

Quebec's more optimistic demographic outlook does not reverse the forecast downtrend for economic growth Fortunately, other levers could partially make up for this

Last September, the Institut de la statistique du Québec (ISQ) released its new demographic projections. These are quite useful, especially for predicting Quebec's long-term economic growth. They allow us to estimate the number of workers who will be available to produce goods and services, and as a result, much of the potential for real GDP growth. This *Economic Viewpoint* presents an update of our long-term growth forecasts for Quebec. While the better demographic outlook is not enough to reverse the existing downtrend, other levers could still partially compensate, such as an increased participation rate by older workers, as well as gains in hours worked and productivity. Like many economies worldwide, Quebec will need to find ways to stimulate these levers.

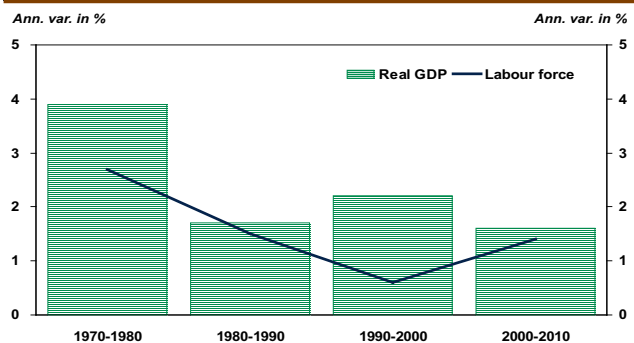
HOW DO WE DETERMINE ECONOMIC GROWTH POTENTIAL?

Economic potential, or potential GDP, is a measurement of what an economy can produce in a hypothetical situation with reasonably full utilization of labour and capital, with a given level of knowledge and technological development. This variable cannot be observed directly, unlike real GDP.

As economic potential cannot be observed directly, it has to be estimated. One way of doing so is to look at the movement by production factors, which is what our estimates for Quebec's potential GDP are based on (see box on page 2). However, this method is not foolproof. The main difficulties stem from the availability of the data required for estimating as accurately as possible each of the components involved in the calculation.

While various factors influence an economy's pace, demographics count for a lot. In the past, Quebec's real GDP has risen sharply during times where the number of workers has skyrocketed. In the 1970s, baby boomers entered the labour market en masse, and annual economic growth was around 4% on average for the decade. In response to a lower birth rate, the workforce's expansion lost a little momentum in the 1980s and 1990s, as did real GDP growth (graph 1). Recently, the drop in growth potential has taken on a new dimension, falling below the psychological threshold of 2%, as baby boomers are now retiring in increasing numbers.

Graph 1 – Quebec's labour force growth impacted real GDP growth



Sources: Université de Sherbrooke, Statistics Canada and Desjardins, Economic Studies

THE CHANGE TO THE DEMOGRAPHIC PROJECTIONS DOES NOT REALLY CHANGE ECONOMIC OUTLOOK

The ISQ's new baseline demographic scenario is more positive than the previous version published in 2009, primarily due to a higher fertility rate and increased immigration. Quebec's total projected population for 2030 is now 9.2 million individuals, from 8.8 million in the previous version. For 2050, the difference is larger, as the projected population grows from 9.2 million to 9.8 million. The new scenario also predicts that the population will exceed 10 million a few years later (graph 2 on page 2).

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Equation for economic growth potential

According to economic theory, the factors determining the level of output (Y) in an economy are the quantity of labour (L) and capital (K) available, as well as the degree of technological advances (A) (that also includes the degree of knowledge and efficiency). Some authors suggest adding a component for natural resource inventories, but this can complicate the estimation process immensely. For our calculations, we retained only the core components, using a Cobb-Douglas production function with constant returns to scale, which corresponds to the following equation:

