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Common Knowledge? Gender Differences in IP Rights Awareness

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Abstract

This paper examines gender disparities in intellectual property (IP) awareness and participation, using the 2023 and 2025 waves of the WIPO Pulse Survey conducted among 58,135 individuals across seventy-four countries. Our findings reveal that copyrights are the most recognized IP forms globally, while patents, trademarks and geographical indications remain the least familiar. At the individual level, women demonstrate lower knowledge of patents and trademarks, but greater knowledge of designs and copyrights compared to men, with these differences persisting after controlling for socioeconomic factors. These patterns are consistent with gendered specialization in education, professional and household spheres where women tend to cluster in creative industries while men dominate entrepreneurship and technical sectors. Notably, we observe a cohort effect: while we identify significant differences in knowledge between men and women for older cohorts, these disappear among younger cohorts. We do not observe comparable changes by level of education or occupation of respondents. Moreover, women exhibit more positive attitudes towards IP-protected products across categories. These findings highlight the need for targeted awareness campaigns and reveal that gendered patterns of IP knowledge may contribute to innovation gender gaps through educational pathways and professional specialization.

¹ World Intellectual Property Organization. The views expressed are those of the authors, and do not necessarily reflect the views of the World Intellectual Property Organization or its member states.

² A shorter version of this paper analyzing only the WIPO Pulse 2023 is expected to be published as a chapter in the Inclusive innovation in the Age of AI and Big Data (forthcoming) by Oxford University Press.

Introduction

In this paper, we investigate whether there are differences in awareness about Intellectual Property (IP) rights between men and women, using the 2023 and 2025 waves of the WIPO Pulse Survey.

IP rights are fundamental assets to promote innovation and therefore growth, as they ensure returns for the time and resources employed in the creative and inventive process. They contribute to the consolidation of intangible assets for entrepreneurs, making innovation an investment rather than a liability (Toivanen and Väänänen, 2012; WIPO, 2020). Nevertheless, they remain a male dominated field, with women accounting for less than twenty percent of listed inventors and creators in patents applications (WIPO, 2023; USCO, 2022; EUIPO, 2023). As ideas become harder to find, overlooking the potential of half the population leads to lost opportunities for innovation, lower ideas quality, and market segments left unexplored (Bloom et al., 2020; Hoisl et al., 2023; Koning et al., 2021).

Women's under-representation stems from a combination of individual choices and structural barriers. On the one hand, women may not engage in IP due to a lack of awareness or interest. On the other hand, they face systemic obstacles related to education, employment opportunities, credit access, and recognition for their contributions (Carpentier et al., 2024). In this paper, we exploit a survey conducted with 58,135 individuals across seventy-four countries to investigate whether there are differences between men and women's attitudes and perceptions about IP rights. The survey captures both objective knowledge (measured through factual questions on IP rights) and self-reported awareness, allowing us to study both actual and perceived familiarity with IP. Comparing objective and self-reported measures is crucial, as individuals make decisions based on perceptions about their abilities: someone who believes they know little about IP may self-select out of innovative professions, even if they possess relevant knowledge or skills (Bordalo, 2019; Nani, 2024).

Our study reveals distinct geographical patterns in IP awareness and perceptions, with Europe and Latin America demonstrating the highest objective knowledge levels, while Asia and the Pacific exhibit the highest subjective knowledge. Objective knowledge is positively correlated with country characteristics such as GDP per capita, economic complexity and the human capital index. The relationship with women's participation in inventing activities is almost flat, suggesting that awareness cannot be directly translated into usage, and structural barriers might prevent women's participation. In addition, we observe a Dunning-Kruger effect: countries with lower objective knowledge report higher subjective knowledge and more positive perceptions towards IP.

At the individual level, women report being less familiar with patents and designs compared to men, and these differences remain significant even after controlling for socioeconomic factors. This pattern persists in objective knowledge measures: women are less likely to

correctly answer questions about patents and trademarks but more likely to know about designs and copyrights. In addition, our results show that women have more positive attitudes and perceptions towards products protected by IP rights. These findings align with gendered patterns of specialization: women tend to cluster in creative fields like fashion, design, and the arts, while men are overrepresented in entrepreneurship and STEM fields. In fact, when looking at areas where individuals report benefitting from innovation, men cite computing, electrical tools, and sports, whereas women more often mention children's leisure, household appliances, and food products. This specialization could shape the types of IP protections individuals seek, highlighting the gendered dimensions of innovation ecosystems. This finding aligns with the idea that disparities arise either before higher education (e.g., through family background, school environment, early socialization, and gender norms) or later in professional settings, where work culture, access to mentors, and networks play a decisive role.

At the same time, in the last part of the paper we identify a cohort effect: the differences in knowledge between men and women shrink among younger cohorts. This could depend on the fact that compared to previous generations, younger individuals can access information more easily. Indeed, exposure during education could mitigate gender differences in knowledge, but the evidence in this direction is less strong (in fact, we do not identify significant differences in knowledge for women and men based on education or occupation). Our results suggest that training and interventions to raise awareness should leverage the higher exposure to information that younger individuals seem to have, to then target the gender gaps that emerge later among older individuals.

This indicates that more targeted awareness campaigns and training are needed, especially to reconcile the diverging trajectories of objective and subjective awareness. This study brings evidence of differences in perceptions and awareness about IP rights among the general population. However, future research should focus on knowledge about how to effectively use IP rights and how this translates into actual usage. While individuals might know what patents and copyrights are, they might not be aware of how to use them effectively to protect their ideas therefore forgoing potential revenues sources. Future studies on the link between knowledge and usage of IP would bring important insights to understand why certain groups are more present in innovation while others lack behind.

Literature review

This study contributes to the literature studying diversity and inclusion in innovation and intellectual property, with a specific focus on gender.

Despite the importance of IP rights for innovation and growth, women remain significantly under-represented in the IP system. The gender gap in STEM education is progressively reducing, raising important questions about the barriers women face in translating their educational achievements into successful careers in innovation (Hoisl et al. 2023). This suggests that under-representation could be the result of structural and institutional barriers rather than lack of talent or potential. Compared to men, women face more, and more strict constraints related to income, family responsibilities, access to a network and credit, and discrimination, which contribute to their under-representation (Carpentier et al., 2024).

One of the key economic factors influencing women's exit from innovation are the differential returns from innovation and IP. Studies have shown that men inventors tend to earn more than women inventors in R&D roles. For instance, Hoisl and Mariani (2016) find a wage gap of approximately fourteen percent in favor of men inventors, while Toivanen and Väänänen (2012) estimate a wage gap of twenty percent. A recent report from the European patent office shows that, on average, women designers earn thirteen percent less than men designers (EUIPO, 2023). These wage disparities are particularly pronounced in the long term, suggesting that women face slower career progression and lower returns on their innovations. This gendered wage gap is a critical factor that influences women's decisions to leave careers in science and engineering (Hunt, 2016). These differential returns to innovation appear as the main determinant of women's lower participation compared to other factors such as family responsibility or lower skill levels (Hunt, 2016; Hoisl et al., 2023).

The legal protection afforded by IP rights does not guarantee equal opportunities for women in the innovation system. In fact, women pursuing careers in research and innovation often face challenges in gaining recognition for their contributions. Jensen et al. (2018) show that patent applications submitted by women are more likely to be rejected compared to those submitted by men. Even when women's patents are accepted, they tend to undergo more amendments during prosecution, which often reduces their scope and value. Moreover, women's patents are less likely to be cited and maintained in the long term than those of men. In some cases, women's contributions to joint inventions go uncredited, as highlighted by Rossiter (1993), further exacerbating gender disparities in the IP system.

While these structural barriers are well-documented, the role of IP awareness is less explored. The effectiveness of IP systems depends not only on the protection they offer but also on individuals' knowledge of how to leverage them (Balahadia et al. 2022; Pitkethly, 2012). Studies indicate that lack of awareness of IP rights is a significant barrier to participation in patenting. Berger (1994) finds that many European SMEs forego patenting simply due to a lack of IP knowledge. Pitkethly (2012) conducts a survey among UK firms and concludes that larger firms own more IP rights and know more about them compared to smaller firms and that IP awareness promotion is crucial to preserve innovation in SMEs and micro-enterprises early in their life. According to Osei-Tutu (2018), women entrepreneurs in Ghana are not aware of the

potential market value that IP rights bring and did not know how to leverage trademarks, copyrights and patents to develop their business. A report by the Institute for Women's Policy Research highlights that women do not see commercialization of innovation as part of their career paths (IWPR, 2018).

