

A large combine harvester is shown in silhouette, working in a field during sunset. The sun is a bright, glowing orb on the horizon, casting a warm orange and red glow across the sky and the field. The harvester is moving from left to right, leaving a trail of harvested crops behind it. The overall scene is peaceful and evokes a sense of agricultural productivity.

POPULATION GROWTH, FOOD DEMAND, & FARMLAND INVESTMENT

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Dr. Wilson is a faculty member of the Department of Management and Marketing at the Edwards School of Business, University of Saskatchewan. He teaches marketing, strategic management, entrepreneurship, and technology commercialization courses. His current research interests include marketing, consumer economics, entrepreneurship, and organizational learning. Previously, Dr. Wilson was a senior manager of a Saskatchewan agricultural genetics company and served as a director on a number of commodity boards.

Mr. Jogia is the Chief Investment Officer at Avenue Living and has over 15 years of experience in real estate capital markets, originating over \$10 billion in real estate loans and \$1 billion in equity. He has extensive experience in real estate investment analysis and capital structure across various real estate classes. In addition to holding 2 Masters' degrees in Finance, Mr. Jogia is pursuing his Doctorate of Business Administration and currently serves as an instructor at the University of Calgary, specializing in real estate finance.

INTRODUCTION

Canada is one of the largest agricultural producers and exporters in the world. According to Statistics Canada (2017), the country is the fifth largest agricultural exporter. Canada ranks number one globally for its canola, lentils, dry peas, and maple syrup production. Internationally, Canada ranks number six for its wheat and barley production and seven for its soybean production (Statistics Canada, 2017). Canada’s top exports include canola seed and oil, wheat, pork, soybeans, and lentils (Statistics Canada, 2017).

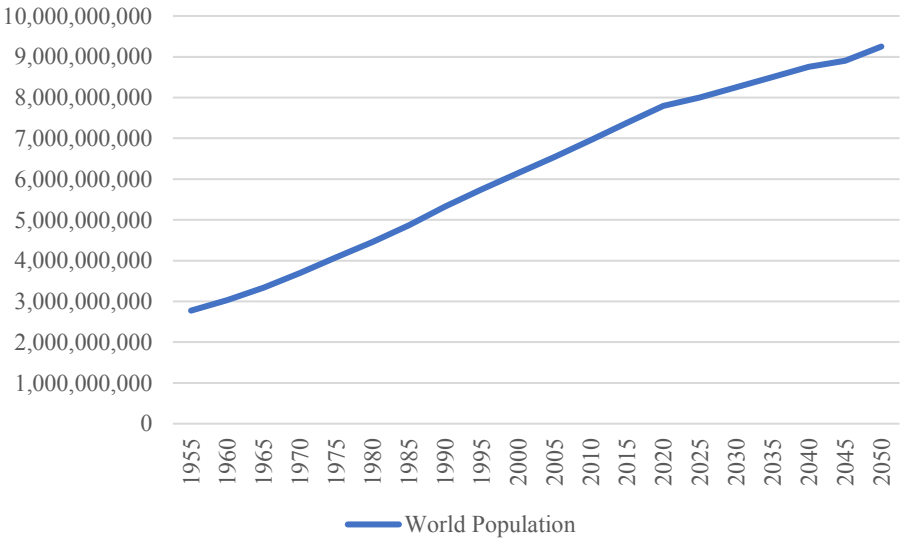
Agriculture is one of Canada’s largest industries, as it directly employs nearly 300,000 people (Statistics Canada, 2020) and accounts for roughly 5% of the country’s gross domestic product (GDP) (Statistics Canada, 2017). Canada’s Prairie Provinces, including Alberta, Saskatchewan, and Manitoba, are some of the most agriculture intensive. According to Statistics Canada (2017), the agriculture industry contributes greatly to the provinces’ GDP. On average, agriculture contributes nearly 10% of the Prairie Provinces’ GDP. Moreover, over 100,000 people are direct employees of farm operations in these three provinces (Statistics Canada, 2020a).

As the world’s population grows, agriculture and related industries will grow in size and importance.

