

Chapter 13

Stratification and Vocationalization in Canadian Higher Education

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Similar to the other countries explored in this book, Canada has embarked on a project of vocationalization and stratification concerning its higher education system. Postsecondary education is becoming increasingly stratified in attempts to foster an upper crust in academia and create a high-skills elite. Furthermore, research and programs deemed more vocationally relevant and profitable receive greater support: research that connects more intimately with industry receives substantially more funding and programs closely linked to the professions in business, sciences, and engineering are a focus for expansion.¹ At the same time, the federal Conservative government is thoroughly invested in a resource extraction economy, which is arguably dependent on a narrowly-skilled population (see Gibb and Walker 2011). There is consequently certain ambivalence in the federal government's treatment of universities, research, and science. Science is sometimes mistrusted as an obstacle to economic reform and deregulation efforts. In addition, labour market shortages in oil, gas, and mining have led to targeted funding of programs for colleges and trade schools instead of for the traditionally strong universities.² Furthermore, while provincial governments have sought to regionally differentiate post-secondary education based on labour-market needs, they have been challenged by the desire of

¹For example, in 2003, the government of British Columbia allocated many more full-time equivalent (FTE) spaces over 5 years to double the number of undergraduate degree holders in computer science, and electrical and computer engineering (see BC Ministry of Advanced Education 2003).

²For example, the government of British Columbia created three new Centres of Training Excellence in the past 3 years, one in Mining, the other in Oil and Gas, and another to be created in Agriculture (BC Government 2014; BC Ministry of Advanced Education 2013). All three centres are associated with colleges or regional institutions, rather than the three more prestigious and research intensive universities in the province: University of British Columbia (UBC), Simon Fraser University (SFU), and University of Victoria (UVic)

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institutions to develop more prestigious positional goods in the marketplace and develop broad-based curricula (Marginson 2007). In other words, stratification is occurring in tandem with standardization, and vocationalization and stratification have, at times, been in conflict with one another.

There is much to be said about the Canadian experience of vocationalizing and stratifying its higher education system—not least because there are nine provincial systems, three territorial ones, and an overarching federal agenda. In this paper, I focus on what has occurred at the federal level, bringing to light some recent reforms implemented over the past two-to-three decades. The topic of the chapter is largely research policy since this is the one arena in which the federal government has an opportunity to influence higher education in Canada. Fisher and colleagues reflected, by and large the dominance of marketization and commercialization in Canada has not led to privatization (Fisher et al. 2009); however, many reforms made in the direction of vocationalization and stratification are embedded in an ideal of higher education as a privatized good. This chapter attempts to unpack the tension between vocationalization (or vocationalism) and stratification federally in Canada, situating recent reforms within the wider literature.

Vocationalism, Stratification, and the Changing Role of Higher Education

Public higher education has fallen on hard times...the dominance of market model-empiricist approaches in education policy analysis has produced a set of conclusions that... favors the application of free-market values to higher education policy...if growth is no longer an attribute of all sectors of the economy, then higher education must “invest” in programs consistent with existing “growth sectors,” whatever they may be, and “disinvest” in others. This puts higher education, and liberal arts programs in particular, at the whim of wherever the market happens to be at any one time. (Engel 1984, pp. 19–23)

As indicated in the quote above, concerns about the stratification and vocationalization of higher education have been around for at least 30 years. In the early 1980s, Jacques Derrida issued a strong message to Mitterrand’s government for its plan to introduce more career-focused curricula to French universities, thus putting the humanities and social sciences at risk (Dickson 1984). Writing in 1988, two Canadian academics observed that the “university means business” (Newson and Buchbinder 1988). Since then, scholars have proclaimed that the university is “in ruins” (Readings 1996), caught up in a discourse of “excellence” and driven by a corporate vision, or that it is “in the marketplace” (Bok 2003) thanks to a pernicious relationship with the commercial sector which is eroding its autonomy. Academic capitalism (Slaughter and Leslie 1997; Slaughter and Rhoades 2004) has provided us with a coherent frame for better understanding the market logic applied to higher education. That a Texas A & M chancellor offers a \$10,000US bonus to instructors who receive the highest student evaluations makes sense when viewed within the university’s “revamped discourse of progress in which the end goal is [no longer] the betterment of society as a whole” (Giroux 2011, p. 119). It is an ideological

embrace of the values of efficiency and competitiveness, and a valorizing of the economic over the social.

In this individualized, transactional, corporatized model, higher education institutions are being asked to demonstrate the value-add they bring to their customers (Marginson 2006). Employment outcomes are part of an overall accountability trend to evaluate “quality” in university education, exemplified by the Obama administration’s recent launch of the College Scorecard (U.S. Government n.d.). The degradation of liberal arts within this model is evident in the U.S. President’s own words uttered in a post-State of the Union talk given on “opportunity for all and skills for America’s workers,” in which he conceptualizes the studying of the humanities and social sciences solely as a career option, and a poor one at that:

[A] lot of young people no longer see the trades and skilled manufacturing as a viable career. But I promise you, folks can make a lot more, potentially, with skilled manufacturing or the trades than they might with an art history degree. Now, nothing wrong with an art history degree—I love art history. So I don't want to get a bunch of emails from everybody. I'm just saying you can make a really good living and have a great career without getting a four-year college education as long as you get the skills and the training that you need. (U.S. Whitehouse 2014)

This vocational turn and associated desire to make money is evident in Astin’s (1998) famous study of the changing American college student from the 1960s to the 1990s: 80 % of first-year students surveyed in the late 1960s believed developing a more meaningful philosophy of life was an “essential” or “very important” goal. In contrast, only 42 % of freshmen polled in the 1990s considered it as such. In contrast, over 74 % of first-year students from 1980s onwards stated that “being financially well off” was very important or essential, compared to only 45 % of students in 1966.

That students now primarily attend universities and colleges to increase their career options and earning potential is taken for granted. Grubb and Lazerson (2005) explain that the vocational drift began in the early twentieth century when a clear trajectory was crafted from high school to university/college and then to a professional occupation. Before this time, the authors note, people were likely practicing their professions *before* pursuing further education—e.g., formal medical training to sharpen their existing skills. Tertiary education was not a requirement for practice. Vocationalism is presently so deeply entrenched in our higher education systems that there doesn’t appear to be an alternative. While this is true for several of the national systems covered in this book, the forms and intensity of vocationalism clearly differ from place to place.

