PROJECT MUSE®

Adaptation in a Resource-Based Economy in the Northern Great Plains

M. Rose Olfert, David Natcher

Great Plains Research, Volume 26, Number 1, Spring 2016, pp. 35-49
(Article)

Published by University of Nebraska Press

DOI: <https://doi.org/10.1353/gpr.2016.0012>

➔ *For additional information about this article*

<https://muse.jhu.edu/article/614534>

Adaptation in a Resource-Based Economy in the Northern Great Plains

M. Rose Olfert and David Natcher

ABSTRACT—In this article, we present a stark depiction of the growth and decline of a resource-dependent prairie region in southwest Saskatchewan, part of the northern Great Plains. Canada's national development policy at the turn of the 20th century with respect to the region was comprised of immigration incentivized by the Dominion Lands Act which awarded homesteads to European immigrants, the building of a national railroad, and trade protection for eastern manufacturers. The resulting rapid population growth from about 1911 to 1921 in the region spawned a network of rural communities and public and private infrastructure development. However, the rapid growth was especially short-lived in our study area, spanning about 10 to 15 years, followed by more or less continuous decline. The spatial equilibrium framework suggests that the population more or less catapulted into the study area by what turned out to be poorly conceived government policy, and would subsequently exit in large measure, having encountered relatively unfavorable employment and income prospects. Their large-scale exit, as a primary adaptation strategy, would continue until local per capita economic conditions are restored to provincial levels. Per capita incomes and other economic indicators in the study area suggest that out-migration has indeed served this equilibrating function.

Key Words: economic adaptation, Great Plains, population migration, resource-based economy, rural communities, Saskatchewan

Introduction

Natural resource-dependent regions in developed economies generally exhibit slow growth, or more commonly, population decline, over the long run, due to the increasingly capital-intensive nature of most natural resource production (Barkely 1990; Sachs and Warner 1995; Papyrakis and Gerlagh 2004; Deller and Schreiber 2012; Partridge et al. 2013). In the short term, commodity price volatility typically results in a boom-and-bust economy. Remoteness from markets can further limit long-term diversification options for these regions (North 1959; Stabler 1968; Partridge et al. 2007; Olfert and Partridge 2010). In agriculture-dependent areas such as those of the northern Great Plains, the economic decline tends to be gradual, with the provision of public and private services for the resident population serving as an anchor

(Stabler 1968). The process of population out-migration from an area until a new stable level is reached, with per capita conditions similar to the rest of the province or country, may take generations. That is, some regions may experience slow growth or decline over extended periods of time. In this article we document, in detail, one such experience, spanning the period from the arrival of European settlers to the present day. For many rural areas in the Great Plains these patterns of population decline are continuing and have resulted in many communities disappearing. From a policy perspective, a clearer understanding of past adaptation in resource-based economies will be useful in selecting appropriate mitigation and/or support measures for population adjustments that accompany new resource developments.

The geographic area that is the basis for this research encompasses a relatively small rural area in the southwestern corner of the Saskatchewan, Canada, part of the North American Great Plains. We chose the area for a number of reasons. First, it was the basis of a very intensive cultural ecology study of the northern Great Plains

Manuscript received for review, 8/8/15;

accepted for publication, 10/7/15.

Great Plains Research 26 (Spring 2016):35–49. Copyright © 2016 by the
Center for Great Plains Studies, University of Nebraska–Lincoln

by John Bennett in the 1960s (Bennett 1967, 1969, 1982) that provided a wealth of baseline demographic and socioeconomic information. Second, this area of the province represents an extreme and compressed example of the boom-and-bust nature of agricultural development in the northern Great Plains following European settlement. Third, the proposed Keystone Pipeline, if built, would pass through the area, and if this were to occur, the area would undergo an unprecedented resource-based construction boom. The area is thus ideally suited to an examination of the growth and decline trajectories of natural resource-dependent regions.

For rural communities in North America, those located in the northern Great Plains are typically characterized by a downward population spiral, and face particular challenges (Hodge 1965; Stabler and Olfert 1993; Drabentstott 1995; Goetz and Debertin 1996). For at least the past 100 years, dryland farming in the northern Great Plains has experienced continuous productivity improvements in the form of increasing capital intensity and economies of scale in terms of the land base. The region's sparse and dispersed farm population, located at great distances from major markets, severely limits the development of alternate sources of employment and income (Stabler and Olfert 2002; Partridge et al. 2007). The labor surplus released from more efficient agriculture practices typically migrates from the area (Heady and Sonka 1974; Barkely 1990; Goetz and Debertin 1996; Artz and Yu 2009). Population decline leads to eventual decline, and even the disappearance, of small rural communities. Without viable rural communities the sparsely dispersed population finds habitation increasingly difficult, leading to more out-migration. Without a local market of sufficient size to support new economic activity, these communities and their surrounding populations are even more dependent on the natural resource base. Limited local manufacturing and publicly supported local services may provide some employment. Periodic new natural resource developments (oil and gas extraction, for example) can provide new boom-bust cycles. Recently, shale oil development in the Bakken Basin in southeastern Saskatchewan, North Dakota, and Montana is a striking example of how sudden, and unsustainable, booms may occur from time to time in (previously) very sparsely populated areas. In the Bakken Basin the inevitable bust was just beginning in late 2014. The area we chose to study is representative of this boom-bust process, compressed into an unusually short time period.

