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ABSTRACT

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Based on the notion that entrepreneurship is a 'local event', the literature argues that self-employed workers and entrepreneurs are 'rooted' in place. This paper tests the 'residential rootedness'-hypothesis of self-employment by examining for Germany and the UK whether the self-employed are less likely to move or migrate than employees. Using longitudinal data from the German Socio-economic Panel Study (SOEP) and the British Household Panel Survey (BHPS) and accounting for transitions in employment status we found little evidence that the self-employed in Germany and the UK are more rooted in place than employees. Firstly, the self-employed are not less likely to move or migrate over the period 2001–08. Secondly, those who are currently self-employed are also not more likely to have remained in the same place over a period of three years (2008–06 and 2005–03) as compared to those who are currently employed. Thirdly, those who are continuously self-employed are not less likely to have moved or migrated over a 3-period than those in continuous paid employment. Fourthly, in contrast to the prevalent 'residential rootedness'-hypothesis in economic geography and regional studies, we found that the entry into and the exit from self-employment are associated with internal migration.

JEL Classification: D22, J61, J62, L26

Keywords: self-employment, migration, residential mobility, rootedness hypothesis, UK, Germany

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1. Introduction

In accordance with the economic conceptualisation of entrepreneurship as a 'local event' (Audretsch et al., 2010; Bönte et al., 2009; Feldman, et al. 2005; Romanelli and Schoonhaven, 2001; Stam, 2007) the self-employed or entrepreneurs are thought to be strongly 'rooted' in place (Audretsch et al., 2010; Hanson, 2003; 2009). The prevailing 'residential rootedness'–hypothesis is based on research focussing on firms and their networks within the region rather than individuals within firms (Armington and Acs 2002; Stuart and Sorenson, 2003; also noted by Hanson and Blake 2009, page 137), and these studies based upon micro data lack comparative research designs (Hanson, 2003; Harrison et al., 2004). As a result, little is known about the geographical mobility behaviour of the self-employed as compared to employees. Moreover, only little empirical evidence about the causality between self-employment and residential rootedness exists. This, however, is crucial for understanding the dynamics of self-employment and its local embeddedness. Specifically, people who are more rooted in place could be more likely to start-up a business. On the contrary, self-employment might make people 'stuck' in place.

While most studies in this field are designed as country analysis and are thus restricted by national specificity, this paper examines the relations between geographical mobility and self-employment in two countries: Germany and the UK. By choosing countries with different mobility regimes in terms of both geographical mobility and job mobility, the present cross-country analysis intends to provide more general findings on individuals' job-related geographical mobility behaviour. Both countries have distinct job mobility structures due to differing institutional settings in the labour market and the educational and vocational systems coupled with it (Allmendinger and Hinz, 1997; Dustmann and Pereira, 2005; Gangl, 2002, Scherer, 2005; Sousa-Poza and Henneberger, 2004). As a result, job turnover is higher in the de-regulated and non-occupationalisedUK labour market compared to the more protected and highly credential German labour market (Allmendinger and Hinz, 1997, page 274). At the same time, national housing market conditions shape different preconditions for spatial mobility. In Germany it is widespread to build one's own family house for long-term residence, while in the UK the owner occupation market is much more flexible and buying and selling houses is common among the broader population (Behring and Helbrecht, 2002). This favours a higher scope of geographical mobility in Britain than in Germany. All in all, these country-specific settings are likely to shape the way geographical mobility and self-employment are interrelated.

This paper tests the residential rootedness–hypothesis of self-employment by comparing the geographical mobility behaviour of the self-employed with employees. Specifically, this paper asks (1) whether the self-employed—as the literature suggests—are less likely to move residence than employees. Complementarily, it is asked (2) whether those who are currently self-employed are more likely to have remained in the same residence over a certain period of time than those who are currently employed. Taking into account transitions in employment status over time, we further investigate (3) whether those in continuous self-employment are more rooted in place than those in continuous paid employment. In order to answer these questions, this paper draws on longitudinal micro data from two household panel surveys for Germany and the UK: the German Socio-Economic Panel (SOEP) and the British Household Panel Surey (BHPS). By doing so, the paper contributes to the existing literature in several ways. Firstly, to our knowledge, very few cross-country studies on labour-related migration exist that use integrated datasets that allow for multivariate controls of country effects. Our approach to combine two national datasets has the benefit to test country context-dependency of relations between residential moves and employment status controlled for other factors. Secondly, longitudinal data is still underused in migration research which partly relates to the problem that migration events are underrepresented in surveys. Pooling data over several

years for two countries results in a sufficient number of migration events, which allows investigating geographical mobility on a disaggregated level. Thirdly, taken into account transitions in employment status we add to migration literature a dynamic point of view which is crucial for understanding internal migration flows.

2. Background and research context

The meaning of place for entrepreneurship is widely discussed in economic geography and regional studies literatures. However, this literature is only of limited value for the present study as many studies focus on case studies for certain industries or industrial clusters (Delgado et al., 2010; Feldman, 2001; Feldman et al. 2005; Harrison et al., 2004; Stuart and Sorenson, 2003), or on firms and firm formation rather than on individual entrepreneurs (Andersson and Koster, 2011; Armington and Acs, 2002; Bönte et al., 2009; Cheng and Li, 2010; Delgado et al., 2010; Fritsch, 1997; Reynolds, 1997), or on entrepreneurial activities and their regional variation (Audretsch et al., 2010; Tamásy, 2006). In these literatures also very different measurements of entrepreneurs are applied which are partly not congruent with the measurement of self-employment from a labour market perspective. For example, entrepreneurs are defined as owners of fast growing businesses (Stam, 2007) or of privately owned businesses including sole proprietors (Hanson, 2003), to all people who perceive themselves as entrepreneurial including informal activities (Acs et al., 2008, page 266; Bergmann and Sternberg, 2007). The latter applies to studies which are drawn from the (cross-sectional) Global Entrepreneurship Monitor (GEM).

