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Abstract. This paper investigates internal migration in Sweden over the period 1967-2003 for the different Swedish counties, called län. The question in focus is why people leave their secure and well-known environment and move to another part of the country which is automatically associated with risks. Based on the push-and-pull theory several economic and geographic factors are taken into account to explain the migration pattern. In focus of the explanation are regional labor market indicators as wages and unemployment. As control variables serve, inter alia, distance, population density, common borders and county categories. Even though a plenty of individual reasons exist to move, I claim that the labor market has a large explanatory power.

This paper consists besides the theoretical illustrations of an empirical investigation. I make use of the upcoming HILD data base, which arranges an overview of Swedish wage data. Economic gains are theoretically the main driving force behind migration which is confirmed in the empirical part. The paper inserts into research applying regional labor market data which is weakly developed for former periods. The results are proofed to fit in developments in other European countries.

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1. Introduction

The debate about what determines internal migration and which role labor markets play, came up with falling migration rates since the 1970s. According to Clark (1982) an accurate prediction of the internal labor migration pattern is highly important. Against this background decide governments over public-sector investments and regional policy. This paper deepens the understanding of Swedish regional migration and has the aim to bring more light in some contradictory former results. Movement within a country is a special field of research that covers economical as well as social disciplines. Goldstein (1976) describes the nature of migration as multidimensional. Compared to inter-country mobility, to stay in a country has some advantages, like the knowledge of administrative systems and language. But why do people move at all within a country? Do other reasons than the ones that are applied to explain international mobility have an impact? Even though we investigate a delimited country, regional differences and inequalities exist. That’s why theories concerning international migration can help to give an orientation to explain this pattern.

The movement of the labor force is essential for the development of a modern economy. This balances regional and sectoral unequilibria (Lundh 2006). Dribe (1994) describes migration as lubricant of the economy. Migration makes it possible that the labor force doesn’t get locked in stagnating sectors. An example is the movement into cities after the industrial revolution that facilitated the drift away from an agricultural economy (Dribe 1994). Local differences exist even in case of a general equilibrium. These can be explained by differences in costs of living, the attractiveness of some localities and further more. These factors are also factors that cause migration. Hicks formulates “[…] differences in net economic advantages, chiefly differences in wages, are the main cause of migration” (Hicks 1932:75).

In the past researchers focused especially on cross-country differences investigating convergence and divergence patterns. In recent years differences within a country gain more and more attraction. Here mobility of labor and capital is less constrained as between countries. Furthermore differences in institutional settings are negligible. The existence of huge differences in regional labor markets is therefore much more impressive (Moretti 2010). The paper completes existing studies concerning internal migration in Sweden. These ones focus mainly on a different
time span, aggregate counties to regions, investigate a special age cohort (see Dribe 1994) or focus on a specific explanation, like mobility grants as labor market programs (see Westerlund 1998). This paper on contrast tries to provide a comprehensive and broad analysis of factors, counties and time. In opposition to many other studies I use gross migration numbers and try to explain the movement by macroeconomic and geographical factors. People have a plenty of personal reasons to move which are impossible be captured at all. My aim is to show that besides these individual reasons the economic ones, especially the labor market, still explain a large part. The question in focus is therefore which role do macroeconomic and geographic factors play in explaining mobility within Sweden.

The structure of the paper is as follows. In the next section I sum up existing theoretical effects on migration. After a brief literature review I steep into the empirical analysis. Descriptive hints are followed by a regression analysis. The employed models are discussed before the paper closes with a comprehensive conclusion.

2. Theoretical Framework and Recent Research

Theoretical explanations focus mainly on economic factors to explain the migration pattern. In connection, migration is seen as a synonym for a job change (Dribe 1994). It helps to resolve structural imbalances in the labor market and is therefore an important criterion for the overall economic well-being (Jackman & Savouri 1992). Kosiński and Mansell Prothero define internal migration as

“an individual who within a given nation moves from one regional unit to another for a certain minimum period of time. This involves […] the crossing of a specific kind of internal administrative boundary” (Kosiński and Mansell Prothero 1975:27).