We note that in the process described above, a small number of communities grow, and some become urban centers, consistent with Central Place Theory (CPT) as initially posited by Christaller (1933). In this context, location and spatial configurations have primary influences on community development. However, the determinants of which particular communities thrive likely include factors such as social capital and leadership (Knack and Keefer 1997; Reimer 1997; Rupasingha et al. 2000; Anderson 2004).

The study area, Census Division 4 (CD4), shown in Figure 1, is located in the driest part of the Canadian portion of the northern Great Plains, a semiarid grassland commonly referred to as the Palliser Triangle (Dale-Burnett 2007). Captain John Palliser, whose name it bears, was a British explorer, part of the British North American Exploring Expedition (1857–60) charged with investigating the area for a suitable railroad route and for agriculture and settlement potential (Wolfe et al. 2013). Palliser reported back to his superiors in 1863 that the area was poorly suited for farming; indeed, he declared that the area would be “forever comparatively useless” (McInnes 2004). However, Thomas (1985) reported that an assessment in the 1870s, conducted during comparatively wet years, by John Macoun, enthusiastically recommended the area as suitable for growing wheat for export and for settlement. It was the more optimistic findings of Macoun that were used to justify the extension of the Canadian Pacific Railroad directly through the study area in route to the west coast (McInnes 2004). To further entice western settlement, the Dominion Lands Act was passed (1872), awarding 160 homestead acres to would-be settlers. By the early 1900s, southwest Saskatchewan had begun to experience rapid population growth as towns sprang up to service the development of agricultural production and export. Yet even before the infrastructure and communities were well established, decline set in, and 100 years later the study area is beset with towns in decay and a population a mere fraction of what it was at its, albeit fleeting, peak (Stabler and Olfert 2002).

In this article, we first trace a brief history of our study area, including a description of the rise and fall of early settlements, followed by an overview of selected literature on resource economies that is relevant for the regional economy under investigation. We then present a detailed description of the evolution of the local economy over the past 50 years, focusing on population, community, labor force, and sector developments

Figure 1. Northern Great Plains of North America and approximate study area. Numbers refer to Saskatchewan 2011 Census Division. Source: 2011 Census of Agriculture, Agriculture Division, Statistics Canada. <http://www.statcan.gc.ca/sites/default/files/map2sk-eng.pdf>.

TABLE 1. Settlements in Census Division 4 at ten-year intervals from 1901 to 1951 and in 2011.

Settlement	Population size						
	1901	1911	1921	1931	1941	1951	2011
Census Division 4	1,324	10,497	24,198	28,126	22,300	17,925	10,880
Towns							
East End	—	—	427	545	542	665	527
Maple Creek	382	936	1,002	1,154	1,085	1,638	2,176
Shaunavon	—	—	1,146	1,761	1,603	1,625	1,756
Villages and Hamlets/Rural	942	9,561	21,627	24,666	19,070	13,997	6,421
First Nations Reserves							
Nekaneet First Nation				71	54	41	118

Source: Censuses of Population, 1901–1951 (Statistics Canada, various years) and National Household Survey, 2011 (Statistics Canada 2011).

during a period of consolidation and adaptation to the declining agriculture sector. We conclude by examining existing and new adaptation challenges for the area, including economic policy implications.

Historical Background

While our article focuses on the period of European settlement and after, we note that the Plains Cree (Nêhiyawak) resided in the area from about the 1730s (Stonechild 2006) and served as middlemen, in alliances with the Nakota and Blackfoot, during the fur trade (Cardinal and Hildebrand 2000; Thompson 2004). Currently, only one small First Nation, the Nekaneet First Nation, is located in the study area. Treaty 4, signed by the Nekaneet First Nation in 1874, encompasses a land area that extends from southeast Alberta, through Saskatchewan, and into southwestern Manitoba. Treaty 4 was motivated largely by government's desire to attract European settlement, promote agricultural development, and clear a path for the completion of the transcontinental railway that would extend across the southern portions of the prairie provinces. The signing of Treaty 4, as well as the other Numbered Treaties, was also seen by the federal government as a necessary condition to ease existing and future tensions between prairie First Nations and European settlers who were entering onto First Nation lands (Braroe 1975).

The Population Census of 1901, which preceded the formation of the province of Saskatchewan in 1905, reported a population of 1,324 in what was to become Census Division 4 (CD4 in our study area) (Statistics Canada 1931). As settlers arrived, population in the study area increased sharply until 1921, followed by some additional growth to 1931 (Table 1). Following the peak population of 28,126 in 1931, the study area began its steady decline to a population of 10,880 in 2011, a population about equal to that in 1911.

While the early 1900s' population of CD4 consisted primarily of farmers and ranchers, as more settlers arrived, a number of small communities emerged, with some incorporating very quickly as towns (McLennan 2006). The largest town in the study area, Maple Creek, dates to 1882 when transcontinental railway construction workers chose the location to overwinter (McLennan 2006). The following year (1883), the North-West Mounted Police station was relocated to Maple Creek from Fort Walsh in the Cypress Hills, and in the same year a post office was established. By 1896 Maple Creek was incorporated as a village, and by 1903, with a population of 461 residents, attained town status. The development of water, sewer, and utilities followed shortly, along with churches and schools (McLennan 2006). The origins of the settler population were initially the United States and eastern Canada, though following the turn of the century, immigrants arrived mostly from eastern

Europe. Some Chinese laborers who were involved in the construction of Canadian Pacific Railway also settled in the area.

