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Settlement and migration patterns among immigrants in Norway

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Abstract: The immigration to Norway has increased strongly since the turn of the millennium and especially since the eastward EU-enlargements. The aim of the paper is to investigate the regional settlement and migration patterns of immigrants mostly recognized by their reason for immigration.

The immigration has changed from a gender balance during the first years of the 2000 towards a clear male dominance after 2005, mostly due to increased labour immigration. The immigration has changed from a dominance of refugees and their families towards labour immigrants and their families, where family unifications with labour immigrants exceed the family unifications with refugees since 2007.

Refugees and their families show the strongest tendency to stay in Norway after immigration, while immigrants from other Nordic countries and immigrants that immigrate for education show less probability to stay in Norway and higher emigration. Labour immigrants have an average probability to emigrate among the immigrants.

The immigrants in Norway have been more regional dispersed since the turn of millennium, and the capital of Oslo has reduced its share, while especially the surrounding county of Akershus and the counties in Western and Middle Norway have increased their share of immigrants.

A stable immigration of refugees towards less central areas results in a strong and persistent pattern of domestic migration towards central regions for this group. Children of immigrants born in Norway, education immigrants and persons without immigrant background also move towards central areas. Labour immigrants and immigrants from other Nordic countries deviate from this pattern, by moving out of central areas in several years of the period. Refugees and their families mainly migrate in direction of other immigrants with similar background as themselves, while labour immigrants, and partly also Nordic immigrants, migrate away from larger concentrations of immigrants with similar background.

Refugees and their families show strong and positive relationship between domestic migration and regional employment change due to strong internal migration towards central areas, while labour immigrants and immigrants from other Nordic countries show weak and partly negative relationship between migration across regions and regional employment change. They rather move away from other labour immigrants than towards central areas. Persons without immigrant background have turned from a positive and significant towards a weak and non-significant relationship between domestic migration and regional employment change.

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Background and challenges

Immigrants and persons born in Norway by immigrant parents represent an increasing percentage of the population in Norway. It is put forward requests how long time immigrants do stay in Norway, and if their settlement geographically and migration patterns deviate from that of the natives. It is previously made several statistical analyses how refugees become regionally settled in Norway and how they resettle through their internal migration (see e.g. Høydahl, 2011, Kvarv Andreassen, 2013), while the settlement and migration patterns among other immigrant groups and persons born in Norway by immigrant parents are less analysed.

The internal migration flow among immigrants is expected to turn in central direction. This is due to expectations that immigrants, and especially refugees, are entering the destination country in less central districts for then to migrate towards more central areas by their internal migration. The return migration from central towards less central areas that to a certain degree happens among natives is not expected to be found among immigrants. An eventually return migration among immigrants rather takes the form of emigration.

An important aim of the Norwegian government is to obtain a most successful inclusion of immigrants into the Norwegian society and labour markets, and simultaneously wishing to maintain the regional settlement. In the light of such purposes we recently issued a larger publication that “mapped” the development of the regional settlement- and migration patterns among immigrants and persons with immigrant background in Norway since the turn of the millennium (see Stambøl, 2013). This paper explores some of the main findings of this report and presents some tentative analyses explaining the immigrants’ domestic migration in light of regional settlement patterns of immigrants and the regional employment changes.

Following a short introduction describing the main data sources and variables as well as the main development structures of immigration, we present some answers to questions like; how long time do immigrants stay in Norway recognized by their reason for immigration, and how is their regional settlement distribution by centrality according to their time of living in Norway. Furthermore, we explore the regional settlement of immigrants by the main regions of the country before we put forward a question if immigration contributes to any decentralisation of the entire settlement pattern of the nation. Then we present some tentative analyses of migration explaining the immigrants’ domestic migration in light of regional settlement patterns of immigrants and the regional employment changes before the final chapter concludes.

Data and definitions of immigrant conceptions

The current analyses are based on longitudinal data from individual population and migration registers at Statistics Norway. *Immigrants* are defined as persons born abroad by two foreign parents and have immigrated to Norway. The immigrants’ Norwegian born children are defined as persons born in Norway by two immigrant parents. Furthermore, these two groups are characterized as the population with immigrant background. Persons that are not defined as immigrants or persons born in Norway by immigrant parents are defined as the remaining part of the population, or the population without immigrant background. This means that persons born in Norway by one immigrant parent and one none immigrant parent are not included in the population with immigrant background.

Furthermore, the immigrants are grouped by their registered reason for immigration, where the four main reasons are: immigration due to search of labour, immigration as refugees,

immigration due to family unification or immigration due to education. When statistics do not operate with any reason for immigration for immigrants from other Nordic countries, we handle immigrants born in other Nordic countries as a separate group of immigrants. There is also a large group of immigrants with not specified reason for immigration. The concept of reason for immigration was introduced to the statistics in 1990, so all immigrants that immigrated to Norway before 1990 is still to be found in this group of immigrants.

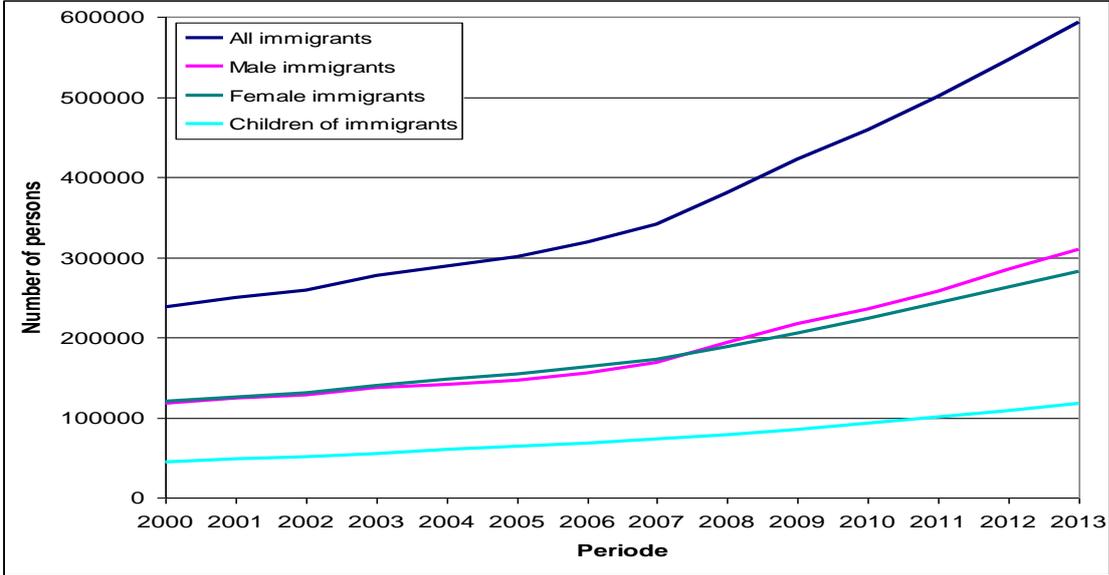
Increased number of immigrants and persons born in Norway by immigrants

It has been a strong increase of immigrants and Norwegian born children of immigrants since the turn of millennium, and especially after the eastward EU-enlargement in 2004 (see Figure 1). Registered settled immigrants in Norway increased from about 240 000 persons in the year of 2000 to 530 000 persons in 2013. As a comparison the number of natives increased in the same period from 4.2 to about 4.3 million persons. The number of children born in Norway by immigrant parents also increased strongly from about 44 000 persons in 2000 to 117 000 persons in 2013, thus an even higher percentage growth compared to immigrants.

It was a gender balances among new immigrants the first years of this century followed by a small surplus of female immigrants in the years of 2003-2005. From 2006 it was a remarkable change with a growing surplus of male immigrants.

The immigration to Norway has since the turn of millennium changed from a surplus of refugees and their families towards a strong surplus of labour immigrants and their families, and from 2007 the immigration due to family unification is more connected to labour immigrants than to refugees.

Figure 1. Registered settled immigrants totally and by gender and children born in Norway by immigrant parents 2000-2013. Number of persons



There are also strong gender deviations when the immigrants are grouped by reason for immigration. Those who immigrate to obtain a job are mainly men. This is also the main reason why the total immigration has changed to male domination. Immigrants who immigrate due to education have a female dominance. Men represent a clear majority of

refugees, while it is a clear female majority among immigrants that come for family unification. Among Nordic immigrants there are mostly a gender balance.