The regional unit is in this case the Swedish counties, called län. Enumeration of migrants occurs therefore of people who changed their place of residence within a year. It is not controlled for repeat and return migration within the same period, so that the number of migrants is in fact smaller than the number of migrations (Baccaïni and Dutreuilh 2007). Note that I only refer to flows between the Swedish counties, not taking migration from and to other countries into
Movement of labor force can be measured in different ways. Here I refer to a macro-perspective, taking migration between Swedish counties as an indicator for the movement of the labor force. On an individual level we could find several reasons for a person to move. On the voluntary side, which I focus on, most moving is work-related, even though education, family and other preferences might have an impact (Lundh & Prado 2010). I claim that the labor market has a large impact on the decision to move. On the forced side wars and persecution are two examples. These are unlikely to influence migration within Sweden during the time span here, that’s why I do not further consider these in the ongoing discussion.

How can my claim be theoretically defended? Referring to the neoclassical theory spatial migration is explained by people making rational choices to maximize their utility. Herby they compare the gross utility of the home region with the utility that can be gained in possible destinations (Molho 1986). Of course not all gross gains and costs of moving are observable, especially not those that are bounded to the individual. In the later applied estimation model, I tried to cover those that can be quantified. The neoclassical approach was enhanced by several authors. Important to mention is Sjaastads human capital approach (1962). Migration serves as an investment in the individual human capital. This creates costs in the short run, but if prospective gains overbalance these costs people will migrate. Todaro (1969) enhances the neoclassical approach by emphasizing that not only the income itself is important, but also the likelihood to get a job. One drawback of this idea is pointed out by Greenwood (1975). He claims that unemployment is highest in the less mobile groups, e.g. older people (Dribe 1994). Once settled and family ties built up, people are less likely to leave for a new destination. Therefore the impact of unemployment could be smaller than expected by Todaro. Ellis, Barff and Markusen (1993) disagree to this argument. They claim that most highly trained workers tend to be the most mobile ones. This seems reasonable under consideration that a highly specialized worker might it have more difficult to find a perfect match on the labor market. I will come back to this point in the regression analysis where we will see how far regional unemployment rates can explain movement within Sweden. Migration helps to allocate labor efficiently according to regional demand and supply. Labor migrates from low- to high-wage areas, increasing the supply in their new home county. This leads theoretically to a decrease of wages at the same time the scarcity in the left region raises the wage rate. Finally, wage equalization should be the result (Clark 1982). Fredriksson (1999) however points out that the regional unemployment in Sweden is very
He explains this pattern by solidary wage policy that inhibits falling wages (Fredriksson 1999). How far my data confirms this valuation will be seen in the next chapter. A manifold overview over existing studies concerning internal migration in Sweden with aggregated data is also given by Westerlund (2006). His comparison of recent results show that most researchers expected the largest effect by unemployment and vacancies while wage differentials play no or only a minor roll. This means that the matching process overbalances the utility maximization by increasing the income as reasons for migration.

One can summarize that the main explanation for migration is the interaction of push and pull factors. Each region or county has some advantages and drawbacks. The push factors are those that give people reason to be dissatisfied with the present locale; the pull factors are attributes of distant places that seem attractive (Dorigo and Tobler 1983). In sum, people take the pull- and push factors into account to make their decision. These negative indicators at the home county can be high unemployment for instance, that push the potential migrant to leave. At the same time the county of destination pools some positive and negative characteristics as well. Push and at the same time pull factors are in the first line economic factors, like wage differentials, occupation possibilities or human capital, for instance. Furthermore, political, demographic and idiosyncratic factors influence the decision as well (Kosiński and Mansell Prothero 1975). These are taken in by Social Geography approaches that consider development phases like urbanization, distance and institutional forces to explain migration. Even though most studies agree that labor market indicators play the decisive role to explain internal migration, other factors are also covered in recent research. Lundh and Prado (2010) for instance conclude that short distant migration is typical for the Swedish case. At the same time does structural change favors urban areas and diminishing transportation costs could be an argument for facilitating long distance migration. The attractiveness of urban areas points on a wage gain moving from the periphery to the city. But cities have other advantages as well. Agglomeration theories in general and thick market theory in particular can give an explanatory hint. Moretti states that “understanding the ultimate causes of agglomeration economies is crucial to understanding persistent labor market differences” (Moretti 2010:38). The first advantage is that thick labor markets offer more employment possibilities. Besides this, Moretti mentions advantages from proximity to providers of intermediate goods and localized knowledge spill-overs. The latter two are more interesting in a firm’s point of view, while the first one is directly connected to the optimization of the
individual’s utility. Thickness of market facilitates the matching process at the labor market. In an environment where many firms offer jobs and many workers looking for the same, the quality of matching is increased and the risk for highly specialized people to be unemployed reduced. Agglomeration centers make networking easier and this may, by the way, even lead to higher productivity and is hence a gain for the whole economy. Higher productivity raises wages which is again an incentive for people to move to the city (Moretti 2001). The urban economist Henderson (1988) summarizes the advantages of cities in two externalities. First, consumption externalities: Cities provide amenities like theaters and museums that can only be offered if the demand is high enough. Therefore these offers are only existent in larger cities. Second, production externalities indicate higher wages in cities. Anyhow city life includes a trade-off between these advantages and the general preference of people living away from too crowded places. Large cities are often associated with crime, neighborhood problems and high costs of living (e.g. housing prices). Several studies found a turnaround of the rural to urban migration trend. Greenwood (1985) explains this with - inter alia - growth of resource based industries in non-metropolitan regions. Furthermore he mentions that the rising wealth of people shifts their demands. People tend to favor specific location amenities. Finally, Greenwood ascribes influence to governmental policy that tries to equilibrate regional development (Greenwood 1985). For the recent time it is also conceivable that the growing service sector is located at places where people live. This creates new jobs even in less urban areas and can turn around the trend towards cities to some extent.

