	1.6	1.5	1.5	0.6	0.8	0.8	0.9	1.0	1.0
rubber, plastic products	94.2	94.2	93.1	2.8	2.8	3.5	1.3	1.4	1.7	0.7	0.8	0.7	0.9	0.9	1.0
glass, ceramic products etc.	93.4	93.1	93.1	3.1	3.1	3.4	2.0	2.2	2.0	0.7	0.9	0.8	0.7	0.7	0.8
metal products etc.	93.8	93.3	93.0	3.2	3.3	3.5	1.5	1.6	1.8	0.6	0.9	0.9	0.9	0.9	0.9
furniture etc.	92.6	93.0	92.7	3.7	4.0	4.0	1.7	1.3	1.3	0.9	0.8	1.0	1.1	0.9	1.0
recycling	90.7	89.0	87.6	5.0	6.2	7.0	2.2	2.5	2.7	1.3	1.4	1.6	0.8	0.8	1.1
electricity, gas and water supply	94.9	96.0	94.3	1.7	1.6	2.0	2.6	1.8	3.2	0.4	0.3	0.3	0.4	0.3	0.3
construction	88.1	86.9	86.9	5.8	6.7	6.6	2.7	2.6	2.7	2.1	2.5	2.3	1.3	1.4	1.5
knowledge intensive services	91.2	91.6	90.9	3.9	3.7	4.0	2.6	2.5	2.7	1.1	1.0	1.1	1.1	1.2	1.3
media, culture	85.9	86.7	85.7	7.0	6.8	7.1	2.3	1.7	2.2	2.4	2.4	2.3	2.4	2.5	2.6
computer and related activities	88.7	88.6	87.0	4.1	3.8	4.6	4.0	4.5	5.0	1.5	1.4	1.4	1.6	1.7	2.0
financial intermediation	94.1	94.9	93.9	2.5	2.1	2.4	2.3	2.2	2.6	0.5	0.4	0.5	0.5	0.5	0.5
technical consulting and research	90.6	89.6	89.8	3.2	3.7	3.8	3.6	3.9	3.6	1.3	1.6	1.4	1.3	1.3	1.4
non-technical consulting and research	88.9	89.3	87.7	4.1	3.9	4.5	4.3	3.8	4.3	1.5	1.5	1.7	1.3	1.5	1.7
human health	92.8	93.3	93.1	4.0	3.6	3.7	1.6	1.5	1.5	0.7	0.6	0.6	0.9	0.9	1.0
non-knowledge intensive services	84.6	84.7	85.0	6.9	6.9	6.5	3.8	3.6	3.7	2.6	2.6	2.3	2.2	2.2	2.4
sale of motor vehicles	92.2	91.5	91.5	3.6	3.9	4.0	2.2	2.5	2.4	1.1	1.2	1.1	1.0	1.0	1.0
wholesale trade	90.1	90.1	89.4	3.4	3.5	3.8	3.8	3.7	4.0	1.3	1.3	1.4	1.4	1.3	1.4
retail trade (except motor vehicles)	89.0	89.8	88.9	5.5	5.1	5.4	2.7	2.3	2.7	1.5	1.4	1.5	1.3	1.3	1.5
accommodation and food service activities	79.1	79.7	77.5	9.6	9.3	9.7	2.6	2.3	2.6	3.0	2.8	3.1	5.7	5.8	7.2
transport	87.2	87.4	87.4	5.5	5.5	5.3	3.6	3.3	3.9	2.1	2.1	1.9	1.7	1.7	1.4
warehousing, storage, postal and courier activities	87.2	86.1	86.4	4.7	5.3	5.2	4.0	4.3	4.6	2.4	2.8	2.4	1.7	1.5	1.4
real estate, rental and leasing activities	87.6	88.8	88.6	4.8	4.4	4.5	4.0	3.2	3.2	2.0	1.8	1.9	1.7	1.9	1.8
temporary employment agencies etc.	58.2	52.3	54.9	21.1	26.1	23.3	8.0	7.4	7.5	9.7	11.0	10.0	3.1	3.1	4.3
non-knowledge intensive business services	78.7	78.9	76.8	9.4	8.8	9.6	4.8	4.9	5.1	3.6	3.5	3.5	3.5	3.9	5.1
non-business sector	89.7	90.8	89.7	5.7	5.1	6.1	1.7	1.4	1.5	0.9	0.8	0.9	2.0	1.9	1.7
Total	89.6	89.9	89.6	4.9	4.8	5.0	2.5	2.4	2.5	1.4	1.4	1.3	1.5	1.5	1.6

Source: SIAB 2000-2010. Own calculations.

Figure 3-2: Sectoral structure of high-skilled employees' origin in the preceding year

sector	resident workers				mobile workers				migrants	
	employment		unemployment		employment		unemployment			
	06-10	00-06	06-10	00-06	06-10	00-06	06-10	00-06	06-10	00-06
knowledge intensive production	93.5	93.2	-	-	-	-	-	-	-	-
printing, coke etc.	88.8	98.3	-	-	0.0	-	0.0	-	0.0	-
chemicals, pharmaceuticals	91.8	92.5	1.7	1.4	4.0	4.0	-	0.7	2.1	1.3
machinery	92.8	93.0	1.4	1.5	3.9	3.9	0.8	0.7	1.1	0.9
media and communication equipment etc.	94.2	92.9	1.3	1.4	2.8	3.7	0.4	0.6	1.3	1.4
electrical machinery	93.6	93.1	1.2	1.2	3.1	3.5	0.5	0.5	1.7	1.6
medical, precision and optical instruments etc.	93.8	93.2	1.1	1.7	3.2	3.1	0.4	0.5	1.5	1.5
motor vehicles	95.9	94.6	0.8	1.1	2.4	2.8	0.1	0.6	0.9	0.9
other transport equipment	91.8	92.6	-	-	6.0	4.0	-	-	-	1.9
non-knowledge intensive production	91.7	91.5	-	-	-	-	-	-	-	-
mining	88.4	92.8	-	-	0.0	4.8	0.0	-	0.0	-
food etc.	92.4	92.5	2.4	-	2.9	4.4	-	-	0.0	-
textile etc.	82.1	89.2	-	4.1	0.0	-	0.0	-	0.0	-
wood, paper etc.	92.0	92.5	2.0	2.0	3.7	4.0	-	-	0.0	-
rubber, plastic products	93.3	92.2	-	1.5	3.5	4.5	-	-	-	-
glass, ceramic products etc.	91.9	92.0	-	1.8	4.3	3.9	-	-	-	-
metal products etc.	92.0	91.9	1.8	2.0	4.2	4.3	0.8	1.1	1.2	0.7
furniture etc.	90.8	91.5	-	-	-	-	-	-	-	-
recycling	92.1	90.7	4.3	4.2	-	4.3	-	-	-	-
electricity, gas and water supply	94.8	92.5	-	1.0	3.4	5.5	-	-	-	-
construction	89.4	89.8	2.8	2.6	5.1	5.2	1.6	1.2	1.2	1.1
knowledge intensive services	90.0	89.8	2.8	2.9	4.4	4.5	1.0	1.1	1.8	1.7
media, culture	91.1	90.4	3.3	3.7	2.5	3.0	1.0	0.9	2.2	2.0
computer and related activities	89.8	88.6	2.1	2.5	5.2	5.8	0.8	1.0	2.1	2.1
financial intermediation	93.2	92.2	2.0	2.1	3.4	4.2	0.4	0.5	0.9	1.0
technical consulting and research	89.8	90.6	2.8	2.7	4.5	4.0	1.2	1.1	1.7	1.7
non-technical consulting and research	88.8	88.0	2.7	2.8	5.6	5.7	1.1	1.4	1.8	2.0
human health	88.9	89.1	3.5	3.3	4.3	4.6	1.2	1.3	2.1	1.7
non-knowledge intensive services	86.9	87.5	-	-	-	5.9	-	-	-	-
sale of motor vehicles	88.5	89.1	-	-	5.7	5.7	-	-	-	-
wholesale trade	88.3	88.2	2.3	2.2	6.2	6.9	1.2	1.4	2.0	1.3
retail trade (except motor vehicles)	87.0	87.4	3.1	3.7	4.2	4.5	1.7	1.5	4.0	2.9
accommodation and food service activities	79.2	81.9	7.0	5.9	-	4.9	-	0.7	6.5	6.6
transport	89.2	89.6	2.2	2.1	6.0	6.7	0.7	0.2	2.1	1.4
warehousing, storage, postal and courier activities	89.2	89.2	3.3	3.0	4.1	4.5	1.1	1.2	2.4	2.1
real estate, rental and leasing activities	90.9	91.1	2.9	2.6	3.0	3.5	1.4	1.1	1.7	1.7
temporary employment agencies etc.	64.3	62.7	14.2	15.8	11.2	9.8	6.7	8.9	3.7	2.8
non-knowledge intensive business services	86.3	85.5	5.5	4.4	5.4	5.7	1.8	2.2	1.1	2.2
non-business sector	89.8	90.7	4.6	4.4	2.3	2.2	1.0	0.7	2.3	2.0
Total	90.6	90.7	2.9	2.9	3.7	3.8	0.9	0.9	1.8	1.7

Remark: “-“ not available due to small numbers of observations. Source: SIAB 2000-2010. Own calculations.

The results for high-skilled employees are aggregated over the two recent periods due to smaller sample size. However, the differences between the structures of preceding employment states for high-skilled and for total employees are marginal (Figure 3-2). The shares of employees who already worked in the respective industry one year ago are of similar size, i. e. about 90 percent and marginally higher in the production sectors than in the service sectors. Preceding unemployment is less frequent (2.9 percent compared to 4.9 percent for the most recent periods). In contrast, the rate of job-to-job mobility is higher (3.7 percent compared to 2.5 percent) which probably results from lower unemployment rates among high-skilled.

Within the manufacturing sector, other transport equipment (6.0 percent) as well as chemicals and pharmaceuticals (4.0 percent) exhibit the highest shares of employees who joined a new in another region. In the knowledge intensive services especially computer and related activities (5.2) and both consulting and research industries (technical 4.5, non-technical 5.6 percent) have the highest rates of job-to-job movers. Interestingly, the spatial distribution of specialization in these industries is regionally spread indicating that there is only a few number of attractive working opportunities. The spatial configuration thus possibly affects mobility of workers.

Regarding the remaining origins, regional mobility out of unemployment is of minor importance, also compared to the results for total employment (0.9 vs. 1.4 percent). International immigrants among the high-skilled employees are also similarly frequent as with respect to total employment. The few exceptions with slightly higher shares in high-skilled employment are chemicals and pharmaceuticals (2.1 vs. 0.9 percent), computer and related activities (2.1 vs. 1.6 percent) and human health (2.1 vs. 0.9 percent).

3.2 Multinomial regression analysis

The preceding results are the descriptive starting point for the following econometric analysis. Multinomial logit regression analyses of the different origins are conducted for each of the 35 industries. Besides total employment the analysis is also conducted for the subgroup of high-skilled employees.⁶ Individual control variables are age, gender and level of education (three categories: no vocational education, vocational training and comparable vocational education (reference category), academic education). Context variables at the industry-region level are the same which are used to construct the indices in chapter 2, i. e. difference between regional and national employment share of the industry, difference between regional and national skill intensities of the industry, and the employment share of the regional industry on national employment in the industry. As described above, this information is only available for specialized industry-regions with a critical mass of firms. Only the upper part of the distribution of specialization values is included in the data. The coefficients only allow interpretations between highly and slightly specialized regions. Regions with absolutely low representation of industries had to be neglected. Finally, dummy variables for single years between 2000 and 2010 (reference category: year 2000) indicate possible time trends. Base outcome of the dependent variable is continued employment from one year to another.

The results of the regression analyses are presented in the appendix.⁷ The vast number of effects has to be focused and therefore we concentrate on the results for the three specialization indicators (Figure

⁶ Results for printing etc. are not available since the small number of observations does not allow the application of this model.

⁷ No calculation of marginal effects due to high computational effort. Results may be handed in later upon request.

3-3). A general impression regarding the results for total employment is the high number of negative signs. This is mostly the case for the national share but also concerning the relative regional weight indicating that the least specialized regions are becoming more attractive. This kind of catching-up process between slightly and highly specialized regions especially concerns non-knowledge intensive manufacturing industries which mainly attract workers from other regions, regardless of their former employment state. Skill intensity, in contrast, exhibits mainly positive effects although they did not show a certain pattern: they are found in all three major sectors for the transition from local unemployment into employment as well as for international migration.

The picture is clearer regarding only the high-skilled employees. Especially international high-skilled immigrants are attracted by highest levels of specialization. Skill intensity has positive effects in the non-knowledge intensive manufacturing sector as well as in the knowledge intensive services. Relative regional shares are correlated with higher probabilities of migration experience in the knowledge intensive manufacturing sector. High skilled unemployed from other regions are barely attracted by any specialization measure despite perhaps a weaker national share in the non-knowledge intensive manufacturing sector. Job-to-job mobility of high skilled is also hardly affected. Some exceptions are found in the knowledge intensive manufacturing and services sectors where relatively low skill intensities are correlated with higher probabilities of this kind of origin. Again, this is an indication for catching-up.