How large percentages of immigrants stay in Norway in the years following their immigration?

There are often put forward questions how long time immigrants are likely to stay in the country of destination. In this section we present an investigation showing how long time immigrants stay in Norway mainly aggregated by their reason for immigration. We operate with a variable showing the year each immigrant immigrated to Norway for the very first time for then to be able to deviate between their following numbers of years of settlement in Norway. All immigrants that immigrated the same year represent the *immigration cohort* of this year. Each immigrant keeps their immigration cohort as long as they are registered settled in Norway. Furthermore, the variable, *time of residence*, is defined by their first year of immigration and how many years they have been registered settled since their very first year of immigration.

In the current example we take as point of departure all immigrants that immigrated to Norway in 2001, recognized by their immigration cohort of this year, but measured as the stock of this immigrant cohort settled in the country at the beginning of 2002. Then we examine how large share of each immigrant group is still settled in Norway at the beginning of each following year up to 2011. We show the remaining percentage of those immigrated due to labour, education and family unification and those who arrived as refugees. In addition, and for comparison, we also include other Nordic immigrants and those with not specified reason for immigration.

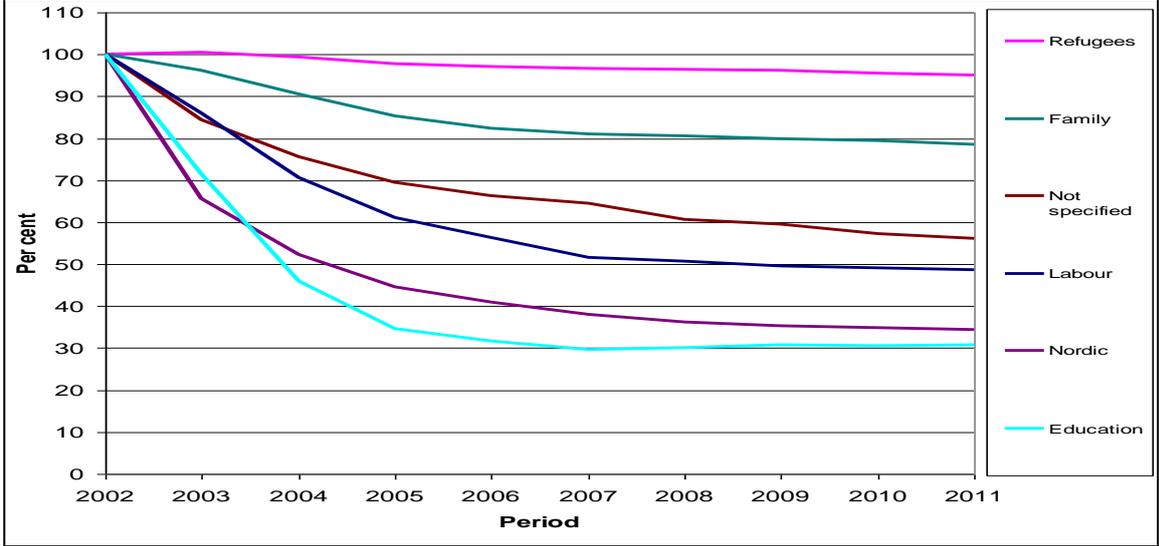
There are strong disparities across immigrant groups with regard to how long time they are registered settled in Norway. Among the immigration cohort of 2001 there are very few refugees that become registered as emigrants during this period (Figure 2). At the beginning of 2011 there are still 95 percent of all refugees that immigrated in 2001 still registered settled in Norway. Among immigrants that immigrated due to family unifications the percentage of emigration is somewhat higher, and approximately one fifth of those that immigrated in 2001 gradually moved away from Norway during the first five years after immigration, but the majority of the remaining part of this group stayed settled in the destination country. Among the small group of immigrants with not specified reason for immigration about 40 percent emigrated before 2008 and another 5 percent within the year of 2011. Among this immigration cohort of labour immigrants the emigration was relatively strong during the first five years following the immigration, for then almost stopping for those exceeding five years of residence.

Immigrants that immigrated due to education and immigrants from other Nordic countries are the immigrant groups showing less ability to stay in Norway. Among the 2001-immigrant cohort of Nordic immigrants 60 percent had emigrated during the first four years following the immigration. Furthermore, the settlement show an increasing stabilisation also for this group, although not more than only 1/3 of all Nordic immigrants in 2001 were still settled in Norway in 2011. Immigrants from other Nordic countries are obviously those immigrants with shortest migration distance to Norway, thus migration theories that expect an inverse relationship between migration intensity and distance might be suitable for the explanation here. Less able to stay in Norway are those who immigrated due to education, and 70 per cent

of the 2001-cohort had already emigrated in 2007. It is, however, important to mention that those who immigrate as au-pairs are to be found in this category of immigrants.

Corresponding analyses of the immigrant cohorts of 2004 and 2006 show similar differences between the immigrant groups' ability to stay in Norway (see Stambøl 2013).

Figure 2. The percentage of immigrant cohorts of 2001 (=100) that are still registered as settled in Norway in the years of 2002-2011. Immigrant cohorts mainly by reason for immigration. Per cent



In the next section we have concentrated the analysis at labour immigrants, who is the fastest growing immigrant group in Norway. We have followed all cohorts of labour immigrants from 2000 and up to the cohort of 2009, and then analysed how the percentage still resident in Norway vary by their years of settlement. It is only the immigrant cohort of 2000 that could be followed during ten years of residence. The immigrant cohort of 2001 had a registered residence in Norway up to maximum nine years, and the settlement history reduces by one year for the following immigrant cohorts (see figure 3).

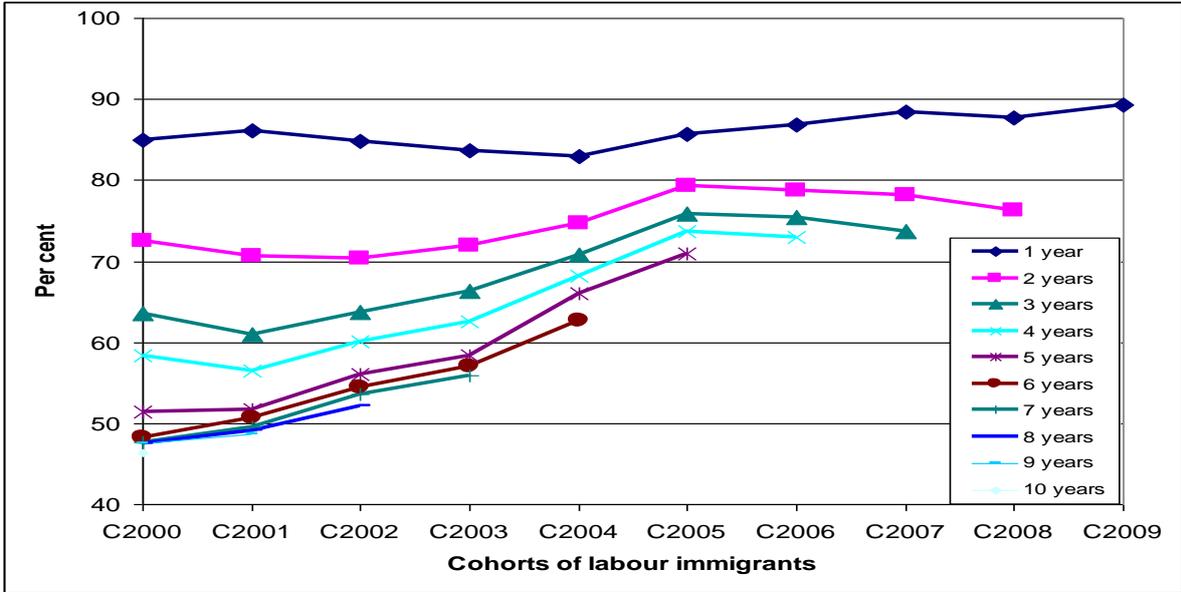
The growing cohorts of labour immigrants by the end of the period show a higher ability to stay in Norway after one year of settlement, and thus a lower emigration than their predecessors. It was a falling tendency of the percentage of still registered labour immigrants in the cohorts from 2000 to 2004, which is the year with lowest ability to stay and highest ability to emigrate among the labour immigrants in Norway in this century so far. For all cohorts of labour immigrants that immigrated after 2004 there has been an increasing ability to stay in Norway after one year of settlement, with the highest percentage for the cohort of 2009. An exception is the cohort of 2008, which shows a somewhat lower ability to stay after one year compared to the cohort the year before and the year after, although higher ability to stay compared to the earliest cohorts of the 2000s.

