Adolescent migration intentions and population change: A twenty-year follow-up of Icelandic communities

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Abstract

Prior research has demonstrated that migration intentions are a moderate to strong predictor of individual-level migration across a wide range of countries, but their value for predicting community-level population change remains unclear. Analyses of census data 1972–2012 and a population survey of Icelandic adolescents in 1992 show that each percentage point difference in adolescent migration intentions is associated with 1.36 per cent change in the surveyed cohort and 1.25 per cent change in the total population over a twenty year period. Roughly half of the predictive value of migration intentions can be attributed to remoteness and long-term population change prior to the survey. On average, communities only experienced long-term population decline when more than half the adolescent population had intended to leave, but lower levels of adolescent migration intentions are associated with changes in the age composition. These results strongly suggest that adolescent migration intentions signal future population development.

Introduction

It is hardly surprising that people who intend to migrate are more likely to do so than those who do not intend to migrate. Consistent with the theory of reasoned action (Ajzen and Fishbein 1974), research has in general confirmed that migration intentions are a moderate to strong predictor of actual migration across a wide range of countries, including e.g. Germany (Kley and Mulder 2010), the Netherlands (de Groot et al. 2011, van Dalen and Henkens 2013), the Philippines (Gardner et al. 1986), Romania (Sandu and de Jong 1996), Thailand (de Jong 2000) and the United States (Kan 1999; Lu 1999).

The association between migration intentions and actual migration is nevertheless complex (Gardner et al. 1986; Kan 1999; Lu 1999). While some individuals may not leave as intended, others who intended to leave may in fact stay. In the Netherlands, de Groot et al. (2011) for instance found that while 6% of all intended stayers actually left within two years, only 32% of all intended leavers actually left within that timeframe. The timing or destination of migration may change, and in many cases migrants later return to their place of origin (Barrett and Mosla 2013; Bijker, Haartsen and Strijker 2013; Myklebust 1993). Migration and return migration may involve various transitional stages and some return migrants may in fact have remained part of their community of origin while temporarily residing elsewhere (Haartsen and Thissen 2014). The association between intent and actual migration has been found to be affected by a variety of factors, including prior experiences of migration, financial resources, legal restrictions, and changes in personal circumstances, such as marriage, divorce, childbirth, illness or death in

the family, career advancement or unemployment (de Groot et al. 2011; de Jong 2000; Gardner et al. 1986; Wall and von Reichert 2013).

Prior studies on migration intentions have predominantly either focused on the correlates of such intentions (e.g. Corbett 2005; Rudkin, Elder and Conger 1994; Seyfrit, Bjarnason and Olafsson 2010; Stockdale 2002) or their value as predictors of future behaviour (e.g. de Jong 2000; Kan 1999; Kley and Mulder 2010; van Dalen and Henkens 2013). Somewhat surprisingly, the predictive value of migration intentions for community-level demographic change has received limited attention. Such aggregate intentions may nevertheless be a sensitive indicator of the pushes and pulls operating in different communities, regardless of the individual-level association between intentions and behaviour. In this paper, the proportion of adolescents intending to live elsewhere in the future will be treated as a measure of *migration potential* in the community as a whole, predicting population growth or decline in Icelandic communities over a twenty year period.

Adolescent migration intentions

In most western countries, a considerable majority of rural youth intend to migrate from their communities of origin (e.g. Bjarnason and Thorlindsson 2006; Corbett 2005; Hamilton and Seyfrit 1993, 1994; Kloep et al. 2003; Rudkin, Elder and Conger 1994; Stockdale 2002) and various national census data do indeed show a significant decline in the rural population of young adults (e.g. Bjarnason 2011; Hamilton, Colocousis and Johansen 2004; Muilu and Rusanen 2003; Pacione 1995; Rye and Blekesaune 2007). The willingness of young people to leave rural

communities has raised serious concerns over future demographic development in such communities (Gabriel 2002; Seyfrit, Bjarnason and Olafsson 2010).

The development of residential preferences is a complex process of thinking about higher education, work and family that rural children engage in fairly early (Elder, King and Conger 1996; Matthews et al. 2000), and the decision to stay or leave is important to many rural teenagers (Bjarnason and Thorlindsson 2006; Glendinning et al. 2003; Seyfrit, Bjarnason and Olafsson 2010). In many places it is assumed that moving up in the world requires moving out, while those who stay behind in declining rural areas often suffer economic hardship and social isolation (Hektner 1995; Ní Laoire 2001).

