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## Rethinking Innovation and Productivity Within the Workplace Amidst Economic Uncertainty

Shlomit Yanisky Ravid

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# Rethinking Innovation and Productivity Within the Workplace Amidst Economic Uncertainty

Shlomit Yanisky Ravid\*

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## INTRODUCTION

One of the keys to the promotion of economic growth that enables countries to progress from recession to recovery is increasing the quantity and quality of technological inventions developed.<sup>1</sup> Concerns about the steady erosion of the United States' (U.S.) position as the world leader in science and technology—areas which are considered to be the critical building blocks to the U.S. economy—led President Barack Obama to make improving innovation a top priority during his presidency, which included initiating a study on ways to improve innovation.<sup>2</sup> This move by the U.S. President came at a time when many other nations had started to lay strong foundations in these same areas.<sup>3</sup> The study was based on the idea that, in order to succeed in maintaining U.S. strength, we must have the will to implement and sustain the policies that will prepare the U.S. to continue being an economic leader moving forward.<sup>4</sup> The main conclusions of the

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<sup>1</sup> See U.S. DEP'T OF COMMERCE, THE COMPETITIVENESS AND INNOVATIVE CAPACITY OF THE U.S. 2-1 (2012), available at [http://www.commerce.gov/sites/default/files/documents/2012/january/competes\\_010511\\_0.pdf](http://www.commerce.gov/sites/default/files/documents/2012/january/competes_010511_0.pdf) (last visited Sept. 7, 2012) [hereinafter WHITE HOUSE STUDY].

<sup>2</sup> WHITE HOUSE STUDY, *supra* note 1. On January 4, 2011, President Barack Obama signed the America Competes Reauthorization Act of 2010. Pub. L. No. 111-385, 124 Stat. 3982 (2011) (hereinafter "Competes Act"). Section 604 of the Competes Act instructs the Secretary of Commerce to complete a study that addresses the economic competitiveness and innovative capacity of the United States. The study was carried out by the U.S. Department of Commerce, signed by the Secretary of Commerce, John E. Brtyson, and completed in January 2012. See also WORLD INTELLECTUAL PROP. ORG. (WIPO), WORLD INTELLECTUAL PROPERTY INDICATORS, WIPO ECONOMICS AND STATISTICS SERIES 3, 21 fig.3 (2011) [hereinafter WORLD INTELLECTUAL PROPERTY INDICATORS] (illustrating that the US contribution to the global change in total volume of filings narrowed from 23.9% in 1983-1980 to 19.4% in 1995-2008).

<sup>3</sup> Soumitra Dutta and Bruno Lanvin, Eds., THE GLOBAL INNOVATION INDEX 2013 – THE LOCAL DYNAMICS OF INNOVATION, at v (Cornell, INSEAD and WIPO, 2013) available at: [http://www.wipo.int/export/sites/www/freepublications/en/economics/gii/gii\\_2013.pdf](http://www.wipo.int/export/sites/www/freepublications/en/economics/gii/gii_2013.pdf).

<sup>4</sup> *Id.* ("Innovation is the key driver of competitiveness, wage and job growth, and long term economic growth.").

White House Study on fostering innovation were based on three pillars: (a) enlarging federal support of research in innovative fields; (b) improving the education system by improving preparatory programs in science and technology related fields; and (c) improving infrastructure, such as broadband internet access.<sup>5</sup>

This Article suggests a completely different path towards achieving the same final goal, a path that was entirely neglected in the White House study—that is, the significant and substantial role of employee-inventors in elevating the level of U.S. innovation within the workplace.<sup>6</sup> Considering the fact that around eighty to ninety percent of all inventions in the U.S. are the work of employed inventors,<sup>7</sup> one might be surprised that the employee-inventors were not part of the discussions and, indeed, were not mentioned at all. Improving the productivity of these employed inventors, in order to generate more innovative ideas and pursue worthy ones to the point of economic viability, has to become a critical factor in the modern commercial era, and even more so now in a time of recession.

The intersection between the roles and rights of employers and those of employee-inventors is the focus of this Article, since they are relevant to the achievement of growth and development. Employed inventors play a major role in the promotion and advancement of technological innovation, and therefore, policymakers should give ample weight to their role. The research embodied in this Article suggests a desirable new policy for the allocation of rights in and benefits from inventions developed by employees.<sup>8</sup>

I further suggest that the recent modifications of Patent laws in the U.S. and abroad, instead of considering the integral role of

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<sup>5</sup> WHITE HOUSE STUDY, *supra* note 1, at v–viii.

<sup>6</sup> See discussion *infra* Parts IV, V.

<sup>7</sup> See Henrik D. Parker, *Reform for Rights of Employed Inventors*, 57 S. CAL. L. REV. 603, 603 (1984) (stating that “[b]ecause technological innovation is one of the United States’ most important economic resources, this country cannot afford to allow other countries to continue carving out increasingly larger shares of the market for technology”); William P. Hovell, *Patent Ownership: An Employer’s Rights to His Employee’s Invention*, 58 NOTRE DAME L. REV. 863, 863 (1983) (“Eighty-four percent of American patents are awarded to employed inventors . . .”).

<sup>8</sup> See discussion *infra* Part VI.

employed inventors, evidence continued strengthening of the pro-corporate approach.<sup>9</sup> For example, in the U.S., the America Invents Act amended U.S. Patent law to facilitate employer organizations to submit patent applications without an oath or declaration from the employee-inventor.<sup>10</sup> If the employer entity has a financial interest in the invention, it can proceed without seeking the inventor's approval.<sup>11</sup> Before this amendment, patent applications included the employee-inventor's oath or declaration, and the patent was filed under the employee-inventor's name even when the employer had an economic interest in the invention.<sup>12</sup>

In Germany, the German Service Invention Act was modified to now state that if the employer does not explicitly waive his or her claim regarding the service invention within four months of receiving an employee's report, the invention and all the rights associated with it belong to the employer.<sup>13</sup> Previously, German Patent law was based on the principle that the employee was the owner of the invention and an employer was required to explicitly claim the rights in the invention, in compliance with strict rules that included compensation for the employee-inventor.<sup>14</sup> Similar changes have also been suggested in Israeli Patent law.<sup>15</sup>

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<sup>9</sup> See also Patents Law, 5727-1967, IL001 (1967) (Isr.), Draft Amendment (number 10), 2010, §§ 18–19. The Act amends Sections 132-134 of the Patent Act, and suggests a new scheme for allocating to the employer the rights in the employees' inventions in cases in which the employee-inventor did not report the existence of any invention (not limited to service inventions) and also imposes restrictions on employee-inventor entitlement to consideration for service inventions when the employer has any other contractual arrangement with the employee. These amendments also favor the employer's rights over the ones of the employee.

<sup>10</sup> Leahy-Smith America Invents Act, Pub. L. No. 112-29, § 4, 125 Stat. 284, 293–97 (2011) (codified as amended in scattered sections of 35 U.S.C.).

<sup>11</sup> *Id.*

<sup>12</sup> See Robert A. Armitage, *Understanding the America Invents Act and its Implications for Patenting*, 40 AIPLA Q.J. 1, 95 (2012).

<sup>13</sup> Gesetz über Arbeitnehmererfindungen [The German Service Invention Act], 1957 (modified in 2009), BGBl. I S. at 2521 (Ger.)

<sup>14</sup> See Morag Peberdy & Alain Strowel, *Employee's Right to Compensation for Inventions – A European Perspective*, PLC CROSS-BORDER LIFE SCIENCES HANDBOOK, 67 (2009).

<sup>15</sup> Patents Law, 5727-1967, IL001 (1967) (Isr.), Draft Amendment (number 10), 2010, §§ 18–19 (amending §§ 132-134 of the Patent Act, and suggesting a new scheme for allocating to the employer the rights in the employees' inventions in cases in which the employee-inventor did not report the existence of any invention and also imposing

These recent policy choices are part of a phenomenon that has been on the rise and already noted by scholars towards the end of the last century.<sup>16</sup> This Article argues against both the growing general popularity of the pro-corporate approach, as well as its underlying goals and justifications.<sup>17</sup> The Article claims that these goals and justifications are neither constitutionally nor theoretically sound.<sup>18</sup>

The majority of scholars who justify increasing corporate power and broadening protection to employers in the allocation of intellectual property (IP) rights within the workplace anchor their conclusions in law and economics.<sup>19</sup> These utilitarian justifications were preferred over others and have now become the

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restrictions on employee-inventor entitlement to consideration for service inventions when the employer has any other contractual arrangement with the employee).

<sup>16</sup> See Robert Merges, *One Hundred Years of Solicitude: Intellectual Property Law, 1900-2000*, 88 CAL. L. REV. 2187, 2215–33 (2000) (describing the “corporatization” of patent law; whereas in 1885, only 12% of patents were issued to corporations, and by 1998, only 12.5% of patents were issued to independent inventors. The rules governing ownership of employee inventions changed in ways that favored corporations and courts demonstrated an eagerness to enforce employment contracts signing ownership over to the corporation. The shift toward preference of corporations can be seen in emergence of a default rule in favor of employer and in criticism of the tendency to favor the employed inventors).

<sup>17</sup> See discussion *infra* Parts I, II.

<sup>18</sup> See discussion *infra* Parts IV, V.

<sup>19</sup> See, e.g., STEVEN SHAVELL, *FOUNDATIONS OF ECONOMIC ANALYSIS OF LAW*, 1–5 (Harvard Coll. Press 2004) (asserting that the measure of social welfare as well as morality and fairness will usually not accord importance to the economic analysis of intellectual property and to the distribution of utilities); RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 37–45, 44 (6th ed., 2003) (“[T]he economic benefits of investing in intellectual property are not exhausted in the initial creation . . .”); Dan L. Burk, *Intellectual Property and the Firm*, 71 U. CHI. L. REV. 3, 4, 8 (2004) (conceiving of intellectual property rights as mechanisms for coordinating activities *between* firms as well as for coordinating ordinate re-resource allocation within a firm); Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1, 2 (1999) (defending prevailing default rules, as well as the strong presumption that employee invention contracts should be enforced); see also Barak Y. Orbach, *The Law and Economics of Creativity at the Workplace*, in *THE HARVARD JOHN M. OLIN DISCUSSION PAPER SERIES* 1, 118 (Harvard Law Sch., Discussion Paper No. 356, 2002), available at [http://www.law.harvard.edu/programs/olin\\_center/papers/pdf/356.pdf](http://www.law.harvard.edu/programs/olin_center/papers/pdf/356.pdf); Michael D. Birnhack, *Who Owns Bratz? The Integration of Copyright and Employment Law*, 20 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 95, 125, 140, 154–57 (2009) (criticizing the decision of the Ninth Circuit Court in the *Bratz v. Barbie* case by raising claims based on a law and economics perspective).

dominant school of thought in contemporary intellectual property theory.<sup>20</sup> The predominance of the utilitarian calculus likewise influences the scope and content of today's intellectual property laws. In reexamining the subject, I argue that these justifications may in fact lead to a different conclusion.<sup>21</sup> The allocation of rights in inventions and works developed by employees may actually give the employer a windfall when weighed against what is necessary to achieve optimal production.

Economic/utilitarian theories of IP law are widely enlisted as the justification for the exclusive allocation of property rights in employee IP production to employers, either by courts or by employee contracts transferring all intellectual property rights to the employer.<sup>22</sup> Nonetheless, it is uncertain whether the economic approach necessarily leads to desirable results. It may indeed be that the economic approach actually compels a less than total transfer of rights to the employer. A deeper examination of the economic analysis discloses the tension between arguments favoring a categorical preference for the employer as the exclusive recipient of rights in intellectual property products and arguments that favor the buttressing of employees' rights.<sup>23</sup> This Article

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<sup>20</sup> See Peter Menell, *Intellectual Property: General Theories*, in 2 ENCYCLOPEDIA OF LAW AND ECONOMICS 129, 129–30 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

<sup>21</sup> See discussion *infra* Part I.

<sup>22</sup> See Merges, *supra* note 19, at 2–3.

<sup>23</sup> See, e.g., Parker, *supra* note 7, at 603–04 (explaining that the United States is in danger of losing its position as the technological leader of the world as American innovation has decreased resulting in less patent productivity per dollar of investment than in many foreign countries and arguing that the current law does not incentivize employed inventors and this poses a threat to one of the United States' most important economic resources); Jay Dratler, Jr., *Incentives for People: The Forgotten Purpose of the Patent System*, 16 HARV. J. ON LEGIS. 129, 130–34 (1979) (arguing that the current patent laws fail to provide effective incentives to inventors, most of whom work for large corporate or government employers, because the laws allow employers to require employee-inventors to assign all potential inventions to their employers); Hovell, *supra* note 7, at 863 (“The law must find a realistic but fair method of dividing an invention’s value between the inventor and the developer. The patent law, therefore, needs a broad, clear rule which will allow a fair division in most circumstances.”); Pat K. Chew, *Faculty Generated Inventions: Who Owns the Golden Egg?*, 1992 WIS. L. REV. 259 (1992) (considering policy arguments against university ownership of faculty-generated inventions); Ann Bartow, *Inventors of the World Unite! A Call for Collective Action by Employee-Inventors*, 37 SANTA CLARA L. REV. 673, 684 (1997) (asserting that even brilliant and diligent labor by a properly-equipped and well supported inventor offers no

surveys both sets of claims, focusing on the question of whether the complete allocation of rights to employers ignores factors that favor a different mode of allocation and, as a result, causes efficiency failures in the specific areas that it purports to serve.

This Article not only argues the case for a more balanced approach to the employer/employee-inventor within the workplace, but it also suggests a new model of rights allocation, one which would arguably enlarge the “whole pie” in a manner that would benefit employers, employees, and the public at large.<sup>24</sup> Moreover, this subject, unlike many others concerning intellectual property, is not regulated by international protocol. I point out that the inefficiency deriving from the absence of international regulation of employee-inventor rights stresses the need to establish an international tool, under the auspices of the World Intellectual Property Organization (WIPO), to address and regulate allocation of rights within the workplace.<sup>25</sup>

In introducing the subject and laying the groundwork for its discussion, I will briefly review the economic/utilitarian justifications for intellectual property law. Subsequently, I will then primarily focus on the example of patents in developing an enhanced model for the allocation of employee-developed IP rights. Whereas most of the literature justifies the existing system, or else objects to it by presenting alternative theories, the principal innovation of this Article lies in its justification—stemming from a new law and economics perspective—of a more balanced model of allocating rights, which attaches significantly greater importance to employees’ rights.

Part I of this Article provides a brief description of the current dominant U.S. legal approach regarding the rights and benefits of inventions developed by employees, mainly supporting transferring all IP rights in IP products from employed inventors to the employer/corporation. This Article argues that it is apparent from recent court decisions that courts have played a major role in the validation of this pro-corporate policy through enforcement of

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assurance of a profitable or even useful outcome, regardless of the amount of money or time invested).

<sup>24</sup> See *infra* Part VI.