Vocationalization and stratification are closely linked. For example, in the US, vocationalism led to stratification in the creation of comprehensive public universities (i.e., state schools, such as California State, Arizona State etc.) which were to be attuned to labour-market changes and to provide entry into occupations that previously did not require higher education (Grubb and Lazerson 2005). Furthermore, we have witnessed greater stratification within institutions—the undervaluing of the Humanities and Social Sciences in favour of more applied subjects, such as Computer Science, Engineering or the concrete professions such as Law, Medicine, Nursing etc. In fact, there is good evidence that stratification is occurring more *within* rather *between* universities (Davies and Zarifa 2012).

Problems with Vocationalism and Stratification

There are four main concerns regarding current trends of vocationalism and stratification in higher education. The first reflects a worry about what this means for institutions of higher learning. Grubb (2006), as well as others (e.g., Bok 2003; Gould 2003; Readings 1996), caution that universities and colleges are becoming increasingly professional, and that programs in the humanities and social sciences are under threat. Grubb and Lazerson (2005) claim that liberal arts colleges in the US are being undermined and repurposed, becoming little more than preparatory schools for professional programs or graduate school. That being said, Taylor et al. (2013) show that reports of the death of the humanities in the US are greatly exaggerated: graduation numbers have not decreased and it appears that elite institutions can afford to keep investing in various humanist disciplines. They write, “the humanities have been disfavoured because many policy makers regard these disciplines as unlikely to yield novel discoveries or workforce development” (p. 678); and while this is true in general, elite universities have been able to sustain humanities programs by virtue of their increased ability to compete effectively in quasi-markets. However, other institutions (such as state universities or undergraduate colleges) are being truly transformed by a corporate logic. All this has resulted in further stratification in the higher education field.

The second regards the volatility of focusing on a narrow vocationalism in a stratified system. The “education gospel for all” (Grubb 2006; Grubb and Lazerson 2005) and its concomitant credential “arms race” (Collins 1979) means higher education does not guarantee graduates a job matched to their education. Students’ career ambitions are frequently dashed in the face of decreasing symbolic capital of their degrees. In a “global auction for skills” (Brown et al. 2011), wherein skills are highly portable, the battle for the brightest means that a degree is no longer a guarantee of success in the labour market (Brown and Tannock 2009).

The third relates to the rising inequality posed by increasing stratification between institutions, especially in the US., which is happening in tandem with skyrocketing tuition fees (Davies and Zarifa 2012). A “good” college in the U.S., accessible to a decreasing minority of applicants (Maisel 2013), seems to financially pay off in any subject and increase people’s cultural, social, and symbolic capital. For example, a recent article in *The Economist* found that an arts degree from a rigorous school such as Columbia or the University of California, San Diego “pays off handsomely.” Conversely, an arts graduate from Murray State University in Kentucky can expect to make \$147,000US less over 20 years than a high school graduate, after paying for their education (Economist 2014).

The fourth presents a clear argument against higher education’s purported ability to prepare people well for the workplace, particularly in universities’ more recent focus on getting students “job ready” (Bourner et al. 2011; Rospigliosi et al. 2014). For example, Bourner et al. (2011) present six compelling reasons why a narrow vocationalism (as seen in an emphasis on “employability skills” as recently taken up by some colleges and universities) is a poor bet. Rospigliosi and colleagues (2014) contend that what higher education can and does do is increase people’s capacity

and propensity to learn. Graduates signal their ability to learn to future employers through their credentials; they don't come in with 'job skills' and, arguably, this is not what employers desire.

While supporters of a competitive market-based approach to education may welcome the demise of the liberal arts in favour of more industry-linked programs, it isn't clear that humanities degrees are in fact dismissed in the labour market. As former Yale English Professor William Deresewitz (2014) notes in his recent best seller on the demise of elite education in the US, "the liberal arts are more important now than ever," citing billionaire CEO of the Carlyle Group, David Rubenstein, as commenting that the new formula for business is "H = MC" or "Humanities = More Cash" (p. 154). While the humanities are not the only way to develop one's ability to think critically, they can help—and humanities degrees from certain institutions do lead to increased capital, as *The Economist* (2014) article previously mentioned makes strikingly clear

Rospigliosi and colleagues (Rospigliosi et al. 2014; Bourner et al. 2011) and Grubb and Lazerson (Grubb 2006; Grubb and Lazerson 2005), criticize the narrow vocationalism seemingly taken up by higher education institutions and governments, and advocate instead for a broad vocationalism. Grubb (2006) argues that higher education should be preparing people for long-term thriving throughout their many jobs, allowing them to ride out the vicissitudes of the labour market. He supports meaningful workplace learning and "co-op" vocational placements whereby students spend part of their education working for industry or in an organization (as is common in many Canadian engineering programs). It is not, therefore, a resistance to vocationalism: indeed, even Dewey (1938) argued that education should be vocational and applied. A "new vocationalism," according to Bourner et al. (2011), would be one in which higher education institutions promote reflective practice and are oriented to developing people's capacity and disposition to learn.

It is clear that vocationalism and stratification are part of an overall shift in the role and purpose of higher education as institutions become more academically capitalist (Slaughter and Rhoades 2004). It is also apparent that there are good reasons to want to put the brakes on vocationalization and stratification, or at least redirect them, given the implications for students, society, and the entire institution of higher education. While vocationalism and stratification have most been studied in the context of the US, UK and Australia, these trends are equally occurring north of the 49th parallel, as I explore in the remainder of the chapter.

Stratifying and Vocationalizing Canada's Higher Education Sector

Stratification is evident in many new federal initiatives which seek to separate out 'strong' from 'weak' institutions, researchers, and subject areas. Vocationalism is one criterion that is driving such stratification and is reflected in the pressures placed on research to be commercially viable and on researchers to further connect with

industry. In addition, while universities remain the crux of Canada's tertiary education system, colleges and trades institutions are a growing sector. Furthermore, academic research, and universities more generally, can fall in the shadow of the current federal government's larger concern to develop an economy rooted in the exploitation of natural resources.

A Brief Overview of the Canadian Higher Education System

The proportion of Canadians with a postsecondary education is the highest in the OECD (STIC 2012), and almost twice the OECD average in terms of adults holding a certificate, diploma, or degree (Boothby and Drewes 2006).³ However, much of this ranking can be explained by high participation in colleges or trade institutions rather than universities (Statistics Canada 2009a). The percentage of Canadians obtaining a postsecondary *degree* is also increasing with many more students undertaking their undergraduate degrees not from traditional universities but rather from these other institutions which are now able to grant degrees (such as university colleges). While the growing numbers of universities, colleges, and other institutes are playing an important role in the education of Canadians, there are still relatively few research intensive universities. A consortium of 15 universities, U15, claims that they undertake 80 % of all research across the country and award 70 % of doctoral degrees (see <http://u15.ca/>). In 2010, the largest percentage of graduates (at all levels) came from the fields of business and administration (18 %), social and behavioural sciences (14.9 %), humanities and arts (12.4 %), and education (11 %) (STIC 2012). At the same time, from 2006 to 2010, there was a 31.8 % increase in science degrees granted and a 7.3 % increase in engineering degrees (STIC 2012).

