

EXPANDING GLOBAL ACCESS TO KNOWLEDGE: THE ROLE OF THE UNIVERSITY

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As an institution central to knowledge production in any society, where does the university fit in the “knowledge economy”? This presentation will address this question as crucial to understanding the impact of the “knowledge economy” on the public’s access to knowledge, and in particular, to discoveries that could be used for the public good in areas such as health care and education. If knowledge is defined only as a privately owned commodity to be traded in the market, this will adversely affect the character of institutions like universities, which have traditionally been defined in terms of their role in expanding the public domain of knowledge. This presentation will examine the concept of the knowledge economy in context of advanced capitalism and global shifts in production. I will then analyze the changing role of the university in this context of global capitalism and the knowledge economy. Finally, I will address the potential for faculty to collectively resist the increased privatization and commercialization of academic research.

1. Defining the “Knowledge Economy” in Advanced Capitalism

The term “knowledge economy” evokes multiple images. The first – in relation to the term “knowledge” raises a notion of the intellect – of thought, understanding, and imagination. The second term, “economy,” evokes the organization of a society’s financial system, including distribution of wealth and power. At this moment in history, with capitalism as the dominant economic model, the term “knowledge economy” has been used to refer to economic shifts in industrialized nations from industrial manufacturing to production that relies primarily on intellectual property. In this picture, knowledge is a commodity to be traded in private markets. An important question raised by this image is the role of the traditional producer of knowledge – the university, which exists to create, discover, and disseminate knowledge in the public domain. As an institution central to knowledge production in any society, where do universities fit in the “knowledge economy”? This talk will address this question as crucial to understanding the impact of the “knowledge economy” on the public’s access to knowledge, and in particular, to discoveries that could be used for the public good in areas such as health care and education. If knowledge is defined only as a privately owned commodity to be traded in the market, how will this affect the character of institutions like universities, which have traditionally been defined in terms of their role in expanding the public domain of knowledge?

This presentation has three parts. First, I will examine the concept of the knowledge economy in context of advanced capitalism and global shifts in production. I will then

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analyze the changing role of the university in this context of global capitalism and the knowledge economy. Finally, I will address the potential for collective faculty resistance to the increased privatization and commercialization of academic research.

The development of a “knowledge economy” should be understood in the context of the globalization of capitalism that has occurred since the changes in the 1990s in Eastern Europe and the former Soviet Union. These changes, which eliminated virtually all existing socialist economic models, also removed the only significant resistance to the global hegemony of capitalism. The expansion of capitalism world wide has been carried out along two complementary lines to achieve capitalist goals of control over labor markets and consumer markets. In both areas, the “knowledge economy” has been a central element to modern capitalist expansion.

Along the first line of capitalist expansion, the 1980s and 1990s witnessed changes in labor markets resulting from the global mobility of capital, with transnational corporations (TNCs) moving – without opposition – into new labor markets of low wage, non-unionized workers. TNCs have profited from these new opportunities, relocating their manufacturing facilities from industrialized countries of the global north to the developing countries of the global south.¹ The governments of developing countries have often aided in this transition by offering incentives, such as tax-free export processing zones, to attract such corporate relocation.

This corporate global search for cheap and vulnerable labor markets has had an enormous impact on the economies of industrialized countries of the global north, with the loss of their economic base of industrial manufacturing. Countries like the United States have experienced a shift to a service economy, often composed of low-wage, non-union jobs in restaurants, hospitals, nursing homes, and hotels.² The loss of the traditional industrial manufacturing sector has been mitigated to some extent by the new “knowledge economy,” based on high technology industry that creates new labor markets – including well paid jobs in firms that develop products based on scientific discoveries in fields of biotechnology or innovations in fields of computer information science.³ The location of the labor market for the knowledge-based economy, though, is subject to the same forces of capitalism as in the industrial-based economy. U.S. corporations have expressed concern about their ability to maintain dominance in the knowledge economy, as they face global competition from Europe and Asia, which are making significant national progress in high tech industry.⁴

¹ BEVERLY J. SILVER, FORCES OF LABOR: WORKERS’ MOVEMENTS AND GLOBALIZATION SINCE 1870 154-55 (2003).

² BARRY BLUESTONE AND BENNETT HARRISON, THE DEINDUSTRIALIZATION OF AMERICA: PLANT CLOSINGS, COMMUNITY ABANDONMENT, AND THE DISMANTLING OF BASIC INDUSTRY 25-34 (1982).