<sup>25</sup> *Id.*



pre-invention assignments of all intellectual property rights from employees to employers by contract. Part I further describes the drawbacks of the current IP “pro-corporate” regime, such as the insufficient level of innovation when compared to IP regimes in other countries, as well as the problem of employers who adopt patent troll patterns by submerging inventions developed by employees without developing them for the benefit of the whole society. Part II discusses, from innovative perspectives, the ramifications of the uncertainty surrounding transactions when transferring IP rights to inventions from the employed inventor to his or her employer. This section describes the problem of “pre-invention” transfer of rights, when the employees, usually unknowingly, waive the rights in products (or ideas) they have not yet developed (or thought about) at an early stage before they even commence work. This Article criticizes the traditional explanation of risk allocation in the workplace, considering the employees as risk averse and the employer as risk neutral, because it ignores the specific features of the modern employed inventor. *Inter alia*, the traditional analysis considers neither the risks of employed inventors nor the current era of “start-ups,” where employees become risk-seeking and eager to develop their own ideas while investors are willing to invest in the early “seed” phase inventions that employers might ignore. This Article also analyzes a new study about the implications of risks under uncertainty on allocation of rights and describes the problematic outcomes to employed inventors and, as a result, on the innovation level. Part III introduces the implications of the Principal-Agent theory on the allocation of IP rights between employer and employed inventor. The conclusion is that, in order to avoid the representative problem, employed inventors should benefit from the outcome of their works. Part IV discusses the importance of incentives for employed inventors during the many stages of the development process of IP products within the workplace. This discussion strongly supports providing greater incentive for employed inventors in order to elevate the level of innovation. Having described the proposed solution to give employees a better share in order to enlarge the “whole pie,” one might reasonably expect the “free” market to reach this optimum result by adopting the most efficient strategy of allocation of rights and benefits between

employer and employed inventors. This Article argues in Part V that the market fails to reach efficiency on this point. Furthermore, this Article explains why the “free” market did not adopt efficient rules to promote and improve innovation level in the U.S. Cognitive biases, differences in bargaining power and the ineffectiveness of labor unions in the IP regime, have led to a non-optimal level of output of innovative products in the workplace. Finally, Part VI suggests a new alternative model, based on the theoretical discussion, which is oriented to promote innovation in the U.S.

## I. INTELLECTUAL PROPERTY RIGHTS WITHIN THE WORKPLACE: EXISTING JUSTIFICATIONS

### A. *The Current Intellectual Property Regime*

Over the years, American law has adopted a policy of giving the employers (almost) all of the intellectual property rights in products developed by employees in the work place.<sup>26</sup> This policy has developed rapidly over the past few decades when, despite having roots favoring inventors, we have now moved toward designing new legal policies that have recently reached its most fevered pitch.<sup>27</sup> Under this new “ultra” pro-corporate regime, almost all rights in employees’ inventions are assigned to employers via either express or implied contracts, hence transferring IP rights from the employee-inventors to the employers.<sup>28</sup> Courts have routinely upheld such contracts. My examination of the most recent court decisions on this topic indicates that almost all of the decisions favor the employer “receiving” rights from the employees’ patent assignment agreement, either expressed in the view of at least one of the judges, or decided at some point in the case’s history.<sup>29</sup> Almost

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<sup>26</sup> See Parker, *supra* note 7, at 606–08 (explaining the common law of patents and how “[i]n response to ambiguities involved in applying common law doctrines, employers began using written contracts to allocate invention rights”).

<sup>27</sup> See Merges, *supra* note 16.

<sup>28</sup> *Id.*

<sup>29</sup> See, e.g., Preston v. Marathon Oil Co., 684 F.3d 1276 (Fed. Cir. 2012) (asserting that employee assignment agreement was valid and enforceable with only continued

universally, assignment agreements in which employees transferred rights to their inventions to the employer are recognized as valid, including in cases where the employees were not “Employed-To-Invent” (“ETI”) and even when the assignment of rights from employees to the employer was implicit.<sup>30</sup> This tendency has been justified within a contractual framework.<sup>31</sup>

This Article argues for a rethinking of the current policy toward a more balanced approach that instead considers the important role of employed inventors, but from a new perspective of uncertainty, which will be explained *infra* in Part II, that has not yet been deeply discussed in the literature. This perspective may shed new light upon existing policy and illuminate possible alternatives to achieve more robust results.

Article I, Section 8 of the U.S. Constitution endows “inventors” with rights to their “discoveries” (Patent Clause).<sup>32</sup> It is of note that the clause does not mention employer rights to an inventor’s work product. Nonetheless, the Supreme Court has specifically ruled in *United States v. Dubilier* that this default rule

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employment as consideration); *DDB Tech., L.L.C. v. MLB Advanced Media, L.P.*, 517 F.3d 1284 (Fed. Cir. 2008) (stating that the employment agreement contained express assignment of rights in future inventions, and therefore an assignment of patent under the agreement would have been automatic); *Regents of the Univ. of N.M. v. Knight*, 321 F.3d 1111 (Fed. Cir. 2003) (ruling that inventors were contractually obligated to assign patents and applications to university and that university was entitled to ownership of patents); *SIRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319 (Fed. Cir. 2010) (holding that the language of the employee assignment of rights to the employer provided for automatic assignment—no need for further steps); *Harsco Corp. v. Zlotnicki*, 779 F.2d 906 (3d Cir.1985) (affirming that the assignment agreement included inventions conceived by employee prior to his or her signing of agreement; employer’s agreement to continue to employ employee for a reasonable period of time provided sufficient consideration for patent assignment); *Teets v. Chromalloy Gas Turbine Corp.*, 83 F.3d 403 (Fed. Cir. 1996) (holding that even an implied-in-fact contract to assign patent rights to employer existed within employer-employee relationship, in the absence of explicit agreement); Hedvat, *supra* note 4, at 823 (“[D]ecisions today focus more on the collective nature of research and development.”).

<sup>30</sup> See, e.g., *Preston*, 584 F.3d 1276 (holding that employee, a relief pumper in a resource extraction operation, who was not employed to invent must transfer rights to employer); *Teets*, 83 F.3d 403 (ruling that there was an implied-in-fact contract to assign inventive rights to employer).

<sup>31</sup> See *Teets*, 83 F.3d at 408.

<sup>32</sup> U.S. CONST. art. 1, § 8, cl. 8.

can be contracted around.<sup>33</sup> The Court stated that in the event of a contractual transfer of rights, the contract is enforceable and the rights will be transferred to the employer even if the contract was drawn up before the employee began work.<sup>34</sup> Furthermore, in the event that there was *no* explicit contractual transfer of rights, if the worker falls under the ETI category, the rights will pass automatically from the employee to the employer.<sup>35</sup> Other courts have held that, in cases where the employee made use of the employer's resources, the employer will receive a non-exclusive right of use for no consideration, also known as a "shop right."<sup>36</sup>

Thus, the courts have played a major role in the validation and enforcement of assignments of intellectual property rights from employees to employers. This allocation of rights ostensibly stems from the attempted "balancing" of rights between the employer and the employee that would, presumably, spur the most invention (so as to comply with the dictates of the Patent Clause).<sup>37</sup> However, the actual result of the despotic nature of this pro-employer approach is that a significant number of employment contracts transfer all intellectual property rights to employers and thereby divest the employees of any rights to inventions usually in the very early stages of their employment. This minimizing of employee's rights and consequently, their motivation level, obviously cannot maximize economic growth.

This policy of favoring employers has developed so widely that employers now can almost assume ownership of the very thoughts of employees. An example of this is an arrangement for encouraging workers' proposals, known as an "employee

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<sup>33</sup> *United States v. Dubilier Condenser Corp.*, 289 U.S. 178, 187 (1933).

<sup>34</sup> *See id.*

<sup>35</sup> *See id.*

<sup>36</sup> *See, e.g., Kaplan v. Johnson*, 409 F.Supp. 190, 199 (N.D. Ill. 1976) ("Shop rights can be best described as an irrevocable, free, and nonexclusive license to the employer to use the employee's invention."); *see also Hobbs v. United States*, 376 F.2d 488 (5th Cir. 1976); *Pursche v. Atlas Scraper & Eng'g. Co.*, 300 F.2d 467 (9th Cir. 1961).

<sup>37</sup> *See Graham v. John Deere Co.*, 383 U.S. 1, 5-6 (1966) (holding "[i]nnovation, advancement, and things which add to the sum of useful knowledge are inherent requisites in a patent system" governed by a command such as the one found in the Constitution of the United States).

suggestion plan.”<sup>38</sup> These arrangements govern situations in which employees raise ideas on a voluntary basis and, in the event that the idea is approved, such a plan dictates that it becomes the exclusive property of the employer.<sup>39</sup> In exchange, the employee can then be entitled to future consideration in the form of payment, but such payment is sometimes discretionary.<sup>40</sup> Further, employee suggestion plans are, on occasion, found to be mere gratuities that do not give rise to a binding obligation on the employer to even award the employee for his/her idea.<sup>41</sup>

A further example of employee ideas vesting in the employer is found in the *Brown v. Alcatel* case.<sup>42</sup> In *Brown*, the court ruled that a company owned the rights to an idea that existed entirely in the thoughts of a former employee.<sup>43</sup> The court’s ruling takes the idea of an employer’s ownership of employee inventions to its most absurd conclusion.

However, the U.S. regime is certainly not the only alternative. Other leading industrialized countries have adopted vastly different

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<sup>38</sup> See *Fish v. Ford Motor Co.*, 41 Ohio App. 3d 113, 115 (1987) (“The purpose of having an employee suggestion plan is to reward ideas and promote employee participation in the manufacturing process. These programs are to give the employees incentives to work harder and generate possible improvements. The rewards given may be minimal compared to the benefits to the company, but an employee that is rewarded may work more eagerly knowing quality work will be appreciated.”); see also Donna Domagala, *Employee Suggestion Plans: Building a Better Mousetrap or the Misappropriation of Ideas?*, 31 SUFFOLK U. L. REV. 391, 392–93 (1997) (“Despite the notion that no one ‘owns’ ideas, courts have recognized that people often expend considerable resources in creating ideas with an expectation to recover value from their use.”).

<sup>39</sup> See Domagala, *supra* note 38, at 419–20.

<sup>40</sup> See *Hodgkins v. New England Tel. Co.*, 82 F.3d 1226, 1228 (1st Cir. 1996) (holding that a clause in an employee suggestion plan which reserved full discretion to the employer when awarding employees was not an illusory promise but that the employer could not refuse to award an employee arbitrarily).

<sup>41</sup> See Domagala, *supra* note 38, at 396–97 (noting that suggestion box systems do elicit extra ideas from employees, but that compensation for ideas falls below the level that might be expected.). *But see Grepke v. Gen. Elec. Co.*, 280 F.2d 508 (7th Cir. 1960) (holding employee was damaged by employer’s appropriation of his idea, where employee suggested a novel method for inserting balancing weights in armatures of electric motors, which the employer rejected and later used).

<sup>42</sup> *Brown v. Alcatel USA, Inc.*, No. 05-02-01678-CV, 2004 WL 1434521 (Tex. App., 5th Dist. June 28, 2004).

<sup>43</sup> *Id.* at \*3.

policies and as we have recently seen, are thriving economically. In Japan, for example, an amendment to their patent laws provides that the employee-inventor is entitled to reasonable compensation for his or her invention.<sup>44</sup> In the Scandinavian states, Germany, and France, the statutory regime regulating employees' rights over their inventions also grants rights of compensation to the employee-inventor.<sup>45</sup> Furthermore, in some cases such compensation is subject to employee mandatory entitlement to reasonable consideration above and beyond his or her salary.<sup>46</sup>

## B. Drawbacks of the Current Intellectual Property Regime

### 1. The Level of Innovation

One of the principal downsides of the current U.S. regime is that such a policy fails to capitalize on an employee's potential productivity. The level of potential innovation can be examined by exploring the number of patent applications from a particular country at any given year.<sup>47</sup> It is well known that in the United States, the total number of patent applications per year is significantly high.<sup>48</sup> However, these figures might be misleading.

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<sup>44</sup> Patent Act, Law No. 121 of 1959, art. 35; *see also* JAPAN PATENT OFFICE, THE CASE STUDIES OF THE PROCEDURES UNDER THE NEW EMPLOYEE INVENTION SYSTEM, 9–11 (2004), available at [http://www.jpo.go.jp/iken\\_e/pdf/200408\\_newep/001.pdf](http://www.jpo.go.jp/iken_e/pdf/200408_newep/001.pdf).

<sup>45</sup> *See* Sanna Wolk, *Remuneration of Employee Inventors – Is There a Common European Ground?*, 42 INT'L REV. INTELL. PROP. AND COMPETITION L. 272–98 (2011), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1855004](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1855004) (comparing national laws regarding employees' inventions and inventors' compensation in Germany, France, Spain, Sweden and the United Kingdom); Peberdy & Strowel, *supra* note 14 (same).

<sup>46</sup> *See* Wolk, *supra* note 45, at 279–92.

<sup>47</sup> WORLD INTELLECTUAL PROPERTY ORGANIZATION, WIPO PATENT REPORT: STATISTICS ON WORLDWIDE PATENT ACTIVITIES (2007) [hereinafter WIPO PATENT REPORT] (noting that patent applications “are a reliable indicator of underlying inventive activity”); *see also* WHITE HOUSE STUDY, *supra* note 1, at 2–6 (commenting that on regional innovation clusters, evidence shows that areas with strong clusters perform better economically than areas without these clusters; they have higher job growth, higher wage growth, more businesses, and a higher rate of patenting. The first is the proxy method, where rather than measuring innovation directly, patents or spending on R&D are tracked as a proxy for the level or rate of change of innovation).

<sup>48</sup> *See* WORLD INTELLECTUAL PROPERTY ORGANIZATION, WIPO IP FACTS AND FIGURES 14, 17 (2012) (showing the United States as the country with the most patent applications

In order to accurately analyze ways of improving the level of innovation, one must consider not only the total number of patent applications, but also other features, such as the number of patent applications per capita, the number of non-resident patent filings as a percentage of total filings, the ratio of patent applications versus accepted patents, and the level of investment in research and development. Estimation of U.S. innovation according to these criteria leads to problematic results.<sup>49</sup>

One of the central problems is that the current IP regime risks failing to effectively incentivize employee invention. In countries where the employee's entitlement to more rights is guaranteed up front and unequivocally, there is a high level of inventiveness.<sup>50</sup> Germany and the Scandinavian states, for example, grant their employees, apart from their salary, priority right on their own inventions; that is, employee-inventors, who transfer the rights to their invention, are awarded with special monetary consideration.<sup>51</sup> Even though intellectual property products, developed in the workplace by employees, are given to the employer, the process of transferring rights in employee inventions includes paying consideration to the employee-inventor for his or her role in the creative process.

The Nobel Prize Laureate in Economics, Joseph Stiglitz, had already expressed his concern regarding the possible slowdown in economic development of the U.S. at the end of the twentieth

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representing 26.6% of worldwide totals); *see also* WIPO PATENT REPORT, *supra* note 47, at 12.

<sup>49</sup> *See* WIPO PATENT REPORT, *supra* note 47, at 16 (showing that the U.S. percentage of resident patent filings was only 53%, whereas 47% were non-resident patent filings); *see also* Parker, *supra* note 7, at 603 (noting that in 1980, only 38.9% were issued to non-US citizens or corporations and that ten years before that, only 25% of all patents granted in the United States were issued to foreign entities); WORLD INTELLECTUAL PROPERTY INDICATORS, *supra* note 2.