Internal migration and persistent unequilibria, i.e. wage differentials across a country are a prominent research topic. Every study puts it’s emphasize on other specifics. Lundh (2006) gives an overview of internal migration studies for Sweden. Here it becomes visible, that the situation on the labor market is the main driving force. In addition, the motivation to move declines since the 1960s but still shows a cyclical pattern. One explanation for the reduced mobility is a regional convergence of wages until the 1980s. After this, during the 80s, wages begin to diverge again which should be visible in the migration rates. According to Kupiczewski et al (2001), internal migration increased during the 1990s with a consequently strong movement to urban areas. Following, rural areas, and especially the parts of Norrland, depopulated. In their study they conclude that Swedish internal migration is to a strong degree related to unemployment. The push and pull mentality of the labor market dominates the explanation patterns. The evolution over
time was described as follows. During the 1950s Sweden had slow urban growth and the rural population decreased little by little. A decade later, during the 1960s the economic structural change is also displayed in migratory flows: Sweden had an enormous concentration process on large cities with a simultaneous depopulation of the countryside. In contrast to this development, the 1970s were characterized by opposite trends. More peripheral areas experienced a positive net migration. At the same time geographic mobility at all decreased (Kupiczewski et al 2001). The same trend is confirmed by a study of Dahlberg and Holmlund (1979). They guess whether this trend can be explained by a new behavior and accordingly new preferences or by the labor market situation. Kupiczewski et al however explain this with the upcoming service sector, which is established close to the surroundings of living, e.g. even in peripheral areas. This trend stayed more or less stable, which is also explained by the higher attractiveness of rural environment (Kupiczewski et al 2001).

3. Hypotheses

Following from the above described theoretical explanations and results of former research I expect the migration to follow a clear pattern. These expectations can be structured into the following hypotheses. First, following from the neoclassical assumption that people are rational decision makers trying to maximize their utility they select a county that maximizes the highest expected net benefit of migration. In other words, the potential migrant moves in case the net gain is positive (Sjaastad 1962). This net gain is measured as monetary gains, where wages serve as a proxy of income. I expect that people move from low wage to high wage counties, i.e. \( w_j > w_i \).