POPULATION GROWTH

The world’s population has been steadily increasing since the 1960s (Figure 1).

FIGURE 1 – WORLD POPULATION



Food and Agriculture Organization of the United Nations (2009a)

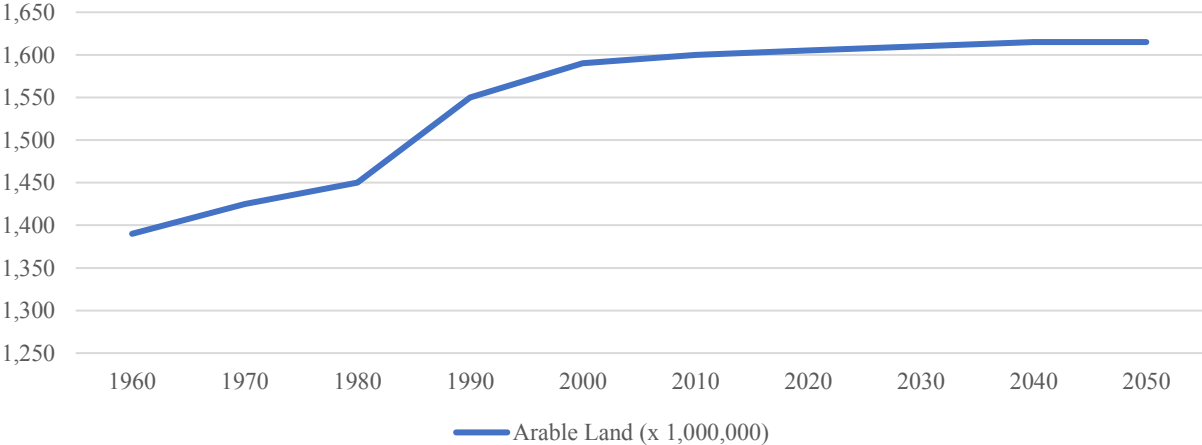
Currently, there are over seven billion people in the world (The World Bank, 2020). It is estimated that by the year 2050, there will be over nine billion people (Food and Agriculture Organization of the United Nations, 2009a; Wilson & Zhang, 2018). This equates to an increase of more than 30% (Food and Agriculture Organization of the United Nations, 2009a). According to the Food and Agriculture Organization of the United Nations (2009a), the population growth will largely come from developing countries. “Urbanization will continue at an accelerated pace, and about 70% of the world’s population will be urban (compared to 49% today). Income levels will be many multiples of what they are now” (Food and Agriculture Organization of the United Nations, 2009a, p. 2).

Population growth coupled with urbanization that results in notable changes to consumption, as well as rising income levels, result in increased food demand. In order to accommodate these macroeconomic shifts, it is estimated that the world will need to produce as much as 70% more food by 2050 (excluding the production of food for biofuels) (Food and Agriculture Organization of the United Nations, 2009a). “Annual cereal production will need to rise to about 3 billion tonnes from 2.1 billion today and annual meat production will need to rise by over 200 million tonnes to reach 470 million tonnes” (Food and Agriculture Organization of the United Nations, 2009a, p. 2).

ARABLE LAND

To accommodate population growth and food demand, additional arable land has been cultivated. Between 1960 to 2020 the world’s arable land has increased from less than 1.4 billion hectares to roughly 1.6 billion hectares (Food and Agriculture Organization of the United Nations, 2009a). However, current forecasts suggest that the future is grim, additional arable land cultivation has plateaued (Food and Agriculture Organization of the United Nations, 2009b) (Figure 2).