After two years of residence it is still a tendency to higher percentage of “stayers” among the latest labour immigrants compared to the first cohorts after the turn of millennium. It is, however, a falling tendency of two years residency among the cohorts of labour immigrants from 2005 to 2008. It is the cohort of labour immigrants from 2005 that shows the highest percentage of still resident persons after two years.

After three and four years of residence this tendency is still present, and the immigrant cohort of 2005 has still the highest percentage of resident persons. Afterwards, there is a falling tendency in percentage of resident persons after three and four years in the cohorts that immigrated after 2005. But even after four years of residence the percentage still settled is higher among the latest cohorts of labour immigrants compared to the earlier cohorts after 2000. When we know that the cohorts of labour immigrant that immigrated after 2004 are much larger than the first cohorts after the turn of millennium, the tendency towards higher percentage of still registered settled persons has been an important reason why the number of labour immigrants has increased strongly Norway.

There have also been an increasing percentage of resident labour immigrants for those with five years or longer settlement period in Norway. A question is if labour immigrants that immigrated after 2004 also will show higher percentage of residency than their predecessors, when these cohorts will be measured for their residency after five years of settlement. The question is also if we will get a stability in the percentage of residence of labour immigrants that is higher than the level on approximately 50 per cent observed for the 2001-cohort of labour immigrants (see figure 2).

Figure 3. The percentage of labour immigrant cohorts 2000-2009 that is still registered settled by time of residence in Norway. Per cent



How large share of the immigrant cohorts live in regions with low, intermediate or high centrality?

Here we analyse the regional settlement patterns of immigrants by centrality, reason for immigration and time of residence. As a point of departure we investigate the immigrant cohort of 2000 and follow them each year up to 2011 by their place of living in the hierarchy of centrality. In the same manner we also investigate the regional settlement patterns for the immigrant cohorts from 2001 to 2010.

It is important to keep in mind that a certain part of each immigrant cohort emigrate and even die when we move through a period of eleven years, so the regional settlement pattern by centrality is measured just for the percentage of each immigrant cohort that is still registered settled in Norway. As already noted the reduction of each cohort is strongest during the first

years after immigration before the percentage of still resident becomes more stabilized after some year of settlement. The investigation here is concentrated at the labour immigrants and refugees.

We operate with three levels of centrality based upon Statistics Norway’s classification of centrality of all municipalities, where those municipalities with centrality 0 and 1 is aggregated to represent municipalities with low centrality (1), those with centrality 2 represents the municipalities with intermediate centrality (2) and finally those with centrality 3 represent the most central located municipalities with high centrality (3).

It is clearly deviations between the cohorts of labour immigrants considering how large share of the cohorts that are settled in municipalities with low centrality (See Figure 4a). It is worth to note that the most recent cohorts of 2009 and 2010 show the highest percentage that lives in municipalities with low centrality just after immigration. Highest percentage is to be found among labour immigrants from 2009-cohort, where approximately 16 per cent of the remaining immigrants are registered settled in municipalities with low centrality. The small cohorts of labour immigrants from 2000, 2001 and 2003 also show relative high percentage living at low centrality. The lowest percentage at low centrality is to be found among the labour immigrants that immigrated in 2004-2007.

It seems to be certain stability at this level of centrality the years following the immigration with a weak increase of the cohorts living at low centrality with an increased time of living in Norway. This is especially the case for the small cohorts of labour immigrants that immigrated in 2000-2003. However, the cohorts of 2005 and 2006 show both lower percentage settled at low centrality and a decreasing share living at this level of centrality by their time of living in the nation.

Figure 4a. The percentage of labour immigrant cohorts 2000-2010 registered settled in municipalities with low centrality 2001-2011. Per cent

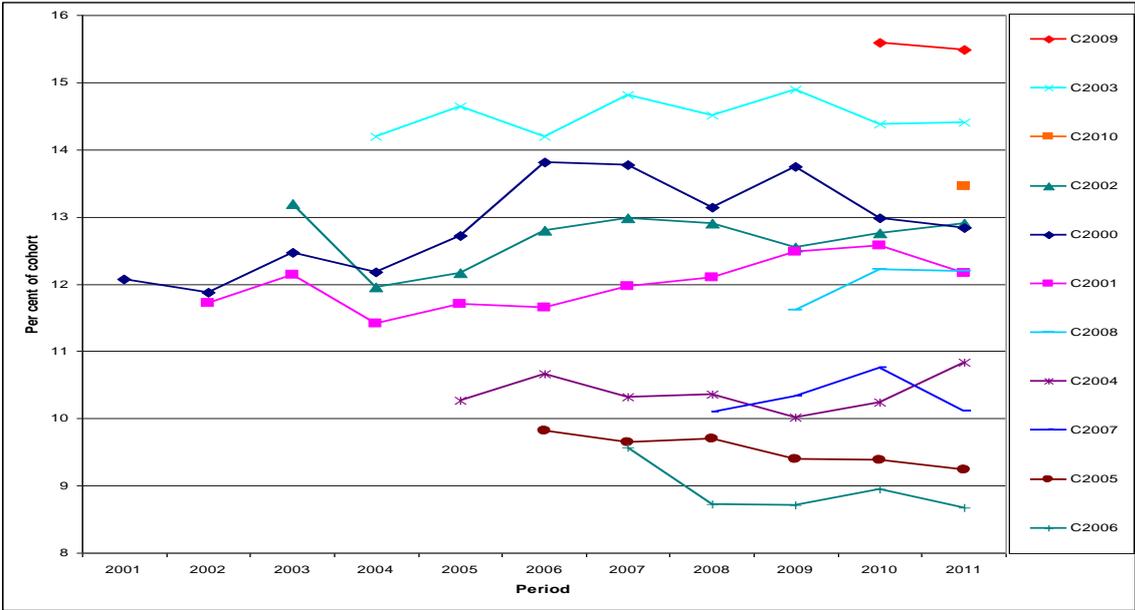


Figure 4b illustrates the corresponding regional settlement of labour immigrants in municipalities at an intermediate level of centrality. The development deviates somewhat from the low level of centrality, when labour immigrants increase their percentage living at an

intermediate level of centrality by their time of living in Norway. It is the large cohorts of labour immigrants in the end of the period that are showing the highest percentage living at this level of centrality. Highest percentage is to be found among labour immigrants that immigrated in 2010, with a share close to 14 per cent, followed by the labour immigrant cohorts of 2008 and 2007. The cohorts of labour immigrants from 2000 and 2001 had relatively low percentage living at this level of centrality just after immigration, but clearly increase their percentage living at this centrality by their time of living in Norway.