³ Shubha Ghosh, The Merits of Ownership; or, How I Learned to Stop Worrying and Love Intellectual Property Review Essay of Lawrence Lessig, the Future of Ideas, and Siva Vaidhyanathan, Copyrights and Copywrongs, 15 HARV. J. LAW & TECH. 453, 454-55 (2002)

⁴ See The Task Force on the Future of American Innovation, *The Knowledge Economy: Is the United States Losing Its Competitive Edge?* (Feb. 16, 2005), at www.futureofinnovation.org

The second line of modern capitalist global expansion is also linked to the impact of the growing knowledge economy. Just as TNCs seek control over labor markets, they also seek control over consumer markets. Along with global expansion of their manufacturing facilities, TNCs seek to expand their sales markets and increase their potential for profits. International trade regulation has been essential to achieving this goal, through the WTO and multilateral, regional, or bilateral trade agreements. These trade agreements have included provisions to increase TNCs' control over consumer markets in the "knowledge economy" by strengthening corporate ownership of intellectual property rights. In this regard, one of the most important gains for TNCs was the successful negotiation of the WTO multilateral trade agreement known as TRIPS—the Agreement on Trade-Related Aspects of Intellectual Property Rights.⁵ The TRIPS agreement was created in 1994 as part of the Uruguay Round of GATT (General Agreement on Tariffs and Trade), with the goal of harmonizing national laws on intellectual property rights.⁶ Under TRIPS, signatories to GATT have agreed to enact national laws that establish minimum substantive standards of intellectual property rights protection, which includes patent protection of pharmaceutical products, plant varieties, and computer programs.⁷ Developing countries were strongly pressured by powerful countries, particularly the United States, to agree to TRIPS,⁸ leading critics to define the TRIPS goal of "harmonizing" intellectual property rights laws as requiring adoption of "US-style intellectual property laws."⁹

TRIPS, thus, provides TNCs with significant control over global consumer markets in the "knowledge economy." By agreeing to strengthen their intellectual property laws, developing countries give up their ability to use information covered by patents to manufacture products ranging from software to agricultural products to generic drugs. TRIPS, thus, enables TNCs, including pharmaceutical companies, to maintain monopoly control over consumer access to patented IP, on products such as essential AIDS medications.¹⁰ For example, Bristol-Myers Squibb sold the patented antiretroviral drug,

⁵ See Agreement on Trade-Related Aspects of Intellectual Property Rights, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, Legal Instruments-Results of the Uruguay Round vol. 31, 33 I.L.M. 81 (1994).

⁶ See Susan K. Sell, *TRIPS and the Access to Medicines Campaign*, 20 WIS. INT'L L.J. 481, 481-91 (2002); Grace K. Avedissian, *Global Implications of a Potential U.S. Policy Shift Toward Compulsory Licensing of Medical Inventions in a New Era of "Super-Terrorism,"* 18 AM. U. INT'L L. REV. 237, 251-52, 262-69 (2002). See generally Frederick M. Abbott, *TRIPS in Seattle: The Not-So-Surprising Failure and the Future of the TRIPS Agenda*, 18 BERKELEY J. INT'L L. 165 (2000) (discussing the lack of consensus among WTO members).

⁷ Erin Donovan, *Beans, Beans, the Patented Fruit: The Growing International Conflict over the Ownership of Life*, 25 LOY. L.A. INT'L & COMP. L. REV. 117, 134-35 (2002); Srividhya Ragavan, *Can't We All Get Along? The Case for a Workable Patent Model*, 35 ARIZ. ST. L.J. 117, 126-28 (2003). The Royal Society reports that "as of 1 January 2002, there were 144 Members of the WTO, accounting for over 90% of the world's trade." The Royal Soc'y, "Keeping Science Open: The Effects Of Intellectual Property Policy On The Conduct Of Science," 3 (Apr. 2003), available at www.royalsoc.ac.uk

⁸ Sell, *supra* note 6, at 489, 493, 520; *The Right to Good Ideas*, ECONOMIST, June 23, 2001, at 21. The sources discuss the developing countries' resistance to TRIPS, but their eventual agreement in the hope of greater access to markets in OECD member countries; however these economic commitments to the developing countries have not been fulfilled.