Not unlike other organized settlements, Shaunavon went from a small number of dispersed homesteads to a town of 700 in 1913, reaching a population of 1,761 by 1931. During this same period, the town of Eastend appeared for the first time in the 1921 Census with a population of 427, gradually increasing in size to 665 in 1951. Numerous other hamlets and small villages sprang up between 1900 and 1930 to serve local populations, though most had a short life span of 20 to 30 years. Among these, Val Marie, Cadillac, Carmichael, Admiral, Consul, Piapot, and Frontier remain as small villages of less than 300, while others have become ghost towns and still others have vanished without a trace. The general decline in the CD4 population was accompanied by a gradual concentration of the remaining population in the towns of Maple Creek, Eastend, and Shaunavon.

A thorough and wide-ranging study of an area in southwestern Saskatchewan that was somewhat smaller than our study area was undertaken in the 1960s by John Bennett, culminating in a series of publications (Bennett 1967, 1982; Braroe 1975), most notably *Northern Plainsmen: Adaptive Strategies and Agrarian Life* (1969). The “Bennett Region” of study extended approximately 143 km north from the US border, and 87 km east from the Alberta-Saskatchewan border. In comparison, our study area (CD4), has a north-south extent from the US border approximately the same as the Bennett study but it extends east of the Alberta border about 177 km, thus being almost twice as wide. However, the soils and climate are very much like that of the smaller Bennett study area.

Bennett (1967, 1969, 1982) describes the early rapid population growth with arrival of the first European settlers at the turn of the 20th century that was in response to government policies to develop the export-based wheat economy in the region. He also documents the subsequent rapid decline in the 1930s and 1940s as settlers searched for economic opportunities elsewhere, especially during drought years. Offsetting this population decline to some extent was the establishment of five new Hutterite colonies in the area between 1951 and 1960.

In Figure 2, we illustrate the rapid growth and then equally rapid decline in population of the constituent rural parts of the Rural Municipalities (RMs), the unincorporated areas in CD4. These population figures are aggregations of all rural space in the study area, other than those that identify the towns of Eastend, Maple

Creek, and Shaunavon. Included in these populations are some emerging villages and hamlets, most of which stagnated quickly or disappeared. For most of these areas, population was first recorded in the 1911 Census, and indeed, the areas would have been very sparsely populated before then. The period of rapid settlement, up to 1921, is striking. The precipitous population decline following 1931 was in the first instance caused by major droughts, including the infamous “dust bowl” conditions, and in the latter due to the mechanization and economies of scale in agricultural operations (Stabler 1987). The second major contributor to the decline of the rural populations in these areas was “urbanization.” Consolidation of private and public services, such as those to the agriculture industry and to schools and healthcare facilities, into towns supported the towns’ population growth or stability (Stabler and Olfert 2002).

In Figure 3, we compare the total population of CD4 and the total population of the province in a long-term context (1901–2011). We indexed the series in Figure 3 to 1961 to highlight the differences and similarities between the pre- and post-1961 periods. Because settlement and growth in the study area was late relative to the province, the early period saw more rapid growth in the study area than the province, followed by more rapid decline. The towns (Fig. 4) benefited from the concentration of the population, initially providing some stability, and even growth, until 1961 or 1971, when decline set in.

Selected Literature and Theoretical Framework

Literature on the economic trajectories of natural resource-based economies include analyses of regions dependent on point-source resources such as oil and minerals, and those more focused on agriculture. While the dominant type of natural resource may lead to some differences, the long-term slow-growth trajectories are similar. The so-called natural resources curse, which has been the focus of much empirical work on dependence on oil and gas or minerals, especially for developing countries, is not encouraging for the long-term economic development in rural or underdeveloped areas (Barro and Sala-i-Martin 1992; Matsuyama 1992; Sachs and Warner 1995, 2001; Auty 1997, 2001; Gylfason 2001; Manzano and Rigobon 2001; Frankel 2010). There are exceptions, of course, such as Norway and some regions of the United States and Canada, where an abundance of resources has not triggered the failed institutions

Figure 2. The rise and fall of the rural population in 12 Rural Municipalities in Census Division 4, 1911–1951. Local Improvement Districts (LIDs) 923, 926, and 929 (precursors to Rural Municipalities) are omitted from the figure due to scaling issues, as these LIDs are very sparsely populated throughout. Source: Censuses of Population, 1911–1951 (Statistics Canada, various years).

Figure 3. Total population of Saskatchewan and Census Division 4, 1901–2011, indexed to 1961. Source: Censuses of Population (Statistics Canada, various years).

Figure 4. Population of towns in the study area, 1921–2011. Source: Censuses of Population (Statistics Canada, various years).

and poor economic outcomes described by the natural resources curse (Brunnschweiler and Bulte 2008; Boyce and Emery 2011). For example, in oil and gas-dependent regions, the location and the social capital, size, and diversity of the community are important factors in the socioeconomic outcomes of the population (Haggerty et al. 2014).