A comprehensive analysis of gender gaps in innovation should therefore study whether women are aware of IP rights. In fact, if women are not aware of the benefits of IP protection or hold negative perceptions about the IP system, they can be discouraged from seeking IP protection for their inventions and creations, with effects that last across generations. In fact, exposure to innovation and inventorship, particularly at an early age, plays a significant role in shaping individuals' career trajectories in R&D. Studies show that parental role models can significantly influence a child's likelihood of pursuing a career in innovation, with a notable gender bias in the impact of role models (Bell et al. 2019). Hoisl et al. (2023) show that parental role models increase significantly the probability of a child becoming an inventor, but the impact is much stronger for boys than for girls. They identify parents' gendered perceptions about returns from inventorship to be the channel of transmission.

Women's lower rate of participation in research and innovation not only has immediate consequences in terms of unused human capital, mismatched skills and returns to education, but it also affects the quality and quantity of ideas since inventors innovate based on their personal experiences. The over or under-representation of certain groups can limit the diversity of contributions, skewing innovation in certain fields and products. This process can make ideas in such sectors harder to find, leaving large market opportunities unexploited and preventing a big share of the population from benefiting from innovation. Moreover, products designed without input from women may not fully address the needs or preferences of a substantial portion of the market. For instance, research indicates that women are under-represented in medical device design and healthcare innovation, leading to products that do not adequately address women's health issues. According to Koning et al. (2021), the under-representation of women has led to thousands of missing women-focused inventions since the 1970s.

If innovation benefits only those who invent, it can lead to a vicious circle where more women exit innovation because they do not see the benefits of IP rights, leading to even fewer women-focused ideas.

Data

The data for this paper come from the 2023 and 2025 WIPO Pulse Survey, which examines knowledge and attitudes towards intellectual property rights across seventy-four countries.³ The survey is composed of 60,827 interviews with individuals aged eighteen to sixty-five and it is designed to be nationally representative (The country list and the number of completed interviews per year and country are provided in Table A1 of the Appendix). Respondents were selected from panels provided by the surveying company and invited to participate in online interviews conducted between March and April 2023 and March and April 2025. We exclude from the analysis individuals who are retired. Therefore, our final sample is composed of 58,135 individuals (29,617 men and 28,518 women and other⁴).

The survey collects information on three main areas: (i) IP awareness (actual and self-reported knowledge of each IP right), (ii) perceptions about products and services protected by IP rights as well as about benefits from innovations in various aspects of life; and (iii) demographic characteristics (such as gender, age, education, employment status, and income comfort).

Our primary outcomes of interest are perceptions and knowledge of IP rights.⁵ We construct two measures of IP knowledge: objective and subjective. Objective knowledge is a binary variable that equals one if the respondent correctly answered questions to identify the most appropriate IP right to protect a given product.⁶ Although only one option per question is correct, respondents could select up to two options. We consider an answer correct if the respondent selected only the correct option. Subjective knowledge is based on respondents' self-reported knowledge, measured on a Likert scale. We code this as one when respondents indicated they know either "fairly well" or "very well" about a particular IP right.⁷

We capture perceptions of IP rights using summary indices. One section of the survey asks respondents to indicate their level of agreement with statements about products protected by IP rights, using a Likert scale from one ("Strongly disagree") to five ("Strongly agree").⁸ For each IP right, we create a summary index representing the proportion of statements with which the respondent strongly agrees (for example, if the respondent strongly agrees with four out of six statements about products protected by patents, their index of perceptions about patents would equal $4/6 = 0.67$).

³ <https://www.wipo.int/en/web/future-of-ip/pulse>

⁴ The survey allows respondents to choose between Men, Women and Diverse. Only 80 people selected Diverse, therefore we reclassified the gender category as *men* and *women and other*. For the remainder of the paper, whenever we use the word *women*, we refer to *women and other*

⁵ In the remainder of the paper the terms awareness and knowledge are used interchangeably

⁶ E. g. "A brand name can be best protected through? Patent; trademark; registered designs, copyright, geographical indication, do not know."

⁷ E. g. "How would you evaluate your personal understanding of trademarks? I have never heard about it; I have heard about it but the word only; I have heard about it but know very little; I have heard about it and know fairly or very well about it."

⁸ E. g. "Please indicate how much you agree or disagree with the following statements about trademarks: Product with a registered trademark are (i) more trustworthy; (ii) better value for money; (iii) better quality; (iv) my first choice when buying products."

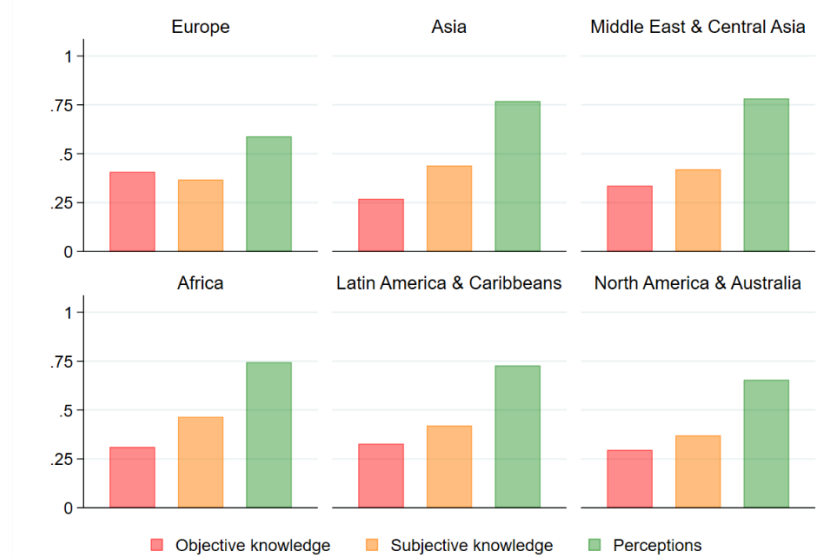
The literature suggests that men and women may perform differently when being tested, and research indicates the presence of gender differences in self-confidence and risk aversion (Correll et al. 2004; Kamas and Preston, 2011; Niederle and Vesterlund, 2011). To account for these factors, we create measures of low and high self-confidence based on the discrepancy between objective and subjective knowledge. Low self-confidence is a binary variable equal to one if a respondent reported low knowledge of an IP right but answered the corresponding objective question correctly. High self-confidence is coded as one if a respondent reported knowing about an IP right but answered the objective question incorrectly. In both cases, the comparison category contains individuals whose subjective and objective awareness matched (for example, they reported knowing about patents and they answered correctly the question about patents). We also construct a measure of *hesitance* or test-related anxiety, namely whether a respondent decreased the chances of objective knowledge being equal to one. For each IP right, hesitance equals one if despite knowing the correct answer to the objective knowledge questions, the respondent decided to select two options, compared to individuals who only selected one correct answer. This should allow us to capture in different ways how confident the respondents are about their knowledge, and whether they are stressed during tests.

Stylized facts

In the literature review, we highlighted a gap concerning awareness and perceptions of intellectual property. Before proceeding with the survey analysis, we try to complement the literature by presenting stylized facts about awareness and perceptions of IP rights, examining their relationship with country-level characteristics.

Figure 1 illustrates the geographical distribution of IP awareness and perceptions. In each chart, the left and center bars show the average share of IP rights known by respondents (left bar for objective awareness, center bar for subjective). The right bar shows the average perception index.

Figure 1: Average level of knowledge and perceptions about IP rights, by region



Geographical distribution of IP rights awareness and perceptions. For objective and subjective knowledge, the shares represent the percentage of respondents with knowledge of IP rights, averaged across all IP rights categories. For perceptions, it corresponds to the average value of the perception index across IP rights. The list of countries grouped per region is provided in Table A1.

Objective knowledge is the lowest in Asia and North America and Australia while Europe exhibits the highest levels. Latin America, the Middle East and Central Asia, and Africa display intermediate values. North America exhibits lower levels objective knowledge given its economic development and innovation activity. The pattern for subjective knowledge presents an almost inverse relationship to objective knowledge. Asian and African countries display the highest levels of subjective awareness, while Europe shows the lowest. The geographical distribution of perceptions closely mirrors subjective knowledge which is an expected relationship since both metrics derive from individuals' priors and interpretations. Even if most of the countries hold positive perceptions about IP rights, Europe and North America and Australia demonstrate greater skepticism.

