Commodification or Rationalization? Yes, please! Technology Transfer Talk in the Canadian Context

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There is much scholarship about recent changes in higher education, changes which to some extent appear to be globalized. This includes changes in the subjects that are researched and taught in universities in very different national contexts, like the widespread, relatively recent introduction of 'women's studies' in higher education institutions around the world. Similarly, it includes programmes selfconsciously seeking international convergence at the formal organizational level, like the European adoption of North American Bachelor, Masters, Doctorate model for higher education diplomas. Such transformations are discussed, planned, implemented and experienced in different ways across different national contexts and in varied higher education institutions with particular histories. Nonetheless, important cross-national commonalities may be observed in higher education institutions around the world. In this chapter, I examine proposed changes to one national university system – in Canada – from two perspectives, but with the assumption that the Canadian case speaks to changes in other national systems. By analyzing the same textual data from two different descriptive and analytical macrosociological approaches, one Marxist, the other Weberian, I seek to understand how theory shapes data analysis, that is, how different theoretical models highlight certain processes while making others invisible. What distinct, but arguably complementary, insights may be gained from Marxist and Weberian approaches, when applied to the same empirical object: the contemporary university? In the language of the title of this collection, how do these two theoretical models highlight the adoption of different, global

scripts for higher education reform, in the specific instance of the Canadian higher education system?

In Canada and elsewhere, much of the scholarship about recent changes in higher education is concerned with the "marketization" "commercialization" or "commodification" of the university and its central functions of research and teaching. Drawing upon neo-Marxist models of political economy, these scholars emphasize the ways that universities are increasingly (directly) integrated into the market. For example, they describe the commodification of teaching resources, including the appropriation of teaching materials by the university as licensable intellectual property (Noble 2002), point to the growing role of corporate directors on university governing boards across Canadian universities (Carroll/Beaton 2004), and emphasize high profile cases of corporate sponsors interfering with the academic freedom of university researchers, often with the overt or tacit support of universities (Kurasawa 2002). For these scholars, current changes in higher education can only be understood within the context of contemporary transformations in the global political economy. They contend that the changing balance of class power that is associated with neoliberal forms of "globalization" implies a increasingly prominent role for business in academe, as in other domains. More broadly, they argue that the decline of the welfare state and the nearly global triumph of capitalism – Fukuyama's (1992) (in)famous "end of History" – means the incorporation of the university, formerly a public institution (at least in the Canadian context) into what Esping-Andersen (1990) would call the "market nexus." Analytically, these scholars insist, the tranformation of higher education must be situated within the historically specific moment of neoliberal globalization.

Neoinstitutionalist scholars also emphasize the extent to which changes in higher education are linked with broader, global trends. However, they take a different theoretical approach, yielding different empirical insights. Specifically, in drawing upon Weberian conceptions of modernity, they emphasize the extent to which universities are self-consciously embarking upon bureaucratic rationalization projects. For researchers operating in this tradition, transformations in university discourse and formal structures, if not in the "loosely coupled" university practices, are about the pursuit of organizational rationality. In broad analytical perspective, these researchers argue, such rationalization may be best understood as mimetic, legitimacy-seeking behaviour by formal organizations operating in what is now a global institutional environment (e.g., Meyer 2000). Thus, for example, the institutionalization of technology transfer offices is understood as a way for national universities to signal their competence, internationally, "in a knowledge soci-

ety". At the same time, the current popularity of the idea of "technology transfer offices" is explained as the purposive formalization and institutionalization of practices that were previously understood as informal activities carried out between individual researchers and industrialists (Krücken 2003: 20). Rather than using the neo-Marxist language of the political economists, neoinstitutionalists talk about the advent of "public-private partnerships", "technology transfer offices" and "the new public management ethos" when describing and explaining recent changes in higher education discourse and practice.

The empirical study at the heart of the proposed paper focusses on the Canadian government-sponsored report *Public Investments in University Research: Reaping the Benefits* (Fortier 1999). Commissioned in October 1998 by the Prime Minister's Advisory Council on Science and Technology, with a mandate "to present a vision and implementation strategy to maximize the economic and social returns to Canada from public investments in university research" (Fortier 1999: V), the Report of the Expert Panel on the Commercialization of University Research is a useful example of "technology transfer" talk within the Canadian context. Against this case, the paper considers both the political economy and neoinstitutionalist approaches, asking: contemporary higher education – commodification or rationalization? The analysis suggests that there are points of nonconvergence, but also areas where the two approaches may be fruitfully synthesized for new insights into the changing terrain of the contemporary university.

Political Economy

Political economy[1] insists that political events cannot be analysed apart from the economic context in which they are embedded. The corollary is that the economic context is understood, in part, as the result of political processes and is not, for example, seen as the consequence of the automatic workings of the classical liberal economists' "invisible hand". For the purposes of this paper, this means that contemporary politically-mandated changes to universities – in the empirical case, the Canadian government commissioned Report on maximizing the economic returns

1 The examples in this paper are drawn from Canadian political economy, itself divided among the liberal, socialist and indigeneous "staples" approaches, the last of which emphasizes the ways in which Canada's reliance on the export of staples (primary resources) has shaped the development of the state and the ongoing (under)development of the Canadian economy (Howlett/Netherton/Ramesh 1999: 10-12).

to public investments in universities –is analysed within the context of ascendant neoliberal economic trends privileging markets. At the same time, the Report and others like it, are understood as one step in the political process required to bring about and consolidate neoliberal commitments to an expanding role for the market, this time within the realm of higher education. To borrow neoinstitutional terminology, recent transformations in higher education institutions are, in part, "exogenously given" insofar as they simultaneously express and embody the "neoliberal turn" in the international political economy.