The results can be summarized in the following way:

- None of the specialization indicators is completely related to the attraction of workers from different regions and / or employment states.
- Skill intensity positively affects transition from local unemployment in some industries of different kind of sectors.
- Local industries with a relatively low national weight attract more workers from outside the local workforce than in nationally important locations. This is especially the case for industries from the non-knowledge intensive manufacturing sectors.
- High-skilled workers are differently attracted by skill intensity, depending on their background. Employees from other German regions are more likely to work in industry-regions with lower skill intensity, while foreign migrants are more frequent in industry-regions with higher levels of skill intensity.
- Foreign migrants are also more often found in regions specialized on knowledge intensive manufacturing sectors. However, specialization in terms of regional shares only play a minor role.

Figure 3-3: Qualitative overview of specialization effects

non-technical consulting and research		+		+		+		+
technical consulting and research	+		+	+				+
financial intermediation		+	+	+				+
computer and related activities		+		+	+			+
media, culture	+			+				+ +
other transport equipment	+	+		+		+	+	+
motor vehicles	+		+	+				+
medical, precision and optical instruments etc.				+	+			+ +
electrical machinery				+		+		+
media and communication equipment etc.	+ +	+						+
machinery	+	+						+ +
chemicals, pharmaceuticals	+			+ +				
furniture etc.				+				+
metal products etc.	+				+			+
glass, ceramic products etc.			+			+		
rubber, plastic products				+				
wood, paper etc.	+			+	+			
textile etc.				+				+ +
food etc.	+			+	+			+ +
	unemployment & same region regional share skill intensity national share	employment & other region regional share skill intensity national share	unemployment & other region regional share skill intensity national share	immigrant regional share skill intensity national share	unemployment & same region regional share skill intensity national share	employment & other region regional share skill intensity national share	unemployment & other region regional share skill intensity national share	immigrant regional share skill intensity national share
	total employment				high-skilled employment			

Remark: Signs of statistically significant (10 percent level) regression coefficients. Source: BHP and SIAB 2000-2010. Own calculations.

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5 Appendix

Figure A 1: Industry codes

industry	WZ 1993
non-business sector	11-50, 751-804, 853, 930-990
mining	101-145
food etc.	151-160
textile etc.	171-193
wood, paper etc.	201-212,222-223
media, culture	221,921-927
printing, coke etc.	213-233
chemicals, pharmaceuticals	241-247
rubber, plastic products	251-252
glass, ceramic products etc.	261-268
metal products etc.	271-287
machinery	291-297
media and communication equipment etc.	300,321-323
electrical machinery	311-316
medical, precision and optical instruments etc.	331-335
motor vehicles	341-343
other transport equipment	351-355
furniture etc.	361-366
recycling	371-372,900
electricity, gas and water supply	401-410
construction	451-455
sale of motor vehicles	501-505
wholesale trade	511-517
human health	523,851-852
retail trade (except motor vehicles)	521-522,524-527
accommodation and food service activities	551-555
transport	601-623
warehousing, storage, postal and courier activities	631-634
computer and related activities	641,721-726
financial intermediation	651-672
real estate, rental and leasing activities	701-714
technical consulting and research	731,742-743
non-technical consulting and research	732-741,744
temporary employment agencies etc.	745
non-knowledge intensive business services	746-748

Source: Own compilation.

Figure A 2: Regression results for non-knowledge intensive manufacturing, total employment

industry	food etc.								textile etc.							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0,4266	(0,000)	-0,3289	(0,000)	0,0545	(0,548)	0,8010	(0,000)	0,0116	(0,889)	-0,8361	(0,000)	-0,4954	(0,031)	0,8032	(0,000)
high skilled (<i>D</i>)	-0,7306	(0,000)	0,6620	(0,000)	-0,0761	(0,718)	0,3426	(0,051)	0,0435	(0,820)	0,9985	(0,000)	0,5525	(0,105)	1,8017	(0,000)
age	-0,1374	(0,000)	0,1233	(0,026)	0,1432	(0,073)	-0,1260	(0,020)	-0,2599	(0,000)	0,1531	(0,303)	0,1047	(0,566)	0,0778	(0,609)
age ²	0,0013	(0,000)	-0,0017	(0,003)	-0,0021	(0,013)	0,0017	(0,002)	0,0025	(0,000)	-0,0020	(0,203)	-0,0015	(0,445)	-0,0004	(0,810)
woman (<i>D</i>)	0,5974	(0,000)	-0,1918	(0,000)	0,1452	(0,051)	0,3008	(0,000)	0,6057	(0,000)	-0,2827	(0,056)	0,2744	(0,136)	0,5440	(0,001)
regional share	0,0271	(0,053)	0,0325	(0,107)	-0,0301	(0,309)	-0,0376	(0,140)	-0,0088	(0,750)	0,0434	(0,486)	0,0299	(0,675)	-0,1046	(0,249)
skill intensity	-0,0266	(0,080)	-0,0212	(0,329)	-0,0536	(0,091)	-0,1902	(0,000)	-0,0169	(0,295)	0,0191	(0,452)	0,0131	(0,691)	0,1405	(0,000)
national share	-0,0694	(0,007)	-0,0718	(0,063)	-0,0880	(0,097)	0,1564	(0,000)	0,0178	(0,391)	-0,1434	(0,001)	-0,0537	(0,299)	-0,1845	(0,001)
2001 (<i>D</i>)	-0,0215	(0,782)	0,1399	(0,205)	0,3945	(0,020)	-0,0717	(0,604)	-0,1248	(0,357)	-0,4865	(0,105)	0,6839	(0,056)	0,0225	(0,950)
2002 (<i>D</i>)	-0,1398	(0,078)	-0,0226	(0,842)	0,2623	(0,127)	0,0488	(0,714)	-0,5460	(0,000)	-0,4968	(0,105)	-0,2027	(0,647)	-0,0597	(0,872)
2003 (<i>D</i>)	-0,4185	(0,000)	-0,3659	(0,003)	0,0136	(0,940)	0,0070	(0,959)	-0,4168	(0,006)	-0,2456	(0,393)	0,0604	(0,886)	0,0489	(0,892)
2004 (<i>D</i>)	-0,1344	(0,091)	-0,1534	(0,188)	0,1609	(0,360)	-0,1404	(0,316)	-0,4287	(0,006)	-0,5407	(0,090)	0,0079	(0,985)	0,1496	(0,677)
2005 (<i>D</i>)	-0,1669	(0,038)	-0,2566	(0,032)	0,0710	(0,692)	-0,1459	(0,298)	-0,5400	(0,001)	-0,6205	(0,064)	0,0755	(0,861)	0,0940	(0,800)
2006 (<i>D</i>)	-0,3206	(0,000)	-0,3760	(0,003)	0,0629	(0,729)	-0,1999	(0,165)	-0,5159	(0,002)	-0,0875	(0,762)	0,2365	(0,574)	0,0973	(0,797)
2007 (<i>D</i>)	-0,2655	(0,001)	-0,5422	(0,000)	-0,1498	(0,432)	-0,2666	(0,066)	-0,3890	(0,019)	-0,8769	(0,022)	0,0976	(0,826)	0,2721	(0,456)
2008 (<i>D</i>)	-0,2298	(0,005)	-0,3626	(0,003)	0,0234	(0,898)	-0,0978	(0,477)	-0,2245	(0,164)	-0,1036	(0,732)	-0,0846	(0,860)	0,2803	(0,452)
2009 (<i>D</i>)	-0,2298	(0,005)	-0,3626	(0,003)	0,0234	(0,898)	-0,0978	(0,477)	-0,2245	(0,164)	-0,1036	(0,732)	-0,0846	(0,860)	0,2803	(0,452)
2010 (<i>D</i>)	-0,2298	(0,005)	-0,3626	(0,003)	0,0234	(0,898)	-0,0978	(0,477)	-0,2245	(0,164)	-0,1036	(0,732)	-0,0846	(0,860)	0,2803	(0,452)
constant	-0,1992	(0,014)	-0,3596	(0,004)	0,1326	(0,458)	-0,1639	(0,239)	-0,3238	(0,052)	-0,4268	(0,206)	-0,0720	(0,881)	0,2783	(0,447)
number of obs.	2.614								815							
Pseudo R ²	0,0844								0,1645							

industry	wood, paper etc.								rubber, plastic products							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0,1897	(0,001)	-0,5181	(0,000)	-0,2473	(0,085)	0,6526	(0,000)	0,0633	(0,294)	-0,6163	(0,000)	-0,2346	(0,107)	0,6930	(0,000)
high skilled (<i>D</i>)	-0,3862	(0,005)	0,9659	(0,000)	0,6501	(0,000)	0,0426	(0,860)	-0,6021	(0,000)	1,0201	(0,000)	0,2540	(0,220)	0,6260	(0,002)
age	-0,2322	(0,000)	0,0234	(0,739)	0,2159	(0,058)	0,2020	(0,026)	-0,1645	(0,001)	-0,0032	(0,968)	0,1361	(0,303)	0,3972	(0,000)
age ²	0,0023	(0,000)	-0,0007	(0,346)	-0,0028	(0,020)	-0,0016	(0,075)	0,0017	(0,001)	-0,0005	(0,590)	-0,0021	(0,141)	-0,0038	(0,001)
woman (<i>D</i>)	0,3722	(0,000)	-0,3502	(0,000)	-0,2245	(0,080)	0,0972	(0,347)	0,5601	(0,000)	-0,3119	(0,002)	-0,4395	(0,005)	0,4276	(0,000)
regional share	-0,0431	(0,108)	-0,0679	(0,080)	-0,0984	(0,095)	-0,2169	(0,000)	0,0228	(0,421)	-0,0638	(0,142)	-0,0444	(0,528)	0,0576	(0,226)
skill intensity	0,0207	(0,050)	-0,0494	(0,005)	0,0263	(0,252)	0,0345	(0,055)	-0,0093	(0,339)	-0,0073	(0,582)	-0,0304	(0,162)	0,0136	(0,420)
national share	-0,0746	(0,005)	0,0089	(0,816)	-0,1986	(0,001)	0,0032	(0,949)	-0,0295	(0,329)	-0,0722	(0,092)	-0,2518	(0,001)	0,1506	(0,003)
2001 (<i>D</i>)	0,0191	(0,847)	0,0038	(0,980)	-0,0587	(0,784)	-0,0589	(0,778)	-0,0140	(0,903)	0,3686	(0,024)	-0,0624	(0,810)	0,1096	(0,615)
2002 (<i>D</i>)	-0,2966	(0,006)	0,0531	(0,722)	-0,3789	(0,106)	0,1456	(0,466)	-0,2462	(0,043)	0,0989	(0,565)	-0,0733	(0,778)	-0,0454	(0,840)
2003 (<i>D</i>)	-0,3950	(0,000)	-0,1893	(0,235)	-0,0219	(0,918)	0,0362	(0,861)	-0,0394	(0,734)	0,1014	(0,554)	-0,2552	(0,348)	-0,0944	(0,679)
2004 (<i>D</i>)	-0,2045	(0,057)	-0,3985	(0,019)	-0,2317	(0,307)	-0,0206	(0,922)	-0,3290	(0,008)	-0,2468	(0,182)	-0,1347	(0,607)	-0,1664	(0,472)
2005 (<i>D</i>)	-0,2572	(0,019)	-0,2819	(0,087)	-0,2055	(0,361)	-0,0788	(0,715)	-0,5470	(0,000)	-0,2802	(0,134)	-0,6006	(0,045)	-0,2610	(0,270)
2006 (<i>D</i>)	-0,2096	(0,053)	-0,4592	(0,009)	-0,3013	(0,195)	-0,1169	(0,593)	-0,5470	(0,000)	-0,0648	(0,714)	-0,2327	(0,388)	-0,2737	(0,252)
2007 (<i>D</i>)	-0,0755	(0,472)	0,0617	(0,685)	-0,1730	(0,442)	-0,1012	(0,641)	-0,3477	(0,006)	-0,4172	(0,033)	0,0633	(0,802)	-0,2622	(0,272)
2008 (<i>D</i>)	-0,2470	(0,025)	-0,0039	(0,980)	-0,5625	(0,027)	-0,1012	(0,641)	-0,2858	(0,021)	-0,1335	(0,460)	-0,2630	(0,334)	-0,3178	(0,187)
2009 (<i>D</i>)	-0,2470	(0,025)	-0,0039	(0,980)	-0,5625	(0,027)	-0,1012	(0,641)	-0,2858	(0,021)	-0,1335	(0,460)	-0,2630	(0,334)	-0,3178	(0,187)
2010 (<i>D</i>)	-0,2470	(0,025)	-0,0039	(0,980)	-0,5625	(0,027)	-0,1012	(0,641)	-0,2858	(0,021)	-0,1335	(0,460)	-0,2630	(0,334)	-0,3178	(0,187)
constant	-0,2889	(0,011)	-0,1955	(0,237)	-1,2150	(0,000)	-0,2180	(0,334)	-0,6133	(0,000)	-0,5220	(0,010)	-0,5029	(0,088)	-0,3787	(0,123)
number of obs.	2.814								10.829							
Pseudo R ²	0,0632								0,0436							

