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**Migration Intentions of Rural Youth in Iceland: Can a Large-Scale Development
Project Stem the Tide of Out-migration?**

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Abstract

Rural communities in Iceland have been profoundly affected by natural resource management policies. As part of a regional development strategy, a 322,000 ton aluminium smelter and 650 megawatt hydro-electric power plant were built in the sparsely populated Eastfjords region. This project was aimed at revitalizing the region and creating employment, enabling youth to stay in home communities. Using surveys from 1992–2007, changes in migration expectations are compared between Eastfjords and equally rural Westfjords far from the project. The majority of rural youth want to out-migrate and the project had no discernable effect on such intentions. Regardless of employment opportunities rural youth increasingly want to move to urban areas or abroad. Gender differences disappeared over time as “female flight” became “youth flight”. The findings suggest large-scale natural resource projects alone are not sufficient and that more comprehensive rural development policies are needed to stem the tide of rural youth out-migration.

Introduction

Renewable natural resources are of central importance to the economy of Iceland, in particular the rich fishing grounds surrounding the island and abundant sources of hydro and geothermal energy. With a land mass of 103,000 square km and only just over 300,000 inhabitants, Iceland is among the most sparsely populated countries in the world (United Nations 2006). Almost two-thirds of the population lives in the capital region of Reykjavik and adjacent municipalities, and three-quarters of the population lives within a 45 minute driving distance of the capital region (Aradottir and Johannesson 2007). The remaining population lives in small fishing villages, farms, and towns scattered around the 4,970 km coastline.

The industrialization of the fisheries in the 20th century sparked the economic, political and cultural transformation of Icelandic society. Industrialized fisheries supported rapid population growth and led to massive internal migration from the countryside to mushrooming fishing villages around the coast (Baldursson 1987; Bjarnason and Thorlindsson 2006). The growth of Reykjavik and the surrounding capital region was initially also fuelled by the expanding fishing industry, but in the latter half of the twentieth century service industries came to dominate the capital region (Jonsson 2004). The rapidly growing capital region surrounding Reykjavik offers a diversity of professional, service, government, and business opportunities that cannot be matched in other areas of the country (Edvardsson 2004).

Rural communities in Iceland have been profoundly affected by natural resource management policies (Palsson and Helgason 1995; Rafnsdottir 2004). Individually transferable quota (ITQ) systems were introduced in the 1980s with the explicit purpose

of creating larger and more economically viable units in the extraction industries. As individuals and fishing companies can sell fishing quotas as private property, many fishing communities have suffered a dramatic reduction or even total loss of fishing rights in the capital-intensive market in fishing quotas. These resource management policies, coupled with a continued decline in catches and technological changes that reduce the need for land-based fish processing, have led to rising unemployment, plummeting real estate values and demoralization in many communities (see, e.g., Eythorsson 1996; Pálsson and Helgason 1995; Skaptadóttir 2000). People who work in the industry frequently emphasize the importance of the fisheries for the national economy, but they nevertheless discourage their children from getting involved (Rafnsdóttir 2004). These changes have led to a depletion of human and social capital similar to most rural areas facing declining extraction industries (e.g., Hamilton and Otterstad 1998). For instance, the number of 18–25 year olds living in the sparsely populated Eastfjords and Westfjords of Iceland declined by 23% between 1991 and 2000 (Statistics Iceland 2008a).

As part of a regional development strategy, a decision was made in 2003 to build a 322,000 ton aluminium smelter plant in Eastfjords (also known as East Iceland) powered by a 650 megawatt hydro-electric power plant in the highlands of southeast Iceland. This economic development project was aimed to revitalize the region and create well-paid industrial jobs and derived service jobs during the 2.5 billion dollar construction phase and long-term operation of the smelter plant employing 450 people. No such large-scale experiment has been made to reverse the long-term downward trajectory of Westfjords economy.

The focus of this study is migration intentions of youth in these two areas of Iceland in the period 1992–2007. If the development project had the expected effect of reversing social and economic decline in Eastfjords, adolescents in the region should be less likely to expect to leave their home community than either their counterparts fifteen years previously or their peers in Westfjords. Furthermore, one would expect more positive attitudes among those staying or leaving. More young people should be happy about staying and fewer young people should be reluctantly leaving their home communities.

Youth Migration Intentions

The expectation to leave one's home community after secondary or high school is a common finding of surveys of rural young people and a common concern among rural communities and governmental policy makers. Surveys conducted in many peripheral areas in North America have consistently shown large majorities of rural youth expecting to leave their home communities. In central Iowa (Rudkin, Elder and Conger 1994) and eastern Virginia (Seyfrit, Danner and Crossland 1998) only 20 to 25 percent of rural high school students expected to live there in the future. Further north, more than 60 percent of students in rural Alaska (Seyfrit and Hamilton 1992a; Hamilton and Seyfrit 1993) and Newfoundland, Canada (Seyfrit 1993; Hamilton and Seyfrit 1994a) expected to live most of their lives away from their home communities.