Neoliberalism

This paper does not seek to provide a detailed analysis of neoliberalism. Rather, it is enough to observe here that neoliberalism involves a "privileging of markets", ideologically and in practice, linked to the increasing power of capital vis-a-vis both the state and the working classes.[2] In Western countries, the rise of neoliberalism is generally associated with the economic crises of the 1970s and the decline of the Keynesian welfare state. However, the triumph of markets extends virtually worldwide to include the former Communist countries and the "global South", many of which undertake neoliberal reforms as part of "structural adjustment plans" mandated by international loaning agencies like the International Monetary Fund and World Bank. Importantly, the "privileging of markets" as an expression of capital's growing power is felt across a range of domains, only one of which is the university setting. Thus, for example, the implementation of neoliberal policy might include such initiatives as:

- the reorientation of subsistence farmers towards production for the international market;
- the privatization of formerly public services, like health care and daycare;
- the implementation of trade rules to allow the buying and selling of plant varieties; and

2 This is the old-fashioned use of the term "market", to mean the buying and selling of commodities. As such, it should be distinguished from the neoinstitutionalist use of the term, which refers to a (non-capitalist) market of "workable identities" (Meyer/Rowan 1978: 93) based upon a "currency" of "standardized, trustworthy" social types that are "free from local anomalies". For neoinstitutionalists, teachers participate in this kind of market, which matters precisely because it is social and non-economic. To this, political economists would respond that even teachers and professors sell their labour power!

- the elimination of national controls on speculative capital movements.

Through such processes of privatization, commodification, and liberalization, these policies (re)introduce the market into spaces that were formerly outside the "market nexus", strengthening the hand of capital against both the state and workers. The "provisional result" (Carroll 2004: 11) of such policies has been "an enhancement of corporate power across a wide range of domains" and the "promot(ion) and consolidat(ion of) the regime of neoliberal globalization" in different locales.

Neoliberalism and Universities

Within the realm of higher education, the neoliberal privileging of markets takes specific forms. Many of these transformations are at least partly fuelled by declining funds for higher education, symptomatic of the "neoliberal tendency to systematically undercut the […] fiscal foundations of all public services" (Kurasawa 2002: 331). Thus, Carroll/Beaton (2004: 197) finds that more Canadian universities have corporate representation on their governing boards in the 1990s than in the 1970s and that university presidents are increasingly likely to retire from their positions to become members of the "corporate elite". The presence of corporate directors on university boards is helpful, Carroll speculates, for massive fundraising campaigns intended to counteract declining state funding. At the same time, universities have adopted techniques of "corporate managerialism", including benchmarking through "performance indicators" (Kurasawa 2002: 337), as they self-consciously "mimic large-scale corporations" (Drakich/Grant/Stewart 2002: 251), which are assumed to be more effective and efficient than their public sector counterparts. In this way, declining revenues are coupled with concerns about "efficiency" and demonstrating universities' relevance to the "'real world'" (Kurasawa 2002: 337), typically (re)-interpreted as responsiveness to private capital. Indeed, higher education institutions are said to play a "strategic role" in attracting capital, as states compete as sites for domestic and foreign investment within a "global, knowledge-based economy" (Kurasawa 2002: 336). In sum, structurally, in terms of managerial styles and with respect to national economic strategies, universities are reconceptualized within (international) market-based contexts and logics.[3]

3 It is worth noting that the "global knowledge-based society" is both a reality, linked with the relative growth of the tertiary service-based sector versus resource extraction and manufacturing (Kurasawa 2002: 336), and

In the meantime, there are striking transformations in universities' teaching and research roles, similarly reflecting the universities new, tighter links, rhetorically and in practice, with for-profit mechanisms. Teaching is *proletarianized* as hiring of tenure-track faculty declines in favour of (cheaper) part-time faculty (Drakich/Grant/Stewart 2002: 249) more vulnerable to market exigencies. In a parallel process, teaching is *commodified* as the professor-student relationship is (increasingly) transformed into alienated "course materials" that are sold for profit, for example, through on-line "distance-learning" courses (Noble 2002: 28-29). At the same time, students are reconceptualized as "consumers" rather than "learners" (Drakich/Grant/Stewart 2002: 255), paying increasingly high tuition in order to equip themselves as future "highly-skilled" employees, especially in scientific and technical fields. For its part, research is increasingly reliant on private sponsors (Drakich/Grant/Stewart 2002: 251) and professors are more and more often required to demonstrate the "commercial relevance" of their work for the purposes of receiving grants or promotions, an asymmetrical pressure insofar as private industries are not usually required to furnish proofs of their investment in professorial work (Parizeau in Drakich/Grant/Stewart 2002: 252). Clearly, such transformations are subject to struggle and internal contradictions, as when, for example, students protest corporate representation on university governing boards (Carroll/Beaton 2004: 197). Yet, the decline of the Keynesian welfare state within the context of "neoliberal globalization" has generally taken the form of imported and sometimes applied market logics within higher education – for professors and students, for teaching and research – as with other public services.

Neoinstitutionalism

For neoinstitutionalists of the world polity school, contemporary modernity is defined by "globalization" – but not of the neoliberal variety. If globalization is partly about increased political, military and economic interdependence (Meyer 2000: 233), it is not only that. Rather, centrally, "globalization" is about "the expanded flow of instrumental culture around the world" (Meyer 2000: 233). In other words, despite significant differences in national and local resources and cultures, nations, organizations and individuals worldwide tend to adopt standardized – or "universalized" – organizational models and scripts (Meyer 2000: 234-235).

a mobilizing rhetoric, reinforcing the reifying message that "there is no alternative" to neoliberal market-based solutions if nation-states are to successfully compete as sites for investment.