Figure A 2 (continued)

industry	glass, ceramic products etc.								metal products etc.							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.1748	(0.032)	-0.2902	(0.018)	-0.6443	(0.004)	1.2457	(0.000)	0.1324	(0.000)	-0.5969	(0.000)	-0.4721	(0.000)	0.9048	(0.000)
high skilled (<i>D</i>)	-0.7695	(0.000)	0.7306	(0.000)	0.0786	(0.768)	1.1780	(0.000)	-0.4589	(0.000)	0.9690	(0.000)	0.2134	(0.081)	0.7640	(0.000)
age	-0.1927	(0.003)	0.0819	(0.363)	0.1540	(0.333)	0.4103	(0.004)	-0.1090	(0.000)	0.0231	(0.587)	0.0389	(0.544)	0.5130	(0.000)
age ²	0.0020	(0.002)	-0.0013	(0.173)	-0.0023	(0.187)	-0.0041	(0.006)	0.0011	(0.000)	-0.0006	(0.168)	-0.0007	(0.274)	-0.0051	(0.000)
woman (<i>D</i>)	0.4098	(0.000)	-0.2049	(0.080)	0.0067	(0.970)	0.0871	(0.605)	0.3874	(0.000)	-0.3975	(0.000)	-0.1735	(0.059)	0.3557	(0.000)
regional share	0.0433	(0.418)	-0.2130	(0.003)	0.2436	(0.035)	-0.4979	(0.000)	-0.0114	(0.033)	-0.0262	(0.001)	-0.0236	(0.055)	-0.0060	(0.584)
skill intensity	-0.0037	(0.797)	0.0234	(0.150)	0.0217	(0.442)	0.0231	(0.355)	0.0487	(0.000)	0.0027	(0.829)	0.0201	(0.266)	-0.0515	(0.010)
national share	-0.1617	(0.005)	0.0733	(0.280)	-0.4048	(0.001)	0.1263	(0.238)	-0.0376	(0.000)	-0.0208	(0.120)	-0.1236	(0.000)	-0.1151	(0.000)
2001 (<i>D</i>)	0.0661	(0.666)	-0.1990	(0.262)	-0.0114	(0.967)	0.3111	(0.317)	0.0742	(0.268)	-0.0330	(0.713)	0.0056	(0.969)	-0.0698	(0.654)
2002 (<i>D</i>)	0.0769	(0.622)	-0.0701	(0.688)	-1.0303	(0.008)	0.3573	(0.255)	-0.1162	(0.097)	0.0834	(0.338)	-0.1848	(0.213)	0.0292	(0.847)
2003 (<i>D</i>)	0.1652	(0.288)	-0.2853	(0.129)	-0.2793	(0.362)	0.4150	(0.186)	-0.1815	(0.011)	-0.2630	(0.006)	0.0541	(0.699)	0.0109	(0.943)
2004 (<i>D</i>)	-0.0863	(0.605)	-0.5861	(0.005)	-0.0565	(0.845)	0.0729	(0.830)	-0.1522	(0.032)	-0.4568	(0.000)	0.0722	(0.605)	-0.0849	(0.585)
2005 (<i>D</i>)	-0.1171	(0.486)	-0.8010	(0.000)	-0.4327	(0.182)	0.1125	(0.737)	-0.1754	(0.014)	-0.4651	(0.000)	-0.0708	(0.625)	-0.0977	(0.531)
2006 (<i>D</i>)	0.0895	(0.581)	-0.0412	(0.818)	-0.6748	(0.061)	0.2306	(0.486)	-0.2302	(0.002)	-0.4640	(0.000)	-0.2147	(0.154)	-0.0872	(0.575)
2007 (<i>D</i>)	-0.0520	(0.756)	-0.3268	(0.093)	-0.1918	(0.532)	0.1429	(0.670)	-0.1684	(0.018)	-0.1828	(0.050)	0.0774	(0.579)	0.0380	(0.800)
2008 (<i>D</i>)	0.1847	(0.244)	-0.3174	(0.105)	-0.5483	(0.117)	0.1119	(0.742)	-0.2023	(0.005)	-0.2073	(0.026)	-0.3819	(0.015)	0.0288	(0.847)
2009 (<i>D</i>)	0.1847	(0.244)	-0.3174	(0.105)	-0.5483	(0.117)	0.1119	(0.742)	-0.2023	(0.005)	-0.2073	(0.026)	-0.3819	(0.015)	0.0288	(0.847)
2010 (<i>D</i>)	0.1847	(0.244)	-0.3174	(0.105)	-0.5483	(0.117)	0.1119	(0.742)	-0.2023	(0.005)	-0.2073	(0.026)	-0.3819	(0.015)	0.0288	(0.847)
constant	-0.1166	(0.502)	-0.5704	(0.008)	-0.2659	(0.414)	0.1279	(0.707)	-0.3211	(0.000)	-0.5788	(0.000)	-0.7255	(0.000)	-0.0421	(0.781)
number of obs.	8.233								3.189							
Pseudo R ²	0.0397								0.0435							

industry	furniture etc.							
	unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.1421	(0.124)	-0.1595	(0.354)	-0.3412	(0.154)	1.3121	(0.000)
high skilled (<i>D</i>)	-0.4373	(0.049)	0.6495	(0.001)	0.4587	(0.113)	1.9396	(0.000)
age	-0.1105	(0.117)	-0.0410	(0.726)	0.3072	(0.076)	-0.1012	(0.449)
age ²	0.0010	(0.163)	0.0001	(0.952)	-0.0037	(0.048)	0.0014	(0.302)
woman (<i>D</i>)	0.3316	(0.000)	-0.3455	(0.020)	-0.3745	(0.057)	0.5749	(0.000)
regional share	0.0286	(0.520)	-0.1452	(0.065)	0.1155	(0.224)	-0.0209	(0.821)
skill intensity	0.0011	(0.927)	0.0026	(0.878)	0.0121	(0.588)	0.0678	(0.000)
national share	-0.0327	(0.133)	-0.0001	(0.998)	-0.1378	(0.008)	-0.1145	(0.033)
2001 (<i>D</i>)	-0.1544	(0.305)	-0.3991	(0.116)	-0.0540	(0.868)	0.0816	(0.783)
2002 (<i>D</i>)	-0.3899	(0.017)	-1.0923	(0.001)	-0.3716	(0.305)	-0.2064	(0.522)
2003 (<i>D</i>)	-0.3717	(0.025)	-0.2536	(0.309)	0.2430	(0.437)	-0.2131	(0.515)
2004 (<i>D</i>)	-0.5177	(0.003)	-0.8310	(0.006)	-0.3058	(0.399)	-0.4444	(0.210)
2005 (<i>D</i>)	-0.7284	(0.000)	-0.3538	(0.170)	-0.7996	(0.059)	-0.4330	(0.222)
2006 (<i>D</i>)	-0.3492	(0.039)	-0.8189	(0.007)	-0.0852	(0.804)	-0.5755	(0.124)
2007 (<i>D</i>)	-0.2067	(0.205)	-0.2050	(0.413)	-0.6420	(0.116)	-0.2637	(0.438)
2008 (<i>D</i>)	-0.0842	(0.595)	0.2900	(0.193)	0.0628	(0.851)	-0.3405	(0.327)
2009 (<i>D</i>)	-0.0842	(0.595)	0.2900	(0.193)	0.0628	(0.851)	-0.3405	(0.327)
2010 (<i>D</i>)	-0.0842	(0.595)	0.2900	(0.193)	0.0628	(0.851)	-0.3405	(0.327)
constant	-0.4839	(0.006)	-0.5919	(0.035)	-1.2471	(0.014)	-0.1048	(0.743)
number of obs.	1.869							
Pseudo R ²	0.0806							

Source: BHP and SIAB 2000-2010. Own calculations.

Figure A 3: Regression results for knowledge intensive manufacturing, total employment

industry	chemicals, pharmaceuticals								machinery							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.1776	(0.032)	-0.6888	(0.000)	-0.4716	(0.078)	1.1236	(0.000)	0.2342	(0.000)	-0.6775	(0.000)	-0.2342	(0.079)	1.1265	(0.000)
high skilled (<i>D</i>)	-0.3058	(0.002)	0.8261	(0.000)	0.5643	(0.001)	1.5446	(0.000)	-0.3761	(0.000)	0.7998	(0.000)	0.3680	(0.000)	1.2681	(0.000)
age	-0.3380	(0.000)	-0.1095	(0.116)	-0.2470	(0.131)	0.3993	(0.001)	-0.2015	(0.000)	0.0317	(0.434)	0.0983	(0.197)	0.2172	(0.002)
age ²	0.0034	(0.000)	0.0006	(0.400)	0.0018	(0.314)	-0.0041	(0.001)	0.0020	(0.000)	-0.0008	(0.059)	-0.0016	(0.055)	-0.0019	(0.008)
woman (<i>D</i>)	0.7123	(0.000)	0.1634	(0.022)	0.3926	(0.010)	-0.1052	(0.390)	0.5469	(0.000)	-0.3453	(0.000)	0.0787	(0.435)	0.4353	(0.000)
regional share	-0.0721	(0.011)	-0.0396	(0.166)	-0.0910	(0.180)	0.1734	(0.000)	-0.0380	(0.000)	-0.0484	(0.000)	-0.0911	(0.000)	-0.0341	(0.083)
skill intensity	0.0154	(0.008)	-0.0001	(0.991)	0.0046	(0.735)	0.0179	(0.082)	0.0190	(0.000)	0.0194	(0.001)	0.0139	(0.185)	-0.0376	(0.001)
national share	-0.0454	(0.002)	0.0181	(0.179)	-0.0728	(0.044)	-0.0771	(0.001)	-0.0683	(0.000)	-0.0426	(0.005)	-0.0701	(0.019)	0.0356	(0.204)
2001 (<i>D</i>)	0.1150	(0.435)	0.4853	(0.000)	0.2480	(0.488)	0.1797	(0.509)	-0.1358	(0.085)	0.0458	(0.590)	0.1266	(0.452)	0.2547	(0.160)
2002 (<i>D</i>)	0.1791	(0.213)	0.0688	(0.646)	0.5849	(0.077)	0.0641	(0.817)	-0.4161	(0.000)	-0.0492	(0.569)	-0.0160	(0.927)	0.2399	(0.186)
2003 (<i>D</i>)	-0.0923	(0.534)	-0.1185	(0.434)	0.2551	(0.454)	0.0855	(0.750)	-0.3403	(0.000)	-0.3726	(0.000)	-0.0739	(0.673)	0.1461	(0.429)
2004 (<i>D</i>)	0.1345	(0.352)	-0.1273	(0.416)	0.2876	(0.406)	0.1414	(0.602)	-0.2816	(0.001)	-0.4973	(0.000)	-0.2393	(0.191)	0.1823	(0.321)
2005 (<i>D</i>)	-0.1515	(0.329)	-0.3784	(0.024)	0.0396	(0.914)	0.2305	(0.386)	-0.2275	(0.005)	-0.3868	(0.000)	-0.1790	(0.322)	0.1102	(0.555)
2006 (<i>D</i>)	-0.3036	(0.063)	-0.2043	(0.207)	-0.2011	(0.610)	0.2282	(0.394)	-0.3616	(0.000)	-0.2770	(0.003)	0.1759	(0.290)	0.1377	(0.458)
2007 (<i>D</i>)	-0.0456	(0.764)	-0.0347	(0.823)	0.1921	(0.591)	0.2115	(0.430)	-0.1536	(0.053)	-0.1936	(0.030)	0.2373	(0.147)	0.1775	(0.332)
2008 (<i>D</i>)	0.1359	(0.353)	0.1190	(0.428)	-0.1161	(0.764)	0.2561	(0.336)	-0.1355	(0.085)	-0.0369	(0.667)	0.1790	(0.279)	0.3157	(0.075)
2009 (<i>D</i>)	0.1359	(0.353)	0.1190	(0.428)	-0.1161	(0.764)	0.2561	(0.336)	-0.1355	(0.085)	-0.0369	(0.667)	0.1790	(0.279)	0.3157	(0.075)
2010 (<i>D</i>)	0.1359	(0.353)	0.1190	(0.428)	-0.1161	(0.764)	0.2561	(0.336)	-0.1355	(0.085)	-0.0369	(0.667)	0.1790	(0.279)	0.3157	(0.075)
constant	-0.1617	(0.303)	-0.1834	(0.257)	-0.1100	(0.776)	0.2656	(0.316)	-0.4032	(0.000)	-0.4582	(0.000)	-0.3698	(0.051)	0.2473	(0.166)
number of obs.	8.219								17.377							
Pseudo R ²	0.0245								0.023							