Irrespective of varying objectives and measurements of entrepreneurship, the prevailing view in this strand of research is that people who run a business exhibit 'location inertia' (Bönte et al., 2009; Feldman, 2001, page 873; Feldman, et al., 2005, page 131; Figueiredo et al., 2002, page 342). Such 'rootedness' or 'embeddedness' to place (Hanson, 2003, pages 14, 18; Tamácy, 2006, page 366) implies that business owners are likely to have lived and worked in the same region where they start-up their business for several years up to their whole life (Audretsch et al., 2010, page 3; Hanson, 2003, page 18–19; Michelacci and Silva, 2007; Romanelli and Schoonhaven, 2001). In general two possible explanations are given for this rootedness. Firstly, agglomeration economies and cluster theory suggest that business owners and particularly founders accrue benefits from location-specific capital in terms of social networks established prior to the start-up, like access to information and resources (e.g. market contacts), access to financial resources through bank loan officers, and contacts to potential employees (Acs and Armington, 2004; Audretsch et al., 2010; Scott, 2006; Sorenson and Audia, 2000; Stam, 2007). Similarly, evolutionary geography points to the evolutionary process of networks and thus to the socioeconomic embeddedness of start-up activities (Glückler, 2007). Secondly, the rootedness or embeddedness of entrepreneurship is found to be influenced by personal constraints and preferences of the business owner, for example his or her household and family context (Feldman, 2001; Feldman et al., 2005; Figueiredo et al., 2002; Hanson, 2009).

Little is known about the spatial mobility behaviour of entrepreneurs, although there is a large and related literature which studies the determinants of an entry to/exit from self-employment (Abell, 1996; Millán et al., 2010; Moore and Mueller, 2002; Shutt and Sutherland, 2003). For de-regulated labour markets, like the UK labour market, studies clearly point to the dynamic nature of self-employment. For example, Taylor (1999) uses the BHPS over the period 1991–95 to show that less than 50% of the people who became self-employed in the early 1990s stayed in self-employment for longer than two years. According to Lohmann and Huber (2004) the survival rates of self-employment seems to be higher in Germany since in the SOEP during 1984 to 1998 42% of the women and 63% of the men remained in self-

employment for at least five years. These results suggest that in the UK context, compared to the more regulated and occupationalised German labour market, self-employment is perceived by many as a transitional state (Taylor, 1999, page C153 for Britain). In the UK and presumably to a lesser extent in Germany, self-employment might be a strategy to avoid the need for inter-regional migration. This is a third possible explanation for the residential rootedness of the self-employed. When people become unemployed, self-employment might be a temporary solution until a suitable local job is found. This assumption confounds expectations based upon neoclassical economic theory of migration which considers internal migration of labour as pivotal for rebalancing regional labour markets.

To be able to investigate the links between labour market transitions (into and out of self-employment) and geographical mobility, longitudinal data is needed. To our knowledge, there are only two empirical studies which provide evidence on the geographical mobility of the self-employed in a longitudinal context. The first is a study by Fielding (1989, 1992) who investigated the link between migration and social mobility using linked Census data for 1971 and 1981 from the Longitudinal Study for England and Wales (LS). In the context of this study, small employers and non-professional self-employed workers were considered as one separate group ('*Petite Bourgeoisie*'); the professional self-employed were not analysed separately. Results from mobility matrices indicated that the relations between self-employment and residential moves are complex: those who were members of the *Petite Bourgeoisie* in 1971 and 1981 were rather spatially immobile whereas those who became small business owners and non-professional self-employed workers during that period were fairly geographically mobile.

A second study by Böheim and Taylor (1999) used the BHPS for the period 1991 to 1997, and found that the self-employed—here measured as all workers who define themselves as self-employed including professional self-employed workers, own-account workers, small and large employers—are not less likely to move between two consecutive waves both in general and inter-regionally than those who are employed when controlling for other socioeconomic factors. However, transitions in employment status between two consecutive years were not accounted for in this study. Hence, no distinction was made between those who remained in self-employment and those who exit self-employment in the subsequent wave which could have biased the estimation results.

In Germany 10.4% of the working population aged 15–64 were self-employed on average in 2009. In the UK the total self-employment rate amounted to 12.8% in 2009 on average (Eurostat Labour Force Survey, own calculation). Given the considerable levels of self-employed people in the labour force in both countries, remarkably little is known about the geographical behaviour of the self-employed. Although previous literature lacks a longitudinal labour perspective on self-employment, existing evidence suggests that the self-employed are characterised by a strong rootedness in their place of residence. Based upon this prevailing view in the literature, we test the hypothesis that German and UK self-employed workers are more rooted in place than employees. We expect that (1) the self-employed have a lower probability to move than employees, (2) those who are currently self-employed are more likely to have remained in the same place of residence for a certain period of time than employees and (3) those who are continuously self-employed over a certain period of time are also more rooted in place in terms of past moves than those in continuous paid employment.

3. Data and methods

3.1 Data and measurement

This paper draws upon two panel surveys: the German Socio-Economic Panel Study (SOEP) and the British Household Panel Survey (BHPS). A total of 26 waves (1984–2009) are available for the SOEP and 18 waves (1991–2008) for the BHPS. Both surveys are nationally representative annual household panel surveys of private households which collect a broad range of socioeconomic data both on the individual and household level. Since 2001 the BHPS is representative for the UK as a whole (thanks to a boost sample for Northern Ireland). The same individuals are re-interviewed each successive year after they were first contacted. If individuals move out from their original household they are captured as a new household in the samples, and with all household members in the new household unit aged 16 years and older are interviewed. The SOEP started in 1984, when more than 12,000 individuals aged 16 or older in West Germany were interviewed for the first time. The sample size has gradually grown since then due to, amongst others, the incorporation of a subsample for East Germany and non-German residents (see Frick et al., 2005, pages 25-28 for more information on the sample size). The BHPS is a sample of households recruited in 1991 alongside with additional subsamples at wave 9 (1999) for Scotland and Wales and at wave 11 (2001) for Northern Ireland (see Taylor, 2010, page 25-26), containing currently approximately 10,000 individuals of 16 years and older.

In both surveys, great effort goes in tracing sample individuals who move. Despite this effort, panel attrition is generally still higher among movers than among non-movers (Buck, 2000). Panel attrition due to a residential move may be problematic if the sample attrition of movers is non-random. However, previous research has found no clear evidence for the non-random attrition of movers in the BHPS (Rabe and Taylor, 2010; 538). Given the similar panel design and efforts taken to maintain the panel studies, the same can be expected for the SOEP.

