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The Political Economy of Congressional Patent Policymaking in the Late 20th Century

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Beginning in the early 1980s, the U.S. Government reformed the patent law in ways that made patents easier to acquire and defend, but further efforts to expand the rights of patent owners had stalled by the mid-1990s. I use a political economy model to explain these changes in terms of the shifting constituency interests represented by members of the U.S. Congress. As the distribution of patenting became less skewed in the 1980s, more members represented constituencies likely to benefit from inefficient patent policy. But as the distribution of patent holding became more skewed once again in the later 1990s, support for expansions of patent rights decreased.

1. INTRODUCTION

The first decade of the 21st century saw a heated debate over whether patents provide effective (Chen, 2008) or ineffective (Bessen and Meurer, 2008; Hunt, 2006) incentives for innovation, and whether patent rights had grown too strong (Jaffe and Lerner, 2004:25-26) or not (Denicolò, 2007). Often ignored in this debate was the question of how political interests influence the design of patent policy. This paper focuses on how the district-level interests represented by members of the U.S. Congress influence their patent-policy votes, and it examines how the resultant incentives to balance public and private patent interests have shifted over time. Changes in the micro-level incentives of members of Congress appear to explain macro-level changes in U.S. patent policy.

In conjunction with the technical challenges of designing an effective patent system (Encaoua, Guellec, and Martínez, 2006; Shapiro, 2007), there are political challenges (Nard and Morriss, 2006). This paper examines U.S. patent policy from a political economy perspective. I argue that when legislators make patent policy, they

* My thinking on this topic benefitted greatly from conversations with William Keech, Greg Adams and Wes Cohen.

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weigh both public and private constituency-level benefits.¹ Therefore, members of Congress from districts with large numbers of patent owners will at times have an interest in backing patent policies in which public benefits are swamped by public costs, simply because their district will be able to leverage its large patent portfolio to extract rents from other parts of the country or world (Scotchmer, 2004). This can explain why members of Congress in the 1980s and early 1990s would rationally choose to implement policies that arguably degraded the quality of U.S. patents (Jaffe and Lerner, 2004), and then pull back from further movement in that direction by the late 1990s. District-level patent interests strongly influence votes, and there is evidence that changes in the distribution of district-level interests help shape changes in U.S. patent policy.

2. LITERATURE

The 1980s and the early 1990s brought major expansions in the availability, length, enforceability, and number of patents issued in the United States.² Why were patents made more broadly available, as well as longer, stronger, and easier to get? Did these reforms serve the public interest, or the private interests of patent owners, or both? Several arguments have been advanced to explain patent policy changes, but all have substantial weaknesses.

Some authors have argued that changes in patent policy resulted from policy ‘capture’ by powerful interests (e.g. Kahin, 2001). However, the evidentiary base for these arguments is generally very thin. Capture is often asserted without citation or evidence (e.g. Encaoua, Guellec, and Martínez, 2006), and whether capture explains the policy changes is disputed by Kortum and Lerner (1999).

Alternately, some argue that policy changes may have been driven by the notion that patent law changes were in the public interest, with any resultant inefficiency the result of negative unanticipated consequences (Jaffe and Lerner, 2004). In the 1980s, a key intellectual impetus for reform came from efforts to preserve the position of U.S. corporations in world competition.³ However Scherer (2007) argues that this alone cannot account for the patent law changes, given the weak evidence that strengthening patent laws would provide a public good.

¹ Patents provide private gains for the recipient (provided the patent can be exploited) and impose public costs such as higher costs for use of the invention and potential hold-up of related inventions (Choi, 2005). In return, patent systems arguably provide a public good by spurring innovation.

² Major changes (see Jaffe and Lerner, 2004) include: the 1980 Bayh-Dole Act; the creation of the Court of Appeals for the Federal Circuit in 1982; the 1984 Hatch-Waxman act; Patent Office budget changes in 1991; and the General Agreement on Tariffs and Trade (GATT) implementation of the Trade Related aspects of Intellectual Property (TRIPS) in 1993, including extension of many pharmaceutical patents.

³ Wes Cohen, in a 2001 private conversation. See also, Scotchmer, 2004.