industry	media and communication equipment etc.								electrical machinery							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	-0.3684	(0.208)	-0.7949	(0.020)	-1.3546	(0.096)	2.6031	(0.000)	0.0168	(0.823)	-0.8258	(0.000)	-0.6029	(0.006)	0.7681	(0.000)
high skilled (<i>D</i>)	-1.2136	(0.000)	0.2398	(0.380)	0.2525	(1.034)	1.8659	(0.000)	-0.4901	(0.000)	0.6668	(0.000)	0.2565	(0.134)	1.3002	(0.000)
age	-0.4436	(0.012)	-0.0845	(1.266)	-0.1783	(1.262)	0.0982	(1.480)	-0.3428	(0.000)	0.0063	(0.926)	0.2906	(0.072)	0.3482	(0.001)
age ²	0.0043	(0.024)	-0.0001	(1.890)	0.0008	(1.672)	-0.0018	(1.156)	0.0034	(0.000)	-0.0005	(0.511)	-0.0037	(0.034)	-0.0039	(0.001)
woman (<i>D</i>)	1.6138	(0.000)	-1.2765	(0.000)	-0.1118	(1.572)	0.0559	(1.724)	0.6685	(0.000)	-0.3643	(0.000)	0.0691	(0.671)	0.6458	(0.000)
regional share	0.2926	(0.044)	-0.6649	(0.000)	0.1099	(1.388)	0.1549	(0.940)	-0.0208	(0.301)	-0.0828	(0.001)	-0.1370	(0.014)	0.0025	(0.937)
skill intensity	0.0255	(0.036)	-0.0393	(0.002)	-0.0253	(0.574)	0.0336	(0.148)	-0.0103	(0.021)	0.0019	(0.664)	-0.0106	(0.274)	0.0001	(0.985)
national share	-0.2234	(0.000)	0.1536	(0.000)	-0.1259	(0.328)	-0.0623	(0.580)	0.0189	(0.275)	-0.0288	(0.134)	0.0045	(0.913)	0.0600	(0.007)
2001 (<i>D</i>)	-0.0762	(1.640)	-0.0628	(1.702)	0.9237	(0.470)	0.4296	(1.026)	-0.2400	(0.061)	0.0511	(0.711)	0.3001	(0.293)	0.1911	(0.461)
2002 (<i>D</i>)	-0.7447	(0.084)	0.0085	(1.958)	-0.6331	(0.994)	0.5395	(0.814)	-0.4638	(0.001)	0.0275	(0.842)	0.0187	(0.951)	0.2382	(0.349)
2003 (<i>D</i>)	-0.7254	(0.094)	0.3003	(0.686)	-0.4260	(1.274)	0.3679	(1.152)	-0.4509	(0.001)	-0.4641	(0.003)	-0.1173	(0.708)	0.3922	(0.112)
2004 (<i>D</i>)	-0.7692	(0.074)	-1.0818	(0.008)	0.9645	(0.420)	0.5912	(0.718)	-0.4336	(0.001)	-0.5487	(0.001)	-0.3723	(0.263)	0.3120	(0.211)
2005 (<i>D</i>)	-0.4629	(0.374)	-0.7895	(0.058)	-0.0701	(1.870)	0.4607	(0.958)	-0.6389	(0.000)	-0.5223	(0.001)	-0.3108	(0.343)	0.3229	(0.194)
2006 (<i>D</i>)	-0.5549	(0.240)	-1.4323	(0.000)	-0.2586	(1.538)	0.1631	(1.618)	-0.4936	(0.000)	-0.3703	(0.015)	-0.7088	(0.058)	0.5059	(0.036)
2007 (<i>D</i>)	-1.3028	(0.002)	-1.2223	(0.002)	0.2860	(1.460)	0.2493	(1.424)	-0.3043	(0.022)	-0.0465	(0.743)	-0.0299	(0.923)	0.5080	(0.037)
2008 (<i>D</i>)	-0.3638	(0.596)	-1.2769	(0.002)	0.4352	(1.178)	-0.1500	(1.660)	-0.4941	(0.000)	-0.6003	(0.000)	-0.0233	(0.939)	0.3472	(0.164)
2009 (<i>D</i>)	-0.3638	(0.596)	-1.2769	(0.002)	0.4352	(1.178)	-0.1500	(1.660)	-0.4941	(0.000)	-0.6003	(0.000)	-0.0233	(0.939)	0.3472	(0.164)
2010 (<i>D</i>)	-0.3638	(0.596)	-1.2769	(0.002)	0.4352	(1.178)	-0.1500	(1.660)	-0.4941	(0.000)	-0.6003	(0.000)	-0.0233	(0.939)	0.3472	(0.164)
constant	-0.8461	(0.056)	-1.3927	(0.002)	-1.1349	(0.532)	0.0705	(1.838)	-0.6622	(0.000)	-0.3954	(0.010)	-0.2508	(0.444)	0.3622	(0.147)
number of obs.	7.328								10.737							
Pseudo R ²	0.0332								0.0383							

Figure A 3 (continued)

industry	medical, precision and optical instruments etc.								motor vehicles							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.0256	(0.750)	-0.8853	(0.000)	-0.1306	(0.534)	-0.5255	(0.011)	0.4149	(0.000)	-0.1383	(0.388)	0.2548	(0.303)	0.5007	(0.021)
high skilled (<i>D</i>)	-0.4158	(0.000)	0.4077	(0.000)	-0.1575	(0.363)	1.1288	(0.000)	-0.2266	(0.045)	1.2088	(0.000)	0.5437	(0.030)	1.8626	(0.000)
age	-0.3079	(0.000)	-0.0727	(0.280)	-0.2076	(0.093)	0.0236	(0.814)	-0.2482	(0.000)	0.0211	(0.847)	0.1237	(0.580)	0.9073	(0.000)
age ²	0.0030	(0.000)	0.0003	(0.716)	0.0017	(0.207)	-0.0002	(0.814)	0.0025	(0.000)	-0.0009	(0.473)	-0.0019	(0.430)	-0.0097	(0.000)
woman (<i>D</i>)	0.6283	(0.000)	-0.5321	(0.000)	-0.3006	(0.039)	0.5771	(0.000)	0.8240	(0.000)	-0.0311	(0.839)	0.4896	(0.047)	0.7668	(0.000)
regional share	-0.0775	(0.000)	-0.0761	(0.001)	-0.0185	(0.648)	-0.0697	(0.044)	0.0605	(0.005)	0.0088	(0.760)	0.2052	(0.000)	0.1427	(0.002)
skill intensity	-0.0054	(0.259)	-0.0145	(0.009)	-0.0101	(0.327)	-0.0057	(0.492)	-0.0105	(0.134)	-0.0237	(0.011)	-0.0068	(0.665)	-0.0354	(0.008)
national share	0.0259	(0.295)	0.0130	(0.649)	-0.0753	(0.195)	0.0922	(0.026)	-0.0827	(0.001)	-0.0517	(0.129)	-0.3027	(0.000)	-0.2354	(0.000)
2001 (<i>D</i>)	-0.1200	(0.342)	0.1916	(0.210)	-0.3742	(0.228)	0.0667	(0.806)	-0.1271	(0.393)	0.1467	(0.472)	-0.0443	(0.914)	0.0579	(0.873)
2002 (<i>D</i>)	-0.2176	(0.093)	0.1946	(0.204)	0.2625	(0.321)	0.1617	(0.546)	-0.0649	(0.660)	-0.3458	(0.134)	0.3410	(0.368)	0.1729	(0.623)
2003 (<i>D</i>)	-0.2368	(0.069)	0.1005	(0.519)	-0.0160	(0.955)	0.2521	(0.333)	-0.2101	(0.165)	0.2013	(0.309)	0.2537	(0.503)	-0.1298	(0.723)
2004 (<i>D</i>)	-0.1420	(0.263)	0.0614	(0.695)	-0.3883	(0.211)	0.3475	(0.173)	-0.3067	(0.048)	-0.2604	(0.235)	0.4096	(0.264)	0.0316	(0.928)
2005 (<i>D</i>)	-0.2804	(0.033)	0.0347	(0.825)	-0.4508	(0.153)	0.0551	(0.838)	-0.4470	(0.007)	-0.7142	(0.005)	-0.2057	(0.632)	0.0647	(0.854)
2006 (<i>D</i>)	-0.3013	(0.023)	-0.2031	(0.222)	-0.3927	(0.206)	0.0993	(0.709)	-0.1141	(0.461)	-0.4668	(0.048)	-2.4610	(0.018)	-0.1187	(0.747)
2007 (<i>D</i>)	-0.4578	(0.001)	0.0709	(0.648)	0.0701	(0.798)	0.1897	(0.464)	-0.4109	(0.014)	-0.2289	(0.298)	-0.5432	(0.256)	-0.2437	(0.515)
2008 (<i>D</i>)	-0.2148	(0.096)	-0.1182	(0.468)	-0.1907	(0.516)	0.2200	(0.394)	-0.3367	(0.037)	-0.0114	(0.956)	-0.3491	(0.431)	-0.0176	(0.960)
2009 (<i>D</i>)	-0.2148	(0.096)	-0.1182	(0.468)	-0.1907	(0.516)	0.2200	(0.394)	-0.3367	(0.037)	-0.0114	(0.956)	-0.3491	(0.431)	-0.0176	(0.960)
2010 (<i>D</i>)	-0.2148	(0.096)	-0.1182	(0.468)	-0.1907	(0.516)	0.2200	(0.394)	-0.3367	(0.037)	-0.0114	(0.956)	-0.3491	(0.431)	-0.0176	(0.960)
constant	-0.4963	(0.000)	-0.1216	(0.457)	-0.7902	(0.025)	0.2164	(0.402)	-0.2769	(0.083)	-0.1187	(0.576)	-2.5215	(0.016)	0.1718	(0.608)
number of obs.	9.364								9.222							
Pseudo R ²	0.0342								0.0842							

industry	other transport equipment							
	unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.2672	(0.361)	-0.0400	(0.920)	-0.7255	(0.480)	1.7484	(0.007)
high skilled (<i>D</i>)	-1.0954	(0.001)	0.6950	(0.000)	-0.2106	(0.635)	2.8410	(0.000)
age	-0.2294	(0.164)	0.1204	(0.467)	-0.4305	(0.169)	-0.3794	(0.087)
age ²	0.0023	(0.184)	-0.0016	(0.347)	0.0044	(0.169)	0.0044	(0.052)
woman (<i>D</i>)	0.8188	(0.000)	-0.1316	(0.638)	0.6454	(0.170)	-14.7671	(0.983)
regional share	0.2350	(0.003)	0.0438	(0.664)	-0.1538	(0.592)	-0.6524	(0.034)
skill intensity	-0.0007	(0.922)	0.0174	(0.001)	0.0201	(0.109)	-0.0597	(0.000)
national share	0.0681	(0.247)	-0.1232	(0.007)	-0.0600	(0.558)	0.7102	(0.000)
2001 (<i>D</i>)	-0.2847	(0.477)	0.1409	(0.715)	1.5758	(0.152)	-0.6578	(0.367)
2002 (<i>D</i>)	-0.2639	(0.502)	0.0723	(0.851)	0.6121	(0.618)	-0.5077	(0.467)
2003 (<i>D</i>)	-0.2598	(0.520)	-0.5899	(0.215)	1.1236	(0.333)	-1.0109	(0.161)
2004 (<i>D</i>)	-0.5006	(0.225)	-0.8837	(0.098)	1.1823	(0.310)	-0.3428	(0.598)
2005 (<i>D</i>)	-0.6352	(0.142)	0.8875	(0.010)	1.2072	(0.300)	-0.2449	(0.703)
2006 (<i>D</i>)	-0.8839	(0.045)	0.2119	(0.567)	0.9930	(0.393)	-0.5726	(0.398)
2007 (<i>D</i>)	-0.6527	(0.135)	-0.3011	(0.473)	-14.4635	(0.991)	-0.7765	(0.267)
2008 (<i>D</i>)	-0.9762	(0.034)	0.2371	(0.535)	0.0356	(0.980)	-1.7477	(0.050)
2009 (<i>D</i>)	-0.9762	(0.034)	0.2371	(0.535)	0.0356	(0.980)	-1.7477	(0.050)
2010 (<i>D</i>)	-0.9762	(0.034)	0.2371	(0.535)	0.0356	(0.980)	-1.7477	(0.050)
constant	-0.5878	(0.164)	-0.4631	(0.303)	1.9747	(0.071)	-0.4790	(0.495)
number of obs.	2.109							
Pseudo R ²	0.1271							

Source: BHP and SIAB 2000-2010. Own calculations.

Figure A 4: Regression results for knowledge intensive services, total employment