Given these patterns, we explore how perceptions and awareness correlate with countries' characteristics. To do so, we integrate survey data with indicators of economic and innovation activity, and development (using the average value between 2018 and 2023) such as GDP per capita and the Human Capital Index (HCI) from the World Bank, the SITC Economic Complexity Index (ECI) from the Harvard Growth Lab, and the Women Inventor Rate (WIR) from WIPO. Table A2 in the Appendix presents descriptive statistics and sources for the country characteristics. Overall countries seem evenly distributed across development indicators. Regardless of economic size, countries show low women's participation rates in inventing activities and percentage of STEM graduates (in both cases, the values remain below 50 percent). Almost all the countries under study have an expenditure for R&D around 1.2

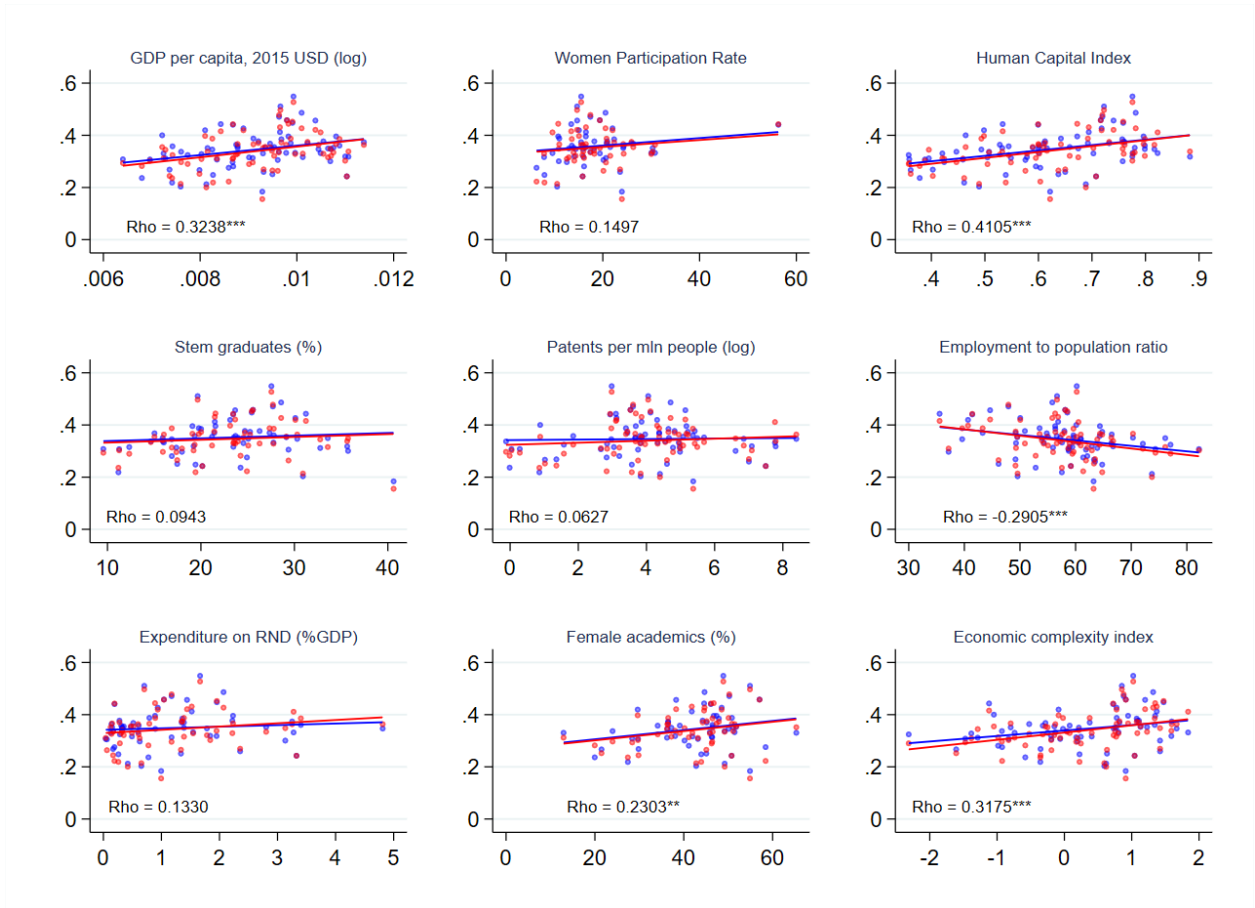
percent of GDP. For indicators such as percentage of women academics, patents per million people (log) and employment to population ratio, the majority of the countries cluster around the average levels. The correlations between the outcomes of interest by gender and country characteristics are presented in Figures 2, 3 and 4 (In Figure 2 we present the correlations with objective awareness of IP rights. In Figure 3, the correlations with subjective awareness, and in Figure 4 the correlations with perceptions).

Figures 1 to 4 present a knowledge paradox, or a Dunning-Krueger effect (Duignan, 2025), wherein countries that report higher subjective knowledge and perceptions exhibit lower objective knowledge, and vice versa, revealing a dynamic where development, education, and innovation exposure increase factual knowledge while simultaneously fostering critical perspectives about IP systems.

The most striking correlations are those with GDP per capita, the Economic Complexity Index and the Human Capital Index. The relationship between GDP per capita and knowledge exhibits completely opposite patterns: subjective knowledge shows a strong negative correlation ($\rho = -0.42$ and significant at the one percent level), objective knowledge shows a positive correlation ($\rho = 0.32$ and significant), and perceptions show the strongest negative correlation ($\rho = -0.58$ and significant). The Human Capital Index amplifies this pattern even more, with correlations ranging from -0.44 (for subjective knowledge, statistically significant) to 0.41 (objective knowledge, significant) to -0.65 (perceptions, significant). This reversal suggests economic development generates a knowledge-confidence paradox whereby higher-income countries show higher actual knowledge but demonstrate lower self-assessed competence and more critical evaluations of IP systems. Economic Complexity reinforces this pattern. The correlation is positive and significant for objective knowledge ($\rho = 0.32$) and negative and statistically significant for subjective knowledge and perceptions ($\rho = -0.28$ and $\rho = -0.48$, respectively). Innovation indicators show consistent negative relationships with subjective knowledge and perceptions, but near-zero correlations with objective knowledge. In particular, awareness and perceptions are significantly correlated with the percentage of women academics, but the correlations become weaker and lose significance for the percentage of women inventors reflecting the limited cross-country variation of this measure. These trends suggest that knowledge alone does not necessarily translate into IP utilization, and contextual factors (institutional quality, affordability, norms, etc.) may constrain women's participation in innovation activities. The percentage of STEM graduates correlates negatively with both subjective knowledge and perceptions but show no relationship with objective knowledge, implying that technical education may foster realistic self-assessment about IP rather than factual knowledge gains. Employment to population ratio stands out as uncorrelated with subjective knowledge and perceptions, suggesting labor market participation alone does not shape IP attitudes. Gender differences remain remarkably consistent across all relationships, with parallel trend lines indicating that country-level factors affect men and women similarly, though women consistently show lower absolute

