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Specialization vs Diversification: The Rise and Fall of Windsor-Essex's Automotive Industry

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ABSTRACT

There is a longstanding debate between economic specialization, focussing on the production of a limited set of goods, and economic diversification, producing a wide variation of goods and services. While economic diversity boasts a stable and resilient economy, specialization claims to lead to rapid growth. This study explores both schools of thought, examining the strengths and weaknesses of both approaches, and applies them to Windsor-Essex as a case study on the city's reliance on the automotive industry. This paper explores the rise of the automotive industry from the 1970s, examines unemployment rates following economic downturns, analyzes the economic state of the city, and hypothesizes on the future of the industry as recent investments in Electric Vehicle (EV) production have been made. This paper determines that Windsor's specialization in the manufacturing industry has been harmful to the city over the past two decades through its volatility and vulnerability following economic shocks; however, the city is being presented with a unique opportunity to pivot to sustainable transportation, an emerging and promising market, if it properly capitalizes on current and future funding.

DEDICATION

I would like to dedicate this paper to my amazing parents and sister, Eman Al-Kayyal, Majdi Fakhreddin and Tala Fakhreddin, who have supported me throughout my many years of education. I couldn't have completed this paper without their constant motivation.

I would also like to dedicate this paper to my friends, Bianca Naccarato, Dominique Chauvin, Glory Duggan, Sarah Boyd, Jaspreen Grewal, and Safa Youness, for letting me rant about this paper until I finished it.

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INTRODUCTION

Once hailed as Canada's automotive capital, Windsor-Essex has always been known for its large concentration of manufacturing firms. Strategically located at the border, the city's automotive industry had once been able to thrive with Motor City's (Detroit) support. However, in recent years, the sector has been suffering from a steady economic decline. With the city's high unemployment rates and low median household income, some have been led to believe that Windsor's failing automotive industry is dragging the city down with it. The downfall of the industry and its side effects have sparked the debate: are economic specializations beneficial or harmful? Has Windsor benefitted from its specialized economy or has a lack of diversification sealed its coffin?

Recent investments in the industry have signalled Windsor's intent to commit and double down on the manufacturing industry through the production of Electric Vehicles (EVs), with the added support of the provincial and federal governments. Recommitting to the industry could mean a resurgence for the automotive sector, or the city could be falling into the same trap that it fell into fifty years ago. This paper explores the debate between economic specialization and diversification and uses Windsor's automotive industry as a case study to determine the benefits and pitfalls of an economic specialization. Windsor's economic state is then evaluated through their unemployment rates and median household income to determine how well their specialized economy has served them over the past twenty years. Finally, current government regulations and investments are examined to explore Windsor's path to potentially reigniting the industry through Electric Vehicle (EV) production.

Economic Diversity or Specialization?

Economically diverse areas are cities, regions or countries that produce a wide variation of goods and services, creating a mixed economy and labour force.[1] In contrast, specialized economies are areas that have a large concentration of their labour force focussed on the production of a limited set of goods.[2] Over the years, a wide literature has emerged advocating for the benefits of one approach over the other, exploring their varied strengths and weaknesses to determine the best approach to establishing and maintaining a stable and thriving economy. Both camps offer a diverse set of case studies that evaluate the effects of each type of economy on unemployment, income, and growth in the short and long-term. While exploring the concepts of comparative advantage, economic resilience, and knowledge spillovers, we can see that there are clear benefits within both schools of thought, which is reflected in the body of work. While there are those who argue in direct opposition with their economic counterparts, others have published material in relation to the other, exploring the benefits of both models and introducing a third perspective that advocates for a hybrid of the two. To effectively determine the drawbacks, benefits, and the future of Windsor-Essex's own specialized local economy, three systems will be examined in this literature review: Economic Diversity; Specialization; Diversified Specializations.

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[1] Mohsen Attaran. "Industrial Diversity and Economic Performance in US Areas." *The Annals of Regional Science* 20, (1986): 44-54. https://doi.org/10.1007/BF01287240

[2] Leyla Gamidullaeva, Elena Korostyshevskaya, Alexey Myamlin and Olga Podkorytova. "Exploring Regional Industrial Growth: Does Specialization Explain it?." *Economies* 10, no. 172 (July 2022):1-19. https://doi.org/10.3390/economies10070172

Economic Diversity

Stability and Resilience

A central argument in favour of economic diversity focusses on the concepts of stability and resilience. Brown and Greenbaum argue that cities that are economically diverse will usually fare better in the long-term.[3] Faced with economic adversity, such as a recession, the unemployment rate in diverse cities is more stabilized in comparison to specialized regions that are easily subject to change. Goschin adds that diversity creates a more balanced economy with the capacity to distribute risks and avoid the overdependence on a limited number of industries. Diverse industry structures allow for higher flexibility, agency, and adaptability, enabling it to better absorb economic shocks and transform under new circumstances.[4] In comparison, through minute changes to the economy, such as a business closure or inaccessibility to a certain resource or product, specializations can face a significant rise in unemployment.[5] Davies and Tonts further note that the effects of economic contractions, population declines, and employment fluctuations can all be reduced through a diversified industry structure.[6] The logic behind