Adolescents with higher educational and occupational aspirations are more likely to want to leave rural communities (Bjarnason and Thorlindsson 2006; Hektner 1995; Johnson, Elder, and Stern 2005; Seyfrit et al. 1998). It is not the lack of jobs that drives ambitious young people from rural areas but rather the kind of jobs that are available. The migration intentions of young people have therefore not been significantly affected by the creation of new jobs in the extraction industries, ranging from the expansion of coal mining in rural Utah (Seyfrit 1986), anticipated oil platform construction in rural Newfoundland (Seyfrit 1993), zinc mining in Alaska (Seyfrit and Hamilton 1992) or a large-scale hydro-electric power plant and aluminium smelter in Eastern Iceland (Seyfrit, Bjarnason & Olafsson 2010). The collective migration intentions of adolescents may therefore to a certain extent reflect an overall assessment of the perceived quality of educational and

occupational opportunities rather than simply the availability of jobs in different communities.

Adolescents in rural areas are increasingly part of international, urban youth cultures and are drawn by an “urban ethos” that equates city life with a free, modern lifestyle (Bæck 2004). In contrast, rural communities often provide limited recreational opportunities and even less freedom to explore social and individual identities (Gabriel 2002; Glendinning et al. 2003; Jamieson 2000; Matthews et al. 2000). Many young women find small communities ‘oppressive, repressive, suppressive and obsessive’ (Stockdale 2002) and female out-migration has in part been traced to the gendered restrictions of social life in small communities (Dahlström 1996, Hamilton and Seyfrit 1994; King and Shuttleworth 1995). The migration intentions of young people may therefore in part reflect the extent to which different communities embrace diversity and urbane modes of life.

Attachment to place and strong community ties are associated with adolescents wanting to stay in rural communities and those who intend to leave often express a desire to return to their home communities in the future (e.g. Bjarnason and Thorlindsson 2006; Eacott and Sonn 2006; Pretty et al. 2006; Wiborg 2004). This is particularly true of those with deep family roots in the community (Thissen et al. 2010). However, given deep currents of urbanisation and the low fertility rates of Western societies, the number of stayers and return migrants cannot compensate for the inevitable number of permanent migrants. Population growth or decline thus depends in large measure on the number of newcomers, alternatively searching for the ‘rural idyll’, employment, cheap housing,

land availability or proximity to nature, or simply accompanying a spouse returning to his or her community of origin (Andersen 2011; Benson and O'Reilly 2009; Grimsrud 2011). The popularity of various rural destinations obviously differs and different rural communities draw in-migrants for different reasons (Bayona and Gil-Alonso 2013; Bijker Haartsen and Strijker 2013). While such community profiles are complex, the willingness of local adolescents to remain in their home community may to a certain extent mirror the attractiveness of the community to potential in-migrants.

In sum, the collective migration intentions of adolescents can be argued to reflect a multidimensional community atmosphere and may serve as a proxy for processes operating on various levels, as well as having a unique, independent effect on actual migration. In addition to predicting the migration behaviour of the cohorts surveyed, it may predict the propensity of other age groups to leave the community as well as their willingness to return after living elsewhere for a period of time. Furthermore, to the extent that adolescent migration intentions represent an overall assessment of the community, they may indicate the attractiveness of the community to potential in-migrants.

Iceland as a setting for the study of migration intentions

Icelandic society was largely based on sustenance farming and fishing up to the late nineteenth century but was transformed by the industrialisation of the fisheries in the beginning of the 20th century (Asgeirsson 1988). One aspect of this transformation was massive internal migration from rural Iceland to the capital of Reykjavík and other urban settlements around the coast (Kjartansson 2010).

In the period 1912–2012, the population of Iceland grew from about 86,000 to about 320,000 inhabitants (Statistics Iceland 2014a, 2014c). In this period, the capital area grew by a factor of 12.7, from about 16,000 to about 204,000 inhabitants. The population of other towns and villages grew by a factor of 5.1, from about 19,000 in 1912 to about 100,000 in 2012. In the same period the farm population dwindled from about 51,000 to only about 16,000 inhabitants. As a result of these changes, the capital area increased its relative share of the national population from 19 per cent in 1912 to 64 per cent in 2012 (Statistics Iceland 2014a, 2014c).