⁹ Lori Wallach, *The Alphabet Soup of Globalization* 4-5, available at <http://www.citizen.org/documents/alphabetsoup.pdf>.

¹⁰ See Risa L. Lieberwitz, *Confronting Privatization and Commercialization of Academic Research: An Analysis of Social Implications at the Local, National, and Global Levels*, 12 IND. J. GLOBAL LEG. STUD. 109, 140-44 (2005); Jonathan Michael Berger, *Tripping Over Patents: AIDS, Access to Treatment and the*

d4T, for more than \$1,600 per patient per year in South Africa; the generic form of this drug was sold in South Africa for \$55 per patient per year.¹¹

The TRIPS agreement serves corporate interests in monopolizing international consumer markets in the knowledge economy. This same phenomenon has also occurred at the national level through privatization policies that transform governmental functions into privately controlled market commodities. In the United States, for-profit corporations have benefited from legislation and judicial actions expanding private ownership of intellectual property. Prior to 1980, federal law had granted the government title to inventions developed with federal funds, a policy that favored placing these inventions in the public domain. This policy changed in 1980, when Congress passed the Bayh-Dole Act,¹² which promoted the commercialization of research by authorizing federal fund recipients, including universities and businesses, to apply for patents on results of their publicly funded research. The judiciary has also strengthened intellectual property rights in high tech fields. Almost simultaneously with the enactment of the Bayh-Dole Act, the United States Supreme Court decided that life forms developed through scientific research can be patented, in this case, a genetically engineered bacterium that degraded crude oil.¹³ With this decision, the Court expanded the impact of the Bayh-Dole Act by opening the door to patent applications from universities and businesses developing life science research, including basic genetic research tools.¹⁴

The global effects apply to academic research in Europe as well, where patents and licenses are increasing and where industry has sought to change European patent law to reflect the broad definition of patentable subject matter used in U.S. law.¹⁵ On occasion, a controversy arises that disrupts the expansion of patent protections, as was the case when the Canadian Supreme Court refused to uphold a DuPont Corporation's patent on the famous "oncomouse," the mouse that has been genetically engineered to be cancer-

Manufacturing of Scarcity, 17 CONN. J. INT'L L. 157, 183 (2002) (discussing TRIPS Article 33, which requires a minimum twenty year period of patent protection). See generally Martin J. Adelman & Sonia Baldia, *Prospects and Limits of the Patent Provision in the TRIPS Agreement: The Case of India*, 29 VAND. J. TRANSNAT'L L. 507, 511 (1996) (analyzing the impact of TRIPS on the pharmaceutical industry in India).

¹¹ *Access to Essential Medicines and University Research: Building Best Practices* 4 (Ctr. for Inter-disc. Res. on AIDS, Yale University, Fall 2003), available at <http://cira.med.yale.edu/> at v. Developing countries were able to negotiate for some concessions regarding the required dates of compliance with TRIPS, creating transition periods for developing countries until 2005, and for least developed countries until 2006 with this latter date recently extended until 2016, Tara Kowalski, *International Patent Rights and Biotechnology: Should the United States Promote Technology Transfer to Developing Countries?* 25 LOY. L.A. INT'L & COMP. L. REV. 41, 56 (2002).

¹² Patent & Trademark Act Amendments, 35 U.S.C. Secs. 200-212, commonly known as the Bayh-Dole Act. Where the federal fund chooses to apply for a patent, the federal funding agency retains a nonexclusive license to use the publicly funded invention. See, Rebecca S. Eisenberg, *Proprietary Rights and the Norms of Science in Biotechnology Research*, 97 YALE L. J. 177, 196 (1987)

¹³ *Diamond v. Chakrabarty*, 447 U.S. 303 (1980).

¹⁴ Arti Kaur Rai, *Regulating Scientific Research: Intellectual Property Rights and the Norms of Science*, 94 Nw. U. L. REV. 77, 104 (1999-2000).

