

NO PhDs PLEASE: THIS IS CANADA

***DISMAL EMPLOYMENT AND EARNING PROSPECTS OF
PhDs IN AN ADVANCED RESOURCE RICH COUNTRY***



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PhDs in an Advanced Resource Rich Country***

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Dedication

To all those *with* a PhD who have to drive taxies, deliver pizzas and perform similar tasks to sustain their livelihood.

Contents

Introduction	1
It presents importance of PhDs; deplorable situation of PhDs in Canada compared to OECD countries and especially the United States; and reasons for such situation.	
Chapter I: Doctoral Graduates	5
It examines in depth PhDs enrollment in Canada and discipline of their specialization. It also analyzes the number and composition of foreign students in PhD programs.	
Chapter II: Higher Education and Economic Return	11
It examines employment, earnings, over qualification and sectors of job concentration such as in academia, government, private sectors and R&D industries.	
Chapter III: Immigrants and Over-qualified Workers	19
Immigrants PhDs account for more than their share in the general population. But they are un-or under-employed and under paid. A large proportion is over-qualified for jobs that they are presently doing.	
Chapter IV: Reasons for Lower Economic Return of PhDs.	31
It examines Canada's natural resource endowments as compared to U.S. and OECD and high dependence of Canada's GDP, employment and international trade on resource sectors: areas where highly educated people (PhDs) are hardly needed.	
Chapter V: Issues and Future Challenges	45
Role of PhDs is analyzed in a broader socio-economic and political environment of Canada. Impact of new learning technology, opening of North American university campuses in Asia and reverse migration of foreign trained PhDs to their home countries are discussed.	

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Introduction

“Doctorate recipients begin careers in large and small organizations, teach in universities, and start new businesses. Doctoral education develops human resources that are critical to a nation’s progress—scientists, engineers, researchers, and scholars who create and share new knowledge and new ways of thinking that lead, directly and indirectly, to innovative products, services, and works of art. In doing so, they contribute to the economic growth, cultural development, and rising standard of living of a nation.”

National Science Foundation (2009) Doctorate Recipients from U.S. Universities <http://www.nsf.gov/statistics/nsf11306/important.cfm>

This book will dispel the conventional wisdom that the highest possible education is always rewarded in all advanced economies. At least in the immediate future, this does not hold true for Canada. Due to its large dependence on resource sectors and its industrial structure the need for the PhDs (Philosophy of Doctorates) is very limited.

In spite of about six additional years of education, Canada’s PhDs earn about the same as those who hold a Master’s degree. Their prospects of finding employment are even worse. This book examines the value of a PhD in Canada from a broad perspective and is written in a format suitable for a wide audience: professionals, business executives, governments and policy makers.

Importance

In an increasingly knowledge-driven, innovative and global economy, importance of higher education can hardly be emphasized. It increases research capability, teaching, training and learning opportunities, which are necessary ingredients for today’s economic competitiveness and higher productivity. It generates higher life-time earnings, more secured employability and more flexibility to changing market conditions. Overall returns to society are even larger because many benefits of education are not pecuniary.

However, economic returns and employment situation of higher educated persons in Canada — as compared to U.S. and other OECD countries — are disturbing. On average, PhDs take six more years after

Masters to complete the program. However, PhDs earn only 8% higher than Masters in Canada¹ (as compared to 22% higher in U.S.²). Their unemployment rate, bafflingly, is 50% higher than Masters in Canada (while it is just the opposite in U.S., 36% lower). A recent government survey shows that 200 (out of 50,101) taxi drivers in Canada are doctors or PhDs.³

The objective of this book is to examine the state of PhDs vis-à-vis university graduates in Canada; their earnings and employment situation. To investigate reasons for their poor earning and employment prospects compared to their counterparts in U.S. (and OECD) in broader economic perspectives. Resource richness, traditional industrial structure, lack of innovative opportunities and primary commodity focused production and trade pattern in Canada may be factors deterring enhanced prospects of PhDs in the country.

How is this book different?

This book will consolidate the data and analyses related to the economic opportunities of PhDs in Canada and present them basically through self-explanatory charts.