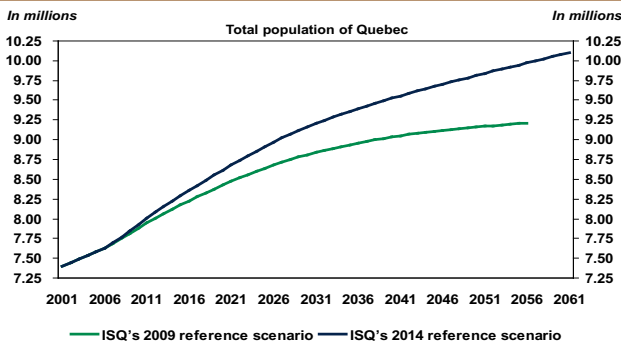
$$Y = AL^\alpha K^{1-\alpha}$$

The linear form of this equation places the variations for each component in relation to each other. Output growth is a function of growth in technological advances, labour and capital. Here, growth by available labour corresponds to the increase in total hours worked. This component depends on demographics, as well as on the labour market participation rate, the unemployment rate and the average number of hours worked by workers.

$$\Delta Y = \Delta A + \alpha(\Delta L) + (1 - \alpha)(\Delta K)$$

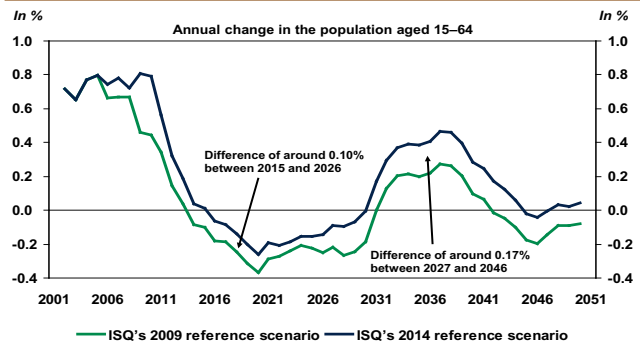
To estimate output potential, we must first determine the potential or underlying trend for each component. Coefficient α corresponds to the relative weight of labour in total output, which generally varies between 65% and 75% according to the countries in the Organisation for Economic Co-Operation and Development (OECD). For our estimates, we used the share of income generated by work (wages, benefits and other relevant income and compensation), divided by GDP calculated using the costs of the factors of production.

Graph 2 – Upward revision to Quebec’s demographic projections



Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

Graph 3 – Slight increase in the growth rate of the population aged 15–64

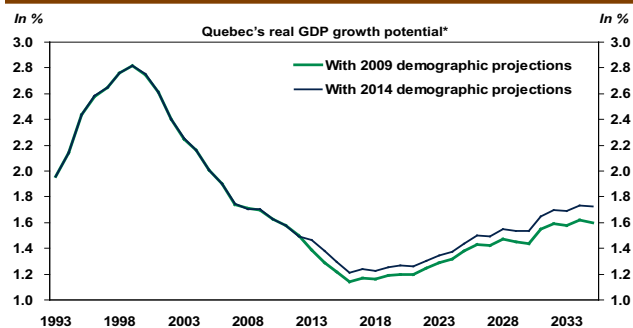


Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

However, the projected change in the total population is not representative of the population aged 15–64, where the most workers are found. Slower growth is expected for this age group, though it was revised upward in the ISQ’s new version. The population aged 15–64 is now expected to begin its decline in 2016, instead of 2014. Note that some of the revisions are simply an adjustment based on the real figures for the last few years, which were better than expected. On average, from 2015 to 2027, the annual growth rate for the 15–64 population will be around 0.1 percentage points higher than in the 2009 scenario (graph 3). Over a longer horizon, this difference will increase to 0.17 percentage points.

According to our estimates, the new demographic projections add slightly less than 0.1% on average to future economic growth for the next 20 years, which is not enough to reverse the existing downtrend (graph 4 on page 3). Growth potential should fall to around 1.25% and stabilize there for several years, before climbing gradually, without crossing the 2% mark. These estimates are based on many assumptions about all of the variables that factor into the calculations for potential GDP. It is a kind of middle-of-the-road scenario, one of many possible scenarios, depending on how the variables at play really turn out.