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[3] Amanda Davies and Matthew Tonts. "Economic Diversity and Regional Socieconomic Performance: An Empirical Analysis of the Western Australian Grain Belt." *Geographical Research* 48, no. 3 (July 2020): 223-234. https://doi.org/10.1111/j.1745-5871.2009.00627.x

[4] Zizi Goschin. "Specialisation Vs Diversification. Which One Better Upholds Regional Resilience to Economic Crises?" *Journal of Social and Economic Statistics* 8, no. 2 (2019): 11–23.

[5] Lathania Brown and Robert T Greenbaum. "The Role of Industrial Diversity in Economic Resilience: An Empirical Examination Across 35 Years." *Urban studies* (Edinburgh, Scotland) 54, no. 6 (2017): 1347–1366.

[6] Davies and Tonts. 2020.

the stability of diversity is that it is extremely rare that any two industries will have the same cyclical and seasonal swings, meaning the highs of one industry will often account for the lows of another throughout the business cycle. In opposition to economic specializations, this school of thought argues that relying on one industry that will inevitably experience a downturn guarantees a volatile and vulnerable economy.[7]

A concept that is refuted by this body of literature is the idea that specializations often result in knowledge spillovers, due to the proximity of related industries, and that the same does not ring true for economic diversity. Desrochers and Leppala rebut this claim and argue that diverse economies spur innovation and yield richer knowledge spillovers than do specialized economies.[8] They theorize that creative minds have wider opportunities to innovate in diverse economies, where the variety of problems create an environment for creative problem solving and unrelated industries facilitate the transfer of know-how from one sector to another. Referred to as the "Jacobs spillover"[9], innovators can also adopt the methods of another industry to improve their own and create multidisciplinary groups that work towards the production of new processes, making a diversified economy an ideal area for the exchange of knowledge.[10] Feldman and Audretsch add that knowledge spillovers in specialized economies are limited to the

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[7] Mohsen Attaran. "Industrial Diversity and Economic Performance in US Areas." *The Annals of Regional Science* 20, (1986): 44-54. https://doi.org/10.1007/BF01287240

[8] Pierre Desrochers and Samuli Leppala. "Creative Cities and Regions; The Case for Local Economic Diversity." *Creativity and Innovation Management* 20, no. 1 (February 2011): 59-69. https://doi.org/10.1111/j.1467-8691.2010.00586.x

[9] Jane Jacobs. (1969) *The Economy of Cities*, Random House, New York.

[10] Desrochers and Leppala. 2011.

same industry, making any spillover to other industries virtually non-existent. They write that the most viable source of economic knowledge is external from the industry being operated in,[11] known as "Jacobian externalities."[12] The knowledge gained from inter-industry spillover then leads to greater economic growth, innovation, and development through complimentary industries.

The benefits to an economically diverse region are lower frictional unemployment, an increase in per capita income, and knowledge spillovers that may lead to economic growth. Moreover, historically, there are many more examples of declining specialized economies than there are thriving ones. Detroit, for example, benefitted from a booming manufacturing industry for many years, but since faced a severe economic downturn.[13] Despite its many advantages, the diversity camp also acknowledges that there are limitations to the effectiveness of economic diversity. Davies and Tonts articulate how a diverse economy's success is oftentimes conditional on certain factors, namely the occupational structure. The formation of the workforce and its varying industries must ensure that when one industry is letting workers go, there will be another place that will take them, meaning their skills would have to be transferable from one

[11] Maryann P. Feldman and David B Audretsch. "Innovation in Cities: Science-Based Diversity, Specialization and Localized Competition." *European economic review* 43, no. 2 (1999): 409–429.

[12] Jane Jacobs. (1969) *The Economy of Cities*, Random House, New York.

[13] Amanda Davies and Matthew Tonts. "Economic Diversity and Regional Socieconomic Performance: An Empirical Analysis of the Western Australian Grain Belt." *Geographical Research* 48, no. 3 (July 2020): 223-234. https://doi.org/10.1111/j.1745-5871.2009.00627.x

occupation to another.[14] That kind of industrial composition is ideal and would effectively cushion layoffs and economic shocks, however, it is difficult to achieve. Moreover, Feldman and Audretsch note that a diverse economy means that it will never achieve the level of expertise and productivity that specialized economies accomplish by focussing their efforts and resources into few industries.[15] As a result, diverse economies end up operating in the middle ground of economic success and economic failure, and the stability of the economy is achieved at the expense of exponential growth.[16]

