Will the Economic recovery be jobless after Covid-19?

A Study on the Relationship between Employment and GDP for Vulnerable Populations, and Regions of Canada

Ather H. Akbari
Jigme Choerab

What's the case with covid-19 right now?

Covid-19 Cases as of 15th November 2020

	Confirmed Cases		Death	Recovered	Active
Location	Number	% per 1000 people	*as % of confirmed cases		
Canada	291931	7.73	3.73	79.78	16.49
USA	11232694	33.94	2.24	61.35	36.41
Global	54488667	6.99	2.42	69.74	27.83

Source: health-infobase.canada.ca

SOBEY
SCHOOL OF BUSINESS

Employment in Canada, 2020

- 15 % drop in employment between February and April 2020

- 14 % increase in the months between April and September 2020

- 3.12 % decrease in employment YoY between Oct. 2019 and Oct. 2020

Source: Statistics Canada

SOBEY
SCHOOL OF BUSINESS
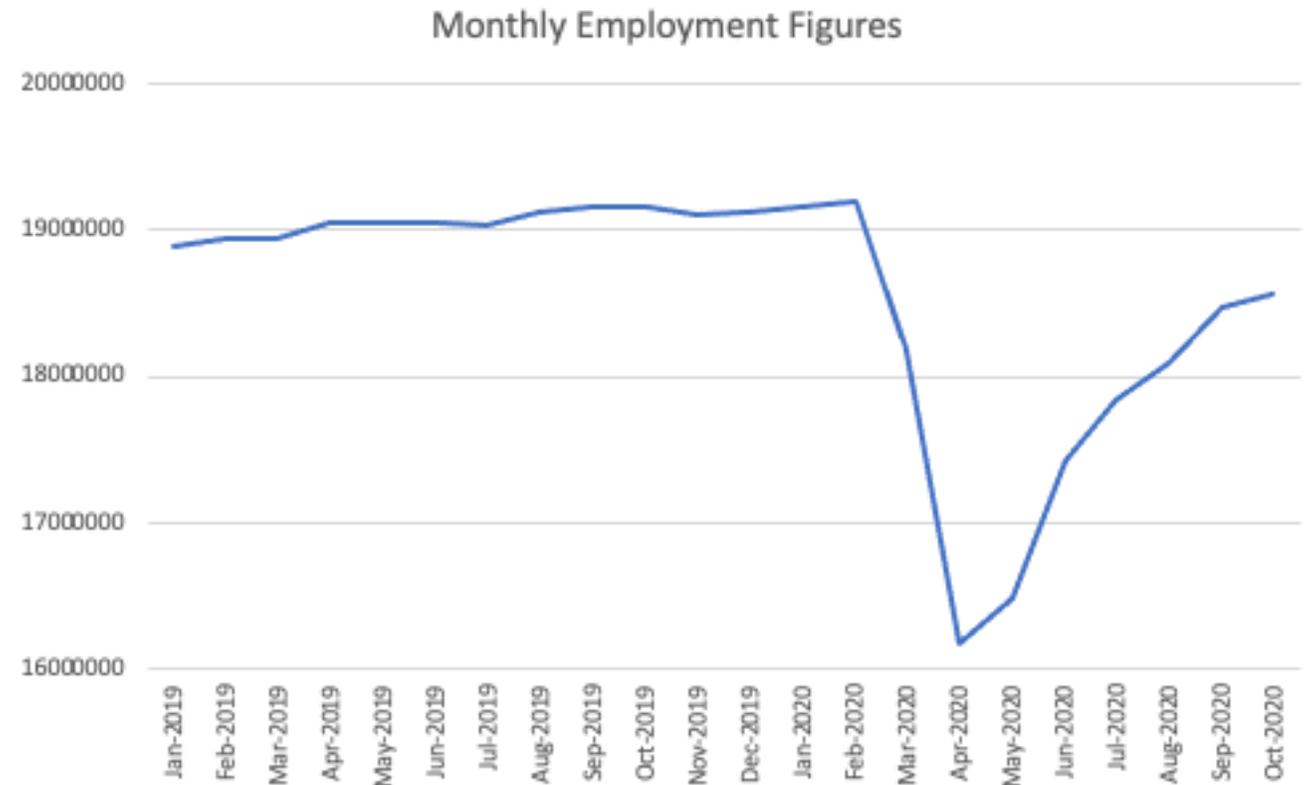
Canadian GDP, 2020