¹⁵ Lieberwitz, *supra* note 10, at 145; The Royal Soc'y, "Keeping Science Open: The Effects Of Intellectual Property Policy On The Conduct Of Science," 7 (Apr. 2003), available at www.royalsoc.ac.uk (predicting that European law will not be changed in "the foreseeable future" to conform to U.S. patent law).

prone, and which is used as a basic cancer research tool. The Supreme Court of Canada rejected the patent on development the oncomouse as a higher life form,¹⁶ although many other jurisdictions outside of Canada did grant the patent.¹⁷

2. Defining the Role of Societal Institutions in the “Knowledge Economy”

In a knowledge-based economy, certain institutions are particularly significant due to their role in knowledge production. The university, as a teaching and research institution of higher education, is chief among them. Although many high tech corporations have their own research and development departments, they benefit from academic research, similar to business corporations since the early period of industrialization in the 1800s. In the United States, Congress recognized the importance of universities to industry as early as the 1862, when it passed the Morrill Act creating “land grant” colleges to provide education and training for students who would enter the growing industries, such as manufacturing and commercial agricultural ventures.¹⁸ Since that time, although universities in the U.S. have continued to have relationships with industry, the unique societal role of universities has also required limits on those relationships. Even in a capitalist society, public and private universities have traditionally fulfilled a public mission through their teaching and research in the public interest.¹⁹ In fact, the university’s legitimacy relies on its independence from third party interests, including the private economic interests of industry. This independence is essential to the integrity of academic research, which should be performed by faculty in a “disinterested” way; that is, following the research where it leads, regardless of whose interests will be furthered by the outcome.

This public interest role of the university distinguishes it from for-profit business corporations. As public or private nonprofit institutions, universities are intentionally different from commercial businesses in both their goals and structure.²⁰ The traditional role of university has been to discover, develop, and disseminate knowledge in the public domain. To fulfill its public mission, one segment of the university workforce, the faculty, have been provided unique rights of academic freedom to engage in an open exchange of ideas in their teaching, research, and public speech, including the right to openly criticize the university administration.²¹ The university’s public mission is starkly different from the private for-profit corporation’s goal of using knowledge instrumentally for profit-maximization. In contrast to academic freedom in the university, for-profit

Yvonne Cripps, *The Art and Science of Genetic Modification: Re-Engineering Patent Law and Constitutional Orthodoxies*, IND. J. GLOBAL LEGAL STUD., Winter 2004, at 1, 7 (2004).

¹⁷ *Id.*

¹⁸ Morrill Act, ch. 130, § 4, 12 Stat. 503, 504 (1862) (codified at 7 U.S.C. § 304 (2000)). See Risa L. Lieberwitz, *The Corporatization of the University: Distance Learning at the Cost of Academic Freedom?*, 12 B.U. PUB. INT. L.J. 73 (2002).

¹⁹ Risa L. Lieberwitz, *The Marketing Of Higher Education: The Price Of The University's Soul*, (reviewing DEREK BOK, *UNIVERSITIES IN THE MARKETPLACE: THE COMMERCIALIZATION OF HIGHER EDUCATION* (2003)); 89 CORNELL L. REV. 763, 777-78 (2004).

²⁰ Lieberwitz, *supra* note 18, at 107-09.

²¹ *Id.* at 77-85.

corporations seek to maintain secrecy and nondisclosure of trade secrets and business information²² and function within a nondemocratic hierarchical decision-making structure.

In the United States, although the public interest ideal has never been fully achieved, it has been implemented in significant ways, including the creation of a unique academic culture that values communalism among faculty colleagues, including dissemination of academic research methods and results in the public domain.²³ Central to faculty work and professional identity is academic freedom, which describes rights of faculty autonomy over their work, including faculty freedom to choose and carry out their research agendas.²⁴ Academic freedom is essential to maintain the integrity of faculty research and teaching, as it enables faculty to perform work that is independent from third party interests. Academic freedom and faculty independence are, thus, integral to fulfilling the public mission of the university.²⁵

In the current era of global capitalist hegemony, the public interest role of the university and independence of faculty work are threatened by the all pervasive presence of privatization and markets. In this context, values promoting a public sharing of information, university independence from corporate influence, and democratic rights for faculty members can begin to look “out of step” with the rest of the world. When capitalist countries were in competition with alternative economic models, vesting universities with an independent public mission assured the public that education was a democratic institution.²⁶ And, in fact, this assurance had a basis in reality, with the development of academic culture based on values of communalism, independence, and the public interest. Today, however, without the countervailing pressures created by socialist economic models, the university’s status as an independent institution is vulnerable to the declaration of the supremacy of private markets.

