An Assessment of the Impact of Covered Business Methods Proceedings before the Patent Trial and Appeal Board on the US Economy

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THE PERRYMAN GROUP

254.751.9595 ◆ info@perrymangroup.com ◆ www.PerrymanGroup.com

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Executive Summary

- The covered business methods (CBM) provision is used by both large and small firms across many industries.
- The direct cost savings emanating from CBM proceedings before the Patent Trial and Appeal Board (PTAB) stem from reductions in the number of patent lawsuits filed in district courts and in adjudication cost per case.
- The Perryman Group's analysis indicates estimated **direct cost savings since the Leahy-Smith America Invents Act (AIA) went into effect of $462.2 million, or about $787,449 per proceeding**. This amount is about three times as high on a per-case basis than that observed for *inter partes* review (IPR), a more frequently used mechanism with broader applicability before the PTAB.
- Because these estimated direct savings represent a net gain in efficiency (reduction in cost with no corresponding loss of output), it is appropriate to consider the secondary (or "multiplier" effects) as these funds circulate through the economy.
- The Perryman Group estimates that over the period since the AIA went into effect, cost savings associated with CBM proceedings before the PTAB led to an **increase in US business activity of $846.3 million in gross product, $518.7 million in personal income, and 8,517 job-years of employment** (including multiplier effects).
- Protecting intellectual property through CBM proceedings increases the efficiency of the innovation process by reducing costs. Because innovation is crucial to competing in an increasingly globalized market, the CBM process enhances future prosperity.

Introduction

The Leahy-Smith America Invents Act (AIA) and the Patent Trial and Appeal Board (PTAB) are crucial aspects of the US system of intellectual property protection. The AIA and PTAB reduce the need for patent litigation, reducing costs and generating substantial economic benefits. One type of patent which has been protected involves covered business methods (CBM).

CBM patents deal with methods or corresponding apparatus for performing data processing or other operations used in the practice, administration, or management of a financial product or service. (Technological inventions are excluded from CBM.)

The CBM provision is used by both large and small firms across many industries.

The CBM provision is used by both large and small firms across many industries. About one third of CBM proceedings are initiated by banks and other financial companies, with business services, retail, software, publishing, transportation, manufacturing, and communications companies also utilizing the CBM process.

The Perryman Group (TPG) was recently asked to estimate the effect of CBM proceedings before the PTAB on US economic activity. This process involves first estimating the direct cost savings associated with these proceedings and then computing the total economic benefits of the associated efficiency gains as they ripple through the economy.

Cost Savings

The direct cost savings emanating from CBM proceedings before the PTAB stem from both

- reductions in the number of patent lawsuits filed in district courts and
- reductions in adjudication cost per case.

The Perryman Group estimated the effect of CBM proceedings before the PTAB on the numbers of cases filed based on historical patterns and trends in other types of litigation. Cost savings were then derived through a multi-stage process involving compilation of a database of patent matters and their resolution by stage and size of risk over approximately 20 years, analysis of the numbers reaching discovery or trial phases, and estimation of costs with and without AIA/PTAB. (See the Appendix for additional detail.)

Direct cost savings since the AIA went into effect are estimated to be **$462.2 million**, or about **$787,449 per case**.

The results of The Perryman Group's analysis indicate estimated **direct cost savings since the AIA went into effect of $462.2 million, or approximately $787,449 per proceeding**. This amount is about three times as high on a per-case basis than that observed for *inter partes* review (IPR), a more frequently used mechanism with broader applicability before the PTAB.

Measuring Economic Impacts

Any economic stimulus, whether positive or negative, generates multiplier effects throughout the economy. In this case, the economic stimulus is gains in efficiency associated with cost reductions described and quantified in this report. The Perryman Group's US Multi-Regional Impact Assessment System was then used to calculate total economic benefits.

The input-output process uses a variety of data (from surveys, industry information, and other sources) to describe the various goods and services (known as resources or inputs) required to produce another good/service. This process allows for estimation of total economic impacts (including multiplier effects).

