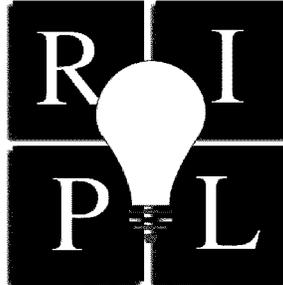


THE JOHN MARSHALL REVIEW OF INTELLECTUAL PROPERTY LAW



OPEN BORDERS, INTELLECTUAL PROPERTY & FEDERAL CRIMINAL TRADE
SECRET LAW

SHUBHA GHOSH

ABSTRACT

Many scholars have demonstrated that labor mobility between firms has led to the economic success of Silicon Valley. California's policy against enforcing covenants not to compete has been shown to provide the legal infrastructure for high labor mobility. Does the argument extend to mobility of skilled labor across national borders? This Article addresses that question in the context of the Economic Espionage Act of 1996, the first federal criminal trade secret law in the United States. By analyzing the scholarly literature and the case law under the Act, the author presents a theoretical framework for assessing the Act based on international trade theory. The Article concludes that there are policy reasons to be skeptical about the Act and several reforms could ease the potential chilling effect of the Act on the mobility of skilled labor. Such reforms include replacing the criminal provisions of the Act with a private civil cause of action and expanding extraterritorial application of both patent and trade secret laws.

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OPEN BORDERS, INTELLECTUAL PROPERTY & FEDERAL CRIMINAL TRADE SECRET LAW

SHUBHA GHOSH*

INTRODUCTION

A recurring metaphor in intellectual property law is that of boundaries.¹ At the heart of patent law, for example, are the metes and bounds of the invention as determined by the written claims.² Within copyright, scholars debate the legal borders of the market for the protected work in determining when the adaptation right of the copyright owner has been infringed.³ Trademark rights are circumscribed by geographic boundaries and the borders of the product space that is being branded.⁴ Finally, a group of intellectual property scholars have recently turned their attention to how intellectual property aids in constructing the boundaries of the firm.⁵ Outside the field of intellectual property, real and virtual boundaries are policed through national security law, cyberspace law, and immigration law. This Article focuses on the intersection between boundaries in intellectual property law and those in immigration policy. The Economic Espionage Act of 1996⁶ provides a case study of how intellectual property law is used to police

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¹ See, e.g., Robert W. Gomulkiewicz, *Conditions and Covenants in License Contracts: Tales from a Test of the Artistic License*, 17 TEX. INTEL. PROP. L.J. 335, 336 (2009).

² *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed.Cir.2005) (en banc) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed.Cir.2004)).

³ See, e.g., Derek E. Bambauer, *Faulty Math: The Economics of Legalizing the Grey Album*, 59 ALA. L. REV. 345, 402–03 (2008) (discussing the boundaries of derivative work protection under copyright law).

⁴ See, e.g., David R. Johnson & David Post, *Law and Borders—The Rise of Law in Cyberspace*, 48 STAN. L. REV. 1367, 1368–69 (1996) (describing the geographic scope of trademark rights).

⁵ See, e.g., Dan L. Burk & Brett H. McDonell, *The Goldilocks Hypothesis: Balancing Intellectual Property Rights at the Boundary of the Firm*, 2007 U. ILL. L. REV. 575, 576–77 (2007).

⁶ Economic Espionage Act of 1996, Pub. Law. No. 104-294, 110 Stat. 3488 (codified as amended at 18 U.S.C. §§ 1831–39 (2006)).

real world boundaries across which people and ideas move.⁷ The Act also demonstrates how intellectual property law has expanded its own boundaries by moving beyond a legal tool to regulate markets and competition to a tool to police political and economic concerns of domestic security and information control. Like the work on intellectual property and the boundaries of the firm, this Article presents the argument that intellectual property also serves to define the boundaries of the nation-state. Two foundational concepts are at play in this Article: the movement of people and the movement of information. Immigration law and policy governs the movement of people across national borders. Movement of people within national borders but across regional borders (such as between states or cities) is governed in the United States by the right to travel and federal and state laws that regulate the movement of people in response to new employment opportunities, state programs, and changes in family situations.⁸ Movement within national borders is not considered part of immigration law and policy for the purposes of this Article although federal immigration law can affect the mobility of individuals within national borders. The movement of information is governed by intellectual property law and policy.⁹ If information is protected by intellectual property law (for example, when it becomes embodied in a patentable invention or in a fixed and original work of authorship), then the movement of information, however embodied, becomes a matter of how it can be distributed and copied under the terms of the relevant intellectual property doctrine.¹⁰

The movements of people and information, for the most part, are split in theory between the domains of immigration law and policy and intellectual property law and policy. Professor Kevin Johnson, an immigration law scholar, has persuasively made the case for “open borders,” or the permissive movement of people across national borders.¹¹ Intellectual property law, however, often restricts the movement of information across borders by allowing intellectual property owners to police national borders to prevent the importation of infringing materials.¹² This paper advances the

⁷ See generally Rochelle Cooper Dreyfuss, *Trade Secrets: How Well Should We Be Allowed to Hide Them? The Economic Espionage Act of 1996*, 9 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 1 (1998) (acting as the first academic commentary discussing the Economic Espionage Act of 1996). Professor Dreyfuss’ key concern that the Act unnecessarily turns trade secret misappropriation into a federal crime is a concern that I share and emphasize in this Article. See *id.* at 18.

⁸ U.S. CONST. art. IV, § 2, cl. 2, amend. XIV, § 1; *Saenz v. Roe*, 526 U.S. 489, 500–04 (1999) (interpreting the right to travel in the United States as three different types of travel between states); see *Plyler v. Doe*, 457 U.S. 202, 230 (1982) (protecting undocumented immigrant access to education); Michael A. Olivas, *Lawmakers Gone Wild: College Residency and the Response to Professor Kobach*, 61 SMU L. REV. 99, 104–106 (2008) (examining the pre-emption of federal immigration policy on state legislation that restrict access to services); see also Steven L. Winter, *Indeterminacy and Incommensurability in Constitutional Law*, 78 CAL. L. REV. 1441, 1513 (1990) (examplifying the constitutional right to travel and relationship to immigration).

⁹ U.S. CONST. art. I, § 8, cl. 8; 15 U.S.C. §§ 1051–1141 (2006) (trademark); 17 U.S.C. §§ 101–1332 (2006) (copyright); 18 U.S.C. 1831–39 (trade secret); 35 U.S.C. § 1–376 (2006) (patent).

¹⁰ 17 U.S.C. § 106; 35 U.S.C. § 271.

¹¹ KEVIN R. JOHNSON, *OPENING THE FLOODGATES: WHY AMERICA NEEDS TO RETHINK ITS BORDERS AND IMMIGRATION LAWS* 168–69 (N.Y.U. Press 2007) (“[A]llowing all residents of the United States, regardless of their immigration status, full membership in U.S. society is consistent with the democratic principles for which this nation proudly stands.”).

¹² 19 U.S.C. § 1337(a) (2006) (making it unlawful to import articles that infringe United States intellectual property laws).

case for open borders in the area of intellectual property law by demonstrating how the movement of people and movement of information across borders are closely connected.

In practice, information is often embodied in people through knowledge and ideas, and the movement of one may affect the movement of the other. Professor Michael Olivas has documented how the increased scrutiny of immigration after the attacks of 9/11 has affected universities and graduate students.¹³ In the world of commerce, rules on employee ownership and use of intellectual property, obviously, can affect the movement of employees as they seek new opportunities or attempt to form start-ups and new ventures.¹⁴ This phenomenon has been studied extensively by AnnaLee Saxenian, Alan Hyde, and Ronald Gilson, each of whose scholarship has demonstrated the role of formal law and informal norms in structuring high-velocity labor markets and fueling innovation.¹⁵ These scholars, however, have focused largely on regional markets, such as Silicon Valley or Route 128.¹⁶ Scholars have paid less attention to the effects of labor mobility across national borders on high velocity labor markets. Recent scholarship by Professors Saxenian and Hyde has integrated international migration into the respective studies of high-velocity labor markets.¹⁷ Professor Saxenian, for example, has explored what she calls “the new argonauts,” or high-skilled immigrants who enter to United States to fill temporary spots in high technology labor markets.¹⁸ Professor Hyde has also integrated the phenomenon of H-1B visa holders into his theory of internal labor markets and high technology industries.¹⁹ This Article, however, is the first attempt to explore systematically how intellectual property, through the Economic Espionage Act, acts

¹³ Michael A. Olivas, *IIRIRA, The Dream Act, and Undocumented College Student Residency*, 30 J.C. & U.L. 435, 457–63 (2004).

¹⁴ See, e.g., *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 473–74, 493 (1974) (ordering the reinstatement of a permanent injunction against ex-employees from divulging or using the former employer’s trade secrets to the ex-employees’ new venture).

¹⁵ See Ronald J. Gilson, *The Legal Infrastructure of High Technology Industrial Districts: Silicon Valley, Route 128, and Covenants Not to Compete*, 74 N.Y.U. L. REV. 575, 596–601 (1999) (discussing Silicon Valley firms’ ability to “prevent knowledge spillovers through employee mobility.”); Alan Hyde, *The Wealth of Shared Information: Silicon Valley’s High-Velocity Labor Market, Endogenous Economic Growth, and the Law of Trade Secrets* (1998) [Hereinafter Hyde, *The Wealth of Shared Information*], <http://andromeda.rutgers.edu/~hyde/> (follow “Silicon Valley: The Wealth of Shared Information; Some Economics of Nonrivalrous Information” hyperlink) (analyzing Silicon Valley’s work force mobility and laws affecting that mobility). See generally ANNALEE SAXENIAN, *REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 128* 29–57 (Harv. U. Press 1996) [hereinafter SAXENIAN, *REGIONAL ADVANTAGE*] (comparing and contrasting the differences between Silicon Valley and the Route 128 Corridor in Massachusetts).

¹⁶ SAXENIAN, *REGIONAL ADVANTAGE*, *supra* note 15, at 29–82; Gilson, *supra* note 15, at 586–94; Hyde, *The Wealth of Shared Information*, *supra* note 15.

¹⁷ ALAN HYDE, *WORKING IN SILICON VALLEY: ECONOMIC AND LEGAL ANALYSIS OF A HIGH-VELOCITY LABOR MARKET* 125–39 (M.E. Sharpe, Inc. 2003) [hereinafter HYDE, *WORKING IN SILICON VALLEY*]. See generally SAXENIAN, *REGIONAL ADVANTAGE*, *supra* note 15 (analyzing the movement of migrant workers to and from the Silicon Valley).

¹⁸ ANNALEE SAXENIAN, *THE NEW ARGONAUTS: REGIONAL ADVANTAGE IN A GLOBAL ECONOMY* 50–52 (2006) [hereinafter SAXENIAN, *THE NEW ARGONAUTS*] (documenting how changes in immigration law and policy in the 1990’s affected Silicon Valley workforce).

¹⁹ HYDE, *WORKING IN SILICON VALLEY*, *supra* note 17, at 134–39 (offering an economic analysis of H-1B visa program targeted to increase entry of highly skilled workers into the United States).

as a type of immigration policy, that is using legal instruments to regulate the movement of people across national borders through the movement of ideas.²⁰

The Economic Espionage Act makes the theft of trade secrets either across international borders or domestically a federal crime.²¹ Section 1831 criminalizes the theft of a company's trade secret for the benefit of a non-United States entity or government.²² Indictments and convictions under section 1831 largely affect non-United States nationals who are either employed in the United States or travel to the United States and have been found to have engaged in the theft of a trade secret within the United States for the benefit of either a foreign business entity or a foreign sovereign.²³ To label the Economic Espionage Act as immigration policy is potentially misleading since section 1832 of the Act does not have the requirement of benefit to a foreign entity.²⁴ Instead, this provision criminalizes any theft of a trade secret that is harmful to the trade secret owner.²⁵ Therefore, convictions under section 1832 could be brought against United States citizens who have stolen trade secrets for United States companies.²⁶ However, the breadth of section 1832 would permit convictions against non-United States citizens and against acts that benefit foreign entities.²⁷ While it would certainly be misleading to label the Economic Espionage Act solely as an example of immigration policy, it would not be misguided to claim that the Act affects the movement of people across national borders because of the express language of section 1831 and the broad language of section 1832.²⁸ The attention paid to economic espionage and the use of federal resources to combat it arises from documented concerns about efforts by several countries, including Cuba, China, Iran, Iraq, and Pakistan to misappropriate United States defense and industrial technologies.²⁹ The Office of the National Counterintelligence Executive warns, as part of its annual report to Congress on economic espionage dating back to 1995, about the threat to United States technology from espionage that arises in

²⁰ See Geraldine Szott Moohr, *The Problematic Role of Criminal Law in Regulating the Use of Information: The Case of the Economic Espionage Act*, 80 N.C. L. REV. 853, 908–10 (2002) (touching briefly on the Hyde-Saxenian-Gilson theories of labor mobility). I am grateful to the foundation laid by Professor Mohr's important article and build on her insights through a more systematic use of trade theory and interdisciplinary analysis. See R. Mark Halligan, *Protection of U.S. Trade Secret Assets: Critical Amendments to the Economic Espionage Act of 1996*, 7 J. MARSHALL REV. INTELL. PROP. L. 658 (2008) (discussing the Economic Espionage Act and a proposing to amend its provision to include a private civil cause of action to protect trade secret assets).

²¹ 18 U.S.C. § 1832 (2006).

²² *Id.* § 1831.

²³ See, e.g., Press Release, U.S. Dep't of Justice, First Foreign Economic Espionage Indictment: Defendants Steal Trade Secrets from Cleveland Clinic Foundation (May 8, 2001) [hereinafter First Foreign Indictment], available at http://www.usdoj.gov/criminal/cybercrime/Okamoto_SerizawaIndict.htm (announcing the indictment of a Japanese national under section 1831).

²⁴ See 18 U.S.C. § 1832.

²⁵ *Id.*

²⁶ See *id.*

²⁷ *Id.*

²⁸ See 18 U.S.C. §§ 1831–32.

²⁹ See 1 STEVEN Z. SZCZEPANSKI & DAVID M. EPSTEIN, ECKSTROM'S LICENSING IN FOREIGN AND DOMESTIC OPERATIONS § 8A:23 (2009) ("National security seems to be another concern which has spurred the implementation of the Economic Espionage Act.").

industry, government facilities, conferences, conventions, and trade shows.³⁰ The Economic Espionage Act has the effect of immigration policy.³¹ In fact, many of the cases brought under the Act are against non-United States citizens.³² It is this phenomenon that I will be examining.

While the Economic Espionage Act, an instrument for making trade secret misappropriation a federal crime, is a unique development in intellectual property law, the criminalization of trade secret and its effects on the immigration and emigration of labor is not new. Professor Doron S. Ben-Atar has documented the role of industrial espionage in the propagation of technology as far back as the Seventeenth Century.³³ England countered the practice of industrial espionage by limiting the emigration of industrial labor and criminalizing the act of enticing English industrial workers overseas.³⁴ Restrictions on the movement of labor can be traced back to the Roman Empire where skilled artisans were legally bound to their employer.³⁵ Social restrictions also bound skilled labor as, for example, in the case of the glass blowers of Murano who were required to remain on the island several miles off the coast of Venice in order to preserve the secrets of the trade.³⁶ The enactment of the Economic Espionage Act in 1996 is perhaps just another indication of the shift in the United States legal climate from tolerating intellectual property piracy (in the Nineteenth Century) to protecting intellectual property rights vigorously (in the late Twentieth Century).³⁷ What is difficult is the harnessing of federal prosecutorial power to the protection of trade secrets when legal scrutiny has typically rested in state civil litigation.³⁸ The broader historical context of the Economic Espionage Act motivates the need for scrutiny of the use of restrictions on labor mobility across national borders as a tool of intellectual property policy.

Casting intellectual property law in terms of the movement of ideas and people is an original turn in this Article. My broader point is to reorient our understanding of intellectual property, both as scholars and policymakers, in terms of international

³⁰ OFFICE OF THE DIR. OF NAT'L INTELLIGENCE, ANNUAL REPORT TO CONGRESS ON FOREIGN ECONOMIC COLLECTION AND INDUSTRIAL ESPIONAGE 2 (2007) [hereinafter ANNUAL REPORT], available at http://www.ncix.gov/publications/reports/fecie_all/fecie_2007/FECIE_2007.pdf.

³¹ See 18 U.S.C. §§ 1831–32 (including attempt and conspiracy to misappropriate trade secrets).

³² See, e.g., First Foreign Indictment, *supra* note 23.

³³ DORON S. BEN-ATAR, TRADE SECRETS: INTELLECTUAL PIRACY AND THE ORIGINS OF AMERICAN INDUSTRIAL POWER 12–13 (Yale Univ. Press 2004).

³⁴ BEN-ATAR, *supra* note 33, at 13 (“All in all ten major laws were passed between 1695 and 1799 [by England] against emigration of artisans and the export of machinery.”).

³⁵ See A. Aurthur Schiller, *Trade Secrets and the Roman Law; The Actio Servi Corrupti*, 30 COLUM. L. REV. 837, 837–38 (1930).

³⁶ See Francesca Trivellato, *Murano Glass, Continuity and Transformation (1400–1800)*, in AT THE CENTER OF THE OLD WORLD: TRADE AND MANUFACTURING IN VENICE AND THE VENETIAN MAINLAND, 1400–1800 157–60 (Paolo Lanaro ed., Ctr. for Reformation & Renaissance Studies 2006) (describing system of guilds that protected secrecy of glass production). See also BEN-ATAR, *supra* note 33, at 10 (describing the Venice glass production scenario, comparing it with British sulfuric acid producers at the time of the British Industrial Revolution).

³⁷ See BEN-ATAR, *supra* note 33, at 9 (describing prevalence of technology piracy globally in the Eighteenth and Nineteenth Centuries).

³⁸ See, e.g., UNIF. TRADE SECRETS ACT § 1–12 (amended 1985), 14 U.L.A. 537–659 (2005) (creating a private civil cause of action for an alleged trade secret misappropriation); Trade Secrets Act, 765 ILL. COMP. STAT. 1065/1-9 (2009) (same).

trade. Consequently, a good portion of this Article will be devoted to understanding the movement of ideas and people in terms of international trade theory. In some ways, the reliance on international trade should not be surprising.³⁹ The European Community and European Union case law on intellectual property contains a sizeable body of disputes regarding parallel importation, an area that brings the movement of ideas in conflict with the movement of goods.⁴⁰ In these cases, especially those involving pharmaceuticals, the commitment to the free movement of goods within Europe trumped intellectual property rights.⁴¹ Within the United States, the tension between intellectual property rights and the free movement of goods has played itself out largely within the area of the first sale doctrine rather than through norms of international trade.⁴² The Economic Espionage Act, however, does pose the question of whether a commitment to intellectual property rights should trump any commitment to the free movement of people across borders. In practice, intellectual property rights do trump through the application of the Act.⁴³ This Article answers the question of whether they should.

My analysis of this normative question begins with a reconsideration of the Saxenian-Hyde-Gilson arguments about regional markets in the broader context of international trade. There are many reasons why the arguments about innovation and labor movements do not carry over to the movement of people across national borders.⁴⁴ Concerns over the negative externalities of national security and classified information as well as the scale effects of national, as opposed to regional markets, I argue, may minimize the concerns that scholars have demonstrated over restrictions on labor mobility in regional markets. Although these counter arguments are important, I place them in the perspective offered from the theory of international trade⁴⁵ to conclude that other compelling arguments weigh in favor of a cautious enforcement of the Economic Espionage Act. Specifically, both the traditional theory of international trade, with its support for free trade, and more contemporary theories that focus on returns to scale and knowledge spillovers support this cautious

³⁹ See generally North American Free Trade Agreement, U.S.-Can.-Mex., Dec. 17, 1992, 32 I.L.M. 289 (creating a free trade bloc between the United States, Canada, and Mexico as of Jan. 1, 1994).

⁴⁰ See Lawrence W. Gormley, *Silver Threads Among the Gold . . . 50 Years of the Free Movement of Goods*, 31 *FORDHAM INT'L L.J.* 1637, 1687–90 (2008) (discussing free movement of goods principle in European Union).

⁴¹ See Case C-267/95, *Merck & Co. v. Primecrown Ltd.*, 1996 E.C.R. I-6285 (allowing imports of patented pharmaceuticals under European exhaustion of patent rights principle consistent with free movement of goods); Case C-9/93, *IHT Internationale Heiztechnik GmbH v. Ideal Standard GmbH*, 1994 E.C.R. I-2789 (adopting exhaustion principle for importation of trademarked product); see also, Case C-355/96, *Silhouette Int'l Schmied GmbH & Co. KG v. Hartlauer Handelsgesellschaft mbH*, 1998 ECR I-4799 (applying European exhaustion principle to prevent importation of trademarked goods from outside European Union).

⁴² See, e.g., *Quality Kings Distribs., Inc. v. L'anza Research Int'l, Inc.*, 523 U.S. 135, 140–44 (1998) (permitting importation of copyrighted works under first sale doctrine).

⁴³ See 18 U.S.C. §§ 1831–39 (2006).

⁴⁴ See, e.g., HYDE, *WORKING IN SILICON VALLEY*, supra note 17, at 125–26.

⁴⁵ See AVINASH K. DIXIT & VICTOR NORMAN, *THEORY OF INTERNATIONAL TRADE* 146–49 (1980) (presenting economic analysis of effects of labor migration on international trade); PAUL KRUGMAN, *GEOGRAPHY AND TRADE* 72–83 (1991) (presenting economic model of regional development in the context of global trade using theory of returns to scale and externalities).

approach.⁴⁶ I conclude that the concerns that underlie support for the Economic Espionage Act can best be balanced with the norms of international trade through a combination of more targeted enforcement of the Act and a broader application of extraterritorial application of both the Patent Act and trade secret law. In short, intellectual property law should not be used as a vehicle for immigration policy and should be more narrow and purposive in application.

The structure of this Article is as follows. Section I, which follows, presents the arguments for and against restrictions on labor mobility from within the Saxenian-Hyde-Gilson perspective as supplemented by economic theories of international trade. Section II assesses the Economic Espionage Act in light of this augmented theory. Section III presents policy recommendations for rethinking the Economic Espionage Act and for reforming collateral areas of intellectual property law, specifically the law of patents and trade secrets. This article concludes by demonstrating how my arguments in this Article point to a general theory of intellectual property and international trade.

I. HIGH VELOCITY LABOR MARKETS IN A GLOBAL CONTEXT

There is a rich scholarly literature on the movement of information as embodied in the movement of people.⁴⁷ Economic geographer AnnaLee Saxenian's ethnographic study of high technology labor markets in California and Massachusetts laid the foundation for the work of legal scholars like Alan Hyde and Ronald Gilson to build the legal and market analysis of how labor mobility affects technological innovation.⁴⁸ This body of scholarship demonstrates how the movement of people influences the movement of information which fuels the diffusion of knowledge.⁴⁹

While this scholarly literature is well-known, little attention has been paid to the international or global context within which these high technology labor markets operate. Although both Professors Saxenian and Hyde have turned to the role of international migration in supplying high technology labor markets in the United States, the policy conclusion largely focus on regional migration.⁵⁰ This focus is reflected in the policy implications gleaned from the studies to assess trade secret and employment law, the provenance of state and local, rather than national, governments.⁵¹ Assessing the Economic Espionage Act and related international

⁴⁶ See DIXIT & NORMAN, *supra* note 45, at 146–49.

⁴⁷ See generally SAXENIAN, THE NEW ARGONAUTS, *supra* note 18 (discussing the worldwide growth of the high-technology industries based on the movement of labor into and out of Silicon Valley); HYDE, WORKING IN SILICON VALLEY, *supra* note 17 (detailing Silicon Valley's movement of labor).

⁴⁸ See generally SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15 (comparing and contrasting the legal and economic differences between Silicon Valley and Route 128).

⁴⁹ See, e.g., *id.* at 29–57 (analyzing Silicon Valley's movement of labor).

⁵⁰ See *id.* at 162–68; HYDE, WORKING IN SILICON VALLEY, *supra* note 17, at 125–39.