- GDP dropped 12% points between April and February 2020

- GDP then rose 18% points till it hit the peak in June 2020

- YoY fall of 3.11% between September 2019 – September 2020

Monthly % Change in GDP
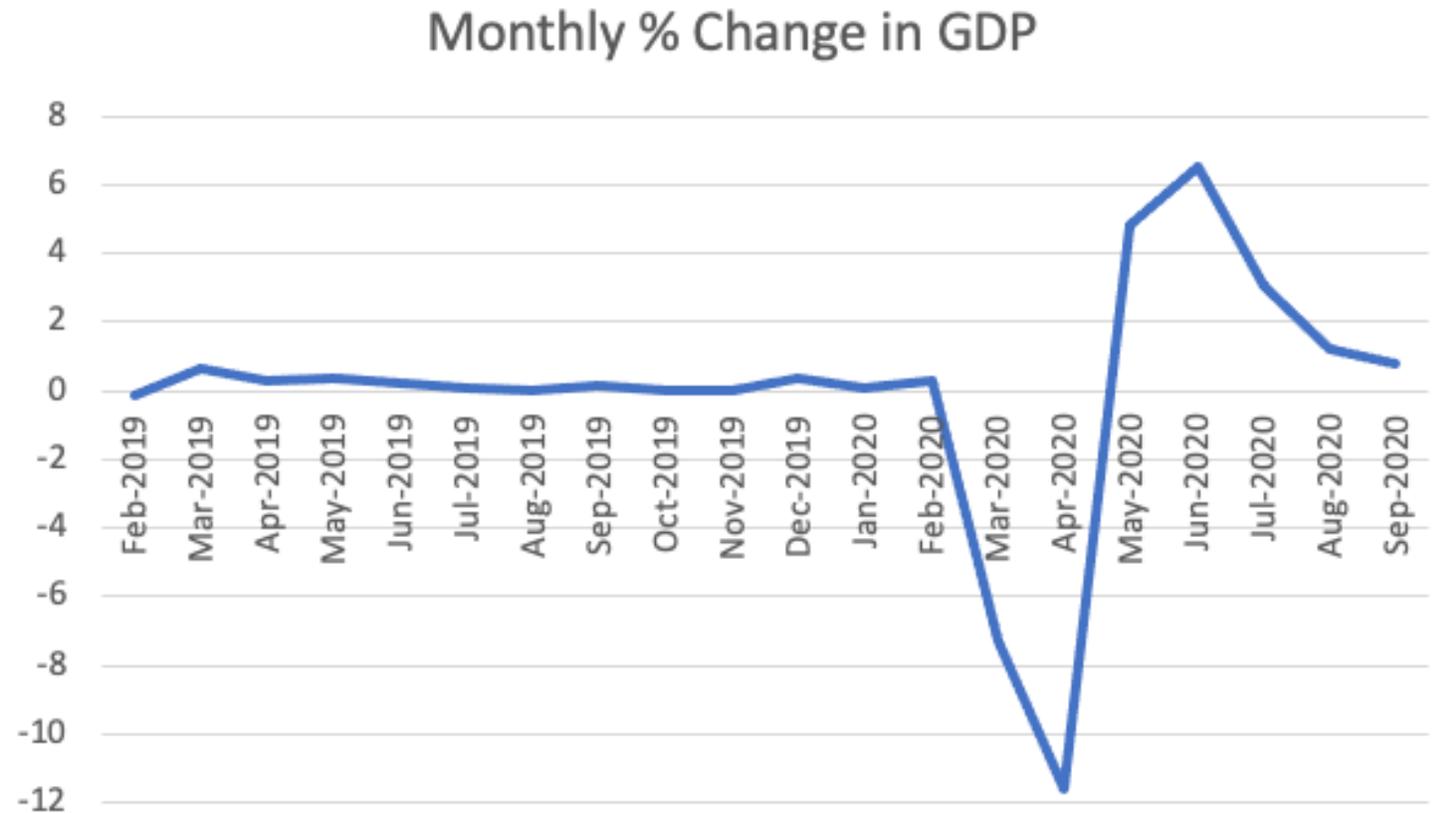
Source: Statistics Canada, tradingeconomics.com

SOBEY
SCHOOL OF BUSINESS

Relationship between Employment & GDP (Okun's law)

- Okun's law – postulated by Yale professor and economist Arthur Okun in the 1960s.