Similar results have been obtained in rural areas in Northern Europe. Stockdale (2002) found that rural Scotland youth grow up expecting to migrate for education or employment and the majority actually do leave their home communities. Kloep, Hendry,

Glendinning, Ingebrigtsen, and Espnes (2003) compared survey results in Sweden, Norway, and Scotland and found that overall, only 23 percent of young people wanted to stay in their home communities after finishing compulsory education. In Iceland, Bjarnason and Thorlindsson (2006) report that in 1992, 60 percent of rural students expected to move away and in 2003 that number had increased to 69 percent.

Most studies have found that females are disproportionately overrepresented among those expecting to leave (Rye 2006a; Rye and Blekesaune 2007; Hamilton and Otterstad 1998; Hamilton, Colocousis, and Johansen 2004; Glendinning, Nuttall, Hendry, Kloep, and Wood 2003; Corbett 2005; Kloep et al. 2003; Olafsson and Gislason 2005). A number of studies note that life in rural areas is more attractive for boys than girls (e.g., Glendinning et al. 2003; Condon 1987; Dahlstrom 1996; Hamilton and Seyfrit 1993). As Olafsson and Gislason (2005, p. 1) note, “teenage girls have less freedom than teenage boys in small villages than in larger communities, which make them more eager to move away.” Differential out-migration of females creates an awkward gender balance at an age when relationships and families are being formed and young adults are becoming productive community members.

Although education and employment aspirations may pull rural youth from their home areas, many young people also feel a strong attachment to place and hope to return to their home community in the future. Studies have found that strong ties to home communities (Stockdale 2002), sense of national identity (Bjarnason 1999), religion (Toney, Stinner, and Kan 1983), sense of belonging (Pretty, Bramston, Patrick, and Pannach 2006), and attachment to place (Elder, King, and Conger 1996; Wiborg 2004) may mitigate rural youths’ migration intentions. While only 10 percent of rural

Norwegian youth said they would prefer to live in a rural area in their twenties, there were also only 10 percent that expressed preference for living outside a rural area at retirement (Rye 2006b). Similarly, a survey of young Shetlanders and Orcadians showed that only 25 percent and 36 percent, respectively, planned to leave the islands for most of their lives (Seyfrit and Hamilton 1992b). Eacott and Sonn's (2006, p. 199) study of rural Australian youth found that although the results "confirmed the lack of educational and employment opportunities as the main influences on rural youth migration...all participants felt a sense of community satisfaction and attachment to place..." and "most expressed a desire to return to rural Victoria in the future." While such long-term aspirations of returning to the home community are frequently not realized, a number of out-migrants do actually return. In rural Norway, 12 percent of the 1965 birth cohort had out-migrated and returned to the community of their birth between the ages of 15 and 32 (Rye 2006a; Rye and Blekesaune 2007).

The survey results cited above are supported by studies examining national census data that show declining rural populations of young adults in Finland (Muilu and Rusanen 2003), Greenland (Hamilton, Rasmussen, Flanders, and Seyfrit 1996), Alaska (Hamilton and Seyfrit 1994b, 1994c), Norway (Rye and Blekesaune 2007), Scotland (Pacione 1995), the Faroe Islands (Hamilton, Colocousis, and Johansen 2004), and Iceland (Olafsson and Gislason 2005, 2006). The migration intentions of individual adolescents are necessarily tentative and the realization of such intentions may be complicated by various life course developments. Some adolescents anxious to leave may decades later find themselves still living happily in their community of origin. Others resolved to stay may change their minds because of educational or occupational factors, family

responsibilities, or simply because their aspirations in life have changed. Nevertheless, the aggregate migration intentions of adolescents in a given community can be taken as a sensitive gauge of the atmosphere in the community and such an aggregation of intentions can predict future migration patterns on the community level (Bjarnason 2004).

Economic development, resource management and adolescent intentions

For rural youth, out-migration often is driven by the desire for further education and employment. In many rural areas, going to college or university requires not just leaving home, but leaving the area or region. Studies consistently find that those expecting to go to college or university are among the most likely to intend to migrate (e.g., Eversole 2001; Eacott and Sonn 2006; Seyfrit and Hamilton 1997). The lack of job opportunities in rural areas and the perceptions of better opportunities in urban areas are major influences on rural youths' migration intentions. As Jamieson (2000, p. 207) notes, "seeking a 'good job' usually means migration...so middle-class children often take migration for granted."

Among high school students, employment expectations, perceptions, and aspirations are consistently shown to correlate with migration intentions (Johnson, Elder, and Stern 2005). Those aspiring to professional jobs and those least interested in resource extraction jobs (i.e., fishing, mining, oil-related, agriculture, forestry) are more likely to expect to leave and to leave their rural communities (Bjarnason and Thorlindsson 2006; Olafsson, Sigursteinsdottir, and Aradottir 2004; Seyfrit and Hamilton 1992b; Hamilton and Seyfrit 1994a; Seyfrit 1986; Hamilton and Seyfrit 1993). In Iceland, perceptions of occupational opportunities have been shown to be the main predictor of

migration intentions, mediating and moderating the effects of other predictors on such intentions (Bjarnason and Thorlindsson 2006).