There are a multitude of case studies exploring the benefits of a diversified economy, some yielding positive results and others negative ones. For example, a study done by Brown and Greenbaum measured the unemployment rate over 35 years across 88 counties in Ohio, comparing diverse counties to those with industrial concentrations over a timeline that suffered economic shocks and recessions.[17] Their research found that counties with industrial concentrations experienced higher unemployment rates in

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[14] Amanda Davies and Matthew Tonts. "Economic Diversity and Regional Socieconomic Performance: An Empirical Analysis of the Western Australian Grain Belt." *Geographical Research* 48, no. 3 (July 2020): 223-234. https://doi.org/10.1111/j.1745-5871.2009.00627.x

[15] Maryann P Feldman and David B Audretsch. "Innovation in Cities: Science-Based Diversity, Specialization and Localized Competition." *European economic review*43, no. 2 (1999): 409–429.

[16] Giedre Dzemydaite. "The Impact of Economic Specialization on Regional Development in the European Union: Insight for Formation of Smart Specialization Strategy." *Economies* 9, no. 76 (May 2021): 1-15. https://doi.org/10.3390/ECONOMIES9020076

[17] Lathania Brownand Robert T Greenbaum. "The Role of Industrial Diversity in Economic Resilience: An Empirical Examination Across 35 Years." *Urban studies* (Edinburgh, Scotland) 54, no. 6 (2017): 1347–1366.

economic downturns compared to diverse counties; however, they also found that diverse counties had higher unemployment rates in stable and fruitful economic conditions compared to specialized counties. Considering economic stability can never be guaranteed, their study presents a solid argument in support of economic diversity and how it can foster a steadily growing economy that can better withstand economic adversity. Alternatively, Attaran's case study employs unemployment rates from all 50 states over a ten-year period (1972-1981) to determine that there is no clear relationship between economic diversity and stable unemployment rates and an increase in per-capita income.[18] His research found that the negative correlation between economic diversity and unemployment rates was statistically significant but extremely weak. Additionally, the relationship between diversity and per-capita income was negative, meaning there are higher levels of per-capita income in specialized economies.

The mixed results of these case studies are even more pronounced in Davies and Tonts' study of the Australian Grain Belt, where their results revealed a positive correlation between industrial diversity and socio-economic performance but a negative result regarding occupational diversity.[19] While a diverse spread of sectors demonstrated a strong link between population and labour force expansion and a moderate link between a rise in median income, occupational diversity yielded a negative relation between

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[18] Mohsen Attaran. "Industrial Diversity and Economic Performance in US Areas." *The Annals of Regional Science* 20, (1986): 44-54. https://doi.org/10.1007/BF01287240

[19] Amanda Davies and Matthew Tonts. "Economic Diversity and Regional Socieconomic Performance: An Empirical Analysis of the Western Australian Grain Belt." *Geographical Research* 48, no. 3 (July 2020): 223-234. https://doi.org/10.1111/j.1745-5871.2009.00627.x

changes in employment and income. Davies and Tonts raise the question: how much of these effects can really be attributed to a diverse economy? This study, and others like it, accentuates the fragility of this model; it is not always directly linked with economic growth, the question of causality is up for debate, and the composition of a diverse economy can greatly affect its success. On the other hand, economic diversity has demonstrated a strong link with stable unemployment rates over several years of study in multiple regions, denoting its proclivity for longevity under economic duress.

Economic Specializations

Sharing Knowledge and Profits

For several decades, the world has witnessed the unprecedented and rapid growth of regions that have invested in a limited set of industries or the production of a specific set of goods.[20] We have also witnessed their eventual collapse. Nonetheless, researchers in this camp advocate for this model to secure a comparative advantage, creating localized agglomeration economies, and generating knowledge spillovers, all of which lead to rapid economic growth. To begin, benefits of an economic specialization include the localized agglomeration economies that arise when local businesses profit off each other due to a lack of diversity.[21] These clusters of shared industries benefit from shared output markets and suppliers, and they thrive through knowledge exchange and local competition. These are also known as the MAR (Marshall, Romer and Arrow)

[20] Ching-Fu Chang, Ping Wang, and Jin-Tan Liu. "Knowledge Spillovers, Human Capital and Productivity." *Journal of macroeconomics* 47 (2016): 214–232.

[21] R L Moomaw. "Agglomeration Economies: Localization or Urbanization?" *Urban studies (Edinburgh, Scotland)* 25, no. Apr 88 (1988): 150–161.

externalities.[22] Moreover, industry localization leads to knowledge spillovers between firms, which drives innovation in highly specialized industries, especially those that benefit from technological relatedness. The MAR model also argues that the local monopoly of a specialization allows them to maximize their economic value.[23] Focussing on a limited set of activities allows these industries to gain expertise and increase productivity, something that is more difficult to achieve when resources are spread scarcely between a multitude of industries.