Figure 1 about here

Reykjavík and the rapidly growing capital area support many aspects of metropolitan life, including diverse opportunities for education, employment and services that cannot be matched in other areas of the country. The other main areas of long-term population growth shown in Figure 1 are the exurban region within approximately 100 km from Reykjavík, the small northern city of Akureyri and the surrounding Eyjafjörður region, and the Mid-East region including the municipalities of Fljótsdalshérað and Fjarðabyggð. Many other towns and villages enjoy relative demographic stability, while serious depopulation is mostly limited to farming communities and the smaller and more remote fishing villages where occupational opportunities are quite limited and highly gendered (Bjarnason 2012).

Successful fishermen are traditionally prestigious and highly paid in Icelandic fishing villages, while women have for most parts been limited to low-level service occupations or exhausting, poorly paid jobs in local fish-processing factories (Bjarnason and Thorlindsson 2006; Rafnsdottir 2004). Most farms in Iceland are small-scale family operations and many farmwives supplement the income of the family by employment outside the farm (Oddsdottir 2004). In recent years, the number of foreign workers has grown substantially as native Icelanders have become increasingly reluctant to work in the fishing industry in particular (Edvardsson 2004; Rafnsdottir 2004). At the same time, technological advances and the concentration of production quotas have reduced the need for labour in the extraction industries (Bjarnason 2012; Eythorsson 1996; Skaptadottir 2000).

As in many other northern countries, the majority of adolescents in Icelandic fishing and farming communities intend to live somewhere else in the future (Bjarnason and Thorlindsson 2006; Seyfrit, Bjarnason and Olafsson 2010). Perceptions of occupational opportunities are by far the strongest predictor of migration intentions while interpersonal ties and interest in working in the primary industries are most strongly associated with wanting to stay in such communities (Bjarnason and Thorlindsson 2006). While the development of energy intensive industry has created employment and revitalised certain Icelandic rural areas, such projects have not significantly diminished adolescent migration intentions (Seyfrit, Bjarnason and Olafsson 2010). Regardless of employment opportunities, rural youth increasingly want to move to urban areas or abroad. If they had to leave Iceland, girls are more likely to choose the Nordic countries, in particular Denmark,

while boys are more likely to choose the United States or the United Kingdom (Bjarnason 2009).

Methods and data

Methods

In this study, the aggregated migration intentions of adolescents taking part in a nation-wide survey in 1992 are used to predict population change in different Icelandic communities over a twenty year period. Questionnaires were administered anonymously with a blank envelope procedure to all Icelandic 9th and 10th grade students present in class on the day of the survey in March 1992 (Bjarnason and Thorlindsson 1993). Valid questionnaires were obtained from 7,018 individuals ages 14–16 (born 1976 and 1977), which was 86.8 per cent of the total national population in the two cohorts in 1992. A total of 132 of the 133 schools with the relevant age groups participated in the survey in 1992. The data thus reflect the responses of the majority of students in each community rather than a sample in the conventional sense. This provides a unique opportunity to estimate migration intentions at a given point in time without sampling error on the individual level.

The migration intentions of adolescents in 1992 are used to predict two distinct outcomes. First, the aggregated responses of students born in 1976 and 1977 are used to predict changes in those birth cohorts in different communities between 1992 and 2012. Second, the aggregated adolescent migration intentions in 1992

are used to predict changes in the total population of these communities in the same time period.

These two dependent variables have different theoretical implications. The analysis of population change in the birth cohort primarily involves the future migration behavior of the individuals actually surveyed. The cohorts born in 1976 and 1977 however only constitute 2.6 per cent of the total population in 2012. The analysis of total population change therefore treats the adolescent responses as a *community-level migration potential* that may predict the overall future migration behavior of all age groups. The predictive value of such responses for both cohort-specific and general demographic development has important implications for studies on adolescent migration intentions.

The results are presented in two parts. First, the percentage of adolescents born in 1976 and 1977 intending to migrate from each community in 1992 is mapped against the actual percentage change in those birth cohorts and in the communities as a whole between 1992 and 2012. This provides a visual representation of the fit of a regression line predicting population change. Second, changes in the 1976–1977 birth cohorts and in the communities as a whole are more formally examined with multiple regression analyses. This allows an assessment of the extent to which adolescent migration intentions reflect objective factors such as prior population development, rurality and remoteness of the communities under consideration.