Higher education in Canada is more affordable, in general, than in the US. Average tuition for an undergraduate degree in Canada in 2012 was \$5,300⁴ per year, or around \$22,200 for a 4-year Bachelors' degree (Statistics Canada 2013).⁵ Unlike the US, there are no "out-of-province" fees (excepting the province of Quebec): all Canadians pay one rate and international students pay another. Furthermore, there are relatively few private universities, and private institutions have by-and-large failed to take hold in the "prestigious" market of university education.⁶ The limited scale of private higher education helps explain the lower average tuition rate. While

³Like most western countries, there are more women than men enrolled in higher education (Statistics Canada 2009b)

⁴Unless specified as other currencies, all dollar amounts included in the writing on Canada can be understood to be CAD or Canadian dollars.

⁵There are institutional outliers here in the very few private institutions; for example, Quest University (2014) charged \$30,000 in tuition in 2013/2014.

⁶The exception to this trend is Quest university (Quest University 2014), which can be viewed as a Canadian attempt to create a US-style private not-for-profit liberal arts college, founded by the former president of the University of British Columbia in 2009.

costs of postsecondary education are still a burden for some, and serious fee differentiation exists in some areas (particularly in MBA programs and Dentistry degrees), the average lower fees mean that Canadian students are burdened with less debt than American students (Employment and Social Development Canada 2013; The Institute for College Access and Success 2012).

Canada is unique as the only country in the OECD without a national ministry or department of education (Fisher et al. 2006). The state is known for its “soft federalism” (Fisher et al. 2001): the federal government transfers payment to provinces that in turn fund the delivery of education. The only way the federal government can shape academic activities is through the funding of research (Fisher et al.). There is no coherent national strategy in higher education but rather “a patchwork of indirect and direct federal spending” (Axelrod et al. 2011, p. 145). It is a highly fragmented system. Relatively little is known about employment and training (or higher education) policy at a federal level (Gibb and Walker 2011). Arguably, “the availability of data on Canadian higher education...plague[d] research efforts” (Metcalfe 2010, p. 490), at least up until 2012 where much data was available only on a fee-per-service basis (Metcalfe 2010; Tupper 2011). That being said, the federal government has played a crucial role in the funding of research at higher education institutions across the country, and a number of new policy initiatives have been implemented over the past 20–30 years. Some of these reforms and associated analyses are presented below.

A Focus on Recent Initiatives

Overall, the federal government has invested in stratification of higher education premised on building research capacity and rewarding excellence within a context of commercialization and vocationalization. “Canada has done a good job in making strategic investments in higher-education research in recent years” (Conference Board of Canada 2013) In fact, the higher education sector has emerged as the largest recipient of federal government direct research and development (R&D) funding over the past decade, receiving \$3.0 billion (or 51.4 % of total federal direct funding) in 2012 (STIC 2012). Canada is in fact unusual in its high proportion of Higher Education R&D (HERD) spending (Fisher et al. 2006). In 2010, the OECD average for HERD share of a country’s overall R&D spending was 19 % whereas it was almost double this in Canada; the US share was only 15 % (Conference Board of Canada 2013). This is because Canada’s Business Enterprise in R&D (BERD) was one of the lowest in the OECD (Parsons 2011). Canada also ranked ninth out of 41 economies in HERD-to-GDP performance in 2011 (STIC 2012). In addition, R&D performed by the higher education sector has also increased significantly, from \$3.0 billion in 1990 to \$11.5 billion in 2012 (STIC 2012).

At the same time, the focus has been on commercially-viable research and industry-related disciplines. In 2012, the Government of Canada cut the budget of the Social Science and Humanities Research Council (SSHRC) by \$14 million (Raj

2012). And, similar to what has happened in the US, certain Canadian universities are also restricting admission to arts and humanities programs. For example, the University of Alberta suspended admission to 20 humanities programs in 2013 (Cormack 2013); and, according to Hyslop-Margison and Leonard (2012), the University of Toronto closed its Centre for Ethics, the Centre for Diaspora and Transnational Studies, the Centre for International Studies, five language departments, and may soon cease offering graduate degrees in comparative literature. These authors also write that at their home institution, the University of New Brunswick, “most graduate programs in the humanities have been reduced to mere skeleton status” (p. 9). Further, those professors who still have their jobs are having to reinvent their research to be successful in funding applications, exemplified by the burgeoning field of “digital humanities.”⁷ Unlike the US, Canada effectively has no “elite” universities that can weather the storm of budgetary cuts. The University of Toronto is the closest the country has to such an institution and it has experienced an assault on its humanities’ programs as large as any third-tier institution.

Many reforms took place under the previous Liberal⁸ federal government in the 1990s and early 2000s, and were intensified and somewhat redirected during the tenure of the current Conservative government. Since the 1990s, the focus has been on growing innovation by:

1. attracting and retaining talent;
2. supporting world-leading research; and
3. transforming discoveries into commercial success (STIC 2008)

Below, I provide an overview of three major initiatives: the Networks of Centres of Excellence (NCE); the creation of the Canadian Foundation for Innovation (CFI); and, the establishing of an elitist research system through funding of scholarships, fellowships, and Canada Research Chairs (CRCs).

Networks of Centres of Excellence

The Networks of Centres of Excellence (NCE) introduced a new major player to the terrain of research in Canada. NCEs were created to focus a critical mass of research resources on social and economic challenges, to commercialize and apply research breakthroughs, to increase private-sector R&D, and to train highly qualified people (Government of Canada: NCE 2013; Fisher et al. 2001). As Fisher et al. put it: “The emphasis is on translating university research results into marketable technologies

⁷ See, e.g., <http://www.brocku.ca/humanities/departments-and-centres/digital-humanities>

⁸ The Liberal party is the centre-left Federal party in Canada. Notwithstanding name changes of the Conservatives, it is one of two parties to lead the country over the past many decades. Canada is not as much as a two-party system as the US, however, as its social-democrat party (New Democratic Party or NDP) is also very strong and emerged for the first time as the country’s official opposition party in the 2011 election.

as quickly as possible, in order to enhance Canada's competitiveness in a global 'knowledge-based economy'" (2011, p. 322).