Residential moves are defined as a change of an individual's address in the period between two survey points. Many studies define long distance moves as moves between administrative regions, but this method is inaccurate due to the different sizes of regions and the occurrence of moves across regional boundaries over relatively short distances. This problem is even more prominent in cross-country studies due to the unequal size of spatial units in different countries. We therefore measure migration through the distance between the residences at t-1 and t. In empirical studies on internal migration often a cut off of 50 km is used to differentiate between short distance and long distance moves. However, recent migration studies use a lower cut off of 30 km (Boyle et al., 2009, page 419). Taking into account the somewhat arbitrary nature of a distance cut off, we consider residential moves of both 30 km and more and 50 km and more respectively as long distance moves. Unfortunately, a distance variable for moves is only available in the SOEP from 2001 onwards (i.e. not for the waves 1–17). Therefore we only use data from 2001–2008, covering waves 18–25 for the SOEP and 11–18 for the BHPS.

The SOEP questionnaire asks—in contrast to the BHPS—only for the employment situation at the time of the interview, thus, short episodes between survey points remain unknown (Solga, 2001, page 296). Therefore we measure employment transitions with respect to individuals' current status at the time of the interview. Note that our focus is on relationships between employment status (self-employed vs. employed) including transitions between employment states and geographic moves. Hence, it is not within the scope of the present study to investigate job mobility as such, i. e. including every change of job. We therefore compare the self-employed with employees, irrespective of whether employees have changed

jobs within the wage and salary sector or stayed in their job with the same employer between two consecutive waves.

In both datasets, the distinction between self-employment and paid employment (both for the main and the second job) relies on the self-reported statement of the respondents. In the context of this study, people are defined as self-employed if they consider themselves first and foremost as being self-employed. We only refer to peoples' main job since it is this job that can be considered as most important for individuals' geographical mobility decisions. As a result, people who are employed in their (self-reported) main job and self-employed in their second job are classified as employed workers. We also incorporate all types of self-employment: agricultural and non-agricultural workers, the self-employed who inherited a family business, owners of a firm with employees as well as solo self-employed workers who only create jobs for themselves. This is in line with most studies in labour economics (e.g., Blanchflower, 2000; Böheim and Taylor, 1999; Parker, 2006).

In accordance with labour statistics we distinguish empirically between four employment states (see, for example, Eurostat Labour Force Survey): (a) employed, (b) self-employed, (c) unemployed, and (d) inactive and others (in military service or sheltered workshops). Unpaid family members are defined as inactive in the context of this study. For Germany, people in apprenticeship trainings ('*Berufsausbildung*') are treated as being in full time education and are therefore not considered as economically active persons. Apprenticeship trainings are a German specific form of vocational qualification that does not exist in the UK (see, for example, Scherer (2005) for further information).

We test the residential rootedness–hypothesis of self-employment through two sets of models. A first set of models investigates individual's propensity to move while a second set of model estimates the probability of a move in the past. In the first set of models, we estimate the probability of a move between t and t+1 while accounting for transitions in employment status between t and t+1. This is a novel approach since earlier longitudinal studies estimated effects of the employment status on residential moves by looking only at the employment status at t (Böheim and Taylor, 1999). The transitions in employment status can be described as a 4 by 4 matrix. The 16 categories were collapsed into seven categories in order to estimate the effects of continuous self-employment and transitions into and out of self-employment on individuals' propensity to move compared to continuous employment and flows into and out of paid employment.

A second set of models estimates the likelihood of at least one move over a past period of three years. Here we consider both the employment status at t and transitions in employment states over t-2 to t. In order to compare the geographical mobility behaviour of those in continuous self-employment as opposed to those in continuous paid employment it is identified further who remained in the respective employment status at every survey point over the period t-2 to t. In addition, we created dummy variables for those who are unemployed and inactive/others over the 3-years period respectively; the remaining observations with changes in employment status over that period were collapsed into another dummy.

3.2 Sample description

In order to conduct an integrated cross-country analysis we pooled SOEP and BHPS data. The extracted subsamples contain persons aged 18 to 64 excluding those in full time education and retired people. The first set of models, which estimates the probability of moving between t and t+1, contains observations for which information on both moving and employment status are available for adjacent waves covering the years 2001–2008. The set of observations are person-years, i.e. persons observed in each wave over the period 2001–2008. Hence the same person may be included in the sample several times but only if information about both their

moving and employment status is available for two consecutive years. The above criteria result in a sample size of 155,198 person-years, including 13,773 residential moves (SOEP: 89,340 observations and 7,548 moves; BHPS: 65,858 observations and 6,225 moves). 1,644 moves (SOEP: 865 and BHPS: 779) were over a distance of 30 km and more and 1,271 moves were over 50 km or more. The numbers of moves in the subsample by changes in employment status between *t* to *t*+1 are displayed disaggregated by distance of move and survey (country) in the appendix (Table A1).

The second set of observations for modelling the probability of past moves, is restricted to individuals for whom information on both moving and employment status is available for 3 consecutive waves. Two periods were chosen that do not overlap: 2003-2005 and 2006-2008. We selected two periods of time and pooled the subsamples in order to boost migration events and to control for possible time effects. A time period of three years was chosen in order to follow the respondents over a certain period of time while ensuring that a sufficient number of people in continuous self-employment are in the sample. This results in 39,913 observations of 24,593 individuals for all residential moves (SOEP: 23,052 observations and 14,404 persons; BHPS: 16,861 observations and 10,189 persons). A total of 8,915 persons had moved residence over a 3-year period (SOEP: 5,071 and BHPS: 3,844). Out of those 1,097 persons had moved residence over 30 km and more and 868 persons had moved 50 km and more between *t*-2 and *t* (SOEP: 597 and 488 resp.; BHPS: 500 and 380 respectively). The number of persons who moved residence over *t*-2 to *t* is displayed for the pooled subsamples in the Appendix in Table A2 by both employment status at *t* and categories of employment status change/non-change over *t*-2 to *t*. A description of the subsample of self-employed workers with information on employment and moving status for two adjacent years across all waves disaggregated by survey (country) and sex can be found in the appendix (Table A3).

Self-employment and residential moves: empirical results

Table 1 presents the average percentage of movers and non-movers across 2001–08 among the self-employed and employees by survey (country). In this table we distinguish movers who relocated over 30 km and more, and movers who relocated over 50 km and more. In the raw data, in each country on average about seven per cent of the self-employed moves residence every year. This seems to be slightly less than among employees. However, almost no difference can be observed in the raw data with respect to long distance moves. This is particularly true for Germany.

