A PRIMER ON

ECONOMIC DIVERSIFICATION IN ALBERTA

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Diversification: [dih-vur-s*uh*-fi-**key**-sh*uh* n, dahy-]
–noun
1. the act or process of diversifying; state of being diversified.
2. the act or practice of manufacturing a variety of products, investing in a variety of securities, selling a variety of merchandise, etc., so that a failure in or an economic slump affecting one of them will not be disastrous.
…cited from *Dictionary.com*

The Concept of Diversification

The topic of diversification has been studied extensively by academics and policy makers. The theory of diversification, which dates back to the Great Depression of the 1930s, suggests that increasing the variety of industries in a region spreads risk and reduces the likelihood that all industries will suffer a downturn at the same time. This serves to mitigate the "boom-and-bust" cycles often experienced by regions with a heavy reliance on a limited number of industries. In the context of the Western Canadian provinces, and especially Alberta, the reliance in question is on natural resource-based industries.

The concept of diversification in an economic context is similar to portfolio diversification in finance, where increasing the number of assets in a portfolio helps reduce the overall risk if some investments are moving up in value while others are moving down. Naturally, over time, the objective is for more investments to move up rather than down so the investor reaps the rewards delivered through an increase in the value of the portfolio. Within an economic region, such as a province, the objective of diversification is the same - to reduce the risk associated with being overly specialized, while experiencing growth. In the provincial context, the process can be assisted by

introducing structural changes that help create more diversification and moderate the impact of economic shocks, which are outside the province's control.

It is important to note that there is no definition of the perfect level of diversification - an appropriate level has to be determined by taking into account the economic structure of the province and a realistic assessment of possibilities. When measuring economic diversification (as opposed to financial diversification) researchers tend to focus on three distinct but related areas: **industrial diversification, export product diversification, and export market diversification**.

For each of the three areas, to discover whether an economy is becoming more diversified, comparisons must be made across time periods to see if composition is actually changing. Sometimes, comparisons can be made by comparing a single period, such as a year or a quarter, to the same period in the future. At other times, if data is available, it is desirable to compare averages from one period to future periods; for example, comparing the average performance of an indicator over one ten year period, to the average performance over the next ten year period.

In the case of industrial composition, to examine changes over time, researchers need to use data that is produced consistently and accurately. With respect to industrial composition, two popular data sources are: 1) employment (labour force) data; and 2) economic output data, or Gross Domestic Product (GDP) as it is commonly called. Both data sources are applicable because stable employment growth and stable economic growth are desirable objectives and indicators of successful diversification efforts.

Employment data is useful because Statistics Canada's Labour Force Survey provides a comprehensive historical database of employment by province and industry on a quarterly basis going back decades. It can be used to trace changes in employment composition and growth rates across, and within, industries over time. It is important to note that while an even distribution of employment across industries can suggest that an economic is diversified, such a distribution might not always be appropriate. For example, resource-based industries are capital intensive, so it would be irrational to try

to boost employment to the same levels as in more labour intensive industries, such as services.

GDP is useful for measuring changes in industrial composition over time. But when utilizing GDP data, it is important to recognize that changes in the prices of the goods and services produced by a province can distort the actual extent of diversification. For example, when oil and gas prices rise, GDP for the oil and gas sector will rise, even if output is held constant. This makes it appear that the economy is more heavily dependent on these commodities than may actually be the case. Conversely, when prices fall, a resource dependent province may appear more economically diversified than is actually the case. Therefore, when using sector GDP to look for evidence of diversification, it would be preferable to use *real GDP* figures, deflated on a sector-by-sector basis so that price changes are factored out. But real GDP data does not exist for provincial industrial sectors over long periods of time. The result is that observations based on GDP can be indicative of general trends, but should not be taken out of context.

As previously mentioned, in addition to industrial composition, examining export product and export market compositions can also be helpful in analysis leading to observations about diversification. Export product diversification refers to the mix of goods and services exported to other countries. There is a saying in international trade circles that "you are what you export," and the more diversified the export product mix, the less susceptible an economy is to price and demand fluctuations for a given good or service. Export data at the provincial level for products and sectors is provided by Industry Canada at Trade Data Online, although longer term historical analysis is hampered by inconsistency and unavailability of sufficiently deflated figures (similar to the challenge with GDP data).