industry	media, culture								computer and related activities							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.2790	(0.000)	0.0198	(0.872)	0.0769	(0.592)	0.9635	(0.000)	0.5132	(0.000)	-0.1225	(0.178)	0.3048	(0.040)	1.4973	(0.000)
high skilled (<i>D</i>)	-0.3092	(0.000)	0.5922	(0.000)	-0.1260	(0.287)	0.5363	(0.000)	-0.2016	(0.002)	0.2680	(0.000)	-0.1844	(0.081)	0.8933	(0.000)
age	-0.1790	(0.000)	-0.1808	(0.005)	0.0097	(0.915)	0.2401	(0.001)	-0.2351	(0.000)	-0.0533	(0.217)	-0.2266	(0.011)	0.1406	(0.055)
age ²	0.0016	(0.000)	0.0013	(0.058)	-0.0008	(0.424)	-0.0026	(0.000)	0.0022	(0.000)	0.0004	(0.398)	0.0019	(0.043)	-0.0013	(0.083)
woman (<i>D</i>)	0.2491	(0.000)	-0.2170	(0.002)	0.0090	(0.921)	-0.1420	(0.053)	0.5965	(0.000)	-0.4598	(0.000)	-0.3507	(0.000)	-0.1648	(0.039)
regional share	0.0294	(0.231)	0.0530	(0.149)	0.0166	(0.756)	-0.0096	(0.824)	-0.0544	(0.149)	0.0739	(0.024)	0.0328	(0.625)	0.0177	(0.746)
skill intensity	0.0241	(0.000)	-0.0098	(0.160)	-0.0058	(0.513)	-0.0337	(0.000)	-0.0007	(0.833)	-0.0145	(0.000)	-0.0114	(0.049)	0.0185	(0.000)
national share	-0.1378	(0.000)	-0.0666	(0.002)	-0.1385	(0.000)	0.0419	(0.080)	0.0040	(0.797)	-0.0136	(0.304)	-0.0436	(0.120)	-0.0638	(0.004)
2001 (<i>D</i>)	0.0569	(0.527)	0.0395	(0.783)	-0.1422	(0.441)	0.1124	(0.495)	-0.1484	(0.127)	-0.1271	(0.156)	0.0020	(0.991)	0.0315	(0.845)
2002 (<i>D</i>)	-0.0264	(0.772)	-0.2478	(0.105)	-0.2229	(0.234)	0.1316	(0.420)	-0.2523	(0.011)	-0.1044	(0.235)	-0.3668	(0.049)	-0.1263	(0.443)
2003 (<i>D</i>)	-0.1831	(0.055)	0.0444	(0.756)	-0.2973	(0.123)	0.0314	(0.851)	-0.5894	(0.000)	-0.4776	(0.000)	-0.6943	(0.001)	-0.2346	(0.159)
2004 (<i>D</i>)	-0.0127	(0.890)	-0.4629	(0.005)	-0.2895	(0.133)	-0.0410	(0.811)	-0.5980	(0.000)	-0.5503	(0.000)	-0.6537	(0.001)	-0.4446	(0.011)
2005 (<i>D</i>)	-0.3625	(0.000)	-0.3356	(0.034)	-0.5484	(0.009)	-0.0379	(0.825)	-0.4887	(0.000)	-0.6115	(0.000)	-0.4792	(0.011)	-0.2858	(0.086)
2006 (<i>D</i>)	-0.3461	(0.001)	-0.4549	(0.006)	-0.5082	(0.015)	-0.0271	(0.875)	-0.6018	(0.000)	-0.6181	(0.000)	-0.5601	(0.004)	-0.4116	(0.016)
2007 (<i>D</i>)	-0.3368	(0.001)	-0.6424	(0.000)	-0.4188	(0.039)	0.0355	(0.834)	-0.6029	(0.000)	-0.3826	(0.000)	-0.6340	(0.001)	-0.3753	(0.026)
2008 (<i>D</i>)	-0.2840	(0.005)	-0.1680	(0.276)	-0.5166	(0.015)	-0.0814	(0.640)	-0.4092	(0.000)	-0.4459	(0.000)	-0.1725	(0.324)	-0.3496	(0.035)
2009 (<i>D</i>)	-0.2840	(0.005)	-0.1680	(0.276)	-0.5166	(0.015)	-0.0814	(0.640)	-0.4092	(0.000)	-0.4459	(0.000)	-0.1725	(0.324)	-0.3496	(0.035)
2010 (<i>D</i>)	-0.2840	(0.005)	-0.1680	(0.276)	-0.5166	(0.015)	-0.0814	(0.640)	-0.4092	(0.000)	-0.4459	(0.000)	-0.1725	(0.324)	-0.3496	(0.035)
constant	-0.3670	(0.000)	-0.1592	(0.304)	-0.1978	(0.308)	-0.0057	(0.973)	-0.5241	(0.000)	-0.5570	(0.000)	-0.5944	(0.002)	-0.3999	(0.016)
number of obs.	2.353								15.351							
Pseudo R ²	0.0556								0.0291							

industry	financial intermediation								technical consulting and research							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	-0.0927	(0.254)	0.0608	(0.482)	-0.1011	(0.635)	0.6500	(0.000)	0.4448	(0.000)	-0.4741	(0.002)	0.0688	(0.714)	0.9905	(0.000)
high skilled (<i>D</i>)	0.0641	(0.291)	0.3998	(0.000)	0.1433	(0.286)	1.0956	(0.000)	-0.1160	(0.023)	0.2686	(0.000)	-0.0834	(0.298)	0.9208	(0.000)
age	-0.4971	(0.000)	-0.0029	(0.941)	-0.0590	(0.569)	-0.0227	(0.786)	-0.1915	(0.000)	0.0234	(0.593)	-0.0893	(0.202)	-0.1815	(0.004)
age ²	0.0049	(0.000)	-0.0003	(0.432)	0.0000	(0.976)	0.0005	(0.542)	0.0017	(0.000)	-0.0007	(0.126)	0.0006	(0.438)	0.0019	(0.003)
woman (<i>D</i>)	0.7921	(0.000)	-0.6332	(0.000)	0.1449	(0.133)	-0.2969	(0.002)	0.5203	(0.000)	-0.5233	(0.000)	-0.0394	(0.625)	0.2503	(0.002)
regional share	-0.0056	(0.838)	0.0125	(0.637)	-0.0874	(0.191)	-0.1610	(0.014)	-0.0217	(0.625)	-0.1269	(0.005)	-0.0948	(0.196)	0.0311	(0.659)
skill intensity	0.0024	(0.634)	0.0190	(0.000)	0.0367	(0.002)	0.0511	(0.000)	0.0114	(0.010)	0.0020	(0.634)	0.0182	(0.007)	0.0161	(0.028)
national share	-0.0048	(0.817)	-0.0467	(0.018)	-0.0394	(0.427)	0.0260	(0.589)	-0.0014	(0.922)	-0.0058	(0.690)	-0.1272	(0.000)	0.0173	(0.443)
2001 (<i>D</i>)	-0.5005	(0.000)	0.1962	(0.018)	-0.5364	(0.005)	0.0556	(0.778)	-0.0974	(0.344)	0.0825	(0.409)	0.1442	(0.402)	0.1229	(0.490)
2002 (<i>D</i>)	-0.5968	(0.000)	0.0134	(0.876)	-0.2854	(0.106)	-0.0227	(0.910)	-0.1696	(0.104)	-0.1978	(0.063)	0.0622	(0.722)	0.1931	(0.268)
2003 (<i>D</i>)	-0.7313	(0.000)	-0.0075	(0.930)	-0.5064	(0.007)	-0.1354	(0.509)	-0.0581	(0.567)	-0.2480	(0.021)	-0.0305	(0.864)	0.1264	(0.475)
2004 (<i>D</i>)	-0.5926	(0.000)	-0.0086	(0.921)	-0.7231	(0.000)	-0.1434	(0.484)	-0.2085	(0.048)	-0.3113	(0.004)	-0.1429	(0.437)	0.0214	(0.906)
2005 (<i>D</i>)	-0.8176	(0.000)	-0.1115	(0.208)	-1.0725	(0.000)	-0.2317	(0.267)	-0.3277	(0.003)	-0.1028	(0.322)	0.0178	(0.920)	-0.0893	(0.632)
2006 (<i>D</i>)	-0.7696	(0.000)	-0.2038	(0.025)	-0.9855	(0.000)	-0.0829	(0.680)	-0.0676	(0.511)	-0.1529	(0.147)	-0.0159	(0.930)	0.0489	(0.786)
2007 (<i>D</i>)	-0.6905	(0.000)	-0.1429	(0.112)	-0.8683	(0.000)	-0.0995	(0.622)	-0.1644	(0.117)	0.0603	(0.545)	0.1810	(0.289)	0.0624	(0.727)
2008 (<i>D</i>)	-0.6087	(0.000)	-0.0385	(0.661)	-0.6129	(0.002)	-0.2047	(0.322)	-0.1764	(0.091)	-0.0042	(0.967)	0.1307	(0.447)	0.0405	(0.820)
2009 (<i>D</i>)	-0.6087	(0.000)	-0.0385	(0.661)	-0.6129	(0.002)	-0.2047	(0.322)	-0.1764	(0.091)	-0.0042	(0.967)	0.1307	(0.447)	0.0405	(0.820)
2010 (<i>D</i>)	-0.6087	(0.000)	-0.0385	(0.661)	-0.6129	(0.002)	-0.2047	(0.322)	-0.1764	(0.091)	-0.0042	(0.967)	0.1307	(0.447)	0.0405	(0.820)
constant	-0.4527	(0.000)	-0.1395	(0.122)	-0.6804	(0.001)	-0.3391	(0.112)	-0.3324	(0.002)	-0.0049	(0.961)	-0.0501	(0.779)	-0.0958	(0.599)
number of obs.	17.059								25.994							
Pseudo R ²	0.0378								0.0194							

Figure A 4 (continued)

industry variable	unemployment & same region		non-technical consulting and research employment & other region		unemployment & other region		immigrant	
	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
low skilled (<i>D</i>)	0.5473	(0.000)	0.3296	(0.000)	0.3121	(0.011)	1.1415	(0.000)
high skilled (<i>D</i>)	-0.2443	(0.000)	0.2055	(0.000)	-0.0313	(0.698)	0.8678	(0.000)
age	-0.2717	(0.000)	0.0589	(0.096)	0.0390	(0.543)	-0.0398	(0.482)
age ²	0.0024	(0.000)	-0.0009	(0.018)	-0.0008	(0.216)	0.0009	(0.131)
woman (<i>D</i>)	0.3084	(0.000)	-0.9066	(0.000)	-0.4249	(0.000)	0.1554	(0.025)
regional share	-0.0211	(0.359)	-0.0177	(0.417)	0.0461	(0.204)	0.1479	(0.000)
skill intensity	0.0005	(0.938)	-0.0361	(0.000)	-0.0105	(0.280)	-0.0048	(0.638)
national share	0.0201	(0.317)	0.0890	(0.000)	-0.0616	(0.061)	0.0392	(0.219)
2001 (<i>D</i>)	-0.1044	(0.225)	-0.0786	(0.334)	0.0080	(0.955)	-0.2219	(0.133)
2002 (<i>D</i>)	-0.2479	(0.005)	-0.2177	(0.008)	-0.1935	(0.182)	-0.3147	(0.034)
2003 (<i>D</i>)	-0.2452	(0.005)	-0.4708	(0.000)	-0.2424	(0.095)	-0.2956	(0.043)
2004 (<i>D</i>)	-0.2886	(0.001)	-0.5132	(0.000)	-0.2730	(0.061)	-0.2801	(0.053)
2005 (<i>D</i>)	-0.3534	(0.000)	-0.3796	(0.000)	-0.4010	(0.008)	-0.2534	(0.077)
2006 (<i>D</i>)	-0.4522	(0.000)	-0.4016	(0.000)	-0.4169	(0.006)	-0.4385	(0.003)
2007 (<i>D</i>)	-0.3378	(0.000)	-0.4618	(0.000)	-0.2924	(0.044)	-0.4297	(0.004)
2008 (<i>D</i>)	-0.3080	(0.000)	-0.2454	(0.002)	-0.2290	(0.107)	-0.5105	(0.001)
2009 (<i>D</i>)	-0.2148	(0.011)	-0.2646	(0.001)	-0.5318	(0.000)	-0.5915	(0.000)
2010 (<i>D</i>)	-0.2602	(0.002)	-0.4967	(0.000)	-0.3132	(0.028)	-0.6929	(0.000)
constant	3.9978	(0.000)	-3.4917	(0.000)	-3.6310	(0.014)	-4.7581	(0.001)
number of obs.	18.141							
Pseudo R ²	0.0226							

Source: BHP and SIAB 2000-2010. Own calculations.

Figure A 5: Regression results for non-knowledge intensive manufacturing, high-skilled

industry	food etc.								textile etc.							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0,4760	(0,164)	0,2423	(0,300)	0,1014	(0,833)	0,3973	(0,353)	-0,3787	(0,290)	0,6455	(0,203)	1,6207	(0,080)	1,8988	(0,037)
age ²	0,0042	(0,260)	-0,0033	(0,197)	-0,0019	(0,714)	-0,0049	(0,294)	0,0037	(0,319)	-0,0074	(0,180)	-0,0172	(0,085)	-0,0210	(0,042)
woman (<i>D</i>)	1,9842	(0,000)	-0,6935	(0,007)	-0,2043	(0,657)	-1,1509	(0,033)	1,1308	(0,006)	-1,2866	(0,013)	-0,7820	(0,282)	0,6537	(0,168)
regional share	0,2238	(0,038)	0,0168	(0,814)	-0,1906	(0,290)	0,0374	(0,705)	0,0009	(0,995)	-0,1782	(0,470)	0,0120	(0,971)	0,6068	(0,062)
skill intensity	-0,1047	(0,351)	-0,0766	(0,247)	-0,0015	(0,990)	0,1658	(0,066)	-0,0969	(0,215)	0,0048	(0,932)	0,0451	(0,582)	0,2875	(0,000)
national share	-0,0067	(0,975)	-0,0314	(0,813)	0,1031	(0,688)	0,5342	(0,014)	0,1222	(0,248)	-0,1043	(0,434)	-0,2361	(0,246)	-0,6077	(0,006)
2001 (<i>D</i>)	1,4523	(0,201)	0,8416	(0,094)	0,4311	(0,640)	-0,0048	(0,997)	-0,6882	(0,366)	-1,3443	(0,253)	-15,2812	(0,991)	0,3393	(0,807)
2002 (<i>D</i>)	0,6565	(0,596)	0,6076	(0,236)	-0,0563	(0,955)	-0,0831	(0,953)	-2,0322	(0,070)	-0,6600	(0,483)	-0,8791	(0,482)	1,1954	(0,360)
2003 (<i>D</i>)	0,4830	(0,697)	0,1334	(0,809)	-13,7727	(0,983)	0,9286	(0,424)	-0,4239	(0,549)	-0,2814	(0,740)	-0,9261	(0,460)	0,2231	(0,868)
2004 (<i>D</i>)	1,4809	(0,183)	0,2029	(0,707)	0,2475	(0,788)	1,1545	(0,305)	-0,7156	(0,350)	-1,4930	(0,205)	-1,0740	(0,392)	-0,3600	(0,798)
2005 (<i>D</i>)	0,4677	(0,706)	0,2309	(0,662)	-0,9281	(0,451)	1,0442	(0,354)	-1,1527	(0,186)	-1,4045	(0,234)	-15,5397	(0,991)	0,0345	(0,980)
2006 (<i>D</i>)	1,7411	(0,109)	0,2242	(0,671)	1,0014	(0,217)	0,7817	(0,501)	-1,9141	(0,088)	-0,2676	(0,753)	-0,0002	(0,000)	-0,3997	(0,796)
2007 (<i>D</i>)	2,0849	(0,051)	-0,4793	(0,436)	-13,8523	(0,983)	0,7362	(0,527)	-0,7425	(0,335)	-0,6835	(0,470)	-1,1414	(0,365)	0,4387	(0,751)
2008 (<i>D</i>)	1,2157	(0,285)	-0,1015	(0,858)	-0,8881	(0,471)	1,2690	(0,251)	-0,3629	(0,612)	0,5118	(0,495)	-15,4523	(0,991)	1,1149	(0,399)
2009 (<i>D</i>)	1,4797	(0,185)	0,1797	(0,739)	-0,8503	(0,491)	1,0648	(0,346)	-1,7744	(0,115)	-0,7598	(0,426)	-1,3091	(0,303)	1,0799	(0,404)
2010 (<i>D</i>)	0,9745	(0,407)	0,4924	(0,338)	0,5737	(0,514)	1,5358	(0,160)	-0,4044	(0,575)	-1,4362	(0,227)	-15,5582	(0,990)	1,2218	(0,359)
constant	6,2342	(0,422)	-7,3234	(0,171)	-5,2455	(0,630)	-13,8541	(0,157)	5,8799	(0,477)	-15,7837	(0,170)	-39,6647	(0,061)	-46,3836	(0,019)
number of obs.	2.614								815							
Pseudo R ²	0,0844								0,1645							