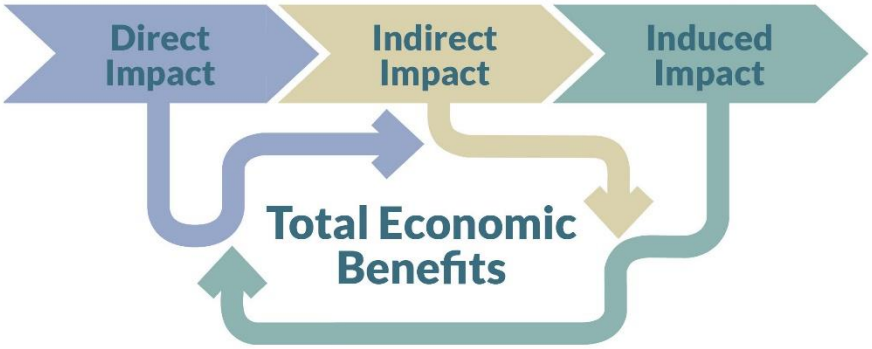
Total economic effects are quantified for key measures of business activity:

- **Total expenditures** (or total spending) measure the dollars changing hands as a result of the economic stimulus.
- **Gross product** (or output) is production of goods and services that will come about in each area as a result of the activity. This measure is parallel to the gross domestic product numbers commonly reported by various media outlets and is a subset of total expenditures.
- **Personal income** is dollars that end up in the hands of people in the area; the vast majority of this aggregate derives from the earnings of employees, but payments such as interest and rents are also included.
- **Job gains** are expressed as job-years of employment for cumulative measures. A job-year is one person working for one year, though it could be multiple persons working partial years.

Monetary values were quantified on a constant (2019) basis to eliminate the effects of inflation. Additional detail regarding the methods used is provided in the Appendix.

Total Economic Benefits

Because these estimated direct savings represent a net gain in efficiency (reduction in cost with no corresponding loss of output), it is appropriate to consider the secondary (or "multiplier" effects) as these funds circulate through the economy. To estimate overall benefits, the direct savings were allocated across industrial categories in a manner consistent with CBM proceedings and simulated using The Perryman Group's US Multi-Regional Impact Assessment System.



The Perryman Group estimates that over the period since the AIA went into effect, cost savings associated with CBM proceedings before the PTAB led to an **increase in US business activity of $846.3 million in gross product, $518.7 million in personal income, and 8,517 job-years of employment** (including multiplier effects).

Since the AIA went into effect, cost savings associated with CBM proceedings before the PTAB led to an increase in US business activity of an estimated

- ✓ **$846.3 million** in gross product,
- ✓ **$518.7 million** in personal income, and
- ✓ **8,517** job-years of employment (including multiplier effects).

With about 587 such proceedings over the relevant period, the estimated economic benefit averaged over **$1.4 million per case** in US gross product and nearly **$0.9 million** in personal income.

Benefits per CBM proceeding include
✓ **$1.4 million** in US gross product
and
✓ **$0.9 million** in personal income
(including multiplier effects).

The industry groups experiencing the largest gains are financial activities, manufacturing, and business services. All industry groups are positively affected as described in the following table.

The Estimated Cumulative Impact of Cost Savings Associated with Covered Business Methods Proceedings before the Patent Trial and Appeal Board (PTAB) on Business Activity in the US

Industry	Total Expenditures (Millions)	Gross Product (Millions)	Personal Income (Millions)	Job-Years
Agriculture	+$26.3 m	+$7.5 m	+$4.9 m	+73
Mining	+$18.3 m	+$4.3 m	+$2.4 m	+13
Utilities	+$75.4 m	+$17.3 m	+$7.5 m	+31
Construction	+$26.1 m	+$14.3 m	+$11.8 m	+157
Manufacturing	+$366.8 m	+$123.6 m	+$71.0 m	+944
Wholesale Trade	+$44.0 m	+$29.8 m	+$17.2 m	+185
Retail Trade*	+$270.6 m	+$205.9 m	+$120.2 m	+3,432
Transportation & Warehousing	+$58.6 m	+$38.7 m	+$25.6 m	+332
Information	+$90.2 m	+$55.0 m	+$23.5 m	+200
Financial Activities*	+$370.3 m	+$169.3 m	+$89.1 m	+858
Business Services	+$147.9 m	+$93.3 m	+$76.1 m	+881
Health Services	+$43.8 m	+$30.6 m	+$25.9 m	+407
Other Services	+$114.5 m	+$56.7 m	+$43.5 m	+1,003
TOTAL	**+$1,652.6 m**	**+$846.3 m**	**+$518.7 m**	**+8,517**

Source: US Multi-Regional Impact Assessment System, The Perryman Group
Notes: Based on The Perryman Groups estimates of cost savings associated with CBM proceedings before the PTAB since the AIA went into effect and the related multiplier effects through the economy, Monetary values given in 2019 US dollars. Components may not sum due to rounding. Retail Trade includes Restaurants, Financial Activities includes Real Estate. A job-year is one person working for one year, though it could be multiple individuals working for partial years.