At the same time higher possible income is only attractive if the probability to achieve this is high. That’s why the regional unemployment rate is the second labor market variable. Unemployment is not only important to cover the possibility to get a better paid job, but even a job at all (Greenwood 1975). This yields especially for movement out of high unemployment regions. Migration flows are therefore expected to occur from counties with a high unemployment rate to those with a low one, \( U_j < U_i \). Of course unemployment and wages are to some extent related with each other. Areas or in this specific case counties with a higher
unemployment rate than the average have falling relative wages due to the surplus of labor. Net emigration is then a factor that reduces the relative labor supply. On the other hand regions with higher wages offer a higher gain for movers, ergo immigration increases. Thus migration in both directions is a factor that fosters converging wages (Lundh & Prado 2010). Though, Sweden has a solidary wage policy that hampers this convergence effect. The effect of unemployment on migration is explained by Pissarides et al with the hypothesis that unemployed are more likely to move (except of older people, see Greenwood 1975). This pushing factor is defended by the fact, that unemployed have less to lose (Pissarides & McMaster 1990). In other words, the employment ratios are used as proxies for regional vacancy rates and hence the likelihood to get a job (Dahlberg & Holmlund 1978). That this is a realistic hypothesis is undermined by McGregor et al. (1992), who founds that 83% of British migrants moved because they already had a new job, 7% in hope of finding work.

According to big market theory I expect a migration trend to urban areas for several reasons. First, the structural change of the economy with a decreasing agricultural and mining sector favors municipal areas. Second, the growing industry and service sectors are mainly located in cities or in populated areas in general. The probability of getting a job is higher in these cities than on the countryside. In addition, wages are higher in urban than in rural areas, partly due to higher costs of living. This will be controlled for by taking real wages. Third, cities offer cultural activities and can be attractive from a personal point of view. I take these factors into account including dummy variables for the counties with the three large cities Malmö, Gothenburg and Stockholm. Additionally the largest university towns are incorporated as well, assuming to attract people. According to David (1974) migrants look after large, diverse and dense cities. Here the job search can be most efficiently undertaken. In addition I calculated the population density of each county, which I enlighten on more below.

Migration is theoretically expected to decrease with increasing distance. This can be explained by taking distance as a proxy for transportation as well as psychic costs of movement. With distance information availability decreases, hence uncertainty about possible migration gains increases (Greenwood 1975). People tend to move to counties where friends or relatives have moved to and can provide information. That’s why I expect short distance migration, for example to neighboring counties. Furthermore I will include a variable measuring the distance between the
counties’ capitals to see how far distance has an impact. In the recent time it is imaginable that this explanation looses value. Information technology provides people with information irrespectively of where they are. Additionally this argumentation seems more appropriate for international migration due to the fact, that risks within a country are lower. Anyhow former studies found an impact of distance on the choice of the county of destination so that it shouldn’t be neglected. Migration is expected to decrease with each kilometer away from the home county.

4. Empirical Analysis

4.1 The Data

Let’s take a closer look at the data to see whether the hypotheses can be confirmed by descriptive and regression analysis. The first step is to get an overview of the migration in Sweden over time. How did it develop and which role did the development of unemployment and wages play? Migration numbers are taken from Statistics Sweden\(^2\) and display the number of migrants between each county on a yearly basis. Unemployment was calculated from AKU data\(^3\).

\(^2\) SCB Befolkningsstatistik
\(^3\) Arbetskrafts undersökningen. Yearly data, raw tables by SCB. \(u_{it}= \frac{U_{it}}{L_{it}}\), with \(U_{it}\) as the number of unemployed and \(L_{it}\) as the labor force in county \(i\) at time \(t\).
We can see at a first glance that migration follows a cyclical pattern. The migration numbers are relative to the Swedish population so that in- and decreases cannot be biased through a higher or lower population. Ups and downs are clearly visible and are compared to the unemployment countercyclical. An upturn of the number of migration goes in hand with a lower unemployment and vice versa. Take for instance the increasing unemployment in the beginnings of the 1980s. At the same time the unemployment is highest, did the number of migrants reach its minimum. This pattern is visible for several stages. We can conclude that people move in general in more prosper times. In these optimistic states of the economy people imagine better chances on the labor market, respective jobs and income. The depression of the 1990s can be seen as an exception because of the extraordinary high unemployment. The later decrease however goes again in hand with an increase of migration.

After this introductory national view, let’s take a closer look at the county level. The migration numbers provide information about the county of origin and destination for the time span 1967-2003 on a yearly basis. Taken the net migration of each county, which is which is calculated as
migration between two counties i and j at a certain point of time t (\(NM_{it} = IN_{ji,t} - OUT_{ij,t}\)), pool them over the whole period, we get a first impression which counties are typically left and which attract new habitants..