<sup>50</sup> THE GLOBAL INNOVATION INDEX 2012: STRONGER INNOVATION LINKAGES FOR GLOBAL GROWTH, xviii (Soumitra Dutta, Ed., INSEAD & WIPO, 2012), *available at* [http://www.wipo.int/export/sites/www/freepublications/en/economics/gii/gii\\_2012.pdf](http://www.wipo.int/export/sites/www/freepublications/en/economics/gii/gii_2012.pdf) [*hereinafter* GII 2012]. Countries such as Sweden, Finland, United Kingdom, Netherlands and Denmark that guarantee rights or special compensation to employed inventors achieved a higher position than the US, which was ranked as the 10th place.

<sup>51</sup> *See* Peberdy & Strowel, *supra* note 14.

century.<sup>52</sup> The recent recession proved just how prescient his claim was. The U.S. government invests a tremendous amount in research and development.<sup>53</sup> Despite this, according to Stiglitz, the U.S. occupies a low place on the ladder of innovation as compared to some European countries.<sup>54</sup> Economic development stems from three sources: increased capital, improved human capital (measured by the quality of employees), and technological changes. These factors are all closely related. During a time of economic slowdown, the first factor is neutralized temporarily. As such, the second factor becomes all the more important in influencing economic development. Human capital is, therefore, what can be expected to respond positively to a change in the allocation of intellectual property in places of work, as this is where most inventions in the U.S. are developed.<sup>55</sup>

Other scholars have expressed similar concerns regarding the relatively low rate of patents per capita registered by resident workers.<sup>56</sup> This phenomenon, which even during times of prosperity, has not succeeded in generating reforms in the U.S.,

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<sup>52</sup> See JOSEPH E. STIGLITZ, *ECONOMICS OF THE PUBLIC SECTOR* 342–44, 347–48 (3d ed. 2000).

<sup>53</sup> See WHITE HOUSE STUDY, *supra* note 1, at 3–12 (indicating that, of the non-defense federal budget, 49% went to the National Institute of Health (NIH) for fiscal years 2009–2011 and that there was a constant increase in scientific R&D federal funding since 1986); see also ECONOMIC REPORT OF THE PRESIDENT (2011), available at [http://www.whitehouse.gov/sites/default/files/microsites/2011\\_erp\\_full.pdf](http://www.whitehouse.gov/sites/default/files/microsites/2011_erp_full.pdf) (last visited Dec. 10, 2012) (“In 2009, the Obama Administration put in place the largest funding increase for basic science in U.S. history, with an \$18.3 billion contribution from the American Recovery and Reinvestment Act . . . recent studies find that research tax credits translate dollar-for-dollar into increases in current research spending, especially over the longer run as businesses develop their research enterprises.”).

<sup>54</sup> See STIGLITZ, *supra* note 52 (noting that the research and development as might be expressed, for example, in the number of requests for patents per capita. Defense purposes constitute 57% of the entire research and development budget. Thus, the investment rate in the U.S. for purposes other than defense is inadequate).

<sup>55</sup> See *supra* note 7 and accompanying text.

<sup>56</sup> See, e.g., Dratler, *supra* note 23, at 129–30 (“During the past decade, commentators on the state of American technology have noted a decline in the rate of innovation in America. Imports of technology-intensive manufactured products have been growing faster than exports of these products, contributing to a serious balance of payments deficit. Foreign inventors have increased their share of newly issued American patents at the expense of domestic inventors. In addition, the national rate of production of patented inventions has decreased, whether measured per dollar of research funding or per research worker.”).



becomes far more acute during a time of crisis. Some time ago it had already been forecasted:

The United States has a declining patent balance and is less patent productive per dollar than are many foreign countries. Given that technological innovation is one of the United States' most important economic resources, this country cannot allow other countries to continue carving out increasingly larger shares of the market for technology.<sup>57</sup>

The promotion of new technologies is an important political goal for the governments of many states; therefore, they should adopt a policy that encourages productivity and innovation.

The current policy relies on a one-sided justification without acknowledging that utilitarian arguments are far from monolithic and without recognizing a number of other possibilities. Insufficient attention has been given to some important factors in the law and economics discourse. For example, the implications of the uncertainty surrounding the circumstances of transferring rights from the employed inventor to the employer before any invention has been developed<sup>58</sup> or to the high tech era, which requires investment at early stages, such as for start-ups,<sup>59</sup> which will be discussed in the following sections.<sup>60</sup> The need to increase

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<sup>57</sup> Parker, *supra* note 7, at 603; *see also* WHITE HOUSE STUDY, *supra* note 1, at 1–7 and 1–8 (commenting on recent reports which “indicated that the United States had made little or no progress in its competitiveness since 1999 and now ranks fourth in innovation-based competitiveness”).

<sup>58</sup> *See* discussion *infra* Part II; *see also* United States v. Dubilier, 298 U.S. 178, 188 (1933) (noting that the reason courts are reluctant “to imply or infer an agreement by the employee to assign his patent is due to a recognition of the peculiar nature of the act of invention . . .”).

<sup>59</sup> *See* MINN. DEP’T OF EMP’T AND ECON. DEV., A GUIDE TO BIOTECHNOLOGY FINANCE (2005), available at <http://cdm16105.contentdm.oclc.org/cdm/ref/collection/p16105coll5/id/2425> (last visited Nov. 7, 2012) for an example in the biotechnology field where investments are made at the early commercialization stage of biotechnology entities. This guide defines early commercialization stage according to my own perception of start-ups; *see also* Shannon H. Hedvat, *A New Age of Pro-Employer Rights: Are Automatic Assignments the Standard?*, 13 U. PA. J. BUS. L. 817, 823 (2011) (noting that many significant inventions are being developed at and supported by start-ups).

<sup>60</sup> *See* discussion *infra* Part II.

creative activity within the workplace is not the only conclusion that must be drawn in order to criticize and change the current policy. The tendency of employers to amass patents, instead of developing them, is another anti-innovation result of the privileges granted to them under the current regime.

## 2. Employers as “Patent Trolls”

The allocation of rights to employers under the current regime may give the employer more rights than are actually required and in a manner that impairs the efficient use of the product for the public interest. The employer’s status as the “decider” in the product development process enables it to determine: (i) who is entitled to work with certain ideas to be developed into final products, (ii) the conditions of that work, and (iii) for our purposes, the rights in relation to the product, including those that will be received by subordinates—if any at all. Further, the employer controls the ultimate fate of the employee’s invention.<sup>61</sup> That is, an employer can decide whether or not to develop, market, or use the product at all and/or to use it to sue (or, generally, fight against) others. Such activity by entities, commonly referred to as “patent trolls,” have generated mass discussion.<sup>62</sup> There are many reasons why firms submerge patents and avoid developing them into commercial products, oftentimes against the public interest. Firms store patents in their “drawers” in order to prevent competitors from developing similar ones, to wipe out smaller entities, or to focus on an already-developed, marketed product and avoid the expense of developing a new one.<sup>63</sup>

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<sup>61</sup> See *Merges*, *supra* note 16, at 2219–22 (noting that patents are used by corporate entities as part of the corporate patent strategy for “blocking patents” to counter an industrial rival instead for the progress of science and useful arts).

<sup>62</sup> See Charles Duhigg & Steve Lohr, *The Patent, Used as a Sword*, N.Y. TIMES, Oct. 8, 2012, at A1 (“[T]he marketplace for new ideas has been corrupted by software patents used as destructive weapons . . . . In the smart phone industry alone, as much as \$20 billion was spent on patent litigation and patent purchases in the last two years - an amount equal to eight Mars rover missions.”).

<sup>63</sup> See Julie S. Turner, *Comment: The Nonmanufacturing Patent Owner: Toward a Theory of Efficient Infringement*, 86 CALIF. L. REV. 179, 186–87, 194–96 (1998) (criticizing the decisions of firms, supported by court decisions, to avoid developing efficient patents while focusing on less developed products that they already produced, as

Although literature has extensively discussed the subject of patent trolls, its connection to the employer-employee relationship has not been deeply mentioned. Giving the employer, as opposed to the employee-inventor, full control over the product is a key factor that enables the employer to submerge patents while simultaneously prohibiting its development by others. When the employer fails to exploit a product for its own purposes of maintaining market power or ensuring the continued success of an already-existing product—goals which may be opposed to those of its employees—the public necessarily loses access to valuable intellectual property goods. Thus, the current pro-employer regime creates distorted incentives for firms with numerous products already on the market to hold back newer, more innovative ones.

## II. TRANSFER OF INTELLECTUAL PROPERTY RIGHTS UNDER TRANSACTIONAL UNCERTAINTY

The subject of pre-invention transactional uncertainty has not yet been deeply explored in present literature.<sup>64</sup> This uncertainty is particularly prominent in the area of intellectual property, when there is no certainty whether ideas can be transferred into products or whether these products will succeed at all. This uncertainty is, for example, endemic in the realm of patents, particularly in the development of medicines. When the actual creation of the product, its final particulars, its economic worth, and whether it will gain patent protection is not known in advance, a situation fraught with risk emerges. This section argues that an employee's uncertainty as to the results of his or her creative efforts and his or

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well as in using the patent as a sword against competitors that want to develop a competitor product).

<sup>64</sup> See Steven Cherenky, *A Penny for Their Thoughts: Employee-Inventors, Preinvention Assignment Agreements, Property and Personhood*, 81 CALIF. L. REV. 597 (1993) (discussing the term “pre-invention”); see also Catherine L. Fisk, *Removing the “Fuel of Interests” from the “Fire of Genius”: Law and the Employee-Inventor, 1830-1930*, 65 U. CHI. L. REV. 1127, 1131 (1998) (regarding employees who transfer their rights in future products to their employer under their employment contract); Robert Penchina, *The Creative Commissioner: Commissioned Works Under the Copyright Act of 1976*, 62 N.Y.U. L. REV. 373, 377 (1987) (concluding that the current law regarding works made-for-hire is confused and needs revision); Birnhack, *supra* note 19, at 125, 154–55 (finding that the employer bears risk associated with making work).

her rights in the final product (or his or her knowledge that he or she will not have any such rights) coalesce to discourage him or her from going the extra mile in making a significant innovative effort.

A. *The Problems of Pre-Invention Uncertainty*

Uncertainty is one of the central features of the contractual stage during which the employee knowingly or unknowingly waives his or her rights in future intellectual products from the outset of his or her employment.<sup>65</sup> Such waivers are often sweeping and quite broad. In a contractual arrangement known as a “pre-invention assignment agreement,” the employee makes a full transfer of rights to the employer.<sup>66</sup>

Courts have typically upheld these contracts.<sup>67</sup> It bears noting that the employee’s advance waiver of rights at the pre-invention stage differs from the employee’s *de facto* transfer of an existing intellectual product, which has its own specific problems. The main problem in this regard is that, the employee usually has no knowledge of what he or she is waiving.<sup>68</sup> These engagements are made before employees are even aware of whether they will, in fact, produce anything or how much effort and investment will be required. When the parties negotiate over rights in an invention or existing creation, neither party is fully aware of what they are

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<sup>65</sup> See RICHARD E. CAVES, *CREATIVE INDUSTRIES: CONTRACTS BETWEEN ART AND COMMERCE* (2000); Cherensky, *supra* note 64, at 617 (focusing on personality theory).

<sup>66</sup> See Parker A. Howell, *Whose Invention Is It Anyway? Employee Invention-Assignment Agreements And Their Limits*, 8 WASH. J.L. TECH. & ARTS 79, 80 (2012) (“Language in employment contracts requiring workers to assign to their employers any inventions conceived of during employment has become commonplace as businesses grow high-tech and experience frequent exchanges of employees.”).

<sup>67</sup> See cases cited *supra* note 14; see also Howell, *supra* note 66, at 81 (The “article examines the limits on contractual pre-invention assignment, using the *Mattel* litigation as a case study” and finding that even though limitations on pre-invention agreements exist, in some states, courts enforce pre-invention assignment agreements in favor of employers); Merges, *supra* note 19, at 7–8.

<sup>68</sup> See Evelyn D. Pisegna-Cook, *Ownership Rights of Employee Inventions: The Role of Preinvention Assignment Agreement and State Statutes*, 2 U. BALT. INTELL. PROP. L.J. 163, 163–64 (1994) (“[T]he assignment of pre-invention rights, as opposed to the assignment of an existing invention, presents special contractual problems. Since the invention has not yet materialized, the assignors or employees enter into an agreement without knowing exactly what they are potentially giving up.”).

receiving or what is being waived, for the employee transfers a collection of abstract rights that only reflects anticipation. Agreements of this kind can damage the creative process and the inventions themselves because they detract from the initial motivation to create. Furthermore, even if an employee's efforts bear fruit, he or she cannot be sure that others will necessarily derive any benefit from his or her product.

Employers, on the other hand, have far more bargaining power in the initial contracting stages, which can all but ensure a complete transfer of rights. They also possess the financial resources for funding, research, and development—they only lack resources for creativity. Pre-invention contractual transfer arrangements tend to make sweeping transfers of all rights from employed inventors to employers.<sup>69</sup> In addition, pre-invention contractual transfer arrangements sometimes contain provisions known as “trailer clauses.”<sup>70</sup>

A recent economic study by Uri Weiss shows that uncertainty relating to extreme power discrepancies, in a manner that operates to the detriment of the weaker party, also detracts from the efficiency of the transaction.<sup>71</sup> The claim is that legal uncertainty is not neutral—it influences the “risk points” of the parties. To the

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<sup>69</sup> See Howell, *supra* note 66, at 80–81 (such pre-invention assignment clauses may purport to give an employer ownership of all an employee's inventions, whereas statutes in some states, including California, Washington, and Minnesota, carve out significant limitations to these agreements).

<sup>70</sup> See Marc B. Hershovitz, *Unhitching the Trailer Clause: The Rights of Inventive Employees and their Employers*, 3 J. INTEL. PROP. L. 187, 188 (1995) (“A trailer clause is a contractual provision in which the employee-inventor agrees to assign his or her entire interest in any invention he creates during a period following the termination of the employment relationship.”).

<sup>71</sup> See Uri Weiss, *The Regressive Effect of Appealability*, HEBREW UNIVERSITY OF JERUSALEM, CENTER FOR THE STUDY OF RATIONALITY 1 (2011), available at <http://ssrn.com/abstract=1688877> (last visited Dec. 21, 2011) (“There are sides that gain from increasing legal uncertainty and others that lose from it. Legal uncertainty leads to regressive settlements: a shift from a more certain legal regime to a less certain one transfers wealth from risk-averse parties to risk-neutral parties, via the settlements.”).

extent that one party is more risk averse, he or she will feel more threatened and agree in advance to a compromise that is more favorable to the risk-taking party.<sup>72</sup> Such uncertainty generates regressive, inefficient agreements; as the uncertainty grows, so does its effects. Given that risk aversion is a function of wealth, legal uncertainty is anathema to the financially weaker party. Research further shows that, where there are chances for an equal allocation of rights, such an allocation would not take place in an uncertain transaction (when the rules and likely results of litigation are uncertain).<sup>73</sup>

The conclusion is that under uncertain transactions even the mere possibility of equal allocation between parties, who hold different attitudes to risk, will not result in actual equal allocation of rights and goods. The sum that the risk-averse party will agree to accept in lieu of litigation will be lower than the minimum price that the risk indifferent party would be prepared to pay for a waiver.<sup>74</sup> Therefore, employees who are usually risk averse will seek to diminish the risk under uncertain conditions and hence, agree to lower consideration in rights or payment than they could have actually bargained for in certain conditions and with equal bargaining power. A central mechanism for coping with legal uncertainty is by “freely” reaching a settlement agreement, one of the advantages of which is the neutralization of risk. A settlement agreement provides a definite sum that provides a substitute to the uncertainty regarding the amount of the award. A settlement agreement thus serves as quasi insurance. A party sensitive to uncertainty will convert that uncertainty into the settlement agreement. Concededly, the weaker party will receive a definite sum that is lower than the sum he or she might have received as a result of litigation, but because he or she is weak and risk averse, the definite sum is preferable to the possibility of a higher sum. Furthermore, the weaker party prefers “to pay” a *higher* sum of money in order to remove the threat of litigation. Thus, to the

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<sup>72</sup> See *id.* at 1, 6–9 (noting that a risk-neutral side actually sells an “insurance policy” to the risk-averse side; the higher the legal uncertainty, the higher the risk, and hence, the risk-averse side will agree to pay more in order to neutralize the legal risk).