However, even in developed countries, regions rich in natural resources are typically characterized by instability in the short term and slow growth in the long term. In the United States, Papyrakis and Gerlagh (2007) found that states with resource abundance have experienced statistically significantly lower rates of growth. In Saskatchewan, Stabler and Olfert (2002) found productivity improvements are typically won through releasing labor, and in the absence of other new economic activity, regional populations will decline, often leading to the loss of public and private services and ultimately infrastructure.

The export-base hypothesis of regional economic development accords a fundamentally important role to the development of exports for a regional, or national, economy. Nobel laureate Douglass C. North (1956), in an exchange with Charles Tiebout in the *Journal of Political Economy*, maintained that a regional economy's long-run growth is dependent on export demand. The Staples

Theory of Canadian economic history, attributed largely to Harold Innes (1930), like the export-base hypothesis, accords a central role to export demand in a region's development. As goes the external demand, so go the fortunes of the region, according to the export-base and Staples theories. North (1956) held that the development of North America in the 16th to the 19th centuries, and especially its hinterlands, reflected the export-base hypothesis. Tiebout (1956), on the other hand, stressed the potential importance of endogenous growth through a series of stages of growth. This debate has special relevance for small, rural regions with a narrow natural resources base. A useful discussion by Stabler (1968) is an attempt to reconcile the two views in the context of the Great Plains, concluding that regions can develop without progressing through the stages of growth but that the nature of the region's development will depend on the scope of linkages and on external demand sufficient to support local population and economic activity. Kilkenny and Partridge (2009) found that, regardless of the role of the export base in the early development of the North American economy, rural growth is significantly *negatively* related to both the degree of initial export-sector dependence and to changes in it over the period 1980–2005. The difference between types of nat-

Figure 5. Total population of Saskatchewan and Census Division 4, 1961–2011, indexed to 1961. Source: Censuses of Population (Statistics Canada, various years).

ural resource dependence, that is, minerals versus agriculture, for example, depends on the remoteness and economic diversification of the area. Remote mining communities are more likely to disappear because there are few other sources of employment, while agricultural communities are more likely to have a larger resident population and more local linkages, making decline more likely to be gradual. The presence and strength of social capital in the community will likewise influence the long-term resilience and viability of the community (Putnam 1993; Knack and Keefer 1997; Flora 1998; Anderson 2004; Crandall and Weber 2004).

Regional economic literature on the northern Great Plains (US) and the Palliser Triangle region (Canada) is relatively sparse. In a detailed examination of three counties in Montana, Hansen and Libecap (2004) point to the federal government land settlement policy as being primarily responsible for the subsequent massive exits of farmers from the area beginning in the 1920s. Their study area lies just south of the 49th parallel, near our study area. For our study area, Bennett (1969) similarly reports that the initial farm sizes (the product of the Dominion Lands Act) were not sustainable, resulting in massive population exits during the 1920s and '30s. Furthermore, Hansen and Libecap (2004) found that the

farms established in Montana under the Homestead Act were “too small to be viable”; they reported that John Wesley Powell (1878) had recommended much larger-size initial farms for homesteading, but for political reasons the regular 160- to 320-acre (nonviable) farm sizes were maintained.

The empirical analysis of the Montana counties by Hansen and Libecap (2004) found that, after peaking in 1930, farm size shrank over at least the next 50 years and in some areas a decrease in farm size is ongoing. As another illustration, population size in Billings and Bottineau Counties (North Dakota) peaked in 1910 at 10,186 and 17,295 respectively. By the 1990 census, Billings had 11% of its 1910 population and Bottineau, 46% (Hansen and Libecap 2004). Throughout this region, as in our study area in Saskatchewan, the rapid decrease in population left a legacy of scattered deserted homesteads and ghost towns.

The long-term viability of an export base will depend on the nature of the product being exported, including subsequent technological development, the local economic linkages that develop around it, and the scope for expanding or diversifying the economic base (Stabler 1968). In the case of the study area, dryland farming has evolved through labor-saving productivity improve-

ments and tremendous increases in economies of size. Combined with the pressures of international competitiveness, this has translated into land-extensive and capital-intensive production.

Great distances to major markets and the highly dispersed and very small local population have stymied the development of local manufacturing and service industries.

Adaptation in Census Division 4, 1961–2011

CD4 is a natural resources–dependent area in a natural resources–dependent province. The population in CD4 has continued to be dependent on its agricultural resources (and more recently on oil and gas), and has adapted to technological changes and external demand through out-migration and increased urbanization. The number of farms has declined continuously, which is consistent with provincial, national, and global trends. The labor force has become more dependent on the service sector for employment.

Many of the characteristics consistent with natural resource dependence, evident in the province over the 1961–2011 period, are magnified in the study area. The study area, its largest urban center having a population of just over 2,000, is sparsely populated, and like the province is located far from major markets. In Figure 5 we show the slow growth in the population of the province over the 1961–2011 period, which averaged only 17% over 50 years. In contrast, the population of the study area (Fig. 5) declined by almost 40% over this period. Even over the last Census interval (2006–2011), when the province showed uncharacteristic growth, increasing from a total population of 968,160 to 1,033,380 (6.7%), the study area population declined by almost 2%, from 11,085 to 10,880.