**Figure 2: Regional Net Migration (pooled 1967-2003)**

Stockholm, Skåne, Halland and Västra Götaland receive most migrants while Norrbotton, Västernorrland and Västmanland loose habitants. This impression is the same if we divide the numbers by the average population in each county. This can be done to oppugn the doubts that different amplitudes are due to different natural population sizes per county. There are only five counties with a positive net migration. The question that follows is what do the main receiving counties provide that they attract the majority of migrants?

To explain the migration pattern let’s take a look at the explanatory variables. In focus are at first hand labor market indicators. The wages are taken from the HILD wage data base. These are male and female manufacturing wages, weighted with the male to female relation in the labor force. The data offers nominal hourly wages, which I deflated with the national Consumer Price Index (CPI) given by Statistics Sweden. This is a certain drawback but so far does no regional price index exist. The distribution of wages over the country in a pooled time horizon looks as follows:
Expected differences between the counties are certainly visible. Even though it seems that differences in unemployment rates are higher, one has to keep in mind that these are real hourly wages. This means that a difference of one Swedish Crown per hour is a huge amount calculated for a monthly real income. Anyhow, wages differences are lower than in other European countries because of a solidary wage policy in Sweden. How far the wages can explain migration, will be seen in the next subchapter. In Norrbotten and Stockholm workers receive the highest wage, followed by Västernorrland and Gävleborg, which is intuitively hard to explain. The latter two have high outmigration numbers and are not known for their industrial dimension. Lowest wages on the other hand are paid in Jämtland and Gotland.

The regional unemployment varies extensively. Norbotton has by far the highest unemployment rate which is intuitively reasonable. High rates for other northern counties confirm this.
expectation. The low rates in Kroneberg and Jonköping are surprising though these counties have a negative net migration. The opposite yields for Skåne with relatively high unemployment but at the same time a migration surplus. A possible explanation is that Malmö is the attracting city while other parts of the county could raise the number. However, the differences are robust over a time horizon (see appendix) and follow a cyclical pattern. Clearly and precisely visible is the depression of the 1990s with an erratic increase of unemployment in all counties. In all lapses we can claim that the development of unemployment as well as wages show the same pattern for all counties. While unemployment demonstrates regional persistent differences, real wages differ less even over the long run. This changes at the end of the 1980s where some counties are more affected than others.

4.2 Regression Model

Descriptive statistics can give a first hint for an existent relation between migration and the labor market. Let’s go a step further and perform a regression analysis under consideration of fixed effects. These take care of the regional differences and the regional policy that was introduced in the 1960s. The dependent variable is the number of migrants into county j from county i. This is similar to Westerlund (1997), who also performs a gross migration model. Anyhow, I take into consideration the movement combinations, e.g. the panel identifier consists of each possible county combination. As explanatory variables I consider beside typical labor market variables, dummy variables for Norrland and for metropolitan areas including the largest universities in Sweden as done in Dahlberg and Holmlund (1978) (see A 3 for variable description). Density is additionally taken into account. The population for each county is taken from Statistics Sweden. It is divided by the area in square kilometers as done by Kupiczewski et al (2001). The distance between the counties is approximated by the distance between the counties’ capitals. The county distribution was renewed during the period of investigation. For the sake of comparison today’s division is taken over the whole period. Further control variables are included in the regression analysis as seen below. I tested several models to turn out robust results. Starting from a general model, the models are reduced and optimized. The results are shown in the table below, all using robust standard errors to take care of heteroskedasticity.
The table shows the regression results for gross migration in a county adjusted for heteroskedasticity. In all models logarithms of the gross migration numbers are taken as the dependent variable. I tested indicators for both counties as push and pull variables. Distance and the common border dummy are related so that the models only contain one of these two. Starting from a comprehensive approach, the models are varied and reduced. Which version I ever took, the results are consistent. The increase of the real wage in the county of destination attracts migration by around 2.5% (model 1-3), while the opposite yields for the real wage in the left county. Here the numbers show that an increase of the real wage decreases the outmigration by 1.8% to 3.2%. Another labor market factor is the rate of unemployment. A high rate of
unemployment in the county of destination decreases the immigration, where a 1% increase in unemployment corresponds to a 0.4 - 1.5% decrease of immigration. At the same time an increase of unemployment in the home county increases the outmigration, as expected. Here the dimension is about 2.5% per one percent increase in unemployment. Hence, the empirics of the labor market confirm the theoretical impact on internal migration. Migrants prefer counties with an increasing industrial sector (l\textsubscript{ind}_j). The industrial sector variable measures the logged relation of the number of employed relative to the number of employed in the overall economy. An increase of this by one percent increases the immigration by around 0.6%. Correspondingly, the downturn of the industrial sector leads to outmigration. The impact of the service sector was tested, but did not lead to consistent results. What about other factors to explain internal migration? A common border does definitely influence the choice of the destination. It increases migration by at least 84%, which is confirmed by all models in a highly significant way. That people prefer near located counties is also approved by the distance variable. Migration decreases with increasing distance by 0.26% per kilometer (model 2 and 4). Less clear is the impact of the density. This has a positive effect on immigration as well as outmigration. This at a first glance contradictory result might show that people though prefer less densely populated areas, but agglomeration centers offer a great deal of advantages. This is undermined by the significant and positive coefficient of the metropolitan area. People prefer to migrate to the large and university cities. Due to the fact that regional prices lack, the cost of living differences are extremely visible if we compare housing prices in the different counties (see A 5). These are taken in to control for different price levels but a clear impact on the migration pattern could not be found.