- Existing reports are highly technical. The data is also scattered.
- Many reports lump Bachelors, Masters and PhDs together in one category: “university graduates.” Only a few reports focus on economic opportunities for PhDs in Canada, and presentation is very technical.
- Studies rarely compare the state of PhDs in Canada with the competing countries — United States and OECD (Organization of Economic Cooperation and Development).
- None of the reports investigates reasons for dismal economic prospects of PhDs in Canada.

It is important to highlight at the outset that due to severe and continued budget cuts, Statistics Canada could not conduct *Doctoral Surveys* and similar research on regular basis — main source

1 Statistics Canada (2009) *Graduating in Canada: Profile, Labour Market Outcomes and Student Debt of the Class of 2005* by Justin Bayard and Edith Greenlee, Catalogue no. 81-595-M –No. 074.

2 U.S. Bureau of Labor Statistics (2010) Current Population Survey http://www.bls.gov/emp/ep_chart_001.htm

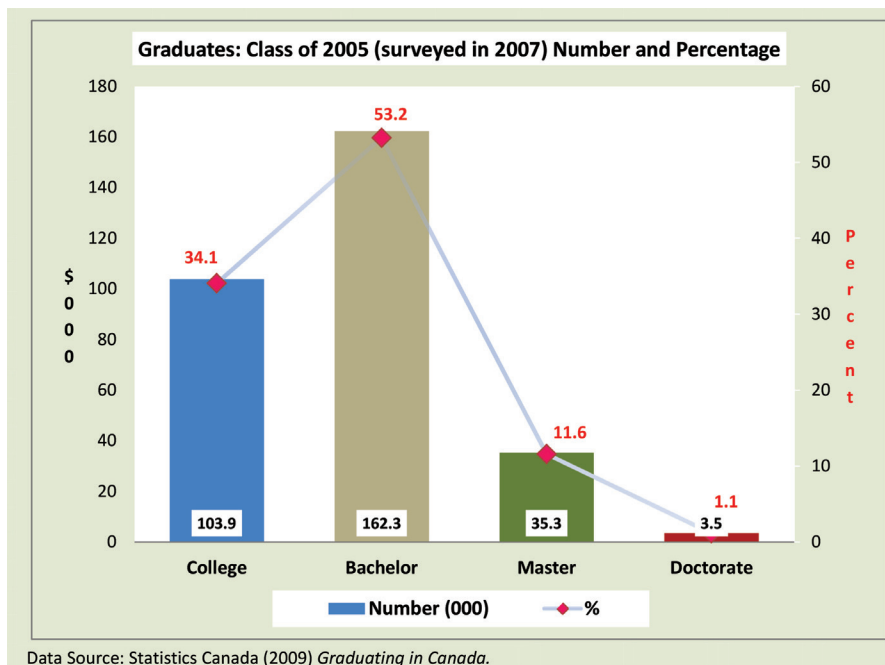
3 *The Globe and Mail* (May 10, 2012) “Overqualified immigrants really are driving taxis in Canada” <http://www.theglobeandmail.com/commentary/editorials/overqualified-immigrants-really-are-driving-taxis-in-canada/article4106352/>

for employment and income data of Canadian PhDs. This forced the present study to rely on out-dated data. However, keeping in view Canada's economic environment (increased production in number of university graduates and PhDs, budget cuts of institutions and departments who tend to hire PhDs, significant drop in full time academic positions, especially tenured) and global reality (increased demand for Canada's oil, gas, forest and natural resources from emerging economies of Asia — industries which seldom need highly educated and R&D personals), one can safely speculate that job prospects, earning and growth opportunities of post graduate degree holders, especially of PhDs might have deteriorated over the years. Past data confirm similar trends.

The study examines only monetary benefit of PhDs. It does not consider non-pecuniary and social benefits of higher education. Also it ignores the psychological toll of being unemployed and lower pay even after highest education.