The concern that out-migration from rural areas leads to economic stagnation and community decay has prompted a variety of national interventionist responses in industrialized nations intended to increase the number and variety of jobs available. “It is assumed that job creation will lead to higher incomes, population redistribution, housing improvements, better community services and facilities, and other amenities” (Summers and Branch 1984, p. 143). However, while industrial development in small towns may stem an overall decline in population by increasing in-migration, it may only have a minor impact on reducing out-migration, in particular among youth (Summers and Branch 1984).

Rapid growth from economic development, particularly in natural resource extraction “boomtowns,” may also lead to changes in social support and networks and to a growth in various social ills (Freudenburg and Jones 1991; Freudenburg 1984; Freudenburg, Bacigalupi, and Landoll-Young 1982). Freudenburg (1986) argues that the influx of new residents to a small community alters the “density of acquaintanceship,” the proportion of people in the community one knows. Because adolescence is an important time of identity development (Erikson 1968), changes in social networks and support that come from rapid development, i.e., incoming strangers and out-migrating acquaintances, may particularly impact rural youth (Conger and Elder 1994).

Although the retention of young people is the stated goal (Seyfrit and Hamilton 1992a; Kloep et al. 2003) or perceived benefit (Seyfrit 1986) of economic development programs in rural areas, evidence suggests that for many youth the desire to leave home

communities overrides potential job availability. In rural Utah, Seyfrit (1986) found no difference in migration intentions between high school seniors in counties with and without rapid growth from coal mining. Similarly, migration intentions were equally prevalent among high school students living in a rural Newfoundland area anticipating new job growth from an oil platform construction project and a comparison area (Seyfrit, 1993). In Alaska, Seyfrit and Hamilton (1992b) found adolescents equally likely to expect to migrate from an area where a zinc mining company was committed to 100 percent native employment as from an area where the economy is based on traditional fishing industry (Hamilton and Seyfrit 1993).

Resources, Population Trends, and Policies in Iceland

Rural economic development and geographical distribution of the population have been at the front of public debate in Iceland since the beginning of the 20th century (Johannesson 2007). Although regional development plans issued regularly by the government since the 1950s have proposed various counter-measures and focused on improving general living conditions and strengthening local industries (Johannesson 2003), the results seem to have been very limited with no significant changes in migration patterns (Olafsson and Gislason 2006, p. 50). The underlying ideal of the development plans is that the migration trends should be reversed and implicitly this includes a focus on young people although they are often not directly mentioned.

A 1986 committee appointed by the parliament concluded that unless radical action is taken, the areas outside the capital will see a dramatic decline in the youth population due to the limited opportunities available in the rural areas (Byggdastofnun

1986). The regional development plan for 1998–2001 stated that in order to address rural population issues “government action should first and foremost be directed at making it attractive for young people who have left home in search for education to return” and then pointed out that “this could be done by creating financial incentives for young people to settle down in certain areas by using the taxing system or simply through direct financial support” (Byggdastofnun 1998, p. 15). The regional development plan for 2002–2005 also mentions the possibility of introducing temporary discount on payments of student loans to encourage young people to settle down in areas outside the capital area. These ideas were never implemented (Byggdastofnun 2005, p. 20) and the latest regional development plan for 2006–2009 does not mention young people specifically.

Almost all regional development plans in Iceland have taken possible development of heavy industry into consideration (Johannesson 2003). In the years between 1988 and 2003 the ministry of industry and commerce even ran an agency in co-operation with the Icelandic national power company, Landsvirkjun, to promote foreign investment in energy intensive industries in Iceland (see Idnadarraduneyti 2008). Among the earliest ideas of large-scale industry for rural development was a plan to revitalize Eastfjords by harnessing hydro-energy from the glacial rivers stemming from Vatnajokull, the largest glacier in Europe (see Olafsson, Johannsson, Heidarsson, Ingimarsdottir, and Sigurbjarnarson 2006). The visions were finally realized on March 15, 2003 when representatives of the Icelandic national power company Landsvirkjun, Fjardabyggd municipality which incorporates several communities in Eastfjords, and the international aluminium production corporation Alcoa signed contracts which marked the beginning of the largest development projects ever to be carried out in Icelandic history.

The construction of the 650 megawatt hydro-electric power plant at Mt. Karahnjúkar and the 322,000 ton Alcoa aluminium smelter are gigantic in Icelandic context, include an investment of about 2.5 billion U.S. dollars, and require an estimated 6,300 man-years of work to be carried out in a nation of about 300,000 inhabitants.

This momentous occasion in the quiet villages of Eastfjords was described on the website of Fjardabyggd municipality as a day of celebration after nearly thirty years of waiting. The president of Alcoa had been given a royal welcome at the airport in Egilsstaðir complete with a red carpet, small girls with bouquets, and a group of local community leaders. Some one thousand people gathered in the Reyðarfjörður sports hall to witness the contract signing and the day ended in a large fireworks display. The minister for industry and commerce told parliament that “The Fjardaral plant will have a positive impact on Icelandic society. It will benefit the state budget, income from exports will increase, salaries will rise, purchasing power will increase, a lot of good and interesting jobs will be created. Eastern Iceland will benefit. Every Icelander will benefit from this project!” (Sverrisdóttir 2003). A press release from Alcoa stated that “All in all some 750 new jobs will be created as a result of the smelter plant, thereof some 450 in the smelter plant itself and some 300 in related industries and services. These new jobs will be a vital contribution to the economy in Eastern Iceland which in the previous years has seen a decrease in activities related to fishing and agriculture. The operations of the aluminium smelter plant will turn around the negative regional development in Eastern Iceland” (quoted in Ólafsson et al. 2006, p. 13).