NCEs became permanent in 1997 despite much push-back from academics in regards to the focus on making scientific research more commercial (Fisher et al. 2001). The NCE currently funds 42 networks and centres through a variety of programs aimed at mobilizing "cutting-edge research" (Government of Canada: NCE 2013). Since 1997, the NCE has helped train more than 42,000 highly qualified personnel, and create 138 spin-off companies and 453 start-up companies (Government of Canada: NCE). It has invested a total of about "\$2 billion in research, commercialization and knowledge translation...leverage[ing about] \$1.5 billion in contributions from industry and other partners," and involving over 3000 partners in 2012–2013, about half of which come from industry (Government of Canada: NCE). One of the more recent developments in NCE has been the creation of the Centres of Excellence for Commercialization and Research (CECR) which are cost-shared centres that match "research expertise with the business community" to help "bring new technologies to market faster" and that have helped stimulate "new commercialization activities that would likely have never taken place" (Government of Canada: NCE). At the same time, it is not obvious that industry makes anything but nominal contributions (Fisher et al.).

The federal government funding of higher education in Canada, through R & D funding and NCEs, has been a way to subsidize industry and is evidence of what Suzanne Mettler (2010) has called the "submerged state". While Mettler's research is on the US federal government, many parallels can be seen in the Canadian context. It is an example of government orchestrating market-based reforms to indirectly support industry, much like a corporate tax cut, but in a manner that is not immediately obvious as state-supported corporate welfare.

The Canadian Foundation for Innovation

The Canadian Foundation for Innovation (CFI) was also launched in 1997 in the federal budget. It was created to support infrastructure for research. Research teams or individuals from universities and non-profits apply for grants whereby the CFI funds 40 % of costs with an additional 40 % funded by the province and the remaining 20 % secured from private or voluntary sectors (Guppy et al. 2013). According to Guppy et al. (2013), the CFI has influenced patterns of stratification both within and between universities. Moreover, the Foundation has also been critiqued by Metcalfe (2010) as key evidence in Canada's turn towards academic capitalism. The CFI has substantial corporate involvement both on its board of directors and in the need to obtain largely corporate matching funding for the 20 %. Although industry puts in at most half of the funds that are provided by government, it disproportionately steers projects towards more commercially useful endeavours. Furthermore, it endorses a very narrow conception of infrastructure, which means the foundation funds expensive imaging machines in Medicine or computer clusters in Computer Science but will not support Graduate Research Assistants.

Most applications funded come from the leading research intensive universities in Canada, with 40 % of all funding going to the top five universities in 2009 (Guppy et al. 2013). Unsurprisingly, the CFI tends not to fund projects in the Social Sciences or Humanities, which are not normally in need of expensive infrastructure. Indeed, the CFI reports that 4.9 % of funding has gone to the social sciences and humanities but overt misclassification of projects means the percentage is likely much less. Stratification appears not only to be widening the gap between the social sciences and humanities and other sectors, but also between men and women: 78 % of CFI project leaders were men (which can be largely explained by the concentration of funding given to engineering and sciences) (Guppy et al. 2013).

The University Elite: Funding the Best and Brightest

The Liberal federal government began to have more of a stake in provincially-run postsecondary education with the creation of its Canada Research Chair (CRC) program, announced in the 1999 federal budget, whereby federal funds are used to pay directly for university positions that are vetted federally instead of provincially (Fisher et al. 2006). These positions are reserved for securing the hiring of “excellent” researchers from both Canada and abroad. The CRC program consists of Tier 1: Senior chairs (for established faculty) and Tier 2: Junior chairs (for promising new or mid-career faculty) for a total of 2000 faculty positions. While renewable, junior chairs expire after a maximum of 8 years at which time the university can apply to promote the faculty member to a Tier 1 position or, if unsuccessful, must foot the bill for retaining the faculty member. CRC invests approximately \$265 million per year for attraction and retention. Health, natural, and applied sciences account for 80 % of the chairs with only 20 % of chairs reserved for positions in the social sciences and humanities (Government of Canada: CRC 2014). Furthermore, only 25 % of successful applicants have been women, explained mostly by a focus on sciences and engineering (Government of Canada: CRC 2014).

Shortly after its election in 2006, the current Conservative government released its new Science and Technology strategy.⁹ It was around this time that Canada introduced major federal programs to build critical mass at its leading research institutions (Fisher and Rubenson 2010), and to further reward “excellence” in research. They used the existing research funding framework of the Tricouncil to administer these chairs and scholarships, made up of NSERC (for Sciences and Engineering),¹⁰ CIHR (for Health), and SSHRC (for Social Sciences and Humanities).

In the 2008 budget, the government announced an addition to its CRC program with the introduction of the Canada Excellence Research Chairs program (CERC) (Government of Canada: CERC 2014)—which can be seen as CRC intensified. The

⁹ See [https://www.ic.gc.ca/eic/site/icgc.nsf/vwapj/STsummary.pdf/\\$file/STsummary.pdf](https://www.ic.gc.ca/eic/site/icgc.nsf/vwapj/STsummary.pdf/$file/STsummary.pdf)

¹⁰ NSERC is the Canadian equivalent of the US National Science Foundation (NSF). However, unlike the NSF, NSERC does not fund any health or social science research, for which funding is provided by CIHR and SSHRC respectively.

program “awards universities up to \$10 million over 7 years to support world-renowned researchers and their teams to establish ambitious research programs as Canadian universities” (Government of Canada: CERC). In addition, while the previous Liberal government introduced a need-based system to increase access to higher education for students in its Millennium scholarship program (in operation from 1998 to 2010), the Conservative government focused its efforts on attracting and rewarding the very top research-based graduate students. Also announced in the 2008 budget was the introduction of the elite Vanier scholarships intended to “increase the supply of highly-qualified research personnel in Canada and brand Canada worldwide as a nation known for quality research and research training” (Government of Canada: Vanier 2014). The program awards \$50,000/year scholarships to the very top doctoral students, representing 150 % more money than the regular federal scholarships for graduate students (Government of Canada: Vanier).

The 2010 budget ushered in the Banting postdoctoral scholarship program for the select few, paying \$70,000/year for 2-year fellowships instead of the \$40,000 for regular recipients (Government of Canada: Banting 2014). At the same time, regular graduate and postdoctoral scholarships have become increasingly competitive (Kent 2013). For example, applicants had about a 30 % rate of success in securing a SSHRC postdoctoral fellowship in the 1990s whereas in 2013 the success rate was around 15 % (Kent 2013). What we see emerging is a further stratified system of graduate and postdoctoral funding divided into three distinct levels: the working class (those with little to no external funding required to work extensively throughout their degrees or postdoctoral contracts); the upper middle-class (recipients of university or regular Tricouncil scholarships/fellowships); and the very upper-class (recipients of elitist doctoral and postdoctoral scholarships/fellowships). The symbolic capital associated with these scholarships and research chairs pays great dividends as successful applicants can expect to secure further funding, promotion, or the pick of the best academic jobs.