As previously mentioned, one of the weaknesses of economic diversity is that the industrial composition must be organized in a way that would ensure skill transferability from one industry to another. In regions with economic specializations, the transfer of skills from one occupation to another is relatively guaranteed. If one business needs to lay off employees, there is a multitude of similar businesses that will be looking for them, which could ensure employability in the region.[24] Imbs and Wacziarg also found that while diversification can initially result in growth, there is a U-curve in growth for specialized regions where they hit the minimum specialization (or maximum

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[22] Henri L.F. De Groot, Jacques Poot, and Martijn J. Smit. "WHICH AGGLOMERATION EXTERNALITIES MATTER MOST AND WHY?: IMPORTANCE OF AGGLOMERATION EXTERNALITIES." *Journal of economic surveys* 30, no. 4 (2016): 756–782.

[23] Andrea Fracasso and Giuseppe Vittucci Marzetti. "Estimating Dynamic Localization Economies: The Inadvertent Success of the Specialization Index and the Location Quotient." *Regional studies* 52, no. 1 (2018): 119–132.

[24] Zizi Goschin. "Specialisation Vs Diversification. Which One Better Upholds Regional Resilience to Economic Crises?" *Journal of Social and Economic Statistics* 8, no. 2 (2019): 11–23.

diversification) and can return to specialization to regenerate economic growth.[25] Another economic theory, the "plucking model" developed by Friedman,[26] suggests that once a region reaches a ceiling of productivity, growth will experience dips when they face economic shocks, but will ultimately recover and continue to follow an upward-sloping path.[27] This model suggests that if a specialized economy is advanced enough, they should continue down a path of growth despite economic adversity. This is further supported by Cuadrado-Roura and Maroto's research that found resilience in high productivity regions and those with well-established specializations, following economic shocks.

As previously mentioned, the volatility of economic specialization is often touted as the model's biggest weakness; however, Cuadrado-Roura and Maroto call this argument into question, as they found that specialized economies in Spain were more resilient and recovered rapidly from economic shocks.[28] Following the global economic recession in 2008, their research found that subregions specialized in high productivity industries, such as manufacturing, energy, and market services, recovered quickly. However, they also found that regions that specialized in industries such as construction,

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[25] Jean Imbs and Romain Wacziarg. "Stages of Diversification." *The American economic review* 93, no. 1 (2003): 63–86.

[26] Milton Friedman. "The "plucking model" of business fluctuations revisited." *Economic Inquiry* 31, no. 2 (1993): 171-177.

[27] Juan R. Cuadrado-Roura and Andrés Maroto. "Unbalanced regional resilience to the economic crisis in Spain: a tale of specialisation and productivity." *Cambridge Journal of Regions, Economy and Society* 9, no. 1 (January 2016): 153-178. https://doi.org/10.1093/cjres/rsv034

[28] Ibid.

extracting, and primary industries were greatly impacted by a notable loss of jobs, and they were deemed "non-resilient."[29] Similarly, Zenka and his associates applied their research to specialized microregions in the Czech Republic. While their results revealed that regional unemployment rates rose during the global economic recession, validating the argument that specializations are vulnerable to economic adversity, they also found that regions dependent on the manufacturing industry in particular had higher per capita value.[30] However, in areas that did not rely on manufacturing, diversity was instrumental to their economic performance. This research reveals that the success of specialization may also rely on the type of industry that a region chooses to invest in; it could be that the specialization approach favours the manufacturing industry, which is suggested in both studies, or it could be that a multitude of hard-to-measure variables could affect a region's ability to adopt the model effectively. Both ideas display the fact that the specialization model may not be as widely applicable as research suggests.

Furthermore, Dzemydaite's case study examines the smart specialization policy of regions in the European Union (EU) to determine whether economic specializations led

[29] Juan R. Cuadrado-Roura and Andrés Maroto. "Unbalanced regional resilience to the economic crisis in Spain: a tale of specialisation and productivity." *Cambridge Journal of Regions, Economy and Society* 9, no. 1 (January 2016): 153-178. https://doi.org/10.1093/cjres/rsv034

[30] Jan Zenka, Josef Novotny, Ondrej Slach and Viktor Kveton. "Industrial Specialization and Economic Performance: A Case of Czech Microregions." *Norwegian Journal of Geography* 69, no. 2 (March 2015): 67-79. https://doi.org/10.1080/00291951.2015.1009859

to economic growth.[31] The study resulted in a positive but statistically insignificant relationship with higher gross value in more specialized regions. Similarly, regions with diverse economies also yielded varied results, meaning neither method could be positively correlated with economic growth. Dzemydaite concluded that there are a multitude of external factors that could affect the success of an economic specialization and diversification, and the policy should not be confidently applied as a "one size fits all" model.[32]

The Middle Ground: Diversified Specializations

Despite passionate arguments from both camps, there are many studies that advocate for a combination of diversity and specialization, in other words, a hybrid model. Following Dzemydaite's study, and others like it, some researchers found that neither diversity or specialization could ensure a stable and growth-oriented economic model. Farhuaer and Kroll question why there is a hard line drawn in the sand between economic specializations and economic diversity when regions could benefit from a combination approach.[33] They introduce the concept of diversified specializations, in which a city specialized in multiple sectors can reap the benefits of both MAR and Jacobs externalities. Without being overly reliant on one industry and becoming vulnerable to

[31] Giedre Dzemydaite. "The Impact of Economic Specialization on Regional Development in the European Union: Insight for Formation of Smart Specialization Strategy." *Economies* 9, no. 76 (May 2021): 1-15. https://doi.org/10.3390/ECONOMIES9020076

[32] Ibid.