A study carried out in 2003 in Eastfjords just weeks after the agreement found that a huge wave of optimism had swept through the area. When asked if the

construction work and the operation of the smelter plant would improve their financial status, 44 percent of the inhabitants answered affirmatively for the construction work and 37 percent did so for the operation of the smelter plant (Olafsson 2005). In a 2004 survey of the same areas, this optimism had somewhat declined, but still 22 percent said they believed they would benefit financially and in the areas closest to the projects the figure was 35 percent. In Reydarfjordur, where the smelter plant was to be located, 60 percent believed they would personally benefit financially (Olafsson 2005).

In the fall of 2007, the construction of the dam, reservoir, and Karahnjukar power plant were completed and the Reydarfjordur aluminium smelter plant commenced production. The dam, 700 m long and 198 m high, is the largest of its kind in Europe and one of the largest in the world. The reservoir covers an area of 57 square km of the Southeast highlands. Little is yet known on the social and economic benefits of this gigantic social experiment on Eastfjord communities or the impact on the future of Eastfjord youth. It is clear, however, that politicians, industry, and the general public have high expectations about the positive impact on the communities in the area.

METHODS

The Study Areas

The map in Figure 1 illustrates the two study areas, Westfjords in the northwest of the island and Eastfjords spanning the eastern coast. Major municipalities are noted as well as the location of the Karahnjukar hydro-electric project and the Reydarfjordur aluminium smelter.

Westfjords is a peninsula connected to the rest of Iceland by a 7 km wide isthmus. The area is very mountainous; the coastline is heavily indented by dozens of fjords surrounded by steep hills. The lack of flat lowlands makes it unsuitable for agriculture, but good natural harbours in many of the fjords and closeness to fishing areas are vital for the local economy. Westfjords is sparsely populated with 7,309 residents in 2007. The largest town, Isafjordur, has 2,734 inhabitants and serves as a center for commerce, administration, and transportation in the region (Statistics Iceland 2008a).

Eastfjords is traditionally defined as the area from Bakkafjordur and south to Hofn, covering around one-third of the total area of Iceland. Fishing, agriculture, and tourism have been the traditional mainstays of Eastfjords. Before the construction work began in 2003, the population in the area was 11,756 and scattered on the sheltered fjord coast or inland in the regional center of Egilsstadir which had a population of 2,159 in 2007. During the construction period, the population in the area increased to 15,350.

[Figure 1 about here]

Data

Demographic information on population growth by region in the period 1901–2007 and in-migration and out-migration in Westfjords and Eastfjords for the period 1991–2007 was obtained from Statistics Iceland (2008b).

Data on the future plans of adolescents were obtained from three Icelandic population surveys of 10th grade students (15–16 year olds) conducted in 1992, 2003 and 2007. The 1992 survey was conducted before any serious negotiations had taken place regarding the building of an aluminium plant in Eastfjords. The 2003 survey was

conducted in the same month as Landsvirkjun power company, Fjardabyggd, municipality, and the Alcoa corporation signed their agreement. The 2007 survey was conducted four years later as the construction phase was winding down.

All three surveys employed a common school survey methodology (see Bjarnason 1995). The questionnaires were administered anonymously with a blank envelope procedure to all 10th grade students present in class on the day of administration in March each year. No follow-up attempt was made to reach absentees. Although these surveys were conducted for other purposes and covered the entire country, they all included questions on residential intentions. This information could be extracted for the specific geographic regions of interest in this study.

Table 1 shows the sample size and estimated size of the target population in each region for the three surveys. All schools in Westfjords and Eastfjords participated in data collection, and almost no students refused to respond to the questionnaires. Non-response was therefore almost exclusively due to students not attending school on the day of administration. The exact number of students attending 10th grade in March of each year is not known, but the number of 15 year old inhabitants in each region on December 1 the preceding year (Statistics Iceland 2008a) provides a reasonable approximation of the size of the target populations.

[Table 1 about here]

The six samples clearly cover the majority of the target populations in these two regions in each of the three years. The three samples in Westfjords include 73 to 89

percent of the estimated population in each year, while the three samples in Eastfjords include 78 to 94 percent of the estimated population in each year.

Measures

Three measures were used to estimate future migration plans and the respondents' willingness to stay or leave their home community. Students were asked in what type of community they (a) currently live, (b) wanted to live, and (c) most likely would live in the future. The response categories were capital region, fishing village, other town, farming area, and abroad.

Responses to questions (a) and (b) were used to construct the measure *Future Residence Plans* with the categories Home Community, Outside the Capital Region, Capital Region, and Abroad. Responses to questions (a), (b) and (c) were used to construct the measure *Evaluation of Residence Plans* with the categories Reluctantly Leaving (expect to leave but do not want to), Willingly Leaving (expect and want to leave), Reluctantly Staying (expect to stay but do not want to), and Willingly Staying (expect and want to stay).