FIGURE 2 – GLOBAL ARABLE LAND



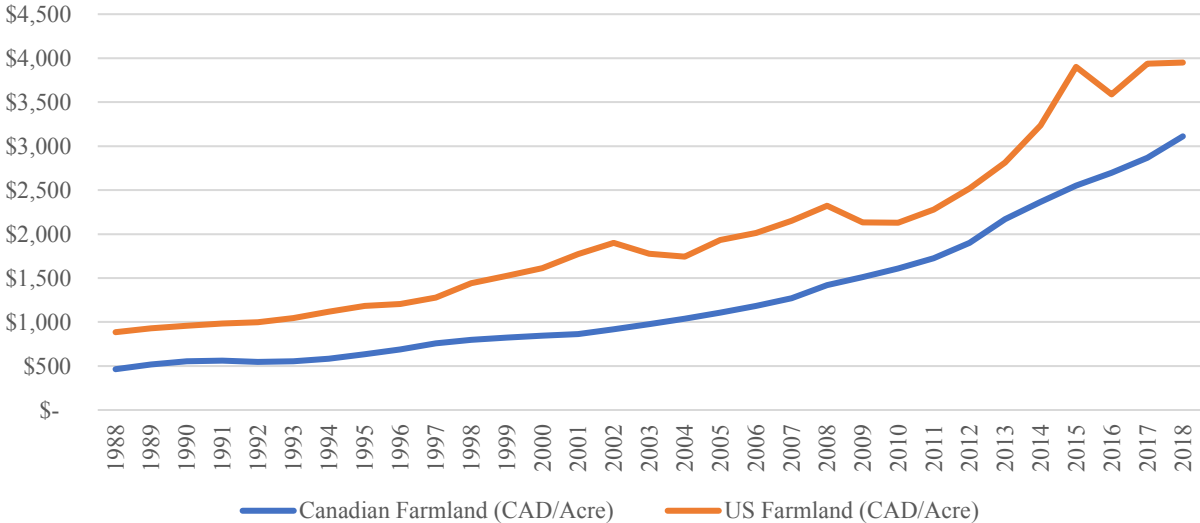
Food and Agriculture Organization of the United Nations (2009b)

Specifically, the Food and Agriculture Organization of the United Nations (2009b) suggests that 90% of existing arable land will be used to produce as much as 70% more food. Not only will this require food production innovations as Wilson and Zhang (2018) contend, it will invariably raise the value of global farmland.

FARMLAND APPRECIATION

Simple economics suggests, if demand increases while holding supply constant, prices will rise. As such, the increased demand for food and the arable land constraints will lead to appreciating farmland values. Over a 30-year period of significant population growth, the value of farmland in both Canada and the United States grew steadily (Figure 3).

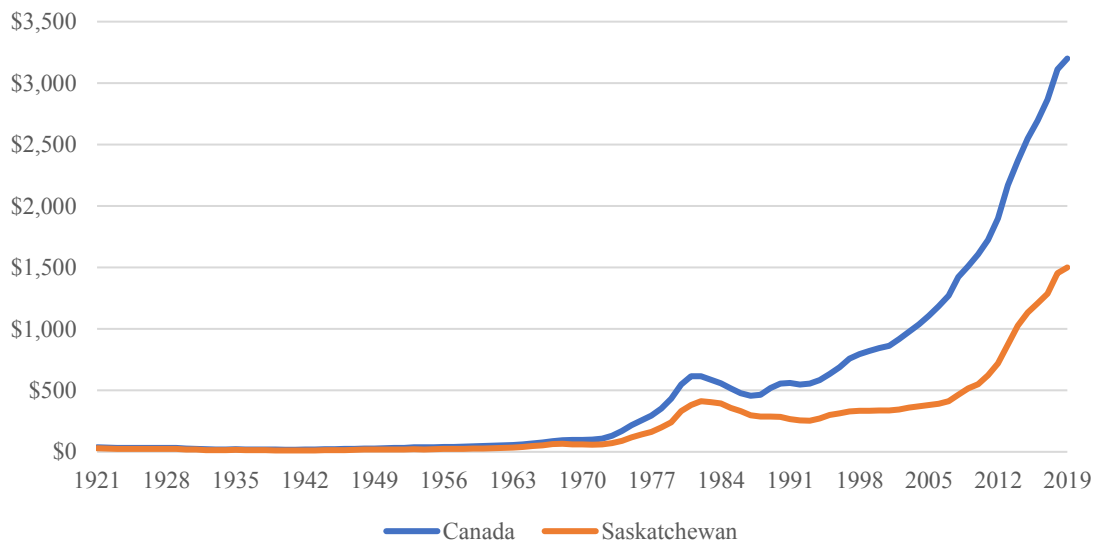
FIGURE 3 – CANADIAN & US FARMLAND APPRECIATION 1988-2018



