



# USPTO pilot program reduced gender disparities in patenting

## Introduction

As presented in a series of leading-edge reports from the United States Patent and Trademark Office's Office of the Chief Economist (OCE), women remain underrepresented as inventors named on U.S. patents.<sup>1</sup> A recent OCE working paper, "Closing the gender gap in patenting: Evidence from a randomized control trial at the USPTO," analyzes the first randomized control trial (RCT) undertaken by the USPTO.<sup>2</sup> The RCT investigated the potential value of providing more guidance and information to inventors who do not have legal representation during patent prosecution (called pro se applicants). The causal evidence shows that additional guidance and information improved the chances of receiving a patent for all pro se applicants. Importantly, women benefited substantially more than men, thereby reducing gender disparities in patent application allowance rates.

## First-time inventors at the USPTO

Figure 1 depicts the proportion of first-time U.S.-based men (green line) and women (gold line) inventors who filed with small or micro entities (for example, small businesses, nonprofits, and universities) at the USPTO. In 2018, just over 50% of first-time women filed with small and micro entities, about 4.2-percentage points more than men.

Small and micro entities typically do not have the financial resources or legal agents or lawyers necessary to successfully prosecute patent applications.<sup>3</sup> As women are more likely to enter the patent system through these organizational forms, providing applicants with the information and tools to navigate the complexities of patent examination could be an effective way to address the gender gap in patenting.

Figure 1: Share of first-time U.S.-based inventors who filed USPTO patent applications with small and micro entities, 2001-2018

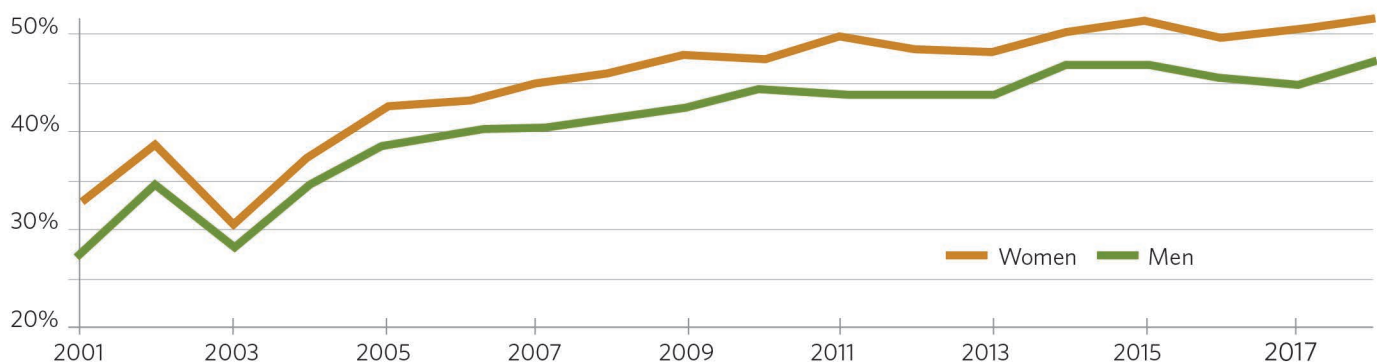
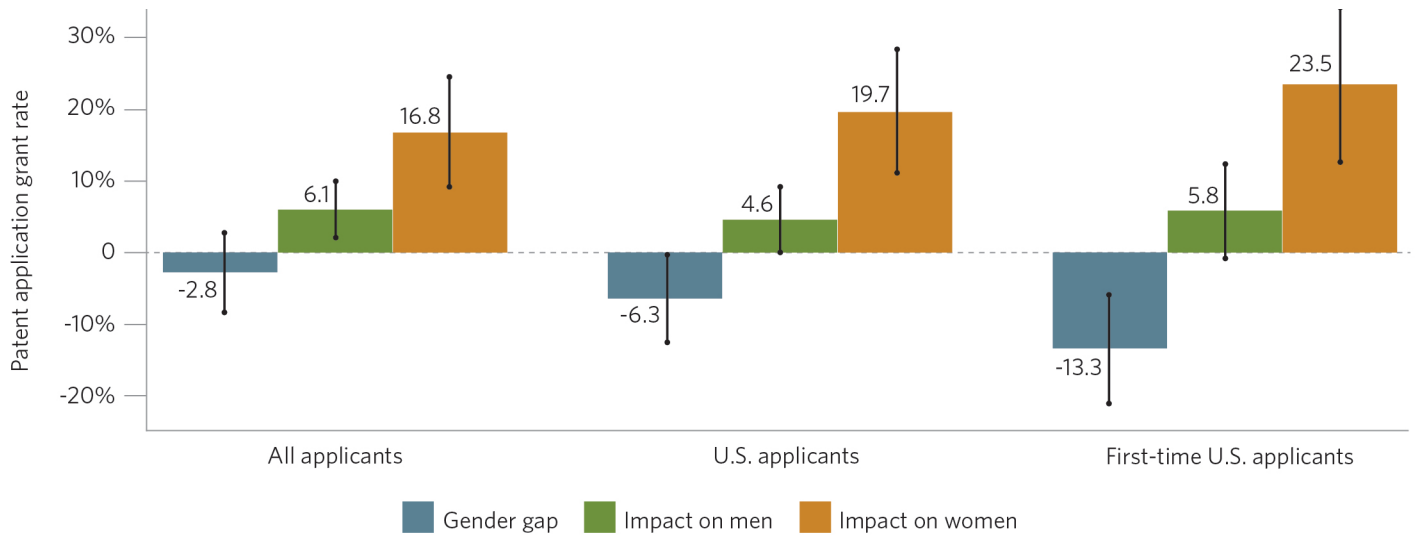