Questions Concerning Stratification and Vocationalism

Suggestive in the reforms noted above are: 1. Advancement of elite research and intensification of stratification in separating out the ‘cream’ from the ‘milk’ in terms of institutions, research, and people; and 2. Greater vocationalism witnessed in the bolstering of research commercialization and industry-relevant education. However, the relationship between vocationalism and stratification is not a simple one. In fact, the government seems to have an ambivalent relationship with universities and university research and, indeed, may be undermining the very research it claims to be supporting. Moreover, commercialization of the postsecondary sector is less successful than the rhetoric might lead one to believe.

Resource Extraction Over Science?

The government has been building up the university sector within a context of buttressing its resource economy. This is where vocationalism can appear to contradict elitist stratification. The country is increasingly dependent on the profitability of oil (or tar) sands which cover kilometres of northern Alberta, as well as on other industries in mining, oil, and gas, and the construction of pipelines to transport these materials. For example, Canada's non-fuel mineral dependence increased from 17.9 % (of GDP) in 1995, to 27 % in 2000 and to over 36 % by 2010 (Haglund 2011). This is potentially an economically risky trend, born out in part by recent decreases in oil prices: Sachs and Warner (2001) have remarked on the "curse of natural resources" observing that the economies of countries with large natural resource wealth tend to grow more slowly than those of resource-poor countries, a fact that is best accounted for by the idea that "resource-abundant countries tend to be high-price economies and can therefore miss out on export-led growth" (p. 827). Furthermore, the proclaimed new jobs in the resource extraction sector require certain skill sets and have led to the re-engineering of education in British Columbia to focus on the training of pipefitters, crane drivers, and welders (see for example, Province of BC 2014). However, it is up for debate whether these positions in fact require high-level cognitive processing, or what Robert Reich termed "symbolic analytical" skills (Reich 1992). Indeed, research in Canada suggests that a skills-surplus can be just as common as a skills-shortage (Livingstone 2010).

The same Conservative government that has provided generous research funding has been accused of stymying or dismissing the very research it is funding, in favour of supporting its resource economy and balancing the budget (e.g., PIPSC n.d.). Earlier in its governance, the Tory government limited public access to data from Statistics Canada by introducing an access fee for certain documents (Metcalfe 2010; Tupper 2011). In addition, the government has repeatedly made national news for ending the previously mandatory long-form census in 2011, seriously jeopardising the availability of reliable data (Beeby 2014; Ditchburn 2013). Up until 2011, Canadian households were obligated to fill out a census form with many demographic questions. The government introduced a truncated version which could gather only basic data, and concomitantly brought in a voluntary National Household Survey, sent to only one-third of households. Whereas the long-form census, sent to every residence, had a 94 % response rate, the replacement National Household Survey had only a 68 % response rate sent to 1/3 as many people (Ditchburn 2013). It appears to have cost taxpayers \$22 million more and is less reliable (Beeby 2014).

While the government is reducing access to data that enable rigorous research, it also appears to be underfunding science itself and creating an environment that is less amenable to science and to scientists. A detailed study on attitudes of scientists towards federal government policy reports that a significant majority of Environment Canada scientists (69 %) believe Canada is doing a worse job of environmental protection than 5 years ago, and that 80 % of scientists at the National Research Council believe Canada has done a worse job over the past 5 years of advancing Canada's international standing in technology and innovation, "an area the Harper

government has particularly touted as important to the economy and that includes so-called basic research” (PIPSC n.d.). Indeed, despite the government’s science and technology strategy, and related valorization of science over the humanities, there are not necessarily adequate numbers of high skills jobs in these sectors:

research is showing us that, over the past two decades, our economy has not been generating enough engineering jobs to absorb the supply of new graduates...according to Statistics Canada, nearly two out of three people who hold engineering degrees in Ontario no longer work in ‘traditional’ engineering jobs. (Hume 2014)

The government is set to enact further cuts to science budgets, which 90 % of federal scientists believe will negatively impact the ability of the government to serve the public. The president of the Professional Institute of the Public Service of Canada (PIPSC), Debi Daviau, writes, “the Harper government’s efforts to balance the federal budget in time for the 2015 election is being built on deep, unpopular cuts to public science that put at risk Canadians’ health, safety and the environment” (PIPSC n.d.).

Prime Minister Stephen Harper himself has come out repeatedly in favour of bolstering and expanding Canada’s resource economy. However, the highest employment vacancies in the country continue to be found in mining, quarrying, oil, and gas (STIC 2012). Despite increasing apprenticeships and college (rather than university) enrolment, apprenticeships in the country have a very low completion rate (Statistics Canada 2009b, 2011). While there may be increases in the number of positions in the oil, mining and gas sectors, the training for these positions is still in its beginning stages. Indeed, under the previous Liberal government, from 1997 to 2003, trade and vocational education experienced a reduction in public expenditure of 19.5 % while overall public expenditure on postsecondary education increased by 10.4 % (Metcalf 2010). Provinces like British Columbia are attempting to “re-engineer” education and training to support this sector; however, this has not yet led to increased overall funding to the postsecondary system (Province of British Columbia 2014).

A Complicated Commercialization

Commercialization of postsecondary education is undoubtedly increasing. In fact, the federal government and the leading advocacy group for higher education, the Association of Universities and Colleges of Canada (AUCC), “signed an agreement to triple the amount of commercialization from academic research before 2010” (Metcalf 2010, p. 507). Nonetheless, although industry funding of research dramatically increased over the past two-to-three decades, “Canada is almost at the very bottom of the pack when it comes to companies interacting with public research organizations” (STIC 2008). In addition, the number of spinoff companies generated from universities increased substantially in the 1980s and 1990s but has steadily declined since (STIC 2012). In 2012, a Canadian institution received, on average, approximately \$1.6 million from licensing income, while a US institution received,

on average, approximately US\$13.3 million (STIC 2012). It appears that commercialization efforts have been even less profitable than reported. Well-known law professor and IP researcher, Michael Geist, stated that Canadian universities' focus on building IP portfolios and patents as its commercialization strategy is extremely expensive. Geist (2010) notes that a 2008 Statistics Canada study finds the total IP income (primarily from licencing) at reporting Canadian universities was \$53.2 million. He writes,