- The law suggests that the GDP of a country must grow by 4% to achieve a 1% reduction in the unemployment rate; and that a 1% increase would lead to .4% increase in employment.

- However, according to the Economic Research Division of the Federal Reserve, there are instances when the relationship does not hold - where the observed decrease in GDP corresponds to a higher increase in unemployment.

Canadian Employment and GDP, 2002-2019

- In the last two decades, overall, Canada has seen a 0.5% increase in employment with every 1% increase in GDP.

- However, after the Great Recession, this relationship has increased to 0.65%.

- Following the explanation given by the FED for a similar phenomenon in the US, the faster job receovery after the recession could be attributed to the faster job decline during the recession.

Relationship between Employment and GDP Growths in Canada
2002-2019

Source: Statistics Canada

SOBEY
SCHOOL OF BUSINESS
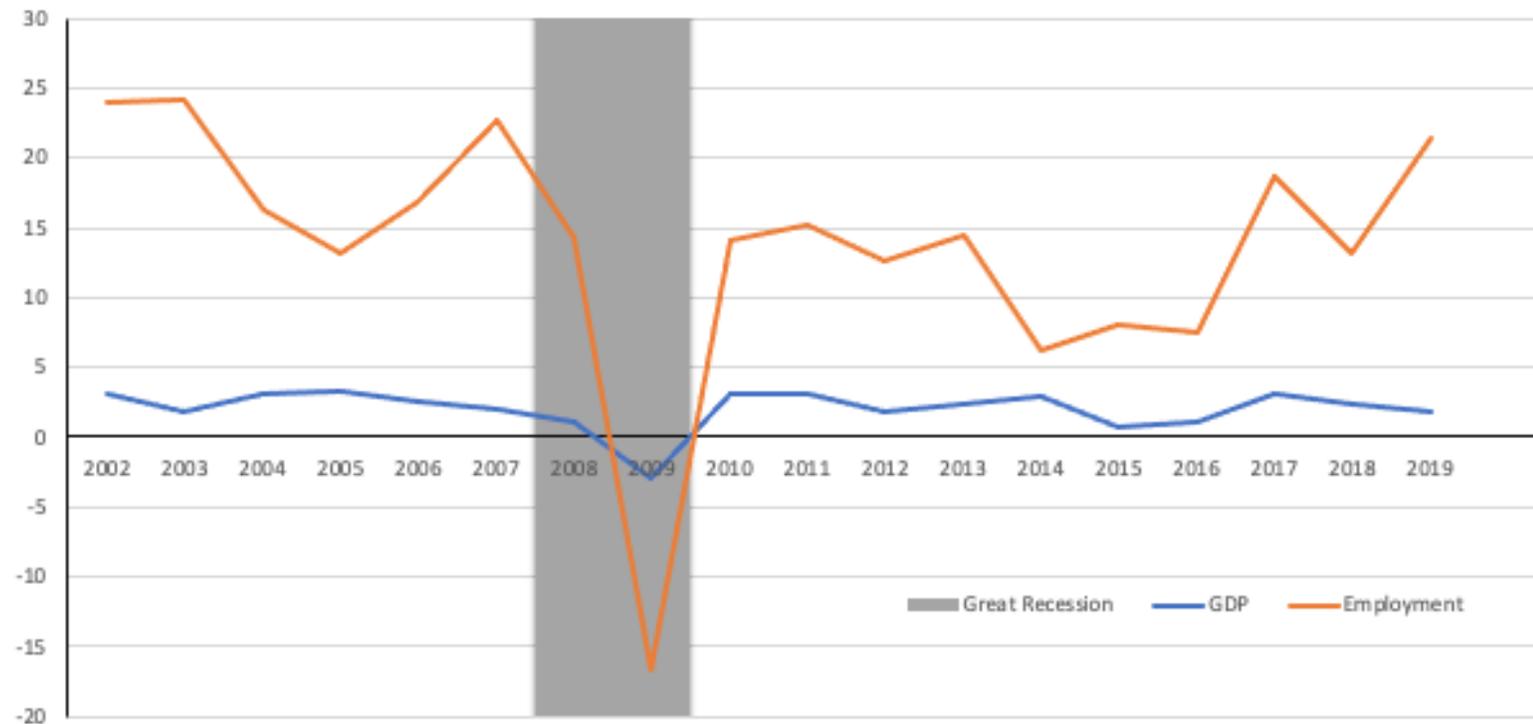
Our Study and the Framework

- Our paper tries to understand the impact of GDP growth on employment in Canada, her regions and some "vulnerable" populations.