[33] Oliver Farhauer and Alexandra Kröll. "Diversified Specialisation—going One Step Beyond Regional Economics' Specialisation-Diversification Concept." *Jahrbuch für Regionalwissenschaft* 32, no. 1 (2012): 63–84.

external economic factors, they are still able to benefit from cross-sectoral knowledge spillovers. In their study of 118 German cities from 1998 to 2008, they found that the diversified-specialized sector structures tested positively for productively levels, productivity growth, and employment growth. They also noted that specialization yielded positive effects, whereas diversification yielded negative ones, but neither reached the level of efficacy that diversified-specialized economies did.[34] Gezici Korten furthered this with their study on sectors in Turkey. Their study found that highly diversified-specialized regions in Turkey displayed a positive regional shift, and they had a regional advantage over other areas. However, this result was isolated to the manufacturing industry, and they noted that other areas with regional advantages were not classified as diversified-specialized.[35] Though the research on diversified-specialized economies is promising, articulating a method to maintaining the resilience of diversity while sustaining the economic growth associated with specializations, the body of work is still limited. Gezici Korten's study reveals that the approach may be sector-specific, and it does not account for the fact that other specialized regions were experiencing the same advantages as the hybrid model.[36] Since there are evident are gaps in the research on both

[34] Oliver Farhauer and Alexandra Kröll. "Diversified Specialisation—going One Step Beyond Regional Economics' Specialisation-Diversification Concept." *Jahrbuch für Regionalwissenschaft* 32, no. 1 (2012): 63–84.

[35] Ferhan Gezici Korten. "Looking for Diversified Specialization in the Regions of Turkey." *Megaron* (Istanbul, Turkey) 13, no. 4 (2018): 623–635.

[36] Ibid.

specialization and diversification and the applicability of either model, further research on combining the two is favourable.

Research Question

This paper explores Windsor's reliance on the automotive industry. Following the debate on diversification vs specialization, this case study aims to answer the following questions. First, has Windsor, as a city with a high concentration of manufacturing firms, benefitted from the comparative advantage and knowledge spillovers that are associated with a specialized economy? Second, in contrast, has it fallen victim to the lack of stability and resilience that is often attributed to diversification? Third, as the nation is beginning to shift away from traditional vehicles, how will this change affect Windsor's dependence on their production? Finally, will doubling down on specialization through Electric Vehicle (EV) investments help or harm the city of Windsor?

DATA AND METHODOLOGY

This is a case study on Windsor's reliance on the automotive industry to determine the benefits and drawbacks of a specialized region. Qualitative methods are utilized to explain the history and potential future of Windsor's manufacturing industry. To provide a complete picture of Windsor-Essex and its composition, data sourced from Statistics Canada is used to understand the size and impact of the manufacturing industry. This paper also reviews journal articles and reputable news articles to explore the development of the manufacturing sector, including its peaks and pitfalls from the 1970s to the present day. To assess the stability of Windsor's specialization, annual unemployment rates are sourced from Statistics Canada and cross-referenced with periods of economic downturn. Finally, current news articles are used to discuss the

recent investments in EV production and calculate the number of new jobs that will emerge in Windsor.

CASE STUDY: THE AUTOMOTIVE INDUSTRY IN WINDSOR-ESSEX

Rise of the Automotive Industry

The Windsor census metropolitan area (CMA) is home to a dense concentration of manufacturing firms. As of February 2023, the industry employs 39,100 Windsorites, making up 20% of the total workforce in the city.[37] With a total of 717 manufacturing firms in the city, as of December 2022, a large part of this sector can be attributed to the automotive industry, which accounts for 429 of these firms.[38] Though the impact of Windsor's automotive industry has been felt less intensely in recent years, it was once a booming hub for auto manufacturing, and its rise in the industry can be traced back directly to the signing of the Canadian-American Automotive Trade Agreement in 1965, which liberalized trade in the automotive industry between Canada and the U.S. Though the Auto Pact was an international agreement, no city experienced its influence nearly as much as Windsor did. This was largely due to its strategic location bordering Detroit, which was once home to 90% of the American auto industry at the time. Just a few years after the pact was enacted, Windsor was quickly becoming known as "a city of 200,000 people in which almost every worker has something to do with making cars or trucks."[39]

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[37] Statistics Canada. Table 14-10-0384-01 Employment by industry, census metropolitan areas, annual (x 1,000).