The globalization of capitalism, together with the emergence of a knowledge-based economy, has made a major impact on the university. Beyond the university, privatization policies at the international and national levels have succeeded in commodifying everything – from basic needs such as food, water, electricity, and medicines, to life itself, including markets for human embryos and costly adoptions of babies. In this context, universities are viewed as just another institution creating commodities that can contribute to growth of the knowledge economy. The university’s public mission is re-defined through the intermediary of the market to match business corporations’ profit-maximizing goals. From this perspective, commercialization of

²² Peter D. Blumberg, From "Publish or Perish" to "Profit or Perish:" Revenues From University Technology Transfer and the 501(c)(3) Tax Exemption, 145 U. PA. L. REV. 89, 126-27 (1996) (discussing the inconsistency between granting trade secret protection to university research results and maintaining the integrity of the university’s “public purpose,” which provides the foundation for universities’ federal 501(c)(3) tax exemption).

²³ Lieberwitz, *supra* note 10, at 117.

²⁴ Lieberwitz, *supra* note 18, at 77-85.

²⁵ Lieberwitz, *supra* note 10, at 115-16.

²⁶ Lieberwitz, *supra* note 18, at 87.

academic research, like the research in the corporation's R&D departments, will benefit the public by making more goods available for sale in the market.

Unfortunately, universities have enthusiastically embraced their role as market actor, with negative effects for their unique public role. Most importantly, universities have adopted the ideologically driven view of knowledge as a privately owned commodity. When asked who owned the polio vaccine that he developed in the 1950s, Dr. Jonas E. Salk is quoted as replying, "Well, the people, I would say. There is no patent. Could you patent the sun?"²⁷ Dr. Salk was apparently later influenced by the commercial biomedical explosion of the 1970s and 1980s, for he applied for seven patents on his therapeutic AIDS vaccine, Remune, and helped found a biotechnology company to develop it.²⁸ Similarly, U.S. universities have taken advantage of the opportunities created by the 1980 Bayh-Dole Act to patent and license publicly funded academic research, particularly in the life sciences. In 1979, before the Bayh-Dole Act, U.S. universities obtained 264 patents, compared with 1997, when U.S. universities obtained ten times that number, at 2,436 patents.²⁹ From 1980 to 1990, patent applications on NIH-funded inventions increased by almost 300 percent.³⁰ From 1991 to 2000, the patents granted to U.S. universities increased by 131 percent³¹ and licenses granted by the universities increased by 158 percent.³² Between 1988 and 2003, U.S. patents awarded to academic institutions quadrupled, from about 800 to more than 3,200 per year.³³

The growth in university patenting activities has been accompanied by increasingly close university-industry relations, through university licensing, including exclusive licenses, of its patents to for-profit businesses. University-industry ties have been tightened, as well, by the growth of corporate financing of U.S. university research programs, which increased by 93 percent between 1980 and 1984.³⁴ In 1994, ninety percent of life sciences companies had a relationship with a U.S. academic institution, including a significant increase in industry funding of life science academic research.³⁵ In exchange for funding, corporations often receive exclusive licensing rights to resulting academic research.³⁶

²⁷ Douglas M. Birch & Gary Cohn, *Standing Up to Industry: As Corporations Increasingly Hold Their Purse Strings, Many Researchers Feel Pressed to Deliver Favorable Results*, BALT. SUN, June 26, 2001, at 1A.

²⁸ *Id.*

²⁹ Arti K. Rai & Rebecca S. Eisenberg, *Bayh-Dole Reform and the Progress of Biomedicine*, 91 AMER. SCIENTIST 52, 53 (Jan-Feb. 2003).

³⁰ Sheldon Krinsky, *The Profit of Scientific Discovery and Its Normative Implications*, 75 CHI.-KENT L. REV. 15, 22 (1999).

³¹ David Blumenthal, *Academic-Industrial Relationships in the Life Sciences*, 349 NEW ENGLAND J. OF MEDICINE 2452, 2454 (2003).

³² *Id.* at 2455.

³³ Josephine Johnston, *Health Related Academic Technology Transfer: Rethinking Patenting and Licensing Practices*, INTERNATIONAL J. TECHN. AND GLOBALIZATION (forthcoming) (citing National Science Board statistics).

³⁴ Eisenberg, *supra* note 12, at n.2.

³⁵ David Blumenthal et al., *Relationships Between Academic Institutions and Industry in the Life Sciences - An Industry Survey*, 334 NEW ENG. J. MED. 368, 371-72 (1996).