<sup>73</sup> See *id.* at 2–3.

<sup>74</sup> See *id.* at 1, 6–9 (exploring appeals as a form of settlement to avoid litigation).

extent that the individual is more risk averse, he or she will be prepared to purchase a more expensive insurance policy from his or her rival. As a result, the risk-averse party loses more by reason of his or her uncertainty, whereas the risk indifferent party profits thereby, and the profit margin of the latter increases in direct proportion to the degree of uncertainty.<sup>75</sup>

Weiss's study has direct implications upon my claims in this Article. Under conditions of extreme uncertainty, it may reasonably be presumed that the employee will undervalue his or her rights and be prepared to receive far less in consideration/compensation.<sup>76</sup> In other words, it is expected that the employee-inventor will transfer or sell all rights in return for a "pot of lentils." The price of the transaction, especially at the pre-invention stage, is unclear, and hence the waiver is likely to be uninformed. The conclusions of this study support my proposed model, discussed in Part VI, ~~which clauses on the part of the employer~~ ~~with rights in intellectual products that were created in the course of the employee's work, even if not directly in the work for which he or she was employed and even if created~~ ~~after the termination of his or her period of employment.~~ ~~The traditional explanation~~ of risk allocation in the workplace is that the employer and the employee are located at different places on the spectrum—one which extends from neutrality to concern for risk.<sup>77</sup> The employer is closer to the extreme of neutrality concerning risks and uncertainty (risk neutrality) whereas the employee is closer to the extreme characterized by risk aversion (fear of risk and avoidance of uncertainty).<sup>78</sup> The contractual connection between the employee and employer with

<sup>75</sup> See *id.* at 9–15, 19–21 (asserting that the weaker the person, the more he or she prefers a lump sum over risk-taking).

<sup>76</sup> See *Merges, supra* note 19, at 16 (noting that in a position of uncertainty about future inventions and, "given the risk aversion typical of individuals, an employee would likely place a relatively low *ex ante* value on the right to this compensation.").

<sup>77</sup> See ROBERT COOTER & THOMAS ULEN, *LAW AND ECONOMICS* 43–48 (4th ed. 2004) (noting that employees are risk averse whereas employers are risk neutral).

<sup>78</sup> See *Birnhack, supra* note 19, at 140 (presenting the traditional approach to risk allocation by determining that, "the employer is in a better position to undertake the risks associated with producing [and commercializing the] work, [since the] typical production firm does not invest in one work only"); see also *Merges, supra* note 19, at 16 (stating that "employers . . . as a class, are more efficient bearers of this risk").

respect to the development of intellectual products is characterized, as mentioned above, by uncertainty.<sup>79</sup>

According to the traditional approach, the employee's salary usually represents the willingness of employees to exchange their risk about the future for stable, lower payment and thus, externalizing the risk-averse employee's costs to the employer. However, the payment represents the employee's waiver of the chance for future profits at the price of ongoing payments in the present.<sup>80</sup> Being averse to risk, the employee will prefer a lower income on a permanent and certain basis over a higher, yet uncertain, potential gain. Alternative payment terms with inherent uncertainty, such as percentages of product sales, while waiving a permanent salary, are generally anathema to the risk averse.<sup>81</sup> The employer "buys" intellectual property rights in the product because he assumes the risk involved in the creation, development, and marketing of IP products. The employee is regarded as having "sold" his or her rights in return for a salary.<sup>82</sup> Hence, the sides

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<sup>79</sup> See *Merges*, *supra* note 19, at 16 ("[T]he parties to such a contract would have to sign it before any details of the invention were known – indeed, before anyone knew whether a particular employee would ever invent anything at all.").

<sup>80</sup> See A. MITCHELL POLINSKY, *AN INTRODUCTION TO LAW AND ECONOMICS* 130 (3d ed. 2003).

<sup>81</sup> The risk-averse person prefers to give up a certain amount rather than face the unknown. COOTER & ULEN, *supra* note 77, at 38–51, 53 ("One of the most important behavioral implications of risk aversion are that people will pay money to avoid having to face uncertain outcomes. In other words, a risk-averse person would rather have a lower certain income than a higher uncertain income."); see also *Birnhack*, *supra* note 19, at 154–55 (adopting the traditional approach that there is a trade-off of risks between employer and employee; employee chooses not to be independent and to work for specific employer); CATHERINE L. FISK, *WORKING KNOWLEDGE: EMPLOYEE INNOVATION AND THE RISE OF CORPORATE INTELLECTUAL PROPERTY, 1800–1930*, 178–88 (Univ. N.C. Press 2009) (arguing that modern intellectual property law provides for unprecedented formalization of corporate power over all aspects of employment and production).

<sup>82</sup> See *Cubic Corp. v. Marty*, 185 Cal. App.3d 438 (Cal. Ct. App. 4th D. 1986) (arguing that the rights regarding works which employees develop belong to the firm that invested, either directly or indirectly, in the development of that invention); *Merges*, *supra* note 16, at 30–31 ("[B]y taking a salary, R&D personnel are revealing a preference for relatively low-risk rewards.").



virtually trade risks.<sup>83</sup> The employer, for its part, “buys” the future risk from the employee for potential future rights in IP goods.<sup>84</sup>

This traditional risk analysis favoring the employer is, however, subject to a number of criticisms.<sup>85</sup> First, the risk model described is only appropriate for employees who are employed to invent (ETI). Even then, its individual applicability should be examined on an ad-hoc basis. It should not be applied to general non-ETI employees such as engineers or doctors. The model has no applicability to those employees, as there is no risk-allocation between employer and employee with respect to the invention. Thus, a distinction should be made between an ETI employee and a general employee whose salary is not provided as a reward for inventive or creative activity. In these cases, the “risk trading” argument does not apply.

The second criticism of the risk trading argument is that it ignores the risks that employee-inventors (including ETI) take upon themselves when developing their internal resources in favor of their employers. Both the employee and the employer take a risk at the pre-invention stage before the development of a product. The employer provides economic activity whereas the employee specializes in inventive-creative activity. Attention is usually focused on risks that employers take.<sup>86</sup> However, the employee invests in one asset only—his or her own human capital. When the employee chooses a central place of work, he or she is taking risk by investing all of his or her human capital in this one place. As an employee, he or she is limited in his or her ability to spread the investments in a number of companies.<sup>87</sup> The employer’s investment, on the other hand, is spread among a greater number of

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<sup>83</sup> See Orbach, *supra* note 19, at 37–38 (citing trade risk as an important factor in evaluating the efficient regulation of service work).

<sup>84</sup> *Id.*

<sup>85</sup> See Parker, *supra* note 7, at 627 (raising the criticism that inventors, as well as non-R&D employees, run the risk that employers will either fail or refuse to develop an invention).

<sup>86</sup> See POLINSKY, *supra* note 80 (discussing the limitation of liability afforded to shareholders, which both allows and encourages them to take risks in business activity).

<sup>87</sup> See Yakov Amihud & Baruch Lev, *Risk Reduction as a Managerial Motive for Conglomerate Mergers*, 12 BELL. J. ECON. 605, 606 (1981) (asserting that because “human capital cannot be traded in competitive markets,” managers may diversify employment risk through mergers).

factors; employees, machines, equipment and development.<sup>88</sup> This is most obvious with large and well-established employers and less so among small and medium enterprises. When employee-inventors pass their ideas on to the specific employer, they run the risk of the employer not sufficiently valuing their ideas and failing to develop them. This may hold up promotion at work or affect future economic potential. From the moment of transferring an idea to the employer and fixing it in an external medium, the employee loses his or her rights in his or her own thoughts under the current regime.

Third, the risk-trading model does not necessarily ensure optimal efficiency. Because it bears the brunt of the economic risk, the employer may prefer not to secure the employee's rights in the product or its subsequent royalties, even at the expense of a low level of employee investment and, therefore, a lower level of productivity.

Fourth, the traditional risk analysis favoring the employer may no longer be applicable in a start-up era where employees themselves may be highly risk-seeking rather than risk-averse. The assumption that employees are risk averse mischaracterizes a large group of employee-inventors who choose to leave a firm and strike out on their own, developing products by themselves or with other entities. In the new world of tech start-ups, these can easily gather investment and establish their own firms. In many cases, the likelihood of developing the ideas into tradable products is greater than the allocation of these ideas to firms. However, the pro-employer tendency does not encourage cooperation between employees and their former employer.

As start-ups grow in success, it is likely that more employees will turn to investors and seek to develop products themselves. An analysis of employer-employee risk allocation is far from precise under an economic framework wherein economic investments may be made at a relatively early stage of the development process. A large portion of the modern "start-up" economy in the

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<sup>88</sup> See generally Thorstein Veblen, *On the Nature of Capital: Investment, Intangible Assets, and the Pecuniary Magnate*, 23 Q. J. ECON. 104 (1908), available at <http://www.jstor.org/stable/1883967> (discussing the nature of investment in both tangible and intangible assets toward the goal of capital gain).

technological realm is based on small and medium size entrepreneurs. Most, if not all of them, were once employees in other companies, but they are not risk averse as demonstrated from their entrepreneurial willingness.<sup>89</sup> Thus, the theory of rights allocation being a function of risk allocation does not apply to them. Rather, these entrepreneurs should be rewarded, instead of punished for their efforts.

The distinction between the entrepreneur-employee who welcomes risk and the risk-averse employee—for whom ensuring an appropriate salary is more efficient in comparison to the allocation of property rights—is by no means simple. In cases involving entrepreneurial employees, the granting of property rights should be viewed as the desirable way to give risk-seeking, creative workers property rights in their products.

Rethinking the prevailing norm from this perspective reveals new opportunities for development of innovative products by simply allocating rights in a new product developed by a former employee after he or she has left the firm to that former employee, even when the ideas that led to the invention are rooted at the former place of employment.<sup>90</sup> In other words, former employees should be credited with property rights, as new entrepreneurs, for ideas they have developed themselves. Courts should adopt new policy regarding non-compete clauses in employment agreements allocating ideas of employees to their former employer. I have chosen to call this rule the “escape clause.” In other words, in situations where the “escape clause” would apply, courts would simply strike down the relevant provisions of the pre-invention contract that endows a former employer with the rights to a product developed after an employee has left the firm.

### *C. The Efficient User*

I have argued throughout this Part that, although the traditional law and economics approach views the employer as the more

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<sup>89</sup> ALAN HYDE, *WORKING IN SILICON VALLEY: ECONOMIC AND LEGAL ANALYSIS OF A HIGH-VELOCITY LABOR MARKET* 3–4 (2003) (defining the Silicon Valley as a high velocity labor market characterized by frequent mobility and entrepreneurship paths).

<sup>90</sup> I further claim that the service invention rule today should be reconsidered in order to promote more cooperation between the employee-inventors and the (former) employer.

efficient user/holder of patent rights under conditions of uncertainty,<sup>91</sup> there may be cases, instead, where the employee is the efficient exploiter of an intellectual property product.<sup>92</sup> Allocation of property rights to employees may be more efficient where it concerns the recycling of works. The rationale is to spread the cost of funding new IP products based on former ones. Examples, taken mainly from copyright regime, include teachers, poets, planners, and architects whose ability to revise and rework their creations means that the full conferral of the rights to them will be more economically efficient (as opposed to being required to receive the approval of the IP owner each time anew).<sup>93</sup> In these cases, as is the practice among architects, the final client is “subsidized” by the previous client.<sup>94</sup> An architect will create a plan for a new client based on an existing plan, which he or she had already invested in creating.<sup>95</sup> These examples also apply to inventors, for whom new inventions or new modifications are built on top of previous ones. A scientist or engineer, for example, can adapt his or her invention to new situations with greater efficiency than the institution or those on its behalf. Thus, the allocation of rights to the employer may prevent the employees from using the products they developed when moving forward. However, this rationale should not apply to an employer who utilizes the products

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<sup>91</sup> See *supra* text accompanying notes 76–84.

<sup>92</sup> See Posner, *supra* note 19, at 37–45 (reasoning that copyright laws protect the cost of creating subsequent works).

<sup>93</sup> See Orbach, *supra* note 19, at 57–58 (suggesting that sometimes the author, and not the transferee, is the more efficient user of the work).

<sup>94</sup> Architects generally license their plans to builders or developers, usually for a single use, retaining all rights to the design and drawings. See WERNER SABO, LEGAL GUIDE TO AIA DOCUMENTS 123-124 (5th ed. 2013), citing LGS Architects, Inc. v. Concordia Homes of Nevada, 434 F.3d 1150 (9th Cir. 2006) (granting preliminary injunction against a developer who reused an architect’s plans without permission, in breach of the written agreement between the architect and the client).

<sup>95</sup> It is a common practice for architects to re-use their prior work, and the practice is typically protected by contract. However, clients who seek (and think they are paying for) exclusivity are sometimes surprised by the practice. See ARCHINECT DISCUSSION FORUM: *Our Custom Plans Resold . . . Is This Ethical?* at <http://archinect.com/forum/thread/65444889/our-custom-plans-resold-is-this-ethical> (last visited Nov. 7, 2013).

in an effective and efficient manner. In such a case it is more effective to transfer the property right to the employer.<sup>96</sup>

This compels a rethinking of the arrangement in view of the doctrine of the most efficient user. One solution may lie in the *ab initio* vesting of property rights in the employee, which would be passed to the employer subject to certain conditions, such as the cancellation of such transfer and a restoration to the employee in the event of the employer's failure to exploit the product. A number of proposals were submitted to Congress to enact a law under which the employee would receive the property rights in his or her invention in certain circumstances.<sup>97</sup> For example, proposed amendments to American Patent law suggested that inventions would belong to the employee who conceived it in situations where, *inter alia*, the employer failed to file an application to register a patent (a constructive abandonment).<sup>98</sup> This solution would streamline the development of products and the use thereof, giving the employee an incentive to produce and promote the product the employee created. Mechanisms that abrogate IP rights by reason of non-use on the part of their owners are accepted in other areas of IP.<sup>99</sup> A trademark owner, for example, can "abandon" his or her mark and thus lose rights to it.<sup>100</sup> It may also be possible to consider a proposal incorporating the idea of an "efficient breach," thus allowing employees who develop an intellectual product the rights to that product while ensuring that the employer is properly compensated.<sup>101</sup>

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<sup>96</sup> In the well-known *Tasini* judgment, concerning the rights to publish journalists' articles in other media, the majority rejected the opinion concerning the efficient user. *See* *New York Times Co. v. Tasini*, 533 U.S. 483, 505 (2001) (reasoning that the effective exploiter can acquire the rights from the less efficient side in the free market). I suggest that the employer can buy the rights in a free market from the employee-inventor if the employer is the better user.