Statistics Canada (2020b) and United States Department of Agriculture (2019)

According to Statistics Canada (2020b), in 1988 the average price of farmland per acre was \$464. At the same time, farmland in the United States was \$885 per acre. As of 2018, the average price of farmland in Canada exceeded \$3,000 and in the United States it exceeded \$4,000 per acre. Based on historical data and future outlook, the investment in farmland is promising. Interestingly, some regions of Canada show more promise than others. Specifically, in Saskatchewan where rental rates are similar to other Prairie Provinces, the purchase price per acre is significantly lower than the national average (Figure 4) and recent capital appreciation is notably greater.

FIGURE 4 – CANADA & SASKATCHEWAN PRICE PER ACRE



Statistics Canada (2020b)

The per acre purchase price disparity between the Canadian and Saskatchewan average exceeds \$1,500. Given that farmland rental rates in Alberta (Alberta, 2017) and Manitoba (Government of Manitoba, 2017) are comparable to Saskatchewan, (Government of Saskatchewan, 2017) but per acre purchase price is higher, farmland in Saskatchewan is highly appealing. In Saskatchewan, there are nearly 65 million acres of farmland (Persson, 2018). “Saskatchewan is home to more than 40% of Canada's cultivated farmland, some of the most productive land in the world” (Government of Saskatchewan, 2020). Saskatchewan farmland ownership has been more restricted than other provinces, resulting in a historically lower price per acre (Government of Saskatchewan, 2015). This is changing however, as restrictions are gradually reduced and consolidation is becoming more common. As compared to 1996, there are almost 13,000 fewer farm operations, equating to a decrease of over 12% (Persson, 2018). Given the high soil quality and relaxed purchase provisions, price per acre in Saskatchewan is on the rise. As such, forthcoming investments are likely to continue to provide fruitful returns and capital appreciation.

According to Farm Credit Canada (2018; 2019), recent per acre value changes of Canadian farmland has been largely positive (Table 1).

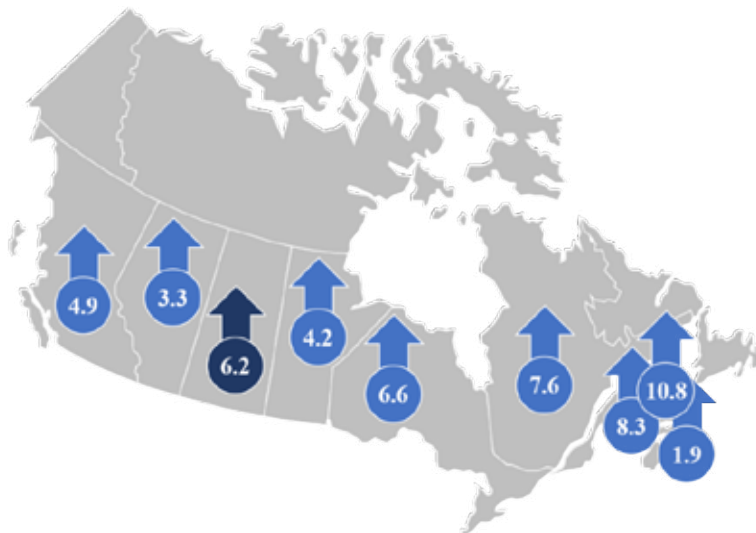
TABLE 1 – PRICE PER ACRE CHANGES BY PROVINCE

PRICE PER ACRE CHANGES BY PROVINCE			
PROVINCE	2017	2018	2019
British Columbia	2.7%	6.7%	5.4%
Alberta	7.3%	7.4%	3.3%
Saskatchewan	10.2%	7.4%	6.2%
Manitoba	5.0%	3.7%	4.0%
Ontario	9.4%	3.6%	6.7%
Quebec	8.2%	8.3%	6.4%
New Brunswick	5.8%	1.8%	17.2%
Nova Scotia	9.5%	-4.9%	1.2%
Prince Edward Island	5.6%	4.2%	22.6%
Newfoundland and Labrador	N/A	N/A	N/A
CANADA	8.4%	6.6%	5.2%