Definition of geographical units

Iceland is divided into 79 administrative municipalities that differ dramatically in size and composition, and only partially coincide with actual communities. In some cases two or more municipalities form an integrated whole, while in other cases a single municipality covers multiple communities separated by considerable geographical distance, physical barriers to transportation and cultural barriers of traditions. In terms of population the capital of Reykjavík is the largest municipality with 118.814 inhabitants or 37 per cent of the total population of Iceland, while the smallest municipality is Árneshreppur with only 52 inhabitants. A total of 29 Icelandic municipalities cover a landmass of over 1.000 km^2 each, while 12 municipalities cover less than 100 km^2 each. Fljótsdalshérað, the municipality with the largest landmass, is roughly the size of Cyprus, 8.884 km^2 with 3.408 inhabitants in 2012. At the other extreme, the municipality of Seltjarnarnes has 4.303 inhabitants living on only 2 km^2. Geographically, Reykjavík is ranked 50^{th} of the 79 municipalities, its 118.814 inhabitants living in an area of 274 km^2.

For the purposes of the current study, meaningful units of sufficient size are created by a two-step procedure. First, 32 of the 104 urban nuclei defined by Statistics Iceland (2014c; Sindradottir and Hardarson 2012) that had at least 1.000 inhabitants or 20 adolescent respondents in 1992 are counted as separate geographical units. Second, smaller urban nuclei and farming communities were grouped into geographical units on the basis of employment regions (Icelandic Regional Development Institute 2011), yielding 22 units with at least 1.000 inhabitants or 20 adolescent respondents in 1992. This procedure resulted in a total of 54 geographical units covering 98.4 per cent of the Icelandic population,

omitting the remaining approximately four thousand inhabitants living in various remote areas too sparsely populated for reliable community-level indicators to be calculated. The Icelandic compulsory school system is structured so that students can attend school in their home community. Each of these geographical units thus included one or more school participating in the 1992 survey.

Measures

Two dependent variables are employed in this study as shown in Table 1. Total population change is calculated as the percentage difference in the total population of each geographical unit between 1992 and 2012 (Statistics Iceland 2014a, 2014c, 2014e, 2014f). The average total population change across units ranges from -38.8 to 99.1 per cent with an average of 0.1 per cent. Cohort population change is calculated as the percentage difference between the number of 15 and 16 year old residents in 1992 and 35 and 36 year old residents in each geographical unit in 2012 (Statistics Iceland 2014b, 2014c, 2014e, 2014f). The average cohort population change across units ranged from -75.9 to 79.7 per cent with an average of -1.4 per cent.

Table 1 about here

Aggregated migration intentions are used as an independent variable, defined as intending to live somewhere else in the future. These individual-level data were aggregated within each of the geographical units described above. By this definition, the proportion of Icelandic adolescents intending to migrate in 1992 was

on average 50.1 per cent across geographical units. A total of 99.1 per cent of the survey responses could be attributed to geographical units large enough to be included in the study.

The uneven distribution of the Icelandic population of about 320 thousand inhabitants in 2012 across a landmass of 103.000 km^2 of mostly inhospitable terrain makes the formal population density of many communities virtually meaningless. A shown in Table 1, three measures of the urban-rural continuum are employed. First, the capital region is defined according to Statistics Iceland (2014c) as Reykjavík and five adjacent municipalities with a total of 203.594 inhabitants or 64 per cent of the national population in 2012 but only representing 11 per cent of the units in the dataset. Second, sparsely populated areas are defined as the 22 geographical units of smaller urban nuclei and farming communities described above. The remaining 26 geographical units serve as the reference category in the multiple regression analysis. Third, the number of kilometres from Reykjavík is used as a measure of access to the services and opportunities in the capital region. Distances were obtained from the Icelandic Road and Coastal Administration (2014) and are defined as the distance between the centre of Reykjavík and the centre of the largest urban nucleus in each community. Distances range from zero (Reykjavík) to 724 km (Neskaupstaður), with an average of 289 km.

The average annual percentage change in total population in each geographical unit in the period 1990–1992 is used as a measure of short-term population change prior to the 1992 survey (Statistics Iceland 2014a, 2014b,

2014e). The short-term population change ranges from -4.4 to 4.2 per cent with an average annual change of 0.4 per cent. The long-term population change prior to the 1992 survey is measured as the average annual percentage change in total population in each geographical unit in the period 1972–1992 (Statistics Iceland 2014a, 2014b, 2014d, 2014e). It ranges from -1.2 to 6.7 per cent with an average annual change of 1.5 per cent.

Results

Figure 2 shows aggregated adolescent migration intentions in 1992 against actual population change in 54 geographical units between 1992 and 2012. The dark dots represent total population change and the white dots change in the 1976 and 1977 cohorts that took part in the survey in 1992. The figure shows an average population change of 1.25 percentage points between 1992 and 2012 for each percentage point difference in adolescent migration intentions in 1992. On average, communities experienced long term population stability when 51 per cent of the adolescent population had intended to move twenty years earlier. At lower levels of migration intentions there was thus a population increase while higher levels of such intentions were associated with a population decrease.