Table 1. Residential moves between *t* and *t*+1 by employment status at *t*, SOEP and BHPS 2001–2008 (column percentages)

	Self-employed workers		Employees	
Moves *t* to *t*+1	SOEP	BHPS	SOEP	BHPS
No move	92.8	92.6	91.8	90.3
Move (all)	7.2	7.4	8.2	9.7
Move ≥ 30km	0.9	1.1	0.9	1.3
Move ≥ 50km	0.7	0.8	0.7	0.9
N(Person-Year Observations)	7,371	6,440	64,201	47,561
N(moves)	528	475	5,293	4,607
N(moves ≥30 km)	65	68	579	589
N(moves ≥50 km)	53	49	460	430

Note: pooled data 2001–08, unweighted data. People aged 18–64, un-paid family workers are excluded. Moves are defined on a year-on-year basis.
Source: own calculation

The probability of a residential move between *t* and *t*+1 is estimated by using random effects models. Table 2 presents estimation results from three models, the first for all moves, the second for moves over 30 km and more, and the third for moves over 50 km and more. In all three models the dependent variable takes the value 1 if the respondents move residence and is 0 if the respondents remain in the same residence between two consecutive waves. The figures displayed are odds ratios. The estimates also control for individual-specific heterogeneity (Singer and Willett, 2003, pages 54–55).

Table 2: Probability of a residential move between *t* and *t*+1 by distance of move, SOEP and BHPS, 2001–08, random effects, odd ratios

	Model 1 move=1 vs. no move=0		**Model 2** move ≥ 30km = 1 vs. no move=0		**Model 3** move ≥ 50km = 1 vs. no move=0	
	OR	S.E.	OR	S.E.	OR	S.E.
Change in employment status *t* to *t*+1(omitted: continuously employed jobch1)						
Continuously self-employed (jobch2)	1.020	0.045	0.996	0.131	0.937	0.146
Entry into self-employment (jobch3)	1.374***	0.105	2.679***	0.459	2.783***	0.543
Exit from self-employment (jobch4)	1.696***	0.141	3.527***	0.638	4.306***	0.838
Entry paid employment from unemployment/inactivity (jobch5)	1.124**	0.056	2.835***	0.325	3.027***	0.393
Exit paid employment into unemployment/inactivity (jobch6)	1.301***	0.064	2.988***	0.333	3.479***	0.429
Others (jobch7)	0.941*	0.030	1.247**	0.126	1.406***	0.159
Survey (SOEP)	1.198	0.183	1.018	0.375	1.329	0.552
Interaction terms: Change in employment status & survey(omitted: jobch1*SOEP)						
jobch2*SOEP	1.057	0.046	0.964	0.125	1.047	0.162
jobch3*SOEP	1.069	0.081	1.061	0.181	1.085	0.211
jobch4*SOEP	1.063	0.088	1.015	0.183	0.999	0.194
jobch5*SOEP	1.143***	0.057	1.260**	0.142	1.306**	0.166
jobch6*SOEP	1.154***	0.056	0.891	0.098	0.995	0.121
jobch7*SOEP	1.226***	0.037	1.340***	0.129	1.296**	0.139
Sex (women)	0.958*	0.021	0.929	0.059	0.951	0.069
Age (years)	0.939***	0.001	0.933***	0.003	0.931***	0.003
Household composition (omitted: 1 Person hh)						
Couple, no children	0.876***	0.030	0.520***	0.046	0.475***	0.048
Couple with children	0.767***	0.025	0.376***	0.031	0.374***	0.035
Single Parent	0.821***	0.037	0.419***	0.054	0.382***	0.057
Others	1.372***	0.081	0.660***	0.106	0.595***	0.110
Owner occupation (yes)	0.275***	0.006	0.387***	0.027	0.356***	0.028
CASMIN levels (omitted: higher tertiary)[1]						
No completed general education	0.564***	0.030	0.164***	0.029	0.151***	0.031
Elementary	0.673***	0.034	0.154***	0.027	0.125***	0.025
Basic vocational	0.710***	0.027	0.208***	0.025	0.165***	0.023
Middle general	0.670***	0.029	0.274***	0.034	0.236***	0.034
Middle vocational	0.741***	0.027	0.352***	0.034	0.303***	0.033
High general	0.803***	0.043	0.718***	0.090	0.731**	0.102
High vocational	0.784***	0.035	0.384***	0.048	0.331***	0.047
Lower tertiary	0.878***	0.035	0.576***	0.059	0.555***	0.065
N person-year observations (persons)	151,354	(31,920)	139,525	(31,383)	139,182	(31,353)
N(moves)	13,773		1,644		1,271	
Log likelihood	-39,592.604		-7,500.838		-5,987.323	
Rho (within subject correlation)	0.103		0.386		0.413	
Pseudo R^2	0.118		0.122		0.131	

Notes: Pooled data, SOEP and BHPS 2001−2008. Moves and employment status are measured on a wave-to-wave basis. Significance: *** p≤0.01, ** p≤0.05, * p≤0.1

[1] International educational classification which considers the level of education in terms of length of educational experience and required abilities (elementary, secondary, higher) together with the vocational oriented qualification.

Source: own calculation

The first set of variables in the models indicates (a change in) employment status at two adjacent waves. The reference category consists of those who are in paid employment at two consecutive waves ('continuously employed'). The estimation results demonstrate that the 'continuously self-employed' (those who are self-employed at *t* and *t*+1) are not more or less likely to move both in general (Model 1) and over long distances (Models 2 and 3) than continuous employees. The odds ratios are nearly 1, which indicates that whether workers are continuously self-employed or continuously employed has virtually no effect on their likelihood to move residence irrespective of distance of move. While a stable employment status means a lower probability of moving—regardless whether workers are in paid employment or self-employment—changes in employment status are associated with a greater probability to move or migrate. Recall that the reference category 'continuously employed' includes those who change jobs within the wage and salary sector. An entry into self-employment increases the odds of moving or migrating to a similar extent as an entry into paid employment from unemployment or inactivity. Most notably, an exit from self-employment is most likely to be associated with a long distance move. In Model 3 the odds of moving residence over 50 km and more are 4.3 times higher for those who terminate self-employment compared to those in continuous paid employment. We also estimated the probability of a residential move with dummies for all possible employment status combinations over two consecutive waves (n=16). Due to small numbers of migration events for some categories, the estimation results are not shown (estimation results can be obtained from the authors on request). The estimates reveal that the transition from self-employment to paid employment increases the odds for moving over long distances considerably. This suggests that those self-employed workers who might consider their self-employment as temporary, for example to overcome a shortage of jobs in their region of residence, would move over long distances once they found a decent job with an employer.