We can conclude that regional differences are important to explain internal migration. The county of destination is at first hand geographically predetermined with a preference for metropolitan and neighboring areas. Labor market indicators confirm the expectation that high wages and low unemployment attract migration. So not only family ties and other individual reasons are important, but labor markets matter.
5. Discussion

Sweden as a relative equal country compared to other European states, provides interesting research circumstances and it is a bonanza that the migration data is that exhaustive. The fact that wages are very equal all over the country makes Sweden to a special case compared to typical benchmarks as Germany or Britain. The above regression analysis confirms the hypotheses in general, although some questions remain. The labor market plays a decisive role explaining internal migration. This fact needs to be stressed especially in times, where we mostly have a two-earner household. The share of employed women increases in each county extensively (pooled over counties from 25% in 1960 to 90% in 1990). Over the last decades it became usual that men and women work on an equal basis. Labor market related migration becomes therefore more difficult when two instead of one looking for better employment conditions. This could also explain the falling migration rates as already mentioned by Holmlund (1984).

My study differs to some extent from other ones that I want to enlighten in this subchapter. First, the question of net versus gross migration comes up. Net migration as a statistical abstraction is of value to show the differences between counties. According to Clark (1982) econometric models of migration usually deal with net migration. Also Barro and Sala-i-Martin (2004) employ a net migration model to estimate the impact factors on migration in USA, Japan and Europe. I didn’t follow this path because of the following reasons. As Alonso (1980) put it, there is no such person as a “net migrant”. Hence he concludes that the gross flows of migration have to be considered. This is also what Clark (1982) does in investigating US interstate labor migration and what I apply here. Net migration remains as a very small statistical number of the difference between larger gross flows. Especially for each year the number of net migrant between particular counties can be a fistful (Clark 1982). A further argument against net migration as the variable of interest is that the volumes of gross migration are positively correlated. Alonso (1980) suggests that in-migrants have a high probability to out-migrate again, declining with the length of residence. Following an area with high immigration will also have a high outmigration.

The second point I want to make clear in comparison to other studies is why I didn’t take in vacancies as a proxy that displays the chance to get a job. I had a particular reluctance to do so.
The number of vacancies depends on a voluntary declaration nowadays while it was a duty in earlier times. That’s why I think it is no longer a reliable number which can additionally be substituted by unemployment rates.

It is for instance intuitive that migration reacts lagged on the labor market situation. Molho (1986) describes three interrelated reasons why this can be the case. First, it takes time until information according the county of destination is diffused. Second, expectations of future benefits depend on past trends. It just takes time until people have determined their expectation. Third, and following the former reason, time goes by between the decision to migrate and the final action (Molho 1986). I therefore include a lagged wage variable (t-1) in the regression. This accounts for migration in period t, whose decision is based on the wage in t-1. Anyhow these regressions could not turn out significant results. Lags seem more meaningful in cross country migration. Within Sweden it is easier to detect economic possibilities and information costs are negligible, especially if we bear in mind that people prefer to move to neighbor counties. Furthermore the used migration numbers are on a yearly basis which seems sufficient to detect new possibilities and decide where to move. The graphic impression confirms that internal migration is not sensitive to time lags. Another interesting factor is the huge difference in housing prices. Unfortunately the numbers are available from 1975 so that an intake in the regression goes in hand with a loss of observations. The differences in housing prices were tested but no significant results turned out, which is in accordance with the results that Jackman and Savouri (1992) receive for Britain. Institutional regional settings are so far not regarded in the analysis. However, the county specific fixed effects take regional characteristics and politics into account. As an unsolved problem with high explanatory value, I consider regional price index. Unfortunately these aren’t available so far. Here real wage differences would become visible and more reliable than in all investigations before.