Figure 4b. The percentage of labour immigrant cohorts 2000-2010 registered settled in municipalities with intermediate centrality 2001-2011. Per cent

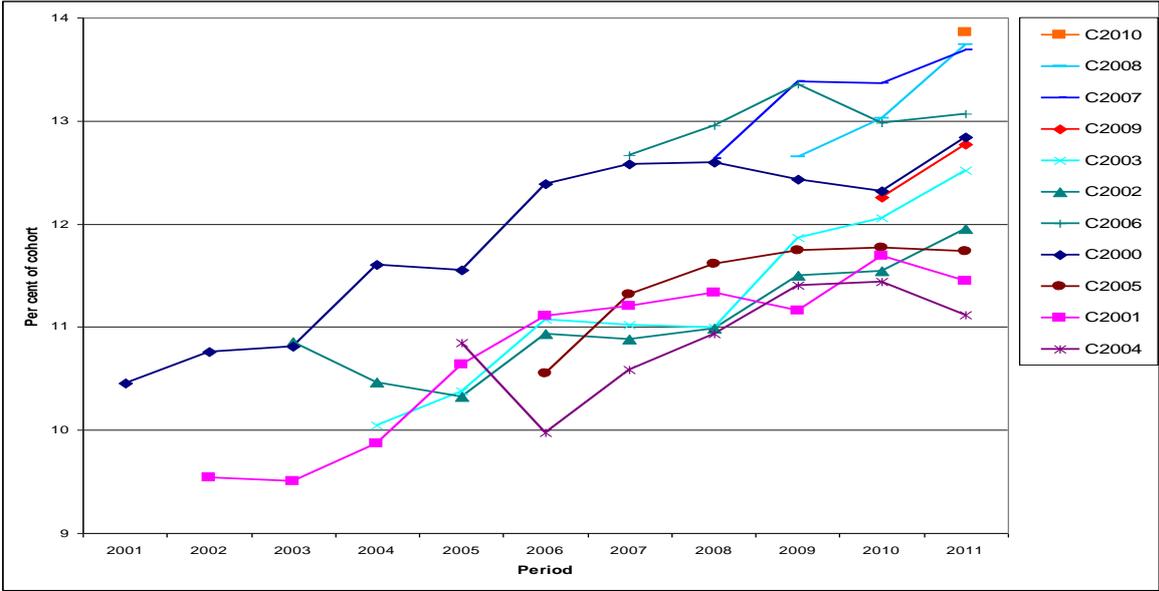
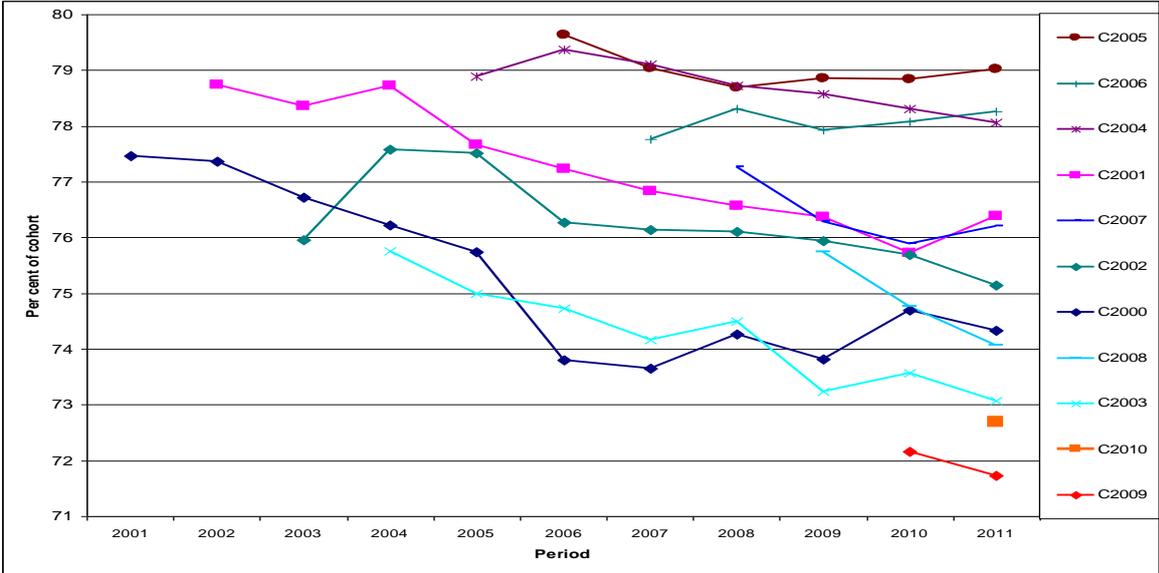


Figure 4c. The percentage of labour immigrant cohorts 2000-2010 registered settled in municipalities with high centrality 2001-2011. Per cent



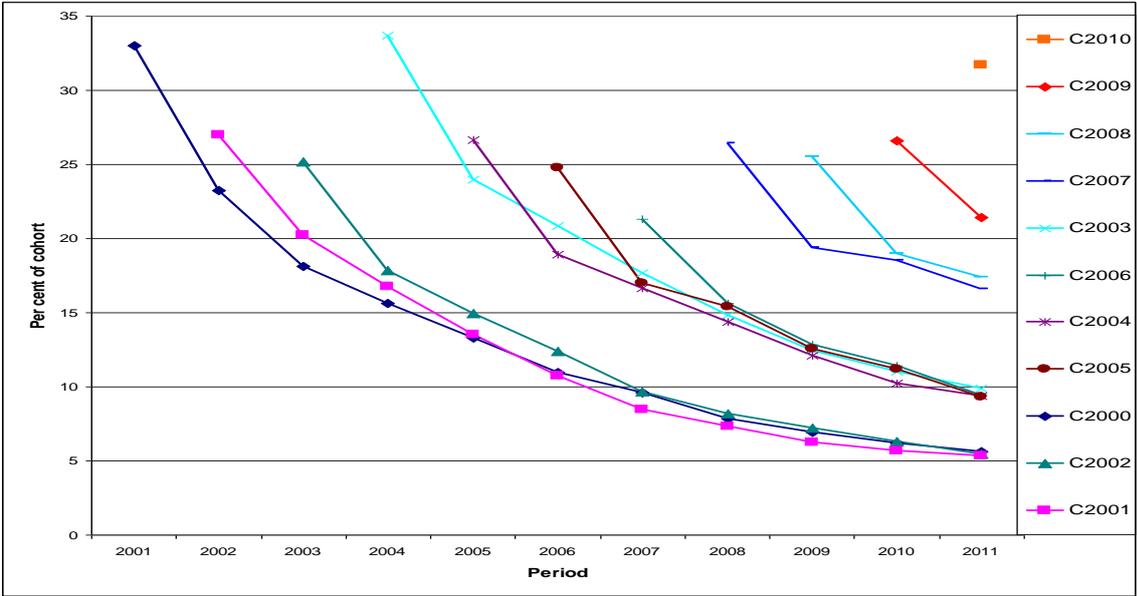
A majority of labour immigrants become, however, settled in municipalities with high centrality (see figure 4c). It is the cohorts of 2005 and 2004 that show the highest percentage living at this level of centrality just after immigration, with a share close to 80 per cent, while the large cohorts of labour immigrants from 2009 and 2010 show the lowest percentage living

at the highest level of centrality. The percentage of labour immigrants that are registered living at the highest centrality clearly decreases with the time of living in Norway. The reduction is remarkable for the small cohorts of labour immigrants that immigrated the first years of this century, but the reduction are also strong for the immigrant cohorts of 2004 and 2008. It is only labour immigrants that immigrated in 2006 that in some years show higher percentage living at high centrality compared with the percentage living at high centrality the first year after immigration.

As a conclusion of the labour immigrants’ regional settlement pattern is that a majority immigrate to municipalities with high centrality. While the percentage living in municipalities with low centrality seems to be rather stable, the percentage living in municipalities with intermediate centrality is clearly increasing by time of living and decreasing at high centrality by time of living.

In the same manner, figures 5a-c shows the regional settlement patterns among persons that immigrated to Norway as refugees. It is much higher percentage that immigrated directly to municipalities with low centrality compared with labour immigrants. This is due to the fact that refugees become initially settled by the authorities, and the aim is partly to place refugees in peripheral municipalities to counteract a decreasing population. The percentage of refugee cohorts that initially settle in municipalities with low level of centrality was about 1/3 for those who immigrated in 2000 and 2003, while the average percentage of refugees living in municipalities with low centrality the first year after immigration is approximately 1/4 of the entire refugee cohort. Lowest share is to be found among refugees that immigrated in 2006, with approximately 20 per cent registered settled at the lowest level of centrality. It is worth to note that the most recent refugee cohort of 2010 shows the highest percentage living in municipalities with low level of centrality.

Figure 5a. The percentage of the refugee cohorts 2000-2010 registered settled in municipalities with low centrality 2001-2011. Per cent



It is, however, a clear tendency that refugees move away from municipalities with low level of centrality by their time of living in Norway, from about 25 percent in average initially

settled at the lowest level of centrality that become reduced to 5-10 per cent after some years of settlement in Norway.