- The framework is provided by the "Jobless Growth" literature in the pursuit to estimate whether the economic recovery after the Covid-19 pandemic will be jobless.

"Jobless Growth"

- The term "jobless growth" was first introduced by The New York Times in the 1930s at the end of the Great Depression and became reintegrated to the jargon after the 1991 recession.

- **Causes of "Jobless Growth" identified in literature are:**

1. Automation;

2. "Just-in-time" employment;

3. Increase in production; and

4. The Liquidity trap argument.

Causes of "Jobless Growth"

1. **Automation (Joel Bilt, 2020)**

- Recessions play an important role in promoting technological advancement and reallocation of productive resources, which increase aggregate productivity.

- This in turn leads to a decline in employment of lower skilled labour as GDP increases.

Causes of "Jobless Growth"

2. "Just-in-time" employment (Kang, Park, and Suh, 2020)

- Due to the risk premia, there was an initial increase in part-time employment at the outset of the Great Recession.

- The transition from full-time to part-time jobs helped mitigate the sharp contraction in total employment and relieved recessionary pressure.

Causes of "Jobless Growth"

3. Productivity Increases (Edouard Schaal, 2012)

- The Great recession was followed immediately by persistent increase in unemployment and a sharp rise, above pre-recession levels, in labour productivity.

- This may be a combination of longer hours worked by existing workers and automation.

Causes of "Jobless Growth"

4. The Liquidity Trap (Stephanie Schmitt-Grohé & Martín Uribe, 2017)

- The downward nominal wage rigidity, the zero bound nominal interest rates, and the consequent confidence shock, which in turn leads to lowered expected inflation rates.

- Real wages increase and employment – quite possibly even investment– falls.

Our Methodology - Data

- Time series data used in the estimations for the period 2007-2019 were purchased through customized request from Statistics Canada, and then refined into panel format for estimation. These are based on Labor Force Surveys.

- September 2020 GDP was collected from tradingeconomics.com

- Monthly data from Jan 2019 till October 2020 obtained from monthly labour force survey from Statistics Canada.

Our Methodology - Estimation

- First, we estimate the quantitative relationship between employment and GDP in Canada, from 2007-2019 which includes the Great Recession.

- We estimate the relationship for Aboriginals, immigrants, and recent immigrants, as compared to other Canadian-born citizens.

- The estimation is furthered by including regions, i.e., Atlantic (PE, NL, NS & NB), and Praries (MB & SK), and Western (AB & BC), as compared to Central (ON & QC).

- We then estimate the relationship since January 2019 till September 2020 for Canada.

SOBEY
SCHOOL OF BUSINESS

Our Methodology - **Estimation**

- Employment demand equation:

$$Ln\,(Employment)_{it} = \beta_0 + \beta_1 Ln\,(GDP)_{it} + \beta_2\,Time + \varepsilon_{it}$$

Where Employment is the number of people employed, GDP is gross domestic product, the subscrpits *i* and *t* denote the province and time, respectively. ε represents the random error.

Individual Equations

From 2007 – 2019 (Regions and Demographic Status):

1. $Ln\,(Employment)_{it} = \beta_0 + \beta_1 Ln\,(GDP)_{it} + \beta_2\,(Region * Ln(GDP))_{it} + \beta_3\,(Status * Ln(GDP))_{it} + \beta_4\,Year + \varepsilon_{it}$

From Jan. 2019 – September 2020 (Canada):

1. $Ln\,(Employment)_t = \beta_0 + \beta_1 Ln\,(GDP)_t + \beta_2\,Ln\,(GDPpostLockdown)_t + \varepsilon_{it}$

Results – 2007-2019

Dependent Variable: Ln (Empolyment)