⁵¹ See generally Chris Carr et al., *The Economic Espionage Act: Bear Trap or Mousetrap?*, 8 TEX. INTELL. PROP. L.J. 159 (2000) (discussing trade secret misappropriation across national borders).

intellectual property policies requires exploring the intersection of the existing literature on high velocity labor markets and international trade.

This intersection is the focus of this section, which begins first with a survey of the existing theory and an identification of the problems of extending the existing work of Professors Saxenian, Hyde, and Gilson to the realm of international trade. I address these problems by a careful consideration of international trade theory and its implications for high velocity labor markets. This analysis provides a foundation for addressing the implications of the international movement of people for the international movement of information. How intellectual property and the cross-border movement of labor and ideas intersect is the key contribution of this section and is critical for the assessment of the Economic Espionage Act.

A. Existing Theory

The importance of labor mobility to innovation and growth in high technology sectors has been documented by Professors Saxenian, Hyde, and Gilson.⁵² Scholars have built on their insights to develop a deeper understanding of intellectual property protection within a firm and between firms.⁵³ Owners of intellectual property can enjoin the use of protected information and knowledge by existing employees as well as competitors outside the boundaries of the firm.⁵⁴ The scope of intellectual property rules then determines the extent of competition arising from other firms as well as from current employees and agents of an existing firm.⁵⁵ Inter-firm and intra-firm competition, in turn, drive innovation and growth through processes of creative destruction and cumulative innovation.⁵⁶ In this section, I summarize the conventional wisdom in order to develop the argument, in the following section, that the conventional wisdom may not apply to trade across national borders. I ultimately reject the arguments against the conventional wisdom and show how it can be modified to address the phenomenon of high velocity labor markets in international trade.

Professor Saxenian set the terms for our understanding of high technology labor markets in her comparative study of Silicon Valley and Route 128.⁵⁷ Both labor markets functioned in the booming software industry, but Professor Saxenian noted

⁵² See generally SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15 (comparing and contrasting the differences between Silicon Valley and the Route 128 Corridor in Massachusetts); Gilson, *supra* note 15 (comparing the laws applicable to Silicon Valley with those applicable to the Route 128 Corridor); Hyde, *The Wealth of Shared Information*, *supra* note 15 (analyzing Silicon Valley's work force mobility and laws affecting that mobility).

⁵³ See Burk & McDonell, *supra* note 5, at 592 (offering an analysis of within firm and across firm competition and intellectual property rights); Shubha Ghosh, *Decoding and Recoding Natural Monopoly, Deregulation, and Intellectual Property*, 2008 U. ILL. L. REV. 1125, 1172–78 (2008) (offering a broader discussion of competition, intellectual property rights, and innovation, and analyzing the role of competitive pressures on innovation and structure of intellectual property doctrine).

⁵⁴ See, e.g., *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 473–74, 493 (1974).

⁵⁵ See Gilson, *supra* note 15, at 595–613.

⁵⁶ See SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 44.

⁵⁷ See generally *id.* (discussing the differences between Silicon Valley and the Route 128 Corridor in Massachusetts).

that the California market was notably more dynamic with greater turnover in workforce and a larger number of start-ups than the East Coast counterpart.⁵⁸ Appropriately, since her perspective was that of a cultural anthropologist, the main explanation offered for the difference was a cultural one.⁵⁹ The West Coast labor market was defined by greater freedom and sense of innovation while the East Coast one was more conventional, tied to traditional corporate business models.⁶⁰ Professor Saxenian's early work set the tone for much of the subsequent scholarship pursued by legal scholars Alan Hyde and Ronald Gilson.⁶¹

Particularly noticeable is the focus on regional markets. Professor Saxenian treated Silicon Valley and Route 128 as two self-contained ecosystems, each defined by unique cultural norms and history.⁶² No attention was paid to movements into or out of the two ecosystems, across either regional or national borders.⁶³ Instead, the two ecosystems were painted as largely self-contained with differences in economic outcomes resulting from differences in the values based on innovation, the mentality of start-ups, and the dead-hand of tradition.⁶⁴ In recent work, Professor Saxenian has expanded her focus by incorporating international immigration into her analysis.⁶⁵ High skilled workers, who have been granted permission to enter the United States on H1-B visas, fuel much of the growth in Silicon Valley.⁶⁶ These "global Argonauts," as Professor Saxenian dubs them,⁶⁷ fill a skill gap in the labor market, and the high velocity, short-term nature of the employment is defined by the terms of the entry visa.⁶⁸ These international workers arrive, Professor Saxenian argues, in response to cultural and economic pressures from the source country.⁶⁹ The short-term economic gains motivate the labor movement, and the skills they bring as well as the limited cultural commitments to the host country serve the needs of start-ups and other smaller firms that thrive in the dynamic ecosystem of Silicon Valley.⁷⁰ International migration of labor fits into the cultural story that Professor

⁵⁸ *Id.* at 30–35, 59–69 (describing the work cultures of Silicon Valley and Route 128, respectively).

⁵⁹ *Id.* at 161–63 (reflecting on cultural differences between Silicon Valley and Route 128).

⁶⁰ *Id.* at 2–3.

⁶¹ See generally HYDE, WORKING IN SILICON VALLEY, *supra* note 17 (analyzing Silicon Valley's work force mobility); Gilson, *supra* note 15 (analyzing Silicon Valley's work force mobility and laws affecting that mobility).

⁶² See SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 29–82.

⁶³ *Id.*

⁶⁴ *Id.* at 2–4.

⁶⁵ See generally SAXENIAN, THE NEW ARGONAUTS, *supra* note 18 (analyzing the immigration and emigration patterns of multiple peoples into the United States as related to employment in high technology fields).

⁶⁶ See *id.* at 50–54 (detailing the increasing numbers and economic power of immigrants working in Silicon Valley).

⁶⁷ *Id.* at 11.

⁶⁸ See Bruce A. Lehman, *Intellectual Property Rights as a Trade, Health and Economic Development Issue*, 17 ST. JOHN'S J. LEGAL COMMENT. 417, 424 (2003) (discussing the enormous impact of immigrants on Silicon Valley's growth, and the H1-B visa's role in allowing companies to meet their labor shortages).

⁶⁹ See SAXENIAN, THE NEW ARGONAUTS, *supra* note 18, at 50–52 (detailing the numbers of immigrants who came to study in the United States following World War II, and the job opportunities that awaited them).

⁷⁰ See *id.* at 48–50.

Saxenian tells.⁷¹ These new workers thrive on existing ecosystems without upsetting them.⁷²

Professor Alan Hyde draws on the same data as Professor Saxenian but uses the study of high technology labor markets to better understand the economics of the employment relationship.⁷³ Professor Hyde sees the dynamics of Silicon Valley as a challenge to the traditional human capital explanation of employment, which sees labor markets as a way of acquiring and developing skills that are a critical input to the production of goods and services.⁷⁴ According to human capital theory, a worker spends the early part of his career acquiring skills through education.⁷⁵ Once the general skills are acquired through education, more firm specific skills are acquired through employment in a firm.⁷⁶ The life cycle of the worker entails the worker earning less than one's marginal product during the training phase in order to offset training costs.⁷⁷ After training, however, the worker's wages are above productivity so that the worker can recoup the investment in training.⁷⁸ Human capital theory would predict that labor relationships are stable and long term and arise from a joint investment in training between the employee and the firm.⁷⁹

As Professor Hyde emphasizes, the reality of high velocity labor markets in the technology sectors belies the prediction of human capital theory.⁸⁰ In Silicon Valley, employees often leapfrog from firm to firm and even more frequently leave existing employers to form their own start-up.⁸¹ Knowledge flows with employees and often former employers can do little to enjoin exiting employees or share in the fruits of their success.⁸² What is particularly vexing for human capital theory is that this type of mobility, which seemingly contradicts the incentive structure for long term investment and the stability of the firm, supports innovation and growth.⁸³ Professor Hyde uses this challenge to conventional wisdom to rethink economic analyses of employment relationships.⁸⁴ The solution to the puzzle rests on recognizing that the employment relationship entails not only the inculcation of skills through training but also the creation and propagation of knowledge.⁸⁵ Labor markets are markets not only for people, who embody human capital or expend physical effort to perform tasks, but also tacit markets for information.⁸⁶ The efficient propagation of

⁷¹ See *id.* at 82–121 (detailing the flow of immigrants back to their home countries, using Israel as a model, that created technology centers in their home countries with strong connections to Silicon Valley).

⁷² See *id.* at 50 (describing how Chinese and Indian entrepreneurs have integrated into the “mainstream technology economy” while maintaining their cultural identity).

⁷³ See HYDE, WORKING IN SILICON VALLEY, *supra* note 17, at 71–89.

⁷⁴ See *id.* at 83–87.

⁷⁵ See Stewart J. Schwab, *Life-Cycle Justice: Accommodating Just Cause and Employment at Will*, 92 MICH. L. REV. 8, 13 n.18 (1993).

⁷⁶ See *id.* at 13–15.

⁷⁷ See *id.*

⁷⁸ See *id.*

⁷⁹ See *id.*

⁸⁰ See HYDE, WORKING IN SILICON VALLEY, *supra* note 17, at 85.

⁸¹ See *id.* at 29–30.

⁸² See *id.* at 29–33 (discussing how California does not enforce non-compete covenants).

⁸³ See *id.* at 15–16, 85–87.

⁸⁴ See *id.* at 71–89.

⁸⁵ See *id.* at 29–30, 44, 86.

⁸⁶ See *id.* at 69.

information may not occur simply through stable, long term investments between the employer and employee.⁸⁷ Instead, employees may see the value of information that becomes developed in different forms of technical knowledge and know-how and proceed to take the information outside existing firms and into new entities and opportunities.⁸⁸ The Silicon Valley model has structured employment relationships in order to unleash this market for information.⁸⁹

While Professor Saxenian adopts a cultural explanation for high technology labor markets, Professor Hyde develops a market-based explanation, grounded in economic theory.⁹⁰ Although the two authors differ in methodology, the two authors share a regional focus.⁹¹ Professor Hyde's early work portrayed Silicon Valley as a self-contained ecosystem driven by the economic logic of information and employment markets.⁹² More recent work examines the phenomena of H1-B visa workers and places regional markets in the broader context of international migration.⁹³ Professor Hyde concludes that economic theories of international migration that rest on wage differential or labor shortages cannot account for the phenomenon of high skilled, short term immigrant labor.⁹⁴ As he points out, much of the benefit of the H1-B visa program can be realized through outsourcing and through filling the skill gap by hiring domestic labor.⁹⁵ Furthermore, if the H1-B visa program is viewed as a form of political rent seeking, it is not clear whether it is the immigrants or the firms that are seeking the rents.⁹⁶ The problem, as Professor Hyde states, is the difficulty in determining the appropriate baseline against which to measure the correct level of immigration.⁹⁷ The deeper problem, in my opinion, is that the theory of high technology labor markets has largely focused on regional markets rather than global markets. Both Professor Saxenian and Professor Hyde present a comparative analysis of contrasting economic and legal environments.⁹⁸ But this comparative analysis does not readily translate to an understanding of markets that are globally integrated through the movement of people and information. This limitation makes it difficult to use their analysis to assess the Economic Espionage Act and its implications for the international migration of people and the cross-border flow of information.

Professor Gilson extends the work of Professor Hyde to the evaluation of legal rules and institutions.⁹⁹ Specifically, Professor Gilson builds on Professor Hyde's

⁸⁷ See *id.* at 83–85.

⁸⁸ See *id.* at 29.

⁸⁹ See *id.* at 29–32.

⁹⁰ Compare SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 2 (focusing on the cultural evolution of Silicon Valley and route 128), with HYDE, WORKING IN SILICON VALLEY, *supra* note 17, at xii, 41–70 (developing an economics theory of employment).

⁹¹ See generally HYDE, WORKING IN SILICON VALLEY, *supra* note 17 (focusing on Silicon Valley); SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15 (focusing on Silicon Valley and the Route 128 Corridor).

⁹² See Hyde, *The Wealth of Shared Information*, *supra* note 15.

⁹³ See HYDE, WORKING IN SILICON VALLEY, *supra* note 17, at 128–39.

⁹⁴ See *id.* at 134–38.

⁹⁵ See *id.* at 136–38.

⁹⁶ *Id.* at 135.

⁹⁷ *Id.*

⁹⁸ See *id.* at 49–53; SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 29–82.

⁹⁹ See Gilson, *supra* note 15, at 577.

description of high velocity labor markets as markets for information to analyze the property rights over knowledge that is generated through employment relationships.¹⁰⁰ If the market for labor is a market for information, then there is a spillover that is created when knowledge is created.¹⁰¹ Enjoining an employee from leaving a firm to use the knowledge created through the prior relationship limits the spillover effect.¹⁰² Therefore, the prohibition under California law against enforcing covenants not to compete¹⁰³ lends flexibility to the labor market and promotes the realization of spillovers from the creation of new firms.¹⁰⁴ At the same time, the protection of trade secrets both across and within firms allows a firm to develop firm-specific knowledge that is proprietary in its benefits.¹⁰⁵ As a result, the California legal regime allows the market for information to function efficiently in both the creation and dissemination of knowledge.¹⁰⁶

While Professor Gilson's analysis is more legalistic in understanding the appropriate regime of property rights over information than either Professor Saxenian or Hyde, his explanation is regional in its implications.¹⁰⁷ The emphasis is on state employment rules that allow the realization of externalities within regional markets.¹⁰⁸ An obvious question is to what extent are these arguments applicable nationally and globally. California's legal regime governing employments and trade secrets favors the mobility of workers and of spillover-inducing information, but limitations on the movement of firm-specific knowledge. Generalizing the argument to the global level: the movement of workers across borders is desirable to the extent that it induces cross-border spillovers but suspect if it misappropriates firm specific knowledge.¹⁰⁹ If it is sensible to make this generalization, then the Economic Espionage Act is a sensible piece of legislation to the extent it balances this twin movement of people and of information.¹¹⁰ There are reasons, however, to question this generalization.¹¹¹ In the next two sections, I first examine the problems of making the generalization and second explain how the theory of international trade can help to understand how to build on existing theories of high velocity labor markets to understand the international movement of people and information.

¹⁰⁰ *Id.* at 595.

¹⁰¹ *Id.*

¹⁰² *Id.* at 596–97.

¹⁰³ *See* *Edwards v. Arthur Andersen LLP*, 189 P.3d 285, 297 (Cal. 2008) (finding noncompetition agreement between defunct accounting firm and former employee invalid).

¹⁰⁴ *See* Gilson, *supra* note 15, at 607–09.

¹⁰⁵ *See id.* at 597.

¹⁰⁶ *See id.* at 608–09.

¹⁰⁷ *See id.* at 620.

¹⁰⁸ *See id.* at 579.

¹⁰⁹ *See* Norman D. Bishara, *Covenants Not To Compete in a Knowledge Economy: Balancing Innovation from Employee Mobility Against Legal Protection for Human Capital Investment*, 27 BERKELEY J. EMP. & LAB. L. 287, 295 (2006) (discussing the economic impact of the immigration of human capital to the United States).

¹¹⁰ *See* Carr, *supra* note 53, at 209 (“[T]he EEA has nevertheless filled a significant gap in the protection of trade secrets and has been an important and positive step forward in the battle against trade secret theft.”).

¹¹¹ *See, e.g.*, James H.A. Pooley et al., *Understanding the Economic Espionage Act of 1996*, 5 TEX. INTELL. PROP. L.J. 177, 197 (1997) (questioning the effect of the Economic Espionage Act on arguably legal forms of reverse engineering).

B. Why Existing Theory May Not Apply to International Labor Mobility

Arguments for easing labor mobility among high technology firms in sectors like Silicon Valley and Route 128 do not extend to ease of mobility across international borders. There are three salient distinctions: (1) issues of national security, (2) the existence of scale economies, and (3) the normative foundation of intellectual property law in the welfare of the nation-state rather than the global economy. In this section, I present each of these objections in order to address them and to lay a foundation for the discussion of international trade theory in the following subsection. International trade theory, with its own variants, will provide a coherent framework within which to make the case for the free movement of people within a system of international intellectual property.

1. National Security

Restrictions on the movement of people internationally have often, especially in the contemporary global climate, been justified on grounds of national security. The argument, stated broadly, is that individuals who may pose a danger to the security of people and the state must be identified as they cross national borders.¹¹² This argument supports close scrutiny at the border and in the granting of permission for entry into a country.¹¹³ Restrictions on the movements of people and of information are closely linked under this broad umbrella of national security.¹¹⁴ Individuals can pose a danger to the nation and its peoples by either bringing in weapons and plans for mass destruction or by taking out information that may be instrumental for the execution of such plans.¹¹⁵ Consequently, curtailments of the movement of people and information, especially when information is embodied in people, are necessary for the protection of the state.¹¹⁶

National security concerns cast some doubt whether the arguments in favor of high velocity labor markets in certain select regions generalize to the global market for labor.¹¹⁷ If one accepts that cross-border movement of labor poses potential national security concerns, then one would tolerate legal restrictions on the movement of labor, whether in the form of contractual restrictions or from statutory

¹¹² See Kevin Johnson & Bernard Trujillo, *Immigration Reform, National Security After September 11, and the Future of North American Integration*, 91 MINN. L. REV. 1369, 1377–80 (2007) (presenting national security based arguments defending restrictions on the movement of people); see also Donald Kerwin & Margaret D. Stock, *The Role of Immigration in a Coordinated National Security Policy*, 21 GEO. IMMIGR. L.J. 383, 389 (2007) (outlining immigration law and policy that incorporates national security concerns).

¹¹³ See Kerwin & Stock, *supra* note 112, at 401 (suggesting national identification numbers with biometric identifiers for all U.S. citizens as one option).

¹¹⁴ See generally *id.* (discussing immigration as a national security issue).

¹¹⁵ See Johnson & Trujillo, *supra* note 112, at 1395–96 (indicating that undocumented “invisible” immigrants pose a special threat to national security).

¹¹⁶ See *id.*

¹¹⁷ Compare SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 325–26 (stating the advantages of open employment and failing to mention any security concerns), with Johnson & Trujillo, *supra* note 112, at 1395–96 (indicating that undocumented “invisible” immigrants pose a special threat to national security).

restrictions, such as from trade secret or other forms of regulation.¹¹⁸ These concerns are reconcilable with each of the rationales in favor of high velocity labor markets presented by Professors Saxenian, Hyde, and Gilson, respectively.¹¹⁹ According to Professor Saxenian, high velocity labor markets reflect a market of openness and freedom of movement.¹²⁰ However, national security threats cast a shadow on this open culture as bad actors may readily mix with benevolent ones.¹²¹ Professor Hyde's economic justification for high velocity labor markets rests on the ability of mobile labor to disseminate know-how throughout an industry.¹²² National security arguments imply that this know-how may be placed to destructive as well as constructive ends, and therefore restrictions on labor mobility may be necessary to sort out the good uses of know-how from the bad.¹²³ Finally, Professor Gilson supports high velocity labor markets because of the presence of spill-overs across firms that permit cross-fertilization, which spurs innovation.¹²⁴ But the national security concerns suggest that knowledge spill-overs can be destructive as well as constructive and therefore limitations on labor mobility may be necessary to ensure that only positive spillovers result from labor mobility.¹²⁵

While national security concerns can readily be accommodated into the traditional arguments in favor of high velocity labor markets, these concerns may prove too much.¹²⁶ There is no reason, first of all, why these concerns are limited to cross-border movements of labor.¹²⁷ Not only can terrorists be home-grown, but the know-how garnered from an employment relationship can also be fashioned for domestic criminal activities.¹²⁸ Computer programming skills can translate into

¹¹⁸ See Kerwin & Stock, *supra* note 112, at 423–25.

¹¹⁹ See generally HYDE, WORKING IN SILICON VALLEY, *supra* note 17 (analyzing “high-velocity labor markets” and their advantages); SAXENIAN, THE NEW ARGONAUTS, *supra* note 18 (indicating that work force mobility has aided the rapid growth of many worldwide regional economies); Gilson, *supra* note 15 (comparing and contrasting Silicon Valley and the Route 128 Corridor).

¹²⁰ See SAXENIAN SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 29–57 (describing the growth of Silicon Valley).

¹²¹ See Johnson & Trujillo, *supra* note 112, at 1396–98 (indicating that conservative pundits in 2005 were calling for the complete closing of the United States border to protect against the threat of terrorism).

¹²² See Hyde, *The Wealth of Shared Information*, *supra* note 15 (discussing the paradoxes involved in knowledge sharing while promoting the practice).

¹²³ See, e.g., Andrew P. Morriss, *The Public-Private Security Partnership: Counterterrorism Considerations for Employers in a Post-9/11 World*, 2 HASTINGS BUS. L.J. 427, 427–28 (2006) (indicating that the public and private sector must work together to prevent terrorism).

¹²⁴ Gilson, *supra* note 15, at 585–86.

¹²⁵ See Morriss, *supra* note 123, at 430 (suggesting that immigration policy changes in the 2000's will cause strain in the private sector).

¹²⁶ See generally Michael A. Olivas, *The War on Terrorism Touches the Ivory Tower—Colleges and Universities After 9/11: An Introduction*, 30 J.C. & U.L. 233 (2004) (summarizing national security arguments restricting movement of people and of information in academia).

¹²⁷ See Jo Thomas, *McVeigh Found Guilty of Terrorism*, N.Y. TIMES, June 8, 1997, § 4, at 42.

¹²⁸ See JOSEPH LIEBERMAN & SUSAN COLLINS, U.S. SENATE COMM. ON HOMELAND SEC. & GOVERNMENTAL AFFAIRS, VIOLENT ISLAMIST EXTREMISM, THE INTERNET, AND THE HOMEGROWN TERRORIST THREAT 2–3 (2008), available at http://hsgac.senate.gov/public/_files/IslamistReport.pdf (discussing the growing threat of homegrown terrorism).

hacking.¹²⁹ Knowledge acquired in a high technology firm can be targeted towards electronic theft or to identity theft.¹³⁰ If limitations on labor are necessary to prevent movement of the nefarious across national borders, then similar justifications would support restrictions across state or regional lines.¹³¹ Stated more broadly, the national security arguments simply identify the bad ends to which information can be put when placed in the wrong hands.¹³² Certainly labor mobility can facilitate such bad uses, but criminal law more narrowly targeting national security breaches, rather than labor restrictions, may be the more appropriate response both at the national and at regional levels.

The problem with criminal laws that target harmful uses of information is that they unavoidably impede the movement of labor.¹³³ Since the harmful uses of information are embodied in persons, attempts to target the harmful uses of information will affect how readily labor is willing to move.¹³⁴ Spot checks on the work habits of employees or extensive background checks, to take two examples, raise the costs of the employment relationship and harm the ease with which workers can move across firms as well as their productivity and loyalty within the firm.¹³⁵ Once security concerns are recognized, then the path to paranoia has been blazed, and legal regimes need to be carefully constructed in order to capture the allegedly bad actors without tainting more productive relationships that are based on trust and a sense of loyalty to the team.¹³⁶ In the vision of the world painted by Professors Saxenian, Hyde, and Gilson, employers and employees understand the rules of the game that support the ease of labor mobility.¹³⁷ The start-up culture reflects, ideally, the trust in a system of mobile people and mobile ideas that support growth and industrial development.

¹²⁹ See, e.g., Sean B. Hoar, *Identity Theft: The Crime of the New Millennium*, 80 OR. L. REV. 1423, 1440 (2001) (giving tips to prevent hackers from obtaining personal information off one's computer via the internet).

¹³⁰ See, e.g., *id.* at 1426 (describing various ways identify theft occurs, both through high and low tech means).

¹³¹ See Thomas, *supra* note 127.

¹³² See, e.g., Elisa D. Harris, *The Killers in the Lab*, N.Y. TIMES, Aug. 12, 2008, at A21 (discussing how the buildup of research after the 2001 anthrax scare may actually be causing more problems than it has solved).

¹³³ See Moohr, *supra* note 20, at 909–10 (discussing how the Economic Espionage Act may restrain employee mobility).