Furthermore, if the negative consequences of reform were unanticipated (Jaffe and Lerner, 2004), a public-spirited account cannot explain the failure to redress them. A public-spirited account also cannot explain why Congress voted to extend a number of pharmaceutical patents in the late 1980s when it had not voted on such an extension for 90 years: the extension provided rents for patent owners without any direct public benefit. A purely public-spirited account of congressional action (even with a role for unanticipated consequences) is inadequate.

3. THEORY

A fundamental assumption of this analysis is that lawmakers representing each district or state will vote for intellectual property protections if they believe that these protections will make their constituents better off, and will vote against intellectual property protections if they believe that the protections will make their constituents worse off. In evaluating the effect of patent protection on their constituents, legislators will consider the public benefits of patents (e.g., encouraging innovation and national welfare), as well as whether their district will derive private benefits or pay private costs as a result of changes in patent policy.

When it comes to district interests, one important factor is the degree to which constituents hold patents relative to residents of other parts of the country. Some constituencies benefit a great deal from patents that provide positive returns (Hall, 2005) because they have many patent owners relative to their patent-related costs while some constituencies have very few patent owners to offset patent-related costs. Representatives of states or districts with more to gain are more likely to vote to make patents easier to acquire and defend.

Hypothesis 1: Legislators from states or districts with relatively more patent holdings should be more likely to support policy changes that increase the returns for patent holders (even changes that have little public benefit).

The distribution of patents across districts has implications not only for specific votes, but also for the broader pattern of policy changes. At some points in history, patent awards have been more geographically concentrated than at other points. When patent ownership is geographically concentrated, then a few states or districts will have strong patent portfolios that will provide their representatives with “pro-patent” voting incentives, while most will not. Conversely, when many districts or states have somewhat above average patent holdings, then a much larger number of representatives will have incentives to cast “pro-patent” votes.

Hypothesis 2: National policy will shift towards the expansion of patent holders' rights when many states or districts have above average patent holdings, and away from an expansion of patent holders' rights when few states or districts have above average patent holdings.

The degree to which expansions of patent rights provide public benefits that exceed their costs should condition the intercept in the relationships described above. If a particular expansion of patent rights will impose more costs than benefits, then even states or districts with very strong patent holdings may have an incentive to restrict patent holders' rights. On the other hand, policy changes that provide broad public benefits with few costs might be expected to attract support even from regions with few patents.

In the analysis below I also control for several other variables likely to influence legislator votes on patent policy: party affiliation, member ideology, and manufacturing employment.

4. DATA

If the hypotheses developed above are correct, then we should find more support for the interests of patent owners among those members of Congress representing districts with above-average patenting. This section tests that assumption using all twelve non-unanimous roll call votes on patent policy taken in the Senate and the 17 non-unanimous roll call votes taken in the House of Representatives from 1965 through 2000. The dependent variable is a vote in favor of expanded patent protection. In this period, the Congress considered a variety of questions ranging from creation of the Court of Appeals for the Federal Circuit (which gained nation-wide appellate jurisdiction over patents and used it to make them more broadly available and easier to defend), to the extension of particular patents and changes in the term length available for patents.

The main independent variable in this analysis is the difference between the number of patents per person awarded in a state and the average number per person nationally. As discussed above, states with above average patent holdings should be more likely to benefit from expansions of patent holders' rights, while states with below average patent holdings should be more likely to suffer from such expansions, with the specific intercept determined by the public benefits (or costs) expected to arise as a result of the legislation. Because this variable is measured at the state level, I obviously have much better measures of this independent variable for the Senate than for the House of Representatives. Nonetheless, I include a pooled analysis that includes the

House in order to examine whether the pattern identified in the Senate persists for the Congress as a whole.

I include three control variables. *Republican* is the party affiliation of the member, with Republican coded as 1 and Democrat as zero. *Ideology* is measured using the main dimension from Poole and Rosenthal's (2007) DW-NOMINATE scores. Presumably conservatives and Republicans will be more likely to favor patents, consistent with a generally pro-business outlook, and more pro-capital constituency interests. *Manufacturing employment* is measured as the percentage of the state workforce employed in manufacturing. Districts with interests in manufacturing may stand to benefit more from strong patents, and consequently may favor expanded patent rights.