³⁶ Risa L. Lieberwitz, *University Science Research Funding: Privatizing Policy and Practice*, in SCIENCE AND THE UNIVERSITY (Ronald G. Ehrenberg and Paula E. Stephan, eds.) (forthcoming).

The privatization of academic research has produced some famous (or perhaps, infamous) examples of corporate and university profits in the knowledge economy. Harvard University patented the genetically engineered “oncomouse,” which was developed by Harvard scientists with funding from DuPont Corporation.³⁷ Harvard exclusively licensed the patent to DuPont, which, in turn, conditioned sale of the oncomouse on their right to share in the profits from any products developed with the use of the oncomouse.³⁸ Myriad Genetics Corporation’s patented breast cancer gene screening test costs \$2,400 USD. Myriad developed this test based on its exclusive license of patented academic genetic research discoveries that had been funded, in part, by the public.³⁹ Without the licensing fees charged by Myriad for use of the screening test, the cost for the genetic test for breast cancer is estimated at about \$50.⁴⁰ Publicly funded researchers at Yale University discovered the application of Stavudine (d4T) as an antiretroviral AIDS treatment.⁴¹ Yale exclusively licensed its patent on Stavudine to the pharmaceutical corporation, Bristol-Myers Squibb, which sells the drug under the brand name Zerit⁴² for an average price of \$8.56 for the dose of two 40 mg tablets.⁴³ Yale profited from the sales, earning at least \$261 million in royalties between 1994 and 2000.⁴⁴

Recently, the U.S. Federal Circuit Court expanded the reach of privately owned knowledge even further by upholding the validity of a patent on basic scientific knowledge and the scientific test developed by using this knowledge.⁴⁵ The scientific discovery and medical test resulted from publicly funded academic research that was patented by two U.S. universities and licensed to a for-profit corporation.⁴⁶ Specifically, the patent covers both the biological correlation between high levels of the amino acid homocysteine and deficiencies in vitamin B and folic acid, as well as the medical test to

³⁷ *Id.*

³⁸ Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCIENCE 698, 699-700 (1998); (1998).

³⁹ Bryn Williams-Jones, *History of a Gene Patent: The Development and Application of BRCA Testing*, 10 HEALTH L. J. 123, 132–33 (2002).

⁴⁰ Charles Leroux, *Biotech's Traffic Cop: Chicago Attorney Lori Andrews Stands Where Science and the Law Intersect*, CHI. TRIB., Oct. 7, 2001, at C12.

⁴¹ Ellen F. M. t Hoen, *The Responsibility of Research Universities to Promote Access to Essential Medicines*, 3 YALE J. HEALTH POL'Y L. & ETHICS 293, 294-95 (2003); Tina Rosenberg, *Look at Brazil*, NY TIMES MAGAZINE, Jan. 28, 2001, at 31, 52, available at <http://www.nytimes.com/library/magazine/home/20010128mag-aids.html> (last visited Oct. 5, 2004); Philippe Demenet, *The High Cost of Living*, LE MONDE DIPLOMATIQUE, Feb. 4, 2002, available at <http://mondediplo.com/2002/02/04stavudine> (last visited Oct. 5, 2004).

⁴² Ellen F. M. t Hoen, *The Responsibility of Research Universities to Promote Access to Essential Medicines*, 3 YALE J. HEALTH POL'Y L. & ETHICS 293, 294-95 (2003).

⁴³ See Demenet, *The High Cost of Living*, LE MONDE DIPLOMATIQUE, Feb. 4, 2002, available at <http://mondediplo.com/2002/02/04stavudine>. In South Africa, Bristol-Myers Squibb charged \$2.23 per dose, which most people could not afford. *Id.*

⁴⁴ *Id.* Another example of publicly funded academic research leading to discovery of an essential medicine is the anti-HIV drug T-20, patented by Duke University and marketed by Roche under the brand name Fuzeon for about \$20,000 per year in the United States. See Consumer Project on Technology, at <http://www.cptech.org/ip/health/aids/t20/>

⁴⁵ *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354 (Fed. Cir. 2004), cert. granted in part, 126 S.Ct. 601 (2005), cert. dismissed as improvidently granted, 2006 U.S. LEXIS 4893.