¹³⁴ *But see* Hyde, *The Wealth of Shared Information*, *supra* note 15 (follow “Legal Impediments to Endogenous Growth” hyperlink) (discussing how non-compete covenants and trade secrets law have hindered employee mobility).

¹³⁵ See Robert Rector, *Reducing Illegal Immigration Through Employment Verification, Enforcement and Protection*, HERITAGE FOUND., Oct. 7, 2008, <http://www.heritage.org/research/immigration/bg2192.cfm> (noting that if every employer used E-Verify, an available background check program available through the Department of Homeland Security, the cost to employers would be upwards of \$600 million per year).

¹³⁶ See, e.g., Harris, *supra* note 132 (indicating that the community working on anthrax had grown to 7,200 by Aug. 12, 2008, and that the community is now too large for everyone to know each other).

¹³⁷ See, e.g., SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 34 (mentioning the social acceptability of mobility among Silicon Valley engineers); Gilson *supra* note 15 (discussing Silicon Valley firms' ability to “prevent knowledge spillovers through employee mobility.”); Hyde, *The Wealth of Shared Information*, *supra* note 15 (analyzing Silicon Valley's work force mobility and laws affecting that mobility).

In theory, it is possible through legal institutions to create a wall of separation between the culture of high velocity labor markets and the fears of national security threats. Copyright and patent laws recognize this separation in its goal of promoting progress in science and the useful arts. Each body of laws creates a system of property rights that protect works that meet some minimal standard of creativity and invention that supports the promotion of progress.¹³⁸ However, neither copyright nor patent scrutinizes closely the effect a legally protected work has on the promotion of progress. Copyright protects a book that may be full of lies and falsehoods, as long as the book is original and fixed in a tangible medium.¹³⁹ In truth, copyright may offer more legal protection for a book of lies than a book of facts even though the former may detract from progress.¹⁴⁰ Similarly, patent law protects an invention that may harm the environment or persons as long as the invention is patentable subject matter, useful, novel, non-obvious, and enabled.¹⁴¹ In each case, the problematic work can be cured either through the marketplace of ideas and products or, more realistically, through independent laws that protect against defamation or combat harms to safety, health, and welfare.¹⁴² Copyright and patent law, if designed effectively, ensure that new works and inventions can be created and possibly be brought to the public for use and scrutiny.¹⁴³

Similarly, separate rules and legal regimes can ensure the benefits of high velocity labor markets and the policing of the harmful use by persons of useful information. The danger is blurring the separate aims and means of these two bodies of law. As I argue below, the Economic Espionage Act in practice does pose the danger of blurring these two different areas of law with the result of limiting the beneficial movement of people and information. Policing the movement of people and information poses a challenge that does not exist for copyright and patent. In the latter two areas of intellectual property, the law can permit the work or invention to

¹³⁸ 17 U.S.C. § 102 (2006); 35 U.S.C. § 101–03 (2006).

¹³⁹ 17 U.S.C. § 102(a); *see, e.g.*, *Belcher v. Tarbox*, 486 F.2d 1087, 1088 (9th Cir. 1973) (“There is nothing in the Copyright Act to suggest that the courts are to pass upon the truth or falsity, the soundness or unsoundness, of the views embodied in a copyrighted work.”).

¹⁴⁰ *See Fesit Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344–45 (1991) (“That there can be no valid copyright in facts is universally understood.”). *Compare Belcher*, 486 F.2d at 1088 (granting copyright protection to a work consisting of fraudulent misrepresentations), *with Hoehling v. Universal City Studios, Inc.*, 618 F.2d 972 (2d Cir. 1980) (finding plaintiffs’ historical interpretation of the Hindenburg tragedy not copyrightable).

¹⁴¹ *See, e.g.*, *Juicy Whip, Inc. v. Orange Bang, Inc.*, 185 F.3d 1364, 1367 (Fed. Cir. 1999) (holding a patent for a juice mixer with display reservoir valid despite the misrepresentation that the juice received was dispensed from the reservoir). *But see* Margo A. Bagley, *Patent First, Ask Questions Later: Morality and Biotechnology in Patent Law*, 45 WM. & MARY L. REV. 469, 479–80 (2003) (arguing for limitations on patents for inventions that may pose moral or ethical dilemmas).

¹⁴² *E.g.* David L. Ulin, *Why Pay Millions for ‘A Million’s’ Lies?*, L.A. TIMES, Sept. 10, 2006, at 5 (discussing facts surrounding the \$2.35 million settlement, paid out in refunds to consumers, between author and publisher after journalists exposed author’s “memoir” as falsified); *University Gives Up Patent on Sick Dogs*, WALL ST. J., May 28, 2004, at B7 (reporting that University of Texas gave up patent covering dogs made ill with radiation amid protests and pending patent reexamination).

¹⁴³ *See generally* Michael L. Goldman & Alice Y. Choi, *The New Optional Inter Partes Reexamination Procedure and Its Strategic Use*, 28 AIPLA Q.J. 307 (discussing the benefits and strategies of reexamination options for patents).

be created while restricting their uses.¹⁴⁴ As a practical matter, the use of information will always be embodied in persons and therefore policing criminal uses of information will have some effect on the movement of persons. As I suggest below, the law must be carefully crafted and applied so as not to interfere with the benefits of high velocity labor markets.

In short, while national security arguments need to be considered in assessing the ease of mobility of persons and information, they do not counter the benefits of high velocity labor markets and do not by themselves prevent the generalization of the traditional arguments to the international movement of labor.

2. *Economies of Scale*

The concept of economies of scale refers to the benefits that are gained by operating a firm at an increased level of production.¹⁴⁵ A manufacturing plant, for example, may be able to produce on average a million units of a product more cheaply than a thousand.¹⁴⁶ A university may benefit, to a point, from having a large faculty and student body rather than a small one.¹⁴⁷ The extent of economies of scale depend on a number of factors such as the technology, the size of the marketplace for the product or service being produced, geographic factors like the costs of transportation, and the ease with which information and knowledge can be communicated.¹⁴⁸ Arguments from Professors Saxenian, Hyde, and Gilson rest in many ways on regional or local economies and therefore do not generalize to national markets.¹⁴⁹

Professor Saxenian's cultural arguments rest on the specific attitudes to openness and mobility that characterize high technology labor markets.¹⁵⁰ She does suggest in recent work that such attitudes also inform the international migration of workers, especially from India.¹⁵¹ Economic factors may militate against extending the cultural analysis to global labor markets.¹⁵² Professor Hyde's defense of high velocity labor markets and the free movement of persons rests on the movement of

¹⁴⁴ See, e.g., 17 U.S.C. § 106A (identifying the scope and rights attributed to a copyrighted work); 35 U.S.C. § 271 (defining a negative right conferred by patent law).

¹⁴⁵ See ALFRED D. CHANDLER, JR., *SCALE AND SCOPE: THE DYNAMICS OF INDUSTRIAL CAPITALISM* 17 (1990) ("Economies of scale may be defined initially as those that result when the increased size of a single operating unit producing or distributing [a higher volume of] a single product reduces the unit cost of production or distribution.").

¹⁴⁶ See *id.* at 21–28 (explaining the changing supply/demand relationships in different industries as improvements in technology make processes and production more efficient).

¹⁴⁷ See U.S. NEWS & WORLD REPORT, *AMERICA'S BEST COLLEGES, 2010 EDITION* 83–124 (Peter Meredith ed. 2009) (ranking America's best colleges and universities, partially based on faculty and student body size).

¹⁴⁸ See CHANDLER, *supra* note 145, at 21–28 (detailing factors that lead to economies of scale).

¹⁴⁹ See *generally* HYDE, *WORKING IN SILICON VALLEY*, *supra* note 17 (chronicling the development of Silicon Valley); SAXENIAN, *REGIONAL ADVANTAGE*, *supra* note 15 (comparing the culture and completion in Silicon Valley with the Route 128 area); Gilson, *supra* note 15 (analyzing the application of non-compete clauses in Silicon Valley and the Route 118 area).

¹⁵⁰ SAXENIAN, *REGIONAL ADVANTAGE*, *supra* note 15, at 133 (describing the way that pioneer companies in Silicon Valley formalized the process of collective learning and the way that companies in the Route 128 area struggled to embrace a more dynamic labor market).

¹⁵¹ SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 307–14.

¹⁵² DIXIT & NORMAN, *supra* note 45, at 146–49.

information between firms within an industry that supports the free mobility of labor.¹⁵³ Professor Gilson focuses on the spillovers that are created by the movement of information and labor that facilitates innovation and the creation of new ideas.¹⁵⁴ However, these positive benefits of mobility are largely local.¹⁵⁵ It is not clear that these benefits would be realized at the national level as labor moves across national borders.¹⁵⁶ For example, if the positive benefits that Professors Hyde and Gilson identify do extend to national markets, why do we not notice more migration between regions like Silicon Valley and Route 128? The costs of movement could be one explanation. Workers and firms in the Route 128 region may not be able to uproot easily to take advantage of the benefits in Silicon Valley.¹⁵⁷ While costs are certainly an important explanation for the lack of mobility across these regions, a lack of within country mobility may indicate the localized nature of the benefits from high velocity labor markets.¹⁵⁸

Scale effects at the national level would also outweigh the spillover benefits that arise from the free flow of information across firms.¹⁵⁹ Professor Gilson recognizes that the mobility of labor within Silicon Valley creates a start-up culture that supports an industry based on many small firms, each developing technologies that may make it big.¹⁶⁰ Some companies, like Genentech or Cisco, do expand to take advantage of the economies of scale.¹⁶¹ But high velocity labor markets create a regional industrial structure that consists of many small firms with some winners that are able to recognize scale economies and take all.¹⁶² This industrial structure may not work at the national level where a national industry would require large companies that realize scale economies at the national and international levels.¹⁶³ Firms seeking to realize these scale economies would want to place limitations on labor mobility in order to increase firm size.¹⁶⁴ These limitations would translate into some restrictions on the ability of employees to leave the firm and form start-ups either within the country or in another country.¹⁶⁵ Consequently, regional advantages from high velocity labor markets do not necessarily map onto national

¹⁵³ Hyde, *The Wealth of Shared Information*, *supra* note 15 (identifying the culture in Silicon Valley regarding the enforcement of non-compete clauses and the theft of trade secrets as a major reason for the success of many businesses in Silicon Valley).

¹⁵⁴ Gilson, *supra* note 15, at 594–600.

¹⁵⁵ *Id.* at 586–94 (focusing his analysis on Silicon Valley and the Route 128 area).

¹⁵⁶ *See id.*

¹⁵⁷ *See* SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 106–11 (documenting Silicon Valley's superior economic recovery over that of the Route 128 area in the 1980's).

¹⁵⁸ *See id.*

¹⁵⁹ *See* CHANDLER, *supra* note 145, at 21–28.

¹⁶⁰ Gilson, *supra* note 15, at 594–601.

¹⁶¹ *See* CHANDLER, *supra* note 145 at 58–59 (explaining how economies of scale lead to innovation).

¹⁶² *See id.* at 594–97 (explaining role of economies of scale in organizations and the advantage of gaining economies of scale for a firm).

¹⁶³ *See id.* at 298–306 (exploring the creation of international organizations in the oil and rubber industries).

¹⁶⁴ *See generally* BEN-ATAR, *supra* note 33 (discussing the legal limitations on the emigration of skilled labor to promote industrial development in England).

¹⁶⁵ *See, e.g.*, SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 115–17 (indicating that the Silicon Valley organization model works for the computer industry and partially led to the downfall of Route 128 as a frontrunner in computer production).

advantages and restrictions on labor mobility at the national level may be so justified.

The presence of scale economies offers a more compelling argument for restrictions on labor than national security.¹⁶⁶ But two caveats are worth noting. First, restrictions on labor mobility do not necessarily translate into restrictions on immigration.¹⁶⁷ National firms can expand just as readily from the hiring of non-domestic labor which would mandate fairly liberal immigration possibilities. Scale economies would support restrictions on the emigration of labor, particularly emigration that results in the creation of new firms.¹⁶⁸ The difficulty is that policies that limit the exit of labor may indirectly affect entry as employees may be unwilling to accept employment terms that too drastically raise the costs of exit.¹⁶⁹ Nonetheless, the realization of scale economies is consistent with open border policies as long as there are appropriate restrictions on the outflow of people and information.¹⁷⁰

Second, regional economies often also take advantage of the immigration of labor across national borders.¹⁷¹ As pointed out above, the lack of mobility of labor from Route 128 to Silicon Valley raises some questions about the benefits of high velocity labor markets at the national level. Costs of migration may explain this lack of mobility.¹⁷² However, the immigration of non-United States nationals into Silicon Valley belies the argument that the benefits are solely regional.¹⁷³ Professors Saxenian and Hyde have both studied the increase of highly skilled immigrants entering the United States under the H-1B visa program in the 1990's.¹⁷⁴ For Professor Hyde, this movement of people is somewhat of a mystery as he documents the costs of the program to the workers themselves.¹⁷⁵ Separation from family, restrictions on long-term employment, and questionable employment practices are examples of these costs.¹⁷⁶ Professor Saxenian, however, describes high skilled

¹⁶⁶ See CHANDLER, *supra* note 145, at 21–28 (describing the cost savings of mass production compared to a lower production levels).

¹⁶⁷ See, e.g., *Pepsico, Inc. v. Redmond*, 54 F.3d 1262, 1272 (7th Cir. 1995) (upholding the temporary injunction against an employee's movement to another company, and the permanent injunction against that employee divulging the previous employer's trade secrets, but not restricting immigration in any way).

¹⁶⁸ See SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 78–81 (discussing of start-ups by immigrant entrepreneurs in Silicon Valley).

¹⁶⁹ See 18 U.S.C. § 1831 (2006) (setting maximum sentences for individuals convicted under this section at \$500,000 and/or fifteen years in prison per offense).

¹⁷⁰ See DIXIT & NORMAN, *supra* note 45, at 146–49 (mathematically summarizing labor migration).

¹⁷¹ E.g., HYDE, *WORKING IN SILICON VALLEY*, *supra* note 17, at 125–39 (illustrating Silicon Valley's use, and arguably abuse, of the United States H-1B visa system).

¹⁷² See Donna Rosato, *The Real Cost of Relocating*, CNN MONEY.COM, Sept. 24, 2007, <http://money.cnn.com/2007/09/19/pf/100400146.moneymag/index.htm> (discussing relocation costs in general).

¹⁷³ See SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 274–324 (illustrating how India firms have taken advantage relationships with Silicon Valley firms).

¹⁷⁴ HYDE, *WORKING IN SILICON VALLEY*, *supra* note 17, at 125–39; SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 48–81 (focusing on immigrant work force statistics).

¹⁷⁵ See HYDE, *WORKING IN SILICON VALLEY*, *supra* note 17 at 132 (“H-1B visas bind workers to employers, often for six years, while imposing no reciprocal obligations on the employers.”).

¹⁷⁶ *Id.* at 132–33.

immigrant labor as the “new argonauts,” who exemplify an entrepreneurial spirit that is willing to bear these costs in order to recognize substantial benefits that high velocity labor markets provide.¹⁷⁷ Her cultural explanation may also have an economic dimension.¹⁷⁸ Given the labor market conditions in countries like India, Silicon Valley, even with the attendant costs of movement across seas, may offer attractive benefits.¹⁷⁹ The irony is that it may make more economic sense for someone to move across global borders to recognize these opportunities than for someone to move within the country.¹⁸⁰ The counterintuitiveness of this outcome can be appreciated in light of the local social and professional network that someone in Route 128 may have that would be costly to sever by a move to Silicon Valley.¹⁸¹ A highly skilled worker from outside the US may not bear these costs and also gains the advantage of developing skills and know-how from work overseas.¹⁸² The larger point is that the spillover benefits from high velocity labor markets may not simply be regional. Cross-country differences in labor and market opportunities may in part account for the movement of people and information across national borders to capture these benefits.¹⁸³

Scale economies at the national level are a possible limitation of extending arguments in favor of high velocity labor markets to the movement of people and information across national borders.¹⁸⁴ But the existence of scale economies does not in itself negate these traditional arguments.¹⁸⁵ Instead, they call attention to the issues of international trade and cross-country differences in economic conditions that the consideration of international trade theory will aid in making more systematic and robust in making the case for the movement of people and information globally.¹⁸⁶

¹⁷⁷ See SAXENIAN, THE NEW ARGONAUTS, *supra* note 18, at 80 (“Silicon Valley’s skilled immigrants have been quick to catch the entrepreneurial bug.”).

¹⁷⁸ *Id.* (“These [business with CEOs having Chinese, Indian, or Korean surnames in Dunn & Bradstreet’s database of technology firms started since 1980] collectively accounted for over \$25 billion in sales and close to 100,000 jobs.”).

¹⁷⁹ *Id.* at 84–85 (indicating that a number of these “new argonauts” start up their own companies in their promising homelands after first coming to the Silicon Valley but other “new argonauts” with less promising opportunities in their homelands plan to stay in Silicon Valley).

¹⁸⁰ See *id.* at 274–324 (illustrating several reasons why India has become a hub for information technologies industries).

¹⁸¹ SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 59–82 (comparing the culture of the Route 128 Corridor the the culture of Silicon Valley).

¹⁸² See SAXENIAN, THE NEW ARGONAUTS, *supra* note 18, at 82–84 (documenting network benefits for Israeli, Chinese, Taiwanese, and Indian immigrants in Silicon Valley and identifying cross-regional communities).

¹⁸³ See KRUGMAN, *supra* note 45, at 33–34. Paul Krugman analyzes the realization of scale economies that arises from labor pooling in a region. *Id.* Concentration of labor can have both regional and national benefits. *Id.*

¹⁸⁴ See, SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 156–57 (indicating that the close geographic proximity in Silicon Valley allows firms to monitor and adapt to new and changing technological innovations creating a scale economy based on knowledge and innovation).

¹⁸⁵ See *id.*

¹⁸⁶ See *id.*

3. Normative Foundations of Intellectual Property

Traditional arguments in favor of high velocity labor markets implicitly assume that wealth maximization is the normative criterion for gauging policy.¹⁸⁷ Rules and norms favoring labor mobility in Silicon Valley support the creation of wealth and promote economic growth.¹⁸⁸ One controversy is whether this normative goal is assessed regionally or nationally.¹⁸⁹ After all if free labor mobility is desirable, the natural question is why other regions have not followed the Silicon Valley model for high technology industries.¹⁹⁰ Seemingly, Professors Saxenian, Hyde, and Gilson present positive rather than normative analyses of these labor markets.¹⁹¹ But generalizing their arguments to cross-border movement of labor forces us to address the normative question of whether permitting the free movement of persons is normatively desirable.¹⁹² When assessing this question at the international level, one is forced to confront the question of whether the individual nation-state is the correct unit of analysis or whether the normative inquiry should adopt a global focus.¹⁹³ Generalizing the traditional arguments in favor of high velocity labor markets to the international movement of labor may be difficult precisely because the normative foundation of international intellectual property law (and arguably immigration policy) is the maximization of the welfare of an individual nation-state.

It should be stressed that this normative foundation does not countenance jingoistic or xenophobic values in assessing policy. The argument here is that the citizens of Country A need not consider the welfare of Country B in designing its legal system, and vice versa. To the extent that Country A adopts a legal system out of animus towards Country B, or out of an intent to harm Country B for racist or nativist reasons, such policies should be discounted. Legitimate arguments, however, for considering only the nation-state in designing policy is that an individual country cannot and should not affect outcomes outside its borders. Therefore, the citizens of each country need only consider the implications of a course of policy within its own borders.

¹⁸⁷ See, e.g., Hyde, *The Wealth of Shared Information*, *supra* note 15 (making an assumption that “socially optimal results in markets for information” are sought).

¹⁸⁸ HYDE, WORKING IN SILICON VALLEY, *supra* note 17, at 32–40.

¹⁸⁹ See Anupam Chander, *Diaspora Bonds*, 76 N.Y.U. L. REV. 1005, 1043–45 (2001) (summarizing the debate between nationalism and cosmopolitanism); Seyla Benhabib, *The Law of Peoples, Distributive Justice, and Migrations*, 72 FORDHAM L. REV. 1761, 1763 (2004) (same). As the analysis of this section shows, I myself am informed by a cosmopolitan view of intellectual property rights and in general the cosmopolitanism endorsed by Kwame Anthony Appiah. See KWAME ANTHONY APPIAH, COSMOPOLITANISM: ETHICS IN A WORLD OF STRANGERS 155–56 (2006).

¹⁹⁰ See, e.g., SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 59–82 (describing the organizational structure of companies along Route 128).

¹⁹¹ See Gilson, *supra* note 15, at 613–19 (touting the legal advantages of California’s labor laws). See generally HYDE, WORKING IN SILICON VALLEY, *supra* note 17 (explaining the advantages of Silicon Valley’s mobile work force); SAXENIAN, THE NEW ARGONAUTS, *supra* note 18 (touting the advantages of work force movement within and between regional labor markets).

¹⁹² See, e.g., DIXIT & NORMAN, *supra* note 45, at 146–49 (analyzing the movement of labor forces across borders).

¹⁹³ See CHANDLER, *supra* note 145, at 1043–45 (summarizing the debate between nationalism and cosmopolitanism).

Concepts of sovereignty and comity are consistent with this normative criterion.¹⁹⁴ Furthermore, adopting the nation-state as the unit of analysis could be consistent with either a realist or idealist conception of international law.¹⁹⁵ A realist would see the nation-state centered approach as the basis for a rational actor model of international relations.¹⁹⁶ An idealist, on the other hand, would see the state centered approach as respecting aspects of individual autonomy and governance, either based on cultural values or the history of particular nation-states.¹⁹⁷

Applying these criteria to intellectual property policy, a nation-state is allowed to design intellectual property laws and institutions that maximize its own welfare without consideration of benefits that accrue to other nations.¹⁹⁸ To the extent that individual state decision making results in either positive or negative spillovers to other countries, international institutions, such as treaties or organizations for global governance, may arise to assuage these external effects.¹⁹⁹ Within this normative frame, a nation-state would be allowed to limit mobility of labor across countries in order to contain information or knowledge within a country for the benefit of its own economy even if there may be positive spillovers that result from the movement of people and information across borders. Therefore, the traditional arguments for high velocity labor markets do not necessarily generalize to the international level.

The nation-state-centered perspective is consistent with the current design of international intellectual property institutions. The World Trade Organization and its Trade Related Intellectual Property Systems (“TRIPS”) Agreement assumes that the nation-state is the appropriate actor.²⁰⁰ The Agreement imposes substantive minima on how each nation-state that is a signatory to the agreement must design its intellectual property laws in order to comply with the Agreement, or otherwise face the possibility of a dispute resolution process and attendant sanctions.²⁰¹ Furthermore, the Agreement permits certain classes of nation-states (e.g. developing countries) to establish timelines for meeting its treaty obligations.²⁰² Underscoring the nation-state-centered perspective is the history leading up to the ratification of TRIPS, which rested on the concerns of the developed countries that developing countries were “free-riding” on the intellectual property and innovation flowing from the developed countries.²⁰³ The Agreement was designed to make countries coordinate on a system of intellectual property rights that would facilitate the free

¹⁹⁴ See, e.g., Ken I. Kersch, *The Supreme Court and International Relations Theory*, 69 ALB. L. REV. 771, 777–83, 790–93 (2006).

¹⁹⁵ *Id.*

¹⁹⁶ *Id.* at 777–83.

¹⁹⁷ *Id.* at 790–93.

¹⁹⁸ *Id.*

¹⁹⁹ See, e.g., 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, 33 I.L.M. 1125 (1994) [hereinafter TRIPS Agreement], available at http://www.wto.int/english/docs_e/legal_e/27-TRIPS.pdf.

²⁰⁰ See TRIPS Agreement art. 1.

²⁰¹ *Id.*

²⁰² *Id.* art. 65.

²⁰³ See *id.* at pmb1. (“Recognizing also the special needs of the least-developed country Members in respect of maximum flexibility in the domestic implementation of laws and regulations in order to enable them to create a sound and viable technological base[.]”) (emphasis in original).

flow of goods and services across borders without the fear of misappropriation of technology and information in countries with little or no intellectual property protection.²⁰⁴ When understood in this way, not only does the TRIPS Agreement support a nation-state-centered view of intellectual property policy and law making, but it also supports limitations on the movement of people that could facilitate the types of misappropriation of information that the original proponents of TRIPS were attempting to prevent.