The effect of the survey dummy shows that there are no significant country differences in the likelihood to move or migrate when controlling for other factors. Most important in the context of the present study is that there are no country differences in the propensity to move or migrate between the continuous self-employed and continuous employees. Instead, it is striking that a transition from unemployment or inactivity into paid employment is more likely to be associated with a residential move in Germany than in Britain. This suggests that the unemployed are more likely to move for a job in Germany than in Britain, holding all other factors equal and controlling for unobserved heterogeneity. A possible explanation might be that the non-occupational UK system offers more job opportunities in the local/regional area than the less flexible German labour market. Another reason might be housing market differences between the two countries. The social housing sector in Britain might hinder residential mobility (van Ham et al. 2010) more than in Germany, while the private rental market in Germany might stimulate mobility (private rental sector is small and weak in the UK and strong and widespread in Germany).

In these conditional models, sex does not have the expected negative effects on migration holding other factors and individual specific characteristics equal (Models 2 and 3). The remaining socioeconomic control variables confirm results from previous research: young people are more spatially mobile than older people, singles are more mobile than those living in couple or family households, homeowners are less likely to move than renters, and persons with a higher tertiary degree are most likely to move.

Table 3 presents estimation results for the likelihood of moving or migrating over the period *t*-2 to *t*. Again, there are three sets of models (all moves, moves 30 km or more, and moves over 50 km or more). Since respondents could be captured in both of the two pooled subsamples (years 2003-2005 and 2006-2008) clustering—i.e. multiple observations from the same

individual—is accounted for by corrected standard errors. If the respondents have moved residence over the years 2003-2005 or 2006-2008, the outcome variables take the value 1 and are 0 if the respondents have not moved. Four models are shown for each type of move: one including employment status at *t* (Models 1, 5 and 9); another one with employment status transitions between *t*-2 and *t* (Models 3, 7 and 11); and for each of these models we also included interaction effects between both employment status at *t* and transition in employment status *t*-2 to *t* and sex (Models 2, 6, 10 and 4, 8, 12 resp.).

The estimation results reveal that the geographical mobility of self-employment is shaped by gender. If we first look at effects of the current employment status and transitions in employment status on moves without controlling for interactions with sex (Models 1, 5 and 9 and 3, 7 and 11 resp.), the estimation results confirm the earlier finding that the self-employed are not distinct from employees in terms of their propensity to move. Both those who are in continuous self-employment over a 3-year period and those who are currently self-employed are not less likely to have moved residence recently than those in continuous paid employment and those who are currently employed respectively. This holds true for all moves together as well as long distance moves. The odds ratio for a long distance move of 50 km and more (Model 5) is decreased for those who are currently self-employed to those who are currently working in paid employment. However, the effect is not significantly different from zero at the 10% level.

If we consider interaction effects between both the current employment status and transitions in employment status over *t*-2 and *t*and sex, it turns out that female self-employment is positively associated with migration (Models 6, 10 and 12). The same is true for female unemployment and female inactiveness (Models 6, 8, 10 and 12). At the same time, the main effects of both the current employment status and transitions in employment status over *t*-2 to *t*—which in these models show the effect for men only—decrease when controlled for the interaction effects with sex (Model 6 vs. 5, 8 vs. 7, 10 vs. 9, 12 vs. 11). To conclude, this indicates that females who are self-employed, unemployed, or inactive are more likely to move than employed women. It is well known from the literature that tied migration has negative impacts on women's post-move employment situation. Many studies show that females who moved with their partner/family are more likely to be inactive or unemployed after the move than their male partners (e.g., Cooke 2008; Boyle et al. 2009). Hence, our results suggest that self-employed women who have moved over long distances have most likely experienced a tied move with their male partner. For these women, self-employment may be a strategy to be more mobilefor the sake of the household as a whole. In general, however, we find that females have lower odds to move over long distance than men (Models 5-12) which is in concordance with findings from previous studies. Unfortunately, the number of migration events of couple/family households in either survey is too small to investigate further tied migration, self-employment and gender issues in the context of this study.

Moreover, the results confirm the earlier finding (Table 2) that transitions in employment status are linked to long distance moves while a stable employment status (including job mobility within the wage and salary sector) is rather associated with spatial immobility (Models 7, 8, 11 and 12). Overall, in these conditional models people are less likely to have moved residence over *t*-2 to *t* in Germany than Britain. Almost all interaction effects between both the employment status and change in employment status and the SOEP (Germany) dummy are positive, which suggests that the job mobility within the wage and salary sector is more often linked to residential mobility in Britain than in Germany. The socioeconomic features have again the expected effects on the likelihood of a past move as found in Table 2 (qualification, household composition, owner occupation, age). The effect of the period dummy is not significant which indicates that the probability to move has not changed between 2003-05 and 2006-08.