There are scripted forms of nation-state identity and purpose, currently oriented to states as guarantors of welfare provision and individual rights. There are common models of socioeconomic development, grounded in a belief in the centrality of science to "progress" and the more recent neoliberal wave of "markets and privatization" (Meyer 2000: 234). There are shared models of human rights, pertaining to a wide range of groups from ethnic minorities to women to gays and lesbians. Last, but not least, there is a "highly scripted" and central role for education, linked to notions of scientific and economic progress and human rights, whose success is most obvious in the dramatic expansion of educational institutions around the world (Meyer/Ramirez/Soysal 1992). For neoinstitutionalists, the central facts of modernity are thus bureaucratic rationality and the local adoption of exogenously-given ritualized "scripts" for nations, organizations and individuals across a world that is a *society* precisely insofar it is organized around universal, institutionalized cultural norms.

The diffusion of standardized organizational "scripts" is facilitated by modern agents, themselves examples of the world culture's legitimated subunits, namely, nation-states, organizations and universalized "citizen persons" (Meyer 2000: 237). Such agents self-consciously act upon a desacralized and therefore controllable nature, creating and applying scientific, rational rules that legitimate a wide range of structures and activities, often at significant cost (Meyer 2000: 246). Scientists and professionals are particularly valued as the most "pure" and "extreme" bearers of the "extrasocial truths" of world cultural scripts and models (Meyer 2000: 240), although all individual actors in the contemporary, globalized world are strongly empowered and legitimated. For example, the world is heavily populated by "consultants" who supply simplified world cultural models for subunit adoption, e.g., "quality assurance" programmes for contemporary organizations. The centrality of both the more banal and exalted types of actorhood to contemporary modernity is expressed in the exponential growth of nongovernmental organizations and professional associations worldwide. At the same time, such organizations and associations play a pragmatic role in the rapid diffusion of common world models and scripts, for example, "instructing" nations and organizations on the application of human rights rules, educational models and so on. In sum, world society does not simply arise, rather, it is "built by agentic state and non-state actors, who (often eagerly) participate in [its] formation" (Meyer 2000: 240-242).

World Culture and Education

Given this vision, world polity scholars writing about education emphasize educational institutions as the dependent variable, arguing that their organizational structures are the bureaucratic concretization of worldwide normative principles that link education to the nation-state and to the state's individual "citizen-member(s)" (Meyer/Ramirez/Soysal 1992: 129), partially via ideas of personal development and national progress. In other words, at a basic level, "the formal structure of educational organizations *responds to* environmental (or societal) categories" (Meyer/Rowan 1978: 105, italics added). By adopting exogenously-given, standardized categories, educational institutions then create uniform types of personnel and curricula (educational institutions acting here, of course, as the independent or mediating variable). For example, "documents […] *define persons as teachers*" and others as students and determine formalized topics like "business" or "introductory philosophy". Teachers, students and topics so defined are then assembled in specific institutional spaces called "schools" or, as the case may be, universities (Meyer/Rowan 1978: 85-87). According to contemporary world society's functional myth of education, these schools and universities then contribute to personal development that aggregates upwards to improved national economic performance and national "progress" (see, for example, Rubinson/Fuller 1992: 101-102). In sum, educational institutions embody world society ideologies in their structures; they are national and local carriers of normative beliefs operating at a global level. At the same time, they act as "personnel theory" creating categories of credentialed citizen persons, including teachers and students – as noted – but also the exalted actors of the world society, scientists and professionals.

Importantly, as with other organizations, actual teaching practices and learning outcomes may be "decoupled" from the myths represented by a university's formal organizational structure. Empirically, for example, the day-to-day activities of educational institutions may have little to do with national prosperity and achieving scientific-technical "progress." Yet, such decoupling is incidental from the point of view of legitimating the institution, both internally and externally (Meyer and Rowan 1978: 107), only becoming problematic when it is "discovered" by modern actors who then initiate reform efforts (Meyer 2000: 244). Legitimacy – and the social and financial rewards associated with it – lies in the ostentatious, if banal, adoption of formalized rules, roles, subunits and hierarchies (Meyer 1985: 4-5), not in actual practices or outcomes. Consequently, educational reforms, often initiated during times

of "national setbacks or failures" (Meyer/Ramirez/Soysal 1992: 131),[4] typically result in the rapid, symbolic adoption of new organizational forms but little or no change in organizational practices. In the case of technology transfer, for example, many universities quickly adopted the new discourse and policies, including creating technology transfer offices, but "without risking too much [actual] institutional change" (Krücken 2003b: 332).[5] In this way, universities demonstrate their sensitivity to changing perceptions of the role of the university (in this case, in "the knowledge society") while maintaining traditional everyday functions. Ideologically, universities are "about" rationality and functionality, but they are best understood *ironically*, that is, as myths of rationality and functionality.

Analysing the *Report of the Expert Panel on the Commercialization of University Research*: A Political Economy Approach

The Canadian government sponsored *Report of the Expert Panel on the Commercialization of University Research* (Fortier 1999) – hereafter "the Report" – was commissioned by the Prime Minister's Advisory Council on Science and Technology, with a mandate to "present a vision and implementation strategy to maximize the economic and social returns to Canada from public investments in university research" (Fortier 1999: V). Reflecting neoliberal priorities, the Report interprets this broad mandate rather narrowly to mean developing policies that will facilitate the commodification of publicly-funded research. For political economists, the choice of this approach is grounded both in the broader "neoliberal turn" in the international political economy and in the interests represented by the nine-member Expert Panel (hereafter, the Panel), since a significant proportion of the Panel members are drawn from the finance capital and industry sectors (including, for example, René Dou-

4 Of course, educational reforms are initiated during such times precisely because educational systems are seen, ideologically, as central to national stability and prosperity.