Conclusion

The Leahy-Smith America Invents Act and the Patent Trial and Appeal Board lead to substantial cost savings in patent litigation. The hundreds of proceedings involving covered business methods have enhanced efficiency across a spectrum of industries. These savings and the related increase in efficiency generate economic benefits across the economy.

> Over the relevant period, cost savings associated with CBM proceedings before the PTAB led to increases in US gross product of an estimated $846.3 million.

The results of The Perryman Group's analysis indicate estimated direct cost savings associated with CBM proceedings before the PTAB over the relevant period of **$462.2 million** which generated an increase in US business activity of **$846.3 million** in gross product, **$518.7 million** in personal income, and **8,517** job-years of employment when multiplier effects are considered.

Protecting intellectual property through CBM proceedings increases the efficiency of the innovation process by reducing costs. Because innovation is crucial to competing in an increasingly globalized market, the CBM process enhances future prosperity.

Appendix: Methods Used

Every economic stimulus, whether positive or negative, leads to additional effects across the economy. The purpose of this study is to (1) quantify the direct economic stimulus associated with the CBM provision of the AIA and (2) measure the related "ripple" or "multiplier" effects to estimate total economic impacts.

The basic modeling technique employed in this study is known as dynamic input-output analysis, which essentially uses extensive survey data, industry information, and a variety of corroborative source materials to create a matrix describing the various goods and services (known as resources or inputs) required to produce one unit (a dollar's worth) of output for a given sector. Once the direct stimulus is quantified, it can be mathematically simulated to generate evaluations of the magnitude of successive rounds of activity involved in the overall production process.

Estimation of the Direct Economic Stimulus

TPG previously measured the effects of IPR in a recent study and developed a methodology for determining the relevant direct savings.[1] The process used in the current analysis is similar in structure but incorporates numerous modifications. In order to assess the patterns in patent cases filed, TPG initially examined historical data on the number of cases initiated. The evidence revealed a substantial drop in matters over time. To isolate the effects of the CBM program, the historical correlation between patent and trademark filings[2] was used to project the future path of patent case initiations in the absence of the framework facilitated by AIA/PTAB. The calculated increment was converted to a constant rate of growth over the period based on the trend in the projections. The values were also compared to patterns in total federal

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[1] "An Assessment of the Impact of the America Invents Act and the Patent Trial and Appeal Board on the US Economy," The Perryman Group, June 2020.

[2] "Just the Facts: Intellectual Property Cases-Patent, Copyright, and Trademark," Figure 1, United States Courts, February 13, 2020, https://www.uscourts.gov/news/2020/02/13/just-facts-intellectual-property-cases-patent-copyright-and-trademark.

civil litigation filings[3] and estimates of overall civil litigation costs[4] and found to be consistent.

The determination of the cost savings for various types of litigation and the number of cases in each representative category involved a multi-stage process. Using data from the widely respected biennial self-reported litigation cost surveys conducted by American Intellectual Property Law Association (AILPA), [5] it was possible to develop a database of estimated patent litigation costs by amount at risk and stage at which the case was resolved dating back to 2001. A comparable series was developed for trademark litigation in order to establish a benchmark for trends in other types of intellectual property matters. As with the number of cases, the patterns in trademark cases were used to estimate the cost of patent matters by risk and size category in the absence of AIA/PTAB. These patterns were compared with overall civil litigation cost estimates and found to be reasonable.

In order to quantify aggregate cost savings, it was necessary to determine the number of cases that proceed to the later stages of discovery or trial. The analysis was limited to only matters with more than $1 million at risk. This assumption may result in a modest understatement of the overall direct benefits. It is likely to be negligible, however, in that (1) the overwhelming majority of smaller matters are resolved early in the process due to cost considerations and (2) the expense of a CBM proceeding and other expense relative to the amounts at risk make it unlikely to be a cost effective investment in many instances.