Due to underlying trends and patterns driven by natural resource dependence in both the province and the study area, the population is becoming more concentrated in urban areas, as it is globally. Over the 1961–2011 period, the urban share of the population in the province increased from 32% to 61%; over the last Census interval the urban population in the province increased by 8.8%. Compared with Canada's 82% urban population, the province is still relatively rural, with the urban share slowly increasing. As noted above, the population in the study area is also increasingly concentrated in its three small towns. In 1961 the towns accounted for 29% of the CD4 population; by 2011, this share had grown to

41%. By all definitions, the CD4 population is very small, rural, and concentrated in its small towns.

Age Distribution, Marital Status, and Homeownership

Demographic and socioeconomic comparisons between the study area and the province may help us understand how the region's characteristics (with its greater reliance on natural resources, particularly agriculture) may have evolved. This will be especially important because of the likely age-selectivity of migration from the region, an important means of adaptation for the regional population. The age and marital status distributions of CD4 exhibit modest differences from the province. In 2011 the prime-age labor force (ages 25–64) comprised about 51% of the population in CD4, whereas it comprised 52% in the province. In addition, the 65+ population accounted for 19% and 15% of the CD4 and province workforce, respectively, and the <24 group accounts of 30% and 33%, respectively. Though the differences are not large, they point to an older population in CD4 with a higher labor force dependency ratio. The percentages of the 15+ population that was married in CD4 and the province were identical, at 44%, in 1961, but later the percentages diverged, with CD4 having 59% married and the province 52% married in 2011, perhaps suggesting a more traditional family structure in the region. Consistent with a larger married population, homeownership in CD4 was higher and increasing over time as compared to the province (Statistics Canada 2011).

Employment, Industry Structure, and Education

Steadily declining population in CD4 is at least partially explained by the decline in employment (including self-employment) since 1961 (Fig. 6). Employment figures, indexed to 1961 for both CD4 and the province, show that employment levels in 2011 for the study area were only 86% of those in 1961, while the province's employment was 165% of its 1961 level (Statistics Canada 2011).

The employment rate for CD4 is actually higher than that for the province as a whole, indicating that the population 15+ that resides in the study area is largely employed, rather than unemployed or opting out of the labor force (Fig. 7). This pattern has persisted for most of the 1961–2011 period, showing that declining employ-

Figure 6. Total employment in Saskatchewan and Census Division 4, 1961–2011, indexed to 1961. Source: Censuses of Population, 1961–2006 (Statistics Canada, various years), and National Household Survey, 2011 (Statistics Canada 2011).

Figure 7. Employment rate in Saskatchewan and Census Division 4, 1961–2011. Source: Censuses of Population, 1961–2006 (Statistics Canada, various years), and National Household Survey, 2011 (Statistics Canada 2011).

ment (Fig. 6) has not resulted in higher unemployment. Low unemployment may be the result of persistent out-migration of the population.

Higher employment rates are partly due to higher labor-force participation rates (active labor force as a percentage of population 15+) in CD4 than in the province. In both jurisdictions, the overall labor-force participation rates have increased from 1961 to 2011 due to rapidly increasing participation rates for females, and slightly decreasing rates for males. In 1961 the male labor-force participation rate was 80.9% in CD4 and 78.2% in the province; the female participation rates were 22.5% and 26.6%, respectively (Figs. 8 and 9). In 2011 male participation rates were 78.5% and 74.9% in CD4 and the province, respectively, with CD4 remaining above the provincial average. Female participation rates in 2011, at 66.5% in CD4 and 63.6% in the province, reversed their 1961 relative positions.

The effectiveness of migration responses to differential employment opportunities in the study area and the province are reflected in the relative 15+ per capita income levels. In 2011 the per capita income in CD4 was \$37,294, only 6% below the provincial average of \$39,560. Over the 1961–2011 period, the CD4 level has been consistently slightly below the provincial average, though the cost of living is likely also lower. This is encouraging in terms of the ability of out-migration from the region to serve the function of making regional per capita income and employment comparable to the rest of the province and country. Essentially, the (stable or sometimes declining) aggregate employment and income is spread over a smaller population until the per capita values equalize. The decline in employment has been largely matched by out-migration, largely avoiding higher unemployment.

The narrow economic base of the region is reflected in the industry structure of employment. In CD4, primary production (crops and livestock, coal mining, oil and gas extraction) accounted for 34% (13% in the province and 4% in Canada) of total employment in 2011. Although this is a major decline since 1961, when it accounted for 58% (39% in the province), it illustrates the persistent very high natural resource dependency of the region. In contrast, the services sector in CD4 accounted for 22% (28% in the province) of employment in 1961, which increased in importance to 40% in 2011 (52% in the province and 63% in Canada). The underdeveloped manufacturing sector in the province (5.8% compared with 9.2% nationally) is similar to that in CD4, where

manufacturing accounts for only 3.4% of employment (Statistics Canada 2011).