Table 3: Probability of residential move between *t*-2 and *t* by distance, SOEP and BHPS pooled, odd ratios

	move=1 vs. no move=0				**move ≥ 30km = 1 vs. no move=0**				**move ≥ 50km = 1 vs. no move=0**			
	Model 1 OR (S.E.)	Model 2 OR (S.E.)	Model 3 OR (S.E.)	Model 4 OR (S.E.)	Model 5 OR (S.E.)	Model 6 OR (S.E.)	Model 7 OR (S.E.)	Model 8 OR (S.E.)	Model 9 OR (S.E.)	Model 10 OR (S.E.)	Model 11 OR (S.E.)	Model 12 OR (S.E.)
Employment status at *t*(omitted: employed, lstat1)												
Self-employed (lstat2)	1.033	1.033	-	-	0.837	0.631**	-	-	0.678	0.496**	-	-
	(0.075)	(0.083)			(0.165)	(0.146)			(0.170)	(0.146)		
Unemployed (lstat3)	0.760*	0.686**	-	-	1.723**	1.270	-	-	1.994**	1.580	-	-
	(0.118)	(0.112)			(0.476)	(0.389)			(0.588)	(0.506)		
Inactive (lstat4)	0.934	0.757	-	-	1.080	0.684	-	-	1.205	0.667	-	-
	(0.060)	(0.082)			(0.178)	(0.185)			(0.222)	(0.214)		
Sex (women)	0.950*	0.919***	0.947*	0.876***	0.868**	0.746***	0.857**	0.686***	0.879*	0.751***	0.866*	0.698***
	(0.027)	(0.029)	(0.027)	(0.030)	(0.061)	(0.059)	(0.060)	(0.060)	(0.069)	(0.066)	(0.067)	(0.069)
Interaction terms: Employment status at *t**sex (omitted:lstat1*sex)												
lstat2*sex(women)	-	0.974	-	-	-	2.081***	-	-	-	2.211***	-	-
		(0.102)				(0.548)				(0.659)		
lstat3*sex(women)	-	1.251	-	-	-	1.956**	-	-	-	1.663*	-	-
		(0.150)				(0.544)				(0.503)		
lstat4*sex(women)	-	1.326	-	-	-	1.937**	-	-	-	2.302***	-	-
		(0.150)				(0.550)				(0.749)		
Employment status *t*-2 to*t* (omitted: continuously employed jobch1)												
Continuously s/emp (jobch2)	-	-	1.015	0.986	-	-	0.808	0.661	-	-	0.785	0.621
			(0.087)	(0.092)			(0.199)	(0.181)			(0.231)	(0.203)
Continuously unemp. (jobch3)	-	-	0.220***	0.176***	-	-	#	#	-	-	#	#
			(0.113)	(0.090)								
Continuously inact. (jobch4)	-	-	0.882*	0.772*	-	-	0.933	0.499	-	-	1.124	0.655
			(0.066)	(0.108)			(0.187)	(0.197)			(0.249)	(0.278)
Any transition (jobch5)	-	-	1.194***	1.012	-	-	1.781***	1.299**	-	-	1.960***	1.451**
			(0.073)	(0.074)			(0.232)	(0.203)			(0.283)	(0.248)
Interaction terms: Employment status *t*-2 to *t**sex (omitted:jobch1*sex)												
jobch2*sex(women)	-	-	-	1.036	-	-	-	1.702	-	-	-	1.928*
				(0.131)				(0.596)				(0.729)
jobch3*sex(women)	-	-	-	1.597**	-	-	-	3.680*	-	-	-	3.642*
				(0.333)				(2.817)				(2.800)
jobch4*sex(women)	-	-	-	1.219	-	-	-	2.465**	-	-	-	2.266*
				(0.183)				(0.997)				(0.972)
jobch5*sex(women)	-	-	-	1.340***	-	-	-	1.815***	-	-	-	1.761***
				(0.967)				(0.289)				(0.309)
Pooled waves 2005-03 (yes)	1.023	1.023	1.026	1.027	0.990	0.994	0.980	0.323	0.992	0.996	0.981	0.989
	(0.027)	(0.027)	(0.027)	(0.027)	(0.062)	(0.063)	(0.062	(0.026)	(0.070)	(0.071)	(0.070)	(0.071)
Survey (SOEP)	0.820***	0.817***	0.813***	0.808***	0.688***	0.680***	0.661***	0.647***	0.789**	0.780**	0.771**	0.770***
	(0.031)	(0.031)	(0.032)	(0.032)	(0.064)	(0.063)	(0.066)	(0.065)	(0.081)	(0.080)	(0.086)	(0.086)
Interaction terms: Employment status *t**survey (omitted: lstat1*SOEP)												
lstat2*SOEP	1.113	1.119	-	-	1.225	1.195	-	-	1.614	1.568	-	-
	(0.110)	(0.111)			(0.321)	(0.314)			(0.504)	(0.488)		
lstat3*SOEP	2.114***	2.100***	-	-	1.070	1.043	-	-	0.965	0.953	-	-
	(0.356)	(0.354)			(0.340)	(0.333)			(0.330)	(0.328)		
lstat4*SOEP	1.458***	1.420***	-	-	1.667**	1.590**	-	-	1.578*	1.471	-	-