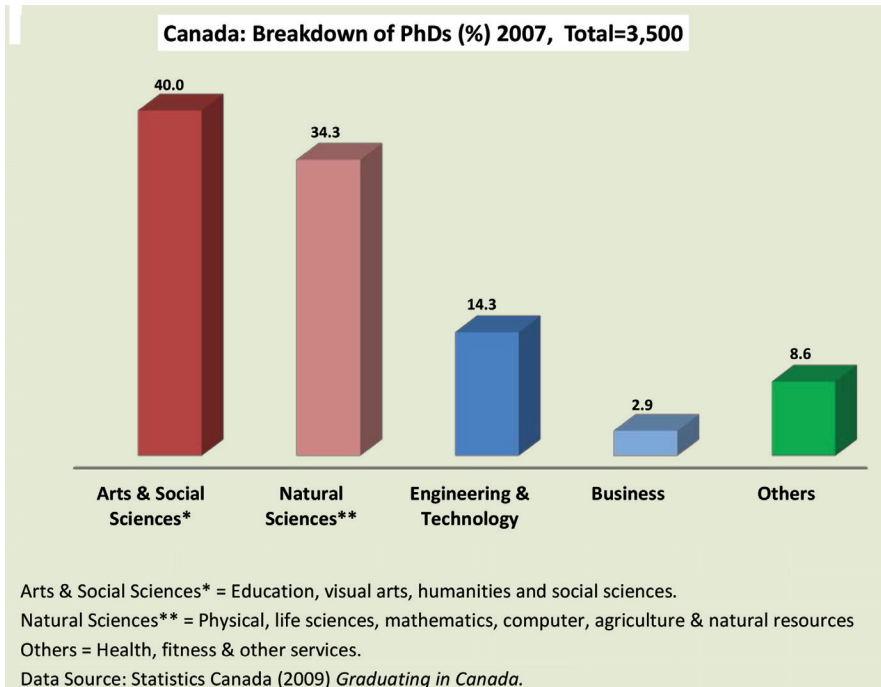
Chapter I: Doctoral Graduates

Chart I:1



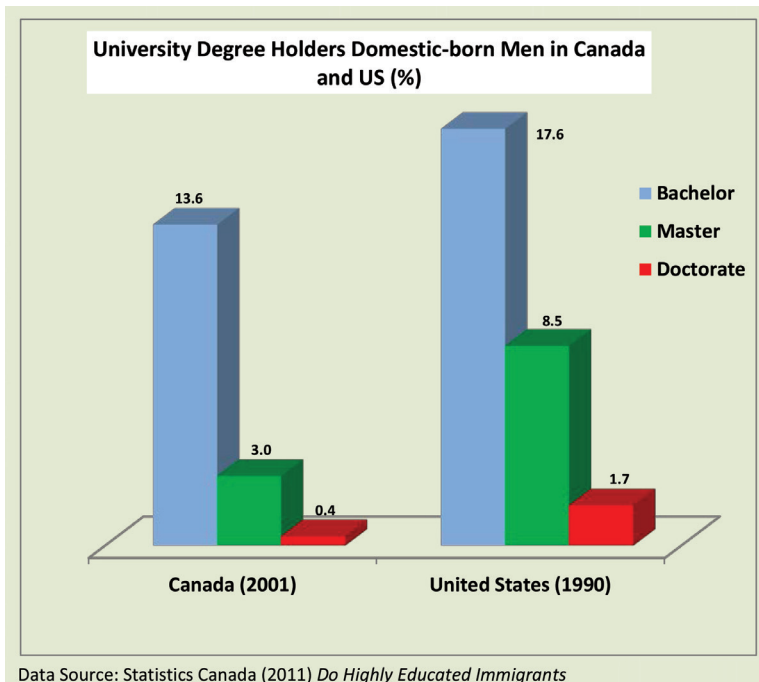
According to a survey conducted in 2009 by Statistics Canada of 305,000 students who graduated from colleges and Universities in 2005 (the latest data available), only 1.1% were PhDs and 11.6% were Masters (*Chart I.1*).

Chart I.2



Out of 3,500 PhDs produced in 2007 (*Chart I.2*), 40% were in arts and social sciences, 34.3% in natural sciences, 14.3% in engineering, 2.9% in business and 8.6% in other disciplines.¹

