



The effects of road infrastructure improvement on work travel in Northern Iceland



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ABSTRACT

Work travel is an important alternative to out-migration in rural areas characterized by a limited range of jobs. The size of local labour markets is determined in part by geography and tradition, but advances in transportation have the potential to move people and communities closer together and transform established mindscapes. In Iceland, the dispersion of the rural population, a challenging terrain, and unpredictable weather has made road infrastructure improvements a key component in regional development strategies. A large-scale tunnel project completed in 2010 was intended to strengthen a vulnerable rural area on the northern coast and expand the urban labour market of the regional centre of Akureyri. Traffic surveys and resident surveys conducted before and after the tunnels show a substantial increase in 17–34 km work travel between rural communities. Work travel 61–77 km to and from the regional centre did however not increase. The average length of work travel has shortened but the increase in commuting yielded a net increase in total km commuted. The tunnels increased work travel irrespective of age and education, but increased work travel by women with children in the household in particular. The results suggest that large-scale road infrastructure improvements may substantially strengthen rural labour markets within a driving distance of 15–30 min, but may not extend the edge of micropolitan labour markets 45–60 min from an urban centre of less than 20 thousand inhabitants.

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1. Introduction

In many countries, investments in transportation infrastructure have been explicitly promoted to increase occupational mobility and strengthen regional development (Amcoff, 2009; Garmendia et al., 2011; Moss et al., 2004; Partridge and Nolan, 2005; Sandow, 2008). The current case study focuses on the effects of a large-scale road tunnel project in Northern Iceland on the local rural labour market, the micropolitan area of the regional centre and work travel to and from the distant capital region.

Various socio-economic, structural and cultural changes have increased the need for occupational mobility in rural communities. Technological advances and the intensification of production have in particular concentrated and substantially reduced local labour needs in traditional rural extraction industries such as farming, fishing and logging (Hamilton and Otterstad, 1998; OECD, 2006; Seyfrit et al., 2010). In addition, large-scale developments in e.g. oil and gas extraction, mining, and heavy industry tend to far outstrip the capacity of local rural labour markets and draw migrant workers on a regional, national and global scale (Freudenburg and Wilson, 2002; Gramling and Freudenburg, 2006; Johannesson, 2010; Schafft et al., 2013; Tonts, 2010). Similar to

the seasonal cycles in more traditional extraction industries, the growth in tourism has further contributed to occupational mobility through seasonal labour shortages in the high season and underemployment in the low season (Boffa and Succurro, 2012; Bosworth and Farrell, 2011; Johannesson et al., 2010; Keith et al., 1996).

Higher educational attainment and the increasing specialization of work have furthermore created 'thin labour markets' with few potential jobs in many rural areas (Sandow and Westin, 2010). Educational attainment has consistently been found to predict both the willingness to commute and the average distance commuted (Cassel et al., 2013; Sandow, 2008; Sandow and Westin, 2010; Öhman and Lindgren, 2003). This is in part because education is associated with occupational specialization and higher income, and higher income in turn makes commuting more economically viable (Cassel et al., 2013; Maoh and Tang, 2012; Sandow, 2008; Sandow and Westin, 2010). The educational and occupational aspirations of young women and a highly gendered labour market represent a major challenge to the sustainability of many rural communities (Dahlström, 1996; Thorsdottir and Olafsson, 2010). Women are nevertheless less likely to commute and on average commute shorter distances than men, in part because of greater household responsibilities (Cassel et al., 2013; Crane, 2007; Haas and Osland, 2014; Maoh and Tang, 2012).

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Gender inequalities in opportunities for work travel thus undermine both the occupational opportunities of rural women and the sustainability of rural communities.

At the same time, the boundaries of urban labour markets have been pushed progressively further into rural areas. This is in part driven by urban population growth, rising housing prices and improvements in transportation infrastructure (Garmendia et al., 2011; Grimsrud, 2010; Haas and Osland, 2014; Mitchell, 2004; Renkow and Hoover, 2000). Recent in-migrants from urban to rural areas are in particular more likely to commute long distances for work in urban areas (Champion et al., 2009). However, various technological advances have also made many occupations less dependent on location, enabling more people to work at home, in temporary locations, or literally on the move (Grimes, 2000; Helminen and Ristimäki, 2007; Hislop and Axtell, 2007; Laegran, 2008; Simpson et al., 2003). As careers are increasingly constructed through series of jobs, contracts and temporary assignments, the distance between home and one specific workplace has become less important in the lifestyle choice of residence. In addition to traditional daily commuting from home to a fixed place of work all year long, a number of people travel to work on a weekly or less frequent basis, even maintaining a second residence closer to the workplace (Amcoff, 2009). Some may also periodically travel considerable distances for seasonal work or short-term assignments and certain occupational groups such as e.g. salespeople, consultants, travel guides and truck drivers travel for a living. Daily commuting is therefore only one aspect of the more general phenomenon of work travel in contemporary societies.