The cost of generating this income? The reporting institutions employed 321 full-time employees in IP management for a cost of \$51.1 million. In other words, after these direct costs, the total surplus for all Canadian universities was \$2.1 million. The average income per university from IP was only \$425,000. (Geist 2010)

Discussion and Conclusion

The relationship between stratification and vocationalization is complex. In Canadian postsecondary education, stratification does not always result in differentiation. Research funding policy suggests a desire to establish an elite university sector in Canada. At the same time, the statistics show that most gains in postsecondary completion come from enrolment in colleges and less-elite institutions. Mission creep of community colleges, university colleges, and new universities has resulted in increasing competition in the higher education sector. Trades, while a (discursive) priority of the government, are not necessarily the focus for the many university-colleges or “new” universities (formerly university colleges or community colleges) that recognize the prestige associated with providing “university” courses instead of courses in basic education, welding, or pipefitting. Furthermore, the rhetoric for supporting such jobs is not necessarily matched by funding from the federal government (Metcalf 2010). Canadian postsecondary institutions, which have a large amount of autonomy (Fisher et al. 2006), are deciding the direction they will go, offering degree programs in broad-based subjects rather than providing narrow programs focused on regional labour-market needs.¹¹ Furthermore, many new faculty members in regional universities (i.e., former community colleges) are applying for CFI grants and major Tricouncil research funding and securing CRCs, despite claims to their roles as instructional staff in teaching institutions. As Fisher and colleagues (2009) note, ‘a trend toward vocationalism in the university sector has coincided with ‘academic drift’ in the community college sector, leading to convergences in programming and institutional functions’ (p. 550). This is not surprising in the context of a global standardized approach to university rankings, which promotes vertical segregation and discourages specialization or diversity in university missions (Marginson 2006).

¹¹This has been the discourse associated with the creation of new “regional” universities in British Columbia, for example.

Furthermore, a tension can be seen between elite stratification and narrow vocationalism. The (relatively) generous funding of research in the sciences appears to conflict with the government's priority of balancing the budget and supporting the ongoing development of a resource extraction economy. To examine some of the recent reforms made by the Conservative government suggests that scientific research is not a priority but rather a hindrance to its economic agenda. Here, there is a clash between the left-hand and right-hand of the state. Bourdieu (1998) explained,

the left hand of the state [is] the set of agents of the so-called spending ministries which are...opposed to the right hand of the state, the technocrats of the Ministry of Finance...the right hand does not know or in many cases does not even care to know what the left hand does. And, more importantly, it does not want to pay for it—[the right hand is] obsessed by the question of financial equilibrium. (pp. 2, 5)

As the above quote suggests, the right hand and left hand work relatively separately. The ministry that funds basic science research is not the same one that votes in favour of building pipelines to funnel more oil from Alberta into the United States; it is not the same department that decided to eliminate the long-form census nor is it the Ministry of Finance. The desire to develop a robust research infrastructure in Canada is certainly being advanced by the left hand of the state, a priority that is not shared by the right hand. However, both left and right hands contain within them a neoliberal embrace of competition, commercialization, and a concern for direct labour-market applicability of postsecondary education—a narrow rather than broad vocationalism.

Vocationalism, as Grubb and others suggest (Grubb 2006; Grubb and Lazerson 2005; Rospigliosi et al. 2014), is not necessarily a negative goal of higher education; in fact, it is so integral to the understanding of the purpose of higher education that it is difficult to imagine a world in which we did not think about labour market success as an outcome of undertaking postsecondary education. Yet, “narrow vocationalism” has few data to support it. For example, in Canada, the discourse of “high skills” is accompanied by a promotion of trades training. However, the statistics so far are disappointing: the completion rates of apprenticeships in Canada is low (Statistics Canada 2009b, 2011) and the pay-off for completing a trades diploma or certificate is minimal, if not negative (Boothby and Drewes 2006). Further, it is yet to be seen whether the various levels of government will invest the necessary capital to support trades education. And, as Rospigliosi et al. (2014) have argued, employers do not primarily seek narrow employment skills but rather evidence of the propensity and capability of an employee to learn, which is the capital associated with a university degree.

A narrow vocationalism is also visible in supporting both subject areas that have clearer links with the labour market and also researchers who can readily commercialize research. This direction towards vocationalism is also problematic. There is at best uneven evidence that universities are reaping millions in their commercialization efforts (Geist 2010); as Derek Bok (2003) mused, if the university is a business, it is a pretty bad business. Furthermore, the liberal mission of the university, and the social sciences and humanities especially, is under threat. In effect, “the

liberal version of the university promotes a logic that speaks directly to broad learning, whereas the technical efficiency logic clearly enhances the interests of commerce and business administration scholars, while reinforcing forms of human capital training” (Guppy et al. 2013, p. 15). While “making money” may very well be the priority of freshmen in the US and Canada (Astin 1998), perhaps we should continue to strive for a broader purpose of education, as Dewey (1938) reflected.

In conclusion, stratification and vocationalization are two of the most important trends occurring in higher education globally. This chapter has discussed a handful of recent federal reforms in Canada that illustrate these trends. To better grasp how these reforms are affecting higher education in Canada, it is necessary to examine provincial and institutional reforms. In doing this, one will realize that Canada has many systems in one and that different provinces have gone in many different directions (see also Fisher et al. 2009). Nonetheless, federally we see certain patterns emerge: tension between vocationalism and stratification, a narrow vocationalism, competitive stratification, promotion of sciences over liberal arts, and a government that provides generous funding to certain areas but not to others. Academic capitalism is alive and well in Canada, as Metcalfe (2010) observed. However, a highly fragmented system means Canadian academics and students continue to enjoy relative autonomy and (as of yet) do not face the magnitude of struggles facing our neighbours to the south or across the Atlantic or Pacific.