Chart I.3

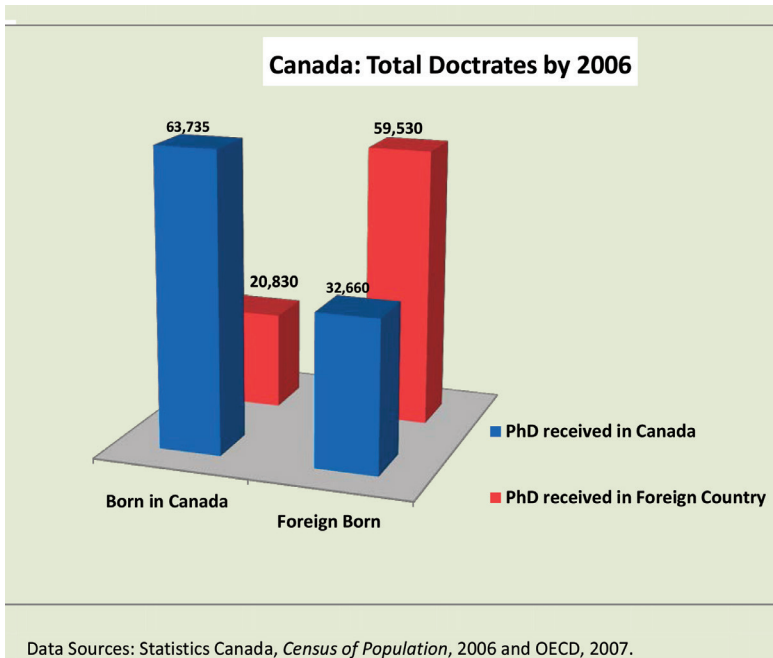


Another study² comparing Canada with the United States only for men and domestic born (*Chart I.3*) shows that proportion of university degree holders at all education level are higher in U.S.: 8.5% Master in U.S. compared to 3% in Canada and 1.7% PhDs in U.S. compared to only 0.4% in Canada. Note: U.S. data lag behind by 10-year. Number would be even higher for U.S. for the year 2001.

¹ Data Source: Statistics Canada (2009) *Graduating in Canada: Profile, Labour Market Outcomes and Student Debt of the Class of 2005* by Justin Bayard and Edith Greenlee, Catalogue no. 81-595-M — No. 074.

² Statistics Canada (2011) *Do Highly Educated Immigrants Perform Differently In the Canadian and U.S. Labour Markets?* by Bonikowska, Feng Hou, and Garnett Picot.

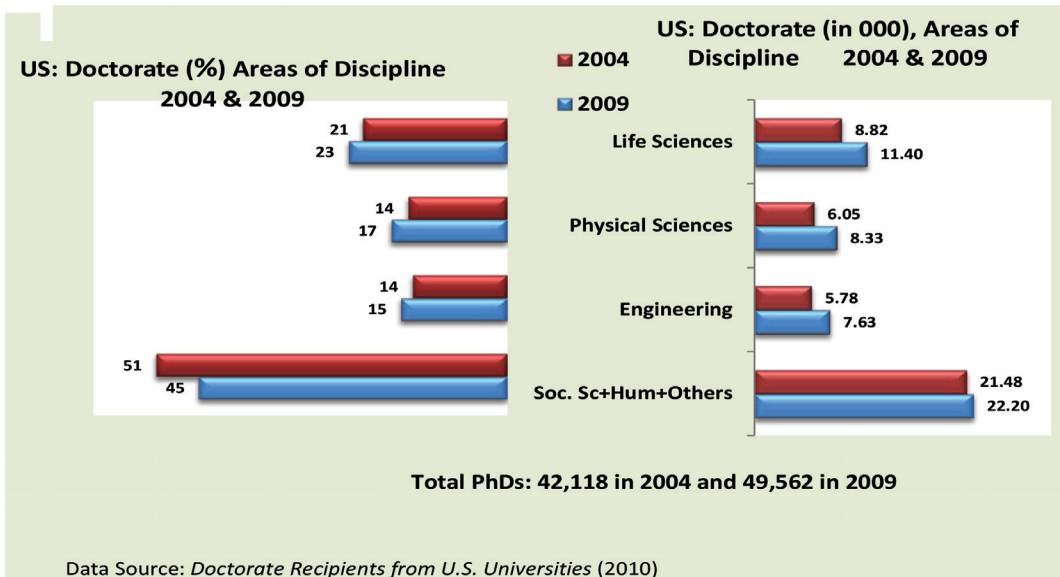
Chart I.4



In terms of number, there were 176,755 doctorates in Canada by 1996 (Chart I.4)³: 52.2% were foreign born and 47.7% were born in Canada. Out of total doctorates in Canada, 45.5% received their PhDs from foreign countries.