The decentralization of work has contributed to the growth of broad 'exurban' or 'rurban' regions of suburbs, subdivisions, towns, villages and farmland adjacent to cities or major urban centres (Mitchell, 2004; Halfacree, 2008; Halliday and Coombes, 1995). From an urban perspective, such areas provide a variety of residential alternatives and many residents may regard themselves as city people living the rural idyll. From a rural perspective, however, diverse urban labour markets and the local job opportunities created by urban pursuits of the rural idyll may be considered a local resource, analogous to closeness to rich fishing grounds or other natural resources. While the literature emphasizes the flow of work traffic from rural or exurban residential areas to urban work places, rural areas can also be an important source of employment for urban workers (Green and Meyer, 1997; Grimsrud, 2010; Haas and Osland, 2014). In addition to traditional rural jobs, various specialized and professional services must be rendered in rural communities, albeit sometimes on a part-time or occasional basis. Better matches between individual skills and job opportunities thus not only benefits individuals living in rural or exurban areas, but also strengthens the local economy through the influx of a more specialized workforce from the urban centre.

Smaller urban centres and their surrounding 'micropolitan' areas are in a sense at the intersection of urbanization and counter-urbanization. On one hand, they offer many similar services as larger cities, including educational facilities, developed health-care, restaurants and coffee shops, speciality shops, entertainment and various artistic and cultural activities. By the same token, such urban centres offer a range of job opportunities for an increasingly specialized workforce and often provide an attractive urban atmosphere. On the other hand, micropolitan areas provide many of the amenities associated with the 'rural idyll', including affordable housing, lower crime rates, less congestion and pollution, more cohesive communities and close proximity to the countryside and often relatively unmanaged nature. In the United States, micropolitan areas of urban centres with 10–50 thousand inhabitants account for a quarter of all counties and 10% of the national population (Vias, 2012). In Norway, areas within 60 min travel from a settlement of 15–50 thousand inhabitants account for 17%

of the total population and 52% of the population beyond the outer metropolitan fringe of larger cities (Grimsrud, 2010). In Northern Iceland, the 24 thousand inhabitants of the regional centre of Akureyri and surrounding micropolitan area account for about 10% of the national population and 37% of the population beyond the outer fringe of the Reykjavík capital area (Bjarnason, 2011).

2. Transportation investments for regional development

Investments in transportation infrastructure that increase the density of local labour markets make it easier for people to find fitting jobs, simultaneously reducing the need for out-migration and increasing residential flexibility within regions (Amcoff, 2009; Green, 2004; Sandow, 2008). In principle, shorter distances should lead to less time and money spent on travel and a smaller ecological footprint. However, prior research suggests that reduced commuting costs tend to be met with longer and more frequent commuting, and that the total volume of work travel may be more or less constant on the community level (Haas and Osland, 2014; Limtanakool et al., 2006; Ommeren and Rietveld, 2005; Van Wee et al., 2006).

Interestingly, although prior economic and social appraisals of planned large-scale infrastructure developments are increasingly required, the actual effects are rarely evaluated once projects are completed (Knudsen and Rich, 2013). Existing studies of the labour market effects of such projects have furthermore yielded somewhat mixed results. For instance, the opening of the Øresund bridge between Denmark and Sweden in 2000 appears to have expanded the reach of Copenhagen into the Swedish region of Skån (Knudsen and Rich, 2013; Øresund Trends, 2012). In 2011, about 96% of the approximately 18,000 commuters who crossed the 16 km bridge on an average day lived in Skån and worked in Copenhagen. Interestingly, the number of Swedish commuters was roughly equal to the number of Danes that have moved to Skån to take advantage of lower housing prices while continuing to work in Copenhagen. In Spain, Garmendia et al. (2011) found that while motorway improvements between Madrid and Andalusia increased territorial cohesion through commuting by car and bus, high speed rail predominantly increased long-distance commuting of about one hour between the provincial centre of Ciudad Real and the national capital of Madrid, but had limited effect beyond the one-hour threshold.

In sharp contrast, the 50 km Channel tunnel and 35 min high-speed rail connection between Folkestone in Kent and Coquelles in Pas-de-Calais that opened in 1994 appears to have had limited effects on regional development in either Britain or France (Anguera, 2006; Thomas and O'Donoghue, 2013). While there is some degree of long-distance commuting from Folkestone to London on one hand and from Coquelles to Paris on the other, there appears to be virtually no cross-border commuting between Kent and Pas-de-Calais. This may in part be explained by a combination of language and cultural barriers, time tables and train costs (Thomas and O'Donoghue, 2013). However, it should also be noted that Kent is within an hour from London and Pas-de-Calais less than two hours from Paris. The less densely populated regions are not likely to compete with such vast metropolitan labour markets as a destination for long distance commuters. The labour market effects of infrastructure megaprojects thus appear to be contingent upon the geographical configuration of larger cities and less populated areas, as well as various economic, logistic and cultural considerations.

Studies of the impact of transportation improvements on work travel in more rural settings appear to be quite sparse. A tunnel and set of three bridges completed in 2001 brought most of the 30 thousand inhabitants on three islands in Southern Norway within one hour of the Haugesund area of about 100 thousand

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