5 Neoinstitutionalists expect local practices to change, over time, but as a result of the spread of normative values held at the world level, not as a result of local policies (Meyer 2000: 244). For example, they would expect measures of technology transfer to show increases in technology transfer in the medium and longer term, but they would interpret such increases as the local penetration of diffuse values concerning the importance of making research marketable, not as the result of technology transfer policies, which they argue play a symbolic, rather than "functional" role.

ville of the Royal Bank of Canada and Claudine Simson, Vice President of Global External Research and Intellectual Property of Nortel Networks (Fortier 1999: IV)).[6] In this way, the Report reflects the growing power and representation of capital in contemporary neoliberal political economies. At the same time, the Report is itself an example of the political support required for "free-market" practices, in this case, in the form of a government-sponsored proposal for procedures and rules to encourage the production of knowledge for the marketplace.

Universities as Sites for Wealth Creation

More specifically, political economists would observe that the Report strikingly conceptualizes universities as sites for wealth-creation, with higher education playing a privileged role in making the Canadian state more attractive to foreign and domestic capital within the context of increasing international competition. In the words of the Report, "we need to manage the public investment in university research *as a strategic national asset*" (Fortier 1999: 34, italics added), especially in a climate where "other countries have also concluded that they need to be world class at exploiting knowledge" (Fortier 1999: 10). The way to achieve this, of course, is through programmes to foster "innovation", defined as "the process of bringing new goods and services to market" (Fortier 1999: 1). Indeed, the task of establishing such programmes is urgent if Canada is to prosper within the global economy:

6 The other members of the Panel are: 1. Pierre Fortier (Chair), Senior Advisor to the Chairman, Innovitech Inc. Innovitech Inc.'s "mission is to foster and guide the development, commercialization and implementation of innovative technological solutions and help businesses and institutions use the full potential of their strategic assets." (Innovitech 2004). 2. Denis N. Beaudry, President and General Manager of Polyvalor Inc.. Polyvalor, previously known as Univalor, is "la société à capital de risque créée […] pour donner vie aux découvertes des laboratoires de l'Université de Montréal et de ses partenaires" (Université de Montreal 2002). 3. Michael Brown, President, Nepal Management Ltd. Brown is a venture capitalist, holding various positions including Chairman of Chrysalix Energy Management, a venture fund (Vancouver Enterprise Forum 2003). 4. Dr. Thomas A. Brzustowski, President, Natural Sciences and Engineering Research Council of Canada. 5. Dr. Julia Levy, President and CEO QLT PhotoTherapeutics Inc., a for-profit pharmaceutical company with funding from the American pharmaceutical enterprise Cynamid (science.ca 2001). 6. Dr. Robert C. Miller Jr., Director of Technology Transfer and Associate Vice-Provost for Research, University of Washington. 7. Dr. James W. Murray, Senior Associate Vice President – Partnerships and Innovation Progam (sic), University of Alberta.

"We have no time to lose in establishing the conditions necessary to enable universities to perform to their full potential in commercializing the results of publicly funded research. Canada's ability to maintain a high standard of living and prosper in the global knowledge-based economy is critically dependent on our ability to find innovative solutions to the medical, environmental, social and economic challenges of the 21st century." (Fortier 1999: 9)

In other words, Canada's ability to compete internationally depends upon successfully fostering research *for profit*. Programmes to encourage the commercialization of publicly funded research are described as necessary for the realization of Canada's economic progress and (so) Canadians' well-being. Crucially, if universities are (potential) sites for wealth creation and secondarily, for the promotion of social welfare, it is the introduction of the market mechanism that will make this potential realizeable.

Re-orienting the University to the Market

Introducing the market mechanism into the university is a political and "managerial" problem that the Report seeks to resolve through its six major recommendations, each of which contains strong provisions reorienting the university to the production of knowledge for profit. Among other measures, "innovation" or the creation of intellectual property, is placed at the core of university activities. Notably, in order to be eligible for federal funding, universities are required to "identif(y) 'innovation' as their fourth mission, in addition to teaching, research and community service". At the same time, universities are expected to take on broad entrepreneurial functions and provide support for businesses otherwise outside the university jurisdiction. In particular, universities are to "encourage the participation of small and medium-sized enterprises and, where appropriate, support the creation of spin-off companies in commercializing publicly-funded research" (Fortier 1999: 4). In this way, universities assume an active entrepreneurial role within the intellectual property marketplace (Fortier 1999: 5). Moreover, the university's educational programme, presumably including curriculum, is to be redesigned to encourage entrepreneurship and business-oriented faculty and students. Specifically, the universities' "educational resources" are to be mobilized "to develop the people with the necessary entrepreneurial, business and technical skills required to increase the number of successful innovations created from the results of university research". Both existing federal funding for universities and new funding – equal to five percent of the Canadian government's existing investments in university

research – are to be mobilized or diverted for these purposes, all of which place market mechanisms at the core of university functions.

Re-Orienting Professors and Students to the Market

Similarly, the provisions of the Report reorient researchers and students to the market, in which they are expected to actively participate. The Report authors anticipate that professors, as rational economic actors maximizing their self-interest, will quickly see the benefits of commercializing research, which is to be achieved, in part, via university "technology transfer" offices: "(O)nce these [technology transfer] offices create wealth among researchers, the culture within Canadian universities will change quickly and innovation will become a real priority" (Fortier 1999: 5). In the event that economic self-interest is not sufficient, however, universities "must provide incentives to encourage their faculty, staff and students engaged in research to create IP", not least by ensuring, "appropriate recognition of innovative researchers in tenure and promotion policies" (Fortier 1999: 4). Significantly, such positive incentives are complemented by disincentives for those who fail to comply: researchers who receive federal funding and fail to "promptly disclose" all intellectual property "with commercial potential" are to be "denied access to future federal research funding" (Fortier 1999: 4). Thus, faculty involvement in the intellectual property market is to be "encouraged" through a variety of methods, including incentives related to tenure and financial "disincentives" for noncompliance.