<sup>97</sup> *See, e.g.*, The Bayh-Dole Act, H.R. 6933, 96th Cong. (1980) (providing inventors with intellectual property rights when working pursuant to a federal research funding contract or grant).

<sup>98</sup> Kastenmeier Bill Oct. 13, 1981 (97th H.R. 4732); Kastenmeier Bill June 17, 1982 (97th H.R.6636) (Resubmitted as June 13, 1983 98th H.R. 3285).

<sup>99</sup> *See, e.g.*, The Lanham Act, 15 U.S.C. § 1127 (codifying the conditions under which a mark will be deemed to have been abandoned).

<sup>100</sup> *Id.*

<sup>101</sup> *See* Turner, *supra* note 63, at 196–201 (promoting efficient infringement through the use of liability rules).

This Section of the Article focused on the uncertainty surrounding the transaction of IP rights from the employed inventor to the employer. The next will continue this discussion focusing innovatively on “Principal-Agent” theory.

### III. THE PRINCIPAL-AGENT THEORY

In order to decide on the most efficient policy regarding workplace inventions, one must look at the special characteristics of the workplace. We can analogize to another model that has gained attention in the corporate law literature, but not yet in the context discussed: the Principal-Agent relationship. For our purposes, the employer is the principal and the employee is the agent. A principal-agent relationship is most often characterized as a “contract under which one or more (principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent.”<sup>102</sup>

A problematic situation arises when the employee, as an agent, prefers his or her own personal interests over those of the employer. Take for example the case of an employee in an ice-cream shop. The employee might prefer to eat the ice-cream, close the shop as early as possible, and bring ice-cream to his or her friends, rather than to safeguard the employer’s interests, especially when the employee is not subject to any supervision.

The fear is that the employee may prefer activities that minimize the degree of effort required while maximizing personal benefits. Understandably, the employee may well prefer his or her own interest at the expense of the interest the employee is supposed to represent, and the greater the gap between these interests, the greater the conflict.<sup>103</sup> Additional characteristics of this gap are the discrepancies between the employer and the employee in their levels of knowledge and the lack of visibility in the activity of the employee. Specifically in the context of employee-inventions, the employer does not always know how

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<sup>102</sup> See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 305, 308 (1976).

<sup>103</sup> See *id.*

much the employee invested—particularly intellectually—in the development of an invention even though it has been developed at the workplace.

This problem founded on the agent's interests exists in the area of corporate law, but I believe that the problem becomes most acute in the context of employee-inventors. The distinction between the employer who carries out the business activity and the employee who creates or invents gives rise to the concern that the employee will avoid the development and creation at the level, quality, and quantity expected of him. This conflict may be expressed in the lack of efficiency in the development of products, the result of which will be a decrease in the quantity and quality of intellectual products developed in the workplace. The employee-inventor may make a minimal investment of effort (similar to the ice-cream seller in the previous example) and may develop a minimal level of intellectual products (only the degree which is required to prevent him or her from being fired) and then likely to tend to his or her own interests. When discussing employed inventors, it might be impossible in many cases to examine the depth of the mental-intellectual investment required for purposes of development, creation, and monitoring. Further, the more workers there are on a team, the more difficult it becomes to monitor the individual contribution that each one of them makes to the work.

In the context of intellectual property, the Principal-Agent problem concretizes the concern that the employee-inventor will prefer personal interests over the property interests of his or her employer and therefore, is not as incentivized to create to his or her full potential. The solution to this problem stresses the importance of conferring rights or other benefits to the employee not just as a means of promoting development, but also to block obstructions that may interfere with that development process (for example, preferring other tasks). The solution is anchored in the concept that it is more efficient to ensure optimal innovation than to bear the dangers attendant to inefficiency in the development of products. Jensen and Meckling suggested a number of solutions to the Principal-Agency problem, which they referred to as "agency

costs.”<sup>104</sup> These costs include monitoring costs, bonding costs and residual costs (the reduction in welfare experienced by the principal as a result of this divergence).<sup>105</sup> As mentioned, these solutions merit discussion in the present context.

One solution to the representative problem is to tighten up monitoring mechanisms.<sup>106</sup> This solution, however, is not effective in the context of inventors and creators due to the invisibility of their mental investment. The installation of a video camera or supervision of computer usage, for example, would provide little insight into how much thought and mental effort were invested in the ideas that preceded development (such as the reading and understanding of material or the depth of thought and intellectual effort that were invested). Another method of monitoring the work of employee-inventors could be indirect monitoring through evaluation of the eventual products developed.<sup>107</sup> However, the problem here is that, when there is a group of employee-inventors, the visibility of the investment of each one of the group’s individual employees would be even less apparent and therefore, hard to evaluate and monitor. In sum, the mechanisms for monitoring development are less effective when the creative-inventive part of the product is significant and the development team comprises numerous employees.

The alternative mechanism for solving the conflict of interests within employed inventors’ work is the bonding mechanism, which links the employee to the product.<sup>108</sup> By connecting the employee to the product, the personal interest of the employee becomes the development of the product, and this “bonding” reduces the gap between the employee’s interest and the employer’s interest.<sup>109</sup> As a result of the “bond,” the employee

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<sup>104</sup> *Id.*

<sup>105</sup> *Id.*

<sup>106</sup> *Id.* (introducing monitoring as a solution to the representative problem).

<sup>107</sup> Toby Marshall Egan, *Factors Influencing Individual Creativity in the Workplace: An Examination of Quantitative Empirical Research*, 7 *ADVANCES IN DEVELOPING HUMAN RESOURCES* 169 (2005).

<sup>108</sup> Jensen & Meckling, *supra* note 102, at 325 (discussing bonding as a solution to the representative problem).

<sup>109</sup> *See* Jensen & Meckling, *supra* note 108, at 325–26 (describing the phenomenon in terms of “bonding costs” and using other examples).



becomes more committed to the employer and the work itself. Having a personal interest in the work, the employee operates in order to maximize his or her personal interest in a manner that may be consistent with the interests of society as a whole.<sup>110</sup> Giving a bonus to the employee for each sale is an example of a method to spur the bonding that firms should desire to create. Conferral of rights in intellectual inventions to employee-inventors can also encourage them to promote the development process and invest their best efforts in doing so. In addition, it reduces the danger of employees channeling their efforts towards the promotion of their own interests, such as alternative projects.

The payment of salary only will not necessarily solve these problems because, within the context of employee-inventions, an employee might work only to maintain this salary without putting in any extra work. An effective mechanism must connect the employee to the product itself. As more rights are conferred upon the employee, the inventor's personal interest in product development will increase. However, conferral of rights must take into consideration additional factors. Agency costs must be less than the benefit bestowed upon the employer. If one gives all of the rights to the employee, it is clear that the employer will lose all interest it had in product development, which will inevitably come to a standstill. I conclude that consideration must also be had for the parties' respective degrees of risk aversion because the development and commercialization of intellectual products involves a significant degree of uncertainty.<sup>111</sup>

In summary, the Principal-Agency model may provide further insight in developing an appropriate solution to the problem of how to best ensure an employee-inventor can fulfill his maximum potential in developing intellectual property. Specifically, giving the employee incentives intrinsically linked to the product itself, preferably through property rights, aside from the payment of a regular salary will help ensure that an employee's interest can stay aligned with an employer's.

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<sup>110</sup> Carolyn Wiley, *What Motivates Employees According to Over 40 Years of Motivation Surveys*, 18 INT'L J. MANPOWER 263–80 (1997) (noting that employees overwhelmingly selected “good wages” as their top motivator).

<sup>111</sup> See discussion *supra* Part II.

Allocation of options and equity shares in the employer's firm to employees may also provide such an incentive. A number of arguments have, however, been made against the offering of employee shares or options as a solution to the Principal-Agency problem.<sup>112</sup> The value of the shares, for example, is not necessarily connected to the performance of those entitled to them. The commercial value of shares depends upon the commercial success of the company, which is only tenuously related to the specific activity of the employee, that is, development of intellectual products.<sup>113</sup> Even if there is a certain connection between commercial activity and the end-product, activities like the marketing and sale of the product are not within the control of the employee who developed the product. In that situation, the value of the shares will not reflect the commercial potential of the product, and as such, the incentive itself will bear only a tenuous relation to the product, rendering it ineffective.<sup>114</sup>

The conclusion emerging from these critiques, in my view, is that from the outset, a connection should be established between the employee and his or her outputs. In the realm of intellectual property, this means rewarding inventors by giving them property rights and/or royalties to a degree and in a manner that reflects and is linked to the success of the products developed or to be developed.

The foregoing discussion of the importance of analyzing the employee/employer relationship from the principal/agent perspective leads to the conclusion that the bonding solution should be one of the main components involved in shaping a new policy for enhancing innovative productivity.

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<sup>112</sup> See Brian J. Hall & Kevin J. Murphy, *The Trouble with Stock Options*, 16–17 (Nat'l Bureau of Econ. Research, Working Paper No. 9784, 2003), available at <http://www.nber.org/papers/w9784.pdf> (asserting that options are often an inefficient way to attract, retain, and motivate executives).

<sup>113</sup> *Id.* at 16.

<sup>114</sup> An additional claim concerns the difficulty of quantifying the value of options conferred upon the employee. See *id.* at 7-9 (describing the complex tax and accounting rules of stock options).

## IV. WHOSE INCENTIVES SHOULD WE PROMOTE?

A. *Rethinking Employers' Incentives*

In discussing rights allocation for employee inventions developed in the workplace, it must be stressed that investment in future products is a function, not only of the employer's resources, but is also a reflection of the employee's investment and expenses, such as intellectual effort or academic knowledge. The economic justifications for both sides' investment in product development stems from the assumption that the anticipated benefit of the product, although still unknown, will be greater than its present and anticipated expenses. In formulating a policy for the appropriate allocation of rights, we assume that each party has an incentive to incur the necessary expenses under uncertain conditions regarding future outcomes.<sup>115</sup> On the one hand, if all rights are given to the employee, the employer lacks the incentive to invest in necessary infrastructure vital to the creative process. On the other hand, giving all of the rights to the employer leaves the employee with a diminished incentive to make any exceptional future investment apart from maintaining a salary based on minimal efforts insufficient for increasing innovation.<sup>116</sup>

The ideal solution must therefore be based on a better understanding of the respective interests of both sides at each phase of product development. However, the traditional approach usually prefers only one side in allocating intellectual property rights, namely the employer.<sup>117</sup>

Most scholars support this view under an economic justification.<sup>118</sup> Such scholars start from the premise that economic efficiency is achieved by granting an incentive that maximizes benefit, including the profit from a product, which leads to maximum exploitation.<sup>119</sup> According to this approach,

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<sup>115</sup> See Robert Gibbons, *Incentives in Organizations*, 12 J. ECON. PERSP. 115, 116 (1998) (describing the incentive structure of the agency model of employment).

<sup>116</sup> See *id.*

<sup>117</sup> Orbach, *supra* note 19, at 2 (“[T]he law that governs the allocation of rights in creative products produced at the workplace . . . favors employers.”).

<sup>118</sup> See *supra* notes 19–20 and accompanying text.

<sup>119</sup> Posner, *supra* note 19, at 33 (arguing that individual property rights are necessary for efficient allocation of resources).

labor, including the development of intellectual goods, is a process that requires the investment of tremendous resources, such as work, talent, effort, and capital. No rational actor will make the necessary investment without the expectation of some kind of profit, especially during the early uncertain phase before the developmental process has even begun.<sup>120</sup> Incentivizing intellectual property production is provided either by conferring the inventor with future property rights at the exclusion of others for a limited period of time or by other appropriate compensation.<sup>121</sup> The current policy is based on the assumption that a categorical rule that allocates all rights exclusively to the employer will encourage employers to contribute their part to the development of intellectual product.<sup>122</sup> Employers accelerate economic activity in the market by promoting the development of intellectual products.<sup>123</sup> This important activity is motivated by the expectation of receiving “extra” rights after the return of costs and payments that were invested by themselves and others.<sup>124</sup>

Moreover, unlike past scenarios, where the heroic individual inventor was the sole person involved in the development process, today the inventive process frequently requires greater involvement by employers.<sup>125</sup> The employer’s role includes, *inter alia*, its preliminary initiative in launching the development process in an area with which it is familiar, its integration among all relevant players, and the employer’s sources of investment and assets provided for the purpose of producing the product, including funding the team of employees that supports development, and the funding of equipment.<sup>126</sup>

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<sup>120</sup> See *id.* at 38 (giving numeric examples regarding expected profit).

<sup>121</sup> See *id.*

<sup>122</sup> See *supra* notes 19–20 and accompanying text.

<sup>123</sup> *Id.*

<sup>124</sup> See Posner, *supra* note 19, at 44 (“[T]he economic benefits of investing in intellectual property are not exhausted in the initial creation of the property.”).

<sup>125</sup> See Fisk, *supra* note 81, at 179–80 (“Both invention and entrepreneurship became corporate.”).

<sup>126</sup> Merges, *supra* note 19, at 2–3 (arguing that employers invest in the R&D process as well as carry the risk of the process).

during the development process, while funding the ongoing work of employees, funding the means of production and the work environment; and (iii) after development is completed by distribution of the product and negotiations for granting a usage license and enforcement of rights.<sup>127</sup>

I posit that the claim that it is efficient to allocate property rights to employers to motivate them to develop and create future intellectual goods, which although may seem both reasonable and logical on its face, is in fact replete with doubts. Conferring all rights to employers does not necessarily incentivize firms to engage in additional future activities to develop intellectual property. Scholars have claimed that alternate incentives and commercial protection play a greater role than firms' patent protection in corporate decisions of whether to create and develop.<sup>128</sup> Indeed, studies have shown that firms prefer to guard inventions as a trade secret as opposed to registering them as a patent.<sup>129</sup> Many firms also use patent protection, not only for the purpose of developing their inventions, but also to block their competitors.<sup>130</sup> Firms have reported that patent protection was the last factor in their decision as to whether to invest in research and development.<sup>131</sup> To the contrary, being the first to break into the market serves as a major factor in incentivizing development of a new product.<sup>132</sup> It is therefore quite impossible that granting property rights to employers is the driving economic force (i) in the development process, when

<sup>127</sup> *See* *id.*; *see also* Patchett v. Sterling, [1955] R.P.C. 50, 56-57 (H.L.) (holding that rights to go the employer as a default rule).

<sup>128</sup> *See, e.g.*, Turner, *supra* note 63, at 187.

<sup>129</sup> Submitting a patent application, in contrast to maintaining the idea as a trade secret, means revealing the idea behind the patent and, if the patent is ultimately confirmed, it means limiting the duration of the patent protection. Turner, *supra* note 63, at 188-89.

<sup>130</sup> Turner, *supra* note 63, at 188-89 (asserting that first-to-market, rather than patent protection, is the main incentive to R&D).

<sup>131</sup> *See* FREDERIC M. SCHERER, INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE 6278-29 (3d ed. 1990) (concluding that expected profits even absent patent protection are often sufficient for continued product development).