	move=1 vs. no move=0				move ≥ 30km = 1 vs. no move=0				move ≥ 50km = 1 vs. no move=0			
	Model 1 OR (S.E.)	Model 2 OR (S.E.)	Model 3 OR (S.E.)	Model 4 OR (S.E.)	Model 5 OR (S.E.)	Model 6 OR (S.E.)	Model 7 OR (S.E.)	Model 8 OR (S.E.)	Model 9 OR (S.E.)	Model 10 OR (S.E.)	Model 11 OR (S.E.)	Model 12 OR (S.E.)
	(0.123)	(0.120)			(0.367)	(0.352)			(0.386)	(0.359)		
Interaction terms: Employment status *t*-2 to *t**survey (omitted: jobch1*SOEP)												
Jobch2*SOEP	-	-	1.090	1.098	-	-	1.006	1.000	-	-	1.126	1.124
			(0.127)	(0.127)			(0.339)	(0.339)			(0.427)	(0.425)
Jobch3*SOEP	-	-	6.933***	6.931***	-	-	#	#	-	-	#	#
			(3.639)	(3.617)								
Jobch4*SOEP	-	-	1.329***	1.312***	-	-	1.649*	1.512	-	-	1.609	1.460
			(0.138)	(0.138)			(0.491)	(0.445)			(0.514)	(0.459)
Jobch5*SOEP	-	-	1.265***	1.260***	-	-	1.329*	1.326*	-	-	1.256	1.241
			(0.094)	(0.094)			(0.216)	(0.215)			(0.226)	(0.223)
Age (years)	0.925***	0.925***	0.926***	0.926***	0.917***	0.917***	0.920***	0.919***	0.913***	0.913***	0.915***	0.917***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.014)
Owner occupation (yes)	0.428***	0.427***	0.432***	0.431***	0.318***	0.316***	0.326***	0.323***	0.330***	0.328***	0.340***	0.346***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.025)	(0.025)	(0.026)	(0.026)	(0.029)	(0.029)	(0.030)	(0.030)
Household composition(omitted: 1 Person hh)												
Couple, no children	0.902**	0.898**	0.906**	0.902**	0.823**	0.818**	0.824**	0.815**	0.853	0.850	0.854	0.867
	(0.042)	(0.042)	(0.042)	(0.042)	(0.079)	(0.079)	(0.080)	(0.079)	(0.092)	(0.091)	(0.092)	(0.093)
Couple with children	0.514***	0.510***	0.509***	0.502***	0.337***	0.330***	0.321***	0.307***	0.348***	0.339***	0.328***	0.328***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.032)	(0.032)	(0.031)	(0.030)	(0.037)	(0.037)	(0.036)	(0.036)
Single Parent	0.638***	0.631***	0.629***	0.619***	0.266***	0.258***	0.254***	0.242***	0.236***	0.230***	0.224***	0.224***
	(0.042)	(0.041)	(0.041)	(0.041)	(0.045)	(0.044)	(0.043)	(0.041)	(0.047)	(0.046)	(0.045)	(0.045)
Others	0.681***	0.679***	0.685***	0.680***	0.600**	0.600**	0.596**	0.589**	0.612**	0.615**	0.597**	0.602**
	(0.066)	(0.066)	(0.067)	(0.066)	(0.130)	(0.131)	(0.131)	(0.130)	(0.149)	(0.151)	(0.147)	(0.148)
CASMINlevels(omitted: higher tertiary)												
No completed general educat.	0.622***	0.625***	0.627***	0.630***	0.145***	0.149***	0.149***	0.152***	0.144***	0.149***	0.146***	0.154***
	(0.045)	(0.045)	(0.045)	(0.045)	(0.033)	(0.034)	(0.034)	(0.034)	(0.037)	(0.037)	(0.037)	(0.039)
Elementary	0.656***	0.657***	0.660***	0.660***	0.175***	0.178***	0.174***	0.174***	0.143***	0.145***	0.139***	0.144***
	(0.045)	(0.044)	(0.044)	(0.044)	(0.034)	(0.035)	(0.034)	(0.034)	(0.033)	(0.034)	(0.032)	(0.033)
Basic vocational	0.696***	0.697***	0.693***	0.695***	0.205***	0.209***	0.201***	0.204***	0.172***	0.176***	0.167***	0.175***
	(0.033)	(0.033)	(0.033)	(0.033)	(0.028)	(0.029)	(0.028)	(0.028)	(0.027)	(0.027)	(0.026)	(0.027)
Middle general	0.657***	0.658***	0.661***	0.662***	0.275***	0.279***	0.280***	0.279***	0.242***	0.245***	0.245***	0.251***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.041)	(0.042)	(0.042)	(0.042)	(0.042)	(0.043)	(0.043)	(0.044)
Middle vocational	0.698***	0.698***	0.692***	0.693***	0.344***	0.346***	0.337***	0.339***	0.304***	0.306***	0.295***	0.305***
	(0.031)	(0.031)	(0.031)	(0.031)	(0.037)	(0.037)	(0.036)	(0.036)	(0.036)	(0.036)	(0.035)	(0.036)
High general	0.793***	0.794***	0.788***	0.791***	0.617***	0.622***	0.619***	0.627***	0.608***	0.614***	0.608***	0.620***
	(0.059)	(0.060)	(0.059)	(0.059)	(0.094)	(0.095)	(0.095)	(0.096)	(0.102)	(0.103)	(0.103)	(0.105)
High vocational	0.746***	0.746***	0.744***	0.743***	0.384***	0.389***	0.384***	0.386***	0.352***	0.356***	0.351***	0.360***
	(0.042)	(0.042)	(0.042)	(0.042)	(0.052)	(0.053)	(0.052)	(0.053)	(0.053)	(0.054)	(0.053)	(0.054)
Lower tertiary	0.871***	0.872***	0.871***	0.871***	0.638***	0.643***	0.632***	0.635***	0.647***	0.654***	0.638***	0.655***
	(0.044)	(0.044)	(0.044)	(0.044)	(0.070)	(0.070)	(0.693)	(0.070)	(0.077)	(0.078)	(0.076)	(0.078)
N observations(persons/moves)	38,749 (23,834 / 8,915)		38,749 (23,834 / 8,915)		31,175 (20,947 / 1,097)		31,175 (20,947 / 1,097)		30,958 (20,831 / 868)		30,958 (20,831 / 868)	
Log pseudolikelihood	-17,558	-17,553	-17,537	-17,526	-3,742	-3,733	-3,708	-3,697	-3,084	-3,076	-3,056	-3,071
Pseudo R^2	0.143	0.144	0.144	0.145	0.183	0.185	0.190	0.193	0.187	0.190	0.194	0.192

Notes: Pooled data for waves 2008–06 and 2005–03. Standard errors are corrected for multiple observations; # Not shown because of few moving/migration events and corresponding large standard errors; Significance: *** p≤0.01, ** p≤0.05, * p≤0.1. Source: own calculation

Discussion and conclusion

The entrepreneurship literature suggests that the self-employed are strongly rooted in place and are less likely to move than employees. In the introduction and literature review we discussed several potential reasons why the self-employed could be less geographically mobile than employees. Our analyses of German and UK data, however, find little evidence that confirms the residential rootedness–hypothesis of self-employment. The four most important findings from our analyses are: First, the self-employed are not less likely to move or migrate than employees over the period 2001-08. Second, those who are currently self-employed are also not less likely to have remained in place over a period of three years (2003-2005 and 2006-2008) as compared to those who are currently employed. Third, those who are continuously self-employed over a 3-year period are not less likely to have moved or migrated than those in continuous paid employment including those who changed jobs within the wage and salary sector. Fourth, in contrast to the residential rootedness–hypothesis we found that both an entry into and an exit from self-employment as well as female self-employment are associated with internal migration. To sum up, this suggests that people who are more 'rooted' in place are not necessarily more likely to become self-employed, and self-employment does not necessarily 'make' people more 'stuck' in place than paid employment.