It is a lower percentage of refugees living at the intermediate level of centrality than at low centrality, and varies around 1/5 of the entire cohort of refugees (figure 5b). Some cohorts do, however, deviate from others with rather low percentages living at this level of centrality, as refugees that immigrated in 2004 and 2007. It is also worth to note that the most recent refugee cohorts of 2009 and 2010 show high percentage living in municipalities with intermediate level of centrality.

It is, however, a clear reduction in the percentage of resident refugees at this level of centrality by time of living in Norway. Thus the very strong reduction in the percentage of refugees living in municipalities at low centrality by time of living does not stop in municipalities at intermediate level of centrality, but continue further to the municipalities with high centrality. This is clearly shown in figure 5c that shows the percentage of each cohort of refugees that lives in municipalities with high centrality by time of living. The lowest percentage of refugees that reside at this centrality level the first year after immigration is to be found in the cohorts of 2001 and 2004, where approximately 45 per cent of all refugees have their residence in municipalities with high centrality. A more decentralised regional residence pattern is also observed for the recent cohorts of refugees from 2009 and 2010, where the percentage settled at the highest centrality level is about 45 percent of the 2010-cohort and 50 percent of the 2009-cohort the year of immigration. The average percentage of the refugee cohorts living at this centrality is, however, 55 percent during the first year of immigration. This is far below the corresponding percentages of labour immigrants living at the highest centrality. However, the percentage of refugee cohorts that become settled at the highest level of centrality is strongly increasing by the time of living in Norway, and the first cohorts of refugees that immigrated in this century seems to stabilise their percentage living at the highest level of centrality around 80 to 85 percent. This reflects a strong centralisation in the internal migration processes among refugees, a process that seems to continue for all cohorts of refugees after the turn of millennium.

Figure 5b. The percentage of refugee cohorts 2000-2010 registered settled in municipalities with intermediate centrality 2001-2011. Per cent

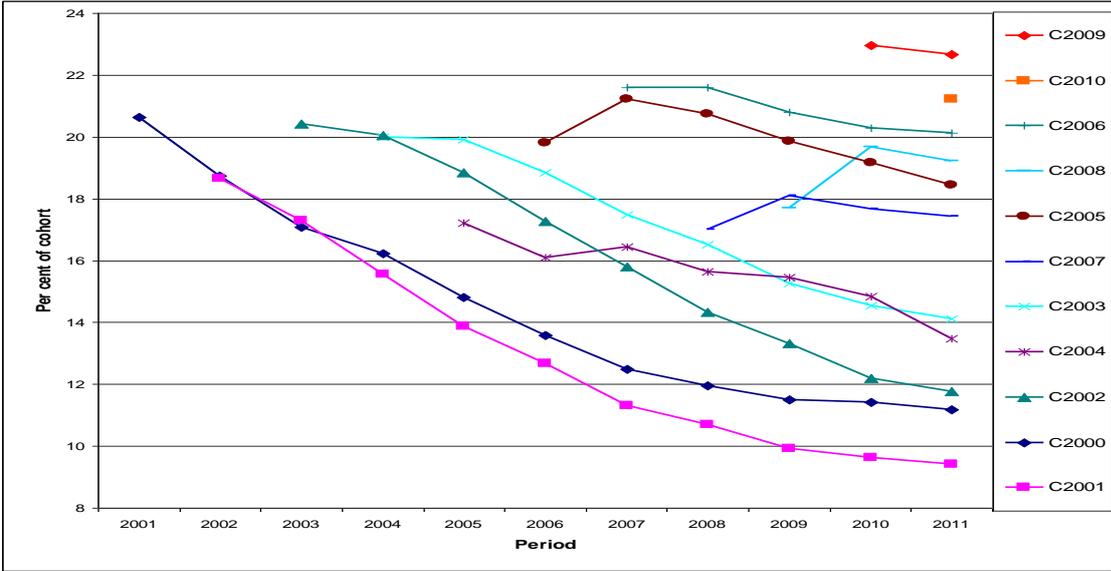
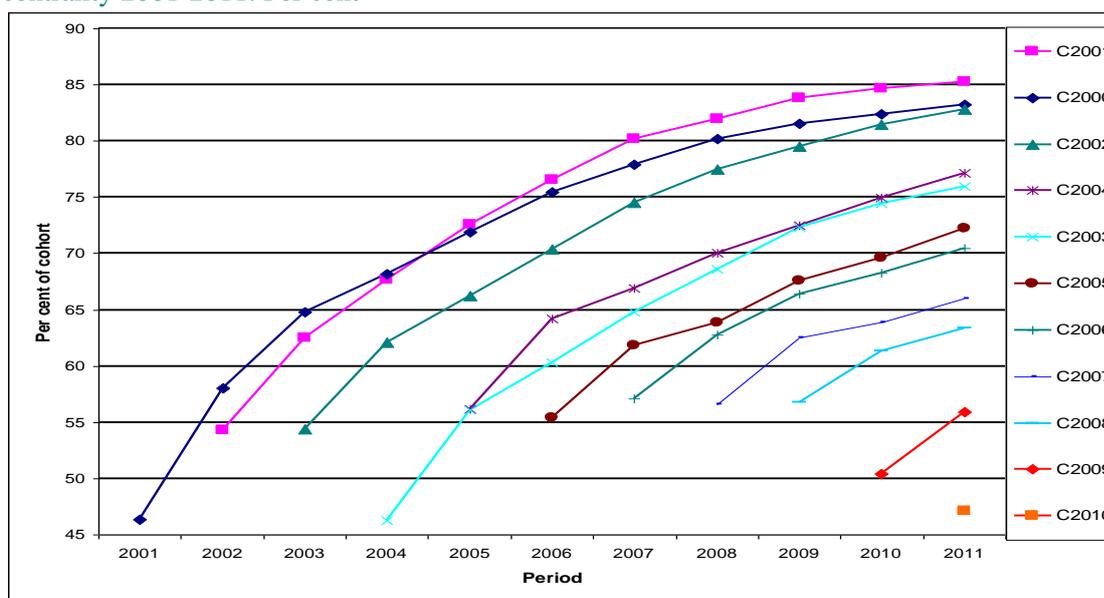


Figure 5c The percentage of refugee cohorts 2000-2010 registered settled in municipalities with high centrality 2001-2011. Per cent



As a summary the cohorts of refugees deviate very much from the corresponding cohorts of labour immigrants. Although refugees are arriving Norway at a much lower level of centrality than the labour migrants they show an internal mobility that results in a regional settlement pattern with much higher centrality than for labour immigrants. When already noted that refugees show low emigration, this group definitely contributes to regional centralisation, although not initially but by their time of living.

Corresponding regional settlement patterns of other immigrant groups show that cohorts of immigrants from other Nordic countries and immigrants that immigrated due to education both reduce their percentages living in municipalities with low level of centrality by the time of living in Norway. Nordic immigrants do, however, increase the percentage living in municipalities with intermediate centrality while the education immigrants reduce their share also here by time of living. Finally, both Nordic immigrants and education immigrants increase their percentage settled in municipalities with high level of centrality by their time of living in Norway. Immigrants that immigrated due to family unification reduce the percentage living in municipalities with low centrality, stable the percentage living in municipalities with intermediate centrality and increase the percentage living in municipalities with high centrality by their time of living. Immigrants that immigrated for family unifications show, however, a regional settlement pattern that is close connected to the immigrant groups they become in family unification with. Thus immigrants that immigrates due to family unification with refugees' ends their settlement at a very high level of centrality, while immigrants that immigrate due to family unification with labour immigrants become less centrally settled.

Settlement and migration in the main regions

In this section we briefly illuminate the regional distribution of immigrants and their recent net migration patterns. In most counties the percentage of immigrants and their Norwegian born children is almost doubled since the turn of millennium. The strongest growth is to be found in the Western parts of Norway while the capital of Oslo, in spite of strong growth, has reduced its national share from about one third to approximately 27 per cent of the total number of persons with immigrant background (se Stambøl, 2013).

Many immigrants that arrive as refugees or due to family unification with refugees have a tendency to settle in the capital of Oslo after some years of settlement. The recent and current large labour immigration to Norway is spread all over the country, but especially to the Western and Middle regions of the nation. The low share of refugees in Western Norway indicates that family immigrants in this part of the country are family unification with labour immigrants. Not surprisingly education immigrants are mostly to be found in larger cities, while Nordic immigrants from the neighbouring countries are mostly found in regions close to the border in East and Northern Norway, rather than in South and Western Norway.