<sup>132</sup> *Id.* (discussing the advantages attaching to being the first to break into the market and the use of trade secrets as substitute mechanisms for the patent system).

rights to employees in appropriate cases would not significantly detract from employers' incentive, which mostly relies on alternative mechanisms for gaining commercial advantage. Conferral of rights based on a motivational rationale may actually play in favor of employees, given that the incentives that require legal protection are influenced by the development process. Does this article consider employee-inventors provide significant incentives to them to create intellectual products for the benefit of the public as a whole? It thus emerges that a policy which grants exclusive rights to employers does so in a manner that does not necessarily reflect optimal efficiency.

Conceivably, an incentive in the form of absolute property rights, given *ab initio* to the employer, is overly broad. Alternative routes might be taken which could minimize the derogation of inventor-employees' rights and hence stimulate overall productiveness. For example, were the rights to be conferred to the employee, the employer would be able to purchase the rights therein from the employee at a later stage after the development of the product has been completed and when the product is shown to be "promising" in quantifiable terms. Another possible arrangement would be to grant usage licenses to the employer.<sup>134</sup> Furthermore, in my view, the employee involved in a "start-up" era, as described in Part II, would be more strongly motivated than the former employer and would have the monetary ability to develop the intellectual product and to protect its rights, as it is his or her main asset.

In summary, I claim that the current property regime is not the only possible regime and might not even be the most efficient one. Indeed, alternative possibilities have not been given serious

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<sup>133</sup> See Turner, *supra* note 63, at 187 (regarding small, independent inventors, who are not in the position to take advantage of alternative incentives).

<sup>134</sup> But see Hovell, *supra* note 7 (claiming that the contractual solution bears transaction costs and may lead to inefficient allocation of rights and the concealment of information by employers). See generally LYNNE MILLWARD, UNDERSTANDING OCCUPATIONAL & ORGANIZATIONAL PSYCHOLOGY 188–243 (2005) (offering a more complex view of motivation of employees from psychological personality perspective).

consideration.<sup>135</sup> The “rights” regime should be reconsidered with a view to broadening the category of potential beneficiaries of intellectual property rights.<sup>136</sup> Perhaps the law and economics theory ignores the nature and burden of the creative process from the inventor’s perspective.<sup>137</sup> After all, the individual motivation problem is one of the principal concerns in current discourse concerning the appropriate allocation of intellectual property in general, and specifically in IP products developed within the workplace.<sup>138</sup> The progress of technology is dependent upon contributions made by individuals in solving problems.<sup>139</sup> It is therefore important to encourage individuals to create and commit

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<sup>135</sup> See SCHERER, *supra* note 131, at 444–46 (discussing the advantages attached to being the first to break into the market and the use of trade secrets as a substitute mechanism for the patent system).

<sup>136</sup> See, e.g., *Self-Realization Fellowship Church v. Ananda Church of Self-Realization*, 206 F.3d 1322, 1326 (9th Cir. 2000) (holding that in the absence of a contractual agreement, there is an assumption that the title to the copyright belongs to the person who initiated and funded the work rather than automatically belonging to the employer).

<sup>137</sup> See Cherenksy, *supra* note 64 (focusing on the implications of Professor Margaret Radin’s theory about property and personhood for service invention laws and how private contractual agreements have mooted the attempt at balancing the interests of both the employer and employee); Yuval Feldman, *An Experimental Approach to the Study of Social Norms: The Allocation of Intellectual Property Rights in the Workplace*, 10 J. INTELL. PROP. L. 59, 69 (2002) (discussing psychological perspectives of employee’s invention while asserting that most law and economics scholars believe that proprietary rights should go to the employer; also rejects the rationality assumption of efficiency as the dominant factor underlying economic theory).

<sup>138</sup> See Posner, *supra* note 19, at 37–40 (discussing how the patent system is limited by five sub-mechanisms in order to reduce costs, thereby enhancing motivation to develop patents: (1) expirations for patents (2) strict criteria for registration of patents (an obvious invention cannot be patentable, despite the investment in its development), (3) granting patents before the product is ready to go into the trade market to avoid duplicates, (4) criteria that the invention is useful, and (5) fundamental concepts, such as laws of physics, are not patentable). On the incentive of firms in general, see Gibbons, *supra* note 87; Canice Prendergast, *The Provision of Incentives in Firms*, 37 J. ECON. LITERATURE 7 (1999). With regard to discourse in relation to employee’s invention, see Dratler, *supra* note 23 for the importance of motivation to research and developments employees. See also Neal Orkin, *Rewarding Employee Invention: Time for a Change*, 62 HARV. BUS. REV. 56 (1984).

<sup>139</sup> See Dratler, *supra* note 23 (discussing the importance of the motivation factor in patents development); Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1098 (1972) (“There are also preferences which are linked to dynamic efficiency concepts – producers ought to be rewarded since they will cause everyone to be better off in the end.”).

themselves to new ideas, for otherwise technology and progress will not develop at the accelerated rate that is imperative during times of crises.

Joseph Stiglitz claimed that the slowdown at the end of the twentieth century has its source in the absence of technological changes which, itself, was the result of the absence of incentives.<sup>140</sup> The solution, in his view, is to be found in one of two paths: Government support for research and development, by virtue of investments or tax breaks, or rewarding those responsible for creation and development in order to promote productive activity—i.e., by allocating additional rights to employees apart from their salary.<sup>141</sup>

Mary La France has also pointed out other problematic aspects of allocating all rights to employers. For example, she has claimed that a law passed in the state of Nevada, ostensibly to broaden employees' rights, instead broadened rights of employers.<sup>142</sup> The law automatically granted the employer intellectual property rights in any employee invention conceived in the course of work unless agreed otherwise.<sup>143</sup> La France has shown that this law discouraged worker immigration to Nevada and caused them to prefer other states such as California or Washington where the legal position was more favorable in terms of employees' rights (at least, that employers who wished to gain IP rights in employee work product had to explicitly contract for it).<sup>144</sup> This result was quite the opposite of the intended goal, which was to stimulate technological growth in Nevada.<sup>145</sup> On the contrary, studies have shown that states with high technology growth, like California and Washington, are specifically ones that have passed laws

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<sup>140</sup> See STIGLITZ, *supra* note 52.

<sup>141</sup> *Id.*

<sup>142</sup> Mary LaFrance, *Nevada's Employee Inventions Statute: Novel, Nonobvious and Patently Wrong*, 3 NEV. L.J. 88, 88–90 (2002).

<sup>143</sup> See *id.* at 88, 107–14 (asserting that the law in Nevada which broadens employer property rights in any employee invention might encourage workers to prefer other states).

<sup>144</sup> *Id.*

<sup>145</sup> *Id.* at 108.



broadening employees' rights and restricting employers' ability to contract around this.<sup>146</sup>

When employees are not rewarded, employee-inventors may opt for one of the following options: (i) avoidance of development of IP products; (ii) development of products that comply with the minimum standards for satisfactory discharging of employees' duties; (iii) smuggling of significant IP outside of the organization; or (iv) as suggested in this sub-section, preference of a workplace in a different location that ensures, by legislation, better benefits to employed inventors.

### *B. The Many Stages of Incentivized and Creative Employees*

Understanding the varying levels of motivation furthers awareness of the need to increase employees' motivations, especially under conditions of uncertainty. Motivation in the context of intellectual property can be divided into various stages:

(1) **The incentive to invent and create.** The assumption is that the rules of intellectual property should supply the incentive required to promote inventions and the creative process in general.<sup>147</sup> The investment required for especially creative products that demand exceptional intellectual resources of the inventors compel a commensurate incentive for the employee. In the absence of a special incentive, no ground-breaking and unique inventions can be expected for the benefit of all. This claim gains even more force where it relates to the pre-invention stage.

(2) **Incentive to innovate.** This incentive should not only motivate employee-inventors to invent, but also to break new ground inventing significant welfare-promoting and successful inventions. Establishing the exclusivity of incentives for creative employees will motivate them to innovate in a manner that leads to meaningful added value for society, and for which society should

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<sup>146</sup> *Id.*

<sup>147</sup> See Mark A. Lemley, *Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989, 993 (1997) (“[B]oth the United States Constitution and judicial decisions seem to acknowledge the primacy of incentive theory in justifying intellectual property.”).

pay a price.<sup>148</sup> Any invention should be new and innovative, but it is clear that there should also be a direct relationship between our desire for creativity and our willingness to provide greater incentives for the same.

(3) **Incentive to disclose.** Any intellectual product has its source in the inner recesses of a person's mind, which must make its way to the external world in order to garner protection and bear fruit. Indeed, disclosure serves a number of roles: it enables the transition from the stage of an idea, which is not protected by the laws of intellectual protection, to that of a protectable product. Thus, disclosure is an essential element of the law of intellectual property because it forms the basis of the "transaction" between the creator and the public, whereby the public grants creators an exclusive right for a limited period of time in exchange for such disclosure. Specifically, encouraging disclosure is of particular importance in the context of employees.<sup>149</sup> Without appropriate incentives, employees will prefer not to disclose their thoughts to the employer, since all rights may ultimately be transferred to the employer. The commercial potential of the invention may serve as an incentive for hiding it from the employer until the stage at which the employee can develop it independently. From a public perspective, this kind of thinking is problematic because it prevents the efficient connection between the employer's capital and commercial power, and the creative potential of the employee.

(4) **Incentive to commercialize and distribute the product.** Motivation should also be related to the commercialization of the product, its distribution, and the deriving of profits therefrom. The employee plays a crucial role at the development and creation stage. The talent, genius, and reflection of personality, to the extent that they are expressed in the intellectual product, mainly stem from the employee-inventor. The importance of the employee does not, however, end at the development stage, but

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<sup>148</sup> Bartow, *supra* note 23, at 3 n.12 ("[I]ndividuals work hardest when they stand to personally gain from their efforts. The same principle applies to motivating creative people." (quoting Ron Riley, *Inventors Deserve Their Fair Share*, Machine Design, Mar. 21, 1994 at 109)).

<sup>149</sup> See FISK, *supra* note 81, at 180–81 (discussing how firms developed legal tools to control employees' creativity).

rather continues after the product has appeared in the real world.<sup>150</sup> Even at this stage, it is important to encourage the inventor to cooperate with the employer and with third parties who are seeking to purchase rights in the product. The latter parties require the employee's help in registering a patent, adjusting a product for a particular client, introducing required changes in the product, explaining the product, and marketing the product. It is frequently necessary to also have the employee's cooperation with future projects, and it is therefore important to encourage the employee to "stay in the picture" even after termination of the instant project.

## V. WHY THE ("FREE") MARKET IS INSUFFICIENT

### A. *Differences in Bargaining Power Between the Parties*

The basic assumption in the economic analysis of employee-employer relations is that the employee is the weaker party due to differences in negotiating power, accessibility to relevant information (both legal and economic), respective levels of control of financial resources, and accessibility to the legal system in order to enforce one's rights.<sup>151</sup> These power differences become even more pronounced at the pre-invention stage, during which employees are usually required to waive their rights in exchange for a steady income and the promise of job security. I claim that a

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<sup>150</sup> Dratler, *supra* note 23, at 137, 168–73 (describing the phases of the development process of intellectual property products, which involve many factors).

<sup>151</sup> See Duncan Kennedy, *Distributive and Paternalist Motives in Contract and Tort Law, with Special Reference to Compulsory Terms and Unequal Bargaining Power*, 41 MD L. REV. 563, 563, 614–24 (1982) ("[D]istributive and paternalist motives . . . explain far better than any notion of rectifying unequal bargaining power the widespread legal institution of compulsory contract terms in areas such as the allocation of risk."); Parker, *supra* note 4, at 625 (arguing that because research and development employees have disadvantageous bargaining power, their rights in service products must be protected when rights were produced outside the scope of the employment relationship); see also Orbach, *supra* note 19, at 44 (With a lack of accessibility to legal enforcement, hiring parties wish to avoid litigation because "they often enjoy advantageous bargaining power that allows them to acquire more extensive rights than provided for by the default rules."). See generally Richard E. Epstein, *Unconscionability: A Critical Reappraisal*, 18 J. L. & ECON. 293 (1975) (explaining unequal bargaining power); Eyal Zamir, *The Efficiency of Paternalism*, 84 VA. L. REV. 229, 229–86 (1998) (regarding the positive effect of paternalism).

change in approach is needed. Legislators should adopt a more paternalistic position and enact *jus cogens* legislation, which will apply even if parties contract for the opposite.<sup>152</sup>

Professor Catherine Fisk claimed that employees in research and development positions are not weak employees.<sup>153</sup> She argues, instead, that these are usually senior employees who are highly educated and receive high salaries, with high job mobility and who to a certain extent “determine” their own work conditions.<sup>154</sup> It would appear, however, that despite these characteristics, employees in research and development are subject to a power imbalance. The work conditions of developers demand particularly hard work and long hours that exceed the boundaries of existing protective legislation.<sup>155</sup> For the most part they are not organized, and, apart from a few “star” developers, do not enjoy preferential work conditions. Further, the market is, for the most part, monopsonic.<sup>156</sup> Despite the fact that certain employees may have greater work mobility, they nonetheless have no ability to choose between those workplaces that offer extra rights and those that do not. Almost all firms require employees to waive their rights to intellectual products, and so in that sense, employees are limited in their ability to choose. “Free competition” is therefore an illusion.<sup>157</sup>

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<sup>152</sup> See Wolk, *supra* note 45, at 273 (positing that although there is no harmonization of laws across Europe in the matter of employed inventor remuneration, employees are normally awarded through mandatory provisions in national legislation). See generally Kennedy, *supra* note 120, at 590–91 (arguing that fundamental norms of international laws usually refer to groups such as consumers, employees, tenants).

<sup>153</sup> See FISK, *supra* note 81, at 178–88.

<sup>154</sup> See *id.* at 178–80 (stating that employees most likely to invent in the twentieth century were professionally trained, skilled engineers).

<sup>155</sup> Bartow, *supra* note 23, at 682–84.

<sup>156</sup> See Posner, *supra* note 19, at 425–26 (explaining that employers gain monopolies on power when employees are not aware of occupational alternatives, or when the costs of moving from one role to the other are high, or when employers coordinate their efforts by mutual restricting employees’ rights.); see also Bartow, *supra* note 23, at 683.

<sup>157</sup> See FISK, *supra* note 81, at 171, 181, 187 (asserting that ownership of inventions has become solely a matter of contract); see also Corey Field, *Their Master’s Voice*, 48 J. COPYRIGHT SOC’Y 145, 153 (2000) (explaining that the employer or several other categories of those who commissioned the work are considered to be the authors under work made for hire doctrine, in contrast to the employee who is the natural author).