Although the nation-state-centered argument is a prevalent one that needs to be taken seriously and does pose a potential impediment to supporting high velocity labor markets at the international level, there are several reasons to be skeptical of basing intellectual property policy solely on the welfare effects on the nation-state.

First, a nation-state-centered approach runs the risk of policy myopia.²⁰⁵ Benefits that seem to be leaking from one nation-state to another may in fact inure back to the source country.²⁰⁶ Therefore, ignoring spillover effects in designing national intellectual property law may lead to poor policy choices.²⁰⁷ For example, allowing skilled labor to leave a nation-state may in fact impose benefits on the country to which the skilled labor emigrates.²⁰⁸ But the benefits may inure back to the originating country in the form of remittances or increased trade with the receiving country.²⁰⁹ South Asian émigrés to the United States have returned to South Asia, particularly India, to help develop Indian industry, which in turn benefit the United States culturally (food, movies, medical services, software, books).²¹⁰ Conceptually, a spillover may have no recognizable boundaries whether that of a firm, an industry, or a nation-state.²¹¹ While it may be unrealistic for the policymakers of a nation-state to be cosmopolitan in considering benefits to all other nation-states in the design policy, a narrow focus on the interests of one's own nation-state solely may often ignore the benefits of spillovers to the detriment of domestic policy making.²¹²

Second, a nation-state-centered focus on international intellectual property policy ignores history.²¹³ It is well documented that the United States free-rode on

²⁰⁴ See MICHAEL P. RYAN, *KNOWLEDGE DIPLOMACY: GLOBAL COMPETITION AND THE POLITICS OF INTELLECTUAL PROPERTY* 67–69 (Brookings Inst. Press 1998) (describing business motivations and mobilization in implementing the TRIPS agreement).

²⁰⁵ See Brett M. Frischmann & Mark Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 271–84 (2007) (identifying benefits of spillovers).

²⁰⁶ *Id.*

²⁰⁷ *Id.*; see also W. Brian Arthur, *Positive Feedbacks in the Economy*, SCI. AM., Feb. 1990, at 92–99. (discussing the economics of spillovers and the role of positive externalities in markets).

²⁰⁸ Frischmann & Lemley, *supra* note 205, at 271–84.

²⁰⁹ See SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 274–324 (chronicling the growth of IT business in India).

²¹⁰ *Id.*; see also James E. Rauch, *Business and Social Networks in International Trade*, 39 J. ECON. LITERATURE 1177, 1184–90 (2001) (identifying the benefits that arise from social and business networks in the global context).

²¹¹ Frischmann & Lemley, *supra* note 205, at 271–84.

²¹² *Id.*

²¹³ *Id.* (illustrating that the spillover of intellectual property has in the past and continues in the future to provide a platform for innovation and technological development, and impeding that spillover will negatively disrupt the historical pace of technological achievement).

industrial and cultural innovation in Europe during the Nineteenth Century.²¹⁴ Manufacturing secrets made their way across the Atlantic in the acquired know-how of workers or even what would be described as industrial spies.²¹⁵ Pirated editions of novels stocked the shelves of United States publishers, serving as disseminators of culture in the form of cheap books.²¹⁶ Even within Europe, political and legal battles were waged over the scope and substance of patent and copyright laws, and industries and regions benefited from differential and lax intellectual property laws.²¹⁷ Whether economic development and prosperity would have been stronger and faster with more uniform and robust intellectual property protection seems to ignore the fact that industrial development and prosperity did occur despite a cookie-cutter model of intellectual property.²¹⁸ The movement of people and the movement of information facilitated regional growth and fueled economic prosperity more broadly.²¹⁹ The current model of international intellectual property that is nation-state-centered and largely homogeneous neglects the boons from the movement of people and information across national borders.

Finally, global distributional concerns controvert a nation-state-centered system of international intellectual property.²²⁰ While international relations is not a “zero-sum” game by any means, too strong a set of intellectual property rights in the developed world may have adverse consequences on developing countries.²²¹ Economic analyses of international trade and intellectual property (to which I will turn in the next section) suggest that uniform and strong intellectual property rights across countries benefit innovator countries at the expense of less innovative, developing countries.²²² Strong intellectual property rights may in the long run spur innovation in developing nations, the short and medium run effects may be to worsen unequal wealth and income distribution globally.²²³ In many instances, it may be unrealistic for one or even several nation-states to address global concerns through domestic intellectual property systems, focusing solely on the benefits and costs to

²¹⁴ See generally BEN-ATAR, *supra* note 33 (documenting how the United States plundered a substantial amount of intellectual property from Europe in the colonial times).

²¹⁵ See *id.* at 112–13.

²¹⁶ See Sarah Barringer Gordon, “Our National Hearthstone”: *Anti-Polygamy Fiction and the Sentimental Campaign Against Moral Diversity in Antebellum America*, 8 YALE J.L. & HUMAN. 295, 307 n.43 (1996) (noting that “cheap books” were being pushed by book jobbers that were able to travel by rail across America to sell their product); see also Shubha Ghosh, *Deprivatizing Copyright*, 54 CASE W. RES. L. REV. 387, 440–44 (2003) (discussing copyright issues facing book trade in the United States).

²¹⁷ See SUZANNE SCOTCHMER, *INNOVATION AND INCENTIVES* 321–22 (MIT Press 2004).

²¹⁸ *Id.* (showing that development still occurred despite the earliest intellectual property treaties, dating back as far as 1883).

²¹⁹ See *id.*

²²⁰ See e.g., SCOTCHMER, *supra* note 217, at 322 (“As soon as the popular Harry Potter movies were released, illicit copies were reportedly selling on the streets of Beijing, even before they had reached most of the British and American movie houses.”).

²²¹ See *id.* at 326.

²²² See *id.* at 329 (finding that countries that are more innovative prefer strong intellectual property rights while countries with large markets do not).

²²³ See *id.* at 329–36.

individual nation-states may worsen the global trade environment in the long run.²²⁴ From a distributional perspective, the movement of persons and information may facilitate the creation of a global commons that could inure to the benefit of individual nation-states.²²⁵

4. Summary

High velocity labor markets in Silicon Valley reflect, according to Professor Saxenian, a culture of openness and free exchange of ideas and information that supports innovation.²²⁶ This culture in turn lays the foundation for an economic structure that links the movement of labor to the movement of information and the creation of industry spillovers, according to Professors Hyde and Gilson.²²⁷ This constellation of cultural, economic and legal theories explains the success of high velocity labor markets in Silicon Valley.

This section has presented three arguments against extending the case for high velocity labor markets to the international movement of persons. Each of these, national security, scale economies, and normative foundations in the nation-state, introduce compelling points in the debate, but are ultimately deficient in challenging the case for global high velocity labor markets. These potential limitations, however, aid in understanding how the case for the free movement of people and information across national borders can be made persuasive. The case needs to address the arguments in favor of cross border movement of goods, services, people, and information. To make this case, I turn to a set of arguments that traditional arguments for high velocity labor markets, as articulated by Professors Saxenian, Hyde, and Gilson have largely ignored: the theory of international trade. The arguments from international trade theory will be the focus of the next section.

C. International Trade Theory and High Velocity Labor Markets

International trade theory can aid in generalizing traditional arguments in favor of high velocity labor markets to the movement of labor across national borders. Traditional arguments focus exclusively on movement of persons and information across firms within an industry in a particular region.²²⁸ In this way, the scholarship of Saxenian, Hyde, and Gilson contributes to the literature on intellectual property and the boundary of the firm.²²⁹ Recognizing intellectual property as immigration

²²⁴ See SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 82–84 (indicating that India, China, Taiwan, and Israel are taking advantage of the intellectual property transfer from Silicon Valley under current intellectual property law).

²²⁵ *See id.*

²²⁶ *Id.* at 11.

²²⁷ Gilson, *supra* note 15, at 594–602; Hyde, *The Wealth of Shared Information*, *supra* note 15.

²²⁸ See, e.g., SAXENIAN, *REGIONAL ADVANTAGE*, *supra* note 15, at 29–57 (reviewing the industry development and the free movement culture of Silicon Valley).

²²⁹ See generally SAXENIAN, *REGIONAL ADVANTAGE*, *supra* note 15 (comparing and contrasting the differences between Silicon Valley and the Route 128 Corridor in Massachusetts); Hyde, *The Wealth of Shared Information*, *supra* note 15 (analyzing Silicon Valley's work force mobility and

policy, through legislation like the Economic Espionage Act, asks us to explore the relationship between intellectual property and the boundary of the nation-state.²³⁰ International trade theory, an economic theory that addresses exchange of goods, services, people, and information across national boundaries, aids in making the case for high velocity labor markets globally.²³¹

The discussion in this section has implications beyond the immediate application to the Economic Espionage Act. Since contemporary international intellectual property law derives from the TRIPS Agreement, part of the World Trade Organization which grew out of the General Agreement on Tariffs and Trade (“GATT”), international trade and intellectual property are intimately connected.²³² But academic work has largely ignored the implications of the economic theory of international trade for intellectual property systems.²³³ While there is a very rich literature on global public goods and development,²³⁴ there has not been a systematic treatment of what the positive and normative theories of international trade has to say for intellectual property law and institutions, except for the work of Professor Suzanne Scotchmer.²³⁵ Professor Scotchmer’s work offers important analytical models of how domestic intellectual property protection combined with global intellectual property rules shapes within country and global innovation.²³⁶ One dimension missing from her work, however, is the role of labor mobility. My analysis here attempts to address that overlooked issue. More broadly, this paper is intended as a contribution to that inquiry, with the Economic Espionage Act an important and challenging case study.

International trade theory is one of the oldest branches of economic theory with roots in the political theory of mercantilism that recognized trade among nations, particularly one controlled by a sovereign, as critical source of the wealth of nations.²³⁷ For the purposes of analysis, I divide international trade theory into two types, neoclassical, or traditional, trade theory and contemporary trade theories. Neoclassical trade theory accepts the nation-state as given and derives from the existence of a nation-state as the unit of analysis a positive theory of what goods and services one nation trades with another.²³⁸ The positive theory is the basis for a normative theory, based on the principle of global wealth maximization, which is

laws affecting that mobility); Gilson, *supra* note 15 (comparing the laws applicable to Silicon Valley with those applicable to the Route 128 Corridor).

²³⁰ 18 U.S.C. § 1831 (2006).

²³¹ See generally Kenneth G. Dau-Schmidt et al., *Economic Analysis of Labor and Employment Law in the New Economy: Proceedings of the 2008 Annual Meeting, Association of American Law Schools, Section on Law and Economics*, 12 EMP. RTS. & EMP. POL’Y J. 327 (2008) (analyzing immigration and labor in the U.S. and elsewhere).

²³² See TRIPS Agreement pmbl.

²³³ See generally DIXIT & NORMAN, *supra* note 45 (analyzing international trade, identifying tariffs, but not intellectual property rights, as a variable in some of his models).

²³⁴ See e.g., SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18 (analyzing the worldwide development of multiple facets of the information technology industry).

²³⁵ See generally SCOTCHMER, *supra* note 217 (analyzing international trade and intellectual property law from a normative perspective).

²³⁶ See generally *id.* (discussing innovation derived from domestic and global intellectual property).

²³⁷ Jeffrey Simser, *GATS and Financial Services: Redefining Borders*, 3 BUFF. J. INT’L L. 33, 41–43 (1996).

²³⁸ See DIXIT & NORMAN, *supra* note 45, at 26–28.

used to assess policies that affect the flow of trade across nations, such as tariffs or restrictions on the movement of labor.²³⁹ This normative theory can assess the effects of trade policy on global wealth maximization and the distribution of wealth among and within nations.²⁴⁰ Contemporary trade theories break with many of the assumptions of traditional theory such as perfect competition or the lack of scale economies.²⁴¹ More fundamentally, contemporary trade theories do not take nation-states as given and addresses the question of how the boundaries of nation-states and regions are formed from an economic perspective.²⁴² Most provocatively for our purposes, contemporary trade theories explore the movement of labor and information across borders either across firms or within the boundaries of a multinational firm.²⁴³ Both types of theories are useful for the policy analysis of this Article, and each highlight distinct aspects of the relationship between international trade and global intellectual property.²⁴⁴

Before I present these two theories in more detail, I would like to place the following discussion of economic theories and models in perspective of the legal and policy analysis of this paper. Economic theories and models are abstractions that aid in formulating a particular problem.²⁴⁵ These abstractions are helpful to the extent they aid in identifying and isolating the key elements of a problem.²⁴⁶ By distilling a complex problem into some elements, obviously much is lost in terms of realism, but much can be gained in understanding the strengths and weakness of an argument.²⁴⁷ Intellectual property law, especially at the international level, is often based on assumptions or theories of how the law can affect economic relationships.²⁴⁸ The theories presented here are a tool to aid in assessing the strength of these arguments often made in support of particular intellectual property systems. It is in this spirit that the following discussion should be understood: using established theories in order to analyze the rhetorical and logical structure of legal arguments.

1. Neoclassical Trade Theory

The fundamental concept in trade theory is that of comparative advantage, which refers to those goods or services a nation-state has a relative advantage in producing in comparison to other countries.²⁴⁹ Trade theory predicts that in a free trade environment, one characterized by the unfettered movement of goods and services across borders, a country will export those goods and services in which it has

²³⁹ *Id.* at 168–75.

²⁴⁰ *See, e.g., id.* at 80–88 (describing the “International Equilibrium”).

²⁴¹ *See id.* at 267.

²⁴² *See* Simser, *supra* note 237, at 38–41.

²⁴³ *See* DIXIT & NORMAN, *supra* note 45, at 294.

²⁴⁴ *See id.*

²⁴⁵ *E.g., id.* at 146–49 (modeling the effects of labor migration on the economy mathematically).

²⁴⁶ *See id.*

²⁴⁷ *Id.*

²⁴⁸ *See generally* TRIPS Agreement (assuming that the nations entered into the agreement for their own benefit).

²⁴⁹ DIXIT & NORMAN, *supra* note 45, at 2–5.

a comparative advantage relative to other countries.²⁵⁰ The goal of trade theory is to predict in which goods and services a country has a comparative advantage.²⁵¹

There are many explanations for comparative advantage. David Ricardo explained comparative advantage in terms of technologies for production.²⁵² According to the technological explanation, a country has a comparative advantage in goods that it can produce more cheaply than other countries.²⁵³ Other theories focus on differences in preferences or location as sources of comparative advantage.²⁵⁴ The workhorse theory of comparative advantage is the Heckscher-Ohlin-Samuelson Theory that explained comparative advantage in terms of factors of production.²⁵⁵ According to this theory, different countries have endowments in different factors of production (natural resources such as oil or forests, labor, physical capital like machinery).²⁵⁶ Each country can take these factors of production to produce final goods and services.²⁵⁷ A country has a comparative advantage in those goods and services that can be produced more intensively with the factors of production with which a country is relatively endowed.²⁵⁸ For example, if Country A has relatively more labor (because of a bigger population) than Country B, then Country A will have a comparative advantage in (and therefore export) goods and services that use labor more intensively than other factors of production. If Country B has relatively more forests than Country A, then Country B will have a comparative advantage in (and therefore export) goods and services that use lumber more intensively than other factors of production. The Heckscher-Ohlin-Samuelson Theory has been a workhorse theory because it provides a prediction of trade patterns that can be compared with real world data on imports and exports to assess trade activity among countries.²⁵⁹

The Theory also provided a framework to assess trade policy. According to the Theory, if the nation-state does not interfere with the global market, then world prices for goods and services should equalize and global welfare can be maximized.²⁶⁰ Furthermore, the free movement of goods and services across borders will result in the equalization of payments to factors of production across nations.²⁶¹ In other words, the free movement of goods and services will tend to equalize wages for labor

²⁵⁰ *Id.*

²⁵¹ *Id.* at 5–15 (using several mathematical equations to predict international trade patterns).

²⁵² See generally DAVID RICARDO, PRINCIPLES OF POLITICAL ECONOMY AND TAXATION (Cosimo, Inc. 2006) (1817) (establishing the comparative advantage economic theory).

²⁵³ Michael H. Davis & Dana Neacsu, *Legitimacy, Globally: The Incoherence of Free Trade Practice, Global Economics & Their Governing Principles of Political Economy*, 69 UMKC L. REV. 733, 759 (2001).

²⁵⁴ See DIXIT & NORMAN, *supra* note 45, at 5 (noting that the simple calculation of comparative advantage is imprecise and depends on other variables that are difficult to assess).

²⁵⁵ See Victor D. Norman & Anthony J. Venables, *International Trade, Factor Mobility, and Trade Costs*, 105 ECON. J. 1488, 1489–90 (1995) (discussing Heckscher-Ohlin-Samuelson Theory).

²⁵⁶ DIXIT & NORMAN, *supra* note 45, at 85–87. See generally Paul A. Samuelson, *Prices of Factors and Goods in General Equilibrium*, 21 REV. ECON. STUD. 1 (1953).

²⁵⁷ DIXIT & NORMAN, *supra* note 45, at 85–87.

²⁵⁸ See *id.*

²⁵⁹ See *id.* at 86 (referring to the “well-known basic Heckscher-Ohlin model”).

²⁶⁰ See DIXIT & NORMAN, *supra* note 45, at 80–92.

²⁶¹ See Norman & Venables, *supra* note 255, at 1488. See generally Paul A. Samuelson, *International Factor Price Equalization Once Again*, in READINGS IN INTERNATIONAL ECONOMICS (R.E. Caves & H.G. Johnson, eds., 1968).

across countries.²⁶² The Theory would predict that impediments to trade patterns, such as through tariffs or regulations that restrict the movement of goods and services across borders, will have predictable effects on prices and wages.²⁶³ Furthermore, in some cases, there will be an equivalence between the movement of goods and services and the movement of factors of production, such as labor, across borders.²⁶⁴ If Country A imposes a tariff on goods from Country B, this will have an effect on prices and wages in both countries. The tariff will cause prices and wages to be different in the two countries and will create an incentive for labor in the low wage country to migrate to the high wage country. According to the Theory, a barrier to trade on a good or service can create incentives for migration of labor across borders in order to take advantage of wage differences.²⁶⁵

For the purpose of this paper, the equivalence between movements of goods and movements of labor is relevant. Intellectual property can act as a barrier to the movement of goods across countries. Patent, copyright and trademark owners have the legal right to prevent entry of goods that may infringe their intellectual property right.²⁶⁶ This policing of the border for infringing goods acts as a barrier to trade that in turn prevents the equalization of prices and wages across countries. The implication is that the barrier to movement of goods created by intellectual property creates an incentive for the movement of labor across borders. I do not make a prediction here about what goods or countries are affected by this theoretical prediction. The point is about the implications of intellectual property rights in the context of international trade for the movement of people. Strong intellectual property rights that police the border of a country can create conditions for the movement of people. Put another way, within the terms of free trade (which is the argument in support of the World Trade Organization), impediments to the movement of goods in order to limit the dissemination of information protected by intellectual property laws create incentives for the movement of people across borders.

This analysis has two implications. First, situating intellectual property law within the context of a free trade agreement forces policymakers to choose between a commitment to strong intellectual property rights and one to free trade. The importation right held by an intellectual property owner creates a barrier to trade.²⁶⁷ Free trade advocates may choose the commitment to free trade by accepting limitations on the rights of the intellectual property owner (such as in the case of parallel importation or by recognizing a broad first sale doctrine). Those who choose the commitment to intellectual property may justify the restriction on the movement of goods as necessary for protecting the incentive to create or the right of the right owner to determine the direction and scope of trade. Alternatively, the conflicting commitments can be reconciled by allowing the importation right but permitting the movement of labor, specifically skilled labor that can embody the free movement of information across borders.

²⁶² See DIXIT & NORMAN, *supra* note 45, at 80–92.

²⁶³ *Id.* at 190–91.

²⁶⁴ See *id.* at 127–49.

²⁶⁵ See *id.* at 148–49.

²⁶⁶ 19 U.S.C. § 1337 (2006).

²⁶⁷ See *id.*

The equivalence between the movement of goods and the movement of labor leads to the second implication of the analysis. The movement of information is another dimension of the global free trade regime that neither trade theory nor the current international intellectual property environment fully accommodates. The TRIPS Agreement addresses trade secrets and requires countries to protect them.²⁶⁸ At the same time, the TRIPS Agreement permits exclusions to intellectual property in order to protect competition.²⁶⁹ How should the movement of labor be treated under the Agreement? Would it permit high velocity labor markets at the global level or would such a legal arrangement be in violation? The Agreement itself is not clear and reveals a tension not only between commitments to free trade and to intellectual property, but between the movement of people and the movement of information.²⁷⁰

From the perspective of the Heckscher-Ohlin-Samuelson Theory of international trade, free movements of information made possible through the free movement of labor serve to counter the effects of the trade barrier created by intellectual property law.²⁷¹ To the extent that the movement of labor and information would realize gains from trade that are frustrated by the importation right, then such movements are desirable. On the other hand, the Theory recognizes distributional consequences of such movements particularly on wages in the country receiving the labor.²⁷² These distributional consequences are complex and perhaps fully unpredictable.²⁷³ While the Theory is helpful in isolating and identifying tensions between international trade and intellectual property, it does not provide clear answers for a resolution. Nonetheless, the workhorse theory is helpful in pointing out the connections between trade, intellectual property, and the movement of people.

2. Returns to Scale and Contemporary Trade Theories

Contemporary trade theories fill in many of the deficiencies of the Heckscher-Ohlin-Samuelson Theory. First among the deficiencies is the failure of factor endowments alone to explain the pattern of trade.²⁷⁴ Furthermore, much trade between countries is of the intra-industry variety: trade between countries in the same type of good or service.²⁷⁵ The fact, for example, that countries both import and export clothing or food or automobiles contradicts the prediction of neoclassical

²⁶⁸ TRIPS Agreement art. 39 (protection of undisclosed information).

²⁶⁹ *Id.* art. 40 (control of anti-competitive practices in contractual licenses).

²⁷⁰ *See id.* arts. 39–40 (intending to make international trade easier, but specifically leaving in these barriers to the movement of people).

²⁷¹ *See, e.g.,* SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 133–59 (indicating that the mobile work force in the Silicon Valley overcame usual barriers to growth and innovation).

²⁷² *See* DIXIT & NORMAN, *supra* note 45, at 146–49.

²⁷³ *Id.*

²⁷⁴ *See, e.g.,* EDWARD E. LEAMER, SOURCES OF INTERNATIONAL COMPARATIVE ADVANTAGE: THEORY AND EVIDENCE 49–50 (MIT Press 1984) (identifying limitations of factor endowment explanation for trade).

²⁷⁵ *See* James Levinsohn & David Hummels, *Product Differentiation as a Source of Comparative Advantage?*, 83 AM. ECON. REV. 445, 445–49 (1993) (presenting different international trade theories along with criticisms of each).

theory that countries will specialize in trade.²⁷⁶ Instead, trade patterns seem more consistent with cross-border industry structure with corporate units of multi-national firms operating across in multiple countries engaging in intra-national as well as international markets.²⁷⁷ In addition, a comparative advantage of a country may change over time as countries invest in specific industries or in the skill level of its workforce.²⁷⁸ Finally, international trade, like any markets, can result in externalities, of the negative sort, such as environmental harm,²⁷⁹ and of the positive sort, such as spillovers in knowledge and know-how.²⁸⁰ Contemporary trade theories attempt to account for each of these nuances of how international trade actually functions.²⁸¹

Two concepts are particularly relevant from contemporary trade theories to understanding international intellectual property and high velocity labor markets at the global level.²⁸² The first is that of returns to scale, a concept which was introduced above. The second is that of public goods, which is related to the concept of spillovers. Contemporary trade theories have explored both of these concepts to understand trade between nations.²⁸³

The presence of scale economies was one argument that limited the extension of high velocity labor markets to the cross border movement of labor.²⁸⁴ The argument was that industry required some restriction on the movement of labor across borders in order to realize the advantage of scale at the national level.²⁸⁵ However, contemporary trade theories demonstrate the role of scale economies in explaining trade among nations.²⁸⁶ Overseas markets allow a domestic firm to realize the benefits of scale by expanding the size of markets beyond national borders.²⁸⁷

²⁷⁶ See *id.* at 445–46.