Graph 4 – Estimated economic growth potential increases 0.08 percentage points on average until 2035

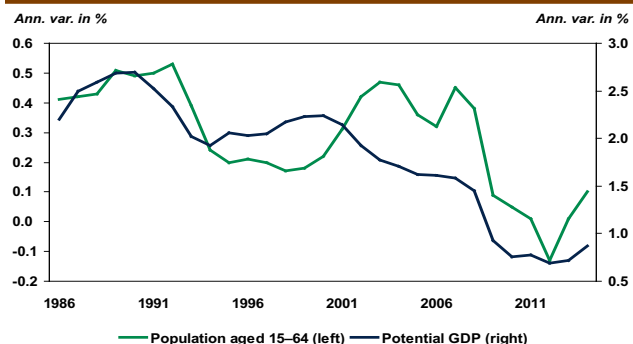


* These forecasts also depend on the assumptions and estimates for the participation rate, number of hours worked, natural unemployment rate, capital stock and residual growth related to technological advances, education and training, and efficiency gains. Source: Desjardins, Economic Studies

LOWER GROWTH POTENTIAL: QUEBEC IS NOT ALONE

Rapid population ageing and the resulting weaker economic growth potential are not exclusive to Quebec. Some regions of the world, including Europe and Japan, have experienced this demographic upheaval well before us, which slowed their real GDP growth. While Europe's population aged 65 and over rose quickly, growth by the population aged 15–64 waned. In the euro area, the annual change in the labour pool is now around zero. Combined with weaker productivity gains, this negative factor means that euro area's annual GDP growth potential is now below 1.0%, though it had been slightly above 2% in the late 1990s (graph 5). Of course, the consequences of the 2008 financial crisis left deep scars on public finances and, in turn, many national economies in that part of the world. However, demographic changes had started undermining Europe's economic growth potential well before the crisis, and the effects of ageing are still being felt.

Graph 5 – The drop in the labour pool affected Europe's potential GDP growth



Sources: Europa, Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

In Japan, the effects of the changing population structure were felt much earlier, in the late 1980s. Labour force

growth, then around 2%, gradually weakened and began trending down in the late-1990s. This was a harsh blow to potential GDP growth: its current pace is barely 0.7%, compared to a little more than 3.0% in the late 1980s (graph 6). In addition to demographics, other factors explain this downturn, including the major banking sector crisis that occurred after Japan's stock market and real estate crash in the 1990s. However, its rapidly ageing population continues to limit the Japanese economy. The proportion of people over age 65 has climbed to nearly 25%, making it one of the oldest societies in the world.

Graph 6 – The decline in the labour force impacted Japan's potential GDP growth



Sources: Datastream, Organisation for Economic Co-operation and Development and Desjardins, Economic Studies

QUEBEC STANDS OUT FROM THE REST OF NORTH AMERICA

The coming upheaval in Quebec will be similar to what has already occurred and is occurring in Japan and Europe. For example, the projected drop in Quebec's population aged 15–64 promises to be similar to what happened in Japan in the previous decade, or to Europe's projected contraction between 2015 and 2025 (table 1).

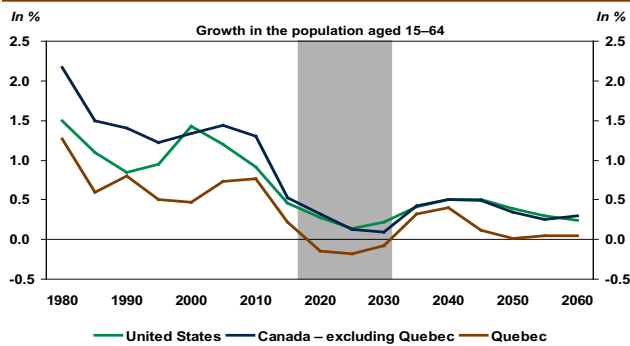
Table 1 – Quebec's situation will be comparable to the situation in Japan and Europe

In %	Annual growth in the population aged 15–64	
	Ave. 2000–2010	Ave. 2015–2025
Advanced nations	0.41	-0.31
United States	1.05	0.21
Japan	-0.54	-0.74
Europe (excl. Eastern Europe)	0.36	-0.22
Canada	1.23	0.14
Quebec	0.75	-0.16
Developing nations	1.95	1.13
China	1.46	-0.12
India	2.01	1.23
Latin America	1.71	1.01
Africa	2.68	2.63
World	1.65	0.90

Sources: United Nations and Desjardins, Economic Studies

However, the situation will be different for Quebec's close neighbours. In the United States and Canada, the working age population will continue to grow during this time, albeit slowly: no decrease is expected (graph 7). This is because Quebec's baby boom, from 1946 to 1966, was bigger than in the rest of Canada and the United States. As the first of these workers turned 65 in 2011, and the movement will only intensify, this age group will become increasingly large. The 65 and over age group currently accounts for 17% of Quebec's population, and will reach about 20% in 2020.