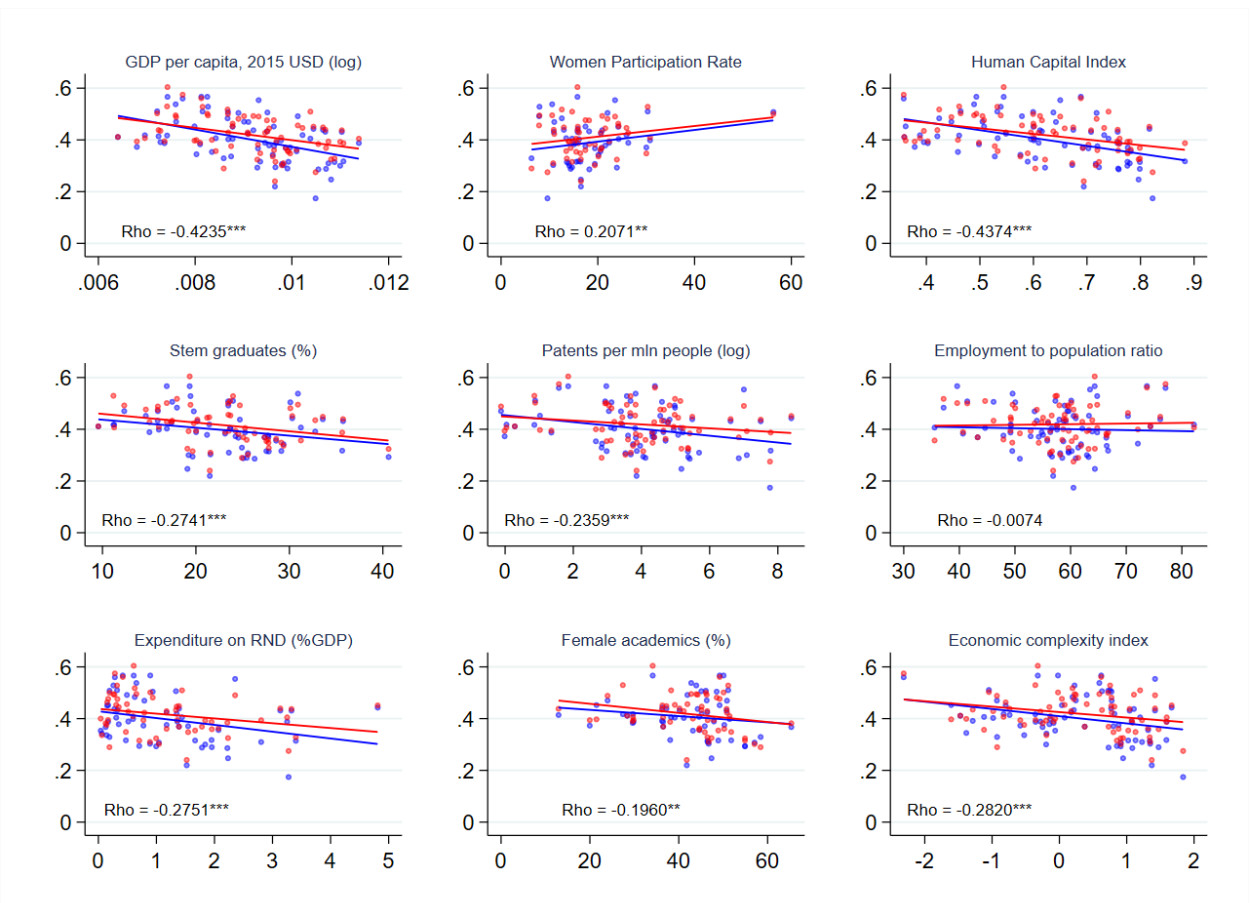
levels of objective knowledge while maintaining similar patterns on subjective assessments and perceptions.

Figure 2: Correlation between objective knowledge of IP rights and country characteristics, by gender



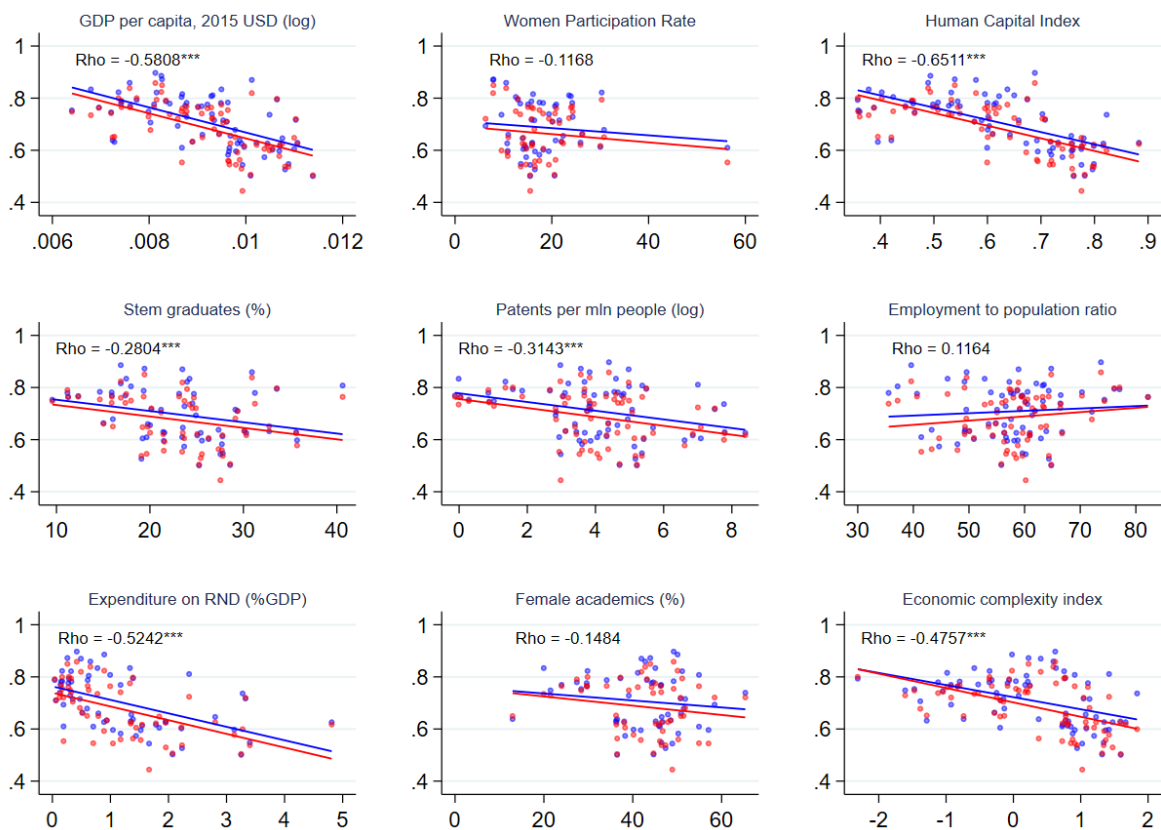
The charts show the correlation by gender (red for women, blue for men) between the average level of objective knowledge of IPRs and several characteristics (the logarithm of the GDP per capita in 2015 USD, women inventors rate, human capital index, percentage of STEM graduates, the logarithm of the number of patents per million people, employment to population ratio, percentage of GDP expenditure in R&D, the percentage of women academics and the ECI) of the seventy-four countries under study.

Figure 3: Correlation between subjective knowledge of IP rights and country characteristics, by gender



The charts show the correlation by gender (red for women, blue for men) between the average level of subjective knowledge of IPRs and several characteristics (the logarithm of the GDP per capita in 2015 USD, women inventors rate, human capital index, percentage of STEM graduates, the logarithm of the number of patents per million people, employment to population ratio, percentage of GDP expenditure in R&D, the percentage of women academics and the ECI) of the seventy-four countries under study.

Figure 4: Correlation between perceptions about IP rights and country characteristics, by gender



The charts show the correlation by gender (red for women, blue for men) between the average level of perceptions about IPRs and several characteristics (the logarithm of the GDP per capita in 2015 USD, women inventors rate, human capital index, percentage of STEM graduates, the logarithm of the number of patents per million people, employment to population ratio, percentage of GDP expenditure in R&D, the percentage of women academics and the ECI) of the seventy-four countries under study.

These results are obtained by aggregating countries and categories of intellectual property rights. In the next part of the analysis, we disaggregate the findings by IP right and then incorporate individual-level and country-level characteristics that may influence knowledge and perceptions regarding intellectual property protection.

Descriptive Statistics

Table 1 presents the descriptive statistics of the respondents' demographic characteristics, comparing the sample of men and women using a t-test of mean differences. Respondents are on average thirty-seven years old (specifically, men are 38 while women are 37, significant at the one percent level). Educational attainment is high across the sample, with sixty-seven percent having tertiary education and twenty-eight percent secondary education, with no significant gender differences. Forty-six percent of the sample lives in high-income countries and twenty-eight percent in middle-income countries, according to the World Bank country income classification. Almost eighty-five percent of the sample lives in urban or semi-urban areas. Employment patterns reveal significant gender disparities: eighty percent of men versus seventy-six percent of women are employed, but while men are significantly more likely to work full-time, women show higher rates of part-time employment and unemployment. Almost half of the sample reports coping on current household income, however, more women than men report finding it difficult to live on current household income (29 percent versus 27 percent, significant at the one percent level), while slightly more men than women report living comfortably (29 versus 28 percent, significant at the 5 percent level).

The goal of this paper is to explore gender differences in knowledge and perceptions of IP rights. We begin our analysis by conducting a simple comparison of means of the outcomes of interest between men and women using the Student's t-test (Table 2). This initial step provides an unadjusted measure of gender differences, without accounting for factors that might simultaneously influence knowledge and perceptions of IP rights and vary systematically by gender.

Copyright is the most well-known IP right, with sixty percent of respondents answering the relevant questions correctly. They are followed by patents (thirty-five percent) and designs (thirty-four percent), while trademarks are the least known, with only twelve percent of respondents providing correct answers.⁹ The comparison of means reveals gendered patterns in objective knowledge. Fewer women than men correctly identify patents and trademarks (three and one percentage points less, respectively) but outperform men on industrial designs, copyrights, and geographical indications (by four and two percentage points, respectively).