RESULTS

Demographic Changes

Between 1901 and 2007, the population of Iceland grew nearly 300 percent, from 78,470 to 312,872 inhabitants. Figure 2 shows that the bulk of this growth occurred in the capital region of Reykjavik and surroundings where the population grew from 8,221 in 1901 to 196,161 in 2007. Other areas of the country combined grew by a modest

46,418 inhabitants over this period. While the population of the capital region in 1901 was smaller than the populations of both Westfjords and Eastfjords, the latter two were quickly dwarfed by the population dynamics of the 20th century.

[Figure 2 about here]

At the turn of the 20th century, the population of Westfjords was 12,347 and Eastfjords had a population of 10,367. Apart from a brief period of modest growth in the 1970s, the population of Westfjords has declined steadily since the 1920s, reaching a low of 7,309 in 2007. While Eastfjords population fluctuated throughout the 20th century, the area did not experience the same degree of population decline as Westfjords. In the 1950s, Eastfjords had become more populated than Westfjords, and at the turn of 21st century it had a population of 11,654. At the height of the construction boom, the population of Eastfjords had surged to 15,350 but as the construction phase concluded in 2007 the population had already dropped to 13,901.

Figure 3 shows in-migration and out-migration in Westfjords and Eastfjords in the period 1991–2007. Annual in-migration in Westfjords was in the range of 5 to 8 percent of the total population in this period while out-migration was in the range of 7 to 12 percent. On average, the net migration loss of the region was 2.6 percent of the regional population per year in this period.

[Figure 3 about here]

Migration patterns in Eastfjords were similar to Westfjords in the period 1991–2002. In-migration in Eastfjords was in the range of 5 to 6 percent per year, while out-migration was in the 6 to 9 percent range. These patterns were, however, radically changed by the construction boom after 2003. In-migration to Eastfjords was 12 percent in 2004, 17 percent in 2005, and 18 percent in 2006, but slowed again to 12 percent in 2007. Out-migration remained at a slightly higher level than before until the end of the construction phase. In 2007, 23 percent of Eastfjords population left the region as a large number of foreign construction workers out-migrated. Between 1991 and 2007, the average annual effect of migration on the population of Eastfjords was close to zero.

Adolescents' Future Residence Plans

Table 2 shows the proportion of 15–16 year old students who expect to live in different locations in the future. In Eastfjords the proportion most likely staying has gone from about a half in 1992 to just over a quarter in 2007 (Δ : 22.5% \pm 9.6%). Similarly, in Westfjords the proportion most likely staying has gone from just over a half in 1992 to less than a quarter in 2007 (Δ : 30.1% \pm 12.0%). In 2007, there was no significant difference in the proportion of adolescents in Eastfjords and Westfjords who expect to stay in their home community (Δ : 4.0% \pm 10.9%).

[Table 2 about here]

In Eastfjords the proportion most likely moving to the capital region has gone from about a quarter in 1992 to just almost half in 2007 (Δ : 20.6% \pm 9.6%). Similarly, in

Westfjords the proportion most likely moving to the capital region has gone from just over one-fifth in 1992 to almost half in 2007 (Δ : 22.6% \pm 12.3%). However, in Eastfjords the change happened between 2003 and 2007 while in Westfjords the increase is more gradual. In 2007, there was no significant difference in the proportion of adolescents in Eastfjords and Westfjords who expected to move to the capital region (Δ : 1.6% \pm 12.6%).

In Eastfjords the proportion most likely moving abroad has gone from less than one in twenty in 1992 to one in six in 2007 (Δ : 12.0% \pm 6.2%). Similarly, in Westfjords the proportion most likely moving abroad has gone to more than one in five in 2007 (Δ : 14.3% \pm 9.3%). In 2007, there was no significant difference in the proportion of adolescents in Eastfjords and Westfjords who expected to move abroad (Δ : 5.0% \pm 10.0%).

Similar to studies in a wide range of countries, over half of the girls in Westfjords and Eastfjords expected to leave their home communities compared to about 40 percent of boys in 1992. However, unlike other studies, the gap between boys and girls had decreased by 2003 and disappeared altogether in 2007 when well over seventy percent of all Westfjords and Eastfjords youth expected to out-migrate regardless of gender.

Adolescents' Evaluation of Future Residence Plans

Table 3 shows that the proportion of adolescents expecting to leave Eastfjords reluctantly (i.e., expecting to leave, but wanting to stay) decreased significantly from 1992 to 2007 (Δ : 7.3% \pm 6.7%). In contrast the proportion expecting to leave Westfjords reluctantly increased, although the difference did not quite reach statistical significance at the .05 level (Δ : 7.2% \pm 8.2%). In 2007, there was no significant difference in the

proportion of students expecting to leave reluctantly Eastfjords or Westfjords (Δ : 4.8% \pm 8.3%). The proportion of students expecting to leave willingly (i.e., expecting and wanting to leave) increased significantly in both Eastfjords (Δ : 31.2% \pm 9.7%) and Westfjords (Δ : 20.9% \pm 12.9%). In 2007, there was no significant difference in the proportion of students expecting to leave willingly Eastfjords and Westfjords (Δ : 0.9% \pm 12.4%).