If we now set my results in a broader framework and compare them with recent studies many matches can be identified. Some specific features do however set some nuances. The unemployment pattern is very interesting because of the two conflictive statements of Greenwood and Todaro. While the latter claims unemployment to have an effect, Greenwood tags the mostly unemployed groups as the at least mobile ones. According to my analysis Greenwood’s hypothesis was false which is in addition supported by empirics from Jackman and Savouri.
(1992) who analyzed British internal migration. They conclude, as I do, that job opportunities are an important driving factor of migration. They do even go further claiming that unemployed are more active job seekers and therefore notably mobile. In contrast to Westerlund (1978) I receive a positive relation between the metropolitan counties and immigration. This makes intuitively sense and is theoretically in accordance with the big market hypothesis. In general, I can claim that the results are robust. All models confirm the impression that regional labor markets matter to explain migration. Additional robustness tests were performed and are displayed in the appendix (A 4). Here the independent variables are replaced by shares. This means that instead of taking in both variables for i and j, the relation between wage in j and i are calculated. The same is done for unemployment, the industry share and density. Models one and two control for county-specific fixed effect, models three and four control additionally for time-fixed effects. Hereby the number of variables is reduced and possible biases over time captured. The results however confirm the main model. If the wage in j relative to i increases by one percent, do about 18% move from i to j. The relationship for unemployment is the other way around: a relative increase of unemployment of 1% leads to an outmigration from j to i of about 2%. The industrial sector attracts migrants, whereas migration decreases with increasing distance. Even though the impact of density was not totally clear in the former model, the regression here confirms in three of four models that people migrate to more densely populated areas. The impact of the dummy variables is approved.

6. Conclusion

Migration research is mostly connected with international migration. Why do people cross borders and how quick do they integrate in the foreign labor market. Internal migration on the other hand has some similarities concerning the reasons to move while the circumstances are totally different. Information costs and risks are lower, language barriers do not exist but we still ask, why do people move? The aim of the paper was to clarify some contradictory results by former studies and to contribute to this unsolved question. Confusion comes up, for instance, when well accomplished studies like the one of Jackman and Savouri (1992) for Great Britain find perverse wage effects on migration. It shows that even after some time of migration research
there is still space to improve. In contrast to former research I did not focus on specific features like convergence patterns or labor market policy. Instead this was a comprehensive approach to explain gross migration. Starting from a theoretical perspective, I claimed that labor market indicators and geography can explain a huge part of internal migration even though a plenty of personal reasons exist, where family ties are the most obvious one. The society of the last decades is characterized by an increasing employment of women which lead to a two earner household. This fact makes labor related migration even more difficult, because now two people are looking for better employment conditions. Despite all these factors do wages and employment opportunities attract people. The question where to move precisely is further constrained by geographical factors. Here large cities in a short distance from the home county are preferred, especially neighboring districts. This short distance migration is sincerely a typical Swedish feature as well as the outmigration of the Northern parts. The latter one can be on the one hand explained by the high unemployment. On the other hand people are probably affected by the cold and dark climate. Even though the results are confirmed by robustness tests there are still gaps to be filled by future research. Essential is here the construction and intake of regional price levels, that would give a further improvement.