Figure 2 about here

The number of residents born in 1976 and 1977 living in each community in 2012 changed by 1.36 percentage points for each percentage point difference in

migration intentions in 1992. These cohorts on average experienced long-term stability when 30 per cent of the cohort intended to migrate as adolescents.

Table 2 shows the results of ordinary least squares regression analysis to predict population development. The first four columns show changes in the total population while the second four columns show the results for the population of the surveyed cohorts born in 1976 and 1977. In the first two columns, unstandardized and standardized bivariate regression coefficients on the dependent variable of community-level population change 1992–2012 are shown. The results of the multivariate analysis of the effects of capital region, sparsely populated areas, distance from Reykjavík, and adolescent intentions in 1992 are shown in the third and fourth columns.

Table 2 about here

The difference in population change between communities in the capital region and other communities is on average 59.50 per cent in favour of the capital region. The difference between larger and smaller communities is on average 31.90 per cent in favour of the larger communities. These differences are however non-significant in the multivariate model, indicating that they can be fully explained by other variables in the model.

For every kilometre from the capital of Reykjavík the total population on average declined by 0.08 per cent over a twenty year period. This corresponds for instance to a 24 per cent decline on average for communities 300 kilometres from

the capital. Once population change in the 20 years prior to 1992 is taken into account, this effect is reduced to about 0.04 per cent for each kilometre.

Each percentage point of annual short-term population change prior to the survey is associated with a 10.59 per cent change in the next twenty years, while each percentage of annual long-term change prior to the survey is associated with an 8.78 per cent change in the next twenty years. In the multivariate model the short-term change does not add significantly to the effect of long-term change and is omitted from the analysis. Once distance from the capital and migration intentions are taken into account, the effect of long-term change is reduced to 6.1 per cent for each percentage point difference.

In the bivariate case the population change 1992–2012 is on average 1.25 percentage points for each percentage point change in adolescent migration intentions in 1992. This represents a standardised effect of .59 or a 35 per cent reduction ($.59^2$=.35) in unexplained variance. When other significant predictors have been taken into account, each percentage change in migration intentions of 15–16 year olds in 1992 is associated with a 0.58 per cent change in the total population in 2012. Compared a bivariate association of 1.25, approximately half the association between intentions and population change can therefore be explained by the distance from Reykjavík and demographic changes in the previous twenty years.

The second half of Table 2 shows the results of regressing the predictor variables on population change in the cohorts born in 1976 or 1977 in the period 1992–2012. Columns 5 and 6 in Table 2 show the bivariate association for each

predictor while columns 7 and 8 show the multivariate covariates. The difference is on average 63.53 per cent in favour of the capital region. Once population change in the 20 years prior to 1992 is taken into account, this effect is substantially reduced and rendered non-significant.

The difference between the larger communities and the sparsely populated regions is on average 26.14 per cent in favour of the larger communities. The number of people in the target cohort on average declines by 0.06 per cent over a twenty year period for every kilometre from the capital of Reykjavík. This corresponds for instance to an 18 per cent decline on average for communities 300 kilometres from the capital. These differences are however non-significant in the multivariate model, indicating that they can be fully explained by other variables in the model.

Each percentage point of annual short-term population change is associated with an 8.20 per cent change over the next twenty years, while each percentage point of annual long-term population change prior to the survey is associated with a 7.50 per cent change in the next twenty years. Short-term changes do not add significantly to the effect of long-term changes in the multivariate model and are omitted from further analysis. Once migration intentions in 1992 and differences between the capital and other regions are taken into account, the long-term effect is reduced to 4.77 per cent.

For each percentage point difference in adolescent migration intentions in 1992 the number of residents in the same cohort 20 years later changes by 1.36 per cent. When all significant predictors have been taken into account, each

percentage change in migration intentions among 15–16 year olds in 1992 is associated with a 0.97 per cent change in that same cohort in 2012.

Discussion

In many countries in Northern Europe and North America, the majority of rural youth intend to leave their home communities in the future. Between 1992 and 2007, the proportion of rural adolescents in Iceland that intended to live somewhere else in the future increased from about 60 per cent to about 75 per cent (Bjarnason and Thorlindsson 2006; Seyfrit, Bjarnason and Olafsson 2010). In a comparative study of Norway, Sweden and Scotland, Kloep et al. (2003) similarly found that overall about three out of four rural adolescents wanted to leave their home communities after compulsory school. In the United States, 75–80 per cent of rural high school students in central Iowa (Rutkin, Elder and Conger 1994) and Eastern Virgina (Seyfrit, Danner and Crossland 1998) did not expect to live there in the future. In rural Alaska and Newfoundland (Hamilton and Seyfrit 1993, 1994) more than 60 per cent of all students expected to move away from their home communities.