Just as with export products, given the same industrial output an economy that is more diversified in its export markets reduces the risk stemming from a limited number of export destinations. Here, falling demand in a specific country, whether due to internal or external effects, will have less of an impact on total exports. Industry Canada provides an export market database with the same drawbacks as mentioned above.

In summary, all three types of diversification are important building blocks of stable, sustainable economic growth. Observing changes in employment mix, GDP composition, export products and export markets can provide an indication of trends and suggest whether diversification is occurring. But as mentioned, the results must be viewed with caution as the observations can be heavily influenced by external factors such as trade arrangements that alter access to markets (e.g. the implementation of the Free Trade Agreement and the ensuing North American Free Trade Agreement) public policy changes affecting economic structure (e.g. the abolition of the Crow Rate) and price changes in key, traded goods.

Measuring Diversification – Methods and Results

It is desirable to assess the progress an economy has made toward becoming more diversified so that results can be brought to bear on public policy decisions. A simple assessment can be obtained by comparing changes in industrial structure, export products, or export markets over time using a series of graphs or charts. But to gain a better understanding of progress toward diversification, researchers have developed three analytical methods: portfolio analysis, shift share analysis, and location quotient. The following section briefly describes each method and, drawing from research papers prepared by the Western Centre for Economic Research, provides short descriptions of the findings for Alberta.

Portfolio Analysis

Portfolio analysis uses labour force data to measure the extent of fluctuations in employment levels, both within industries (variances) and between industries (co-variances) to assess employment stability and diversification. To make the method accurate, industries are assigned weights according to their relative shares of employment. The basic idea is that stable employment growth with an appropriate balance of employment across sectors is desirable and a good thing.

Just as with stock market returns, lower levels of variance and greater evidence of low or negative co-variance (low or negative co-variance is good – it means when employment declines in one industry employment in other industries rise to

compensate) indicate less volatility. But it is important to understand how portfolio analysis applied to economic diversification differs from its application to a financial portfolio. First, in the context of economic diversification regionally specific natural endowments create comparative advantages, which have a powerful effect on the employment "portfolio." For example, one would expect less employment in the oil and gas industry in Manitoba than in Alberta given that most of those resources reside in Alberta. Second, unlike in Finance, where a portfolio can be adjusted with the simple execution of a "buy" or "sell" order, the market for attracting industries is very imperfect, and changes in the industrial portfolio mix occur over a much longer time horizon.

Using portfolio analysis, Chambers and Ryan (2009) find that that in Alberta, from 1976 to 2007, employment volatility was reduced, especially when taken in the context of the economic growth record over the period. This is good news, and indicative of some progress towards diversification of the economy.

Chambers, Brisbois, and Emter (2010), expand the 2009 findings to assess total volatility compared to employment growth for three periods over the past 34 years (1976 to 1987, 1987 to 1996, and 1996 to 2009) and find that total variance fell relative to employment growth in both the goods and services sectors from the 1976-1987 period compared to 1997-2009, which is also good news. While they concede that extraneous factors, such as terms of trade (the price of exports compared to price of imports) bubbles are in part responsible for Alberta's success in the past decade, the analysis suggests the economy has become relatively more diversified, and has benefitted as such.

Shift Share Analysis

Shift share analysis compares the change in employment over time, by industry, at the provincial level to the change in employment, by industry, at the national level. The method asks the questions: how much employment would have grown in a province if it had grown at the national rate, and is the province's share of employment in each industry increasing or decreasing compared to the national levels? The idea is that being much larger, the national economy has a more diversified employment

distribution, and movement toward that level can be an indicator of progress toward employment diversification.