Graph 7 – The pool of labour will shrink in Quebec, while growth will simply slow elsewhere



Sources: Institut de la statistique du Québec, United Nations and Desjardins, Economic Studies

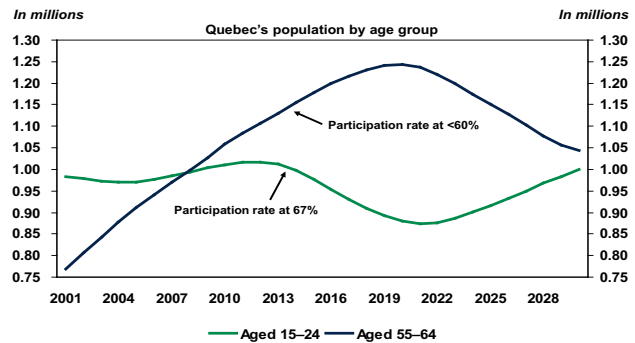
As a result, the province will not be as well placed as North America as a whole to capitalize on the economy's cyclical rebound. The gap between Quebec's potential GDP growth and that of its immediate neighbours may widen in the coming years due to the greater demographic changes. That being said, while demographics are clearly a key component in the future movement of potential GDP, there are also other variables at work. By trying to influence some of them, Quebec could partially offset this projected slide in economic growth.

CURBING THE DROP IN THE PARTICIPATION RATE

The participation rate corresponds to the proportion of the population aged 15 and up that is working or looking for work. With all else equal, the higher the participation rate, the higher the potential GDP. With these demographic changes, we will see a continued drop in the participation rate, as the number of older people, less active on the labour market, will grow more quickly than the number of young people in the labour market (graph 8).

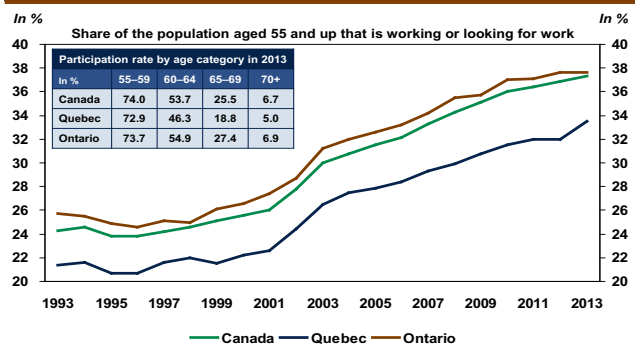
While this trend might not be reversed, it can be mitigated by increasing the participation rate among older people. In this respect, Quebec seems to have some leeway, in comparison to Ontario or the Canadian average. Differences can primarily be found in the participation rates for the population segment aged 55–70 (graph 9).

Graph 8 – The weight of older workers is rising, reducing the average participation rate



Sources: Institut de la statistique du Québec and Desjardins, Economic Studies

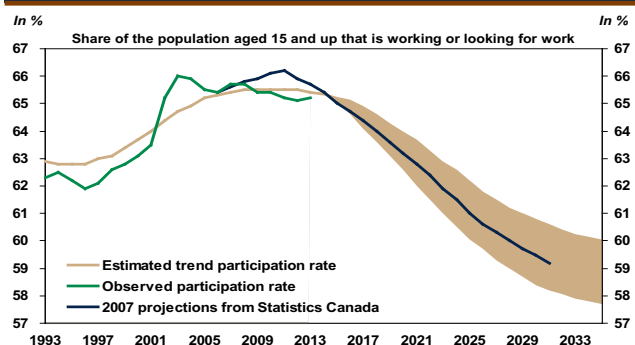
Graph 9 – Gains can be made among those 55 and older