Overall, individuals report the highest levels of familiarity with copyrights and trademarks, with fifty-two percent and fifty-four percent, respectively, stating that they know about these rights. In contrast, designs and geographical indications are the least familiar, with only thirty-four percent and twenty-eight percent of respondents reporting knowledge of them. Gender disparities observed in objective knowledge are to some extent mirrored in subjective

⁹ We build the trademark indicator using two questions that must be answered correctly. This means that comparison between the results for trademarks and other forms of IP, should be interpreted carefully.

knowledge. Women are significantly less likely than men to report knowledge of patents, copyrights and geographical indications, though they are one percentage point more likely to report knowledge of industrial designs.

Table 1: Mean comparison of demographic characteristics of respondents, by gender

	Women	Men	T-test difference (Women-Men)		Women	Men	T-test difference (Women-Men)
	Mean (SE)	Mean (SE)			Mean (SE)	Mean (SE)	
Age	36.957 (0.071)	38.159 (0.072)	-1.202***	Location			
				Urban	0.523 (0.003)	0.526 (0.003)	-0.003
Education				Rural	0.149 (0.002)	0.144 (0.002)	0.006*
Primary or less	0.051 (0.001)	0.049 (0.001)	0.002	Semi-urban	0.328 (0.003)	0.330 (0.003)	-0.003
Secondary	0.279 (0.003)	0.283 (0.003)	-0.004	Global region			
Tertiary	0.670 (0.003)	0.668 (0.003)	0.001	Africa	0.162 (0.002)	0.165 (0.002)	-0.002
Employment status				Asia	0.159 (0.002)	0.158 (0.002)	0.001
Full-time	0.555 (0.003)	0.676 (0.003)	-0.121***	Europe	0.313 (0.003)	0.297 (0.003)	0.016***
Part-time	0.205 (0.002)	0.161 (0.002)	0.044***	Latin American and Caribbean	0.219 (0.002)	0.199 (0.002)	0.020***
Unemployed	0.158 (0.002)	0.099 (0.002)	0.059***	Middle East and Central Asia	0.108 (0.002)	0.142 (0.002)	-0.035***
Studying	0.082 (0.002)	0.064 (0.001)	0.018***	North America and Australia	0.039 (0.001)	0.039 (0.001)	0.000
Perceived household income				Country Income			
Finding it difficult	0.289 (0.003)	0.270 (0.003)	0.018***	Higher-income	0.462 (0.003)	0.466 (0.003)	-0.003
Coping	0.431 (0.003)	0.441 (0.003)	-0.010**	Middle-income	0.281 (0.003)	0.276 (0.003)	0.005
Living comfortably	0.280 (0.003)	0.289 (0.003)	-0.009**	Lower-income	0.257 (0.003)	0.258 (0.003)	-0.002
Number of observations							
Total	28,518	29,617					
2023	11,802	12,266					
2025	16,716	17,351					

*The table reports the averages for the sample of women and men, as well as the difference between the sample averages using t-tests. Education refers to the level of education at the time of the survey (irrespective of completion). Country income refers to the World Bank classification. *** p<0.01 ** p<0.05 *p<0.1*

Table 2: Mean comparison of outcome variables, by gender

	Women Mean (SE)	Men Mean (SE)	T-test difference	Women Mean (SE)	Men Mean (SE)	T-test difference		Women Mean (SE)	Men Mean (SE)	T-test difference
	Objective awareness			Low self-confidence						
Patents	0.348 (0.003)	0.376 (0.003)	-0.028***	0.305 (0.003)	0.293 (0.003)	0.011***	Computers technologies	0.747 (0.003)	0.780 (0.002)	-0.033***
Trademarks	0.122 (0.002)	0.134 (0.002)	-0.011***	0.128 (0.003)	0.133 (0.003)	-0.004	Electrical tools	0.626 (0.003)	0.669 (0.003)	-0.043***
Designs	0.368 (0.003)	0.330 (0.003)	0.038***	0.354 (0.003)	0.315 (0.003)	0.039***	Sport	0.566 (0.003)	0.608 (0.003)	-0.042***
Copyrights	0.618 (0.003)	0.595 (0.003)	0.023***	0.359 (0.003)	0.334 (0.003)	0.026***	Medicine	0.706 (0.003)	0.649 (0.003)	0.057***
Geo. Indications	0.300 (0.003)	0.276 (0.003)	0.025***	0.297 (0.003)	0.264 (0.003)	0.033***	Household appliances	0.785 (0.002)	0.719 (0.003)	0.067***
	Subjective Awareness			High self-confidence						
Patents	0.362 (0.003)	0.410 (0.003)	-0.047***	0.294 (0.003)	0.307 (0.003)	-0.013***	Digital communication	0.822 (0.002)	0.850 (0.002)	0.027***
Trademarks	0.540 (0.003)	0.545 (0.003)	-0.004	0.507 (0.003)	0.506 (0.003)	0.001	Transport	0.710 (0.003)	0.680 (0.003)	0.030***
Designs	0.346 (0.003)	0.337 (0.003)	0.009**	0.313 (0.003)	0.303 (0.003)	0.011**	Children entertainment	0.455 (0.003)	0.383 (0.003)	0.072***
Copyrights	0.517 (0.003)	0.525 (0.003)	-0.008*	0.257 (0.003)	0.259 (0.003)	-0.002	Renewable energies	0.550 (0.003)	0.525 (0.003)	0.025***
Geo. Indications	0.269 (0.003)	0.300 (0.003)	-0.030***	0.247 (0.003)	0.265 (0.003)	-0.018***	Food	0.797 (0.002)	0.737 (0.003)	0.060***
	Perceptions			Hesitance						
Patents	0.694 (0.002)	0.681 (0.002)	0.013***	0.436 (0.004)	0.430 (0.004)	0.006				
Trademarks	0.715 (0.002)	0.704 (0.002)	0.011***	0.345 (0.007)	0.337 (0.006)	0.007				
Designs	0.690 (0.002)	0.671 (0.002)	0.019***	0.436 (0.004)	0.468 (0.004)	-0.032***				
Copyrights	0.732 (0.002)	0.713 (0.002)	0.019***	0.262 (0.003)	0.272 (0.003)	-0.011**				
Geo. Indications	0.733 (0.002)	0.705 (0.002)	0.029***	0.387 (0.004)	0.426 (0.004)	-0.039***				

The table reports the average outcomes for each IP right (patents, trademarks, designs, copyrights, geographical indications) for the sample of women and men, as well as the difference between the sample averages using t-tests. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

We define self-confidence as the (mis)alignment between subjective and objective knowledge. On average, almost thirty percent of respondents exhibit low self-confidence, with women significantly more likely than men to fall into this category. Conversely, men appear one percentage point more likely to be self-confident about patents, designs and geographical indications. However, women seem to hesitate less when answering questions about IP rights they know more (designs, copyrights and geographical indications).

Regarding perceptions, respondents express the most positive attitudes towards products protected by copyrights (0.72), geographical indications (0.71) and trademarks (0.70). Women tend to hold more positive attitudes than men across all categories of IP rights. A large share of the sample reports benefiting the most from innovation for what concerns digital communication (eighty-four percent), computer technologies (seventy-six percent), food (seventy-seven percent) and household appliances (seventy-five percent). However, men report benefitting significantly more than women for computer technologies, electrical tools and sport (with four percentage points difference) and women benefitting the most compared to men for children entertainment, food and household appliances (with on average seven percentage points difference).

These raw comparisons do not account for underlying socioeconomic differences between men and women that could influence knowledge and perceptions (for example the different employment status and income level reported in Table 1). The following section addresses this limitation through regression analysis.

Empirical strategy

To account for potential confounding factors, we estimate the following linear regression model:

$$Y_{icy} = \alpha + \beta \text{Woman}_i + \gamma X_i + \delta_c + \text{year}_y + \varepsilon_{icy}$$

Where Y_{icy} represents all outcome variables of interest for individual i in country c surveyed in year y . These include the measures of objective and subjective knowledge, self-confidence, perceptions of IP rights, and perceived benefits of innovation. Woman_i indicates the gender of the respondent and corresponds to our primary variable of interest. X_i is a vector of individual's sociodemographic characteristics such as education, employment status, age (and age²), household income, rural or urban location; δ_c is the country fixed effects which controls for all the country-specific characteristics that might influence outcomes, such as cultural attitudes towards gender, differences in national IP systems, legal frameworks, or enforcement mechanisms; year_y controls for the survey year (2023 and 2025). Finally, ε_{icy} is the error term, clustered at the country level to account for the fact that the standard errors might be correlated within countries. This model allows us to isolate the gender effect by holding constant socioeconomic characteristics and country-level characteristics (both observable and not). If the coefficient β remains statistically significant after controlling for all these factors, it suggests that gender differences in IP knowledge and perceptions persist beyond what can be explained by observable individuals and countries' characteristics. In other words, the remaining gap may be attributed to more nuanced, gender-specific factors, such as confidence, social norms and systemic biases (beyond those captured by fixed effects).