References

- Astin, A. W. (1998). The changing American college student: Thirty-year trends, 1966–1996. *Review of Higher Education*, 21(2), 115–135.
- Axelrod, P., Desai-Trilokekar, R., Shanahan, T., & Wellen, R. (2011). People, processes, and policy-making in Canadian post-secondary education, 1990–2000. *Higher Education Policy*, 24, 143–166.
- BC Ministry of Advanced Education. (2003). Ministry 2003/04 annual service plan report. *Government of British Columbia*. Retrieved from http://www.bcbudget.gov.bc.ca/annual_reports/2003_2004/aved/aved_performance_link2.htm
- BC Ministry of Advanced Education. (2013). News release: Skills training in the oil and gas sectors get a boost. Retrieved from http://www2.news.gov.bc.ca/news_releases_2013-2017/2013AVED0046-001901.htm
- BC Ministry of Advanced Education. (2014). Service plan: 2014/15–2016/17. Retrieved from <http://www.bcbudget.gov.bc.ca/2014/sp/pdf/ministry/aved.pdf>
- Beeby, D. (2014). Long form census elimination means lots of missing data, says internal government survey. *The Canadian Press*. Retrieved from http://www.huffingtonpost.ca/2014/05/10/long-form-census-canada_n_5300330.html
- Bok, D. (2003). *Universities in the marketplace: The commercialization of higher education*. Princeton: Princeton University Press.
- Boothby, D., & Drewes, T. (2006). Postsecondary education in Canada: Returns to university, college and trades education. *Canadian Public Policy*, 32(1), 1–21.
- Bourdieu, P. (1998). *Acts of resistance: Against the tyranny of the market [Contre-feux.]*. New York: New Press.
- Bourner, T., Greener, S., & Rospigliosi, A. (2011). Graduate employability and the propensity to learn in employment: A new vocationalism. *Higher Education Review*, 43(3), 5–30.

- Brown, P., & Tannock, S. (2009). Education, meritocracy and the global war for talent. *Journal of Education Policy*, 24(4), 377–392.
- Brown, P., Lauder, H., & Ashton, D. (2011). *The global auction: The broken promises of education, jobs and incomes*. Oxford: Oxford University Press.
- Collins, R. (1979). *Credentialed society: An historical sociology of education and stratification*. New York: Academic.
- Conference Board of Canada. (2013). Public R & D spending: How Canada performs. Retrieved from <http://www.conferenceboard.ca/hcp/details/innovation/publicrandd.aspx>
- Cormack, L. (2013). Re-suspension of small enrolment programs. *University of Alberta interdepartmental correspondence*. Retrieved: <http://artssquared.files.wordpress.com/2013/08/memorandum-from-dean-of-arts-16aug2013.pdf>
- Davies, S., & Zarifa, D. (2012). The stratification of universities: Structural inequality in Canadian and American higher education. *Research in Social Stratification and Mobility*, 30(2), 143–158.
- Deresiewicz, W. (2014). *Excellent sheep: The miseducation of the American elite and the way to a meaningful life*. New York: Free Press.
- Dewey, J. (1938). *Experience and education*. New York: Macmillan Publishing.
- Dickson, D. (1984). French intellectuals warn that vocationalism endangers universities' philosophy courses. *Chronicle of Higher Education*, 28, May 02, p. 31.
- Ditchburn, J. (2013). Statscan survey to show extent of information lost with long-form census. *Globe & Mail*. Retrieved from <http://www.theglobeandmail.com/news/national/statscan-survey-to-show-extent-of-information-lost-with-long-form-census/article11729913/>
- Economist. (2014). Higher education: Is college worth it? Retrieved from <http://www.economist.com/news/united-states/21600131-too-many-degrees-are-waste-money-return-higher-education-would-be-much-better>
- Employment and Social Development Canada. (2013). Canada student loans program 2009–2010 statistical review. *Government of Canada*. Retrieved from http://www.esdc.gc.ca/eng/jobs/student/reports/statistics/cslp_2010.shtml
- Engel, M. (1984). Ideology and the politics of higher education. *Journal of Higher Education*, 55(1), 19–34.
- Fisher, D., & Rubenson, K. (2010). Canada. In D. Dill & F. Van Vught (Eds.), *National innovation and the academic research enterprise: Public policy in global perspective* (pp. 62–116). Baltimore: Johns Hopkins University Press.
- Fisher, D., Atkinson-Grosjean, J., & House, D. (2001). Changes in academy/industry/state relations in Canada: The creation and development of the networks of centres of excellence. *Minerva*, 39, 299–325.
- Fisher, D., Rubenson, K., Shanahan, T., Trotter, C., Bernatchez, J., Clift, R., et al. (2006). *Canadian federal policy and post-secondary education*. Vancouver: Centre for Policy Studies in Higher Education and Training.
- Fisher, D., Rubenson, K., Jones, G., & Shanahan, T. (2009). The political economy of post-secondary education: A comparison of British Columbia, Ontario and Quebec. *Higher Education*, 57, 549–566.
- Geist, M. (2010). *Commercialization of IP in Canadian universities: Barely better than break even*. [Blogpost]. Retrieved from <http://www.michaelgeist.ca/2010/08/ip-commercialization-in-can-univ/>
- Gibb, T., & Walker, J. (2011). Educating for a high skills society? The landscape of federal, employment, training and lifelong learning policy in Canada. *Journal of Education Policy*, 26(3), 381–398.
- Giroux, H. (2011). Once more, with conviction: Defending higher education as a public good. *Qui Parle*, 20(1), 117–135.
- Gould, E. (2003). *The university in a corporate culture*. New Haven: Yale University Press.
- Government of Canada: Banting. (2014). Banting fellowships. Retrieved from <http://banting.fellowships-bourses.gc.ca/home-accueil-eng.html>