### B. Cognitive Bias and Its Significance

Recent psychology and legal scholarship has also put forth additional, compelling reasons why the free market does not succeed in regulating the division of IP rights in a manner that would obviate the need for binding legislative intervention. Specifically, it points to non-rational aspects of human conduct and their effect on the law. Endorsers of these theories challenge the assumption that people act as rational logical beings who invariably seek to maximize utility; rather, they argue that the decision-making process is slanted by psychological and social biases.<sup>158</sup> Richard Epstein argued that recognition must be had for two central truths pertaining to the limitations of human nature in the realm of decision-making. The first is the cognitive problem—many people make cardinal mistakes in their decisions concerning important matters. The second is the emotional problem—people do not control their feelings and, as a result, decision-making is impaired.<sup>159</sup> Further, inter-personal relationships provoke intense feelings that significantly influence the nature of individual interactions, often impairing rationality. Indeed, overall it has been shown that individuals have difficulty making well-informed decisions about the future.<sup>160</sup>

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<sup>158</sup> See, e.g., DANIEL KAHNEMAN, PAUL SLOVIC & AMOS TVERSKY, *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES* (1982) (showing that the effect of cognitive biases becomes stronger under uncertainty conditions); see also Cynthia L. Estlund, *How Wrong Are Employees About Their Rights and Why Does It Matter?*, 77 N.Y.U. L. REV. 6, 7–11, 15–19, 30–35 (2002) (explaining the issues that exist in the gap between employees' beliefs about their rights and reality in an employee-at-will context); Christine Jolls, Cass R. Sunstein & Richard Thaler, *A Behavioral Approach to Law and Economics*, 50 STAN. L. REV. 1471, 1473–87 (1998) (asserting that increased attention to actual human behavior can improve law and economics analysis); Daphna Lewinsohn-Zamir, *The Choice Between Property Rules and Liability Rules Revisited: Critical Observation from Behavioral Studies*, 80 TEX. L. REV. 219, 222 (2001) (arguing that owners exhibit a stronger endowment effect which suppresses efficient bargaining as well as demonstrating systematic under-compensating offers).

<sup>159</sup> See Richard A. Epstein, *Behavioral Economics: Human Errors and Market Corrections*, 73 U. CHI. L. REV. 111, 112–15 (2006) (addressing two facts about human nature: the fact that people often make serious mistakes in deciding important matters, and the fact that people often find it hardest to keep their emotions in check when it matters the most).

<sup>160</sup> See *id.* at 112–13 (explaining that because people make errors about reality as well as about their preferences, most people will never be able to optimize anything); Lewinsohn-Zamir, *supra* note 158, at 267–71 (arguing that cognitive biases, such as

Over the last decade cognitive limits have merited renewed attention.<sup>161</sup> The importance of psychological bias, I argue, is even more acute in the employer-employee context, in which we cannot expect either party to operate in a rational manner, either with regard to the present contract or rights in future products. The employer is in no hurry to waive its rights, even if it might be more efficient in the long run. Conversely, the employee can expect to receive lower compensation in return for his or her waiver.

One might question why the employer is unprepared to waive its rights in any employee work product as a means of incentivizing its employees to produce and invent if it results in a business advantage in the market. One explanation might be the “endowment effect.”<sup>162</sup> People posit a greater value for something that they own. This means that a person will demand a greater price for the waiver of an asset in his/her possession when compared to the price he/she would have been prepared to pay for the same item in possession of another. The employer who holds the IP rights in the first place may feel that the product is already part of its property and will, therefore, be reluctant to waive any rights therein. Alternatively, the price it may demand for such

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availability and the tendency to remember outstanding events; selective perception; computation limitations; data presentations and over-optimism regarding low probability risks are likely to impair the decision-making process even when thinking about a decision as simple as buying a TV set).

<sup>161</sup> The discourse on “cognitive bias” was first introduced by two distinguished scholars from the psychology field: Daniel Kahneman and Amos Tversky, who established a cognitive basis theory for common human errors using heuristics and biases. See Daniel Kahneman & Amos Tversky, *Subjective Probability: A Judgment of Representativeness*, 3 COGNITIVE PSYCHOLOGY 430 (defining cognitive bias as a pattern of perceptual distortion, inaccurate judgment, and illogical interpretation, which may lead to impaired judgment); see also Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decisions Under Risk*, 47 ECONOMETRICA 263 (1979) (developing of the prospect theory as a more realistic alternative to rational choice theory). But see, Norbert L. Kerr, Robert J. MacCoun, & Godfrey P. Kramer, *Bias in Judgment: Comparing Individuals and Groups*, 103 (4) PSYCHOLOGICAL REV. 687 (1996) (discussing that the magnitude of individual and group bias depends on several factors, and arguing that there is no simple answer to this issue).

<sup>162</sup> See Daniel Kahneman, Jack L. Knetsch & Richard H. Thaler, *Anomalies: The Endowment Effect, Loss Aversion and Status Quo Bias*, 5 J. ECON. PERSPECT. 193–206 (1991) (noting that people often demand much more to give up a particular object than they would be willing to pay to acquire it).

rights will be higher than the price the employee is prepared to or able to pay.<sup>163</sup>

Another explanation is the influence of the “status quo bias.”<sup>164</sup> This bias gives rise to an unwillingness to deviate from an existing (legal) rule. Employers are not enthusiastic about “innovation” if it means changing the prevailing norm, even if such change may actually increase profits in the long run. The employee, on the other hand, will tend to be “over optimistic” about the future.<sup>165</sup> The employee is prepared to accept a job and a salary in the present without rationally considering the costs of a waiver of future profit. This phenomenon may also be explained by the

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<sup>163</sup> The endowment effect might explain the behavior of many institutions that refrain from giving rights to workers, despite knowledge by the employers that rights in the product, and royalties from their sales, will ultimately increase the motivation of the workers to create. These institutions may still refuse employee rights despite publications according to which granting appropriate consideration to the employee-inventor raised the income of the universities and hospitals that granted these rights. See Lewinsohn-Zamir, *supra* note 158, at 222 (asserting that a strong endowment effect was exhibited by owners and led to inefficient bargaining).

<sup>164</sup> See Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608, 612 (1998) (explaining that “[c]ontracting parties view default terms as part of the status quo and they prefer the status quo to alternative states”); William Samuelson and Richard Zeckhauser, *Status Quo Bias in Decision Making*, J. RISK & UNCERTAINTY 7 (1988) (stating that when we make a decision, we have a choice of doing nothing or maintaining someone’s current or previous decision (the status quo alternative) and that decision-making experiments reveal that individuals disproportionately stick to the status quo alternative).

<sup>165</sup> See generally Lynn A. Baker & Robert E. Emery, *When Every Relationship is Above Average: Perceptions and Expectations of Divorce at the Time of Marriage*, 17 LAW & HUM. BEHAV. 439 (1993) (focusing on example of optimistic evaluations of young couples regarding the prospects of a successful marriage despite the well known, high rate of divorce); Colin F. Camerer & Howard Kunreuther, *Decision Processes for Low Probability Events: Policy Implications*, 8 J. POL’Y ANALYSIS & MGMT. 565, 566, 569–571 (1989) (noting that people do not view risk in a rational way, even when the facts are well known; for example, they assume lower risk for car accidents even when being aware of real data to the contrary); Christine Jolls, *Privacy and Consent Over Time: The Role of Agreement in Fourth Amendment Analysis*, WM. & MARY L. REV. 1693, 1704–05 (2013) (arguing that employees agree to possible future intrusions on privacy because of cognitive bias such as over-optimism); Neil D. Weinstein, *Unrealistic Optimism About Future Life Events*, 39 PERSONALITY & SOC. PSY. 5, 806 (1980) (showing generally that people are optimistic regarding their risks); Neil D. Weinstein & William M. Klein, *Unrealistic Optimism: Present and Future*, 15 J. OF SOCIAL AND CLINICAL PSYCHOLOGY 1 (1996) (explaining that people assert they are less likely than others to experience negative events).

“discounting” effect.<sup>166</sup> The employee does not take future profits into account, being more impressed by profits in the present (in the form of a high salary).<sup>167</sup> However, the conclusion leads the employee to mistakenly assume that, in the event of future profits, even if he or she does not expect personal profit in the present, he or she will nonetheless receive a certain portion of them.

In sum, because individuals are likely to focus on short-term maximization, and not long-term efficiency, a legislative solution may be needed as a paternalistic means of inducing innovative change in the long run.

### *C. The Ineffectiveness of Labor Unions*

At this point, one might object and point to the existence of labor unions or collective organizations as an important available tool for narrowing unequal bargaining power and improved access to legal and economic information.<sup>168</sup> Indeed, the collective power of organized inventors within the framework of freedom of association and the right to collective bargaining, along with *jus cogens* legislation, may have tremendous potential for striking a balance between the power of employees and that of employers and, thus, to generate a fairer and more appropriate arrangement.<sup>169</sup> However, such unions or associations of employee-inventors are not common in the U.S.<sup>170</sup> This may be attributable to the fact that once employee-inventors assign all the intellectual property rights to the employer by valid contracts, the organizations are deprived of their main source of bargaining power and, hence, are powerless to influence commercial relationships, which might otherwise have been formulated with greater emphasis on more equal distribution

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<sup>166</sup> See Deborah M. Weiss, *Paternalistic Pension Policy: Psychological Evidence and Economic Theory*, 58 U. CHI. L. REV. 1275, 1297 (1991) (concluding that many people, left to their own devices, will not save enough for their old age).

<sup>167</sup> See *id.* at 1285–86 (1991).

<sup>168</sup> See STIGLITZ, *supra* note 52, at 86–88.

<sup>169</sup> See Peberdy and Strowel, *supra* note 14, at 66 (using the example of France where collective agreements governing all employees working in a particular industrial sector serve as a basis for calculating and deciding upon employees remuneration).

<sup>170</sup> See Bartow, *supra* note 23, at 677 (arguing that inventors should organize and act collectively).



of rights and benefits.<sup>171</sup> These organizations may also have to confront stringent competition laws.<sup>172</sup> Perhaps for these reasons, organizations of employees who are creators or inventors are barely recognized in American law. Labor unions are usually involved in negotiations of work conditions and threshold social rights, and they are less involved in this particular realm.<sup>173</sup> Moreover, the power of labor unions, in general, is gradually diminishing.<sup>174</sup> And lastly, labor unions have been harshly criticized as a restrictive trade practice.<sup>175</sup> Thus, labor unions on their own cannot solve the power imbalance problem, nor can we expect their very existence to reflect efficient agreements made in a truly free market.

## VI. PROPOSED ALTERNATIVES

### A. *Limiting Transferability of Employee IP Rights*

My proposed model flips the existing norm in which employers are presumed to hold IP rights over employee work product. Rather, I propose that legislation mandate that employees hold IP rights in their work product, and that a transfer of these rights would only occur in certain cases, namely when the transfer would encourage productivity. It is not disputed that one of the important aspects of IP, much like real property, is its transferability,<sup>176</sup> and on one hand, transferability in this context reflects the autonomy

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<sup>171</sup> See Bartow, *supra* note 23, at 715. This article proposes a unique solution for the disincentive problem: rather than waiting for congressional or judicial action, inventors should organize and act collectively by refusing to sign any pre-invention assignment agreements in the future, by “revoking” pre-invention assignment agreements currently in effect, and by retaining ownership of their patented inventions.

<sup>172</sup> Shlomit Yanisky Ravid, *Freedom Of Association Versus Competition Laws - Comparative Study* (unpublished manuscript).

<sup>173</sup> See Bartow, *supra* note 23, at 715.

<sup>174</sup> US DEPARTMENT OF STATE, AMERICAN LABOR HISTORY, *available at* [http://economics.about.com/od/laborinamerica/a/labor\\_history.htm](http://economics.about.com/od/laborinamerica/a/labor_history.htm) (last visited Dec. 11, 2012).

<sup>175</sup> See Ravid, *supra* note 172 (noting that legal decisions preferred competition laws over freedom of association in most of the countries that participated in the comparative study).

<sup>176</sup> See JOSEPH T. MAHONEY, *ECONOMIC FOUNDATIONS OF STRATEGY* 109 (4th ed. 2004).

and the freedom of employees to transfer, sell, or negotiate these rights. On the other hand, however, as we have already established, employers are prone to “abuse” their negotiating power and demand that employees transfer all of their property rights up front.<sup>177</sup> It is therefore suggested that employee transfers of IP rights be legislatively limited, and to determine a list of circumstances in which the law will neither permit nor recognize contracting out of employees’ rights when such a contract is to the detriment of the employee. At the same time, an appropriate judicial forum should be established to rule on the question of whether a transfer in a particular case and under certain circumstances is detrimental to the employee and, hence, invalid. Other explicit contracts transferring employee IP rights that satisfy the conditions of fair transactional conditions will receive legal validity.

The interesting question is whether there should be a statutory enumeration of cases in which the transfer of rights is automatically deemed valid or whether there is a need for an explicit individual contract for each and any occasion in which the employee transfers his or her rights. I will examine the advantages and disadvantages of each option below.

The advantage of a statutory “automatic” transfer of rights to the employer lies in reduced transaction costs. The law determines what the parties would have been likely to agree upon in the absence of a legal, statutory rule. This kind of law would therefore save the costs of negotiating and drafting a separate agreement for each specific case.<sup>178</sup> On the other hand, numerous advantages attach to the contractual transfer of rights from the employee to the employer.

In what follows, I will set forth some of the advantages of requiring an explicit contractual transfer as opposed to the automatic transfer of rights to the employer.

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<sup>177</sup> See *supra* Part V.A.

<sup>178</sup> See Christopher A. Riley, *Designing Default Rules in Contract Law: Consent, Conventionalism, and Efficiency*, 20 OXFORD J. LEGAL STUD. 367, 367–90 (2000) (examining three accepted explanations for the default option—subjective agreement, the accepted norm and economic efficiency).

(1) **The slippery slope.** The upfront statutory transfer may obliterate the concept of employees' rights in IP work products, or at least divest it of any content. A statutory determination that automatically awards IP rights to employers paves the way for broadening employers' rights in a broad spectrum of cases. This statutory presumption in favor of the employer may create a slippery slope in the wake of excessively broad interpretations of cases in which IP rights are deemed *de facto* invested in employers.<sup>179</sup> Transfer of IP rights to the employer is undesirable when the connection between the service and the product is tenuous, such as when the product relates to an area in which the employer itself is involved, even if the employee is not ETI and the employer did not invest resources in the development of the product.

(2) **Normative value.** From a normative perspective, when there is an up-front transfer to the employer, the employer is perceived as the first and rightful owner of the right. The latter conception is the precise opposite of the model proposed in this Article, according to which the creator or the inventor is presumed the *de facto* owner of the rights. The contractual approach is thus more consistent with this normative presumption.

(3) **Employee awareness.** When the law confers the rights to the employers up-front, employees are not necessarily aware of their waiver of rights and transfer to the employer because the arrangement will apply even when the specific employment contract is silent on the matter, i.e., in cases of ETI. The statutory conferral of rights to the employer obviates the need to specify the transfer in the employment contract. According to the model proposed in this Article, employee awareness of rights is important *per se*. A fair negotiation of a rights transfer to the employer can only take place, if at all, if the transfer is explicitly referred to in the employment contract, providing certainty that the employee is aware of this waiver after the invention has reached a concrete form, and the contract further provides for compensation. A statutory transfer, after the invention is developed, circumvents the possibility of negotiation. An automatic transfer thus precludes the

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<sup>179</sup> See *supra* note 29 and accompanying text.

possibility of the better-informed party, in this case the employer, disclosing valuable information to the less-informed party, in this case the employee.

(4) **Burden of proof.** When an employee transfers to the employer a right that originally belonged to the employee, it is likely that the transferee (the employer) bears the onus of proving the fulfillment of the conditions required to validate the transfer. When the law determines that, under certain conditions, the right vests with the employer, then the employee would bear the burden of proof—and, as the employee has less resources at his or her disposal and, very likely, less information, he or she may not be able to meet that burden as well as the employer might be able to.