Farm Credit Canada (2018) and Farm Credit Canada (2019)

The greatest three-year appreciation in Western Canada has come from Saskatchewan (Farm Credit Canada, 2018; Farm Credit Canada, 2019) (Figure 5). Although some of the three-year average appreciations in Eastern Canada were higher, it is expected that Saskatchewan will continue to realize high percentage increases in the coming years.

FIGURE 5 – THREE-YEAR AVERAGE FARMLAND APPRECIATIONS



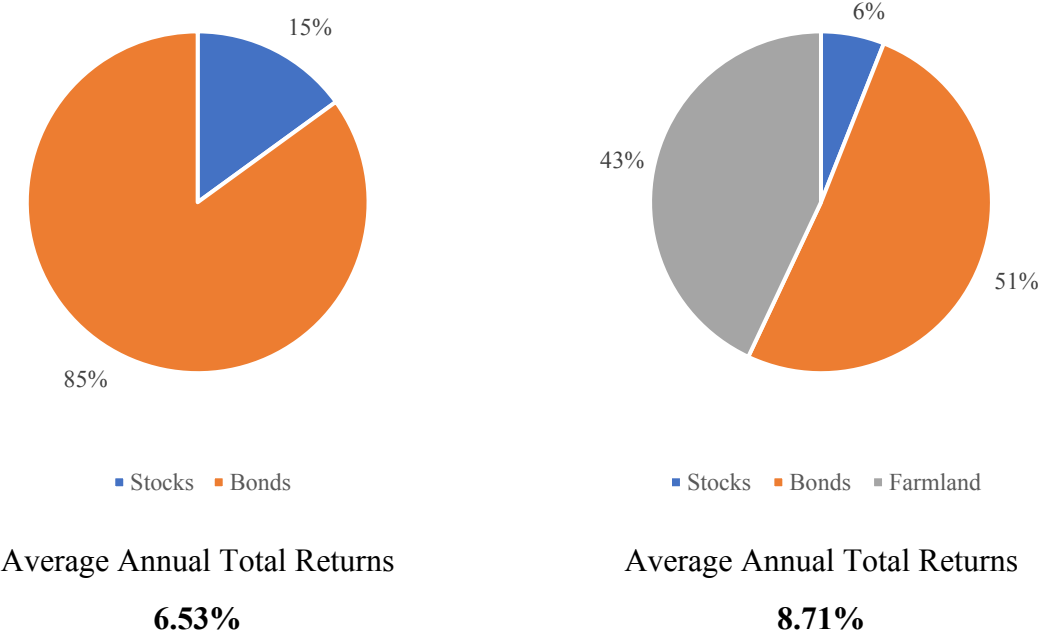
Based on Table 1 data (above)

Overall and irrespective of region, Canadian farmland as an investment has historically been rewarding, generating substantial capital appreciation, yield, and rental income.

INVESTMENT COMPARISONS

According to Newman (2020), due to both its historical stability and its ability to provide diversity, the addition of farmland to one’s financial portfolio has noteworthy implications for returns. Based on a variety of market information from 1992 to 2017, Newman (2020) showed how a typical investment portfolio comprised of 15% stocks and 85% stocks yielded average annual returns of just over 6.5% (Figure 6). Newman (2020) further demonstrated that a portfolio redistribution to include farmland increased average annual returns. Specifically, an additional 2.18% annually was realized with a distribution of 6% stocks, 51% bonds, and 43% farmland (Figure 6).