²⁷⁷ See, e.g., Amy Jocelyn Glass & Kamal Saggi, *Multinational Firms and Technology Transfer*, 104 SCANDANAVIAN J. ECON. 495, 513 (2002) (concluding that while there are two rationales as to why a source firm may prefer FDI to exporting, the realization of these benefits is insufficient to consider FDI to always be a more attractive option); Elhanan Helpman et al., *Export Versus FDI with Heterogeneous Firms*, 94 AM. ECON. REV. 300, 315 (2004) (identifying the role of economies of scale in explaining the choice of exporting over Foreign Direct Investment in international trade).

²⁷⁸ See Howard F. Chang, *Migration as International Trade: The Economic Gains from the Liberalized Movement of Labor*, 3 UCLA J. INT'L L. & FOREIGN AFF. 371, 412–14 (1998) (proposing that the U.S., by altering its immigration policies, may be able to adapt and have a more comparative advantage in labor markets).

²⁷⁹ See R. Manning & J. McMillan, *Public Intermediate Goods, Production Possibilities, and International Trade*, 12 CAN. J. ECON. 243, 244 (1979).

²⁸⁰ Boyan Jovanovic & Rafael Rob, *The Growth and Diffusion of Knowledge*, 56 REV. ECON. STUD. 569, 569–70 (1989).

²⁸¹ See Manning & McMillan, *supra* note 279, at 251.

²⁸² See Joseph F. Francois, *Global Production and Trade: Factor Migration and Commercial Policy with International Scale Economies*, 35 INT'L ECON. REV. 565, 577 (1994); Jota Ishikawa, *Scale Economies in Factor Supplies, International Trade, and Migration*, 29 CAN. J. ECON. 573, 575–76 (1996).

²⁸³ See Francois, *supra* note 282, at 567–68, 577 (analyzing returns to scale as it relates to international trade and noting the effects of spillover).

²⁸⁴ See discussion *infra* Section I.B.2.

²⁸⁵ See Francois, *supra* note 282, at 577.

²⁸⁶ Paul Krugman, *New Theories of Trade Among Industrial Countries*, 73 AM. ECON. REV., 343, 343 (1983) (defining a more contemporary approach to the role of economies of scale as the theory of intraindustry trade).

²⁸⁷ See Francois, *supra* note 282, at 567.

Multinational companies emerge to capture these scale effects by establishing manufacturing and distribution operations overseas.²⁸⁸ Comparative advantage may arise because of the scale effects that emerge from expanding firms.²⁸⁹ What the presence of scale economies calls into question is the assumption of neoclassical trade theory that nation-states should be taken as given.²⁹⁰ In fact, much of the trade theory that explores scale economies start with the fiction of an integrated world economy, in other words, a marketplace without national borders.²⁹¹ Starting from this fiction and the concept of scale economies, theorists then explore the emergence of trading regions and the delineation of the fictionalized integrated world into a world of markets that are defined along geographic lines.²⁹² Much of the analysis explains how nations emerge through the accident of history and the development of markets and firms.²⁹³ One way to understand this theoretical strand is an exploration of the boundaries of the firm and the boundaries of nations.²⁹⁴

The concept of public goods provides a foundation for analyzing the emergence of global institutions and norms that coordinate relations among global actors outside the scope of the market.²⁹⁵ As is well known in the literature, a public good is one that is consumed in a group with the benefits spread among group members.²⁹⁶ A public good has characteristics of being non-rival and non-excludable, sometimes both, often times only one of these characteristics.²⁹⁷ International trade often requires the regulation of public goods, such as the oceans or the air, so the good is not depleted or harmed through communal usage.²⁹⁸ Property rights enforced through formal legal mechanisms or informal norms often serve to manage public goods, and much of the scholarly literature addresses different types of public goods, such as education, environmental cleanliness, health, safety, and knowledge embodied in technology or know-how, both cultural and scientific.²⁹⁹ The presence of public goods requires coordination among nation-states,³⁰⁰ but also raises questions about the boundaries of the nation-state as benefits from activities within one nation

²⁸⁸ See generally Hisanobu Oshe, *Investment Overseas by U.S. Firms Rising*, L.A. TIMES, Dec. 29, 1989, at D2 (reporting that many American companies are moving manufacturing and distributing processes overseas in order to take advantage of lower costs of performing those tasks).

²⁸⁹ *Id.*

²⁹⁰ Levinsohn & Hummels, *supra* note 275, at 446–47.

²⁹¹ See Akihiro Amano, *International Factor Movements and the Terms of Trade*, 32 CAN. J. ECON. & POL. SCI. 510, 511 (1966).

²⁹² See KRUGMAN, *supra* note 45, at 70–72 (examining what a nation is by defining what it is not).

²⁹³ See *id.* (proposing that borders and tariffs of nations shape markets and trade which have effects on firms and development).

²⁹⁴ See *id.* at 70–71.

²⁹⁵ See Manning & McMillan, *supra* note 279, at 250.

²⁹⁶ See John G. Head & Carl S. Shoup, *Public Goods, Private Goods, and Ambiguous Goods*, 79 ECON. J. 567, 567 (1969) (“In the basic literature[,] a public good has been defined to be such that it is literally impossible for the supplier to exclude potential consumers.”).

²⁹⁷ *Id.*

²⁹⁸ Brian R. Copeland & M. Scott Taylor, *Trade and Transboundary Pollution*, 85 AM. ECON. REV. 736, 730 (1995).

²⁹⁹ See, e.g., *id.* at 717–18 (discussing pollution, or the lack of pollution as a public good).

³⁰⁰ See Graciela Chichilnisk, *North-South Trade and the Global Environment*, 84 AM. ECON. REV. 851, 864 (1994) (noting the venture between Costa Rica and Merck and its effects on both property rights while noting environmental challenges of similar ventures).

spillover into other nations.³⁰¹ Like the related concept of scale economies, the concept of public goods challenges assumptions about the nation-state and its competing boundaries with those of the firm.³⁰²

Within neoclassical trade theory, the movement of goods and people serve to equalize prices and wages across nations in order to maximize global welfare.³⁰³ Within contemporary theories, the movement of goods and people serve to realize economies of scale as firms compete across the borders of countries to expanded markets.³⁰⁴ While intellectual property serves largely as a barrier to trade in neoclassical trade theory, it serves as a way for the firm to define its boundaries by protecting firm specific information.³⁰⁵ Global intellectual property protection serves not only to police borders, but also to allow firms to achieve the desirable scale of production across national borders.³⁰⁶ Furthermore, contemporary trade theory recognizes that information has characteristics of a public good and can create spillovers across firms and across national borders.³⁰⁷ Therefore, global intellectual property law serves to realize these spillovers by allowing information to disseminate within an industry and often across borders through the transfer of technology and the movement of people.³⁰⁸ Contemporary trade theory recognizes the desirability of the movement of labor as a means of creating spillovers and global public goods.³⁰⁹

The challenge, of course, with any theory is in the details. How much movement of labor is desirable? Can we identify when spillovers and public goods are being generated? On these questions, the theory is silent. The details are left to be worked out based on the facts of specific cases. Contemporary trade theory, however, is useful in supporting the arguments for generalizing traditional arguments for high velocity labor markets to cross border movement of people and information. In short,

³⁰¹ Copeland, *supra* note 298, at 717 (“Because pollution crosses borders, uncoordinated regulation of pollution at the national level does not eliminate all market failure . . .”).

³⁰² Hyde, *The Wealth of Shared Information*, *supra* note 15.

³⁰³ Wilfred J. Ethier, *International Trade and Labor Migration*, 75 AM. ECON. REV. 691, 691–92 (1985) (describing the benefits of migrant laborers being generally more affordable gives not only gives a job to those seeking a one but also allows companies to produce their goods).

³⁰⁴ See Oshe, *supra* note 288.

³⁰⁵ Susan Scafidi, *Intellectual Property and Cultural Products*, 81 B.U. L. REV. 793, 796 (2001) (“[I]ntellectual property law, through modification of its authorial and temporal limitations and creation of community-specific protections such as an ‘authenticity mark,’ has the potential to strike an equitable balance between source community rights and the public interest in cultural products.”).

³⁰⁶ See Gene M. Grossman & Edin L.C. Lai, *International Protection of Intellectual Property*, 94 AM. ECON. REV. 1635, 1635 (2004) (describing the Uruguay round of negotiations for the WTO which will provide more border patrols for member countries while also indirectly recognizing the effects of economies of scale).

³⁰⁷ See Paul B. Stephan III, *Interdisciplinary Approaches to International Economic Law: Barbarians Inside the Gate: Public Choice Theory and International Economic Law*, 10 AM. U. J. INT’L L. & POL’Y 745, 765–67 (1995) (proposing that culture is a public good worth protecting). Culture is composed of language and art and other forms of information that has been gathered by a society and is thus, a public good. *Id.*

³⁰⁸ See Grossman & Lai, *supra* note 306, at 1635–36.

³⁰⁹ See Merrill E. Whitney & James D. Gaisford, *Economic Espionage as Strategic Trade Policy*, 29 CAN. J. ECON. S627, S629 (1996) (concluding that there are benefits to espionage from a cost sharing perspective but it may have adverse effects on innovation).

a foundation for open borders can be made.³¹⁰ Answering how open requires examining particular cases such as those brought under the Economic Espionage Act. After a summary of the analysis of this section, we turn to these particular cases in Section II.

D. Implications for Law and Policy

This section has developed the case for open borders that permit the movement of people and of information across national boundaries. Building on the scholarly work on high velocity labor markets in high technology regions like Silicon Valley or Route 128, I examined three arguments against extending the case for labor mobility across firms regionally to movement across borders. These three arguments—national security, scale economies, and normative presumption in favor of the nation-state—identified the problems of defending open borders across nations and the limitations of the arguments in favor of regional labor mobility. An examination of international trade theory corrected some of the deficiencies of the argument by addressing the complex problems posed by the global movement of goods, services, labor, and information. Several points follow from this theoretical examination.

II. INTELLECTUAL PROPERTY AS IMMIGRATION POLICY: ASSESSING THE ECONOMIC ESPIONAGE ACT

This section offers a critical presentation of the Economic Espionage Act of 1996 by first describing the key provisions of the statute. The theory developed in Section I serves as an interpretative tool for assessing the policies underlying the Act and its implications. Prosecutions brought under the Act serve as case studies to deeper understand these policies and the aims of the statute. The purpose of this section is to bring to life the theoretical discussion of high velocity labor markets in the context of the cross border movement of people and information.

A. Overview of the Act

The Economic Espionage Act of 1996 has been described as the first comprehensive statute to combat corporate espionage.³¹¹ It is also the first federal statute that protects trade secrets, historically the domain of state courts and legislatures.³¹² Unlike state statutes and common law rules that govern trade secrets, the Economic Espionage Act of 1996 is a criminal statute that does not

³¹⁰ See generally SAXENIAN, THE NEW ARGONAUTS, *supra* note 18 (illustrating the growth of the information technology industry worldwide).

³¹¹ United States v. Hsu, 155 F.3d 189, 201 n.17 (3d Cir. 1998) (citing 142 CONG. REC. H10,461 (1996) (statement of Rep. Hyde)).

³¹² *Id.* at 196.

recognize a private right of action.³¹³ Only the United States Attorney General is authorized to bring civil actions for injunctions against future conduct that violates the Act.³¹⁴ Passage of the Act is historic not only for making certain types of trade secret theft a federal crime, but also for being enacted in the period after the shift in Congress in 1994 from Democrat to Republican control when so many controversial intellectual property statutes were passed, such as the Federal Trademark Dilution Act, the Anticybersquatting Protection Act, the Digital Millennium Copyright Act, and the Copyright Term Extension Act.³¹⁵

The Act has eight substantive provisions and one definition section.³¹⁶ The first two provisions lay out the elements of culpable offenses and the remaining six are remedial and procedural.³¹⁷ Section 1831 deals with economic espionage³¹⁸ while section 1832 covers the theft of trade secret.³¹⁹ The elements of economic espionage include the purposeful or knowing misappropriation of a trade secret for the benefit of a foreign government, instrumentality, or agency.³²⁰ The elements of theft of a trade secret include the purposeful or knowing misappropriation of a trade secret for the benefit of someone other than the trade secret owner that harms the economic interest of the owner.³²¹ Both provisions also impose liability for attempt and conspiracy.³²² Misappropriation of trade secret under each provision includes the stealing, appropriation, or the procurement through fraud or artifice of a trade secret.³²³ Finally, trade secrets are defined broadly to include the following:

[A]ll forms and types of financial, business, scientific, technical, economic, or engineering information, including patterns, plans, compilations, program devices, formulas, designs, prototypes, methods, techniques, processes, procedures, programs, or codes, whether tangible or intangible, and whether or how stored, compiled, or memorialized physically, electronically, graphically, photographically, or in writing³²⁴

³¹³ See, e.g., *Harrison-Smith v. Bank of Am.*, No. 06-C-4254, 2006 WL 2355565, at *1 (N.D. Ill. Aug. 10, 2006) (dismissing the section 1831 claim because the Act does not provide for a private right of action).

³¹⁴ 18 U.S.C. § 1836(a) (2006) (“The Attorney General may, in a civil action, obtain appropriate injunctive relief against any violation of this chapter.”).

³¹⁵ Anticybersquatting Consumer Protection Act of 1999, Pub. L. No. 106-113, 113 Stat 1501 (codified as amended at 15 U.S.C. § 1125(d) (2006)); Digital Millennium Copyright Act of 1998, Pub. L. No. 105-304, 112 Stat. 2860 (codified as amended at title 17, United States Code (2006)); Copyright Term Extension Act of 1998, Pub. L. No. 105-298, 112 Stat. 2827 (codified as amended at title 17, United States Code); Federal Trademark Dilution Act of 1995, Pub. L. No. 104-98, 109 Stat. 985 (codified as amended at 15 U.S.C. §§ 1051, 1125, 1127); see also LAWRENCE LESSIG, *THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD* 186-87 (2002) (2001) (describing legislative changes to increase intellectual property protection during the Nineties).

³¹⁶ 18 U.S.C. §§ 1831-39.

³¹⁷ *Id.* §§ 1831-38.

³¹⁸ *Id.* § 1831.

³¹⁹ *Id.* § 1832.

³²⁰ *Id.* § 1831(a)(3).

³²¹ *Id.* § 1832.

³²² *Id.* §§ 1831-32.

³²³ *Id.*

³²⁴ *Id.* § 1839(3).

In order for this subject matter to be protected as a trade secret, the owner must take reasonable steps to protect the secrecy and the subject matter must have independent economic value from not being generally known or readily ascertainable through proper means by the public.³²⁵ The last two elements parallel requirements under the Uniform Trade Secret Act and the common law of trade secrets while the scope of subject matter parallels that of the Uniform Act.³²⁶

The Act also includes remedial and jurisdictional provisions.³²⁷ Available remedies include criminal sentencing, forfeiture of property or profits earned by the defendant, and injunctions against conduct illegal under the Act.³²⁸ Federal district courts have exclusive original jurisdiction,³²⁹ and this jurisdiction applies extraterritorially to acts committed overseas by citizens or permanent residents of the United States or if acts in furtherance of the offense were committed in the United States.³³⁰ The Act also requires the court to ensure the confidentiality of trade secrets that are the subject of controversy in a case.³³¹ Finally, given the high profile nature of the cases, Congress required the United States Department of Justice to pursue these actions upon review and authorization by the Attorney General.³³² In 2002, Attorney General Ashcroft approved the continued enforcement of the Act, but required his authorization only for claims brought under section 1831, but not under section 1832.³³³ This difference represents the potential effects of section 1831 claims on foreign sovereigns and is an explanation for why there are so few indictments under section 1831.³³⁴

While described as comprehensive, the Economic Espionage Act of 1996, in essence, creates federal criminal liability for acts that constitute purposeful or knowing appropriation of a trade secret which either benefits a foreign entity or causes economic harm to the trade secret owner while benefiting someone who does not own the trade secret.³³⁵ By federalizing and criminalizing theft of trade secret,

³²⁵ *Id.*

³²⁶ Compare *id.* (requiring that the owner of a trade secret to “take reasonable measures to keep such information secret” and that such information “derives independent economic value” by being kept a secret), with UNIF. TRADE SECRETS ACT § 1 (amended 1985), 14 U.L.A. 537 (2005) (same). See also Mangren Research & Dev. Corp. v. Nat’l Chem. Co., 87 F.3d 937, 942 (1996) (analyzing definition of trade secret under state law).

³²⁷ 18 U.S.C. §§ 1837–38.

³²⁸ *Id.* § 1834.

³²⁹ *Id.* § 1836(b).

³³⁰ See *Id.* § 1837.

³³¹ *Id.* § 1835.

³³² Policy with Regard to Bringing Charges Under the Economic Espionage Act of 1996, 28 C.F.R. § 0.64-5 (2009). For five years after the enactment of the Economic Espionage Act of 1996, all prosecutions brought under 18 U.S.C. §§ 1831–32 required approval by the Attorney General, Deputy Attorney General, or Assistant Attorney General for the Criminal Division. See *id.*

³³³ Memorandum of Attorney Gen. John Ashcroft (Mar. 1, 2002), available at <http://www.usdoj.gov/criminal/cybercrime/eea1996.pdf>.

³³⁴ Carr, *supra* note 51, at 198 (stating all prosecuted cases were under § 1832 and not under § 1831); see also Press Release, Dep’t of Justice, Chinese National Sentenced for Committing Economic Espionage with the Intent to Benefit China Navy Research Center 3–4 (June 18, 2008), available at <http://www.usdoj.gov/criminal/cybercrime/mengSent.pdf> (reporting five indictments under section 1831 between 2001 and 2008).

³³⁵ 18 U.S.C. § 1831(a); see also United States v. Chung, No. SACR08-00024-CJC, 2009 WL 2053596, at *13 (C.D. Cal. July 16, 2009) (finding criminal liability against an agent of the People’s Republic of China who misappropriated sensitive aerospace and military information).

the Act raises many of the concerns analyzed in the policy literature on high velocity labor markets.³³⁶ Notice that the Act itself does not enjoin the exit of employees to start new firms or competition that is created by departing employees.³³⁷ Nonetheless, and as the case law discussed below shows, the Act has direct and indirect effects on labor mobility and the start-up of new firms.³³⁸ For instance, stealing of a trade secret may include know-how obtained by an employee at his former place of employment and used or retained potentially at the new company.³³⁹ Therefore, it is worth examining how the policy justifications in support of high velocity labor markets, and the movement of people and of information, influence our understanding of the Economic Espionage Act.³⁴⁰

B. The Act in the Context of International Trade Theory

Although the Economic Espionage Act does not specifically enjoin either the movement of people between firms or the start-up of new companies that compete with incumbents,³⁴¹ the Act may have a chilling effect on such movement and the attendant flow of knowledge.³⁴² The standard for liability is on paper quite high.³⁴³ The defendant must, either purposefully or knowingly, steal a trade secret that benefits someone who is not the owner of the trade secret and, for liability under section 1832, economically harm the trade secret owner.³⁴⁴ While the standard for civil liability under state law for misappropriation can be quite low, capturing acts that are deemed to be a violation of business ethics, the mens rea of criminal law raises the bar for liability above what exists under state law.³⁴⁵

³³⁶ See Moohr, *supra* note 20, at 903–07 (discussing the impact of the Economic Espionage Act on employee mobility and economic growth).

³³⁷ H.R. REP. NO. 104-788, at 7 (1996), *reprinted in* 1996 U.S.C.C.A.N. 4021, 4026 (“The statute is not intended to be used to prosecute employees who change employers or start their own companies using general knowledge and skills developed while employed.”); *see also* S. REP. NO. 104-359, at 12–13 (1996) (“The free and unfettered flow of individuals from one job to another, the ability of a person to start a new business based upon his or her experience and expertise, should not be injured or chilled in any way by this legislation.”).

³³⁸ See Moohr, *supra* note 20, at 903–07.

³³⁹ H.R. REP. NO. 104-788, at 7 (“It is the intent of Congress, however, to make criminal the act of employees who leave their employment and use their knowledge about specific products or processes in order to duplicate them or develop similar goods for themselves or a new employer in order to compete with their prior employer.”).

³⁴⁰ See Moohr, *supra* note 20, at 903–07.

³⁴¹ See 18 U.S.C. §§ 1831–39.

³⁴² See *id.* *But see* United States v. Hsu, 155 F.3d 189, 196–97 (3d Cir. 1998) (“[I]t is clear that Congress did not intend the definition of a trade secret [in the Economic Espionage Act] to be so broad as to prohibit lawful competition such as the use of general skills or parallel development of a similar product.”) (citations omitted).

³⁴³ 18 U.S.C. §§ 1831–32. *See, e.g., Hsu*, 155 F.3d at 195.

³⁴⁴ *See, e.g., Hsu*, 155 F.3d at 195–96 (presenting the legal standard for liability).

³⁴⁵ Compare UNIF. TRADE SECRETS ACT § 1 (amended 1985), 14 U.L.A. 537 (2005) (defining “misappropriation” of a trade secret in the civil law context), with 18 U.S.C. § 1832 (listing numerous things that can each be a “misappropriation,” but never using the term “misappropriation”).

However, criminal liability also extends to attempts or conspiracies to steal trade secrets.³⁴⁶ Therefore, acts that may fall short of civil liability can still constitute criminal misconduct if the mental state elements can be found.³⁴⁷ As some of the cases show, liability might extend under the Act to attempts by one firm to poach another firm's employees through conversation or through enticements to move if such potential movement of workers might entail the movement of trade secrets.³⁴⁸ Evidence in favor of the requisite mental state follows from the enticing firm's desire to acquire the know-how or other information from the employee's previous firm.³⁴⁹ The threat of criminal sanction may very likely chill employment discussions and negotiations that are pro-competitive and that promote innovation.³⁵⁰ Furthermore, the Act criminalizes economic espionage which entails the theft of trade secrets that benefit a foreign entity even if there is no proof of economic harm to the trade secret owner.³⁵¹ This provision potentially impedes the flow of technology and knowledge across national borders, interfering with the benefits of international trade and immigration.³⁵²

Although these effects are theoretically possible, empirical evidence in support of these chilling effects is difficult to muster. It has been reported that in 2007, United States Immigration and Customs Enforcement conducted over 2,600 export investigations involving technologies subject to export controls, resulting in 188 criminal arrests, 178 indictments, and 127 convictions.³⁵³ A large problem is that it is very difficult to prove the absence of a fact, and even harder to demonstrate what would have happened absent the statute. Visa denials and other immigration events, such as deportations, might offer some evidence of the adverse effects of the Act on the movement of people across borders. But violations of the Economic Espionage Act have not been a basis for denial of entry or for deportation.³⁵⁴ In 2006, the Immigration and Naturalization Service listed six enforcement categories for deportation actions, none of which directly bore on claims under the Economic Espionage Act.³⁵⁵ The difficult problem is identifying how many foreign-born

³⁴⁶ See, e.g., *Hsu*, 155 F.3d at 197 (discussing liability for attempt and conspiracy).

³⁴⁷ See, e.g., *id.*

³⁴⁸ See *United States v. Martin*, 228 F.3d 1, 12 (1st Cir. 2000) (liability based in part on communications between exiting employee and poaching employer); *United States v. Case*, Crim. No. 3:06-CR-210-TSL-LRA, 2007 WL 1746399, at *1 (S.D. Miss. June 15, 2007) (indicating that charges can be brought under Act against departing employees who formed their own company).

³⁴⁹ See, e.g., *Martin*, 228 F.3d at 10 (noting that a poaching employer sent exiting employee a check for the stolen information, which Federal Bureau of Investigation subsequently recovered as evidence in the case).

³⁵⁰ E.g., *Case*, 2007 WL 1746399, at *1 (indicting, via grand jury, several employees for conspiracy to violate the EEA under section 1832).

³⁵¹ 18 U.S.C. § 1831; *Hsu*, 155 F.3d at 195–96.