Students are subject to a variety of similar, if less binding, provisions. Graduate students are to be involved in "industrially relevant undertakings", with the understanding that such involvement "provide(s) educational experiences which better position students to become effective *entrepreneurs* and productive *employees*" (Fortier 1999: 9, italics added). Undergraduates are to participate in "student internship programmes" in technology transfer offices, so "developing future talent" in the area of research commercialization (Fortier 1999: 30). At the same time, universities are advised to make special efforts to "ensure that all engineering and science students have access to and are encouraged to participate in business courses". Finally, in parallel, the Report recommends that, "business students […] have the opportunity to add value to science-based innovations" through unspecified mechanisms operating in "the university at large" (Fortier 1999: 30). In this way, students are to have their studies partially reoriented to business concerns, so becoming better trained for future participation in the intellectual property market, both as entrepreneurs and as "highly skilled" employees.

Circumscribing the Market

Notwithstanding the Report's overall emphasis on the university as a site for wealth-creation and the Panel's emphasis on institutional, professorial and student involvement in the production of knowledge for profit, the Report does leave spaces – in principle – for the university's traditional non-market activities. Thus, at several intervals, the Report authors insist that:

"Canadian universities perform three core functions which make a tremendous contribution to our standard of living and quality of life: research, teaching and community service." (Fortier 1999: 9)

Lest the Report be misinterpreted with respect to this point, the Panel members' insist that, "*in no way* should this report be interpreted to suggest that universities should pursue innovation at the expense of their other core responsibilities" (Fortier 1999: 10, italics added). Yet, political economists would argue that such claims ring hollow, given the monies, nonfinancial resources, positive incentives for compliance and strong "disincentives" for noncompliance provided for in the Report. For example, the researchers' right – in principle – to publish potentially profitable research findings instead of commercializing them, is – in practice – strongly discouraged when tenure and access to federal funding depend partly upon the researcher's commercialization record. The protections for noncommercial research activity are weak when compared to the strong provisions for research commodification.

The "colonization" of the university by the market implicit in the Report recommendations is expressed in other ways, besides those discussed briefly here. For example, there is considerable onus on universities and researchers to "recognize their responsibility, potential and vested interest" (Fortier 1999: 24) in commercializing intellectual property, but no similar demonstration is required by firms. As the Report puts it, "one entity is held accountable for maximizing returns to the public – universities" (Fortier 1999: 29). At the same time, business interests are held to be consistent with the success of universities and, indeed, with the wellbeing of Canadians: university administrators are assured that by "maximizing" firms' profits or "value", they will "maximize the social and economic returns to Canada as well as to themselves" (Fortier 1999: 14). This concern for the interests of capital, the driving force of the neoliberal project, is perhaps most evident in the fifth Report recommendation, which is the "wholesale review" (Fortier 1999: 32) of Canada's tax system. Among the specific proposals con-

tained in the recommendation are the lowering personal income taxes on "the top rates of marginal tax paid" (Fortier 1999: 31) in order to create the "competitive business conditions" conducive to "the success of firms" (Fortier 1999: 21) within the context of international competition, especially from the United States. In sum, the Report is an expression of the relative of strength of capital in an era of neoliberalism; its recommendations are the historically specific translation of free market ideology – and free markets – into the university.

Analysing the *Report of the Expert Panel on the Commercialization of University Research*: A Neoinstitutionalist Approach

From the neoinstitutionalist point of view, the Canadian government sponsored *Report of the Expert Panel on the Commercialization of University Research* is a good example of elaborated modern actorhood and its role in the diffusion of standardized cultural models for diverse organizations, in this case, nations and universities. The Report is a "blueprint" (Fortier 1999: V) for higher education reform, explicitly based "(u)pon review of best practices" (Fortier 1999: 11) in Canada, other G-7 countries and especially the United States, which serves as the "benchmark" (Fortier 1999: 2) for the Report authors. Moreover, university reform along lines already adopted in other nations is consistently described as "critical" both to reversing Canada's "slipping" standard of living and to securing future success "in a knowledge society" (Fortier 1999: 1,7), reflecting the central role attributed to education as the engine of national economies in contemporary world society, particularly in times of (perceived) national difficulty. Not least, all of this is undertaken by the high priests of modernity, professionals and scientists: five of the nine Panel members are "doctors" of various type. In sum, the Report is typical of the mimetic "consultant" work performed by highly empowered modern actors who, first, draw upon and so reinforce existing cultural scripts that posit a central role for educational in national economic progress while, second, importing and so diffusing models of "technology transfer" that are already standard in other nations, all within the framework of a more general script concerning the advent of "a knowledge society."

The Problem – ad hoc Technology Transfer Policies and Practices

Throughout the Report, the authors insist that one of the basic problems for technology transfer within the Canadian context is the "environment of laissez-faire" that governs research-based innovation. Within Canada, they note, successes and good practices have been developed (Fortier 1999: 3). Yet, the Report authors warn, this has taken place:

"under varied and inconsistent university policies and practices, and under many different organizational arrangements. Rarely has innovation been treated as a mainstream university function, and the importance attached to it varies greatly among the universities." (Fortier 1999: 3)

In short, one of the central problems for commercialization in Canada is inconsistency and variability in universities' "technology transfer" policies and practices, including differences in the relative emphasis given to such activities by different higher education institutions. This type of variability constitutes a major "structural barrier" (Fortier 1999: 18) to successful technology transfer.