Sources: Statistics Canada and Desjardins, Economic Studies

For our estimates of economic growth potential, we used the participation rate projected in a scenario made by Statistics Canada several years ago; it assumed that the participation rate among those aged 55 and up would increase, but that Quebec would not really catch up to the rest of Canada in a steady fashion. Then, a forecast range was established for this core scenario (graph 10). The optimistic scenario assumes that Quebec will close some of the gap with

Graph 10 – Forecast range for Quebec's participation rate



Sources: Statistics Canada and Desjardins, Economic Studies

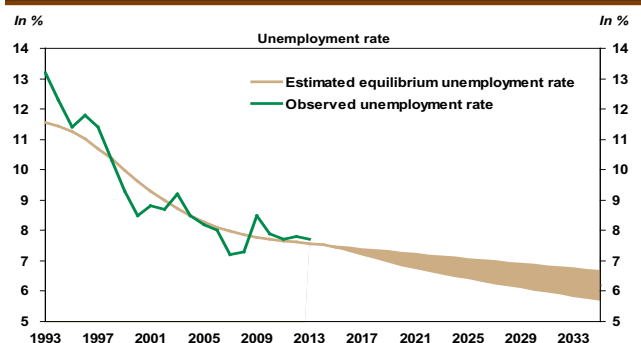
Ontario in terms of the population aged 55 and over. The pessimistic scenario instead assumes that the participation rate will drop further. This is what has occurred since 2006, when the participation rate turned out to be weaker than was forecast at the time.

FEWER UNEMPLOYED

Having the highest participation rate possible does not solve the whole problem. To impact the economy, this must result in a higher number of workers and thus by a low unemployment rate.

Workers are expected to become scarcer, which should naturally lead to a drop in the equilibrium unemployment rate (or the natural unemployment rate). The unemployment rate fluctuates with the economic situation, but over the long term, it tends to return to its equilibrium, or “natural” level. This level can also be influenced by factors other than major demographic trends, such as labour market regulations, workforce mobility and individual training and skills. For our estimates of economic growth potential, we established a range within which the equilibrium unemployment rate should move over the coming decades (graph 11).

Graph 11 – Forecast range for the equilibrium unemployment rate in Quebec



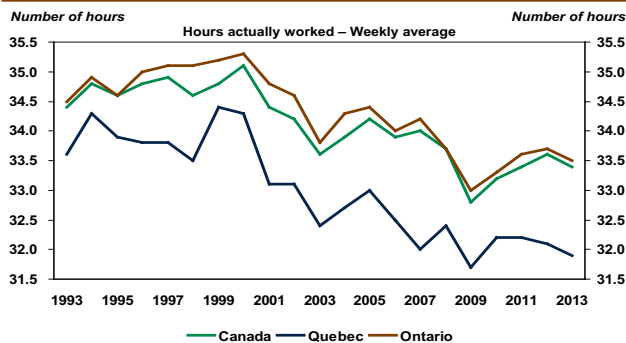
Sources: Statistics Canada and Desjardins, Economic Studies

WORKING MORE?

Once the number of workers is established, the total quantity of work in an economy can still be influenced by the average number of hours worked. In Quebec, workers work an average of 32 hours per week, which is less than the average for Canada or Ontario (graph 12). Some ground could therefore be recouped in the coming decades, especially since the labour shortage will create opportunities for those who want to work more.

However, it is hard to believe hours will surge, as they have been trending down nationwide since the early 2000s. If more workers opt to postpone retirement, these same people

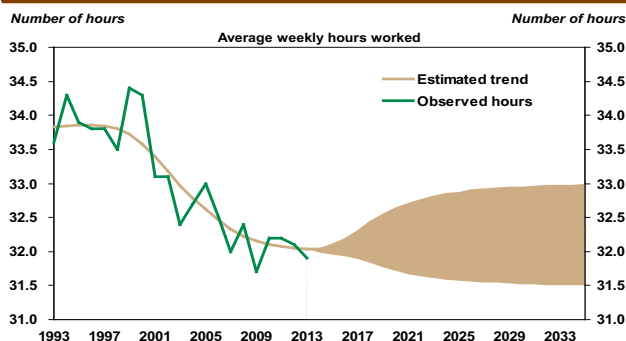
Graph 12 – Quebec is behind in terms of hours worked



Sources: Statistics Canada and Desjardins, Economic Studies

may also choose to shorten their work week. A hypothetical wave of gradual retirement could therefore limit any substantial improvement by hours worked in the coming years, and could even result in a steeper decline of them (graph 13).