The prospect of such a mass exodus of youth is understandably a matter of considerable concern for policymakers and community leaders in rural areas (Gabriel 2002; Seyfrit, Bjarnason and Olafsson 2010). Losing the majority of each generation to migration would quickly undermine the infrastructure of rural society, including e.g. schools, churches, supermarkets, health care, theatre groups, real estate markets and public services. Such an erosion of the rural

infrastructure would likely lead to further out-migration in all age groups and could undermine future in-migration, perpetuating a vicious circle of social deterioration and population decline.

It is not clear from earlier research to what extent such concerns are warranted. Even though migration intentions are moderate to strong individual-level predictor of actual migration across a wide range of countries (e.g. de Jong 2000; Kan 1999; Kley and Mulder 2010; Lu 1999; van Dalen and Henkens 2013), the percentage of adolescents intending to leave does not correspond to the percentage of future population decline. While some respondents do not leave as intended, others leave despite their intentions to stay (Gardner et al. 1986; Kan 1998; Lu 1999) and a number of out-migrants will later return (Barrett and Mosla 2013; Bijker, Haartsen and Strijker 2013; Haartsen and Thissen 2014). Furthermore, in-migrants who have not lived there before may for various personal and occupational reasons move to the community in the future (Andersen 2011; Benson and O'Reilly 2009; Grimsrud 2011; Wall and von Reichert 2013). It is ultimately the balance between in-migration, out-migration and return migration that will determine the demographic future of the community.

The results of this study suggest that policy makers should not interpret survey results of adolescent migration intentions at face value. Adolescent migration intentions can indeed predict future demographic change but the percentage of adolescents who intend to live elsewhere in the future does not equal the percentage of future population decline. Icelandic communities on

average did not experience population decline over a twenty year period unless more than half the population of adolescents intended to migrate. Communities thus enjoyed long-term population growth when less than 50 per cent of the adolescent population intended to migrate. Lower levels of adolescent migration intentions nevertheless predict future changes in the age distribution. When more than a third of all 15 and 16 year old adolescents intended to migrate, the number of 35 and 36 year old adults declined twenty years later, even if the community as a whole experienced population growth. High levels of adolescent migration intentions do therefore signal future population decline but the reported percentages do not accurately reflect the magnitude of such decline.

In the Icelandic case, each percentage point difference in adolescent migration intentions in 1992 is associated with a 1.36 per cent change in the number of individuals in the birth cohort in 2012. Interestingly, the migration intentions of adolescents were found to have a similar predictive value for the population as a whole. Each percentage difference in adolescent migration intentions in 1992 was associated with a 1.25 per cent change in the total population in 2012. The intentions of adolescents thus predict the net sum of out-migration, in-migration and return migration in all age groups on the community level. This strongly suggests that policy makers can interpret such aggregate intentions as an indication of the general migration potential in a community.

The aggregate migration intentions of adolescents may in part reflect prior population development and the remoteness of each community. Roughly half of the predictive value of migration intentions in Iceland can be attributed to

distance from the capital of Reykjavík and long-term population change in the twenty years prior to the 1992 survey. The remaining predictive value of migration intentions may reflect a wide range of other factors that contribute to the relative attractiveness of different communities for current residents and prospective in-migrants from other areas. One of those factors may involve parents, spouses, children and friends who leave to follow individuals in the cohorts surveyed. Future research should examine the association between adolescent migration intentions and the various processes underlying in-migration, out-migration and return migration in greater detail.

It can be argued that the use of adolescent migration intentions as a predictor of future population development in essence involves drawing on the expert knowledge of young people with intimate knowledge of each community. Although they are not bound by occupation, parental obligations, real estate or other constraining factors that limit mobility (de Groot et al. 2011; de Jong 2000; Gardner et al. 1986), they have in general considered the advantages and disadvantages of their home community against the alternatives (Elder, King and Conger 1996; Glendinning et al. 2003; Matthews et al. 2000). Adolescent identification with an urban youth cultures (Bæck 2004) and their heavy reliance on various forms of media as a source of information about the outside world (Bjarnason 2009) may indeed put them in the vanguard of emergent social trends when it comes to the attractiveness of different communities.