United States (Chart I.5) on the other hand, produced 49,562 PhDs in 2009 and 42,118 in 2004⁴ (compared to Canada's 3,500 in 2005). In 2009, 45% were in social sciences, humanities and other disciplines, 23% in life sciences, 17% in physical sciences and 15% in Engineering.

Chart I.5

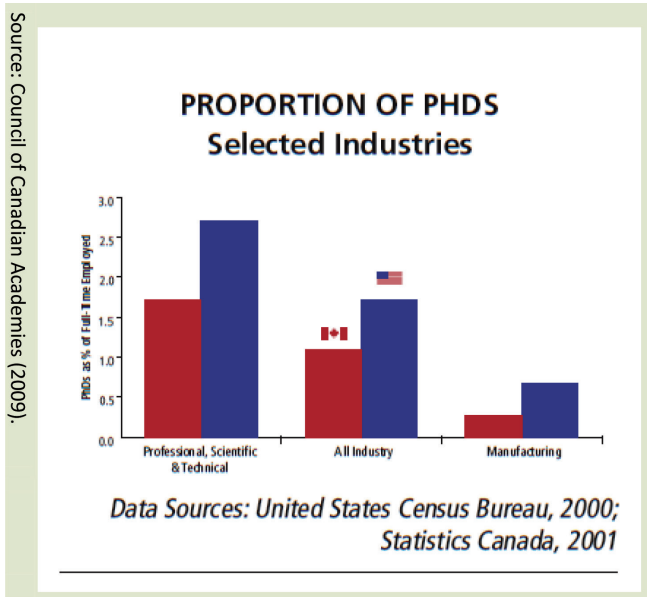


³ Statistics Canada, *Census of Population*, 2006. Cited by Louis Maheu: "Canadian PhD: Issues of a 'Building' Strategy", *The Canadian Review of Sociology*, for Peer Review.

⁴ National Science Foundation (2010) *Doctorate Recipients from U.S. Universities: 2009* (NSF 11-306).

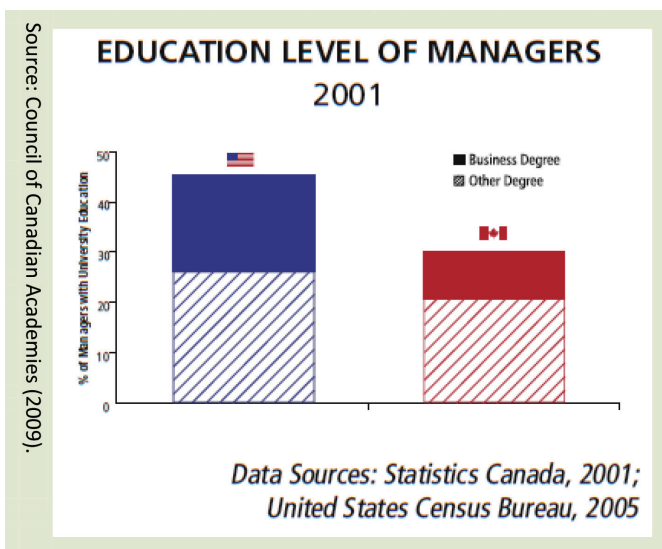
Note: U.S. has 9 times higher population than Canada, but it produced 14 times more PhDs. Moreover, only 1.9% of its PhDs were unemployed as compared to 6% in Canada (shown in the next section). This implies that U.S. economy has far more absorptive capacity, employment and research opportunities for its PhDs than Canada. Translated in Canadian equivalent, unemployment rate of U.S. PhDs should have been 8.4% ($=6\% \times 1.4$) even after adjusting for U.S. 9 times larger size of the economy, and not its existing unemployment rate of only 1.9%.