Educational attainment of the adult population 15+ over the 1961–2011 period reflects the agricultural structure of the region. Compared with the province, the study area has markedly lower levels of education in 2011, with only 8.9% of the population having a university degree as compared to 15.3% in the province. The demand for employees with university degrees originates almost exclusively from the public sector, that is, schools and health centers (Stabler and Olfert 2002). However, at the other end of the educational spectrum, CD4 has about the same percentage (24.3%) with less than a high school education as the province (24.7%) (Statistics Canada 2011).

Future Challenges and Opportunities

Dependence on the natural resource economy in a remote rural area such as CD4 strongly influences the scope and type of economic growth and development. Historically, agriculture dependence, along with continuing mechanization and international competitiveness in exports, has meant a continuous and substantial farm consolidation, leading to fewer and larger farms (Bennett 1967, 1969, 1982; Heady and Sonka 1974; Barkeley 1990; Stabler and Olfert 2002; Hanson and Libecap 2004). The absence of new economic activity to absorb the surplus labor has resulted in out-migration and a decline in the many small communities initially populating the landscape. However, a small number of (relatively) larger rural communities have benefited from the population becoming more concentrated (Stabler and Olfert 2002). Favorable labor-force participation and employment rates, and comparable incomes in the study area relative to the province, as shown in Figures 7–9, suggest that out-migration has largely prevented unemployment in the region even as the economic base is generating fewer jobs.

The region's export dependency has recently extended to oil and gas extraction, resulting from the technological innovations in horizontal drilling in the Bakken region. In CD4, the Lower Shaunavon oil fields have seen active drilling and production for a number of years post-2007, with a promise of sustained production income in the area (Stonehouse 2013). However, the 2014 drop in oil prices and prospect for continuing low prices will affect the viability of this resource.

The proposed Keystone Pipeline would pass through

Figure 8: Labor-force participation rates for males and females in Census Division 4, 1961–2011. Source: Censuses of Population, 1961–2006 (Statistics Canada, various years), and National Household Survey, 2011 (Statistics Canada 2011).

Figure 9: Labor-force participation rates of males and females in Saskatchewan, 1961–2011. Source: Censuses of Population, 1961–2006 (Statistics Canada, various years), and National Household Survey, 2011 (Statistics Canada 2011).

the study area, and though the long-term economic impacts are likely minimal, the construction phase could see the establishment of a construction camp in Maple Creek with 13,000 employees for two years (Jaster 2010). Clearly, for a town of just over 2,000, the short-term impacts would be massive in terms of local employment in the accommodation and service industries, possibly resulting in major social disruption.

Over the long run the study area is likely to remain dependent on its natural resources with limited potential for employment growth. As service centers in the immediate region, the towns of Maple Creek, Shaunavon, and Eastend are relatively secure in terms of their continued existence, though they are likely to also experience population decline in absolute terms. Possible expansion of export sectors or the advent of new exports will offer temporary employment growth, which will likely be followed by decline. The development of tourism, specialized manufacturing, or additional services focused on the region may have some potential, though the remote, rather small, sparsely populated nature of the study area are a constraint. In the meantime the apparent mobility of the population ensures that per capita income levels are comparable to those in the rest of the province.

Conclusion

Our detailed description of the evolution of our study area contributes to a better understanding of the challenges and opportunities faced by rural areas in the northern Great Plains, where export agriculture has served as the primary economic base in the postsettlement era. The evolution of the study area reflects the adaptations of the population in terms of out-migration and limited local economic diversification. The result of these adaptive measures is borne out in the positive economic indicators for the study area—low unemployment, high labor-force participation, and per capita income levels that are not unlike those elsewhere in the province. While public services have become an important source of employment and income in the study area, as they have globally, long-term policy options for economic growth remain limited. Nevertheless, mitigating short-term volatility resulting from commodity price volatility, or volatility accompanying the construction of the Keystone XL pipeline, is an important government function. Further, broad-based support for ongoing initiatives and the opportunities that may arise from time to time will improve economic outcomes

for the study area and others like it. Innovative ways of providing services to the sparse and dispersed population are required and will become more important the greater the future population decline.

Acknowledgment

We gratefully acknowledge funding for this study from the Social Sciences and Humanities Research Council.

.....
M. Rose Olfert (rose.olfert@usask.ca), Johnson-Shoyama Graduate School of Public Policy, University of Saskatchewan, Saskatoon, SK, S7N 5B8

David Natcher (david.natcher@usask.ca), Bioresource Policy, Business, and Economics, University of Saskatchewan, Saskatoon, SK, S7N 5B8