(5) **Tax benefits.** The transfer of property to the employee and its subsequent transfer to the employer are also important for tax reasons. If the property belongs to the employee and the employee transfers it to the employer, subject to certain conditions, then the asset is a capital asset, and subject to a lower taxation rate.<sup>180</sup> When property is originally vested in the employer, the payment of consideration to the employee may be viewed as a payment of revenue, in which case higher tax rates would apply.<sup>181</sup>

(6) **Power discrepancies.** A rule that allocates to the employer all rights in advance reflects the power discrepancies between the parties discussed above.<sup>182</sup> It establishes the advance “surrender” of the weaker party in the form of a waiver of rights.

(7) **Low transaction costs.** The employee-employer relationship is a close one that can be regulated by employment

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<sup>180</sup> See Justine P. Morreale, *Patents, Know-How and Trademarks: A Tax Overview*, 29 TAX L. 553, 554 (1975-1976).

<sup>181</sup> See ISABEL VERLINDEN, AXEL SMITS & BART LIEBEN (LANDWELL), INTELLECTUAL PROPERTY RIGHTS FROM A TRANSFER PRICING PERSPECTIVE 50, 72 (2002) (stating that the legal owner is an important concept in the United States; generally concurs with the view that the legal owner of the intangible asset is also the party entitled to the income; the tax consequences of an assignment will, for the most part, be determined by what has happened in the development phase, and whether one group company has itself done the development, or if the work has been done under a R&D contract, or if the work has been done under a cost-sharing arrangement); Morreale, *supra* note 180, at 554–57 (noting that a license from the developer might be considered as a sale for tax purposes and independent inventor enjoys benefits when licensing the invention).

<sup>182</sup> See discussion *supra* Part II.

agreements and, as such, the transaction costs are likely to be low.<sup>183</sup>

(8) **Information-forcing mechanism.** As has already been briefly discussed above, a contractual transfer may, in certain circumstances, encourage the employer to disclose critical information. An employer not satisfied by the statutory default model (assuming that the law confers IP rights to employees) will seek to establish an explicit opposite rule in the contract ensuring that valuable information is transferred to the other party. The very act of determining a condition which is the opposite of the default option directs the employee's attention to the explicit arrangement in the contract and motivates the employer to transfer the information in its possession to the employee—what Ian Ayres and Robert Gertner call “penalty defaults” or an information-forcing rule.<sup>184</sup>

(9) **Just deserts.** When the employers “merit” receiving all of the rights, they receive extra privileges that they would almost certainly not have received in an automatic transfer where the employer is presumed deserving of such rights.

(10) **Consideration required.** Such a transfer to the employer would more likely require consideration to be paid to the employee, whereas in an automatic transfer the employee would likely receive nothing in addition to ordinary salary. The policy proposed in this Article stresses a *de facto* allocation of rights

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<sup>183</sup> See Björn Bartling, Ernst Fehr & Klaus M. Schmidt, Transaction Costs, Power Abuse, and the Employment Relation: Economic Origins of Authority 2 (Sept. 2011) (unpublished manuscript), available at <http://whu.edu/static/geaba/Symposium/2011/Papiere/E1-Bartling.pdf> (“[T]he employment contract is more flexible because the employer can quickly adjust the service to be provided . . . . On the other hand . . . the employment contract can force the employee to choose an inefficient action that is most profitable for the employer but very costly for the employee.”).

<sup>184</sup> See Ian Ayres & Robert Gertner, *Filling Gaps in Incomplete Contracts: An Economic Theory of Default Rules*, 99 YALE L.J. 87 (1989-1990) (suggesting penalty defaults rules within a contract be purposefully designed to encourage the parties to reveal information to each other or to third parties and that the law should be designed efficiently to encourage the side who holds the information to share it with the other side); Ian Ayres & Robert Gertner, *Strategic Contractual Inefficiency and the Optimal Choice of Legal Rules*, 101 YALE L.J. 729 (1991-1992) (stating that contingently incomplete contracts give certain private parties incentives to either renegotiate or breach the original contract to realize these additional gains from trade).

and/or benefits to the employee and for the transfer of rights from employed inventors to the employer only in particular circumstances, that is, at the advanced stages of product development. According to my proposal, employed inventors would be entitled to receive extra-salary compensation for transferring their rights to their employers. The compensation would be anchored in a *jus cogens* rule. Complementary mechanisms would be established to void a transfer in the event of non-payment of consideration and provide a mechanism for resolving disputes concerning what, or how much, constitutes adequate consideration.

Moreover, the inefficiency deriving from the absence of international regulation and coordination of employee-inventor rights stresses the need to establish an international tool, under the auspices of the World Intellectual Property Organization (WIPO) that would address and regulate the allocation of rights within the workplace.

#### *B. Special Consideration*

The subject of consideration is not mentioned as an alternative to my proposal in this Article, but rather stresses the need for adequate consideration in any transfer of rights from the employee to the employer. Unlike in the U.S., a number of substantial compensation awards have been made recently in Europe.<sup>185</sup> For example, the Patents Court in the United Kingdom (U.K.) awarded considerable compensation in the case of *Kelly v. GE Healthcare* in 2009.<sup>186</sup> Two inventors were awarded £1.5 million (about \$2.2 million).<sup>187</sup> Moreover, a former employee of the French National

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<sup>185</sup> See Peberdy & Strowel, *supra* note 14, at 63, 65 (“The source of employee inventor compensation laws differs from country to country. Many European countries (including the UK, The Netherlands, France, Italy, Austria, Portugal, Spain and Hungary) include employee inventor compensation provisions in their national patent legislation. Others, such as Germany, Denmark, Finland, Norway and Poland, have enacted specific employee compensation laws. Belgium does not provide a statutory right to compensation, although a right has developed through case law . . .”).

<sup>186</sup> See *Kelly v. GE Healthcare*, [2009] EWHC (Pat) 181, [207] (Eng.).

<sup>187</sup> See *id.* But see Peberdy & Strowel, *supra* note 14, at 63, 65 (suggesting that this case may not be as significant as many have predicted as the invention—the Myoview—was easily recognized as belonging to Amersham (the employer) and, given that it was a best-selling product, its benefit to the employer in term of income was easily measured).

Railways was awarded more than \$750,000 from a court in Paris for inventing a system that allowed the railway to save around \$22 million annually.<sup>188</sup> The justifications for doing so have been explained in this Article.<sup>189</sup> The principal reason for this is that consideration is necessary to create incentive as well as compensatory mechanisms that establish the link between compensation and commercial success of the product. Inventors' desire for cooperation in the process of transferring intellectual property includes the desire to ensure their own financing and to profit in excess of their existing salary.<sup>190</sup>

For example, the scholar Jay Dratler has argued that, under a pro-employer regime, employees lack motivation which might lead to the diminishment of intellectual products.<sup>191</sup> Incentive bonuses, currently in place in certain firms, are not enough.<sup>192</sup> An employee whose invention is approved by a company committee will receive a fixed-sum bonus, which is far lower than his or her salary. Exceptional or tremendous displays of incentive, initiative, and investment should not be expected in that situation. Conceivably, in the Anglo-American allocation regime, which allocates property rights to the employer by way of law or contract, granting adequate financial incentives to employed inventors, when economic efficiency justifies transferring property rights to the employer, creates an appropriate balance between the conflicting interests of the employee, employer, and public. A rule that institutionalizes the duty of paying consideration to employees in any transfer of rights to employers somewhat blunts the criticism of such one-sided transfers. In order to overcome the motivation problem, firms have developed complex incentivizing mechanisms.<sup>193</sup> However, these voluntary plans, initiated at the

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<sup>188</sup> See Pebery & Strowel, *supra* note 14, at 63.

<sup>189</sup> See discussion *supra* Part IV.

<sup>190</sup> See Merges, *supra* note 19, at 3, 38–52, 53–54 (justifying payment of consideration to employee-inventors from a law and economics perspective).

<sup>191</sup> See Dratler, *supra* note 23, at 185–86 (suggesting that the allocation of patent rights provided by the present legal structure entirely misses the goal of promoting innovation within firms).

<sup>192</sup> See discussion *supra* Part IV.

<sup>193</sup> See Merges, *supra* note 19, at 39, 40 (dividing incentive into four groups: (1) promotion of the creative employee; (2) granting a bonus to an employee for a particular

discretion of the firms, are not sufficient. Such compensation schemes should be mandated by statute to ensure optimal efficiency.

The issue of employee compensation is important, not only to inventors, but also to the industry and innovation level in the U.S. However, it is worth noting that there are significant differences, even among jurisdictions adopting a legally-binding compensation regime. At one end, in the U.K., claims are rarely granted, but are likely to be significant.<sup>194</sup> At the other, in France, compensation is routine, but typically at a much lower level.<sup>195</sup> Countries like France, which usually assess compensation at the time when the invention was made, typically award lower amounts of compensation than those countries, such as the U.K., which calculate compensation after the invention has been exploited.<sup>196</sup>

Consideration is a more effective tool than other incentives like granting a limited monopoly over patents, in that consideration increases the amount of intellectual products and their quality without payment of the social price caused by broadening monopolies.<sup>197</sup> Consideration is also preferred over direct government investment in these fields because the latter requires

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invention; (3) a product that provides the basis for a bonus to the employee; and (4) administrative evaluation of the invention along with the employee's evaluation).

<sup>194</sup> See Peberdy & Strowel, *supra* note 14, at 63–66.

<sup>195</sup> See *id.* at 66–67.

<sup>196</sup> *Id.* (suggesting that the later the compensation is paid, the larger the amount that is paid); Wolk, *supra* note 45, at 296 (“There are two different legislative approaches in Europe, as well as a disparity between, on one hand, UK law, and on the other hand, French, German, Spanish and Swedish law. In the United Kingdom, the threshold is very high because of the ‘outstanding benefit’ requirement, and employee inventors are rarely awarded additional compensation.”).

<sup>197</sup> Consideration is preferable to the extension of the exclusivity period for rights holders and the fortification of monopolistic rights given today. See STIGLITZ, *supra* note 52, at 346–47 (Monopolistic rights in intellectual products create a low level of creation and a higher price of the product during the protection period. Regarding this point, there is constant tension between dynamic efficiency by way of motivation for investment and static efficiency which means that companies will continue to produce until the point at which the price is equal to the marginal profit. To the extent that the protection period is shorter, so too the party who is not the owner of the rights in the product will be able to benefit from future developments. The shortening of the protection period reduces the cost of a creation that relies on another creation.); POSNER, *supra* note 19, at 41 (noting that the contribution of future payment of royalties towards the creator's motivation in creating becomes negligible).



large sums of public tax money.<sup>198</sup> If consideration increases the overall public “cake,” it does so because it occurs without any extra “payment” or investment from the public.

In sum, I propose an explicit statutory arrangement for the payment of consideration to inventors and creators apart from their salary. Such payment should take place only after the product is in its advanced stages of development, when both parties have clear data at their disposal as to fair value.

The relevant statute should establish *jus cogens* arrangements, which accommodate the possibility of adjusting the contractual consideration in the event of a change in circumstances, for example, if the product proves to be wildly successful. Such decisions would be made by an administrative body who would take into account factors such as product royalties in making its final decision of what constitutes adequate consideration.

### C. A “Red Carpet” for Entrepreneurs

In addition, different rules should apply to those who are risk averse and those who are not. Where employees are not risk averse, it is not appropriate to apply the paradigm of “risk exchange” in exchange for a waiver of property rights in the product. An employee who is willing to take risks or is risk neutral might very well become an entrepreneur. Employees in this category should be encouraged to develop intellectual products, and thus even be induced by an allocation of rights in their favor. Failure to secure such an employee’s rights in the product may cause the employee to forget about significant innovation or “smuggle” the intellectual product outside the firm in order to begin his or her own development of the product, even if it involves certain risk. Thus, a proper policy would allow such employees a “red carpet” to safely develop their products.<sup>199</sup>

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<sup>198</sup> See STIGLITZ, *supra* note 52, at 348; Daphna Lewinsohn-Zamir, *In Defense of Redistribution Through Private Law*, 91 MINN. L. REV. 326 (2006) (supporting using private laws with tax system in order to promote distribution justice).

<sup>199</sup> The employer might get compensation according to the amount which the employer has invested in the invention.

#### D. *Attributing Inventors*

An inventor's entitlement to attribution rights in the inventions he or she has developed might also play a major factor in enhancing innovative activity in the workplace. Publishing the name of the inventor is very important, not only from a personality perspective, but also for economic reasons.<sup>200</sup> Traditionally, the rule was that patents were declared invalid if the wrong inventors were named on the patent. This gave parties prosecuting a patent application an incentive to name every inventor.<sup>201</sup> Unfortunately, the America Invents Act<sup>202</sup> changed the tradition of the patent filing system, which previously published the name of the inventor himself in the public record and contained his or her name in the patent application.<sup>203</sup> The new law makes it much easier for employers to avoid attribution of inventions and patents to employees *and* to unilaterally file patent applications on their behalf. Under this new regime, employee contribution suffers from a lack of visibility and lack of quantification. Therefore, we should return to the traditional model where patents are attributed to the employees who have developed them.<sup>204</sup>

#### CONCLUSION

Advancement of an appropriate policy for IP work products has become critical in an era where there is much interest in raising the level of innovation nationally. Insofar as most inventions are invented in corporate frameworks, we must begin to analyze what drives employee inventive spirit in the workplace. This Article

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<sup>200</sup> See Xiyin Tang, *The Artist as Brand: Toward a Trademark Conception of Moral Rights*, 122 YALE L. J. 218, 234 (2012) (arguing that the adoption of moral rights is beneficial because it will likely increase with the value of the work itself).

<sup>201</sup> See Merges, *supra* note 16, at 2218 ("Patents were routinely declared invalid when the wrong inventors were listed on a patent," giving the party prosecuting a patent application a strong incentive to name all inventors.).

<sup>202</sup> Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (codified in scattered sections of 35 U.S.C.).

<sup>203</sup> See *supra* note 10 and accompanying text.

<sup>204</sup> See POLINSKY, *supra* note 80, at 131-32 (suggesting that it is easier to identify the employer as the one responsible for the product's success and to provide him an incentive accordingly and, yet, it is difficult to measure how much each member of a working team contributed to the product).

claims that the current structure of the pro-corporate regime exacts a price in terms of the quantity and quality of intellectual property inventions and, thus, may be highly inefficient. In establishing the appropriate policy, consideration should be had for the conditions of uncertainty that are inherent in the development of IP products and employee inventions, especially when employees waive all rights before any products have even been conceived. Specifically, this Article examines transactional uncertainties, risk allocation and Principal-Agent relationships, and their effect on IP policy aimed to enhance employee productivity in times of economic crises or recession. The discussion relies on the foundational underpinnings of law and economics theory, but applies its presumptions in a new light, looking at the uncertain circumstances surrounding the transaction at the time when rights are transferred and, consequently, its normative significance.

From an economic perspective, incentives should be given to motivate employees to create and to invest in and disclose their inventions for the public welfare. Indeed, under certain circumstances, it becomes justified to confer all rights in employee inventions to the employer, but such a *carte blanche* conferral would be overly broad and would not take into account economic, and other, claims that justify the allocation of rights and certain benefits specifically to the employee. I conclude that these considerations are consistent with the overall spirit of encouraging competition, employee mobility and creative ingenuity.