⁴⁶ See Lieberwitz, *supra* note 36.

measure the homocysteine levels.⁴⁷ These deficiencies can result in serious or life threatening conditions, including vascular disease, birth abnormalities, and cancer, but once diagnosed, can be easily treated with vitamin B and folic acid supplements.⁴⁸

Advocates of privatization and commercialization of academic research argue that the public, universities, and faculty all benefit from the increased marketing of academic research.⁴⁹ Such advocates argue that patenting and licensing of publicly funded academic research creates corporate incentives to invest further capital to develop academic research that otherwise would be ignored if it were placed in the public domain. Advocates of commercialization also support the practice of exchanging private corporate research funds for exclusive licenses to university patents, arguing that a for-profit corporation will not invest in large-scale funding of academic research without guarantees of exclusive access to resulting patents. This argument is bolstered by the benefits to universities, which need corporate funding to sustain costly modern scientific laboratories.

These arguments in support of privatization and commercialization of academic research equate the public interest with the private interests of for-profit corporations.⁵⁰ Defining the public interest as synonymous with the corporate interest, however, ignores the harms to the university and the public interest resulting from the private ownership of academic research. When faculty place their academic research into the public domain, the entire public – including business – has full access to this information, with confidence that the research was not influenced by its commercial potential. University patenting, however, brings profitability of research into the picture, creating a conflict of interests that compromises the university's independence, with resulting damage to the public interest.⁵¹ Through exclusive licenses of university-owned patents, for-profit corporations gain control over academic research, with the ability to charge monopoly prices on resulting products. Under the WTO TRIPS agreement, this protection of corporate monopoly on intellectual property has been extended globally, including monopoly pricing on essential medicines for AIDS and other diseases.⁵²

Among faculty, the market-driven policies and practices of academic research commercialization undermine traditional professional norms of academic freedom, which are based on faculty autonomy and independence from private economic interests – whether those private interests are those of the faculty member, the university, or third party funders. Similar to the university institutional conflict of interests, faculty who are involved in market activities have individual professional conflicts of interest.⁵³ Communal values are undermined by increased secrecy resulting from private economic concerns about preserving proprietary rights in research results.⁵⁴ Dependence on

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ For summary of arguments and citations, see Lieberwitz, *supra* note 10, at 125-26.

⁵⁰ *Id.* at 126-27.

⁵¹ *Id.* at 126-37.

⁵² *Id.* at 140-44.

⁵³ Lieberwitz, *supra* note 19, at 771-72. ____.

⁵⁴ MARTIN KENNEY, BIOTECHNOLOGY: THE UNIVERSITY-INDUSTRIAL COMPLEX 108-11, 121-31 (1986); Blumenthal et al., *supra* note 30, at 372-73; Rebecca S. Eisenberg, *Academic Freedom and Academic Values in Sponsored Research*, 66 TEX. L. REV. 1363, 1375 (1988); Jonathan King & Doreen

corporate research funds compromises independence in research, for example, when the university administration or faculty agree to submit research results for corporate review prior to publication.⁵⁵ Studies have demonstrated a significant impact on research, with more favorable research results concerning the corporate funder's product by faculty whose research is funded by the corporation.⁵⁶ Disturbing incidents have been reported of corporate pressure placed on faculty researchers to change or suppress research findings that go against the corporation's interests.⁵⁷

3. Potential for Reclaiming Academic Research in the Public Interest

If the privatization of knowledge continues unchecked, the public domain of academic research will continue to shrink – and with it, the public mission of the university. Even in the current context of global capitalism and privatization policy, there have been some recent developments seeking to re-establish public access to knowledge. In the U.S., the National Institutes of Health (NIH) has taken some steps in this direction, including its decision not to file for patents on most research tools developed in its intramural research program.⁵⁸ The NIH Guidelines issued in 1999 and its 2004 “Best Practices for Licensing of Genomic Inventions” recommend that NIH funding recipients limit their use of patents and exclusive licenses on federally funded research tools and genomic inventions.⁵⁹ In February 2005, the NIH announced its policy that requests NIH-funded authors to make their articles available for free online access on its PubMed Central Web site within twelve months of official publication date.⁶⁰ Other laudable efforts to expand public access to research tools include the international Human Genome Project's policy of placing data into the public domain.⁶¹ Recently created nonprofit organizations have been inspired by the open source computer software movements to use licensing practices to broaden access to copyrighted and patented material.⁶² For example, the nonprofit Australia-based project, Biological Innovation for Open Society, uses licensing practices to broaden access to agricultural biotechnology research tools.⁶³

Faculty are key actors in this choice between the public domain of knowledge and the private ownership of intellectual property. Faculty can embrace the philosophy and practices of marketing academic research or they can reassert the university's public

Stabinsky, *Patents on Cells, Genes, and Organisms Undermine the Exchange of Scientific Ideas*, CHRON. HIGHER EDUC., Feb. 5, 1999, at D6.