industry	wood, paper etc.								rubber, plastic products							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0,1516	(0,597)	0,0246	(0,910)	-0,2292	(0,476)	1,6488	(0,054)	-0,5164	(0,045)	-0,1152	(0,520)	0,5536	(0,209)	-0,8584	(0,003)
age ²	0,0010	(0,758)	-0,0009	(0,711)	0,0021	(0,539)	-0,0180	(0,051)	0,0055	(0,037)	0,0006	(0,738)	-0,0060	(0,197)	0,0092	(0,001)
woman (<i>D</i>)	0,6574	(0,019)	-0,7785	(0,007)	-0,6383	(0,162)	-1,8235	(0,078)	1,2852	(0,000)	-0,3213	(0,268)	-0,3281	(0,597)	0,1031	(0,851)
regional share	-0,1079	(0,518)	-0,1659	(0,184)	-0,2558	(0,259)	0,1775	(0,573)	-0,2718	(0,176)	0,0581	(0,555)	0,1100	(0,630)	0,2044	(0,296)
skill intensity	-0,0286	(0,474)	-0,0680	(0,067)	0,0212	(0,710)	0,0802	(0,124)	0,0232	(0,604)	-0,0609	(0,039)	-0,0338	(0,591)	0,0136	(0,798)
national share	0,2805	(0,069)	-0,0167	(0,884)	-0,3517	(0,093)	-0,0924	(0,771)	0,1670	(0,287)	-0,0841	(0,370)	-0,5034	(0,047)	-0,2231	(0,288)
2001 (<i>D</i>)	-1,1216	(0,174)	-0,2340	(0,614)	0,2327	(0,763)	-0,0330	(0,000)	-1,1941	(0,304)	0,2497	(0,522)	-0,1205	(0,905)	-0,0472	(0,963)
2002 (<i>D</i>)	-0,1562	(0,791)	-0,5997	(0,227)	-0,1661	(0,840)	-0,0100	(0,000)	-0,1465	(0,859)	-0,2349	(0,584)	0,2364	(0,797)	-0,8166	(0,507)
2003 (<i>D</i>)	-0,8801	(0,220)	-0,2874	(0,524)	0,0642	(0,934)	-0,0453	(0,000)	0,8638	(0,202)	0,0291	(0,942)	-0,1891	(0,851)	0,2110	(0,819)
2004 (<i>D</i>)	0,0743	(0,894)	-0,4035	(0,384)	-1,3484	(0,245)	13,1360	(0,988)	-0,7214	(0,433)	-0,5561	(0,218)	0,1438	(0,876)	0,1109	(0,904)
2005 (<i>D</i>)	-1,3618	(0,100)	-0,3376	(0,455)	0,0071	(0,993)	13,0220	(0,988)	-0,0741	(0,924)	-0,0965	(0,812)	-0,9225	(0,453)	0,1188	(0,897)
2006 (<i>D</i>)	-0,3754	(0,545)	-1,5139	(0,022)	-0,6618	(0,473)	13,0102	(0,988)	-0,7805	(0,397)	-0,2975	(0,478)	-0,3151	(0,754)	0,1448	(0,875)
2007 (<i>D</i>)	0,2022	(0,718)	-0,0209	(0,962)	0,3101	(0,677)	14,1130	(0,987)	0,5370	(0,443)	-0,5302	(0,241)	0,4240	(0,627)	0,1914	(0,835)
2008 (<i>D</i>)	-0,4944	(0,455)	0,3509	(0,383)	0,6425	(0,364)	14,0132	(0,987)	-0,0467	(0,952)	-0,2441	(0,561)	-1,0157	(0,409)	0,1271	(0,890)
2009 (<i>D</i>)	-0,1689	(0,777)	-0,5040	(0,295)	-1,3544	(0,246)	13,9256	(0,987)	-0,0316	(0,967)	-0,5010	(0,268)	-0,2979	(0,767)	0,1757	(0,849)
2010 (<i>D</i>)	0,0101	(0,986)	-0,9263	(0,095)	-1,3437	(0,251)	14,7634	(0,986)	0,3915	(0,588)	0,0316	(0,938)	0,6865	(0,416)	0,7261	(0,392)
constant	0,5855	(0,929)	-1,9603	(0,692)	2,5921	(0,729)	-55,4863	(0,949)	6,9785	(0,255)	1,1402	(0,782)	-16,2979	(0,114)	15,0525	(0,029)
number of obs.	2.814								10.829							
Pseudo R ²	0,0632								0,0436							

industry	glass, ceramic products etc.								metal products etc.							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0,5782	(0,099)	-0,0037	(0,988)	0,0805	(0,876)	0,7923	(0,096)	-0,0722	(0,616)	-0,1241	(0,242)	-0,0740	(0,727)	0,1055	(0,612)
age ²	0,0057	(0,115)	-0,0006	(0,805)	-0,0014	(0,804)	-0,0065	(0,151)	0,0008	(0,570)	0,0008	(0,493)	0,0005	(0,818)	-0,0005	(0,796)
woman (<i>D</i>)	0,6039	(0,221)	-1,1852	(0,024)	-1,3637	(0,191)	-14,2600	(0,981)	0,7081	(0,000)	-0,4741	(0,019)	-0,0677	(0,851)	-0,1374	(0,703)
regional share	-0,1701	(0,631)	-0,5703	(0,014)	0,7077	(0,159)	-0,0036	(0,991)	0,0086	(0,773)	-0,0061	(0,760)	0,0405	(0,312)	-0,0924	(0,109)
skill intensity	-0,0297	(0,684)	-0,0579	(0,180)	0,0236	(0,810)	-0,0406	(0,562)	0,0789	(0,080)	-0,0342	(0,290)	0,0376	(0,552)	0,1102	(0,071)
national share	0,2063	(0,567)	0,3668	(0,072)	-1,2821	(0,021)	0,0339	(0,921)	-0,0043	(0,931)	-0,0063	(0,847)	-0,1280	(0,084)	-0,0768	(0,373)
2001 (<i>D</i>)	0,3761	(0,683)	-0,1736	(0,730)	0,5603	(0,524)	0,4151	(0,654)	0,2111	(0,572)	-0,4087	(0,103)	0,4858	(0,440)	-0,0466	(0,948)
2002 (<i>D</i>)	0,3739	(0,685)	0,2749	(0,551)	0,3735	(0,687)	-0,0442	(0,965)	0,0604	(0,875)	-0,3607	(0,139)	-0,1170	(0,869)	-0,3685	(0,631)
2003 (<i>D</i>)	0,4393	(0,634)	-0,7900	(0,200)	-0,7539	(0,542)	0,0073	(0,994)	-0,0226	(0,954)	-0,5233	(0,038)	0,7832	(0,188)	0,1936	(0,774)
2004 (<i>D</i>)	-0,0121	(0,990)	-1,4568	(0,067)	-0,0331	(0,974)	-0,0263	(0,979)	-0,9113	(0,067)	-0,4647	(0,059)	1,0026	(0,081)	0,3544	(0,586)
2005 (<i>D</i>)	0,0567	(0,955)	-0,1996	(0,702)	-14,7644	(0,989)	0,4265	(0,646)	0,2706	(0,454)	-0,8719	(0,002)	0,4912	(0,425)	0,4733	(0,453)
2006 (<i>D</i>)	-14,3600	(0,989)	0,1246	(0,800)	-0,5774	(0,640)	0,8044	(0,362)	0,0086	(0,982)	-0,4218	(0,084)	0,2262	(0,727)	0,3565	(0,583)
2007 (<i>D</i>)	0,5591	(0,545)	-0,4479	(0,435)	-14,6654	(0,990)	0,3991	(0,667)	-0,0968	(0,804)	-0,3951	(0,102)	-0,1975	(0,781)	0,9130	(0,121)
2008 (<i>D</i>)	0,8651	(0,324)	-0,1302	(0,803)	-0,5471	(0,658)	0,7158	(0,417)	-0,4836	(0,256)	-0,2829	(0,229)	0,1845	(0,776)	0,9395	(0,107)
2009 (<i>D</i>)	-0,5773	(0,640)	-0,2680	(0,623)	-0,4744	(0,702)	0,4175	(0,653)	-0,0056	(0,988)	-0,4823	(0,050)	0,4464	(0,469)	0,6083	(0,315)
2010 (<i>D</i>)	0,2030	(0,841)	-0,0884	(0,866)	-0,4499	(0,717)	-0,6515	(0,598)	-0,4582	(0,269)	-0,6858	(0,009)	-0,0256	(0,970)	0,7820	(0,184)
constant	9,4116	(0,256)	-1,5855	(0,781)	-3,5019	(0,773)	-27,2427	(0,027)	-2,4964	(0,468)	1,4257	(0,562)	-2,4629	(0,622)	-8,7228	(0,089)
number of obs.	8.233								3.189							
Pseudo R ²	0,0397								0,0435							

Figure A 5 (continued)

industry variable	furniture etc.							
	unemployment & same region		employment & other region		unemployment & other region		immigrant	
	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0,1074	(0,783)	0,4819	(0,368)	-0,1253	(0,799)	-0,6524	(0,038)
age ²	0,0015	(0,708)	-0,0058	(0,330)	0,0014	(0,779)	0,0077	(0,015)
woman (<i>D</i>)	-0,0146	(0,980)	-1,2023	(0,106)	-0,5003	(0,527)	1,6538	(0,000)
regional share	-0,1611	(0,631)	0,2319	(0,325)	-0,3682	(0,383)	-0,2197	(0,531)
skill intensity	0,0043	(0,918)	-0,0006	(0,987)	-0,4402	(0,053)	0,0908	(0,001)
national share	0,0916	(0,517)	-0,0456	(0,676)	0,0581	(0,749)	-0,1528	(0,480)
2001 (<i>D</i>)	-0,6609	(0,478)	-0,2478	(0,768)	-1,5292	(0,195)	14,1489	(0,988)
2002 (<i>D</i>)	-0,6574	(0,480)	-15,9994	(0,991)	-16,8720	(0,994)	14,5644	(0,988)
2003 (<i>D</i>)	-0,6952	(0,456)	0,1801	(0,812)	-0,0987	(0,902)	14,7615	(0,988)
2004 (<i>D</i>)	-0,7946	(0,394)	-16,0519	(0,991)	-16,7984	(0,993)	14,1166	(0,988)
2005 (<i>D</i>)	-16,3626	(0,992)	-0,9353	(0,316)	-1,6789	(0,157)	14,2179	(0,988)
2006 (<i>D</i>)	-0,8519	(0,360)	-0,5689	(0,499)	-16,7175	(0,993)	14,1681	(0,988)
2007 (<i>D</i>)	-0,5310	(0,526)	-0,6193	(0,462)	-16,7793	(0,993)	14,7544	(0,988)
2008 (<i>D</i>)	-0,9152	(0,328)	0,2542	(0,726)	-0,7217	(0,406)	14,8057	(0,988)
2009 (<i>D</i>)	-0,5353	(0,527)	-1,6766	(0,155)	-16,8399	(0,993)	15,2025	(0,987)
2010 (<i>D</i>)	-1,6367	(0,165)	-0,5140	(0,546)	-1,2026	(0,223)	15,1000	(0,987)
constant	-1,4597	(0,875)	-12,7191	(0,287)	-0,0149	(0,999)	-5,1987	(0,996)
number of obs.	1.869							
Pseudo R ²	0,0806							

Source: BHP and SIAB 2000-2010. Own calculations.