Although only about 10% of cases reach the late discovery and/or trial phases, the vast majority of these have substantial amounts at risk. Data from the major courts where patent cases are tried provide a valid mechanism to estimate the proportion of cases that progress to the major stages of

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[3] "Federal Judicial Caseload Statistics 2019," United States Courts, https://www.uscourts.gov/statistics-reports/federal-judicial-caseload-statistics-2019.
[4] *See for example*, "Economic Benefits of Tort Reform, An Assessment of Excessive Tort Costs in California and Potential Economic Benefits of Reform," The Perryman Group, November 2019, https://californiacala.org/reports-1/economic-benefits-of-tort-reform.
[5] "Report of the Economic Survey (various years 2001-2019)," American Intellectual Property Law Association (AIPLA), www.aipla.org.

discovery and trial are associated with higher amounts at risk.[6] Moreover, data related to damage awards in major jurisdictions and by industry provide a basis to estimate a distribution of cases according to categories of risk. The combination of these analysis segments then permits computation of estimated costs both with and without the presence of AIA/PTAB, with the difference being the direct savings associated with the patent review process. The portion of these savings to be attributed to CBM proceedings is determined based on the number of these filings relative to IPRs. A further adjustment is required to account for the fact that, because of certain aspects of the CBM process, a single filing often impacts multiple litigations. TPG accounted for this phenomenon through incorporating data from all CBM filings. On average, each proceeding impacted approximately 2.6 matters.

Two final adjustments to these estimates are also implemented. First, the typical cost of a CBM proceeding was deducted for each matter in order to determine a net savings amount. This information was obtained from the most recent AILPA reports and indicated that these costs exceed those of the average IPR. This segment of the analysis may result in a modest understatement of the actual direct benefits in that some matters would not involve a patent review. Second, all values are converted to constant 2019 dollars using the Implicit Price Deflator for Professional Services obtained from the Bureau of Economic Analysis of the US Department of Commerce (BEA). This procedure is necessary to eliminate any inflationary effects and allow the savings to be aggregated on a consistent basis.

The end result of this analysis is a **total estimated direct savings over relevant period of $462.2 million**. Once these direct effects were estimated, total economic impacts where quantified through model simulation as described below. These benefits were allocated across industrial sectors based on the patterns observed in petition filings.

[6] Yoon, James C., "IP Litigation in United States," Wilson Sonsini Goodrich & Rosati, August 2016, https://law.stanford.edu/wp-content/uploads/2016/07/Revised-Stanford-August-4-2016-Class-Presentation.pdf.

Model Simulation

Simulations of the input-output system were utilized to measure overall economic effects of savings. The present study was conducted within the context of the US Multi-Regional Impact Assessment System (USMRIAS) which was developed and is maintained by The Perryman Group. This model has been used in hundreds of diverse applications across the country and has an excellent reputation for accuracy and credibility; it has also been peer reviewed on multiple occasions. The system used in the current simulation reflects the unique industrial structure of the United States.

The USMRIAS is somewhat similar in format to the Input-Output Model of the United States which is maintained by the US Department of Commerce. The model developed by TPG, however, incorporates several important enhancements and refinements. Specifically, the expanded system includes (1) comprehensive 500-sector coverage for any county, multi-county, or urban region; (2) calculation of both total expenditures and value-added by industry and region; (3) direct estimation of expenditures for multiple basic input choices (expenditures, output, income, or employment); (4) extensive parameter localization; (5) price adjustments for real and nominal assessments by sectors and areas; (6) measurement of the induced impacts associated with payrolls and consumer spending; (7) embedded modules to estimate multi-sectoral direct spending effects; (8) estimation of retail spending activity by consumers; and (9) comprehensive linkage and integration capabilities with a wide variety of econometric, real estate, occupational, and fiscal impact models.