[38] Ministry of Labour, Training and Skills Development. Local Board Report, 2022.

[39] "Auto Pact Drives Profits into Canada." The New York Times, January 28, 1973. https://www.nytimes.com/1973/01/28/archives/auto-pact-drives-profits-into-canada.html.

By 1971, Canada managed to turn $658 million in automotive trade favouring the U.S. into a favourable balance of $198 million for Canada. Most of this was due to Windsor's efficiency, producing 1,000 cars per day in their Chrysler plant alone.[40]

Following its rapid rise in the industry in the 20th century, Windsor managed to maintain this upswing by investing in their workforce. In 2003, a joint agreement with the province, the local government, and the automotive sectors invested $32 million in the Ford Building of Excellence in Manufacturing, which established industry focussed educational programs for students.[41] A skilled workforce upheld the industry for a time, but the early 2000s also marked the beginning of Windsor's steady decline, losing 11,900 jobs in the sector from 2001 to 2013.[42] The past few years worsened the situation through multiple factory shutdowns, microchip shortages, and persistent labour gaps. As a result, sales in manufacturing have been fluctuating severely; a promising 36.6% increase in manufacturing sales in July 2022 was quickly followed by a 19.2% decrease the following month. Over the past two decades, the volatility of the industry, an overall decrease in sales, and a looming skills gap signalled the end of Windsor's reign as Canada's Automotive Capital.

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[40] "Auto Pact Drives Profits into Canada." The New York Times, January 28, 1973. https://www.nytimes.com/1973/01/28/archives/auto-pact-drives-profits-into-canada.html.

[41] "St Clair College opens new manufacturing training facility." Canadian Plastics. November 01, 2023. https://www.canplastics.com/features/st-clair-college-opens-new-manufacturing-training-facility/

[42] "Auto Industry Decline Hits Young Families Hardest, Study Finds." CBC/Radio Canada, January 27, 2015. https://www.cbc.ca/news/canada/windsor/auto-industry decline-hits-young-families-hardest-study-finds-1.2932795.

Stability and Resilience

Within Windsor's recent history, two major financial crises have occurred that wreaked havoc domestically and abroad: the 2008 global recession and the COVID-19 pandemic. In the literature review above, the key argument supporting diversification was the concept of stability, the idea that diversified economies can face economic adversity better than specialized regions, and this was often proven through the stability of unemployment rates during or in the aftermath of an economic downturn. Therefore, to determine how effectively Windsor's specialized region can absorb the shocks of substantial financial events, the unemployment rates during and following the 2008 recession and the recent pandemic will be analyzed. It should be noted that, historically, Windsor has had one of the highest unemployment rates in the province. With Statistics Canada records going as far back as January 2006, Windsor has had consistently and notably higher unemployment rates than the provincial unemployment rate and the majority of major Canadian cities.[43] However, the diversification camp does not boast to having generally lower unemployment rates, so it would not be wholly accurate to assume that Windsor's lack of diversity is correlated with its overall high unemployment rate. A more substantive measurement to determining the effects of non-diversification would be examining the increase in these rates following major economic events, hence the following study.

To begin, following the 2008 global financial crisis, the unemployment rate in Windsor spiked significantly and rose to unprecedented levels, from 11.6% in January

[43] Statistics Canada. Table 14-10-0384-01 Employment by industry, census metropolitan areas, annual (x 1,000).

2009 and peaking at 16.4% in July 2009.[44] While every city in Ontario experienced the effects of the crisis to some degree, Windsor's unemployment rate was leagues above any other Ontario city, with the provincial unemployment rate peaking at just 9.6% in the same period. From July 2008 to July 2009, Windsor experienced a 6.6% increase in the unemployment rate,[45] while the provincial rate experienced a 3% increase within the same year.[46] Not only did Windsor achieve record highs, but the unemployment rates also did not return to pre-recession levels (averaging from 8-10%) until October 2010. Evidently, Windsor felt intense shocks from the recession, and the aftershocks were long-lasting. Similarly, during the COVID-19 pandemic, Windsor's unemployment rates peaked at 17.2% in May 2020 after hovering between 4-8% in the four years before the downturn. The provincial rate in the same month was 14%, increasing by 8.8% from May 2019 to May 2020, while Windsor's rate increased by 11.9% within the same year. Windsor's unemployment rates remained high, finally returning to pre-pandemic levels in November 2021.[47] While every Canadian city felt the effects of the pandemic, Windsor was even more susceptible to the COVID-19 regulations enforcing social distancing. As a

[44] Statistics Canada. Table 14-10-0378-01 Labour force characteristics, three-month moving average, unadjusted for seasonality.

[45] Statistics Canada. Table 14-10-0384-01 Employment by industry, census metropolitan areas, annual (x 1,000).