Chambers and Ryan (2009) find that over the period 1976-2007 employment growth in the Alberta outpaced that of Canada as a whole. The analysis also shows that while employment in Alberta has been growing steadily and at a higher rate than the national average, most of the recent employment growth has been due to an increasing share of employment in the mining/oil and gas sector. In comparison, the employment shares in agriculture and manufacturing have contracted, while the share in the services sector grew. The increased share of employment in services suggests that modest diversification has occurred, despite the growing concentration of activity in the mining sector.

Location Quotient Analysis

The location quotient method compares labour force composition at the provincial level to the national level for various periods of time. The national level is considered more diversified because it represents the greater Canadian "universe". Using this approach, Chambers and Ryan (2009) find that over the period 1976-2007, Alberta's location quotient for agriculture declined significantly, while its location quotient for mining/oil and gas more than doubled. There was also a rise in employment concentration in Alberta in construction, and in professional, education, health, and social services. Overall, these results suggest modest diversification has occurred in the province, but there is still heavy concentration of employment in mining/oil and gas relative to the national average. Given Alberta's rich endowment in petroleum resources, this is to be expected.

Conclusions

As indicated by the results of the analysis in the previous section, Alberta is considered to be making progress toward diversification when measured in terms of employment stability and distribution. But that does not suggest a sense of complacency toward diversification should be adopted. Based on the papers cited in this primer, several observations can be made with respect to diversification efforts in Alberta.

The first observation is that economic diversification is of high interest to policy makers around the world. A quick survey of the international scene indicates Malaysia, Thailand, Chile, Australia, Kuwait, Korea, Uganda and Texas are just a few of the jurisdictions actively pursuing economic diversification strategies. Each of the strategies is based on specific, internal strengths but they share the common goal of more productive, stable endeavors.

Promoting the 'provincial brand' internationally, creating a business-friendly climate, and differentiating Alberta from competing jurisdictions are essential elements in attracting new investment that can contribute to diversification. But investment in sectors that contribute to a more diversified economy, such as high technology or value added manufacturing can only be realized if investors see Alberta as offering a sustainable competitive advantage. Competitive tax rates, access to skilled labour, excellent transportation (which includes road, rail, are and pipeline connections) and telecommunication services, reasonably priced power with certainty of supply, and access to globally competitive health and education services for incoming professionals are all essential ingredients.

The second observation is that chasing individual firms, in new industries, to relocate in Alberta by offering special incentives is not a silver bullet solution. The competition is intense and the practice can backfire when recent newcomers choose to leave for greener pastures. The migratory nature of the call centre industry is a good example. Firms that once located in North America, enticed by special incentives such as tax holidays, subsequently moved to India to benefit from lower labour costs and are now moving from India to Egypt and Vietnam to lower costs further.

Following from the above, the third observation is that diversification is most likely to be achieved by building on existing strengths in a realistic way. For example, a development board in South Australia indicates its plan is to support the development of new enterprises to service the resources sector, which it recognizes is the prime economic driver in the region. The board is developing approaches to address skills shortages and facilitate emerging industries in tourism and food production, but they have taken that vital step of realizing that the resource sector is their economic lifeblood.

The fourth observation involves the entrepreneurial mindset and persistence required for diversification to occur. The western provinces, to varying degrees, have invested significantly in: technical and trade schools, university based science, engineering and business programs, research centres and entrepreneurship promotion. This strategy recognizes that long term progress toward greater diversification starts at home. But the journey is long and the objective can only be reached through persistence. To ensure success, diversification requires a long term commitment.

The fifth and final observation relates to trade policy. Progress toward greater diversification cannot be made in a globalized economy if markets are kept closed, if market access is impeded by preferential government policies, or if protectionist measures prevail. A continued effort toward trade liberalization by federal and provincial governments is essential to increased diversification, and, as Chambers, Brisbois, and Emter (2010) note, this gives Alberta a strong mandate and incentive to increase its involvement in international trade negotiations.

References and Sources

For a succinct summary of the diversification policies and strategies proposed and implemented by the Alberta Provincial government, as well as a brief overview of similar actions undertaken in other jurisdictions, see Chambers, Brisbois, and Emter (2010). The bibliography that follows is a subset of the large and diverse body of work that exists on the topic of diversification.

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