Positive net migration in all counties and main regions due to immigration

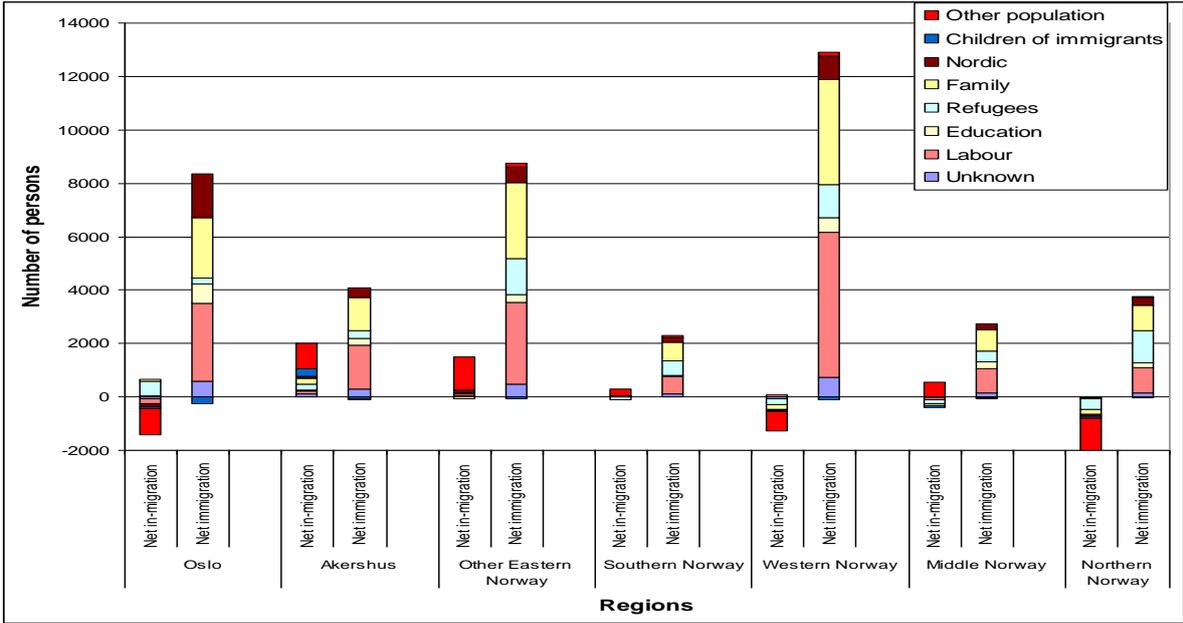
All counties of Norway experienced a positive total net migration in the period 2008-2010, but the composition of migration by person groups vary. The direct immigration from abroad represents the strongest contribution, especially then labour and family immigrants, but also refugees, education immigrants and Nordic immigrants contribute to a positive total net immigration. Without net immigration from abroad many counties would have experienced net out-migration through the internal migration processes, including the capital of Oslo as well as the strong growing petrol county of Rogaland in Western Norway.

Figure 6 shows aggregated regional results of the net migration processes, both internal and international, distributed by the capital of Oslo and the surrounding county of Akershus as the most central located regions of Norway, and furthermore other parts of East Norway, South Norway, Western Norway, Middle Norway and finally Northern Norway as the most remote located main region.

In all main regions it is the effect of international migration that has strongest impact on the total net migration, and in all regions the international net migration contributes to a population growth. The capital of Oslo, that traditionally has experienced the highest net immigration, has in spite of high net immigration also in this period a somewhat lower effects from the international migration compared to other parts of East Norway and especially to Western Norway. As already mentioned, it is the labour immigration and family unification that contribute mostly to the high net immigration, and from 2007 the family unification is stronger connected to labour immigration than to refugees, especially then in Western Norway. The strongest net immigration of refugees is to be found in the more remote areas of East Norway and in Northern Norway.

For internal net-migration the strongest effect is due to imbalances in the migration among natives (other population). Oslo is one of the regions with negative internal net-migration in spite of the strongest inflow of refugees through internal migration. The capital is losing natives by out-migration, which is mainly due to positive net-migration of natives in the surrounding county of Akershus and in other parts of East Norway. A special and probably challenging feature is the net out-migration of natives from Western Norway where we find the strongest net-immigration and especially net labour immigration. Net out-migration of natives from Northern Norway follows a traditional trend, but becomes more than replaced by the effect of net immigration mostly due to inflow of refugees and their families. These immigrant groups show, however, a higher internal net out-migration than in any other regions.

Figure 6. Internal net migration and net immigration by main regions in Norway. Annual averages 2008-2010. Immigrant groups and natives by number of persons.



Does immigration contribute to a centralisation or decentralisation of the regional settlement patterns?

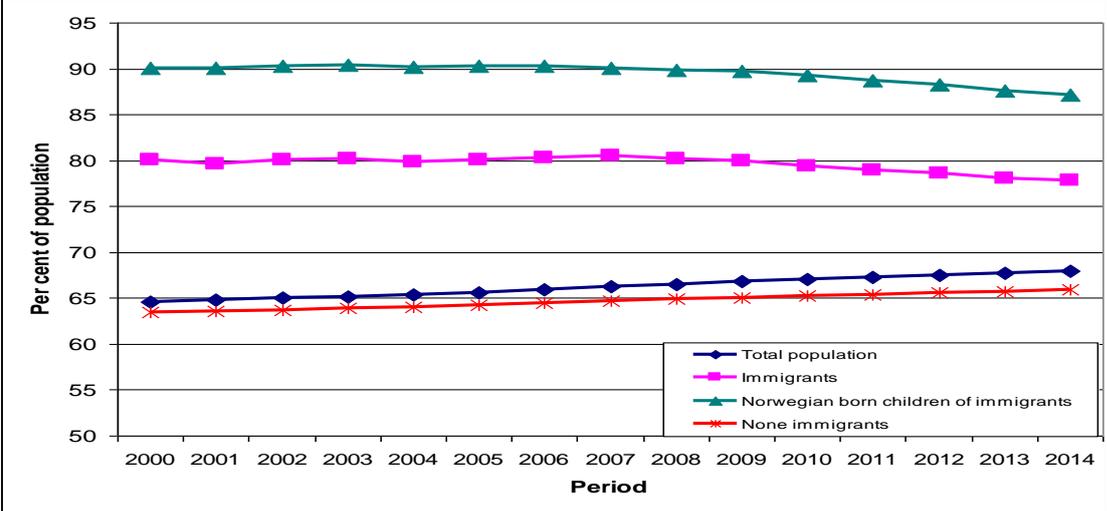
Another question put forward is if immigration contributes to a centralisation or decentralisation of the regional settlement patterns generally? The main expectation has been that immigrants tend to migrate and settle in central more than in decentralised located regions, although the main political aim is that immigrants should contribute to a decentralisation rather than a centralisation of the settlement pattern. This investigation has already shown that there are differences between immigrant groups considering centrality in both settlement and direction of migration, although this is relatively perspectives and does not say anything about the immigrants’ contribution to centrality or decentralisation in the entire nation.

As a tentative answer we have put together some empirical findings showing how the entire population has been distributed across the three main levels of centrality from the turn of millennium to the beginning of 2014. Similar distributions are made for the entire population broken down by immigrants generally, persons born in Norway by immigrant parents and the remaining part of the population representing persons without immigrant background. Figure 7a shows the percentage of each group that is settled at the highest level of centrality.

The figure indicates an increased centrality generally, when the percentage of the entire population that is settled at high centrality increases from below 65 per cent in 2000 to 68 per cent in 2014. This is mainly due to an increased centrality in the settlement of natives. In spite of a decreased percentage of both immigrants and Norwegian born children of immigrants living at the highest level of centrality, these groups contribute to a higher centrality due to their very high percentage living at high centrality. The figure indicates, however, a convergence in the settlement patterns between the population with immigrant background and the natives. Broken down by immigrant groups by reason for immigration we saw in sections above how different cohorts of immigrants were settled by centrality. According to

our findings it was only refugees that had a lower percentage of persons settled at the highest level of centrality than the national average suggests. However, as observed in figure 5f above, this was only the situation among refugees during their first three years of staying in Norway before this group also increases their settlement centrality through internal migration.