³⁵² See, e.g., *Hsu*, 155 F.3d at 193, 193 n.2 (indicating that the Federal Bureau of Investigation issued an arrest warrant for one defendant that is in Taiwan avoiding U.S. law enforcement because Taiwan and the U.S. do not have an extradition treaty).

³⁵³ See ANNUAL REPORT, *supra* note 30, at 1.

³⁵⁴ See U.S. DEP'T OF HOMELAND SEC., YEARBOOK OF IMMIGRATION STATISTICS tbl. 37 (2006), available at <http://www.dhs.gov/ximgtn/statistics/publications/YrBk06En.shtm> (follow "Table 34" hyperlink).

³⁵⁵ See *id.* (indicating that the six categories of immigration-related activities of the U.S. immigration and custom enforcement investigations were financial investigations, human

employees may have been denied employment or other opportunities within the United States or in United States companies overseas for fear of posing a threat of economic espionage.³⁵⁶ The Chronicle of Higher Education has reported how many universities are having difficulties obtaining immigration clearance for research scientists, even for short term visits to present a lecture or participate in a conference.³⁵⁷ Much of these problems, however, are a consequence of the heightened security concerns after the 9/11 attacks.³⁵⁸ Arguably, the fear of economic espionage may be part and parcel of the broader security concerns and resulting paranoia, and therefore impossible to separate.³⁵⁹ However, the experiences reported by many universities suggest a climate where movement across borders is far from hospitable.³⁶⁰ An examination of the case law under the Economic Espionage Act, discussed in the next section, shows possible adverse consequences on foreign born employees and presents scenarios that may chill movement of labor both within the United States and across borders more broadly by analogy.

In assessing the case law, these predicted adverse consequences need to be understood in light of some of the justifications for movement across borders, discussed above in Section II.A. However, national security does not appear to be a salient concern in many of these cases.³⁶¹ Furthermore, many of these cases involve

smuggling and trafficking investigations, general and criminal alien investigations, identity and benefit fraud investigations, compliance enforcement and worksite enforcement in 2006).

³⁵⁶ See U.S. DEPT OF STATE, ANNUAL REPORT OF THE VISA OFFICE 2008 tbl. XX (2008), available at <http://www.travel.state.gov/pdf/FY08-AR-TableXX.pdf>. These statistics, however, report denials based on categories such as becoming a public charge or criminal activities, such as smuggling or prostitution. *Id.* In 2006, the category “Conversion of Confiscated U.S. Property for Gain” was added although there have been only two reported cases of denials based on this category in 2007, one of which was overcome. U.S. DEPT OF STATE, ANNUAL REPORT OF THE VISA OFFICE 2007 tbl. XX (2007), available at <http://www.travel.state.gov/pdf/FY07AnnualReportTableXX.pdf>. This category would not cover misappropriation of trade secrets from United States companies since they do not constitute “confiscated U.S. property.” See 18 U.S.C. § 1831. However, property and economic theft of confidential information could potentially be a basis for visa denials even though current statistics do not collect such data. U.S. DEPT OF STATE, ANNUAL REPORT OF THE VISA OFFICE 2008, *supra*.

³⁵⁷ See Jaques S. Gansler & Alice P. Gast, *Academics and National Security Experts Must Work Together*, 54 CHRON. HIGHER EDUC. 44, July 11, 2008, at A-56 (2008) (stating that one-third of all science and engineering Ph.D. degrees awarded in the U.S. are awarded to foreign-born graduates).

³⁵⁸ See generally USA Patriot Act of 2001, Pub. L. No. 107-56, 115 Stat. 272 (2001) (codified in titles 8, 12, 15, 18, 20, 31, 42, 47, 49, 50, United States Code) (“An Act To deter and punish terrorist acts in the United States and around the world, to enhance law enforcement investigatory tools, and for other purposes.”).

³⁵⁹ See JOHN GLADSTONE MILLS III ET AL., 1 PAT. L. FUNDAMENTALS app. 4(B) (2d ed. 2009) (listing all the cases prosecuted under the Economic Espionage Act, which totals thirty-three, and ten of those prosecutions came after the 9/11 attacks).

³⁶⁰ See Gansler & Gast, *supra* note 357.

³⁶¹ See *United States v. Ye*, 436 F.3d 1117 (9th Cir. 2006); *United States v. Yang*, 281 F.3d 534 (6th Cir. 2002); *United States v. Krumrei*, 258 F.3d 535 (6th Cir. 2001); *United States v. Martin*, 228 F.3d 1 (1st Cir. 2000). *But see* *United States v. Hsu*, 155 F.3d 189, 195 (3rd Cir. 1998) (“Only by adopting a national scheme to protect U.S. proprietary economic information can we hope to maintain our industrial and economic edge and thus safeguard our national security.” (quoting S. REP. NO. 104-359, at 11 (1996))).

large, multinational companies which arguably realize scale economies.³⁶² Therefore, restrictions on labor movement do not necessarily follow from the need to realize economies of scale.³⁶³ The focus on maximizing national welfare, however, may be a dominant feature in these cases and parallels the rhetoric one sees in more informal discussions of the Economic Espionage Act.³⁶⁴ The express fear of economic espionage replaced the fear of political and economic domination under the nuclear umbrella of the Cold War in the 1990s, and this new fear was not necessarily red in color.³⁶⁵ Instead, the threat of economic espionage was ethnic, cultural, or national in guise, often associated with the skilled workers from Taiwan.³⁶⁶ To the extent that this third basis for justifying the movement of people, and the attendant movement of information and knowledge, is based on blatant, or even subtle, xenophobia, the justification can be rejected.³⁶⁷ Fear, rather than reason, enabled by legal power is driving the application of the law in an illegitimate direction.³⁶⁸

Within the context of international trade theory, we should be asking whether there are gains that are being wasted or even unrealized in how the Economic Espionage Act is being used.³⁶⁹ The analysis of the case law in the next section consequently looks to see whether the prosecutions chill the movement of labor, quell the movement of information, and frustrate the realization of spillovers that could result from the movement of labor and information across borders.

C. Assessing the Cases

The United States Department of Justice has brought thirty-five prosecutions under the Economic Espionage Act from 1996 to 2007.³⁷⁰ Most of these have been

³⁶² See, e.g., *Yang*, 281 F.3d at 540 (stating that the defendant's Taiwanese company and the victim's American company were competitors).

³⁶³ See Richard C. Schragger, *Cities, Economic Development, & The Free Trade Constitution*, 94 VA. L. REV. 1091, 1104 (2008) (discussing that scale economies in American cities grew when migrants moved across state lines).

³⁶⁴ Compare, e.g., *Yang*, 281 F.3d at 540 (stating that the defendant's Taiwanese company and the victim's American company were competitors), with, e.g., Pooley, *supra* note 111, at 229 ("The EEA has raised the stakes in the business of protecting trade secrets.").

³⁶⁵ Fed. Bureau of Investigation, Focus on Economic Espionage, <http://www.fbi.gov/hq/ci/economic.htm> (last visited Sept. 26, 2009) ("The Cold War is not over, it has merely moved into a new arena: the global marketplace. The FBI estimates that every year billions of U.S. dollars are lost to foreign competitors . . . who cull intelligence out of shelved technologies by exploiting open source and classified information known as trade secrets.").

³⁶⁶ See, e.g., *Yang*, 281 F.3d at 540 (stating that the defendant's worked for a Taiwanese company).

³⁶⁷ See *Brown v. Board of Educ.*, 347 U.S. 483, 495 (1955) (striking down legislation that was based on the race of an individual).

³⁶⁸ James W. Hill, *Trade Secrets, Unjust Enrichment, And The Classification Of Obligations*, 4 VA. J.L. & TECH. 2, 15 (1999) (stating that the Economic Espionage Act was partly enacted out of, "fear of espionage rings backed by foreign governments.").

³⁶⁹ Lan Cao, *Corporate And Product Identity In The Postnational Economy: Rethinking U.S. Trade Laws*, 90 CAL. L. REV. 401, 423 n.84 (2002) (indicating that a U.N. report stated that expansion of international trade will help rid the world of poverty).

³⁷⁰ U.S. Dep't of Justice, Trade Secret/Economic Espionage Cases, <http://www.usdoj.gov/criminal/cybercrime/ipcases.html#eea> (last visited Sept. 26, 2009).

brought under section 1832, the provision dealing with theft of trade secret.³⁷¹ There has been five indictments (two of which resulted in convictions) under section 1831, the economic espionage provision.³⁷² The first indictment under section 1831 was brought against two Japanese nationals in 2001.³⁷³ One of the defendants in the case entered into a plea arrangement with the government.³⁷⁴ Charges against the second were eventually dismissed because the Japanese government failed to extradite the defendant to the United States on the grounds that the Japanese government did not recognize economic espionage as an extraditable offense.³⁷⁵ The trials and appeals that resulted from these thirty-six prosecutions have produced twenty-four district court and appellate opinions that substantively interpret portions of the Act.³⁷⁶ Of these twenty-four opinions, eight are dismissals for lack of jurisdiction because the Economic Espionage Act does not recognize a private right of action.³⁷⁷ The discussion in this section will focus on five principal cases: *United States v. Martin*,³⁷⁸ *United States v. Krumrei*,³⁷⁹ *United States v. Ye*,³⁸⁰ *United States v. Hsu*,³⁸¹ and *United States v. Yang*³⁸² (also known as the Four Pillars case). These five cases illustrate how intellectual property law operates as a form of immigration policy, affecting the movement of people and information across borders. In addition, I discuss *United States v. Case*,³⁸³ an unpublished district court opinion that illustrates many of the concerns raised with making trade secret misappropriation a federal crime.

In studying these cases, those resulting in judicial opinions and those that did not, I attempted to identify nationality and citizenship status of the thirty-five defendants based on the judicial opinions and the United States Department of Justice web site that summarizes the prosecutions. In some of the judicial opinions, citizenship status was mentioned. In most, they were not. Nationality, however, was mentioned occasionally, perhaps indirectly as a reference to the immigration status

³⁷¹ See, e.g., *United States v. Ye*, 436 F.3d 1117, 1119 n.1 (9th Cir. 2006) (charging the defendant with violations of 18 U.S.C §§ 1831–32).

³⁷² See Press Release, U.S. Dep't of Justice, Chinese National Sentenced for Economic Espionage (June 18, 2008), available at <http://www.usdoj.gov/opa/pr/2008/June/08-nsd-545.html>. The five indictments are *United States v. Okamoto and Serizawa* on May 8, 2001; *United States v. Fei Ye and Ming Zhong* on December 4, 2002, resulting in conviction on December 14, 2006; *United States v. Meng* on December 13, 2006, resulting in a conviction on June 18, 2008; *United States v. Lan Lee & Yuefei Ge* on September 26, 2007; and *United States v. Dongfan "Greg" Chung* on February 6, 2008. *Id.*

³⁷³ First Foreign Indictment, *supra* note 23.

³⁷⁴ Press Release, U.S. Dep't of Justice, Scientist Pleads Guilty to Providing False Statements Regarding Trade Secret Theft (May 1, 2002), available at <http://www.usdoj.gov/criminal/cybercrime/serizawaPlea.htm>.

³⁷⁵ See generally Tetsuya Morimoto, First Japanese Denial of U.S. Extradition Request: Economic Espionage Case, 20 INT'L ENFORCEMENT L. REP. 288 (2004) (discussing the case).

³⁷⁶ See, e.g., *United States v. Martin*, 228 F.3d 1, 10–13 (1st Cir. 2000).

³⁷⁷ See, e.g., *Pisani v. Van Iderstine*, No. CA 07-187S, 2007 WL 2319844, at *3 (D. R.I. Aug. 9, 2007).

³⁷⁸ 228 F.3d 1 (1st Cir. 2000).

³⁷⁹ 258 F.3d 535 (6th Cir. 2001).

³⁸⁰ 436 F.3d 1117 (9th Cir. 2006).

³⁸¹ 155 F.3d 189 (3d Cir. 1998).

³⁸² 281 F.3d 534 (6th Cir. 2002).

³⁸³ Crim. No. 3:06-CR-210-TSL-LRA, 2007 WL 1746399 (S.D. Miss. June 15, 2007).

of the defendant. My count is that twenty of the thirty-five cases involved a defendant or defendants who were born outside the United States. Roughly half of these twenty involved a defendant with a background either in China or Taiwan. The remaining cases involved either defendants who were United States-born or nationals from Europe or Canada, but whose background was not readily ascertainable from the text of the judicial opinion or the summaries on the web site. The fact that more than half of the prosecutions involved non-United States nationals illustrates how the Act serves to globalize trade secret law by preventing appropriation across borders.

The defendants in these cases typically worked for a high technology company in the software, hardware, biotechnology, or biomedical fields. The trade secrets appropriated ranged from DNA cell lines³⁸⁴ to the diagnostic tests used by Microsoft to test its software suite.³⁸⁵ For example, in *Ye*, the Federal Bureau of Investigation (“FBI”) apprehended the defendant, a Chinese born, naturalized United States citizen, as he was about to board a flight to China with his co-defendant.³⁸⁶ *Ye* was caught with information related to a microprocessor project called Supervision developed by several Silicon Valley companies, which he was taking to a company he formed in China.³⁸⁷ In *Okamoto*, the sole prosecution under section 1831, the co-defendants were accused of taking DNA and cell line reagents from the Cleveland Clinic Foundation for the purpose of transporting the materials to Japan.³⁸⁸ *Hsu*, a Taiwanese national who was a technical director for a Taiwanese company and working in the United States, was caught by an FBI sting operation involving purported proprietary information relating to the anti-cancer drug Taxol.³⁸⁹ *Hsu*’s case was the first brought under the Economic Espionage Act and resulted in a conviction for an attempted violation of the Act.³⁹⁰ In each of these cases, the act of transferring proprietary information to a third party was not completed, and the circumstances were highly charged.³⁹¹ The defendants were involved in acts that raised suspicions, but also raise questions about the policy effects of the Act on technology transfer and the international movement of labor.³⁹²

The problem was best stated by the court in *United States v. Martin*, a case that resulted in prosecutions for violations of the Economic Espionage Act and mail and wire fraud acts of *Martin*, the CEO of a Wyoming vaccine company, and *Camp*, an

³⁸⁴ See First Foreign Indictment, *supra* note 23.

³⁸⁵ See Press Release, U.S. Dep’t of Justice, Connecticut Man Pleads Guilty in U.S. Court to Selling Stolen Microsoft Windows Source Code (Aug. 29, 2005), available at <http://www.cybercrime.gov/genovesePlea.htm>.

³⁸⁶ *United States v. Ye*, 436 F.3d 1117, 1119–20 (9th Cir. 2006).

³⁸⁷ See *id.*

³⁸⁸ First Foreign Indictment, *supra* note 23.

³⁸⁹ *United States v. Hsu*, 155 F.3d 189, 192–93 (3d Cir. 1998).

³⁹⁰ See *id.* at 191; see also ADAM L. PENENBERG & MARC BARRY, SPOOKED: ESPIONAGE IN CORPORATE AMERICA 67–68 (2000) (noting the Yangs, defendants in the Four Pillars case, referred to the *Hsu* case shortly before their incarceration).

³⁹¹ See, e.g., *Hsu*, 155 F.3d at 191–93.

³⁹² See, e.g., *id.*; see also Benjamin K. Sovacool, *Placing a Glove on the Invisible Hand: How Intellectual Property Rights May Impede Innovation in Energy Research and Development (R&D)*, 18 ALB. L.J. SCI. & TECH. 381, 436 (2008) (“[T]he inherent tension between intellectual property and innovation reveals a deeper complex of problems that require concerted action to address.”).

unhappy employee of IDEXX, a Maine biotech start-up.³⁹³ The two were indicted on a count of conspiracy under the Economic Espionage Act, in addition to the mail and wire fraud counts.³⁹⁴ Camp pled guilty in exchange for testifying against Martin, who was convicted, ordered to pay restitution, and was sentenced to a term of imprisonment.³⁹⁵ The conviction was based, in part, on a long term email correspondence between the two which ostensibly read as a wooing of Camp by Martin (at many levels) to leave the Maine company and move out to join the company in Wyoming.³⁹⁶ As part of this correspondence, Camp sent upon Martin's request information of proprietary products and software from the Maine company where she worked.³⁹⁷ The United States Court of Appeals for the First Circuit, in upholding the conviction, wrote:

A careful reading of the seven-month e-mail communication between Dr. Stephen Martin and Caryn Camp could lead to the conclusion Martin and his counsel urge that this is simply a pen-pal relationship between a lonely Maine lab technician and a reclusive California scientist. However, the evidence could also lead a reader to the conclusion that something far more sinister was afoot: that an originally harmless communication mushroomed into a conspiracy to steal trade secrets and transport stolen property interstate, and that the electronic mail and U.S. mails were used to further a scheme to defraud IDEXX. Because we find there was sufficient evidence for a reasonable jury to conclude the latter beyond any reasonable doubt, we **AFFIRM** the defendant's conviction on all counts.³⁹⁸

The court's hint of ambiguity is revealing about the scope of the Economic Espionage Act.³⁹⁹ The appellant's brief and an initial read of the facts of the case suggest a story of employee mobility.⁴⁰⁰ Camp, a frustrated employee, seeks opportunity at Martin's company based on its website.⁴⁰¹ Martin, after failing to acquire the desired technology from IDEXX, sees an opportunity when an IDEXX employee calls.⁴⁰² It is the opportunistic behavior on the part of Martin combined with the purloining of a company's assets that support the more sinister read endorsed by the court.⁴⁰³ The Economic Espionage Act, the court leaves us to understand, aids in policing this unproductive and larcenous form of employee recruitment that seems not to be supported by the creation of spillovers or genuine competition.⁴⁰⁴

When read in a sinister light, the facts of the Martin case echo the notorious United States Court of Appeals for the Fifth Circuit opinion in *E.I. du Pont de*

³⁹³ United States v. Martin, 228 F.3d 1, 6–11, 19 (1st Cir. 2000).

³⁹⁴ *Id.* at 6.

³⁹⁵ Brief of Appellant at 1, United States v. Martin, 228 F.3d 1 (1st Cir. 2000) (No. 00-1039), 2000 WL 35562248.

³⁹⁶ *Martin*, 228 F.3d at 6–10.

³⁹⁷ *Id.*

³⁹⁸ *Id.* at 19.

³⁹⁹ *See id.* at 19.

⁴⁰⁰ *See* Brief of Appellant at 5–15, United States v. Martin, 228 F.3d 1 (1st Cir. 2000).

⁴⁰¹ *See Martin*, 228 F.3d at 6–7.

⁴⁰² *Id.* at 7.

⁴⁰³ *Id.* at 7–10.

⁴⁰⁴ *Id.* at 10–13, 19.

Nemours & Co. v. Christopher,⁴⁰⁵ in which the court found that using a plan to flyover a competitor's lab in order to take pictures constituted misappropriation of a trade secret under state law.⁴⁰⁶ Unable to base its decision on some independent illegal act by the defendant (the flyover, for example, did not constitute a trespass), the court held that the behavior was improper as a violation of the ethics of business competition.⁴⁰⁷ The defendant was taking a free ride or, perhaps more accurately, was choosing not to compete by building a better product or by designing around existing technologies.⁴⁰⁸ Instead, the defendant was choosing to make a naked copy of what the plaintiff was doing.⁴⁰⁹ Whether the United States Court of Appeals for the Fifth Circuit expanded the scope of business ethics under state trade secret law is a much debated question.⁴¹⁰ After the decision in *Martin*, however, one has to conclude that the flyover at issue in Christopher Brothers would rise to federal criminal liability with the resulting fines and jail time.⁴¹¹ Criminalization of such conduct is arguably over-deterrence of what has been deemed to be unethical, non-competitive, and free-riding behavior. One has to wonder why state trade secret law or a civil federal remedy would not serve the purpose of deterring the sanctioned business plan in *Martin*.

The facts of *Martin* pertain to the misappropriation of trade secret across state lines within the United States.⁴¹² The majority of the cases under the Economic Espionage Act involve misappropriation by non-United States nationals who steal, attempt to steal or conspire to steal trade secrets with the intent to take them overseas.⁴¹³ In *United States v. Hsu*,⁴¹⁴ the first case brought under the Economic Espionage Act, the defendants were Taiwanese nationals who contacted an FBI undercover agent to obtain the proprietary formulas and secret processes associated with the manufacture of Taxol, an anti-cancer drug made and sold by Bristol-Meyers-Squibb.⁴¹⁵ There is no doubt that the defendants were trying to steal proprietary information, circumventing the appropriate commercial channels of licensing or reverse engineering the protected trade secrets.⁴¹⁶ Nonetheless, the case provides a troubling precedent because the court allowed the sentence of the one convicted defendant to stand despite the defense of legal impossibility.⁴¹⁷ Hsu was arrested after receiving what he thought were the requested trade secrets from the undercover agent.⁴¹⁸ Instead, the information was not proprietary at all.⁴¹⁹

⁴⁰⁵ 431 F.2d 1012 (1970).

⁴⁰⁶ *Id.* at 1017.

⁴⁰⁷ *Id.* at 1015–16.

⁴⁰⁸ *Id.*

⁴⁰⁹ *Id.*

⁴¹⁰ *See e.g.*, Don Wiesner & Anita Cava, *Stealing Trade Secrets Ethically*, 47 MD. L. REV. 1076, 1077 (1988).

⁴¹¹ *See* United States v. Martin, 228 F.3d 1, 19 (1st Cir. 2000).

⁴¹² *Id.* at 6–10.

⁴¹³ *See, e.g.*, United States v. Hsu, 155 F.3d 189, 191–93 (1998).

⁴¹⁴ 155 F.3d 189.

⁴¹⁵ *Id.* at 191–93.

⁴¹⁶ *Id.*

⁴¹⁷ *Id.* at 198–204.

⁴¹⁸ *Id.* at 193.

⁴¹⁹ United States v. Hsu, 40 F. Supp. 2d 623, 629 (E.D. Pa. 1999).

Nonetheless, Hsu was found criminally liable for attempted theft of trade secrets.⁴²⁰ The court rejected his defense that it was impossible to complete the crime when what was stolen was not in fact a trade secret.⁴²¹ Such a defense would undermine the ability of the government to undertake sting operations like the one against Hsu.⁴²²

The problem is that the United States Court of Appeals for the Third Circuit's decision in *Hsu* gives the government wide license to undertake sting operations in order to ferret out potential economic spies.⁴²³ Such sting operations potentially chill legitimate inquiries by employers who are attempting to poach employees and employees who may be interested in a move.⁴²⁴ A potential bright line to avoid being caught in the web of a sting operation or, more to the point, being found liable for violating the Economic Espionage Act is to not seek out or offer proprietary information of any sort.⁴²⁵ Discussions of employment need to be distanced from any discussion of valuable firm assets, whether tangible or intangible.⁴²⁶ But even here there is a concern that the government can use its authority under the Act broadly, casting a sense of paranoia or concern over any employee who is foreign.⁴²⁷ In *United States v. Ye*,⁴²⁸ the defendants were caught with proprietary information that the employees had obtained without permission from several major Silicon Valley companies.⁴²⁹ The defendants were apprehended at the San Francisco International Airport as they were passing through security to board a plane to the People's Republic of China.⁴³⁰ Convictions were based on attempted violations of and conspiracy to violate the Economic Espionage Act.⁴³¹ The defendants moved pre-trial for the use of experts to determine which of the purloined information constituted trade secrets.⁴³² The government moved to protect the information under the provisions of the Act that allow for protective orders.⁴³³ The United States Court of Appeals for the Ninth Circuit held in favor of the government on this issue with the result that a government can bring a case even if there may not be any trade secrets at issue in a case.⁴³⁴ As the decision illustrates, the scope of both attempt and conspiracy liability is quite broad.⁴³⁵

⁴²⁰ See ANNUAL REPORT, *supra* note 30, at 2.

⁴²¹ *Hsu*, 155 F.3d at 198–204.

⁴²² *Id.* at 202.

⁴²³ See *id.* at 192–93.

⁴²⁴ Compare *id.* at 191–93 (seeking the alleged trade secret at seemingly any cost), with *United States v. Martin*, 228 F.3d 1, 6–10 (1st Cir. 2000) (indicating a situation that may have begun as a disgruntled employee seeking a new job).