References

- Anderson, J. 2004. "Social Capital, Wealth, and Nebraska Towns." *Great Plains Research* 14 (1): 3–17. Paper 694. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1686&context=greatplainsresearch>.
- Artz, G. M., and L. Yu. 2009. "How You Gonna Keep 'em Down on the Farm: Which Land Grant Graduates Live in Rural Areas?" Des Moines: Department of Economic Staff Research Papers, Iowa State University.
- Auty, R. M. 1997. "Natural Resources, the State and Development Strategy." *Journal of International Development* 9:651–63.
- Auty, R. M. 2001. "The Political Economy of Resource-Driven Growth." *European Economic Review* 45:839–46.
- Barkely, A. 1990. "The Determinants of Migration of Labor Out of Agriculture in the United States, 1940–1985." *American Journal of Agricultural Economics* 72:567–73.
- Barro, R. J., and X. Sala-i-Martin. 1992. "Convergence." *Journal of Political Economy* 100:223–51.
- Bennett, J. W. 1967. *Hutterian Brethren: The Agricultural Economy and Social Organization of a Communal People*. Stanford, CA: Stanford University Press.
- Bennett, J. W. 1969. *Northern Plainsmen: Adaptive Strategy and Agrarian Life*. Chicago: Aldine Publishing.
- Bennett, J. W. 1982. *Of Time and the Enterprise: North American Family Farm Management in the Context of Resource Marginality*. Minneapolis: University of Minnesota Press.
- Boyce, J. R., and J. C. H. Emery. 2011. "Is a Negative Correlation between Resource Abundance and Growth Sufficient Evidence That There Is a 'Resource Curse'?" *Resources Policy* 36:1–13.
- Braroe, N. W. 1975. *Indian and White: Self-Image and Interaction in a Canadian Plains Community*. Stanford, CA: Stanford University Press.
- Brunnschweiler, C. N., and E. H. Bulte. 2008. "The Resources Curse Revisited and Revised: A Tale of Paradoxes and Red

- Herrings." *Journal of Environmental Economics and Management* 55:248–64.
- Cardinal, H., and W. Hildebrand. 2000. *Treaty Elders of Saskatchewan: Our Dream Is That Our Peoples Will One Day Be Clearly Recognized as Nations*. Calgary: University of Calgary Press.
- Christaller, W. 1933. *Central Places in Southern Germany*. Translated from *Die Zentralen Orte in Süddeutsch-land* by C. W. Baskin. Englewood Cliffs, NJ: Prentice Hall.
- Crandall, M. S., and B. A. Weber. 2004. "Local Social and Economic Conditions, Spatial Concentrations of Poverty and Poverty Dynamics." *American Journal of Agriculture Economics* 86 (5): 1276–81.
- Dale-Burnett, L. 2007. "Palliser Triangle." In *The Encyclopedia of Saskatchewan*. Regina, SK: Canadian Plains Research Centre. http://esask.uregina.ca/entry/palliser_triangle.html.
- Deller, S. C., and A. Schreiber. 2012. "Mining and Community Economic Growth." *Review of Regional Studies* 42:121–41.
- Drabenstott, M. 1995. "Economic Prospects for the Great Plains in Conservation of Great Plains Ecosystems: Current Science, Future Options." *Ecology, Economy and Environment* 5:63–81.
- Flora, J. L. 1998. "Social Capital and Communities of Place." *Rural Sociology* 63:481–506.
- Frankel, J. A. 2010. "The Natural Resource Curse: A Survey." NBER Working Paper 15836. National Bureau of Economic Research, Cambridge, MA. <http://www.nber.org/papers/w15836>.
- Goetz, S. J., and D. L. Debertin. 1996. "Rural Population Decline in the 1980s: Impacts of Farm Structure and Federal Farm Programs." *American Journal of Agricultural Economics* 78:517–29.
- Gylfason, T. 2001. "Natural Resources, Education, and Economic Development." *European Economic Review* 45:847–59.
- Haggerty, J., P. H. Gude, M. Delorey, and R. Rasker. 2014. "Long-Term Effects of Income Specialization in Oil and Gas Extraction: The US West, 1980–2011." *Energy Economics* 45 (C): 186–95.
- Hansen, Z. K., and G. D. Libecap. 2004. "The Allocation of Property Rights to Land: US Land Policy and Farm Failure in the Northern Great Plains." *Explorations in Economic History* 41:103–29.
- Heady, E. O., and S. Sonka. 1974. "Farm Size, Rural-Community Income, and Consumer Welfare." *American Journal of Agricultural Economics* 56:534–42.
- Hodge, G. 1965. "The Prediction of Trade Center Viability in the Great Plains." *Papers in Regional Science* 15 (1): 87–115.
- Innes, H. A. 1930. *The Fur Trade in Canada: An Introduction to Canadian Economic History*. New Haven, CT: Yale University Press.
- Jaster, C. 2010. "Pipeline Good for Local Economy." *Maple Creek News*. <http://www.maplecreeknews.com/news/local-news/395-pipeline-good-for-local-economy.html>.
- Kilkenny, M., and M. D. Partridge. 2009. Export Sectors and Rural Development. *American Journal of Agricultural Economics* 91 (4): 910–29.
- Knack, S., and P. Keefer. 1997. "Does Social Capital Have an Economic Payoff? A Cross-Country Investigation." *Quarterly Journal of Economics* 112:1251–88.
- Manzano, O., and R. Rigabon. 2001. "Resource Curse of Debt Overhang." NBER Working Paper 8390. National Bureau of Economic Research, Cambridge, MA.
- Maple Creek News. 2012. "Nekaneet Dealing with \$1 Million Deficit." <http://www.maplecreeknews.com/news/local-news/1500-nekaneet-dealing-with-1-million-deficit.html#sthash.ueew8sSE.dpuf>.
- Matsuyama, K. 1992. "Agricultural Productivity, Comparative Advantage, and Economic Growth." *Journal of Economic Theory* 58:317–34.
- McInnes, A. 2004. "The Story of Palliser's Triangle, the Structure of Saskatchewan Soils, the Reality of Saskatchewan Weather." Prepared for Exhibit "Winning the Prairie Gamble," North Battleford Western Development Museum. http://www.wdm.ca/skteacherguide/WDMResearch/SkWeather_Climate_Soils.pdf.
- McLennan, D. 2006. "Maple Creek." In *The Encyclopedia of Saskatchewan*. Regina: Canadian Plains Research Centre. http://esask.uregina.ca/entry/maple_creek.html.
- North, D. C. 1959. "Agriculture in Regional Economic Growth." *Journal of Farm Economics* 41:943–51.
- North, D. C. 1956. "Exports and Regional Economic Growth: A Reply." *Journal of Political Economy* 64 (2): 165–68.
- Olfert, M. Rose, and M. D. Partridge. 2010. "Introduction: Best Practices in 21st Century Rural Development and Policy." *Growth and Change* 41:147–64.
- Papayrakis, E., and R. Gerlagh. 2007. "Resource Abundance and Economic Growth in the United States." *European Economic Review* 51:1011–39.
- Papayrakis, E., and R. Gerlagh. 2004. "The Resource Curse Hypothesis and Its Transmission Channels." *Journal of Comparative Economics* 32:181–93.
- Partridge, M. D., M. R. Betz, and L. Lobao. 2013. "Natural Resource Curse and Poverty in Appalachian America." *American Journal of Agricultural Economics* 95:449–56.
- Partridge, M. D., R. D. Bollman, M. Rose Olfert, and A. Alasia. 2007. "Riding the Wave of Urban Growth in the Countryside: Spread, Backwash, or Stagnation?" *Land Economics* 83:128–52.
- Powell, J. W. 1878. *Report on the Lands of the Arid Region of the United States*. 45th Cong., 2nd sess., Executive Document No. 73. Washington, DC: Government Printing Office.
- Putnam, R. D. 1993. "The Prosperous Community—Social Capital and Public Life." *American Prospect* 4 (13): 35–42.
- Reimer, B. 1997. "Informal Social Networks and Voluntary Associations in Non-Metropolitan Canada." In *Changing Rural Institutions: A Canadian Perspective*, ed. Richard C. Rounds, 89–104. Canadian Rural Restructuring Foundation in cooperation with the Rural Development Institute, Brandon University, Brandon, MB.
- Rupasingha, A., S. J. Goetz, and D. Freshwater. 2000. "Social Capital and Economic Growth: A County-Level Analysis." *Journal of Agricultural and Applied Economics* 32:565–72.