[46] Statistics Canada. Table 14-10-0287-03 Labour force characteristics by province, monthly, seasonally adjusted.

[47] Statistics Canada. Table 14-10-0384-01 Employment by industry, census metropolitan areas, annual (x 1,000).

city specialization in the manufacturing industry, Windsor found itself dependent on a sector that was completely unable to transfer work from the factory to the safety of home.

Nevertheless, it should be noted that Windsor's high unemployment rates could have been skewed by other industries. While seven out of the top ten employers in Windsor are auto manufacturers, Caesars Windsor Casino is listed as the second top employer with 2,100 workers.[48] The casino experienced frequent shutdowns starting in March 2020, which resulted in thousands of lost jobs. This speaks more to the vulnerability of specializing or diversifying in certain industries, rather than specialization or diversification as a whole, since other industries, such as technical services, could have continued to thrive under these circumstances. Nonetheless, the local response to the COVID-19 pandemic calls Windsor's resilience to future pandemics into question, should it continue to specialize in manufacturing or limit its diversity to industries that are just as sensitive to economic downturns.[49] Ultimately, both instances of economic adversity revealed Windsor's lack of stability, demonstrated through their volatile unemployment rates following economic shocks.

Economic Growth

Following the argument of resilience and stability, the specialization camp often makes up for these weaknesses through economic growth. In the literature review, case

[48] "Top Employers." Invest WindsorEssex. (2022). https://www.investwindsoressex.com/en/site-selection-and-data/top-employers.aspx

[49] Kerri Breen, "A Year Later, Caesars Windsor Remains Closed - and the Stakes Are High" CBC/Radio Canada, (March 22, 2021), https://www.cbc.ca/news/canada/windsor/caesars-windsor-covid19-1.5953545.

studies of specialized regions often demonstrated higher per capita income.[50] However, that has not been the case for the Windsor CMA. Instead, between 2005 and 2019, Windsor and other cities within Southwestern Ontario have seemingly fallen from grace. In a study of 36 metropolitan areas in Canada conducted through the Fraser Institute with data sourced from StatsCan, it was discovered that Windsor experienced the largest drop in median household income in the fifteen-year period.[51] Ranking 11th highest median income in the country in 2005, Windsor dropped all the way to 33rd place in 2019, falling from the top third of Canadian CMAs to the bottom third. Moreover, in terms of overall growth, StatsCan found equally dismal results. While Canada's overall inflation-adjusted median household income increased by 11.1% between 2000 and 2019, Windsor's declined by 7.1% in the same time period.[52] From this study, it is easy to glean that Windsor is not experiencing the high levels of economic growth that is often associated with an economic specialization. It is mentioned in the studies that specialized economies will undergo economic peaks and pitfalls, due to their volatile nature, but they will restabilize and continue in an upwards slope.[53] This has not been the case with Windsor, which has endured a consistent economic decline over the past two decades.

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[50] Jan Zenka, Josef Novotny, Ondrej Slach and Viktor Kveton. "Industrial Specialization and Economic Performance: A Case of Czech Microregions." *Norwegian Journal of Geography* 69, no. 2 (March 2015): 67-79. https://doi.org/10.1080/00291951.2015.1009859

[51] Ben Eisen, Nathaniel Li, and Steve Lafleur. Economic Performance in Southwestern Ontario's CMAs: A National Perspective, 2023 Update. *Fraser Institute*. (March 2023).

[52] Ibid.

[53] Milton Friedman. "The "plucking model" of business fluctuations revisited." *Economic Inquiry* 31, no. 2 (1993): 171-177.

The Future of the Automotive Industry

After a steady economic decline over the past two decades, recent investments in Windsor's automotive industry are leading people to believe the sector may be facing a resurgence. In May 2022, Stellantis, a multinational automotive manufacturing corporation, announced that they would be investing $3.6 billion in their Windsor and Brampton automotive plants. Funded in part by the federal and provincial governments, the investment is kickstarting the complete retooling of their factories, in the hopes of ushering in a new age of Electric Vehicle (EV) production.[54] The new plant promises an estimated 2,500 new jobs. However, the problem may not be the number of jobs available for Windsorites (there are currently 795 active job postings in the manufacturing industry, as of March 2023[55]), but rather the lack of skilled workers, which is an issue that could be further exacerbated when more white-collar jobs will be needed to maintain the more innovative plant. Therefore, the first step when it comes to securing the future of the automotive industry and its transition to EV production in Windsor is correcting the skills shortage, as registration for apprenticeships have dropped by 41% between 2019 to 2021 and almost one in three trade certificate holders in Ontario are aged 55 or older, as of 2016.[56] Due to an aging populating and a negative perception of skilled trade work, which was partly developed by the volatility of the industry, the city must first

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[54] Dave Waddell. "Stellantis Announces Production Plans for Windsor Assembly Plant." Windsor Star, May 2, 2022. https://windsorstar.com/news/local-news/stellantis-announces-production-plans-for-windsor-assembly-plant.