⁵⁵ Lieberwitz, *supra* note 10, at 129.

⁵⁶ Eyal Press & Jennifer Washburn, *The Kept University*, ATL. MONTHLY, Mar. 2000, at 42; Mildred K. Cho & Lisa A. Bero, *The Quality of Drug Studies Published in Symposium Proceedings*, 124 ANNALS INTERNAL MED. 485 (1996); Mark Clayton, *Corporate Cash Campus Labs*, CHRISTIAN SCI. MONITOR, June 19, 2001, at 11; Krinsky, *supra* note 30, at 34.

⁵⁷ Press & Washburn, *supra* note 56, at 42; Peter Ritter, *Bitter Pills*, CITY PAGES, July 4, 2001, at <http://www.citypages.com/databank/22/1074/article9665.asp>

⁵⁸ Rai, *supra* note 14, at 148.

⁵⁹ Johnston, *supra* note 33; Tanuja V. Garde, Supporting Innovation in Targeted Treatments: Licenses of Right to NIH-Funded Research Tools, 11 MICH. TELECOMMUN. & TECH. L. REV. 249 (2005).

⁶⁰ NIH News. 2003. “NIH Calls on Scientists to Speed Public Release of Research Publications,” <http://www.nih.gov/news/pr/feb2005/od-03.htm>

⁶¹ Amy Kapczynski, Samantha Chaifetz, Zachary Katz, and Yochai Benkler, *Addressing Global Health Inequities: An Open Licensing Approach for University Innovations*, 20 BERKELEY TECH, L. J. 1031 (2005),

⁶² *Id.* at 1068-69.

⁶³ *Id.* at 1069-72.

interest role of expanding knowledge in the public domain. Although many faculty support the patenting and licensing of academic research, the growing number of reports and scholarly articles recommending against exclusive licensing may encourage universities to broaden their use of non-exclusive licenses when they do engage in patenting.⁶⁴ Public interest organizations, such as Universities Allied for Essential Medicines, contribute to these voluntary efforts by advocating for waivers by universities of their patent rights and for use of non-exclusive licensing to make affordable generic medicines available in developing countries.⁶⁵

Even with the salutary effects of such efforts to expand public access to essential medicines or other vital academic research, they do not address fundamental questions relating to the public interest. Policies that exclude some basic research from patenting and exclusive licensing may expand the public domain, but do not challenge the premise that private entities should own and profit from publicly funded research through patents and licenses. Nor do such policies challenge the premise that universities should be involved in market activities for the commercial interests of the university and industry.

Even in a “knowledge economy,” university research must remain independent from a market model. The university’s role of serving the public interest depends on the faculty independence and academic freedom, which can be safeguarded only through the protection of the public domain. Public confidence in the integrity and legitimacy of academic research will be undermined and research quality will suffer if faculty have a conflict of interests as a result of the privatization and commercialization of academic research. As importantly, privatizing academic research also harms academic culture, in which the protection of the public domain is an essential part of the broader culture that values openness and sharing in collegial relationships. If faculty lose these shared values, then they also lose their professional identity, which is based on individual academic freedom, independence, and autonomy over their research and teaching. Just as faculty gained these rights through collective demands, they must now act collectively to retain the basic rights of values of the university in the public interest.

⁶⁴ Josephine Johnston, *supra* note 33 (discussing the range of patent and licensing approaches in use by universities); Lori Pressman, Richard Burgess, Robert M. Cook-Deegan, Stephen J. McCormack, Io Nami-Wolk, Melissa Soucy, and LeRoy Walters, “The Licensing of DNA Patents by U.S. Academic Institutions: An Empirical Survey,” 24 *Nature Biotechnology* 31, 31-39 (2006).

⁶⁵ Lieberwitz, *supra* note 10, at 149-150.

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