Variables	National Data	Regional and Demographic Data (Ommited: Canadian-Born & Central Region)
Ln GDP	0.614***	1.548***
	0.017	0.377
Aboriginal * Ln GDP		1.610***
		0.253
Immigrant * Ln GDP		1.685***
		0.253
Recent Imm. * Ln GDP		2.808***
		0.253
Atlantic Can. * Ln GDP		2.149**
		1.031
Prairies * Ln GDP		0.653***
		0.25
Western Can. * Ln GDP		0.198
		0.248
Year	0.025***	0.021***
	0.005	0.005
Constant	1.838	-44.693***
	0.428	4.489
Observations	364	364
R-squared	0.335	0.531
Hausman	FE	FE
Number of id	28	28

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- In the period 2007-2009, employment grew faster than GDP: **economic growth was not jobless!**

- Employment for "vulnerable populations" seems to have grown faster than Canadian-born citizens.

- This could be because of their lower skilled employment.

- Employment in Atlantic Canada, and the Prairies grew faster compared to the Central region.

SOBEY
SCHOOL OF BUSINESS

Results – Jan. 2019 – Sep. 2020

Dependent Variable: Ln (Empolyment)

VARIABLES	No Pandemic	After March 2020
ln GDP	0.939***	0.821***
	-0.039	-0.052
Ln GDP after lockdown		-0.001***
		0
Constant	-9.812***	-6.467***
	-1.111	-1.483
Observations	21	21
R-squared	0.968	0.978

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- This estimation is based on Canadian data from Jan. 2019 till Sep. 2020.

- The relationship between employment and GDP has taken a hit of 0.11% points in this period.

- However, the effect of the lockdown on employment has been eased, quite possibly due to benefit programs, which we will see on the next slide.

SOBEY
SCHOOL OF BUSINESS

What effect did CEWS have on employment in different regions?

Dependent Variable: Ln (Empolyment)

| VARIABLES	CEWS	+ Interactions	+ Period
lnCEWS	0.856***	0.460**	0.513***
	(0.032)	(0.176)	(0.170)
Atlantic Regions*lnCEWS		0.402**	0.361*
		(0.189)	(0.181)
Prairies*lnCEWS		-0.412*	-0.355
		(0.237)	(0.228)
Western Region*lnCEWS		-0.579*	-0.463
		(0.294)	(0.286)
Period			0.064**
			(0.031)
Constant	-2.869***	5.669	4.379
	(0.622)	(3.743)	(3.621)
Observations	40	40	40
R-squared	0.949	0.982	0.984

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

- The Canada Emergency Wage Subsisdy (CEWS) has had a positve effect on employment in general, and this effect seems to be statistically significant.

- The CEWS has a similar effect on the employment of both the Prairies and the Western region as it does on the Central region when we incorporate the effects of their implementation period.

- However, in the Atlantic Provinces, the CEWS program has had an effect on employment 0.36 percentage points greater than in the Central region.

$$Ln\,(Employment)_{it} = \beta_0 + \beta_1 Ln\,(CEWS)_{it} + \beta_2\,(Region * Ln(CEWS))_{it} + \beta_3\,Period + \varepsilon_{it}$$