I focus my discussion and analysis on Senate votes. This is because the main independent variable and the dependent variable are both substantially better measured for the Senate. The district patenting variable is much more precisely measured for the Senate since data on the number of patents per person is readily available by state, but almost impossible to obtain by House district. Furthermore, whereas Senate votes cover a wide range of issues and are more evenly distributed across sessions, many of the 17 roll call votes taken in the House during the period I examine occurred during the mid 1990s and were the result of a complicated battle between different patent interests, pitting independent inventors against corporate patent owners. In the context of such an internecine fight, overall patent ownership is perhaps an unreliable guide to district interests, and determining which side to code as being in the interests of patent owners is difficult since patent owners themselves could not agree.⁴

5. RESULTS

Table 1 reports the results of a fixed-effect (by bill) logistic regression analysis of patent votes taken in the Senate and in the Congress as a whole. There is strong support for an influence of state-level patent holding on patent votes. Senators representing states with more patents per person (relative to the national mean) were substantially more likely to support expanded patent rights ($p < .001$), with a similar though somewhat weaker effect for the pooled analysis ($p < .05$) as would

⁴ I tended to code the "independent inventors" position as "pro-patent" since they opposed efforts to increase pre-printing of patents and otherwise sought to block changes that would have increased the openness of the patent system and made it easier to challenge patents, thereby arguably restricting the rents available to patent owners. Obviously this choice is debatable since other patent-owning interests took the opposite view. Given my coding choices, it is the distribution of independent inventors across states (rather than the distribution of all patent owners) that most strongly influences the House votes. Results for independent inventors are available by request from the author.

be expected given the much less precise measurement of district patenting interests for the House. In the Senate a shift from the sample minimum to the sample maximum (holding all other variables at their mean value) is associated with a shift in the predicted probability of a pro-patent vote from 44.1 percent to 93.3 percent. Senators from districts with above average patenting are more likely to support making patents easier to acquire and defend.

Table 1: Explaining Support for More Extensive Patent Protection in the U.S. Congress, 1965-2000

	Senate Only	House and Senate
Patenting in state minus national mean	2612 (778)***	554 (243)**
Republican	0.54 (0.29)*	0.21 (0.11)*
Manufacturing Employment (percentage)	0.008 (0.010)	-0.002 (0.004)
Ideology (Conservative)	3.27 (0.43)***	1.01 (0.14)***
N-Observations	1051	7819
N-Roll Calls	12	29
LR Chi-squared (4)	294***	383***

Note: Likelihood of a 'pro-patent vote' analyzed using conditional fixed-effects logistic regression. Standard error is in parentheses.

* indicates statistical significance at <.10 level.

** indicates statistical significance at <.05 level.

*** indicates statistical significance at <.001 level.

The analysis also provides some support for the idea that Republicans are more likely to cast pro-patent votes ($p < 0.10$), and strong support for the idea that conservatives are more likely to cast pro-patent votes ($p < 0.001$). Obviously party and ideology overlap, so it should be no surprise that if either variable is omitted from the analysis, the other has a large and statistically significant effect. Nonetheless, ideology rather than party appears to be the key influence.⁵

⁵ The effect of ideology on voting persists if Republicans are analyzed separately as well as if Democrats are analyzed separately, so ideology is clearly more than a simple proxy for party. In the absence of a control for member ideology, party membership has a strong and statistically significant effect ($p < 0.001$). However, the model fits only slightly worse with party omitted in the Senate model (X^2 290), and much worse if ideology is omitted (X^2 230). Results are available by request.

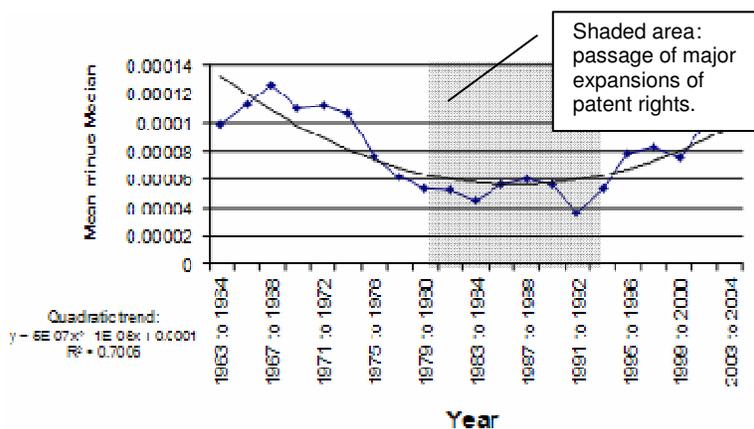
6. EXPLAINING THE PRO-PATENT PERIOD

The reforms and policy changes of the 1980s and 90s collectively made patents available for more subjects, increased the terms for which patents offered protection, and made patents both easier to get and easier to defend in the United States. These reforms took effect during a period that the model predicts would be characterized by increased legislative support for patents.