- Sachs, J. D., and A. M. Warner. 1995. "Natural Resource Abundance and Economic Growth." NBER Working Paper 5398. National Bureau of Economic Research, Cambridge, MA.
- Stabler, J. C. 1968. "Exports and Evolution: The Process of Regional Change." *Land Economics* 44:11–23.
- Stabler, J. C. 1987. "Trade Centre Evolution in the Great Plains." *Journal of Regional Science* 27 (2): 225–44.
- Stabler, J. C., and M. Rose Olfert. 1993. "Farm Structure and Community Viability in the Northern Great Plains." *Regional Studies* 23:265–86.
- Stabler, J. C., and M. Rose Olfert. 2002. *Saskatchewan's Communities in the 21st Century: From Places to Regions*. Regina, SK: Canadian Plains Research Centre.
- Statistics Canada. 1931. *Census of Population*. Ottawa: Government of Canada, Supply, and Services.
- Statistics Canada. 2011. "2011 National Household Survey: Data Tables." <http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/dt-td/Lp-eng.cfm?LANG=E&APATH=3&DETAIL=0&DIM=0&FL=A&FREE=0&C=0&GID=0&GK=0&GRP=0&PID=0&PRID=0&PTYPE=105277&S=0&SHOWALL=0&SUB=0&Temporal=2013&THEME=98&VID=0&VNAMEE=&VNAMEF>.
- Statistics Canada. Various years. "Censuses of Population." Ottawa: Supply and Services Canada. Online at <http://www5.statcan.gc.ca/olc-cel/olc.action?objId=11-516-X&objType=2&lang=en&limit=0>.
- Stonechild, B. 2006. "Aboriginal Peoples of Saskatchewan." In *The Encyclopedia of Saskatchewan*. Regina, SK: Canadian Plains Research Centre. http://esask.uregina.ca/entry/aboriginal_peoplesof_saskatchewan.html.
- Stonehouse, D. 2013. "Activity Heating Up in Southwestern Saskatchewan." COSSD.com. <http://www.cossd.com/article.aspx?id=9441>.
- Thomas, L. H. 1985. "A History of Agriculture on the Prairies to 1914." In *The Prairie West—Historical Readings*, ed. R. Douglas Francis and Howard Palmer, 221–56. Edmonton: Pica Pica Press.
- Thompson, C., 2004. *Saskatchewan First Nations: Lives Past and Present*. Regina, SK: University of Regina Press.
- Tiebout, C. M. 1956. "Exports and Regional Economic Growth." *Journal of Political Economy* 64 (2): 160–64.
- Wolfe, S. A., C. H. Hugenholtz, and O. Lian. 2013. "Palliser's Triangle: Reconstructing the 'Central Desert' of the Southwestern Canadian Prairies during the Late 1850s." *The Holocene* 23 (5): 699–707.