The impact assessment (input-output) process essentially estimates the amounts of all types of goods and services required to produce one unit (a dollar's worth) of a specific type of output. For purposes of illustrating the nature of the system, it is useful to think of inputs and outputs in dollar (rather than physical) terms. As an example, the construction of a new building will require specific dollar amounts of lumber, glass, concrete, hand tools, architectural services, interior design services, paint, plumbing, and numerous other elements. Each of these suppliers must, in turn, purchase additional dollar amounts of inputs. This process continues through multiple rounds of production, thus generating subsequent increments to business activity. The initial process of building the facility is known as the direct effect. The ensuing transactions in the output chain constitute the indirect effect.

Another pattern that arises in response to any direct economic activity comes from the payroll dollars received by employees at each stage of the production cycle. As workers are compensated, they use some of their income for taxes, savings, and purchases from external markets. A substantial portion, however, is spent locally on food, clothing, health care services, utilities, housing, recreation, and other items. Typical purchasing patterns in the relevant areas are obtained from the Center for Community and Economic Research Cost of Living Index, a privately compiled inter-regional measure which has been widely used for several decades, and the Consumer Expenditure Survey of the US Department of Labor. These initial outlays by area residents generate further secondary activity as local providers acquire inputs to meet this consumer demand. These consumer spending impacts are known as the induced effect. The USMRIAS is designed to provide realistic, yet conservative, estimates of these phenomena.

Sources for information used in this process include the Bureau of the Census, the Bureau of Labor Statistics, the Regional Economic Information System of the US Department of Commerce, and other public and private sources. The pricing data are compiled from the US Department of Labor and the US Department of Commerce. The verification and testing procedures make use of extensive public and private sources.

Impacts were measured in constant 2019 dollars to eliminate the effects of inflation.

Definitions of Terms

The USMRIAS generates estimates of the effect on several measures of business activity. These measures represent different views of the same economic impact; they are not additive.

The most comprehensive measure of economic activity used in this study is **Total Expenditures**. This measure incorporates every dollar that changes hands in any transaction. For example, suppose a farmer sells wheat to a miller for $0.50; the miller then sells flour to a baker for $0.75; the baker, in turn, sells bread to a customer for $1.25. The Total Expenditures recorded in this instance would be $2.50, that is, $0.50 + $0.75 + $1.25. This measure is quite broad but is useful in that (1) it reflects the overall interplay of all industries in the economy, and (2) some key fiscal variables such as sales taxes are linked to aggregate spending.

A second measure of business activity frequently employed in this analysis is that of **Gross Product**. This indicator represents the regional equivalent of Gross Domestic Product, the most commonly reported statistic regarding national economic performance. In other words, the Gross Product of Texas is the amount of US output that is produced in that state; it is defined as the value of all final goods produced in a given region for a specific period of time. Stated differently, it captures the amount of value-added (gross area product) over intermediate goods and services at each stage of the production process, that is, it eliminates the double counting in the Total Expenditures concept. Using the example above, the Gross Product is $1.25 (the value of the bread) rather than $2.50. Alternatively, it may be viewed as the sum of the value-added by the farmer, $0.50; the miller, $0.25 ($0.75 - $0.50); and the baker, $0.50 ($1.25 - $0.75). The total value-added is, therefore, $1.25, which is equivalent to the final value of the bread. In many industries, the primary component of value-added is the wage and salary payments to employees.

The third gauge of economic activity used in this evaluation is **Personal Income**. As the name implies, Personal Income is simply the income received by individuals, whether in the form of wages, salaries, interest, dividends, proprietors' profits, or other sources. It may thus be viewed as the segment of overall impacts which flows directly to the citizenry.

The final aggregates are **Jobs and Job-Years**, which reflect the full-time equivalent jobs generated by an activity. For an economic stimulus expected to endure (such as the ongoing operations of a facility), the Jobs measure is used. It should be noted that, unlike the dollar values described above, Jobs is a "stock" rather than a "flow." In other words, if an area produces $1 million in output in 2018 and $1 million in 2019, it is appropriate to say that $2 million was achieved in the 2018-19 period. If the same area has 100 people working in 2018 and 100 in 2019, it only has 100 Jobs. When a flow of jobs is measured, such as in a construction project or a cumulative assessment over multiple years (as in the present case), it is appropriate to measure employment in Job-Years (a person working for a year, though it could be multiple people working for partial years). This concept is distinct from Permanent Jobs, which anticipates that the relevant positions will be maintained on a continuing basis.