⁴²⁵ See *Martin*, 228 F.3d at 6–10, 18–19 (offering such information opens oneself up to conviction).

⁴²⁶ See *id.*

⁴²⁷ See J. Thomas Coffin, *The Extraterritorial Application of the Economic Espionage Act of 1996*, 23 HASTINGS INT'L & COMP. L. REV. 527, 528–29 (2000) (using terms “very broad” and “sweeping” to describe Congress' grant of authority under the Economic Espionage Act).

⁴²⁸ 436 F.3d 1117 (9th Cir. 2006).

⁴²⁹ *Id.* at 1119–20.

⁴³⁰ *Id.*

⁴³¹ *Id.* at 1119.

⁴³² *Id.* at 1124 (granting the U.S. writ of mandamus preventing the defendants' motion).

⁴³³ *Id.* at 1120.

⁴³⁴ *Id.* at 1124.

⁴³⁵ See *id.*

The facts of *United States v. Krumrei*⁴³⁶ illustrate some limits on the scope of the Act. Krumrei worked for a company that was using a laminating process developed by Wilsonart.⁴³⁷ Krumrei's employer was using the process under license from Wilsonart.⁴³⁸ Krumrei approached a competitor of Wilsonart with information about the process, and the competitor informed Wilsonart, who hired an investigator to approach Krumrei with the request to obtain proprietary information from Krumrei.⁴³⁹ Based on Krumrei's offers to transfer proprietary information to the investigator, Krumrei was indicted for attempting to steal trade secrets.⁴⁴⁰ He pled guilty to the charge and avoided a jail sentence but was fined for the offense.⁴⁴¹ Permitted to appeal as a condition of his plea, Krumrei raised an attack on the Economic Espionage Act as being constitutionally vague.⁴⁴² The basis for the vagueness claim was the definition of trade secrets that required a showing that the trade secret had taken reasonable steps to protect the information as a secret.⁴⁴³ The court rejected his challenge, holding that Krumrei knew that the information he was passing on was proprietary, and therefore the statute was not vague as applied to him.⁴⁴⁴ The facts of Krumrei present a classic application of the Economic Espionage Act, criminalizing the attempt to transfer information that one knows is proprietary to a competitor.⁴⁴⁵ However, Krumrei's conduct would also lead to liability under state trade secret law.⁴⁴⁶ Therefore, the recurring question is whether the potential chilling effects of the Act are balanced by the benefit of deterring or punishing conduct that, absent the Economic Espionage Act, would otherwise be legal.⁴⁴⁷

Perhaps the most intensive prosecution under the Act is *United States v. Yang*,⁴⁴⁸ the first conviction for federal theft of trade secret through a jury trial. Yang was the CEO of Four Pillars, a Taiwanese company that engaged in the adhesive business whose main competitor was the United States company Avery Dennison.⁴⁴⁹ Dr. Lee was a research scientist working for Avery Dennison, also Taiwanese, who met Yang in the late 1980's and was convinced to pass on proprietary information about products under development by his employer.⁴⁵⁰ The FBI became aware of this activity in the 1990's and secured Dr. Lee's cooperation to engage in a sting operation to catch Yang.⁴⁵¹ In the later 1990's, Dr. Lee and an undercover FBI agent met with Yang in an Ohio hotel room and passed on what purported to be confidential information about Avery Dennison's business, contained

⁴³⁶ 258 F.3d 535 (6th Cir. 2001).

⁴³⁷ *Id.* at 536–37.

⁴³⁸ *Id.* at 536.

⁴³⁹ *Id.* at 537.

⁴⁴⁰ *Id.*

⁴⁴¹ *See id.*

⁴⁴² *Id.*

⁴⁴³ *Id.* at 538.

⁴⁴⁴ *Id.* at 539.

⁴⁴⁵ *See id.* at 536–37.

⁴⁴⁶ *See, e.g.,* Illinois Trade Secrets Act, 765 ILL. COMP. STAT. 1065/1-9 (2009).

⁴⁴⁷ *See Carr, supra* note 51, at 180–209 (analyzing the cases and making an argument that the Economic Espionage Act fills a significant gap in the law).

⁴⁴⁸ 281 F.3d 534 (6th Cir. 2002).

⁴⁴⁹ *Id.* at 540.

⁴⁵⁰ *Id.*

⁴⁵¹ *Id.*

in an envelope marked confidential.⁴⁵² Yang was arrested and indicted under the Economic Espionage Act.⁴⁵³ The conviction ended with a penalty of five million dollars under the United States Sentencing Guidelines after a trial and appeals that finally came to an end in 2007.⁴⁵⁴ The nearly decade long prosecution is an archetypical⁴⁵⁵ Economic Espionage Act conviction, involving a foreign spy using a United States employee as a conduit for appropriating confidential business information.⁴⁵⁶ The penalty reflected the nature of the threat posed by Yang's conduct, and the United States Court of Appeals for the Sixth Circuit remanded the case, finding that the sentence was too high in light of Avery Dennison's involvement in the sting operation.⁴⁵⁷ In 2007, the United States Court of Appeals for the Sixth Circuit affirmed the reduction of the sentence by the trial court on remand to two million dollars.⁴⁵⁸

The 2006 indictment against former employees of Eaton, a Mississippi aerospace company is the most recent example of the shadow that the Economic Espionage Act cases over employee mobility in technology industries.⁴⁵⁹ Several employees of Eaton departed the company in the early 2000's to accept employment with Frisby, a competitor for aerospace contracts and for government grants, in Mississippi.⁴⁶⁰ The indictment charged violations of mail and wire fraud and a conspiracy to violate the Economic Espionage Act.⁴⁶¹ Several overt acts in furtherance of the conspiracy were alleged by the government, including email correspondences with employees at Frisby while the defendants were still in the employ of Eaton, email correspondences by the defendants to former colleagues at Eaton recruiting them to join Frisby, and the transfer of specifications for hydraulic parts and other products manufactured by Eaton by the defendants to Frisby.⁴⁶² The district court dismissed many of the counts as being void for vagueness although the court did not dismiss the counts based on the transfer of the parts, since they were arguably concrete trade secrets that were transferred to a competitor.⁴⁶³ What counts that survived eventually were dismissed, upon affirmance by the United States Court of Appeals for the Fifth Circuit, because of the general five year statute of limitations for federal criminal

⁴⁵² *Id.* at 540–41.

⁴⁵³ *Id.* at 541.

⁴⁵⁴ *See* United States v. Four Pillars Enter. Co., 253 F. App'x 502, 505, 515 (6th Cir. 2007).

⁴⁵⁵ *Id.* at 504. The case is archetypal in the sense that the conduct at issue was the type of conduct that motivated Congress to enact the Act. *See* 142 CONG. REC. S12211-03 (1996) (statement of Sen. Kohl). "This problem is even worse when foreign governments have specifically focused [sic] on American companies in order to steal information from them. American companies are not prepared or equipped to fight off this kind of systematic targeting." *Id.* at S12211.

⁴⁵⁶ *See Yang*, 281 F.3d at 539–41.

⁴⁵⁷ *Id.* at 552.

⁴⁵⁸ *Four Pillars*, 253 Fed. App'x at 505, 515.

⁴⁵⁹ United States v. Case, Crim. No. 3:06-CR-210-WHB-JCS, 2008 WL 1827429, at *2–3 (S.D. Miss. Apr. 23, 2008), *aff'd* 288 F. App'x 212 (5th Cir. 2008), *superseded by*, 309 F. App'x 883 (5th Cir. 2009).

⁴⁶⁰ *Id.* at *2.

⁴⁶¹ *Id.* at *2–3.

⁴⁶² *See id.*

⁴⁶³ *Id.* at *11.

offenses.⁴⁶⁴ Although ultimately an unsuccessful indictment, the example illustrates how far the Act can be taken to criminalize the movement of employees between firms and the potential risks and costs that both firms and workers in high velocity labor markets face.

There are three lessons to glean from the Economic Espionage Act cases. The first is the potentially chilling effects of the Act on the movement of labor across borders. This chilling effect on the movement of labor has consequences for the movement of information and knowledge across borders. The concern stems from the possible over-deterrence of labor mobility and employment because of the criminalization of conduct that may otherwise be actionable under the state law of trade secret. Not only has the Economic Espionage Act upped the ante for misappropriation of trade secret,⁴⁶⁵ it has expanded the scope of illegal conduct through the imposition of attempt and conspiracy liability.⁴⁶⁶ The second lesson, however, is that the courts have tempered the possible adverse effects of the Act by prosecuting cases where defendants have taken or attempted to take concrete assets from the trade secret owner.⁴⁶⁷ Although there are many troubling cases, many of the thirty-six prosecutions sanctions conduct that is close to the model of the free-riding company that seems to solely mimic or copy a competitor rather than compete through reverse engineering or independent invention.⁴⁶⁸ Despite some tendencies to temper the effects of the Act, the aggressive use of sting operations is a source of concern by casting a pale on business transactions and employment hiring decisions.⁴⁶⁹ These concerns support the third lesson. Many of the acts that form the basis for an Economic Espionage Act prosecution could also have been reached under other, less potentially draconian areas of the law, such as traditional trade secret law.⁴⁷⁰ What the Economic Espionage Act may offer is a federal forum and there are possible benefits from federalizing trade secret law.⁴⁷¹ But the machinery of federal criminal prosecutions is a blunt tool to bring to the activity at issue.⁴⁷² In Section III, I take these lessons from a decade of case law to propose reforms to intellectual property law that can further temper the negative effects of the Act on global labor mobility and competition.

⁴⁶⁴ *United States v. Case*, 288 F. App'x 212, 212 (5th Cir. 2008). However, the Court granted the government's petition for rehearing and then reversed its earlier decision related to Counts 9 & 12. *United States v. Case*, 309 F. App'x 883, 886 (5th Cir. 2009).

⁴⁶⁵ *See* 18 U.S.C. §§ 1831–39 (2006) (making misappropriation of a trade secret a criminal act punishable by imprisonment).

⁴⁶⁶ *See id.* § 1832(a)(4)–(5).

⁴⁶⁷ *See, e.g., Case*, 309 F. App'x at 886 (reversing the two counts related to hard evidence that were earlier dismissed).

⁴⁶⁸ *See e.g., United States v. Four Pillars Enter. Co.*, 253 F. App'x 502, 505–07 (6th Cir. 2007).

⁴⁶⁹ *See e.g., United States v. Yang*, 281 F.3d 534, 540–41 (6th Cir. 2002).

⁴⁷⁰ *See, e.g., Illinois Trade Secrets Act*, 765 ILL. COMP. STAT. 1065/1-9 (2009).

⁴⁷¹ *See, e.g., Yang*, 281 F.3d at 540–41 (indicating that the FBI's resources are available to investigate cases under the federal Economic Espionage Act of 1996).

⁴⁷² *See id.* (indicating that the FBI will use the full range of technology to catch an alleged violator).

III. POLICY RECOMMENDATIONS

The Economic Espionage Act interferes with the benefits that arise from labor mobility in high technology markets, or high velocity labor markets to adopt the shorthand.⁴⁷³ The impediment is particularly troubling given the Act's deliberate targeting of non-United States workers and the movement of technology and knowledge across national borders.⁴⁷⁴ The legitimate goals of the Act, to target acts that merely imitate competitors rather than compete based on innovation, are addressed by existing state laws.⁴⁷⁵ The criminalization and nationalization of trade secret laws serve largely to deter the desirable movement of people and information across borders.

This section proposes ways to cure the adverse effects of the Act by (i) clarifying its narrow purpose and (ii) suggesting reforms of the extraterritorial application of other types of intellectual property law. I conclude that the biggest problem with the Economic Espionage Act is its turning a matter of private law into a federal crime, which permits the unleashing of governmental power untethered from, and hence untempered by, defined private or broadly public interests. Power in defense of the national market place is troubling in the context of intellectual property law. One solution, I conclude, is to make traditional trade secret more closely allied to the law of property and thereby define the goals of the law in terms of very narrow private interests that can be readily ascertained and protected. The challenge is to adopt the limiting principle of property, as a counter to the uncontrollable goal of protecting the nation, without also adopting the acquisitiveness and private exclusion that has hindered intellectual property law in other ways. The section concludes with an analysis of how property can counter the nation as a basis for better defining the public interest goals of intellectual property law.

A. Clarifying the Purpose and Application of the Act

The Economic Espionage Act was enacted in the wake of several high profile cases of industrial espionage in the early Nineties.⁴⁷⁶ These cases turned industrial espionage into an ideological and politico-legal substitute for the Cold War as the rising economies in Asia were viewed as the new threat.⁴⁷⁷ Although it did not

⁴⁷³ See *United States v. Case*, Crim. No. 3:06-CR-210-TSL-LRA, 2007 WL 1746399, at *1 (S.D. Miss. June 15, 2007) (demonstrating that five defendants moving from one employer to the next in the aerospace industry have been dragged into years of litigation).

⁴⁷⁴ See, e.g., *United States v. Ye*, 436 F.3d 1117 (9th Cir. 2006).

⁴⁷⁵ See, e.g., Illinois Trade Secrets Act, 765 ILL. COMP. STAT. 1065/1-9 (2009).

⁴⁷⁶ See Carr, *supra* note 51, at 162-63.

⁴⁷⁷ 142 CONG. REC. S12211-03 (1996) (statement of Sen. Kohl).

Since the end of the cold war, our old enemies and our traditional allies have been shifting the focus of their spy apparatus. Alarming, the new target of foreign espionage is our industrial base. But for too many years, we were complacent and did not heed these warnings. And we left ourselves vulnerable to the ruthless plundering of our country's vital information. We did not address this new form of espionage—a version of spying as dangerous to our national well-being as any form of classic espionage. Today, that complacency ends.

Id. at 12211.

involve theft of commercial trade secrets, the espionage case brought against Wen Ho Lee in 1999 (which eventually resulted in a dismissal and apology to Dr. Lee) provides an example of the atmosphere that gave rise to concerns over spying and theft of valuable information.⁴⁷⁸ This concern with espionage dovetailed with the growing movement touting strong intellectual property rights as an ingredient for domestic economic growth and international competitiveness in the 1990's.⁴⁷⁹ However, the Economic Espionage Act is decidedly different from the other pieces of intellectual property legislation that were enacted contemporaneously.⁴⁸⁰ The Act makes intellectual property infringement, traditionally a private matter handled through private litigation, a federal crime.⁴⁸¹ In this way, the Act raises the stakes for those who use information protected by intellectual property law and are engaged in industries that drive the processes of innovation and technology development.⁴⁸²

By using intellectual property law to promote the goals of global economic security and competitiveness, the Economic Espionage Act is a statute at war with itself.⁴⁸³ It taps the powers of the national government, particularly its powers to enforce criminal laws, to a matter of economic and business regulation.⁴⁸⁴ Although there are many criminal provisions to federal business regulation (such as the securities and the antitrust laws), the criminalization of state trade secret law makes the theft of private property a federal offense and is distinguishable from the threats to public markets posed by manipulating securities markets or by forming price cartels.⁴⁸⁵ Furthermore, the object of the Economic Espionage Act is a vague, often difficult to define category of property called information, which is often entwined in the know-how of a firm and of its employees.⁴⁸⁶ Admittedly, securities law also criminalizes the misuse of information, but in the context of securities, the misuse is often made concrete in the form of financial instruments and standardized market relationships.⁴⁸⁷ Trade secret abuse, as a case like *Martin* or *Case* shows, can extend

⁴⁷⁸ See generally WEN HO LEE WITH HELEN ZIA, *MY COUNTRY VERSUS ME: THE FIRST-HAND ACCOUNT BY THE LOS ALAMOS SCIENTIST WHO WAS FALSELY ACCUSED OF BEING A SPY* (2001) (detailing Wen Ho Lee's experiences with the FBI, his arrest, and imprisonment for alleged economic espionage).

⁴⁷⁹ See RYAN, *supra* note 204, at 67–72 (documenting the growing private support for legislative and executive efforts promoting intellectual property rights domestically and at the international level in the late 1980's and through the 1990's).

⁴⁸⁰ Compare Economic Espionage Act of 1996, Pub. L. No. 104-294, 110 Stat. 3488 (1996) (codified as amended at 18 U.S.C. § 1831–39 (2006)) (criminalizing foreign theft and transfer of United States trade secrets), with e.g., Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (codified as amended at title 17, United States Code (2006)) (updating traditional copyright protection in the United States).

⁴⁸¹ 18 U.S.C. § 1832 (asserting that misappropriation of a trade secret is punishable by up to ten years in prison).

⁴⁸² See *id.*

⁴⁸³ See *id.* §§ 1831–39.

⁴⁸⁴ See, e.g., *United States v. Yang*, 281 F.3d 534, 540–41 (6th Cir. 2002) (using the FBI to arrest a suspected perpetrator).

⁴⁸⁵ Compare §§ 1831–39 (criminalizing trade secret theft), with Securities Act of 1933, 15 U.S.C. § 77 (2006) (criminalizing securities fraud), and Sherman Antitrust Act of 1890, 15 U.S.C. §§ 1–40 (criminalizing price-fixing between competitors).

⁴⁸⁶ See, e.g., *United States v. Case*, Crim. No. 3:06-CR-210-TSL-LRA, 2007 WL 1746399, at *1, *4–*6 (S.D. Miss. June 15, 2007) (dismissing many of the counts as statutorily vague as applied to this case's set of facts).

⁴⁸⁷ See 15 U.S.C. § 77x.

to a wide range of communications, including employment solicitations.⁴⁸⁸ However, the less troubling Economic Espionage Act cases involve the transfer of concrete property, such as the disks in *Martin*⁴⁸⁹ or the parts in *Case*.⁴⁹⁰ Even when physical property is involved, the vexing question still remains as to whether the concrete property constitutes a trade secret.⁴⁹¹ Nonetheless, the Economic Espionage Act, by ostensibly attempting to promote innovation and global markets, may impede the lifeblood of these markets by deterring the movement of people and of information.⁴⁹²

Resolution of this fundamental problem rests on more clearly delineating the purpose of the Act. It is not a tool for national security.⁴⁹³ Nor is it a tool to police national borders against the entry of foreign workers.⁴⁹⁴ In short, it is not a type of immigration policy.⁴⁹⁵ Instead, the Act is designed to protect against the theft of certain types of industrial property to benefit third parties.⁴⁹⁶ That is, as a practical matter, all that the Act can or should do.⁴⁹⁷ The goals of security and immigration are tangential and better served by other laws.⁴⁹⁸ The argument so far may read as one for limited government. Actually, the argument is one for the *clear* and *necessary* exercise of governmental power, especially its power to enforce criminal laws. When the Act is seemingly used for purposes other than protecting industrial property, especially ones that interfere with the movement of people and information as I have documented in this Article, then the clarity of the law and the appropriateness of exercising governmental power becomes questioned.⁴⁹⁹ The example of Wen Ho Lee is apposite on this point.⁵⁰⁰ His prosecution was based on the claim that he had used sophisticated mathematical techniques to solve problems for the Chinese government.⁵⁰¹ Dr. Lee dismissed these charges as “nonsense” and compared them to “saying a discussion about algebra is the same as giving them secrets.”⁵⁰² Infusing national security objectives into trade secret law risks turning any potentially valuable information into a protected trade secret and the loss of private industrial property into a threat to national security.⁵⁰³

But even if the application of the law is clear, there is still the pervading question of whether the law is necessary. Much of the conduct could be reached through existing law that provides state remedies in state and federal courts through

⁴⁸⁸ See *Case*, 2007 WL 1746399, at *1; *United States v. Martin*, 228 F. 3d 1, 12–19 (1st Cir. 2000).

⁴⁸⁹ *Martin*, 228 F. 3d at 9–10.

⁴⁹⁰ See *Case*, 2007 WL 1746399, at *1.

⁴⁹¹ See *id.* at *12–13.

⁴⁹² See *supra* Section II.B.

⁴⁹³ See 18 U.S.C. §§ 1831–39 (2006) (providing specific remedies for specific actions that do not necessarily deal with national security).

⁴⁹⁴ See *id.* (providing remedies against domestic as well as foreign actors).

⁴⁹⁵ *Id.*

⁴⁹⁶ *Id.*

⁴⁹⁷ *Id.*

⁴⁹⁸ *E.g.*, 6 U.S.C. § 111(b)(1) (2006) (stating that the mission of the Department of Homeland Security is to prevent and reduce terrorist attacks, while also minimizing the damage terrorist attacks cause).

⁴⁹⁹ See *supra* Section II.B.

⁵⁰⁰ See LEE WITH ZIA, *supra* note 478, at 35–85.

⁵⁰¹ *Id.* at 270–73.

⁵⁰² *Id.* at 272.

⁵⁰³ See *id.*

private litigation and some limited state criminal law remedies.⁵⁰⁴ Limitations of the regime prior to the enactment of the Economic Espionage Act are those associated with state laws: the jurisdictional reach of the courts and the conflict of laws.⁵⁰⁵ These limitations suggest that the main benefits of the Economic Espionage Act may be those associated with federal law: national jurisdiction and uniformity.⁵⁰⁶ A further complication is that much of the activity may involve extraterritorial reach of the law to enjoin conduct that occurs by actors outside the boundaries of the United States.⁵⁰⁷ To the extent that the Act goes beyond resolving these limitations, there is a case to be made that the statutory scheme is overbroad.⁵⁰⁸ Consequently, I focus for the rest of this section on how other areas of intellectual property law can be reformed to address some of the limitations that the Economic Espionage Act ideally should correct. My goal is not to propose adopting these reforms in addition to the current Act. Instead, my argument is that these proposals are desirable substitutes for the Economic Espionage Act, correcting some of the limitations of traditional state secret law without introducing the possible harmful effects on high velocity labor markets.

B. Collateral Reforms

Intellectual property rights expand with a ratchet. Expansions in rights occur without corresponding limits or contractions. With that caveat in mind, I present these proposals as substitutes for the Economic Espionage Act, ways to limit the application of the federal criminal law by expanding the availability of civil remedies for intellectual property infringement in the global marketplace. As a practical policy matter, I do think it is unlikely that any of these proposals would be adopted as a substitute for the Economic Espionage Act, given the politics of intellectual property reform.⁵⁰⁹ Nonetheless, I end with a discussion of these proposals to highlight the particular problems that lead to the enactment and enforcement of the Act. Conceptually, the discussion of these proposals identifies the specific policy gaps in intellectual property law that the Act grew to fill and even further expand the enforcement of trade secret law at the federal level.⁵¹⁰

⁵⁰⁴ See 3 ROGER M. MILGRIM, MILGRIM ON TRADE SECRETS § 12.06 (2009) (indicating the states have criminalized trade secret misappropriation); see also GHOSH ET AL., INTELLECTUAL PROPERTY: PRIVATE RIGHTS, THE PUBLIC INTEREST, AND THE REGULATION OF CREATIVE ACTIVITY 65–71 (Thomson 2007) (discussing state criminal trade secret statutes).

⁵⁰⁵ See, e.g., UNIF. TRADE SECRETS ACT §§ 1–12 (amended 1985), 14 U.L.A. 537–659 (2005); Trade Secrets Act, 765 ILL. COMP. STAT. 1065/1-9 (2009).

⁵⁰⁶ See Carr, *supra* note 51, at 209 (indicating that the Economic Espionage Act fills gaps left by state trade secret tort law).

⁵⁰⁷ See, e.g., United States v. Hsu, 155 F.3d 189, 193 n.2. (3d Cir. 1998).

⁵⁰⁸ See 18 U.S.C. §§ 1831–39 (2006).

⁵⁰⁹ See 142 CONG. REC. S12211-03, S12211–14 (1996) (statement of Sen. Kohl) (stating that the bullying of American corporations stops with the passing of the Economic Espionage Act).

⁵¹⁰ See Carr, *supra* note 51, at 209.