The Report identifies many specific problems associated with the inconsistencies in Canadian universities' commercialization policies and practices (Fortier 1999: 19-20). For instance, the Report maintains that such variability, and its associated unpredictability, discourages commercialization by Canadian businesses, who are reluctant to negotiate commercialization agreements given "uncertainty and risk" about who actually owns title in any specific instance. At the same time, the Report claims that the current system encourages expensive lawsuits since parties sign agreements "without professional qualifications and experience", leading to litigious disagreements about profit sharing. Moreover, the variability of university commercialization policies limits "industry-academic collaboration by creating a disincentive to the formation of […] consortiums", mainly due to the reluctance of firms to navigate "the complex web of IP ownership policies in Canada". In short, the Report suggests that the lack of standardization in Canadian commercialization policies and practices creates uncertainties that hinder the participation of enterprise, who are reluctant to collaborate with university researchers in commercialization endeavours without formalized, uniforms rules governing the technology transfer process.

The Context – 'the Knowledge Society'

Throughout the Report, the Panel members insist that the absence of a coherent federal technology transfer programme for universities and businesses is a significant barrier to the successful commercialization of research; in their words, the status quo is no longer "tolerable" (Fortier 1999: 20). This is especially true, they argue, given the importance of research commercialization to national economic performance and (therefore) to social progress within the context of the global "knowledge society":

"The Panel believes that the federal government's *laissez-faire* approach with respect to disclosure requirements and IP ownership is not adequate. In the knowledge-based economy, where economic and social advantage is increasingly the function of our ability to translate scientific discoveries into market opportunities, *we cannot afford the present haphazard and unprofessional approach to managing our investment in knowledge.*" (Fortier 1999: 21, second italics added)

In other words, *ad hoc* technology transfer practices and policies considered troublesome at any particular historical moment become particularly devastating in the contemporary "knowledge society." Indeed, because of the presumed centrality of knowledge production to "high value-added economic activity, which is in turn linked with "new wealth and improve(d) social conditions", barriers to commercialization represent barriers to national economic growth and social progress (Fortier 1999: 7). Under such circumstances, technology transfer practices in Canada require "a bold new approach" (Fortier 1999: 34).

The Solution – Rationalization

Predictably, to neoinstitutionalists, the proposed "bold new approach" is rationalization: the creation of a uniform, national policy that will enable the Canadian government to efficiently "*manag(e)* our investment in knowledge" (Fortier 1999: 21, italics added), so "generating social and economic benefits for years to come" (Fortier 1999: 34). In typically mimetic fashion, most of the rationalizing provisions suggested are borrowed from "world leaders" in technology transfer, notably meaning the United States but also including Canadian universities engaged in exemplary "best practices". Like their American counterparts, for example, Canadian universities are advised to create "commercialization offices", otherwise known as "Business Development Offices, University-Indus-

try Liaison Offices or Technology Transfer Offices". The aim of such offices is to provide firms with "an effective point of entry into universities" while aiding researchers by granting them "substantial support to commercialize the results of their research". Following existing best practices, such offices are to be equipped with a mission statement, clear innovation policies, annually-planned "innovation strategies" and a standardized means to "evaluate their past performance". Moreover, they are to provide a wide range of "educational" documents to firms, governments, researchers and other "relevant stakeholders", including "guide books, Web sites, faculty courses and faculty orientation packages" (Fortier 1999: 11). Proactive networking with firms and researchers is yet another assigned responsibility. Such elaborate, costly and (purposively) unoriginal measures are to be undertaken with one objective in mind: making Canadian universities "world class" (Fortier 1999: 12) in the area of technology transfer.

The Personnel Problem – Amateurism

Complementing the theme of rationalization at the institutional level is the theme of the professionalization at the level of university actors. Thus, in the same way that the Report laments the existing "haphazard" approach to research commercialization, it singles out the unfortunate amateurism of researchers seeking to commercialize their own scientific findings. The Panel observes that "scientists are understandably less familiar [than staff at technology transfer offices] with the needs and opportunities in the marketplace" (Fortier 1999: 12). Yet, if this is "understandable" it is also problematic, as when, for example, "individual researchers, more experienced in science than in business, commercialize their own research results. Acting, as noted earlier, "without professional qualifications and experience", the risk of such "amateur" commercialization efforts is that business partners and others will litigate, e.g., as inexperienced faculty "negotiat(e) exclusive licences with multiple firms" and commit other legal errors. The potential result of such unprofessionalism is "lasting ill feelings and mistrust between the academic and industrial communities" (Fortier 1999: 20), complicating prospects for future collaboration between the two domains on technology transfer issues. In this way, the lack of professionalism by university faculty in the area of commercialization is seen as a major barrier to successful technology transfer.

The Personnel Solution – Professionalization

Yet, such barriers are not without solutions. Professorial amateurism is to be replaced by a professionalized "team" of commercialization office workers (Fortier 1999: 49-50), including a new type of professional, the "technology commercialization specialist" or "TCS". In the prototypical commercialization office proposed by the Report authors, thirteen of these "'senior' professionals" are to act as the core office staff, operating in specialized roles with titles like "technology commercialization manager", "spin-off company manager" and "prototype development program manager." Further staff divisions are to be based on disciplinary areas, with a "team" consisting of a manager and assistant for each academic unit, for example, the Faculty of Medicine, the Faculty of Science. In this way, the proposed new organizational culture for "technology transfer" is complemented by a range of new professional roles; instrumental organizational reforms are accompanied by the creation of a novel type of credentialed person.