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Table 1
Descriptive statistics for community-level population development, 1992–2012

	Min	Max	Mean	St. dev
Independent variables				
Adolescent migration intentions, 1992	-84.2%	-17.9%	-50.0%	16.0
Capital region	0	1	.11	.32
Sparsely populated areas	0	1	.35	.48
Kilometres from Reykjavík	0	724	288.8	227.3
Short-term population change, 1990–1992	-4.4%	4.2%	.4%	1.94
Long-term population change, 1972–1992	-1.2%	6.7%	1.5%	1.94
Dependent variables				
Total population change 1992–2012	-38.8%	99.1%	.1%	1.69
Cohort population change 1992–2012	-75.9%	79.7%	-1.4%	1.81

Number of communities: 54

Table 2
Predictors of total population and cohort population change 1992–2012

	TOTAL POPULATION				COHORT POPULATION			
	Bivariate		Multivariate		Bivariate		Multivariate	
	B	Beta	B	Beta	B	Beta	B	Beta
Intercept			32.71				13.36	
Capital region[a)]	59.50	.56***	---	---	63.53	.56***	---	---
Sparsely populated[b)]	-31.90	-.46***	---	---	-26.14	-.35**	---	---
Km from Reykjavík	-.08	-.51***	-.04	-.25**	-.06	-.40**	---	---
Short-term change	10.59	.61***	---	---	8.20	.44**	---	---
Long-term change	8.78	.71***	6.05	.49***	7.50	.57***	4.77	.36**
Migration intentions	1.25	.59***	.58	.28**	1.36	.60***	.97	.43**
Adj. R2				**.62**				**.45**

Number of communities: 54
a) Communities outside capital region are contrast b) Towns with more than 1,000 inhabitants are contrast
* p. < .05 ** p. < .01 *** p. < .001