The proportion of students expecting to stay reluctantly (i.e., expecting to stay, but wanting to leave) in Eastfjords did not change significantly (Δ : 2.3% \pm 5.5%). However, the proportion expecting to stay reluctantly in Westfjords decreased significantly (Δ : 11.8% \pm 6.5%). In 2007, there were significantly more students expecting to stay reluctantly in Eastfjords than in Westfjords (Δ : 6.9% \pm 5.2%). Finally, the proportion of students expecting to stay willingly (i.e., expecting and wanting to stay) decreased significantly and substantially in both Eastfjords (Δ : 26.2% \pm 9.2%) and Westfjords (Δ : 16.3% \pm 12.0%). In 2007, there was no significant difference in the proportion of happy stayers in Eastfjords and Westfjords (Δ : 3.0% \pm 10.7%).

Discussion

There are six outcomes of note in this study. First, overall results coincide with previous research. In 2007, more than 70 percent of rural Icelandic youth expect to leave their home communities. This is consistent with the findings from youth surveys in many other countries. Second, the proportion of young people desiring to move to the capital region has nearly doubled since 1992. Third, an even greater shift occurred in the proportion wishing to leave Iceland altogether with nearly one in five rural youths

expecting to move abroad. Fourth, although the proportion of “leavers” has increased over the three time periods, the vast majority of youth are happy with their residential plans; expectations and preferences coincide for more than 80 percent of those in this study. Significantly greater proportions of Westfjords youth are reluctantly leaving and Eastfjords youth are reluctantly staying. This is intuitively logical in that Westfjords youth may feel pushed out of their home communities by the lack of jobs and amenities, while Eastfjords youth may be pulled or encouraged by family members to stay because of the changing prospects. Fifth, although the gender differences observed in studies conducted in other rural areas was apparent in 1992 in Eastfjords and Westfjords, there were no differences in migration expectations by 2007 when “female flight” became simply “youth flight.” Sixth, the presence of the hydro-power and aluminium smelter projects appear to have little impact on expectations to move. The one exception is that in 2003 the proportion of Eastfjords students expecting to move from their home communities to somewhere outside the capital (i.e., some other non-metropolitan area of Iceland) increased. This reflects the optimism of improving employment possibilities and living conditions. However, four years later, this proportion dropped by two-thirds. This may suggest feeling of “social disruption” associated with large numbers of incomers.

Although Iceland’s national development policies acknowledge the importance of making areas outside the capital attractive to youth, industrial development in rural areas is not proving to stem young people’s migration expectations. This is important for Iceland’s future development plans as aluminium smelters and other hydro-powered projects are contemplated in other areas. While there may be local and regional benefits accruing to areas that can build on their natural hydro-energy resources, such

development is not likely to retain local youth. Even more worrying is the jump in the proportion of rural Icelandic youth expecting to move abroad, particularly if this desire is also increasing among non-rural youth. As a small nation, the loss of young people, not just from rural areas, but from the country itself, could signal important and troublesome shifts in the future population of Iceland.

This research adds further support to a growing body of literature suggesting that the large-scale creation of industrial jobs does not change the minds of young people in rural areas who want to partake in what the modern world has to offer (Seyfrit 1986; Seyfrit and Hamilton 1992a, 1992b; Hamilton and Seyfrit 1993; Kloep et al. 2003). Such industrial development projects may bring in large numbers of migrant workers from all over the world, and some of them may settle down in the rural areas in question.

However, a comprehensive policy aimed at integrating rural areas into the cultural, political, social, and economic mainstream of modern societies may be a more effective approach. For instance, Kloep et al.'s (2003, p. 97) comparative study of Norway, Sweden, and Scotland, found that Norway's national policies of development in all areas of the country "aimed at decentralization, exemplified through the location of universities in rural areas and the development of an effective road and transport system" are reflected in Norwegian adolescents being "significantly more likely to stay in their rural areas than Swedes and Scots." Such policies may have a greater long-term impact on the viability of rural communities than large-scale industrial developments.

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Table 1. Population and survey participation of 15-16 year old students in Westfjords and Eastfjords of Iceland

	<i>Westfjords</i>	<i>Eastfjords</i>
15 year old population, Census data, December 1991	189	222
10th grade students, School survey, March 1992	137	208
Estimated response rate	72.5%	93.7%
15 year old population, Census data, December 2002	124	166
10th grade students, School survey, March 2003	110	147
Estimated response rate	88.7%	88.6%
15 year old population, Census data, December 2006	109	213
10th grade students, School survey, March 2007	94	167
Estimated response rate	86.2%	78.4%

Table 2. Future residence plans of 15-16 year old students in Westfjords and Eastfjords of Iceland