Figure 7a. Percentage of population settled in regions in Norway with high centrality 2000-2014.



Similar distribution of the settlement in regions at intermediate and low centrality indicates also a convergence in the regional settlement patterns between population with immigrant background and natives (see figures 7b,c). In spite of an increased percentage of both immigrants and Norwegian born children of immigrants living at these centralities they contribute to a centralisation due to their still low percentages living at intermediate and low centrality. When comparing these results with the findings made above for immigrant groups by reason for immigration, we note that only refugees are more than average represented in regions at low centrality, but only the first couple of years after their immigration.

Figure 7b. Percentage of population settled in regions in Norway with intermediate centrality 2000-2014.

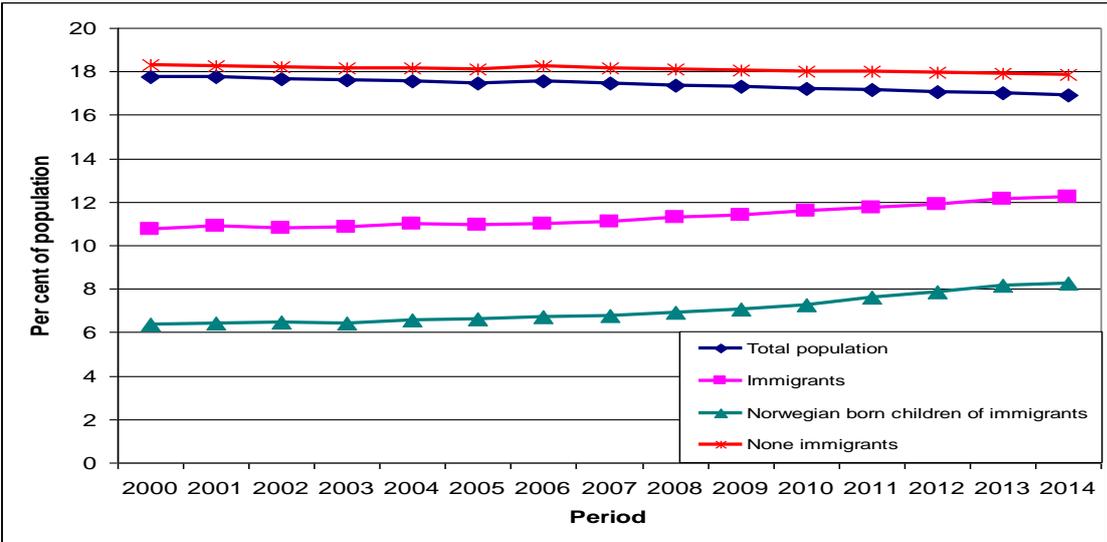
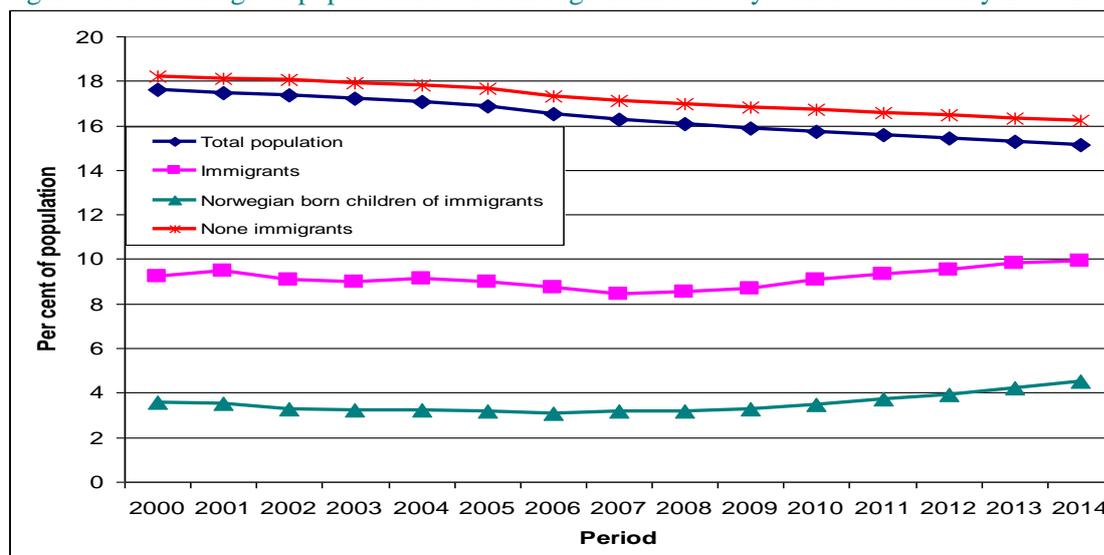


Figure 7c. Percentage of population settled in regions in Norway with low centrality 2000-2014.



The migration flows in relation to regional population size and regional labour markets

Finally, we have made some investigations analysing the internal migration in relation to population size and changes in the regional employment. First we have measured the number of migrants between municipalities as an average annual percentage of the number of population in the entire nation for each of the population groups (see table 1). This indicates how mobile each group is at this geographical level. Then we broke down the migration percentage at those who migrate from a municipality with lower to a municipality with higher number of persons within each population group, and vice versa for those who migrate from a municipality with higher to a municipality with lower number of persons within each population group.

Table 1. Gross migration by population groups broken down by those moving to higher or lower concentration of population within the same population group. Migrants between municipalities in per cent of the number of persons in each group in the entire nation. Average 2008-2010.

Population groups:	Total migration	To higher number of population	To lower number of population
Labour immigrants	8,3	3,7	4,6
Education immigrants	7,9	3,9	4,0
Refugees	7,0	4,6	2,4
Family immigrants	5,2	2,8	2,4
Nordic immigrants	4,2	2,0	2,3
Unspecified reason for immigration	2,8	1,4	1,4
Persons born in Norway by immigrant parents	4,1	2,1	2,0
The remaining population	3,4	1,7	1,7

The figures indicate that the most mobile groups between the municipalities are labour and education immigrants and refugees, while the least mobile group is immigrants with unspecified reason for immigration. The last group consists mostly of persons that immigrated to Norway before 1990, thus representing an older immigrant group that is expected to be less mobile compared to younger groups of immigrants. Other immigrant groups are in average

younger than the remaining part of the population, which is an important reason why they are more mobile than the population average. Persons born in Norway by immigrant parents are also younger than the entire group of natives, so a higher rate of mobility in this group than among natives is partly explained by different age structure.

There are disparities between the shares of immigrants that migrate in direction of higher or lower population concentration within the same group of immigrants. Labour immigrants have a clear tendency to migrate to municipalities with lower number of labour immigrants than there were in the municipalities of origin. The same is to a less degree observed among immigrants from other Nordic countries that also include many persons that have immigrated due to labour. Refugees distinguish themselves in the opposite direction with a clear majority migrating to municipalities with a higher number of refugees than there were in the municipalities they out-migrated from. Immigrants that have immigrated due to family unifications also show higher migration to municipalities with higher number of other family immigrants compared to the number of family immigrants in their municipalities of origin. This is partly due to the fact that the largest group of family immigrants is still connected to refugees, but this surplus decreases due to the fact that new family immigrants are more connected to labour immigrants than to refugees from 2007.

Some of these disparities in migration intensity and migration direction may be due to differences in age structure. Thus in Stambøl (2013) we have controlled for differences in age by investigating the disparities in migration intensity and direction by using one-year age groups. The strong disparities in migration direction between labour immigrants and refugees generally also occur in all one-year age groups. The very high migration intensity among labour immigrants may also be explained by the fact that they keep up the generally high mobility of the younger age groups up to their age of 50.