7. References


8. Appendix

A 1 Development of Regional Real Wages, 1967-1990

A 2 Development of Regional Unemployment, 1967-2003
### A 3 Variable Overview

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
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<tr>
<td><strong>Dependent Variable</strong></td>
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<td>Logged gross migration from i to j at time t; <em>SCB</em></td>
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<tr>
<td><strong>Independent Variables</strong></td>
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<td>Real wage (national deflator) for i and j; <em>HILD</em></td>
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<td>al_rate</td>
<td>Unemployment rate as number of unemployed divided by labor force (u/L_t) for i and j; <em>AKU</em></td>
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<tr>
<td>l_ind</td>
<td>Logged size of the industrial sector (employed in industrial sector divided by overall employed) for i and j; <em>AKU</em></td>
</tr>
<tr>
<td>cobo_d</td>
<td>Dummy indicating a common border between i and j</td>
</tr>
<tr>
<td>dens</td>
<td>Population density in i and j; people per square kilometer (population/area); <em>SCB</em></td>
</tr>
<tr>
<td>D_BIG</td>
<td>Dummy for big and university cities (1 for Stockholm, Skåne and Västra Götaland, Uppsala, Linköping (Östergötland), Umeå (Västerbotten))</td>
</tr>
<tr>
<td>D_Norr</td>
<td>Dummy variable, 1 indicating Norrland’s counties</td>
</tr>
<tr>
<td>dist</td>
<td>Distance between counties’ capitals in km</td>
</tr>
<tr>
<td>Housing</td>
<td>Housing prices in i and j; <em>SCB</em></td>
</tr>
</tbody>
</table>
A 4 Robustness tests

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1) log_m</th>
<th>(2) log_m</th>
<th>(3) log_m</th>
<th>(4) log_m</th>
</tr>
</thead>
<tbody>
<tr>
<td>rw_share</td>
<td>0.190**</td>
<td>0.189**</td>
<td>0.176**</td>
<td>0.175**</td>
</tr>
<tr>
<td></td>
<td>(0.0915)</td>
<td>(0.0920)</td>
<td>(0.0795)</td>
<td>(0.0799)</td>
</tr>
<tr>
<td>al_share</td>
<td>-0.0176**</td>
<td>-0.0181**</td>
<td>-0.0253***</td>
<td>-0.0255***</td>
</tr>
<tr>
<td></td>
<td>(0.00797)</td>
<td>(0.00811)</td>
<td>(0.00771)</td>
<td>(0.00787)</td>
</tr>
<tr>
<td>ind_share</td>
<td>0.365***</td>
<td>0.358***</td>
<td>0.295***</td>
<td>0.289***</td>
</tr>
<tr>
<td></td>
<td>(0.0494)</td>
<td>(0.0496)</td>
<td>(0.0442)</td>
<td>(0.0442)</td>
</tr>
<tr>
<td>dist</td>
<td>-0.00275***</td>
<td>-0.00271***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(8.31e-05)</td>
<td>(7.98e-05)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>dens_share</td>
<td>0.0159***</td>
<td>0.0113***</td>
<td>0.00658***</td>
<td>0.00219</td>
</tr>
<tr>
<td></td>
<td>(0.00276)</td>
<td>(0.00239)</td>
<td>(0.00255)</td>
<td>(0.00220)</td>
</tr>
<tr>
<td>D_BIG_j</td>
<td>0.312**</td>
<td>2.166***</td>
<td>0.499***</td>
<td>2.320***</td>
</tr>
<tr>
<td></td>
<td>(0.127)</td>
<td>(0.117)</td>
<td>(0.124)</td>
<td>(0.118)</td>
</tr>
<tr>
<td>D_Norr_i</td>
<td>-1.913***</td>
<td>-2.809***</td>
<td>-1.809***</td>
<td>-1.968***</td>
</tr>
<tr>
<td></td>
<td>(0.116)</td>
<td>(0.123)</td>
<td>(0.120)</td>
<td>(0.108)</td>
</tr>
<tr>
<td>cobo_d</td>
<td>1.430***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0393)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>8.584***</td>
<td>6.142***</td>
<td>8.677***</td>
<td>6.275***</td>
</tr>
<tr>
<td></td>
<td>(0.162)</td>
<td>(0.151)</td>
<td>(0.156)</td>
<td>(0.147)</td>
</tr>
<tr>
<td>Observations</td>
<td>15,523</td>
<td>15,523</td>
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</tr>
<tr>
<td>Number of id</td>
<td>420</td>
<td>420</td>
<td>420</td>
<td>420</td>
</tr>
</tbody>
</table>

Model (3) und (4) controlled for time-fixed effects
Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

A 5 Regional Housing Prices (pooled 1975-2003)