- Government of Canada: CERC. (2014). Canada excellence research chairs: About us. Retrieved from http://www.cerc.gc.ca/aboutau_sujet/index-eng.aspx
- Government of Canada: CRC. (2014). Canada research chairs: Program statistics. Retrieved from http://www.chairs-chaieres.gc.ca/about_us-a_notre_sujet/statistics-statistiques-eng.aspx
- Government of Canada: NCE. (2013). Networks of centres of excellence. Retrieved from http://www.nce-rce.gc.ca/About-APropos/QuickFacts-QuelquesFaits_eng.asp and http://www.nce-rce.gc.ca/About-APropos/Index_eng.asp and http://www.nce-rce.gc.ca/NetworksCentres-CentresReseaux/Index_eng.asp and http://www.nce-rce.gc.ca/NetworksCentres-CentresReseaux/CECR-CECR_eng.asp
- Government of Canada: Vanier. (2014). Vanier scholarships. Retrieved from http://www.vanier.gc.ca/eng/about_us.html.
- Grubb, N. (2006). Vocationalism and the differentiation of tertiary education: Lessons from US community colleges. *Journal of Further and Higher Education*, 30(1), 27–42.
- Grubb, N., & Lazerson, M. (2005). Vocationalism in higher education: The triumph of the education gospel. *The Journal of Higher Education*, 76(1), 1–25.
- Guppy, N., Grabb, E., & Mollica, C. (2013). The Canada foundation for innovation, sociology of knowledge, and the re-engineering of the university. *Canadian Public Policy*, 39(1), 1–19.
- Haglund, D. (2011). Blessing or curse?: The rise of mineral dependence among low-and middle-income countries. *Oxford Policy Management*. Retrieved from: <http://www.eisourcebook.org/submissions/1325523556OPMBlessingorcursereport2011.pdf>
- Hume, S. (2014). Liberals' plan for higher education reeks of anti-intellectual prejudice. *Vancouver Sun*. Retrieved from <http://www.vancouver.sun.com/news/Stephen+Hume+Liberals+plan+higher+education+reeks+anti+intellectual+prejudice/9806476/story.html>
- Hyslop-Margison, E., & Leonard, H. (2012). Post-neoliberalism and the humanities: What the repressive state apparatus means for universities. *Canadian Journal of Higher Education*, 42(2), 1–12.
- Institute for College Access and Success. (2012). Student debt and the class of 2011. Retrieved from <http://projectonstudentdebt.org/files/pub/classof2011.pdf>
- Kent, D. (2013). Too much talent? SHHRC's "solution" to the postdoc boom. *University Affairs*. Retrieved from <http://www.universityaffairs.ca/the-black-hole/too-much-talent-shhrcs-solution-to-the-postdoc-boom/>
- Livingstone, D. W. (2010). Job requirements and workers' learning: Formal gaps, informal closure, systemic limits. *Journal of Education and Work*, 16(3), 201–225.
- Maisel, I. (2013). What it takes. *Stanford Alumni Magazine*. Retrieved from https://alumni.stanford.edu/get/page/magazine/article/?article_id=66225
- Marginson, S. (2006). Dynamics of national and global competition in higher education. *Higher Education*, 52, 1–39.
- Marginson, S. (2007). University mission and identity for a post post-public era. *Higher Education Research and Development*, 26(1), 117–131.
- Metcalfe, A. (2010). Revisiting academic capitalism in Canada: No longer the exception. *Journal of Higher Education*, 81(4), 489–514.
- Mettler, S. (2010). Reconstituting the submerged state: The challenges of social policy reform in the Obama era. *Perspectives on Politics*, 8(3), 803–824.
- Newson, J., & Buchbinder, H. (1988). *The university means business: Universities, corporations and academic work*. Toronto: Garamond Press.
- Parsons, M. (2011). Rewarding innovation: Improving federal tax support for business R&D in Canada. *CD Howe Institute*. Retrieved from http://www.cdhowe.org/pdf/Commentary_334.pdf
- Professional Institute of the Public Service of Canada (PIPSC). (n.d.). Vanishing science: The disappearance of Canadian public interest science. *PIPSC*. Retrieved from <http://www.pipsc.ca/portal/page/portal/website/issues/science/vanishingscience>
- Province of British Columbia. (2014). *BC's skills for jobs blueprint: Re-engineering education and training*. BC Government. Retrieved from: http://www.bcjobsplan.ca/getskills/wp-content/uploads/BCs_Skills_for_jobs_blueprint.pdf

- Quest University Canada. (2014). Cost of attendance. Retrieved from http://www.questu.ca/admission/costs_financial_assistance/cost_of_attendance.php
- Raj, A. (2012). Canada budget 2012: Cuts for public service, investment for business in conservative spending plan. *Huffington Post*. Retrieved from: http://www.huffingtonpost.ca/2012/03/29/canada-budget-2012-cuts-federal_n_1384073.html
- Readings, B. (1996). *The university in ruins*. Cambridge: Harvard University Press.
- Reich, R. (1992). *The work of nations: Preparing ourselves for 21st century capitalism*. New York: Alfred A Knopf.
- Rospigliosi, A., Greener, S., Bourner, T., & Sheehan, M. (2014). Human capital or signalling? Unpacking the graduate premium. *International Journal of Social Economics*, 41(5), 420–432.
- Sachs, J., & Warner, A. (2001). The curse of natural resources. *European Economic Review*, 45, 827–838.
- Science, Technology & Innovation Council (STIC). (2008). State of the nation: 2008. Retrieved from <http://www.stic-csti.ca/eic/site/stic-csti.nsf/eng/00030.html>
- Science, Technology & Innovation Council (STIC). (2012). State of the nation: 2012. Retrieved from http://www.stic-csti.ca/eic/site/stic-csti.nsf/eng/h_00058.html
- Slaughter, S., & Leslie, L. L. (1997). *Academic capitalism: Politics, policies, and the entrepreneurial university*. Baltimore: Johns Hopkins University Press.
- Slaughter, S., & Rhoades, G. (2004). *Academic capitalism and the new economy: Markets, state, and higher education*. Baltimore: Johns Hopkins University Press.
- Statistics Canada. (2009a). Education indicators in Canada: Fact sheets. Retrieved from <http://www.statcan.gc.ca/pub/81-599-x/81-599-x2009003-eng.htm>
- Statistics Canada. (2009b). Table D.2.1 Number of registered apprenticeship completions, Canada and jurisdictions, 1995, 2000, and 2003 to 2007. Retrieved from <http://www.statcan.gc.ca/pub/81-582-x/2009002/tbl/d.2.1-eng.htm>
- Statistics Canada. (2011). Table D.1.2 Number of registered apprentices, by major trade group and sex, Canada, 1995, 2000, 2005 and 2009. Retrieved from <http://www.statcan.gc.ca/pub/81-582-x/2011002/tbl/tbl1.2-eng.htm>
- Statistics Canada. (2013). Table B 2.9: Average undergraduate and graduate university tuition fees, full-time Canadian students, Canada and provinces, 2007/2008 to 2011/2012. Retrieved from <http://www.statcan.gc.ca/pub/81-582-x/2011002/tbl/tbl2.9-eng.htm>
- Taylor, B., Cantwell, B., & Slaughter, S. (2013). Quasi-markets in U.S. higher education: The humanities and institutional revenues. *Journal of Higher Education*, 84(5), 675–707.
- Tupper, P. (2011). What open statsCan can do for you. *The Tyee*. Retrieved from <http://thetyee.ca/News/2011/12/14/OpenStatsCan/>
- U.S. Government. (n.d). College affordability and transparency center: College scorecard. Retrieved 14 July 2014 from <http://www.whitehouse.gov/issues/education/higher-education/college-score-card>
- U.S. Whitehouse: Office of the Press Secretary. (2014). Remarks by the president on opportunity for all and skills for America’s workers. Retrieved from <http://www.whitehouse.gov/the-press-office/2014/01/30/remarks-president-opportunity-all-and-skills-americas-workers>