Figure A 6: Regression results for knowledge intensive manufacturing, high-skilled

industry	chemicals, pharmaceuticals								machinery							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0.6684	(0.000)	-0.1381	(0.263)	-0.6440	(0.013)	0.0801	(0.677)	-0.1968	(0.100)	0.0516	(0.529)	-0.1325	(0.424)	0.4189	(0.010)
age ²	0.0067	(0.000)	0.0007	(0.594)	0.0061	(0.026)	-0.0015	(0.471)	0.0018	(0.155)	-0.0010	(0.243)	0.0011	(0.543)	-0.0046	(0.008)
woman (<i>D</i>)	1.2112	(0.000)	0.0299	(0.823)	0.4508	(0.136)	0.2252	(0.232)	1.2784	(0.000)	-0.1238	(0.425)	0.2030	(0.492)	0.5093	(0.022)
regional share	-0.0430	(0.591)	-0.0188	(0.699)	0.0161	(0.895)	0.0715	(0.277)	-0.0413	(0.263)	-0.0446	(0.041)	-0.0969	(0.052)	0.0584	(0.160)
skill intensity	-0.0111	(0.506)	-0.0051	(0.650)	-0.0345	(0.237)	-0.0101	(0.563)	0.0236	(0.173)	-0.0175	(0.124)	-0.0250	(0.309)	0.0367	(0.083)
national share	-0.0803	(0.083)	0.0203	(0.387)	-0.0774	(0.255)	0.0005	(0.989)	-0.1014	(0.031)	-0.0310	(0.280)	-0.0982	(0.170)	0.0927	(0.039)
2001 (<i>D</i>)	0.8601	(0.156)	0.5723	(0.020)	0.3187	(0.678)	0.1779	(0.751)	-0.1675	(0.588)	0.3987	(0.029)	0.4616	(0.307)	0.2396	(0.589)
2002 (<i>D</i>)	1.3029	(0.021)	-0.2021	(0.478)	0.4239	(0.564)	0.2244	(0.680)	-0.1192	(0.693)	0.1811	(0.336)	0.3960	(0.380)	0.4510	(0.282)
2003 (<i>D</i>)	0.8618	(0.139)	-0.1762	(0.521)	0.6019	(0.386)	0.4166	(0.416)	-0.0970	(0.743)	-0.2360	(0.248)	-0.1482	(0.768)	0.4521	(0.276)
2004 (<i>D</i>)	0.7171	(0.229)	-0.0325	(0.904)	0.3385	(0.645)	0.5859	(0.247)	-0.2866	(0.354)	-0.2880	(0.163)	-0.1570	(0.754)	0.3803	(0.364)
2005 (<i>D</i>)	0.7352	(0.218)	-0.4812	(0.114)	0.5423	(0.446)	0.6644	(0.184)	-0.1873	(0.536)	-0.2185	(0.280)	0.2355	(0.608)	0.2418	(0.574)
2006 (<i>D</i>)	0.6997	(0.248)	-0.0206	(0.940)	0.4448	(0.545)	0.7289	(0.145)	-0.1536	(0.608)	0.0482	(0.800)	0.3058	(0.499)	0.2901	(0.494)
2007 (<i>D</i>)	0.8479	(0.150)	0.0497	(0.854)	-0.1008	(0.902)	0.8412	(0.086)	-0.2298	(0.447)	-0.0112	(0.953)	0.1062	(0.820)	0.3062	(0.288)
2008 (<i>D</i>)	1.2674	(0.024)	-0.0165	(0.952)	0.4044	(0.582)	0.9688	(0.044)	-0.1770	(0.550)	0.1725	(0.348)	0.6344	(0.135)	0.5062	(0.211)
2009 (<i>D</i>)	0.7326	(0.220)	-0.0070	(0.979)	-0.5000	(0.586)	1.0212	(0.033)	-0.3104	(0.305)	-0.2200	(0.268)	0.1448	(0.753)	0.5582	(0.162)
2010 (<i>D</i>)	1.0371	(0.070)	-0.4862	(0.117)	0.4003	(0.586)	1.0714	(0.024)	-0.3710	(0.226)	-0.5615	(0.010)	0.2288	(0.613)	0.5938	(0.135)
constant	11.0077	(0.003)	1.5126	(0.591)	10.9857	(0.067)	-5.3100	(0.227)	1.1950	(0.669)	-3.2509	(0.086)	-0.9962	(0.797)	-14.6760	(0.000)
number of obs.	8.219								17.377							
Pseudo R ²	0.0245								0.023							

industry	media and communication equipment etc.								electrical machinery							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0.7801	(0.082)	-0.2493	(0.816)	-0.4242	(0.910)	0.2789	(1.086)	-0.5654	(0.001)	0.0624	(0.581)	0.1324	(0.666)	-0.1138	(0.457)
age ²	0.0080	(0.094)	0.0014	(1.330)	0.0040	(1.004)	-0.0035	(0.954)	0.0056	(0.001)	-0.0011	(0.378)	-0.0021	(0.523)	0.0008	(0.631)
woman (<i>D</i>)	2.3659	(0.000)	-0.2037	(1.292)	-0.5439	(1.216)	0.3644	(1.076)	1.5966	(0.000)	0.0640	(0.734)	-0.3061	(0.560)	0.3364	(0.128)
regional share	-0.0303	(1.860)	-0.4390	(0.174)	0.3802	(0.844)	0.8329	(0.006)	0.0349	(0.620)	0.1066	(0.004)	-0.3587	(0.021)	0.1372	(0.005)
skill intensity	-0.0142	(1.228)	-0.0484	(0.034)	-0.0183	(1.300)	0.0458	(0.304)	0.0094	(0.407)	-0.0050	(0.485)	-0.0235	(0.179)	0.0026	(0.771)
national share	-0.0952	(0.610)	0.1055	(0.220)	-0.1780	(0.384)	-0.0773	(0.618)	-0.0979	(0.051)	-0.1462	(0.000)	0.0524	(0.528)	0.0107	(0.743)
2001 (<i>D</i>)	-1.3675	(0.352)	0.1969	(1.500)	-0.8280	(1.048)	0.1724	(1.756)	-0.7326	(0.118)	0.0402	(0.869)	0.4018	(0.484)	0.3482	(0.449)
2002 (<i>D</i>)	-1.3752	(0.348)	0.2548	(1.354)	-2.2175	(0.352)	0.2344	(1.668)	-0.2421	(0.544)	0.1149	(0.630)	0.0762	(0.900)	0.4980	(0.259)
2003 (<i>D</i>)	-0.4555	(1.202)	0.5269	(0.740)	-2.3528	(0.302)	0.4188	(1.388)	0.0043	(0.991)	-0.4391	(0.103)	-1.0808	(0.198)	0.7686	(0.068)
2004 (<i>D</i>)	-0.2230	(1.576)	-0.3064	(1.262)	0.0938	(1.866)	0.9743	(0.670)	-1.2303	(0.019)	-0.4871	(0.070)	-0.7087	(0.334)	0.7145	(0.090)
2005 (<i>D</i>)	-1.3934	(0.296)	-0.5008	(0.878)	-2.5208	(0.248)	0.5799	(1.148)	-0.4821	(0.238)	-0.2743	(0.277)	-0.2376	(0.709)	0.6358	(0.135)
2006 (<i>D</i>)	-0.5955	(0.988)	-0.5338	(0.832)	-1.0698	(0.824)	-0.1572	(1.772)	-0.4555	(0.266)	-0.4077	(0.118)	-1.1552	(0.169)	0.5773	(0.178)
2007 (<i>D</i>)	-2.1202	(0.000)	-0.3692	(1.120)	-1.7318	(0.454)	-0.4049	(1.424)	-0.4408	(0.282)	-0.1457	(0.556)	0.0334	(0.956)	0.6139	(0.156)
2008 (<i>D</i>)	-0.5533	(1.018)	-1.0682	(0.236)	-1.8738	(0.382)	-1.4180	(0.472)	-0.3048	(0.438)	-0.4575	(0.086)	0.1650	(0.780)	0.5705	(0.192)
2009 (<i>D</i>)	-0.9357	(0.596)	-1.2168	(0.184)	-1.6144	(0.514)	-0.4692	(1.348)	-0.4054	(0.324)	-0.1381	(0.580)	0.0559	(0.927)	0.7259	(0.091)
2010 (<i>D</i>)	-1.3150	(0.346)	-0.7501	(0.556)	0.6994	(1.024)	0.5524	(1.190)	-0.7045	(0.118)	-0.2311	(0.365)	-0.3399	(0.615)	0.8102	(0.058)
constant	10.8857	(0.434)	1.5726	(1.636)	2.3012	(1.722)	-14.5637	(0.332)	9.7581	(0.010)	-3.2409	(0.214)	-6.3745	(0.361)	-14.4754	(0.676)
number of obs.	7.328								10.737							
Pseudo R ²	0.0332								0.0383							

industry	medical, precision and optical instruments etc.								motor vehicles							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0.3480	(0.027)	-0.1384	(0.265)	-0.4455	(0.109)	0.1016	(0.566)	-0.7105	(0.000)	-0.0169	(0.926)	-0.1870	(0.673)	1.2521	(0.000)
age ²	0.0034	(0.040)	0.0009	(0.500)	0.0042	(0.156)	-0.0015	(0.421)	0.0072	(0.000)	-0.0006	(0.764)	0.0014	(0.765)	-0.0134	(0.000)
woman (<i>D</i>)	1.2830	(0.000)	-0.1742	(0.408)	0.0267	(0.956)	0.4462	(0.054)	1.7806	(0.000)	0.0272	(0.924)	0.2904	(0.699)	2.2811	(0.000)
regional share	-0.2154	(0.028)	0.0489	(0.236)	0.0224	(0.849)	0.1319	(0.015)	0.0921	(0.164)	0.0016	(0.973)	-0.0040	(0.973)	0.1986	(0.003)
skill intensity	-0.0353	(0.017)	-0.0351	(0.000)	-0.0212	(0.356)	0.0285	(0.009)	-0.0381	(0.063)	-0.0488	(0.002)	0.0192	(0.575)	-0.0169	(0.328)
national share	0.1126	(0.096)	0.0270	(0.581)	-0.1121	(0.374)	-0.0170	(0.767)	-0.1298	(0.094)	-0.0164	(0.771)	-0.0703	(0.604)	-0.3265	(0.000)
2001 (<i>D</i>)	0.0418	(0.909)	0.5380	(0.075)	-0.4074	(0.656)	0.0238	(0.958)	-0.1814	(0.747)	0.4159	(0.314)	-0.7532	(0.540)	0.1891	(0.759)
2002 (<i>D</i>)	-0.1184	(0.759)	0.4384	(0.158)	0.8462	(0.222)	0.1431	(0.746)	0.3621	(0.462)	-0.2710	(0.571)	0.8149	(0.334)	0.4002	(0.491)
2003 (<i>D</i>)	0.1140	(0.749)	0.3314	(0.288)	0.9187	(0.177)	0.3178	(0.448)	-1.5082	(0.062)	1.0404	(0.004)	0.7280	(0.387)	0.1029	(0.863)
2004 (<i>D</i>)	-0.5087	(0.219)	-0.1192	(0.728)	-1.1884	(0.304)	0.3542	(0.391)	0.0520	(0.917)	0.1629	(0.693)	0.1489	(0.871)	0.3926	(0.482)
2005 (<i>D</i>)	-0.9106	(0.049)	0.3487	(0.257)	0.3920	(0.593)	0.2668	(0.524)	-0.5307	(0.347)	-0.2827	(0.532)	-0.3234	(0.748)	0.1385	(0.808)
2006 (<i>D</i>)	-0.8238	(0.063)	0.3100	(0.314)	-0.5573	(0.542)	0.1647	(0.699)	-0.4543	(0.403)	0.2674	(0.500)	-14.8088	(0.988)	-0.1977	(0.740)
2007 (<i>D</i>)	-0.4458	(0.257)	0.4355	(0.147)	0.1297	(0.866)	0.1475	(0.729)	-0.4729	(0.384)	0.1435	(0.722)	-0.4377	(0.664)	-0.1994	(0.732)
2008 (<i>D</i>)	-0.1758	(0.636)	0.1180	(0.712)	0.3717	(0.612)	0.2898	(0.483)	-1.0658	(0.093)	0.6134	(0.101)	-0.4789	(0.635)	-0.4393	(0.463)
2009 (<i>D</i>)	-0.9374	(0.043)	0.4364	(0.149)	-14.2733	(0.983)	0.3562	(0.383)	0.0528	(0.914)	0.0066	(0.987)	-1.1925	(0.334)	-0.1004	(0.858)
2010 (<i>D</i>)	0.0071	(0.984)	0.1147	(0.723)	0.8649	(0.204)	0.3693	(0.366)	0.8180	(0.063)	-0.5938	(0.216)	-14.7446	(0.987)	0.0792	(0.885)
constant	4.4273	(0.227)	0.6543	(0.819)	6.1764	(0.337)	-5.9633	(0.145)	12.8103	(0.003)	-1.9286	(0.638)	-0.0515	(0.996)	-32.6360	(0.000)
number of obs.	9.364								9.222							
Pseudo R ²	0.0342								0.0842							

Figure A 6 (continued)

industry variable	other transport equipment							
	unemployment & same region		employment & other region		unemployment & other region		immigrant	
	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0,0362	(0,954)	0,0823	(0,721)	0,4444	(0,598)	-0,4622	(0,059)
age ²	-0,0003	(0,966)	-0,0012	(0,622)	-0,0053	(0,561)	0,0052	(0,035)
woman (<i>D</i>)	2,1987	(0,001)	-1,1428	(0,118)	1,3866	(0,122)	-15,1384	(0,989)
regional share	-2,1924	(0,300)	0,2711	(0,061)	0,5701	(0,079)	-0,4545	(0,172)
skill intensity	0,0364	(0,316)	0,0039	(0,583)	0,0285	(0,198)	-0,0664	(0,000)
national share	-0,1346	(0,442)	-0,0814	(0,185)	0,2018	(0,324)	0,7151	(0,000)
2001 (<i>D</i>)	-0,4134	(0,678)	0,5202	(0,416)	16,2840	(0,995)	-0,3813	(0,632)
2002 (<i>D</i>)	-1,2985	(0,287)	0,4312	(0,500)	-0,1903	(0,000)	-0,2592	(0,736)
2003 (<i>D</i>)	-0,5529	(0,597)	0,1368	(0,842)	-0,2502	(0,000)	-1,1098	(0,180)
2004 (<i>D</i>)	-1,1898	(0,345)	-1,4398	(0,203)	-0,1975	(0,000)	-0,3194	(0,666)
2005 (<i>D</i>)	-16,2101	(0,993)	1,2893	(0,027)	15,4424	(0,996)	-0,0399	(0,956)
2006 (<i>D</i>)	-16,4274	(0,992)	0,7594	(0,203)	15,4339	(0,996)	-0,8032	(0,318)
2007 (<i>D</i>)	-1,6587	(0,193)	-0,1447	(0,833)	0,1812	(0,000)	-0,8624	(0,282)
2008 (<i>D</i>)	-1,2397	(0,338)	0,1316	(0,844)	15,5220	(0,996)	-1,6010	(0,092)
2009 (<i>D</i>)	-16,2838	(0,992)	-0,3827	(0,603)	17,2977	(0,995)	-1,3015	(0,171)
2010 (<i>D</i>)	-1,2598	(0,357)	-0,3598	(0,626)	0,8706	(0,000)	-1,4988	(0,116)
constant	-1,7670	(0,903)	-4,6060	(0,395)	-31,7888	(0,991)	4,4745	(0,449)
number of obs.	2,109							
Pseudo R ²	0,1271							

Source: BHP and SIAB 2000-2010. Own calculations.