Chart I.6



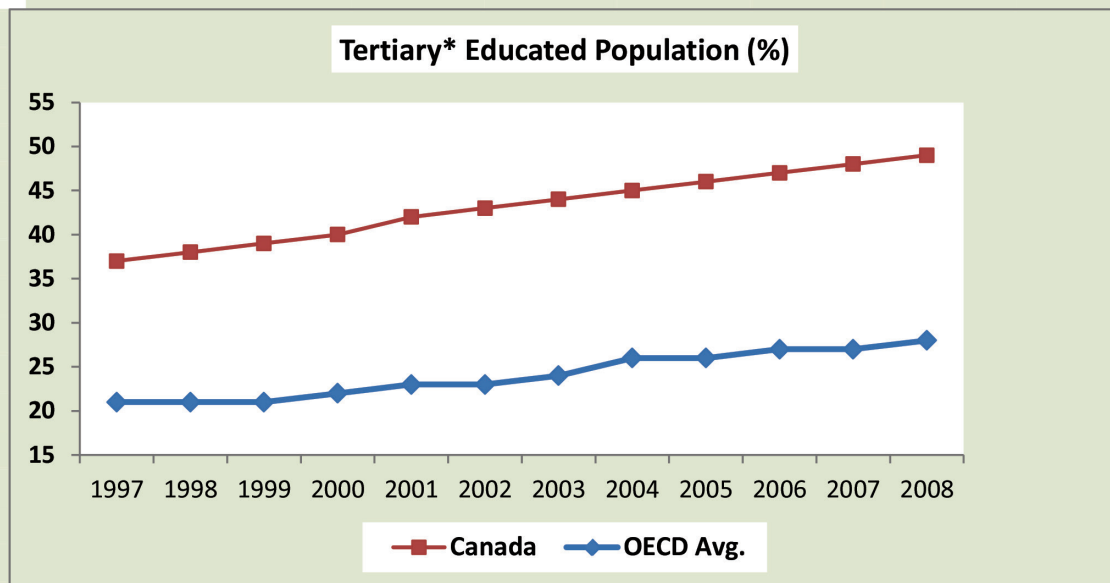
PhDs employed in various industries (*Chart I.6*) is significantly higher in U.S., especially in professional, scientific and technical field; where the proportion is as high as 60%.

Chart I.7



The same is true with the number of managers with university degrees (*Chart I.7*): the percentage is 46% in U.S. as compared to 30% in Canada. Further, more managers hold business degrees in U.S.

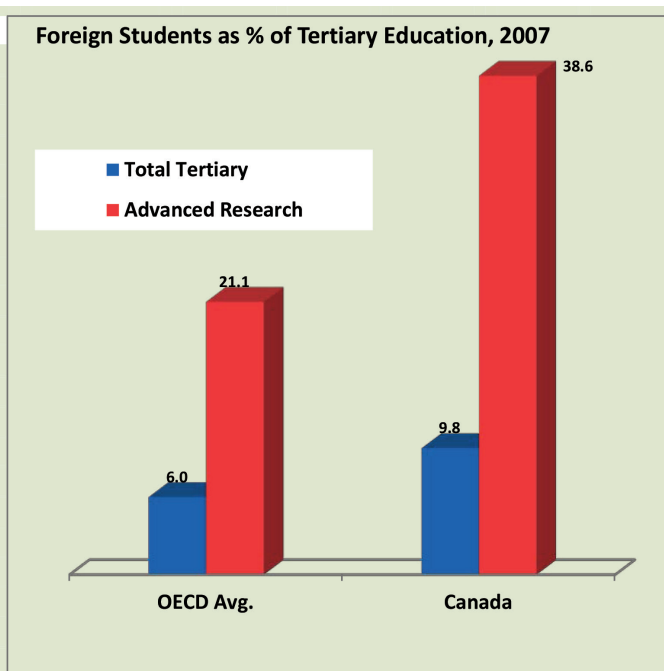
Chart I.8



*In OECD data, Tertiary education represents Bachelor, Master and Doctorate levels.

Data Source: *Education at a Glance, OECD Indicators*, 2010

Chart I.9



Data Source: Canadian Education Statistics Council (2010).

A bigger picture can be seen in OECD data. The trend in the tertiary education which includes Bachelors, Masters and Doctorates, is quite positive in both Canada and OECD countries (*Chart I.8*), and proportion is higher in Canada (9.8% as compared to 6% in OECD). However, the proportion of foreign student doctorates (measured by advanced research in OECD data) is quite significant in Canada: 83% higher than the OECD (*Chart I.9*).

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