Results

The results are presented and discussed in this section, grouped by (i) knowledge about IP rights, (ii) perceptions about IP rights, and (iii) heterogeneous effects. Full regressions are reported in the appendix.

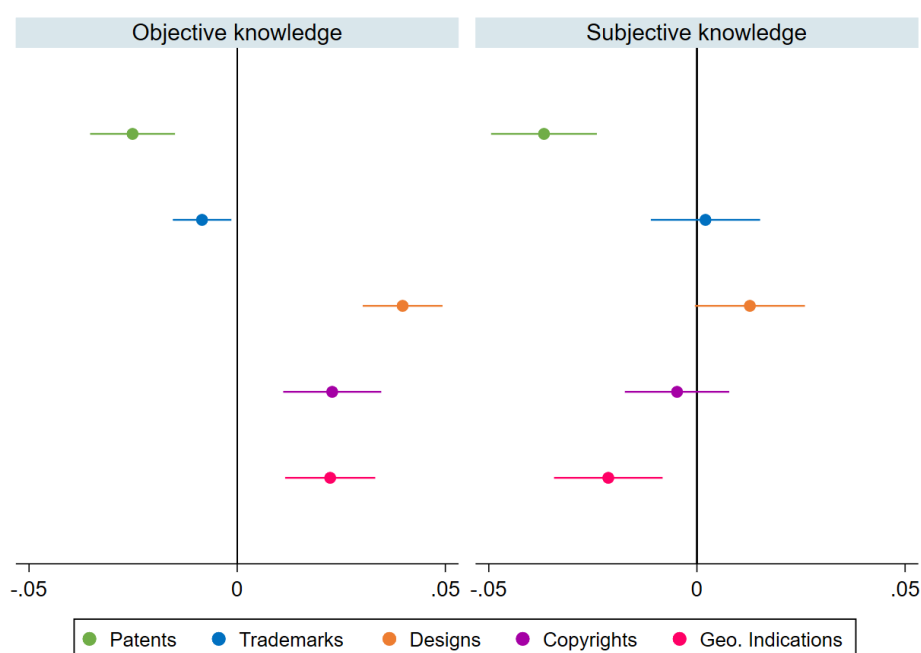
Knowledge about IP rights

We first study subjective and objective knowledge controlling for education, employment status, income, age, and geographic location (Figure 5). The regression results confirm persistent gender differences in knowledge after controlling for observable characteristics. Women demonstrate lower knowledge of patents and trademarks but higher knowledge of designs, copyrights, and geographical indications. This suggests that observed disparities cannot be attributed solely to educational or employment differences but likely reflect gender-specific dynamics such as social norms or systemic biases.

Holding everything else constant, women remain almost five percentage points less likely to report knowledge of patents and one percentage point more likely to report knowledge of industrial designs compared to men. This means that if we compare a man and a woman with the same level of education, employment status, age and income, the woman will still be less likely to report that she knows about patents and more likely to report knowing about designs than men.

These findings indicate that women tend to be more knowledgeable about IP rights that are more prevalent in creative industries (designs and copyrights), but they are less likely to know about IP rights more commonly used by STEM fields (patents) and entrepreneurship (trademarks). In other words, patents and trademarks appear to be a male dominated field, with knowledge gaps persisting even after accounting for individual and country characteristics.

Figure 5: Estimated coefficients of being a woman on knowledge about IP rights, by IP right



OLS regression coefficients. For each regression, the outcome variables are the objective and subjective knowledge of each IP right (patents, trademarks, designs, copyrights, geographical indications). The coefficients reported are those corresponding to “being a woman”. Coefficients not reported: education, employment, age, age², household income, rural or urban location. Each regression includes country fixed effects. Standard errors are clustered at the country level.

Figure 5 shows that women tend to report lower knowledge of the IP rights they are more likely to objectively know. This could depend on the fact that either women understate what they know or men overstate it. To address this, Figure 6 examines gender differences in self-confidence when answering IP knowledge questions.

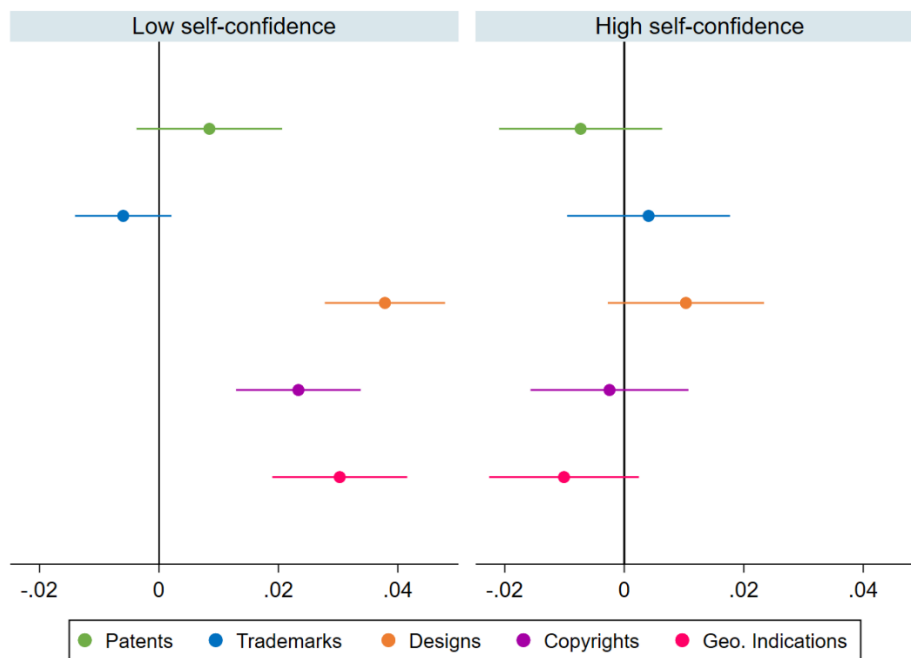
After accounting for socioeconomic characteristics, women remain more likely to be less self-confident. The coefficients are positive for Copyrights and Geographical Indications, and the largest for industrial designs, where women are disproportionately more likely to underestimate their knowledge. On the other hand, there are no significant gender differences in the likelihood of being more self-confident and overestimating knowledge.

To accurately interpret the results, it is crucial to rule out the possibility that the survey itself systematically influenced how men and women responded. Prior research suggests that men and women may behave differently under test conditions (Kamas and Preston, 2012). Women may report lower subjective knowledge or select multiple options even when they know the correct answer, reflecting lower confidence or a tendency to hesitate before multiple choice questions. However, Figure A1 shows no gender differences in hesitation when answering

survey questions about patents and trademarks, while women show less hesitation than men when answering questions related to designs, copyrights and geographical indications.

These charts indicate that compared to men, women tend to correctly assess their lack of knowledge (e.g. patents and trademarks) but they under-report their familiarity in areas where they are more knowledgeable (e.g. designs, copyrights and geographical indications).