[55] "Monthly Job Demand Report." Workforce WindsorEssex. (March 2023). https://www.workforcewindsoressex.com/job-demand-report/

[56] Ministry of Labour, Training and Skills Development. Local Board Report, 2022.

guarantee that, should the sector face a resurgence in the next few years, Windsor will have the skilled labour to support it. In an effort to ensure the local workforce is prepared, the provincial and local government have decided to double down on education in Windsor, specifically pivoting to EV, with new educational programs. In anticipation of the new plant, St. Clair College is launching two electric vehicle maintenance programs, and the University of Windsor plans to offer a mechatronics engineering program that would focus on EV production and manufacturing, beginning in 2024.[57]

The readiness of the workforce aside, another barrier that could undermine a thriving specialization for Windsor is the potential effects to traditional automotive manufacturing now that the city, and the federal government, is focussing their energy on EV production. In December 2022, the federal government proposed regulations to encourage EV production and purchasing, committing to a target that will require that at least 20% of new vehicles sold in Canada should be zero-emission vehicles (ZEVs) by 2026, 60% by 2030, and 100% by 2035.[58] As a city with a well-established industry in traditional manufacturing, the sector could face another huge setback should the country uphold these targets. Many more investments would have to be made for all of Windsor's automotive companies to retool their factories and accommodate the production of

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[57] Katerina Georgieva. "Electrification of Windsor, Ont., Auto Industry Promises New Jobs. But What Happens to Blue-Collar Workers? CBC/Radio Canada, February 2, 2023. https://www.cbc.ca/news/canada/windsor/electrification-windsor-auto-new-jobs-workers 1.6721533.

[58] "Let It Roll: The Government of Canada Moves to Increase the Supply of Electric Vehicles for Canadians." Government of Canada, March 1, 2023. https://www.canada.ca/en/environment-climate-change/news/2022/12/let-it-roll-government-of-canada-moves-to-increase-the-supply-of-electric-vehicles-for-canadians.html.

sustainable vehicles. Nevertheless, should Windsor become the new hub for sustainable automotive manufacturing, these regulations could significantly boost a rapid rise in the industry. A federal shift to sustainable transportation would guarantee many more investments in cities that specialize in the automotive industry. Windsor has the infrastructure and the upcoming educational programs to support EV production, making it a prime location for funding. If the city can incentivize their workforce and properly advertise the work opportunities within EV, they could potentially shift their failing specialization in traditional manufacturing to a thriving specialization in EV automation.

CONCLUSION

To summarize, after the long decline of the automotive industry, felt throughout the city, Windsor is in a unique position to double down on their specialization, pivoting to an updated and more promising version of the automotive industry. Windsor benefitted greatly from their specialization in the first few decades, surging forward through their strategic location at the border and by investing in their workforce. However, the industry clearly felt the shocks of global economic downturns, suffering from disrupted supply chains and factory shutdowns after the 2008 financial recession and the COVID-19 pandemic. The industry proved that it lacked the resilience to withstand economic adversity, and the city fell victim to the effects of a failing specialization, as Windsor experienced some of the highest unemployment rates in Ontario, as well as a rapidly declining median household income. Diversifying in industries that are less susceptible to the effects of workplace closures could have, potentially, established a more stabilized region. Finally, financial backing from the federal and provincial governments could mean a resurgence for Windsor's automotive industry, promising thousands of new jobs.

However, the city must correct its current problems with their skills shortage and prepare their workforce for EV production in order to fully capitalize on potential funding coming their way.

It should be noted that there were certain limitations to this case study. Most notably, though it is evident that Windsor has experienced fluctuating unemployment rates, a lack of stability when faced with economic adversity, and an economic decline, the correlation between their economic composition and these factors is not as clear. There are a multitude of variables that could explain or affect Windsor's decline, so it cannot be confidently stated that Windsor's economic specialization is the direct cause of these effects. Moreover, it is difficult to hypothesize on the future of Windsor's automotive industry, which could be facing a huge transformation, a slow rise, stagnancy, or a continuous decline; with such recent events at play, the sector could advance in various directions in the next few years. Future research should evaluate whether a specialization in sustainable transportation, a niche industry, is more secure than other industries.

As a case study of the effects of overdependence on a certain industry, Windsor's automotive sector demonstrated vulnerability and volatility. For the diversification camp, this case study proved that a lack of economic diversity can translate to a reliance on an industry that cannot withstand economic downturns. Windsor's future in EV production aside, the study confirmed that a specialization's biggest weaknesses is a lack of resilience, and though the literature advocating for specializations also claimed that pitfalls will be felt but the economy will always restabilize and continue to rise, this has not been the case for Windsor, which has been in an economic decline for almost two

decades. To properly determine whether economic diversification could have corrected these problems for Windsor, a comparative study with a diverse city in Canada could be considered for future research.

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