Graph 13 – Forecast range for the average number of hours worked in Quebec



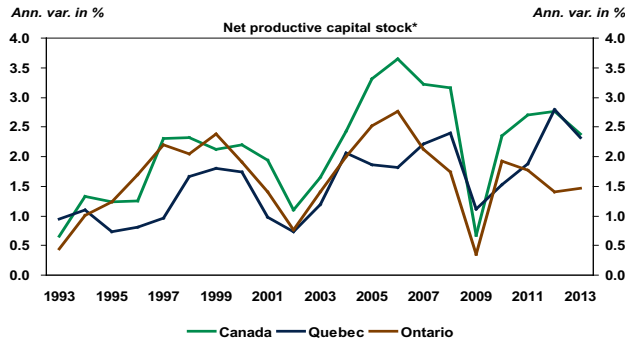
Sources: Statistics Canada and Desjardins, Economic Studies

DON'T FORGET PRODUCTIVITY!

If the quantity of available labour cannot be increased sufficiently, the final lever would be to increase productivity, that is, doing more with the same quantity of work. However, productivity is not a variable that we can directly control. Among other things, it depends on investment, technological advances, training and general efficiency gains.

Investment allows us to amass the capital stock that makes it possible to produce goods and services. More capital means workers are better equipped to produce, and therefore more productive. Quebec has improved in this respect over the last few years. Its capital stock growth has reached the pace of the Canadian average and is beating Ontario's (graph 14 on page 6).

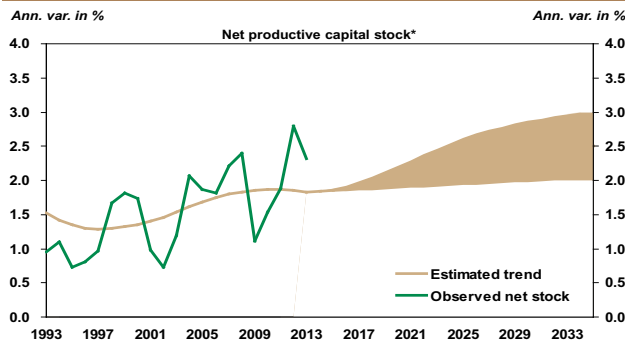
Graph 14 – In recent years, Quebec has often outperformed Ontario in terms of capital accumulation



* Estimate based on infinite geometric depreciation assumptions.
Sources: Statistics Canada and Desjardins, Economic Studies

The labour shortage should encourage businesses to invest in more modern equipment and facilities, requiring fewer workers to operate. Considering that in the last 20 years, Quebec’s pace of capital growth has risen from a 1% to 2% a year, we could hope to hit a pace of 3% around 2030 if the trend holds. However, this seems rather optimistic, as the current situation is being inflated by considerable government investment in infrastructure. Assuming this type of investment returns to normal, a capital stock growth rate of 2.5% would be a more conservative scenario, but it could also be less (graph 15).

Graph 15 – Forecast range for the accumulation of productive capital in Quebec



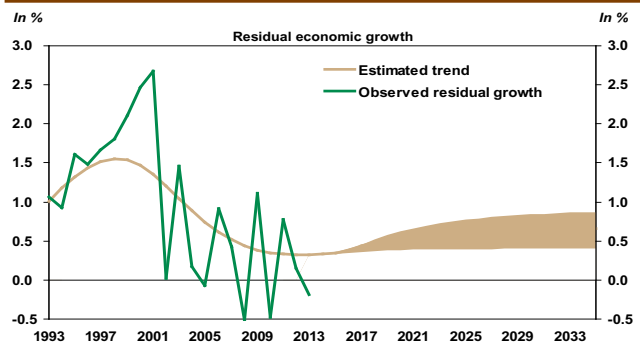
* Estimate based on infinite geometric depreciation assumptions.
Sources: Statistics Canada and Desjardins, Economic Studies

The other components of productivity can be estimated in a single block, by subtracting the effects of increased labour quantity and capital stock from the economic growth observed. We then see that technological advances, training and efficiency gains were an important pillar in the 1990s, but that the situation has deteriorated since the 2000s.