	<u>1992</u>		<u>2003</u>		<u>2007</u>	
	%	95% CI	%	95% CI	%	95% CI
<i>Westfjords</i>						
Home community	53.4	±8.4	38.2	±9.1	23.3	±8.6
Outside capital region	18.0	±6.5	12.7	±6.3	11.2	±6.4
Capital region	21.8	±6.9	35.5	±9.0	44.4	±10.1
Abroad	6.8	±4.2	13.6	±6.4	21.1	±8.3
<i>Eastfjords</i>						
Home community	49.5	±6.8	33.3	±7.6	27.3	±6.8
Outside capital region	21.0	±5.5	30.6	±7.5	10.6	±4.7
Capital region	25.4	±5.9	25.9	±7.1	46.0	±7.6
Abroad	4.1	±2.7	10.2	±4.9	16.1	±5.6
<i>Gender difference in expecting to leave home community</i>						
Westfjords						
- boys	40.6	±11.7	60.0	±13.1	76.3	±12.3
- girls	52.2	±11.9	63.3	±12.9	76.9	±12.2
Eastfjords						
- boys	41.5	±9.5	60.9	±11.2	72.7	±9.6
- girls	59.2	±9.5	71.1	±10.4	73.2	±9.6

Table 3. Evaluation of residence plans among 15-16 year old students in the Westfjords and Eastfjords of Iceland

	<u>1992</u>		<u>2003</u>		<u>2007</u>	
	%	95% CI	%	95% CI	%	95% CI
<i>West fjords</i>						
Reluctantly leaving	6.6	±4.2	10.9	±5.9	13.8	±7.0
Willingly leaving	38.7	±8.2	50.9	±9.4	59.6	±10.0
Reluctantly staying	13.9	±5.8	5.5	±4.3	2.1	±2.9
Willingly staying	40.8	±8.3	32.7	±8.8	24.5	±8.7
<i>Eastfjords</i>						
Reluctantly leaving	16.3	±5.0	14.3	±5.7	9.0	±4.4
Willingly leaving	29.3	±6.2	52.4	±8.1	60.5	±7.4
Reluctantly staying	6.7	±3.4	6.1	±3.9	9.0	±4.4
Willingly staying	47.7	±6.8	27.2	±7.2	21.5	±6.2

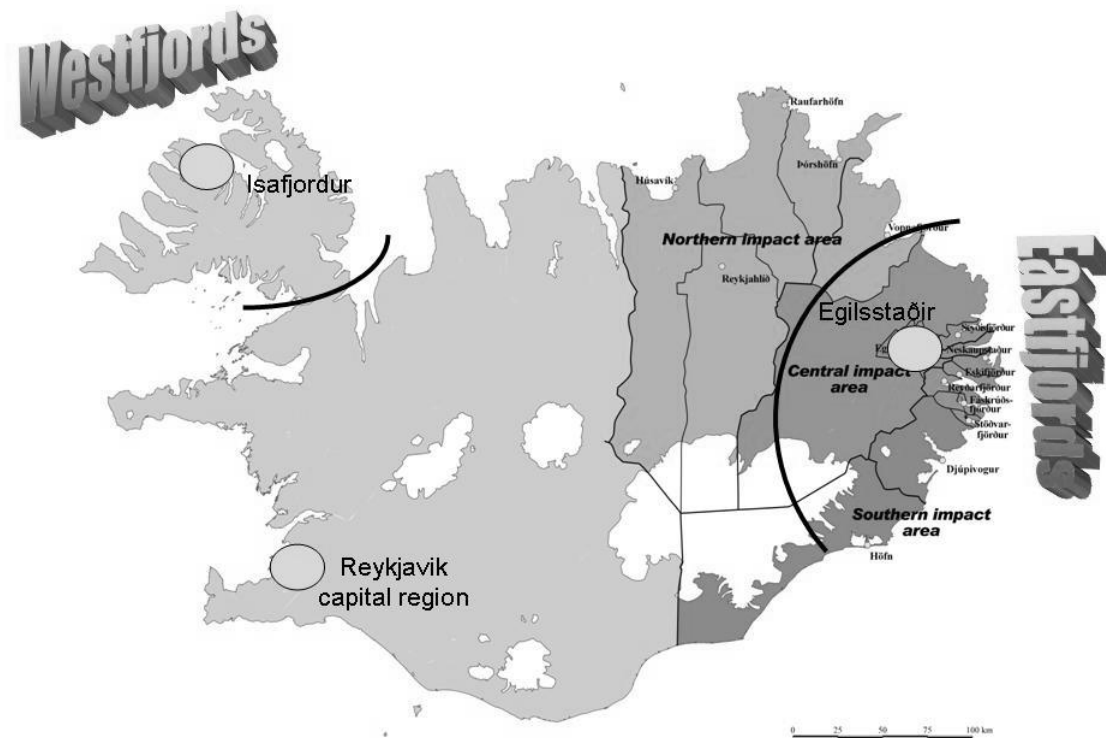


Figure 1. Map of Iceland

[Note: This map is a placeholder and will be revised for publication]