As noted above, if representatives believe that particular increases in patent protection provide public benefits through increased innovation, then even representatives from states with modestly below-average patent portfolios might cast pro-patent votes. How ‘much’ faith in the efficacy of stronger patents would be required to motivate the median Senator or Representative to support strengthened IP protection?

Figure 1 examines changes in the difference between the number of patents per person held in the mean state, and the number per person in the median state. As the median state gains patents relative to the mean state, representatives from this state are more likely to support expanded patent protections: the degree of public good done by patents needed to persuade Senators and Representatives from that state gets progressively smaller.

Figure 1: Mean minus Median Patents per Person Across States
(according to the model, lower values advantage pro-patent legislation)



It happens that the distance between mean and median patenting across the states neatly demarcates the boundaries of the pro-patent era of the 1980s and early 1990s. Figure 1 shows that the distance between the mean and median levels of patenting was halved between the early 1970s and the early 1980s.

In the Congress that oversaw Nixon's resignation (1973-1974) the mean state had 1 patent per 10,000 persons more than the median state. By the 98th Congress (1983-1984), the mean state had only 1 patent per 20,000 people more than the median state. The move to a stronger patent system occurred at a time when stronger patents, even patents granted for goods with fewer public benefits, had become more appealing to more Senators. By the early 1980s, the distributive consequences of patents were much less of a bar to Senate action.⁶

Figure 1 also marks the upper boundary of the pro-patent era. The relatively pro-patent political situation began to reverse during the 103rd Congress (1993-1994). By the 107th Congress (2001-2002) the gap between the median and mean state had expanded to the point where it was wider than at any time since the mid 1970s. This suggests that tolerance for inefficiencies in the patent system was waning. It is likely no surprise that no major legislation expanding patent protections passed Congress after the 103rd Congress, and much subsequent political debate focused on ways to increase the efficacy of the patent system—at supplying public goods and restricting the availability and enforceability of patent rights.⁷

⁶ If each member of the House is assigned their state's average number of patents per person, a similar graphic to that in Figure 1 (available by request) indicates an inclination on the part of the House to support even some patent policies that provided negative public goods until the late 1990s.

⁷ By the 109th Congress, patent reform proposals had a decidedly pro-efficiency bent: if passed they would have produced less enforceable, higher quality (i.e. harder to get) patents. HR 2795, proposed by Lamar Smith, chair of the Courts, the Internet, and Intellectual Property Subcommittee of the House Judiciary Committee, and SB 3818 introduced by Senators Hatch and Leahy sought to restrict the size of damage awards for patent infringement, create post-grant opportunities to contest the validity of issued patents, expand prior user rights, and allow third parties to submit prior art after patent applications are printed. In line with the changing mood, the Supreme Court has signaled that the Court of Appeals for the Federal Circuit would no longer have unbounded authority to set patent policy. In the October 2006 term, the court heard several patent cases, including *KSR International Co. v. Teleflex, Inc.*, a case challenging the obviousness standards established by the Court of Appeals for the Federal Circuit in 1982 (Greenhouse, 2006). In *eBay v. MercExchange* (2006), a unanimous Supreme Court substantially reduced the ability of patent owners to obtain injunctions against accused infringers. The 1999 Inventors Protection Act was also arguably a loss for patent owners, since it meant that many patent applications would be disclosed to the public before the patent had issued. Perhaps significantly, this weakening of intellectual property protection was favored by many of the patent and IP lobbying groups because they believed that disclosure (particularly of foreign patents in English) would provide a public good.

7. CONCLUSION

The evidence presented in this article suggests that members of Congress were in fact representing their constituents' shifting interests when they strengthened patent policies in the 1980s and early 1990s. The shifting geographical distribution of patent ownership in the United States gave members of Congress an incentive to support both stronger returns for patent owners, and increased availability of patents, even if these reforms provided relatively few public goods. The patent system in the United States changed as the political incentives faced by politicians in the U.S. Congress made them more likely to support such changes. When those interests began to reverse, so did U.S. public policy towards patents.

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