Figure 2: Causal results of the Pro Se Pilot Examination Unit on the probability of pro se applicants receiving a USPTO patent



Note: The black vertical lines in the figure represent 90% confidence intervals. Although the chances that a woman receives a patent relative to a man is persistently lower across groups and the impact of the pilot on men is always positive, the size of these effects are not always statistically different from zero at the 10% level of significance.

### The Pro Se Pilot Examination Unit reduced gender disparities in patenting

In response to the America Invents Act, the USPTO created the Pro Se Pilot Examination Unit in October 2014 to assist applicants who do not have legal representation. Figure 2 portrays the causal results of the Pro Se Pilot Examination Unit for three groups of pro se applicants at the USPTO: all applicants, including foreign filers (the left set of bars), U.S. applicants only (the middle set of bars), and first-time U.S. applicants (the right set of bars).

The gender gap (blue bars) is negative for all three groups, indicating that women had a lower probability of receiving a patent than men. This gap increased for U.S. applicants, and first-time U.S. applicants had the largest gender gap, at about 13 percentage points.<sup>4</sup>

The impact of the Pro Se Pilot Examination Unit was similar for all three groups of men applicants: It increased their likelihood of receiving a patent by 4.6 to 6.1 percentage points.

The Pro Se Pilot Examination Unit had a much larger impact for women pro se applicants. For all women applicants, it increased the likelihood of receiving a patent by 16.8 percentage points. The effect was even larger for U.S. women applicants and first-time U.S. women applicants, at 19.7 percentage points and 23.5 percentage points, respectively. The Pro Se Pilot Examination Unit benefited women more in the groups that experienced the largest gender disparities in patenting. For example, first-time women applicants had the largest gender gap, and also benefitted the most from the Pro Se Pilot Examination Unit.

These causal results demonstrate that additional communication during patent examination is an effective way to improve patent examination outcomes for pro se applicants, especially for women.

Suggested citation: U.S. Patent and Trademark Office, 2022. "USPTO pilot program reduced gender disparities in patenting," Economic Note, No. 102, Office of the Chief Economist, November 2022.

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#### Endnotes

- For example, see Toole, A.A., Saksena, M., de Grazia, C., Black, K., Lissoni, F., Miguelez, E. and Tarasconi, G., 2021. Progress and Potential: 2020 update on U.S. women inventor-patentees". United States Patent and Trademark Office (USPTO) IP Data Highlights, no. 4 (July 2020). [www.uspto.gov/sites/default/files/documents/OCE-DH-Progress-Potential-2020.pdf](http://www.uspto.gov/sites/default/files/documents/OCE-DH-Progress-Potential-2020.pdf)
- [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=4265093](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4265093)
- See B.H. Hall and J. Lerner, "The financing of R&D and innovation," Handbook of the Economics of Innovation (Amsterdam: North Holland-Elsevier, 2010), vol. 1, pp. 609-639.
- Foreign filers may be more experienced, be less resource constrained or have more valuable inventions (leading to greater persistence in obtaining patent protection), while first-time inventors are likely to be less experienced with the patent system. See, for example, Putnam, J.D., 1996, The value of international patent rights, Yale University, PhD dissertation; Lanjouw, J.O., Pakes, A. and Putnam, J., 1998, How to count patents and value intellectual property: The uses of patent renewal and application data, The Journal of Industrial Economics, 46(4), pp.405-432.