In recent years, a new literature on female entrepreneurship has emerged (e.g., Carter et al., 2007; Marlow et al. 2008; Wagner, 2007), which shows that females have much lower self-employment rates and business survival rates than males across Western countries. The existing literature does not explain why this is the case, but our results provide some valuable new insights: One reason for the transitory nature of female self-employment is migration. The findings suggest that women rather than men are more likely to enter self-employment after moving inter-regionally with the couple/family household, for example to stay in the workforce until they find a decent job in the more secure wage and salary sector. This finding is surprising and confounds previous empirical results and theory. Future research should focus on these gender dimensions of both (tied) migration and the nature of self-employment (e.g. motivation, survival rates).

Although the SOEP and BHPS are the best available data sources for this research, the data had some limitations which affected our analyses. The small number of migration events in the data did not allow us to investigate further gender differences in geographic mobility behaviour. Due to data limitations, we also did not distinguish between different types of self-employment (e.g. professional vs. non-professional self-employment). It can be assumed that self-employed workers who inherited a family business are more reluctant to move inter-regionally than, for example, professional sole proprietors in media and consultancy. For the UK, future research will be able to investigate individual geographical mobility behaviour and the people–place relationship of self-employment on a more disaggregated level through the panel survey 'Understanding Society'—the successor of the BHPS—thanks to its large sample size. For Germany, such data is not expected to become available in the near future.

The findings presented in this paper contribute to a better understanding of self-employment and of the role of self-employment in regional labour markets. The results indicate that in both Germany and the UKpeople become self-employed after moving inter-regionally. At the same time, we found that people terminate their self-employment and then move inter-regionally. These findings have not been recorded before and point to the need for future research to account for transitions in employment status in order to better understand internal migration flows. Economic theory of migration considers only migration of waged workers and the unemployed, however, the present study suggest that in Germany and the UK flows in and out of self-employment can also play a significant role in rebalancing regional labour markets.

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Appendix

Table A1. Numbers of moves in the SOEP and BHPS 2001–08 by transitions in employment status and distance of move *t* to *t*+1

Changes in employment status *t* to *t*+1	All moves			Move ≥ 30km			Move ≥ 50km		
	Total	SOEP	BHPS	Total	SOEP	BHPS	Total	SOEP	BHPS
Continuously employed	8,956	4,691	4,265	997	486	511	745	373	372
Continuously self-employed	788	423	365	87	44	43	61	34	27
Entry self-employment	253	124	129	51	25	26	40	21	19
Exit self-employment	215	105	110	46	21	25	41	19	22
Unemployment/inactivity → paid employment	719	494	225	141	98	43	112	79	33
Paid employment → unemployment/inactivity	777	529	248	137	77	60	120	73	47
Others	2,065	1,182	883	185	114	71	152	93	59
Total	13,773	7,548	6225	1,644	865	779	1,271	692	579

Note: Pooled data 2001–08, unweighted data. Moves and employment status are defined on a year-on-year basis.
Source: own calculation

Table A2. Number of persons who moved residence *t*-2 to *t* by employment status at *t* and employment status *t*-2 throught, pooled subsamples 2008–06 and 2005–03

	Any move			Any move ≥ 30 km *t*-2 to *t*			Any move ≥ 50 km *t*-2 to *t*		
	Total	SOEP	BHPS	Total	SOEP	BHPS	Total	SOEP	BHPS
Employment status at *t*									
Employed	6,396	3,564	2,832	810	429	381	635	346	289
Self-employed	727	397	330	85	47	38	66	41	25
Unemployed	591	498	93	77	57	20	64	47	17
Inactive	1,201	612	589	125	64	61	103	54	49
Employment status *t*-2 to *t*									
Cont. employed	5,518	2,996	2,522	659	340	319	506	270	236
Cont.s/emp	494	273	221	51	26	25	42	23	19
Cont. unemp.	165	159	6	9	9	-	9	9	-
Cont. inactive/o.	678	283	395	59	24	35	51	22	29
Any transitions	2,060	1,360	700	319	198	121	260	164	96
Total	8,915	5,071	3,844	1,097	597	500	868	488	380

Note: SOEP and BHPS, 38,914 observations of 24,131persons. Cont.=continuously
Source: own calculation

Table A3. Sample description of self-employed workers, SOEP and BHPS, 2001–2008

	SOEP		BHPS	
	Males	Females	Males	Females
Sex (%)	66.3	33.7	71.1	28.9
Age, mean (std. dev.)	45.2 (9.5)	44.5 (9.2)	44.2 (10.8)	43.6 (10.1)
Marital status (%)				
Married/civil partnership	68.5	69.4	66.8	66.0
Separated, married/civil partnership	2.9	2.7	2.7	2.4
Never married	19.0	14.1	21.9	17.3
Divorced	8.8	11.5	8.4	13.1
Widowed	0.8	2.4	0.3	1.2
Owner-occupation of household (%)	63.6	62.5	86.0	85.6
Household type (%)				
One-person-household	13.3	11.9	10.5	9.8
Couple no children	26.1	26.8	25.4	24.9
Couple with children	56.1	51.9	58.4	55.8
Single Parent	1.9	6.9	3.6	8.5
Others	2.6	2.5	2.1	1.1
CASMIN Levels[1] (%)				
No completed general education	0.3	0.5	16.0	9.4
Elementary	2.5	2.0	3.8	1.8
Basic vocational	24.2	14.1	10.3	8.2
Middle general	1.5	2.2	15.5	14.0
Middle vocational	24.1	28.9	7.0	7.0
High general	4.0	2.9	5.1	8.1
High vocational	7.0	9.3	8.2	4.0
Lower tertiary	10.8	7.8	19.4	25.3
Higher tertiary	25.6	32.3	14.8	22.2
Vocational qualification (CASMIN)				
None	8.3	7.6	40.3	33.2
General and middle qualification	55.3	52.3	25.5	19.2
High qualification (tertiary degree)	36.5	40.1	34.2	47.6
Types of self-employment (%)				
Agricultural self-employed	4.8	2.6	9.8	5.5
Non-agricultural solo self-employed	39.9	62.2	63.9	70.3
Professionals (incl. freelance)	28.1	36.9	17.8	24.4
N (person-year observations)	5,010	2,552	4,739	1,909

Note: Pooled data 2001–2008 (unweighted). Persons aged 18–64 with information on employment and moving status for two adjacent waves.
[1] International educational classification which considers the level of education in terms of length of educational experience and required abilities (elementary, secondary, higher) together with the vocational oriented qualification.
Source: own calculation