Inevitably, such personnel is to be active in a host of professional undertakings. A "national association of commercialization offices" is to be created, with the responsibility of "sponsor(ing) conferences, workshops and seminars to bring practitioners together," while also "develop(ing) training courses" and other professional activities, like the publication of "shared communications materials" Fortier 1999: 30). In order to enable TCSs to "share knowledge" outside of the proposed annual congress, the national association is to organize "national and regional networks" (Fortier 1999: 32), so affording TCSs the opportunity to engage in continuous professional development. Acquiring and maintaining the "necessary combination of skill requirements" (Fortier 1999: 11), is to be the result of ongoing education, training, and formal networking. The new type of individual, the technology commercialization specialist, therefore assumes her place within a rationalized, formalized institutional framework – and she does so with the special legitimacy of the educated "professional".

Ironically, the "bold new approach" proposed by the consultants who authored the Report is firmly inscribed within a long tradition, first, of positing educational institutions as central to national progress, in this case, in the context of "the knowledge society" and second, of suggesting highly visible formal organizational reforms that serve as a signal of institutional "seriousness", precisely because they (unoriginally) embody easily-recognizable "world society" norms. Technology transfer offices are modelled on existing technology transfer offices and nations rhetorically vaunt their "world leadership" once they have successfully

copied the organizational forms and policies of existing world leaders. New personnel are created, carrying the weight of professional legitimacy with them, but their importance lies in their symbolic contribution to the self-conscious project of institutional (university) reform – not in the more or less tightly coupled practices they may carry out to accomplish that reform. Rationalization is the guiding principle for the Panel's recommendations; the Report is a thoroughly modern project in that respect, reflecting a world society that is resolutely rational-scientific, not in its functions, but in its shared norms and culture.

Conclusions

There can be no final arbitration between the political economy view and the neoinstitutionalist understanding of "technology transfer talk", as exemplified in the Canadian report on *Public Investments in University Research: Reaping the Benefits*. Political economists will see the Report as part of a (dangerous) colonization of the university by the for-profit world, within the context of a near-global neoliberalism, even while they acknowledge that the Report leaves important spaces- in theory, but not in practice – for university research, teaching and community service missions outside of the "market nexus." To these thinkers, the significant weight given to industry and finance capital among the members of the Report's Panel is symptomatic of the new, enhanced role for capital in a world of neoliberal hegemony. Indeed, the Report consistently seeks to consolidate the reach of the market into spaces that were formerly uncommodified, for example, by positing the university as a site for wealth creation and by creating strong incentives for the university, professors and students to engage in for-profit research. This logic of commodification is not confined to the university setting, but is applied by agencies like the World Trade Organization to genes, water and other former "commons", transforming them into private *property*, to be bought and sold on the market. Insofar as this is the case, the Report represents one instance of a broader "neoliberal turn" in the international political economy, with the increased power of capital and market hegemony translated into policies for commodification, privatization and liberalization.

Neoinstitutionalists, at least of the variety pioneered by John Meyer and his colleagues, will see the Report as (yet another) example of nations and organizations seeking to signal their legitimacy within a "world society", this time via the ritual invocation of the links between higher education and national economic performance within the con-

temporary global "knowledge society." In the neoinstitutionalist view, the Report authors' prescriptions for institutional rationalization and the creation of new categories of administrative personnel, among other recommendations, are the ostentatious signs of Canada's willingness to join in on the latest modern project, this time via the adoption of the "technology transfer" scripts and a rationalized organizational culture. The Report is thus an example of the local reproduction of standardized world society models, this time applied to universities. To borrow the language of political economy, the Report is a clear demonstration of ideological "hegemony", but it is the hegemony of rational-scientific norms and only incidentally, of rationalized market models.

If no final arbitration between the two theories is possible, what, then, can be concluded from all this? Beyond the obvious statement that theory vitally shapes what is visible and invisible in any piece of "data" – as well as profoundly shaping data interpretation – it might be argued that, in some areas at least, both rationalization and commodification processes are occurring. For example, the Report's (proposed) rationalization of higher education links with private industry, can be understood as rationalization along neoliberal lines. "Rationalization", in this case, has *direction* which is conditioned, if not determined, by the underlying changes in contemporary political economies along neoliberal lines – lines that expand the role of the market in spaces that were previously outside the "market nexus," including higher education. Rationalization takes place, but that rationalization assumes a historically specific form within "late" capitalism – or at least the latest, neoliberal phase of capitalism.

Similarly, both political economists and neoinstitutionalists can agree on the centrality of the "script" concerning the (supposed) exigencies posed by the advent of "a global knowledge society", for both nations and academia. For political economists, the "global economy" is both a real constraint and a rhetorical tool to constrain the field of action so that only markets appear as a realistic, potential "solution". For neoinstitutionalists, the same rhetoric matters both because it serves to reinforce a shared world narrative and because it implies certain, standardized responses, in the empirical case, the creation of "technology transfer offices." Thus, at the level of description, both types of scholars agree on the importance of such internationalized "scripts" for ordering shared understandings, whether this shared understanding is called "ideology/hegemony" or described as "normative/cultural." Moreover, political economists and neoinstitutionalists both insist, albeit in somewhat different ways, that such rhetorics *order* experience by implying standardized organizational models. Such scripts have *effects*, even if they

are not, in the neoinstitutionalist eyes, linked directly to practices. Political economists and neoinstitutionalists share some common descriptive ground.