We believe that, with the labour shortage, better use of available resources will be necessary, which will be reflected by increased efficiency gains. Policies could

also be implemented to better match worker training with business needs. Finally, it is possible that new, “revolutionary” technologies will emerge in the coming years, but predicting this type of advance is difficult. Different assumptions were therefore made about the future trajectory of residual economic growth due to technological advances, training and efficiency gains (graph 16). Strict regulations, cumbersome administrative processes and inadequate financing for education and training could all limit improvements to this component.

Graph 16 – Forecast range for residual economic growth* in Quebec



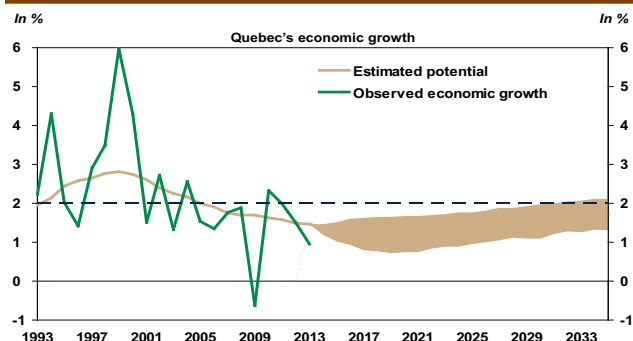
* Growth related to technological advances, training and efficiency gains.
Sources: Statistics Canada and Desjardins, Economic Studies

QUEBEC CAN RELY ON SEVERAL LEVERS

The demographic projections are more optimistic than they were in 2009, but that will not keep Quebec from entering into a tougher economic time as its growth potential decreases. The impacts on the government, businesses and consumers could be numerous.¹ Though Quebec is not alone in facing such upheavals, it will be one of the hardest hit, especially in North America. Luckily, there are various options for limiting this drop in growth potential. It is possible to boost the participation rate for those aged 55 and up, lower the long-term unemployment rate, increase the number of hours worked, or set up conditions for increasing productivity. We may think that the labour shortage constitutes a natural incentive for these variables to improve on their own, but some assistance—regulatory and fiscal—would also be welcome to facilitate some of the adjustments.

According to our most optimistic hypotheses, growth potential could stabilize around 1.6% in the coming years, climbing to around 2% by 2030 (graph 17 on page 7). This

¹ Desjardins, Economic Studies, *Economic Viewpoint*, “The possible consequences of weaker economic growth potential in Canada,” December 9, 2014, www.desjardins.com/ressources/pdf/pv141209-e.pdf?resVer=1418130526000.


Graph 17 – Forecast range for Quebec's economic growth potential


Sources: Statistics Canada and Desjardins, Economic Studies

scenario incorporates a less pronounced drop in the labour factor's contribution to growth, as well as substantial increases for contributions from capital and residual growth (table 2). Our middle-of-the-road scenario based on more conservative assumptions suggests a potential growth of about 1.30% between 2015 and 2014, and 1.60% between 2025 and 2035. On the other hand, if the natural incentive is not enough and nothing is done to stimulate the various levers on hand, growth potential could instead fall below 1%.

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Table 2 – Forecasts for Quebec's potential economic growth with a range defined by our pessimistic and optimistic hypotheses

In %	1995–2004	2005–2014	2015–2024	2025–2035
Potential GDP growth	2.54	1.66	1.28	1.60
<i>(minimum – maximum)</i>			0.83 – 1.66	1.16 – 1.97
Contributions by growth factor				
Labour	0.76	0.64	0.13	0.19
<i>(minimum – maximum)</i>			-0.13 – 0.39	0.14 – 0.24
Capital	0.44	0.59	0.64	0.77
<i>(minimum – maximum)</i>			0.59 – 0.69	0.62 – 0.89
Residual growth*	1.34	0.44	0.51	0.64
<i>(minimum – maximum)</i>			0.37 – 0.58	0.40 – 0.83

* Growth explained by technological advances, training and efficiency gains.

Source: Desjardins, Economic Studies