1. *Extraterritorial Application of Patent Law*

The Economic Espionage Act is designed to prevent the unauthorized export of protected information.⁵¹¹ The statute limits the protected subject matter to trade secret, and, as a result, the Act prevents the misappropriation of valuable information that might be developed into a patentable invention either in the United States or overseas.⁵¹² To the extent that other intellectual property is given more extraterritorial enforcement, the need for the Economic Espionage Act to prevent foreign misappropriation of economically valuable information is obviated.⁵¹³ One particular avenue for expanding the rights of intellectual property owners outside the boundaries of the United States is through permitting extraterritorial enforcement of the Patent Act.⁵¹⁴

The Patent Act is largely silent about the extraterritorial enforcement of claims for patent infringement.⁵¹⁵ Section 271(f) grants to the patent owner the right to sue an individual for combining overseas unpatentable components exported from the United States into a machine or manufacture patented in the United States.⁵¹⁶ Similarly, section 271(g) allows the patent owner to sue the user of a process patented in the United States if he uses the process to produce a product that is imported into the United States.⁵¹⁷ Courts have been split on how to apply patent law extraterritorially both in situations where the statute arguably applies and in situations where the statute is silent. The United States Supreme Court has generally not favored extraterritorial application of the Patent Act, holding in two notable cases that such application requires a clear directive from Congress.⁵¹⁸ The United States Court of Appeals for the Federal Circuit, on the other hand, has been more unpredictable about extraterritorial enforcement.⁵¹⁹ Commentators have

⁵¹¹ *See id.*

⁵¹² 18 U.S.C. §§ 1831–39.

⁵¹³ *See generally* TRIPS Agreement arts. 41–61 (allowing for the enforcement of intellectual property rights in its member nations).

⁵¹⁴ *See* 35 U.S.C. § 184 (2006). It should be pointed out that U.S. patent law already regulates the export of technology and information through the requirement of foreign filing licenses in order to file a patent application overseas. *See id.* The foreign filing license requirement controls the transfer of information through patent applications. *Id.*

⁵¹⁵ *See id.* § 271(a); *see also* Timothy R. Holbrook, *Extraterritoriality in U.S. Patent Law*, 49 WM. & MARY L. REV. 2119, 2124 (2008) (“[M]any commentators view patent law as the most territorially based form of intellectual property. . . . and has begun to place pressure on these historical territorial limits in patent law.”).

⁵¹⁶ 35 U.S.C. § 271(f).

⁵¹⁷ *Id.* § 271(g).

⁵¹⁸ *Microsoft Corp. v. AT&T Corp.*, 550 U.S. 437, 459–60, 462 (2007) (holding that golden disks from which software was copied is not a component for infringement action brought under section 271(f)); *Deepsouth Packing Co. v. Laitram*, 406 U.S. 518, 523, 531–32 (1972) (exporting components of patented machine for assembly overseas not patent infringement), *superseded by statute*, 35 U.S.C. § 271(f) (enacted 1984); *Brown v. Duchesne*, 60 U.S. 183, 198–99 (1856) (holding that activity on a foreign vessel in a United States port is not patent infringement).

⁵¹⁹ *Eolas Techs., Inc. v. Microsoft Corp.*, 399 F.3d 1325, 1338–41 (Fed. Cir. 2005) (finding that golden disks are components under section 271(f) for Internet based application); *Johns Hopkins Univ. v. Cellpro, Inc.*, 152 F.3d 1342, 1366 (Fed. Cir. 1998) (limiting extraterritorial reach of injunction).

sought more clarity on the issue, generally pointing towards recognizing extraterritorial application of United States patent law.⁵²⁰

Without settling on a particular standard for extraterritoriality, I endorse the arguments in favor of stronger extraterritorial enforcement of United States patent law for the reason that it would alleviate the need for the Economic Espionage Act as a tool for combating what is viewed as the theft of knowledge protected by intellectual property law. Extraterritorial enforcement would allow private rights holders to enforce high value intellectual property that is being infringed by overseas entities and allow rights holders a source of value for their intellectual property assets.⁵²¹ Furthermore, permitting extraterritorial application of patent law would be less intrusive on global high velocity labor markets than the enforcement of trade secret rights through statutory schemes like the Economic Espionage Act.⁵²² While trade secret law protects information and knowledge that is often embodied in human beings,⁵²³ patent law protects embodiments of knowledge in processes and products that are protected from unauthorized infringement.⁵²⁴ Compared with trade secret law, actions under the Patent Act targets the embodiments of information in commodities and therefore interferes less with the movement of people.⁵²⁵ Extraterritorial enforcement of patent rights would be consistent with the free flow of labor across national borders. The cost, however, may be on the free flow of physical goods or components across borders.⁵²⁶ With enhanced extraterritorial enforcement, overseas companies may be deterred from exporting products into the United States for concerns over being held liable for patent infringement.⁵²⁷ In this way, extraterritorial enforcement of patent rights acts as a tariff on the movement of goods into the United States. Such a tariff may limit the desirable effects of free trade, but arguably it does not limit the spillover effects that are created by the distribution of knowledge. Consequently, the relative costs to innovation may be smaller for the extraterritorial application of patent law than for the more vigorous criminal enforcement of trade secret law at the federal level.

⁵²⁰ See Holbrook, *supra* note 515, at 2163–67 (endorsing an approach to patent law extraterritoriality that expressly takes into consideration foreign patent law).

⁵²¹ *Id.* at 2163–67.

⁵²² Compare *id.* at 2163–67 (endorsing an approach to patent law extraterritoriality that expressly takes into consideration foreign patent law), with 18 U.S.C. §§ 1831–39 (2006) (restricting labor movement across borders as it is currently applied).

⁵²³ See, e.g., *Pepsico, Inc. v. Redmond*, 54 F.3d 1262, 1272 (7th Cir. 1995) (affirming the district court's holding that the Illinois Trade Secrets Act prevented an employee from ever divulging the trade secrets of his former employer to a new employer).

⁵²⁴ See 35 U.S.C. § 101 (2006) (“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”).

⁵²⁵ *Id.* §§ 271; 281–97 (defining infringement, available remedies, and restrictions to those remedies).

⁵²⁶ See Holbrook, *supra* note 515, at 2163–67.

⁵²⁷ See, e.g., *Vanderlande Indus. Nederland BV v. U.S. Int'l Trade Comm'n*, 366 F.3d 1311, 1325 (Fed. Cir. 2004) (affirming the ITC's exclusion order of the appellant's product from the U.S.) Compared to litigation in the district courts, a relatively convenient way to stop infringing products from entering the United States exists at the United States International Trade Commission. See, e.g., *id.*

2. Jurisdictional Issues in Trade Secret Law

Permitting more liberal extraterritorial application of trade secret by private owners may obviate the need for federal criminal laws designed to combat trade secret misappropriation. For example, reducing the Economic Espionage Act to a federal tort law with a civil remedy may suffice.⁵²⁸ But arguably such expansions of causes of actions brought by private parties could potentially be just as inhibitive on the free movement of people and ideas as the Economic Espionage Act.⁵²⁹ However, trade secret law, privately enforced, could permit the owner to prosecute against foreign entities without intruding on the movement of labor if the jurisdictional rules permitted enforcement of private trade secret rights against foreign entities.⁵³⁰ Current law does facilitate trade secret claims against foreign entities.⁵³¹ The United States Court of Appeals for the Eighth Circuit has held, for instance, that the Foreign Sovereign Immunities Act does not prohibit state trade secret claims against foreign sovereigns.⁵³² The court reasoned that the misappropriation of a private right did not fall within the domain of traditional sovereign powers.⁵³³ This decision is critical for expanding private rights under state trade secret law against foreign entities,⁵³⁴ something that the Economic Espionage Act does, but through the expansion of federal prosecutorial power.⁵³⁵

A limitation, however, on the enforcement of state law claims is the rules on personal jurisdiction and forum non conveniens.⁵³⁶ Courts have, on many occasions, found that a state's long arm statute cannot be used to bring foreign sovereigns or entities into state or federal courts because of lack of contacts with the forum.⁵³⁷ Even when jurisdiction is found, a court may still find that the United States does not provide the convenient forum in which to adjudicate the claims.⁵³⁸ Both personal

⁵²⁸ Compare 18 U.S.C. § 1832 (2006) (stating that an individual in violation of the statute "shall . . . be fined under this title or imprisoned not more than 10 years, or both"), with 35 U.S.C. § 281 ("A patentee shall have remedy by civil action for infringement of his patent.").

⁵²⁹ See 18 U.S.C. §§ 1831–39.

⁵³⁰ See, e.g., *Asahi Metal Indus. Co. v. Superior Court*, 480 U.S. 102, 113–16 (1987) (requiring that the defendant have "minimum contacts" in order for the court to exercise personal jurisdiction over the defendant).

⁵³¹ 18 U.S.C. §§ 1831–39.

⁵³² *BP Chems. Ltd. v. Jiangsu Sopo (Group) Corp.*, 285 F.3d 677, 688 (8th Cir. 2002) (finding exception to Foreign Sovereign Immunities Act on commercial activity in the United States).

⁵³³ *Id.*

⁵³⁴ See *id.*

⁵³⁵ 18 U.S.C. §§ 1831–39.

⁵³⁶ See, e.g., *Piper Aircraft Co. v. Reyno*, 454 U.S. 235, 261 (1981) (reinstating a district court's dismissal of a wrongful death suit related to an air crash in Scotland on the ground of forum non conveniens).

⁵³⁷ See, e.g., *BP Chems. Ltd. v. Formosa Chem. & Fibre Corp.*, 229 F.3d 254, 286 (3d Cir. 2000) (finding no personal jurisdiction over a Taiwanese company); *LinkCo Inc. v. Nichimen, Corp.*, 164 F. Supp. 2d 203, 204 (D. Mass. 2001) (finding no grounds for personal jurisdiction over a company but finding personal jurisdiction over an agent). But see, e.g., *Research Sys. Corp. v. IPSOS Publicite*, 276 F.3d 914, 926 (7th Cir. 2002) (finding personal jurisdiction over a French company); *S&D Trading Co., LLC v. AAFIS, Inc.*, 494 F. Supp. 2d 558, 575 (S.D. Tex. 2007) (finding personal jurisdiction over a Chinese trading company).

⁵³⁸ See, e.g., *Piper Aircraft*, 454 U.S. at 255–61 (analyzing several public and private interest factors that the court must take into consideration when facing a motion for forum non conveniens and concluding that the United States was not a convenient forum).

jurisdiction and forum non conveniens should be understood differently in the context of state trade secret claims.⁵³⁹ Courts should allow such claims to go forward keeping in mind the potential adverse effects of allowing trade secret misappropriation by foreign entities from not being adequately remedied. The broader implication of more permissive jurisdictional rules in these cases would be to mitigate the need for the Economic Espionage Act in cases where a foreign entity is the ultimate culprit.

3. *Civil versus Criminal Enforcement of Intellectual Property*

Trade secret misappropriation is a blend of tort and property. As Justice Holmes famously stated in *E.I. du Pont de Nemours Powder Co. v. Masland*,⁵⁴⁰ liability for trade secret misappropriation rests on culpable conduct in the form of breach of confidence.⁵⁴¹ However, trade secret law evolved to be property-like with misappropriation actions designed to protect the property rights of an owner, usually a firm, against a range of unauthorized uses by an employee or a competitor.⁵⁴² Given this evolution, it is not surprising that trade secret law has moved in the direction of criminal law with the Economic Espionage Act.⁵⁴³ While my previous two reform proposals were designed to address the Act's federalization of intellectual property in order to facilitate prosecutions against non-United States entities, the last proposal addresses the problems of criminalizing trade secret law.

Criminalization of conduct can have chilling effects on the legitimate movement of labor and information across firms and across borders. The scholarly work on high velocity labor markets demonstrates this point.⁵⁴⁴ The discussion in this paper of the implications for cross-border movement of people and information shows that the chilling effects can affect international trade.⁵⁴⁵ An important step in mitigating the adverse effects of federal criminal trade secret law is to have the law focus on trade secret misappropriation as a crime against property rather than as a broad deterrent to improper conduct.⁵⁴⁶ By focusing on the theft of property, the effects of criminal trade secret law on the legitimate flow of people and information can be limited.

⁵³⁹ See, e.g., *World-Wide Volkswagen Corp. v. Woodson*, 444 U.S. 286, 291 (1980) (“As has long been settled, and as we reaffirm today, a state court may exercise personal jurisdiction over a nonresident defendant only so long as there exist “minimum contacts” between the defendant and the forum State.” (citing *Int'l Shoe Co. v. Washington*, 326 U.S. 310, 316 (1945))).

⁵⁴⁰ 244 U.S. 100 (1917).

⁵⁴¹ *Id.* at 102 (“[T]he starting point for the present matter [trade secret misappropriation] is not property or due process of law, but that the defendant stood in confidential relations with the plaintiffs, or one of them.”).

⁵⁴² See *Ruckelshaus v. Monsanto Co.*, 467 U.S. 986, 1003–04, 1004 n.9 (1984) (treating a trade secret as property for Fifth Amendment Taking Clause analysis).

⁵⁴³ See Carr, *supra* note 51, at 161–63 (listing some of the astounding actions against American businesses that led to the passage of the Economic Espionage Act).

⁵⁴⁴ See, e.g., SAXENIAN, REGIONAL ADVANTAGE, *supra* note 15, at 29–57 (analyzing the growth of the Silicon Valley job market).

⁵⁴⁵ See, e.g., DIXIT & NORMAN, *supra* note 45, at 146–49 (indicating that labor migration can affect international trade).

⁵⁴⁶ See, e.g., *Ruckelshaus*, 467 U.S. at 1003–04, 1004 n.9 (treating a trade secret as property for Fifth Amendment Taking Clause analysis).

My proposal may at first seem to contradict the purposes of the Economic Espionage Act. As Senator Specter noted in the legislative history of the Act:

[A] major problem for law enforcement in responding to the increase in such thefts has been a glaring gap in Federal law. For many years, the United States has had a variety of theft statutes in the United States Code. These laws are derived primarily from the common law of theft. For example, it violates Federal law to move stolen property across State lines. In order to violate such laws, however, the courts have held that the property stolen cannot be intangible property, such as trade secrets or intellectual property. In addition, theft usually requires that the thief take the property with the intention of depriving the lawful owner of its use. But such a test i[s] useless when a person copies software and leaves the original software with the lawful owner, taking only the secrets on the software but leaving the physical property. The lawful owner still has full use of the property, but its value is significantly reduced.⁵⁴⁷

The Economic Espionage Act corrected the inadequacies of prior criminal law that required theft of physical property and thereby ignored the economic harms caused by theft of intangible information.⁵⁴⁸ I am not suggesting that we limit trade secret misappropriation claims to theft of tangible property. Instead, I am suggesting that the Economic Espionage Act has moved too far, permitting convictions on facts in which concrete and valuable information may not be at issue at all.

If trade secret misappropriation is to be criminalized, then the burden should be a substantial one upon the government to demonstrate that the company has been injured by the actions of the defendants. Based upon my reading of the case law under the Economic Espionage Act, the burden on the government is fairly low given the potential adverse consequences on the movement of people and information globally.⁵⁴⁹ In fact, the heightened burden on the government is consistent with prosecutions by the few states that have enacted criminal trade secret statutes.⁵⁵⁰ States enacted criminal trade secret statutes to correct the inadequacy of traditional criminal theft statutes in protecting against appropriation of intangible information.⁵⁵¹ State courts have placed a high burden on prosecution.⁵⁵² For example, in *People v. Pribich*, the California Court of Appeals for the Second District overturned a conviction under the state criminal trade secret statute because the

⁵⁴⁷ 142 CONG. REC. S12208 (1996) (statement of Sen. Specter).

⁵⁴⁸ *See id.*

⁵⁴⁹ *See, e.g.*, *United States v. Hsu*, 40 F. Supp. 2d 623, 630–31 (E.D. Pa. 1999) (convicting the defendant of the inchoate offense of attempted misappropriation of a trade secret, even though all or nearly all of the knowledge contained within the “attempt” was publicly known).

⁵⁵⁰ *See* MILGRIM, *supra* note 504, § 12.06; *see also* GHOSH ET AL., *supra* note 504, at 65–71 (discussing state criminal trade secret statutes).

⁵⁵¹ *See, e.g.*, *Commonwealth v. Engelman*, 142 N.E.2d 406, 408 (Mass. 1957) (holding that the theft of trade secrets was not included under larceny statute).

⁵⁵² *See, e.g.*, *People v. Pribich*, 27 Cal. Rptr. 2d 113, 117 (Cal. Ct. App. 1994) (finding no trade secret misappropriation because the prosecution did not offer any evidence at trial that the information would give a competitor a competitive advantage).

prosecution had failed to show that the information at issue would give “one who uses it an advantage over competitors.”⁵⁵³ A similar burden should be imposed in federal prosecutions under the Economic Espionage Act.

My proposal is also consistent with other federal statutes governing intellectual property and computer crimes.⁵⁵⁴ The Computer Fraud and Abuse Act, enacted twelve years before the Economic Espionage Act, criminalizes unauthorized access to computer systems.⁵⁵⁵ The Act, however, imposes a \$5000 threshold for damages to the system in order for a prosecution to proceed.⁵⁵⁶ Similarly, the No Economic Theft Act imposes a \$1000 threshold for copyright infringement through electronic means if the infringement is not undertaken for commercial gain or personal benefit.⁵⁵⁷ Similar monetary thresholds for prosecutions under the Economic Espionage Act would alleviate some of the concerns with the chilling effect of the Act on legitimate employee mobility. If the prosecutor had to prove a baseline level of economic harm before proceeding on a case, prosecutions may be less likely and only economically harmful prosecutions will be pursued. Of course, the threshold would have to be set at an amount that would balance the chilling effects with the deterrent effects of the prosecution.

Making this move requires prosecution of clear cases involving trade secrets that have been embodied in some form that can be recognized as property.⁵⁵⁸ Cases brought on evidence of enticement of employees by competing employers or the transfer of knowledge would be suspect under this proposed approach.⁵⁵⁹ If trade secret law is to be criminalized, the guilty act should entail the transfer or attempted transfer of well-developed trade secrets whose market value is unambiguous and whose value as confidential information is established beyond a reasonable doubt. What this means in practice is that the prosecutor has to show that the defendant either appropriated or attempted to appropriate concrete trade secrets. Furthermore, the focus of the prosecution is not on the bad conduct of the defendant but on the subject matter that was the basis for the appropriation. The proposal would challenge the use of sting operations in Economic Espionage Act cases.⁵⁶⁰ While sting operations are justified as protecting legitimate interests in trade secrets,⁵⁶¹ sting operations based on questionable or non-existent trade secrets can have a chilling effect on the mobility of labor and information.⁵⁶² Sting operations

⁵⁵³ *Id.* at 117.

⁵⁵⁴ *See, e.g.*, Computer Fraud & Abuse Act of 1984, 18 U.S.C. § 1030 (2006).

⁵⁵⁵ *Id.* § 1030(a).

⁵⁵⁶ *Id.* The statute has no monetary threshold for, among other cases, unauthorized access to computers that involve medical treatment or diagnosis that causes physical harm to an individual or harm to public safety, or is used by a government agency for administration of justice, national security, or national defense. *Id.* § 1030(a)(3), (5).

⁵⁵⁷ 17 U.S.C. § 506(a)(1) (2006).

⁵⁵⁸ *See id.* (requiring a threshold value to be met before criminal prosecution is permitted).

⁵⁵⁹ Without initially meeting the threshold limit, the interactions between potential defendants would not likely rise to the level of trade secret misappropriation. *Compare* Economic Espionage Act of 1996, 18 U.S.C. §§ 1831–39 (containing no monetary threshold), *with* Computer Fraud & Abuse Act of 1984, 18 U.S.C. § 1030(a)(4) (containing a \$5000 per one-year period monetary threshold).

⁵⁶⁰ *See, e.g.*, *United States v. Yang*, 281 F.3d 534, 540–41 (6th Cir. 2002).

⁵⁶¹ *See id.*

⁵⁶² *See, e.g., id.*

can be a basis for a prosecution if the government can show that there was a highly probable risk that actual trade secrets were to be appropriated absent the sting.⁵⁶³

Introducing a property requirement in criminal trade secret prosecutions should not be confused with recognizing trade secrets as property akin to real property or trade secret misappropriation as akin to trespass to land.⁵⁶⁴ Instead, the property concept as I describe it here is designed to prevent prosecution of cases where the process of knowledge transmission and the creation of spillovers may be deterred.⁵⁶⁵ By requiring some concreteness in defining the subject of the misappropriation, the cause of action does not become a broad-sweeping mandate to police any conduct that might be deemed inappropriate. If trade secret is to be criminalized, a “big if” and one that has irreversibly occurred with the passage of the Economic Espionage Act, then the potential adverse consequences of criminal law on the movement of labor and information can be limited by requiring that prosecution focus on cases where concrete trade secrets that have been developed and perhaps even embodied in a tangible form is the subject of appropriation. The shift to property in criminal trade secret law can cure the overzealous prosecution of undifferentiated and ambiguous conduct.⁵⁶⁶

CONCLUSION: INTELLECTUAL PROPERTY AND THE BOUNDARY OF THE NATION

Intellectual property law is about progress, in the grand sense of the development of society and knowledge.⁵⁶⁷ In a more banal sense, intellectual property law is about movement, the flow of creations and innovations into the marketplace and the transformation of ideas into practical applications.⁵⁶⁸ This Article has made the case for how intellectual property affects the movement of people, particularly the way in which people serve as vectors for ideas and ideas serve to inform and attract people.⁵⁶⁹ Such movement occurs through the institution of firms and also the institution of the nation-state.⁵⁷⁰ Through its effects on the movement of people and ideas, intellectual property serves to demarcate and regulate the boundaries of firms and of nations.⁵⁷¹

⁵⁶³ *See id.*

⁵⁶⁴ *See, e.g.,* Hyde, *The Wealth of Shared Information*, *supra* note 15 (indicating that the traditional legal notions of property may need to be relaxed as related to trade secret law).

⁵⁶⁵ *See, e.g.,* United States v. Hsu, 40 F. Supp. 2d 632, 628–31 (E.D. Pa. 1999) (convicting the defendant of the inchoate offense of attempted misappropriation of a trade secret, even though all or nearly all of the knowledge contained within the “attempt” was publicly known).

⁵⁶⁶ *See generally* LEE WITH ZIA, *supra* note 478 (chronicling the FBI’s false accusation of espionage against Wen Ho Lee).

⁵⁶⁷ U.S. CONST. art. I, § 8, cl. 8 (“To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”).

⁵⁶⁸ *See, e.g.,* 35 U.S.C. §§ 101, 112 (2006) (allowing an inventor patent rights for his or her invention in exchange for a full, enabling public disclosure of the invention).

⁵⁶⁹ *See supra* Section II.B.

⁵⁷⁰ *See, e.g.,* SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 274–324 (documenting the growth of India’s economy as related to the information technology business sector).

⁵⁷¹ *See, e.g.,* 35 U.S.C. §§ 184–85 (requiring individuals to obtain license from the U.S. before obtaining foreign patent rights, and prohibiting individuals and corporations from obtaining U.S. patent rights if the entity filed a foreign patent application prior to obtaining the license).

By considering the Economic Espionage Act of 1996, I have both illustrated my thesis that intellectual property law affects the movement people and presented the argument for open borders and fluid boundaries in the promotion of innovation. But this defense of openness should not be seen as a turn against law. In fact, the goal of free movement of people and ideas supports the case for the enforcement of federal criminal trade secret law in property terms.⁵⁷² The focus on conduct in the Economic Espionage Act, as demonstrated by the criminalization of a civil cause of action, interferes with the functioning of high velocity labor markets. A turn towards criminal enforcement based on misappropriation of clear property interests militates against this turn. In analyzing the Economic Espionage Act of 1996, my conclusion is that it is an unnecessary piece of legislation. Reforms in traditional intellectual property law should satisfy some of the more plausible concerns raised in defense of the Act. But as a result of political compromise and social fears, the Act will not vanish soon. I hope that the arguments here place our understanding of the Act in its proper perspective, serve in the formulation of reforms that limit its potential harmful effects on international trade in information, and, most importantly, aid in understanding the role of intellectual property law in shaping global markets.

⁵⁷² See SAXENIAN, *THE NEW ARGONAUTS*, *supra* note 18, at 184.