Ultimately, however, such attempts at synthesis reach their limits, with political economists and neoinstitutionalists tackling the dynamics of rationalization and commodification in distinct ways. Political economists drawing their inspiration directly from Marx and Adam Smith – a seemingly unlikely pair! – might well argue that proposed rationalization of higher education is in large part inspired by the drive towards commodification: one way to increase profits, traditionally, is by rationalizing production and so, potentially, making it more efficient (as Smith famously 'observed' regarding the rationalization of a pin factory and as Marx repeatedly underlined when discussing the unprecedented productivity of capitalism compared to other modes of production). Efficient commodification of knowledge within the university 'requires' or stimulates rationalization, although the extent to which this is actually efficient in higher education institutions – especially given the traditional difficulties of controlling the production of white collar workers – is an open empirical question. Commodification, in this view, is causally prior to rationalization, which should not be overestimated as fundamental to contemporary changes in the university.

Neoinstitutionalists, on the other hand, might bend the 'cultural turn' of their argument, with its emphasis on a norms and scripts in a world *society*, in a more microsociological direction to recast the notion of commodification – insofar as it exists within a university setting – as a cultural phenomena, rather than a political or economic one. If commodification is occuring within the university, isn't this as much about the adoption of new standardized values, norms and mores as it is about the absorption of the university into a for-profit marketplace? Drawing inspiration from anthropology as much as Weber, a microsociological approach with elective affinities for the neoinstitutionalist emphasis on shared cultural values would investigate 'commodification' as the creation of a new kind of moral environment within the university. Scholars who emphasize the advent of a new audit society might be an example of this approach. In this way, different theoretical preoccupations lead to different kinds of substantive preoccupations and conclusions.

The concern here has been at the macrosociological level, but significant differences between the two approaches compared here would reveal themselves if each model were to tackle the question of variations in higher education systems across different national and institutional settings. Political economists would emphasize that there are varieties of capitalism in the world today and would therefore anticipate differences

in the extent to which national university systems proposed, and especially put into practice, various measures oriented towards the commodification of university knowledge. Resistance to neoliberal proposals like the Canadian report analysed here would depend, in this view, on the configuration of the welfare state, itself the ongoing historical result of the balance of class forces, and the state's relative ability to resist pressures from capital. Specific institutional-level accommodation and resistance to proposed neoliberal changes might depend on the level of organized mobilization among, for example, university professors and university students (a reminder that professionalized subjects created via rationalized bureaucracies may also become the basis for organized social movements of resistance).[7] Neoinstitional approaches, in contrast, would seek to explain national and institutional differences with reference to national and local cultures, seeking to understand the loose coupling between world society norms and national and local practices via detailed case studies of particular systems (e.g. the influence of Humboldt's ideals on the historical configuration of the German university system).

Ultimately, however, deciding between the political economic understanding of the world as a capitalist system and the neoinstitutionalist version which emphases the emergence of a modern world society is perhaps, a political choice, as much as a theoretical one. Thus, theoretically, political economists would charge neoinstitutionalists with an inability to explain the *content* of rationalization efforts, like the one around "technology transfer": why is so much technology transfer talk oriented to commercialization, for example, when it is just as possible to imagine debates centering on the need to eliminate tuition in order to facilitate the diffusion of "scientific" ideas from the academia into a public composed (in part) of current or former students? Similarly, variations among national and local university systems are, in this view, best explained as being about the balance of forces in an ongoing class struggle, a superior explanatory and analytical approach when compared with vague allusions to 'loose coupling' that posit a world society whose norms and values are established through mysterious, unnamed processes, on the one hand, and national and local societies, whose cultural values are the apparently wholly idiosyncratic products of particular historical accretions, on the other. To political economists, only by taking

7 For an account of the transformation of a bureaucratic organization into a movement – contrary to Michels' thesis that organizations become less political and more conservative over time – see Cormier (2004) on the radicalization of the Canadian Sociology and Anthropology Association in the early 1970s.

into account market forces and class struggle can sociological theorists go beyond historical *description* to provide an *explanation* for social *dynamics*. Politically, political economists would go on to defend their vision by insisting that it is critical to understand the world as a system of unequal (class) relations engaged in constant struggle, with the university just one terrain of that struggle, if there is to be real, dramatic, positive social change. Lest it be forgotten, they might conclude, this is a struggle with major human consequences: the battle over the provision of AIDS medications, redefined as intellectual (pharmaceutical) property, is just one example.

On the other hand, neoinstitutionalists advocate the right to regard the world ironically, distanced from hyperactive actorhood and functionalist explanations grounded in theories of conflicting "special interests." The political economy view, in neoinstitutionalist eyes, demonstrates a lamentable lack of sociological imagination when it comes to central social facts like actorhood, bureaucratic rationality and faith in science. Politically, an Illichean variant of the neoinstitutionalist approach would reclaim the right to make visible rationalization processes that are inherently dehumanizing[8]. Turned in a slightly different direction, this anti-bureaucratic stance might be combined with a plea to reject actorhood altogether, in order to embrace a pre-modern (Catholic) fatalism. But debating the ways in which such political choices are bound up with theoretical commitments is ultimately outside the scope of this paper, which, for the purposes of the exercise, has adopted the view of the Marx brothers: "Commodification or rationalization? – yes please!".

8 Illich (e.g., 1971) argues, for example, that rationalized educational systems turn individuals into pupils, that is, passive recipients of formalized lessons taught by certified professional teachers. Students are deprived of their natural status as active learners, since it becomes illegitimate to learn alone or with peers, outside the sanctioned, and sanctified, classroom. Similarly, rationalized, professionalized health care tends to reinforce illness, not health, as responsibility for well-being is redefined as the provision of specialized health care workers in narrow institutional settings. Implicitly, then, Illich's response is to call for informal learning and health care among interested 'amateurs' in nonbureaucratic settings – in this way, individuals can reclaim their status as unique, capable *actors*, responsible for their own learning and wellbeing in nonstandardized and therefore authentic ways.

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