It is perhaps reasonable to see these disparities of migration between refugees and labour immigrants in light of that refugee are expected to move into networks and population concentration of their own groups with similar languages and cultural backgrounds as well as to those with specific knowledge of the circumstances they escape from. Labour immigrants may have a tendency to migrate away from each other due to the facts that they are competitors at the labour market, and thus manage their migration in direction of regional labour markets with less competition from other labour immigrants. In light of very strong labour immigration it is probably no exaggeration to put forward a hypothesis that if labour immigrants in Norway would have an internal migration similar to that of the refugees the unemployment would have increased due a stronger geographical concentration of labour immigrants that could have resulted in a deficit of jobs for this group of immigrants.

Finally, we have made some analyses that illuminate the relationship between changes in the internal net migration and net changes of employment between 89 economic regions in Norway in the period of 2003-2010. When the differences in the estimates also reflects the differences in level of significance we illuminate the relationship between net migration and net employment growth like in figure 8, where all significant estimates are to be found above or below values of +/- 1.7. We have concentrated the results at labour immigrants, refugees, immigrants from other Nordic countries and the population without immigrant background.

The labour immigrants show weak relationship between net migration and regional change of employment, and none of the estimates are significant. So if employment is growing in one

region does not automatically result in an internal in-migration of labour immigrants. The results are, however, in accordance with the results above, where labour immigrants have a tendency to migrate in direction of lower population concentration of other labour immigrants. This also means that they are not moving much upwards by centrality, and thus less in direction of those local labour markets with stronger employment growth. It is, however, important to mention that similar analysis of the relationship between gross immigration and net regional employment change mostly gave positive and significant estimates for labour immigrants. This indicates that the immigration of labour immigrants from abroad are going to those regions that show the strongest relative employment growth.

For refugees the results are different, with a clear positive and partly significant relationship between internal net migration and regional net employment growth. Thus refugees are migrating to those regions with strongest employment growth. This positive relationship is probably not any surprise when we already know that refugees are moving towards higher centrality in their internal migration, and thus increase the probability to migrate in direction regional labour markets with relatively stronger employment growth, presupposed that the net employment growth has been stronger in the more central located regions than in regions located at a intermediate or low centrality. However, we do not know from this particular investigation if refugees increase their labour participation by moving to central areas. Thus we do not know either if the main explanation of the refugees internal migration is to move to larger local labour markets for to obtain a job, or as we have seen, in direction of higher population concentration of other refugees. To answer such questions will, however, be the challenges in further investigation on this topic.

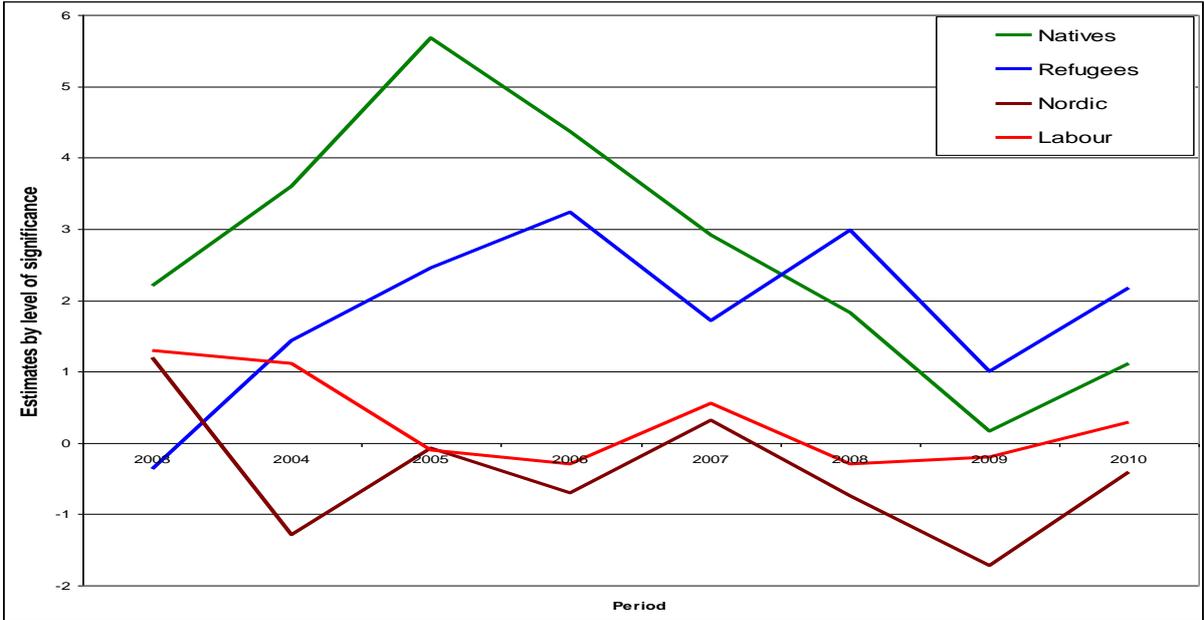
For immigrants from other Nordic countries the relationship between internal net migration and regional net change of employment is mostly negative, but not significant. The results are rather similar to those results observed for labour immigrants, and do probably reflects the fact that we also find many labour immigrants among this group of immigrants, besides that also this group had a tendency to migrate to regions with lower population concentration of other immigrants from other Nordic countries.

Finally, and for comparison, we have included similar investigations made for the population without immigrant background. Previous migration analyses based on data from 1980s, 1990s and early 2000 (see e.g. Stambøl, Stølen and Åvitsland, 1998, Stambøl 2005, 2010 and Carlsen et.al. 2013) have shown a clear positive and significant relationship between internal gross in-migration and internal net migration and regional employment growth. The results in Figure 8 partly confirm this with a positive and significant relationship between internal net migration and net employment growth in the period of 2003-2008. Since 2005 it is, however, a clear falling tendency in this positive relationship that culminates with none-significant estimates for the years of 2009 and 2010.

Hypothetically, these findings might be due to the financial crises that arose in this period, when many of the most central located labour markets were more hit by negative impacts than many of the regions with intermediate or low centrality. A tendency among natives to keep moving in direction of the most central labour markets thus contributed to a weaker connection between net in-migration and net employment growth. This also happened to the refugees that normally move in direction of the most central located regions. Another explanation might be the strong increasing labour immigration after 2004 that might have had an impact on the traditionally established positive relationship between net internal migration

and net employment growth. Still another hypothesis might be the effect of the so-called two-folded division of the Norwegian economy, where the petroleum related industries have strong growth impulses to regions in Western and Middle Norway, and during the last years even in Northern Norway, while the population without immigrant background have continued their traditional pattern of migration away from these regions. However, which factors that lay beyond these breaks in the relationship between internal migration and regional employment growth remains to be investigated by different methods in more detailed analyses.

Figure 8. The relationship between net internal migration and net employment change 2003-2010 by labour immigrants, refugees, Nordic immigrants and the population without immigrant background. 89 economic regions.



Summary

The immigration has changed from a gender balance during the first years of the 2000 towards a clear male dominance after 2005, mostly due to increased labour immigration. The immigration has changed from a dominance of refugees and their families towards labour immigrants and their families, where family unifications with labour immigrants exceed the family unifications with refugees since 2007.

Refugees and their families show the strongest tendency to stay in Norway after immigration, while immigrants from other Nordic countries and immigrants that immigrate for education show less probability to stay in Norway and higher emigration. Labour immigrants have an average probability to emigrate among the immigrants.

The immigrants in Norway have been more regional dispersed since the turn of millennium, and the capital of Oslo has reduced its share, while especially the surrounding county of Akershus and the counties in Western and Middle Norway have increased their share of immigrants.

A stable immigration of refugees towards less central areas results in a strong and persistent pattern of domestic migration towards central regions for this group. Children of immigrants

born in Norway, education immigrants and persons without immigrant background also move towards central areas. Labour immigrants and immigrants from other Nordic countries deviate from this pattern, by moving out of central areas in several years of the period. Refugees and their families mainly migrate in direction of other immigrants with similar background as themselves, while labour immigrants, and partly also Nordic immigrants, mainly migrate away from larger concentrations of immigrants with similar background.

Refugees and their families show strong and positive relationship between domestic migration and regional employment change due to strong internal migration towards central areas, while labour immigrants and immigrants from other Nordic countries show weak and partly negative relationship between migration across regions and regional employment change. They rather move away from other labour immigrants than towards central areas. Persons without immigrant background have turned from a positive and significant towards a weak and non-significant relationship between domestic migration and regional employment change.

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