FIGURE 6 – INVESTMENT PORTFOLIO COMPARISON

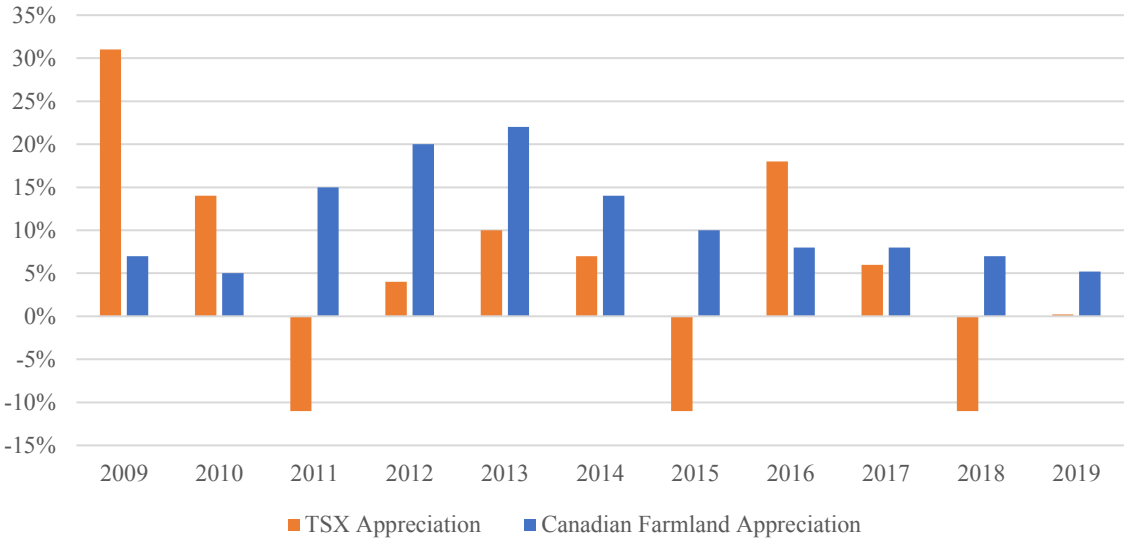


“Data are based on rolling one-year total returns, calculated on a quarterly basis for periods ended 31 Mar 1992 through 31 Dec 2017. Asset classes represent the following indexes: stocks - Russell 3000 Index and MSCI ACWI ex USA Index; bonds - Bloomberg Barclays U.S. Aggregate Index and Bloomberg Barclays Global Aggregate Index; privately held U.S. commercial real estate - NCREIF Real Estate Index; privately held U.S. farmland - NCREIF Farmland Index; privately held U.S. timberland - NCREIF Timberland Index, Indexes are unmanaged and unavailable for direct investment. Mean-variance optimization based on historical returns is intended for illustration purposes only and should not be considered investment recommendations” (Newman, 2020, p. 4).

Newman (2020)

Although Newman’s (2020) analysis was solely based on returns from securities and assets in the United States, historical Canadian market data is congruent. Comparing the appreciation of Canada’s primary stock exchange, the Toronto Stock Exchange (TSX), and farmland over a 11-year period from 2009 to 2019 is telling of farmland’s consistency and stability. Despite two economic downturns, farmland showed positive appreciation year-over-year as compared to the more volatile TSX (Figure 7). Although the TSX showed over 30% appreciation in 2009, three of the 11 years produced depreciations exceeding 10%. Conversely, farmland consistently appreciated, ranging from 5% to over 20%, throughout the same 11-year period.

FIGURE 7 – TSX VERSUS FARMLAND APPRECIATION 2009-2019



Farm Credit Canada (2018), Farm Credit Canada (2019), and Yahoo Finance (2020)

CONCLUSION

Given the expected population growth, urbanization, global food demand, and current arable land constraints, farmland investments will continue to yield lucrative returns. Farmland in Canada and the United States has historically appreciated as population and global food demand has increased. Moreover, farmland has served as a value-add to portfolios and has proven to be more predictable with respect to its appreciation than equity markets. Further opportunity for investment in farmland remains, with substantial value to be extracted. Specifically, regions of Canada, like Saskatchewan, have been historically undervalued and as a result, are appreciating. As such, there is a compelling opportunity for arbitrage. Due to long-term projections, now more than ever it is strategic to incorporate farmland into the investment equation. To quote Mark Twain:

Buy land, they're not making it anymore.

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