Figure A 7: Regression results for knowledge intensive services, high-skilled

industry	media, culture								computer and related activities							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0.3877	(0.000)	-0.3822	(0.000)	0.0735	(0.749)	0.1870	(0.152)	-0.3910	(0.001)	-0.0757	(0.351)	-0.4976	(0.005)	0.5168	(0.000)
age ²	0.0034	(0.001)	0.0033	(0.004)	-0.0017	(0.504)	-0.0020	(0.147)	0.0037	(0.005)	0.0005	(0.546)	0.0050	(0.009)	-0.0054	(0.000)
woman (<i>D</i>)	0.7727	(0.000)	-0.2660	(0.030)	0.1818	(0.375)	0.1813	(0.197)	1.3091	(0.000)	-0.3638	(0.001)	0.2850	(0.177)	0.0882	(0.540)
regional share	-0.0004	(0.994)	0.0305	(0.581)	0.0154	(0.880)	0.0017	(0.980)	-0.1598	(0.067)	0.0493	(0.382)	0.0107	(0.938)	0.2577	(0.003)
skill intensity	0.0129	(0.208)	-0.0173	(0.133)	-0.0316	(0.132)	0.0283	(0.092)	-0.0106	(0.149)	-0.0252	(0.000)	-0.0310	(0.009)	0.0001	(0.986)
national share	-0.0241	(0.407)	-0.0703	(0.039)	-0.0452	(0.450)	0.2575	(0.000)	0.1013	(0.002)	-0.0205	(0.343)	0.0196	(0.710)	-0.1284	(0.000)
2001 (<i>D</i>)	-0.1454	(0.554)	0.0552	(0.820)	0.1744	(0.701)	0.0203	(0.954)	-0.1299	(0.596)	-0.0287	(0.861)	0.2542	(0.495)	-0.1250	(0.622)
2002 (<i>D</i>)	-0.1104	(0.646)	-0.1586	(0.528)	-0.2108	(0.667)	0.1342	(0.694)	-0.2328	(0.345)	-0.1655	(0.315)	-0.2848	(0.489)	-0.5692	(0.038)
2003 (<i>D</i>)	-0.4083	(0.111)	-0.0685	(0.779)	-0.5323	(0.316)	0.0115	(0.974)	-1.0426	(0.001)	-0.4682	(0.007)	-0.5165	(0.231)	-0.6842	(0.013)
2004 (<i>D</i>)	0.0697	(0.758)	-0.9648	(0.002)	-0.4123	(0.416)	-0.0728	(0.837)	-0.4951	(0.052)	-0.9123	(0.000)	-0.4153	(0.313)	-0.9623	(0.001)
2005 (<i>D</i>)	-0.4809	(0.063)	-0.9709	(0.002)	-0.1737	(0.715)	0.1510	(0.651)	-0.5359	(0.036)	-0.6502	(0.000)	-0.7443	(0.094)	-0.8374	(0.002)
2006 (<i>D</i>)	-0.1440	(0.547)	-0.5898	(0.036)	-0.3995	(0.431)	0.1905	(0.565)	-0.3662	(0.135)	-0.6889	(0.000)	-0.4640	(0.260)	-0.8099	(0.003)
2007 (<i>D</i>)	-0.2623	(0.286)	-0.9115	(0.004)	0.0593	(0.896)	0.1097	(0.743)	-1.0098	(0.001)	-0.2730	(0.090)	-0.8486	(0.065)	-0.6260	(0.015)
2008 (<i>D</i>)	-0.0618	(0.794)	0.0821	(0.733)	0.0803	(0.860)	-0.0140	(0.967)	-0.3012	(0.211)	-0.4975	(0.003)	-0.2543	(0.516)	-0.5686	(0.023)
2009 (<i>D</i>)	-0.4922	(0.060)	-0.3073	(0.243)	0.0588	(0.897)	-0.0590	(0.863)	-0.3167	(0.191)	-0.3823	(0.019)	-0.4132	(0.308)	-0.5295	(0.032)
2010 (<i>D</i>)	0.0535	(0.816)	-0.1094	(0.664)	-0.2293	(0.641)	-0.1747	(0.617)	-0.2851	(0.240)	-0.4975	(0.003)	-0.3034	(0.447)	-0.4977	(0.043)
constant	6.9266	(0.002)	7.5359	(0.003)	-4.2312	(0.418)	-9.4082	(0.002)	6.0590	(0.026)	0.0673	(0.971)	7.7368	(0.054)	-15.0371	(0.000)
number of obs.	2.353								15.351							
Pseudo R ²	0.0556								0.0291							

industry	financial intermediation								technical consulting and research							
	unemployment & same region		employment & other region		unemployment & other region		immigrant		unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0.5527	(0.000)	-0.0425	(0.619)	-0.0564	(0.845)	0.7547	(0.000)	-0.2264	(0.001)	0.0257	(0.669)	-0.0442	(0.689)	-0.2319	(0.004)
age ²	0.0054	(0.000)	0.0000	(0.971)	-0.0002	(0.940)	-0.0078	(0.000)	0.0020	(0.007)	-0.0007	(0.262)	0.0001	(0.938)	0.0023	(0.006)
woman (<i>D</i>)	1.2327	(0.000)	-0.5783	(0.000)	0.2749	(0.271)	-0.3585	(0.051)	0.9913	(0.000)	-0.2718	(0.001)	0.1840	(0.189)	0.2470	(0.028)
regional share	0.0918	(0.271)	-0.0494	(0.411)	0.2136	(0.204)	-0.2029	(0.095)	0.0798	(0.278)	-0.1179	(0.059)	-0.0208	(0.856)	0.1097	(0.216)
skill intensity	-0.0103	(0.473)	-0.0329	(0.003)	-0.0073	(0.813)	0.0557	(0.006)	-0.0107	(0.162)	-0.0117	(0.055)	-0.0095	(0.392)	0.0173	(0.067)
national share	-0.0669	(0.266)	0.0189	(0.669)	-0.1932	(0.114)	0.0404	(0.646)	0.0134	(0.565)	-0.0026	(0.898)	-0.0887	(0.024)	-0.0184	(0.520)
2001 (<i>D</i>)	-0.7946	(0.001)	0.0004	(0.998)	-0.3368	(0.506)	0.0663	(0.862)	-0.0721	(0.695)	-0.0592	(0.688)	0.0116	(0.968)	0.2162	(0.358)
2002 (<i>D</i>)	-1.1530	(0.000)	0.1032	(0.556)	-0.0491	(0.915)	0.0250	(0.948)	-0.1107	(0.545)	-0.1932	(0.198)	-0.0435	(0.882)	0.2353	(0.310)
2003 (<i>D</i>)	-1.1141	(0.000)	-0.2543	(0.174)	-0.8190	(0.144)	0.0336	(0.929)	-0.0186	(0.917)	-0.4139	(0.009)	-0.0050	(0.986)	0.1480	(0.531)
2004 (<i>D</i>)	-0.9023	(0.000)	-0.3995	(0.038)	-1.0623	(0.078)	-0.0223	(0.953)	-0.3711	(0.056)	-0.3346	(0.030)	-0.2075	(0.495)	0.0235	(0.923)
2005 (<i>D</i>)	-0.9079	(0.000)	-0.6193	(0.002)	-0.8639	(0.123)	-0.0941	(0.802)	-0.3651	(0.059)	-0.2003	(0.178)	-0.0023	(0.994)	-0.1662	(0.510)
2006 (<i>D</i>)	-0.7863	(0.001)	-0.4064	(0.034)	-0.3708	(0.448)	-0.1163	(0.757)	-0.1450	(0.428)	-0.3382	(0.028)	0.0273	(0.924)	0.0602	(0.801)
2007 (<i>D</i>)	-0.8801	(0.000)	-0.2997	(0.111)	-0.8093	(0.149)	-0.2594	(0.504)	0.0365	(0.834)	0.1560	(0.254)	0.1508	(0.587)	0.1191	(0.612)
2008 (<i>D</i>)	-0.8597	(0.000)	-0.3382	(0.073)	-0.6425	(0.226)	-0.1894	(0.616)	-0.0615	(0.727)	-0.0922	(0.520)	0.2692	(0.317)	0.1708	(0.459)
2009 (<i>D</i>)	-0.6159	(0.004)	-0.2805	(0.131)	-0.6386	(0.229)	-0.1638	(0.660)	-0.1951	(0.277)	0.0350	(0.800)	-0.0746	(0.794)	0.0207	(0.930)
2010 (<i>D</i>)	-0.6695	(0.003)	-0.4285	(0.027)	-0.3249	(0.508)	-0.0894	(0.806)	-0.2136	(0.232)	-0.1907	(0.186)	-0.0660	(0.816)	0.0806	(0.727)
constant	10.3167	(0.000)	-0.8873	(0.651)	-1.4631	(0.821)	-22.3886	(0.000)	2.3230	(0.153)	-2.5076	(0.071)	-2.3948	(0.351)	1.5210	(0.426)
number of obs.	17.059								25.994							
Pseudo R ²	0.0378								0.0194							

industry	non-technical consulting and research							
	unemployment & same region		employment & other region		unemployment & other region		immigrant	
variable	coeff	p-value	coeff	p-value	coeff	p-value	coeff	p-value
age	-0.3024	(0.001)	0.0444	(0.504)	-0.1070	(0.437)	0.3549	(0.002)
age ²	0.0027	(0.005)	-0.0009	(0.224)	0.0005	(0.725)	-0.0038	(0.002)
woman (<i>D</i>)	0.8721	(0.000)	-0.5618	(0.000)	-0.0289	(0.837)	0.1190	(0.307)
regional share	-0.0168	(0.757)	-0.0314	(0.419)	0.0257	(0.726)	-0.1263	(0.070)
skill intensity	-0.0100	(0.486)	-0.0293	(0.005)	-0.0235	(0.219)	0.0114	(0.518)
national share	0.0491	(0.273)	0.0708	(0.031)	-0.0851	(0.171)	0.1118	(0.038)
2001 (<i>D</i>)	-0.0750	(0.745)	0.3320	(0.038)	-0.1860	(0.561)	-0.1870	(0.495)
2002 (<i>D</i>)	-0.0918	(0.684)	-0.0569	(0.734)	-0.2559	(0.418)	-0.1911	(0.469)
2003 (<i>D</i>)	-0.0687	(0.757)	-0.1895	(0.266)	0.0321	(0.913)	-0.3279	(0.226)
2004 (<i>D</i>)	-0.3336	(0.152)	-0.3150	(0.070)	-0.3421	(0.279)	-0.2358	(0.368)
2005 (<i>D</i>)	-0.4366	(0.066)	-0.1720	(0.304)	-0.7258	(0.037)	-0.2122	(0.411)
2006 (<i>D</i>)	-0.3973	(0.088)	-0.1503	(0.364)	-0.6952	(0.042)	-0.3559	(0.178)
2007 (<i>D</i>)	-0.0861	(0.688)	-0.1925	(0.246)	-0.4470	(0.157)	-0.2826	(0.271)
2008 (<i>D</i>)	-0.1517	(0.481)	0.0663	(0.670)	-0.1186	(0.683)	-0.3967	(0.124)
2009 (<i>D</i>)	-0.1847	(0.389)	0.0308	(0.842)	-0.5442	(0.085)	-0.3758	(0.138)
2010 (<i>D</i>)	-0.1744	(0.412)	-0.3716	(0.025)	-0.1509	(0.599)	-0.4414	(0.083)
constant	4.1348	(0.045)	-2.9247	(0.055)	0.0442	(0.989)	-12.0818	(0.000)
number of obs.	18.141							
Pseudo R ²	0.0226							

Source: BHP and SIAB 2000-2010. Own calculations.