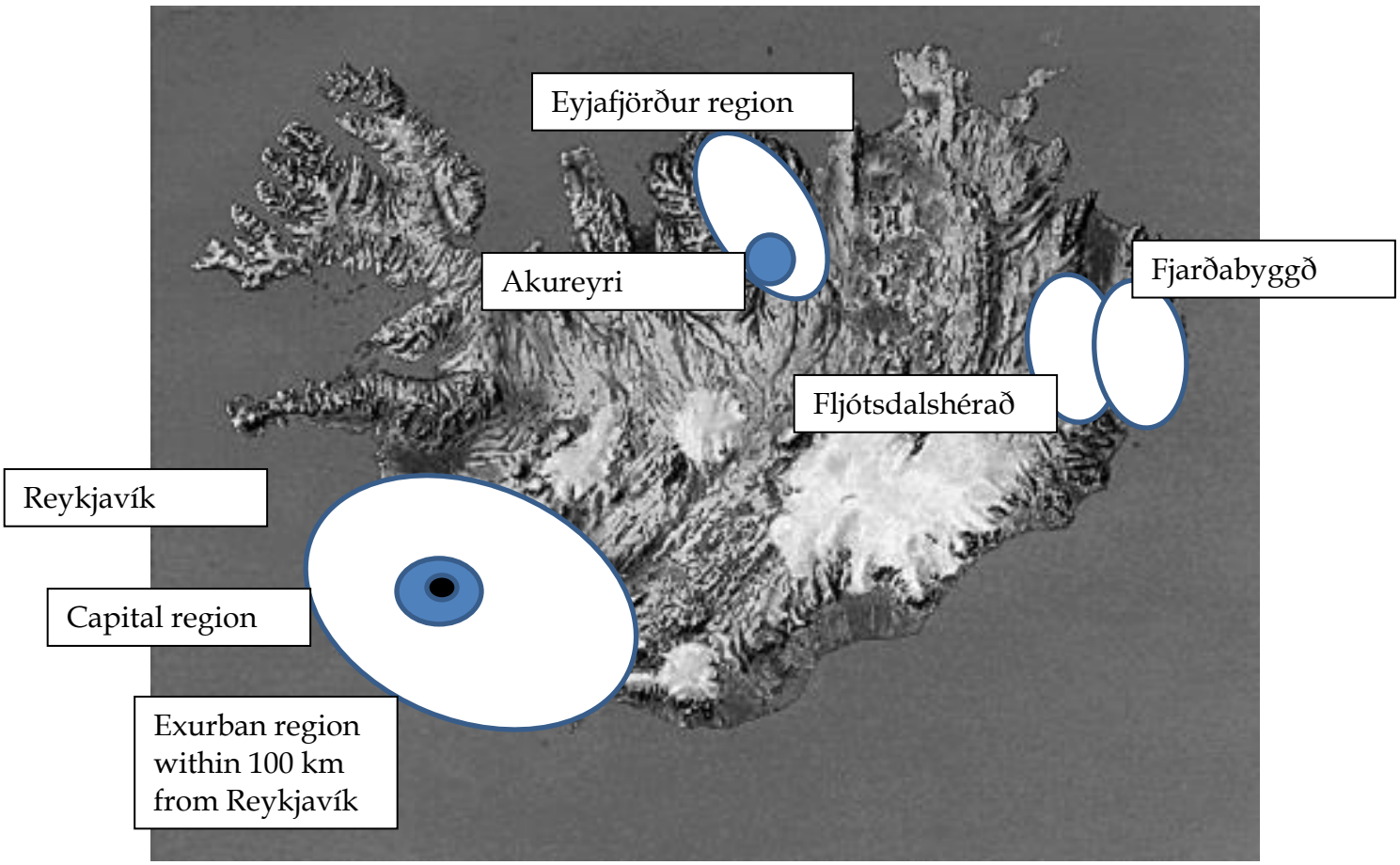

Figure 1
Main regions of population growth in Iceland 1992 – 2012

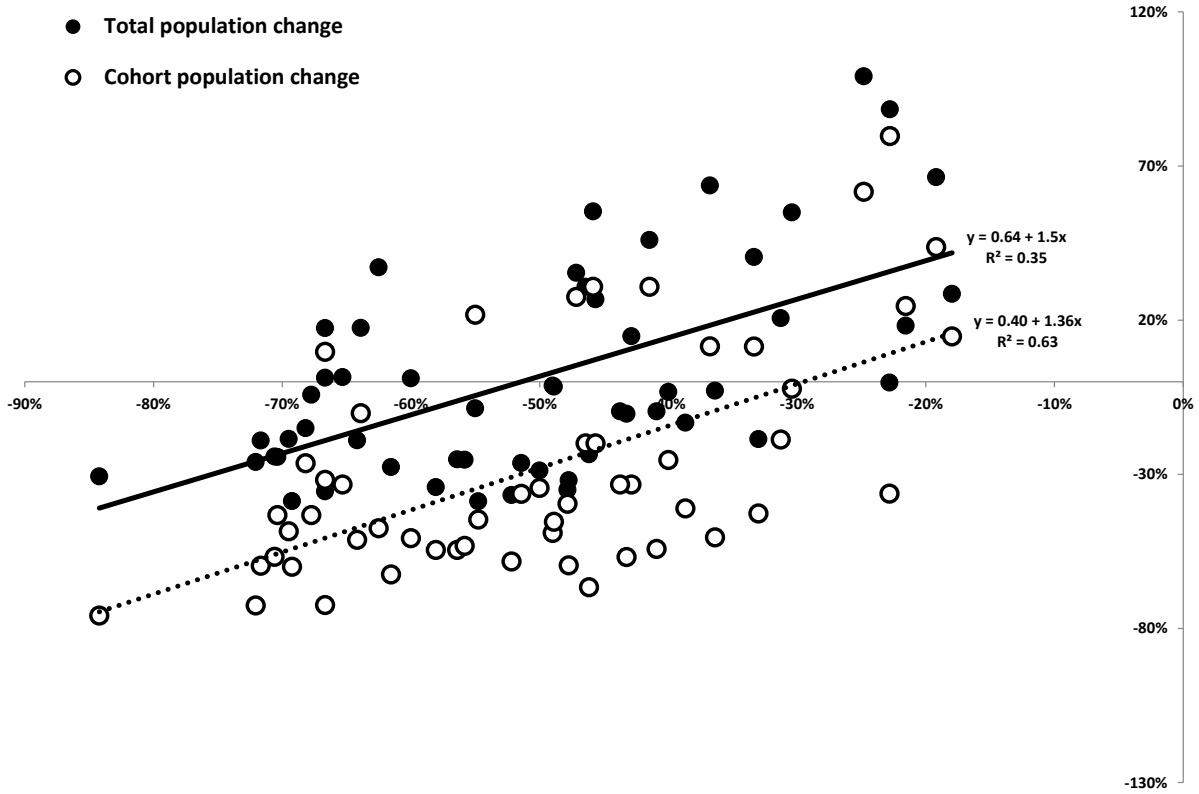

Figure 2
Adolescent migration intentions in 1992
and actual population change 1992 – 2012