Figure 6: Estimated coefficients of being a woman on self-confidence about knowledge of IP rights, by IP right

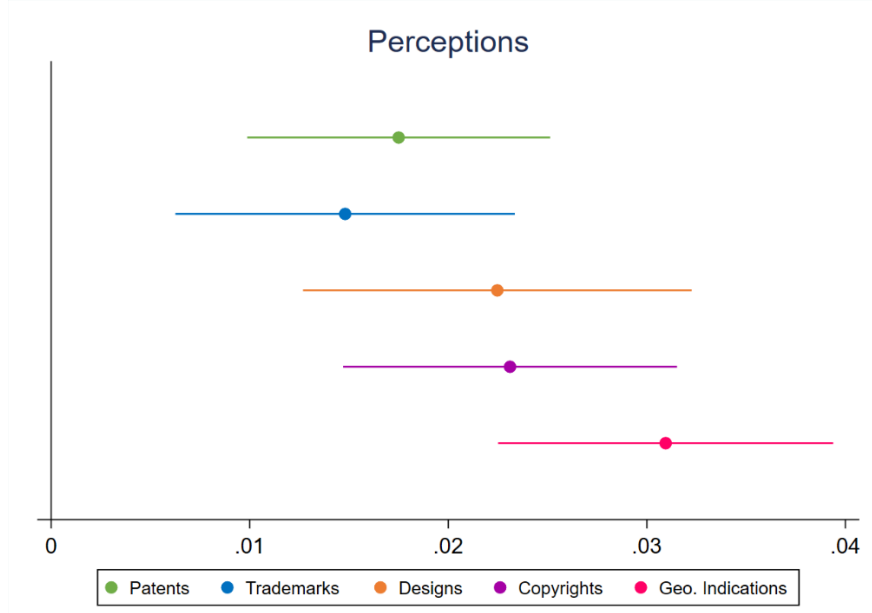


OLS regression coefficients. For each regression, the outcome variables are low and high self-confidence about knowledge of each IP right (patents, trademarks, designs, copyrights, geographical indications), the comparison category consists of individuals whose subjective and objective awareness match. The coefficients reported are those corresponding to “being a woman”. Coefficients not reported: education, employment, age, age², household income, rural or urban location. Each regression includes country fixed effects. Standard errors are clustered at the country level.

Perceptions about IP rights

Figure 7 presents the results for perceptions towards IP rights. Women consistently demonstrate more positive attitudes than men across all IP categories, especially for geographical indications, copyrights, and designs. This pattern mirrors the correlation between subjective knowledge and perceptions described in the stylized facts section: women hold more positive perceptions of products protected by IP rights they report knowing more about.

Figure 7: Estimated coefficients of being a woman on perceptions about IP rights, by IP right

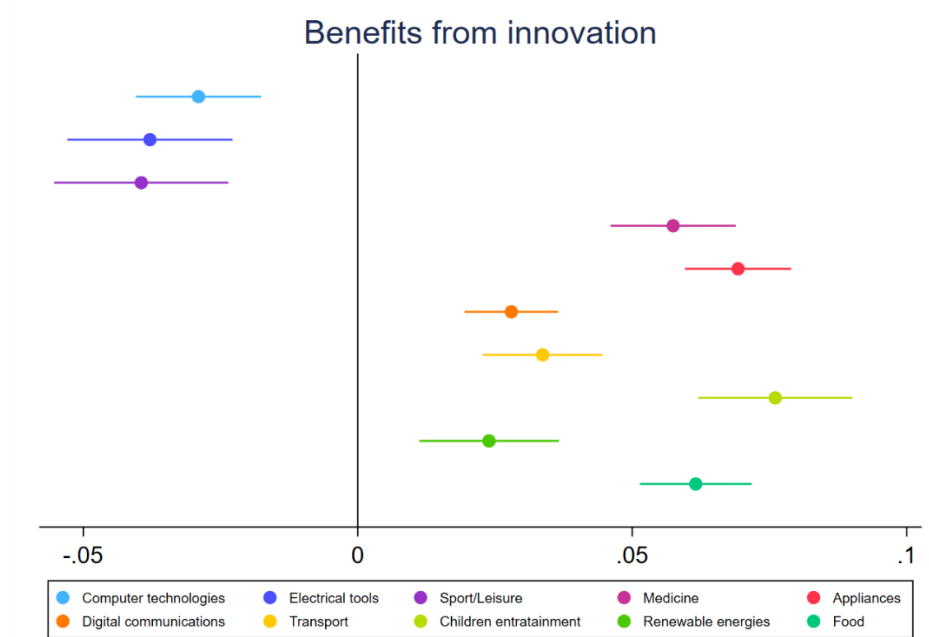


OLS regression coefficients. For each regression, the outcome variable is the perceptions index for each IP right (patents, trademarks, designs, copyrights, geographical indications). The coefficients reported are those corresponding to "being a woman". Coefficients not reported: education, employment, age, age², household income, rural or urban location. Each regression includes country fixed effects. Standard errors are clustered at the country level.

The results presented so far indicate that socioeconomic factors alone do not fully account for the differences in knowledge and perceptions about IP rights between men and women. One possible explanation lies in gendered specialization in education, career paths, and household roles. The literature suggests that women are more likely to pursue studies and careers in fields such as fashion, design, and creative industries, while men are more concentrated in machinery, engineering, and technology-intensive sectors (Sloane et al. 2021). Such specialization patterns could be reflected by women's higher knowledge of copyrights and industrial designs, and men's greater familiarity with patents and trademarks.

To test this hypothesis, we examine the aspects of life in which respondents report benefiting the most from innovation (Figure 8). The results present a clear gender division: men report significantly greater innovation benefits in computer technologies, electrical tools, and sports/leisure equipment, while women perceive higher benefits in childcare products, household appliances, and food products. These patterns align with traditional gender roles and suggest differential exposure to IP-protected products through both professional and domestic spheres. Notably, the smallest gender gaps are found in digital communication technologies, transport and renewable energy suggesting that in these domains, innovation may be perceived as more universally beneficial regardless of gender.

Figure 8: Estimated coefficients of being a woman on benefits from innovation, by life aspect



OLS regression coefficients. For each regression, the outcome variables equal 1 if the respondent indicates they benefit from innovation, in a life aspect. The coefficients reported are those corresponding to “being a woman”. Coefficients not reported: education, employment, age, age², household income, rural or urban location. Each regression includes country fixed effects. Standard errors are clustered at the country level.

These results suggest that both professional specialization and household roles contribute to shaping knowledge and perceptions of IP rights. The persistence of gender differences even after accounting for observable characteristics reinforces the idea that exposure to innovation is shaped not only by individual attributes but also by broader social and cultural factors that influence how men and women interact with technology and creative outputs in their daily lives.

Heterogeneous effects

Our main results indicate that women have higher knowledge of intellectual property rights related to creative industries, while men are more familiar with intellectual property rights related to STEM fields. To better understand what contributes to the differences in awareness and perceptions between men and women, we investigate whether outcomes change based on birth cohort, education, and occupation. Specifically, we run the baseline regressions using the same outcomes but we include the interaction between the gender of the respondents and their birth cohort (Figure 9), level of education (Figure 10), and occupation (Figure 11), excluding the constant term α . This allows us to directly compare the different categories, while controlling for all the other demographic characteristics.