SOBEY
SCHOOL OF BUSINESS

Employment and GDP Growth, Canada
Jan 2019 – September 2020
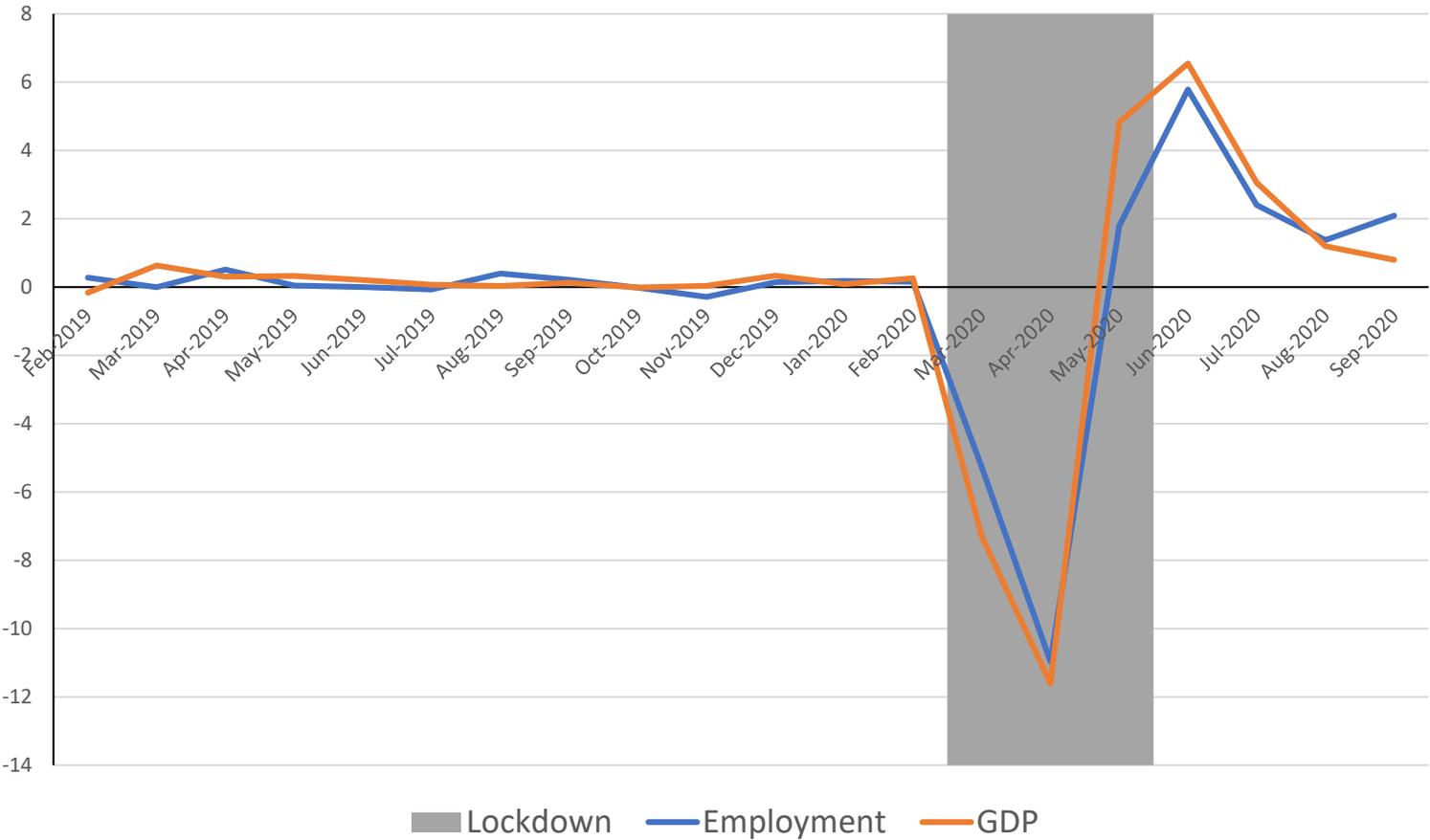
Explaining the Relationship

1. Automation

- About 40 percent of Canadian workers are in jobs that can plausibly be done from home (Zechuan Deng, René Morissette and Derek Messacar, 2020).

- One could argue that COVID-19 might prompt firms to accelerate the automation of tasks that cannot be performed at home thereby reducing the need to hire workers.

- However, the heavy subsidy provided under programs like the CEWS, have kept the payroll costs down for employers. Thereby encouraging them to continue hiring workers.

2. "Just-in-time" hiring practice

- Cost of training new hires who are temporary
- Lack of motivation
- Employment regulations

Explaining the Relationship

3. Worker Productivity

- Average weekly hours worked are now back up to 37.2 (Feb. 2020 level), after a low in March of 35.8 (Statistics Canada, 2020).

4. Liquidity Trap argument

- Bank of Canada has announced it will continue with low interest rate policy (0.25%) to prevent stalling of economic growth.

- The effect of any rise in real wages on employment demand will depend on wage elasticity

- However, indirect estimates indicate low wage elasticity of employment demand in Canada

Conclusion

- While results of the present research point towards job generation during past recoveries, more recent data also show faster rise in employment than GDP as the economy is showing signs of recovery. Aboriginals and immigrants saw faster employment in recent past than rest of population.

- The Atlantic provinces also showed faster employment growth than nationally during recovery from financial crisis of 2008.

THANK YOU!

SOBEY
SCHOOL OF BUSINESS