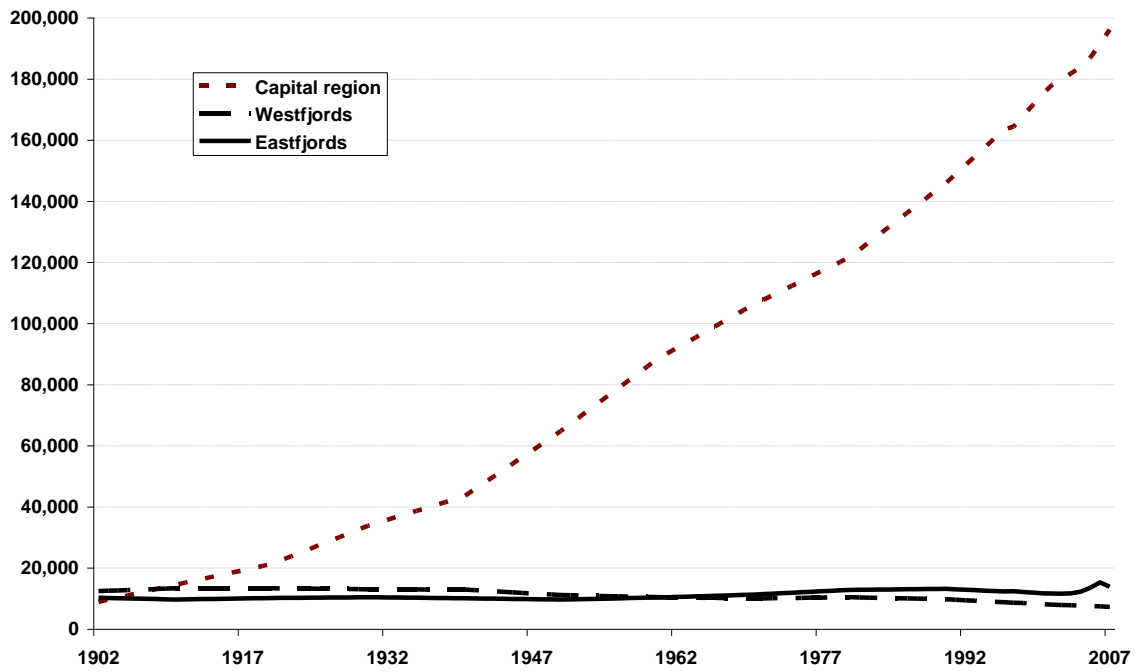


Figure 2. Population of Capital region, Eastfjords, and Westfjords, Iceland, 1902-2007

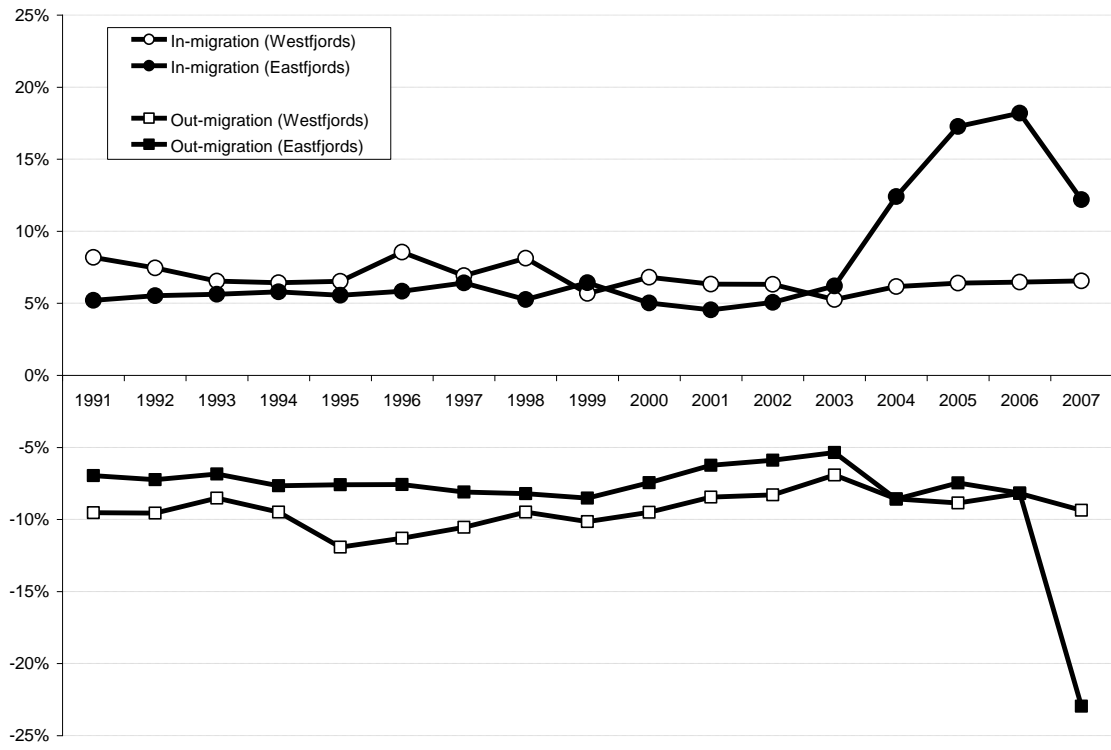


Figure 3. In-migration and out-migration in general population of Eastfjords and Westfjords, Iceland, 1991-2007