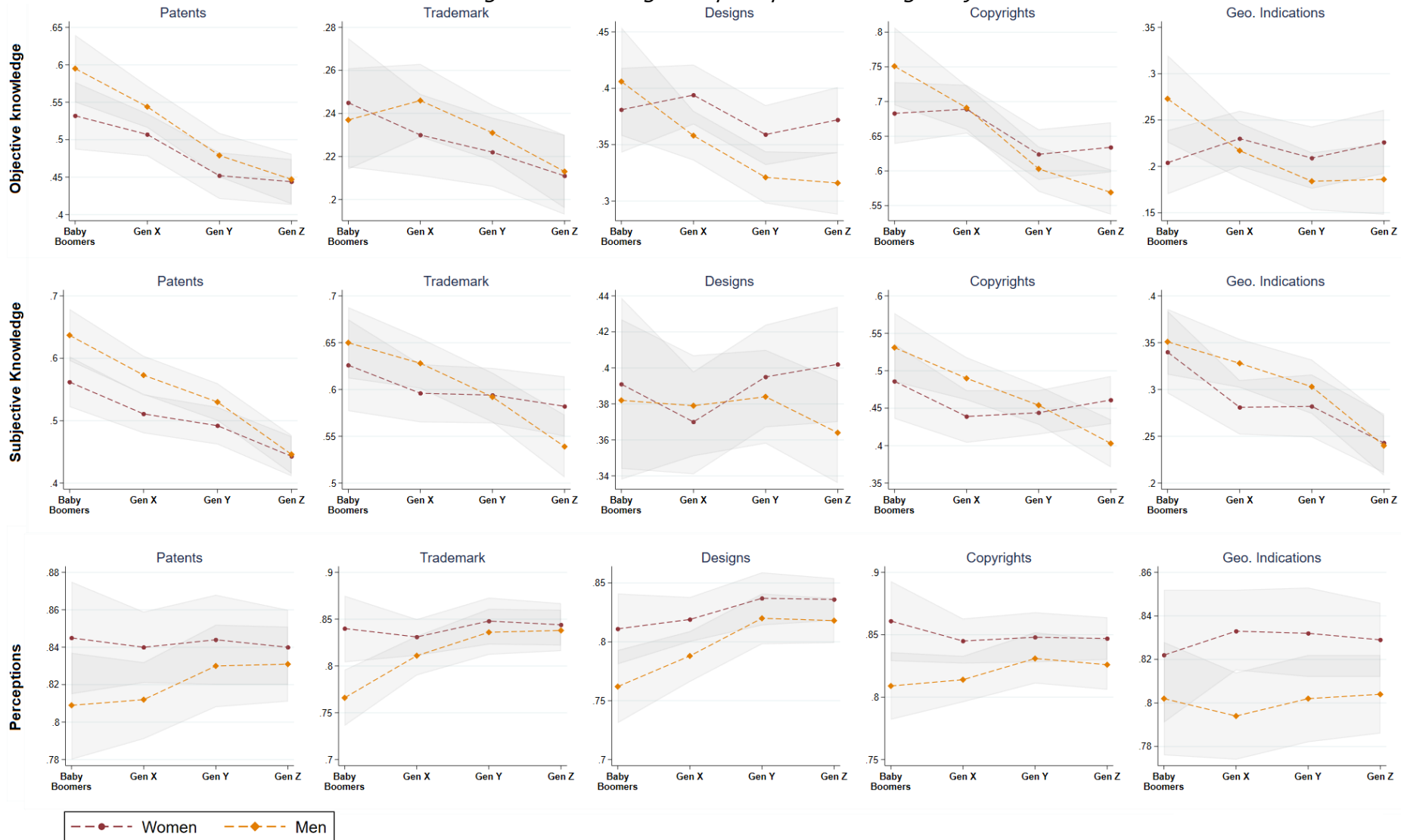
The results change when we compare younger and older cohorts. Despite persisting barriers and discrimination, younger women have more opportunities and rights compared to previous generations. They have greater access to education, particularly in STEM fields, and more career options. Moreover, they live in a world characterized by rapid technological progress, enhanced communication possibilities, and information that is not only larger in volume but also more readily accessible. At the same time, education may have a leveling effect by providing both men and women with access to current knowledge and learning resources. Education serves as a powerful catalyst for creativity and technological advancement: students generate novel ideas, explore emerging technologies, and benefit from university ecosystems where research thrives, networks are built, and individuals have access to the tools and support needed to foster innovation. However, students often face limitations in terms of experience and financial resources compared to employed individuals. They may also have limited awareness of how to protect their ideas through intellectual property rights. Work environments and career decisions may also shape awareness and perceptions of intellectual property rights. Employed individuals may be exposed to professional contexts and life decisions that shape how they approach intellectual property rights, which may have differential impacts on men compared to women. For example, women may work in fields more closely related to creative industries, while men work in areas related to STEM fields. This pattern is consistent with the concept of the leaky pipeline, which refers to the progressive reduction in women's participation at different stages of career progression in STEM fields.

To study differences in knowledge based on cohort, we calculate individuals' birth year as the difference between the survey year and their age. We then group birth years based on generation definitions: Baby Boomers for individuals born between 1958 and 1964 (with corresponds to 4.2 percent of the full sample), Generation X for individuals born between 1965 and 1980 (28.1 percent of the full sample), Generation Y for individuals born between 1981 and 1996 (41.3 percent) and Generation Z for individuals born after 1996 (26.4 percent).¹⁰ Results by generation are presented in Figure 9. Overall, the level of knowledge (both objective and subjective) appears higher for older cohorts. However, while the differences between the levels of knowledge for men and women Baby Boomers are large and significant, with men demonstrating greater knowledge than women, these differences disappear or even reverse for younger generations. For example, among Baby Boomers, the difference between the objective knowledge of patents for men and women is 7 percentage points (significant at the 1 percent level), while for Gen Z it drops to 0.3 percentage points and loses statistical significance. For copyrights, the difference in objective knowledge decreases from 7 percentage points for Baby Boomers in favor of men to 6 percentage points for Gen Z in favor

¹⁰ Baby boomers: <https://www.britannica.com/topic/baby-boomers>
Generation X: <https://www.britannica.com/topic/Generation-X>
Generation Y: <https://www.britannica.com/topic/millennial>
Generation Z: <https://www.britannica.com/topic/Generation-Z>

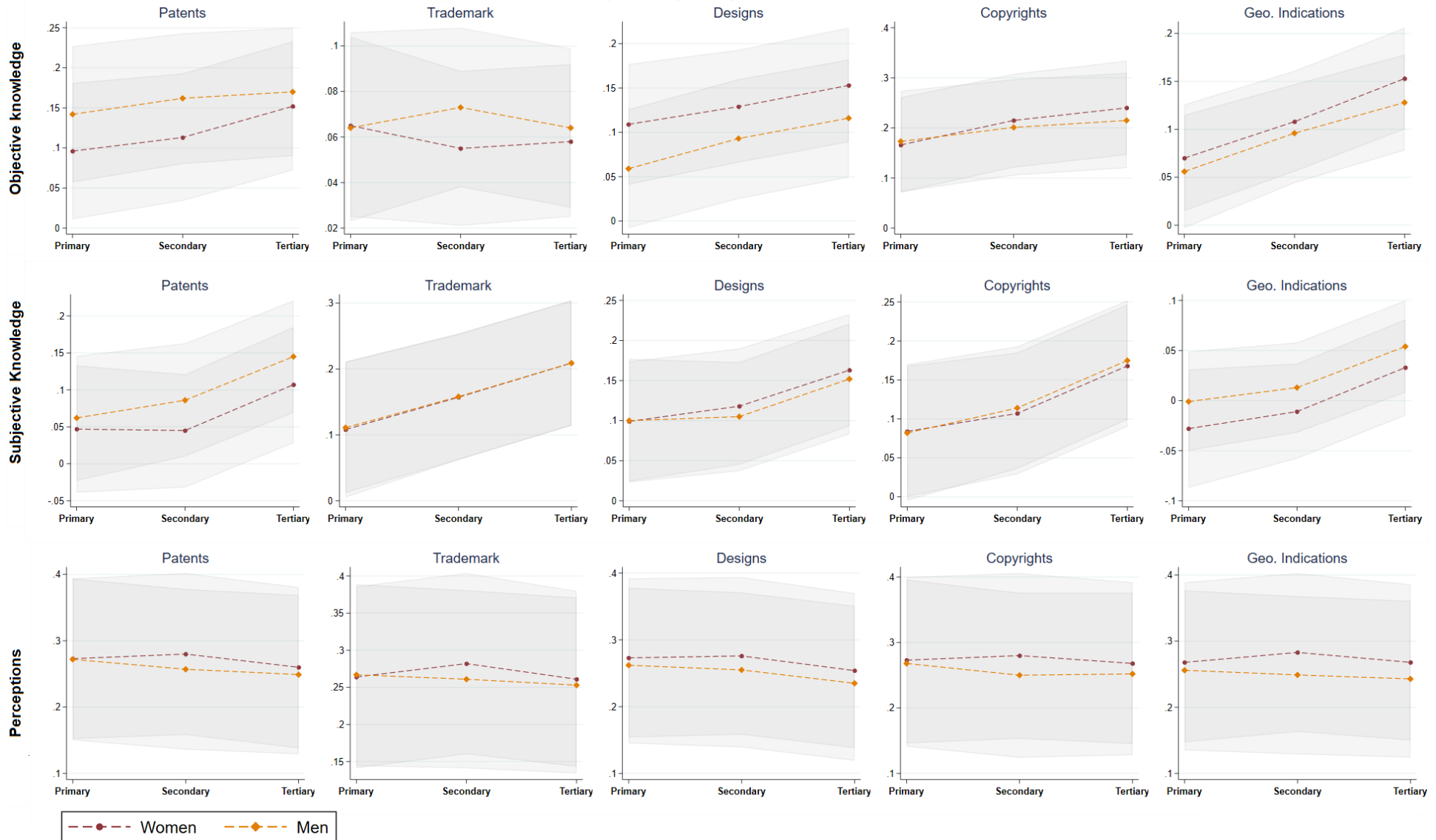
of women (both statistically significant). These findings suggest that among younger cohorts, gender differences in knowledge are diminishing. Regarding perceptions, overall women have more positive perceptions than men but the gender gap in perceptions narrows among younger cohorts: for instance, the difference between the perceptions of women and men about products protected by patents is 5 percentage points for Baby Boomers (significant) and 1 percentage point for Gen Z (not significant). For trademarks the difference is 7 percentage points for Baby Boomers (significant) and 1 percentage point for Gen Z (not significant).

Figure 9: Knowledge and perceptions of IP rights by birth cohort



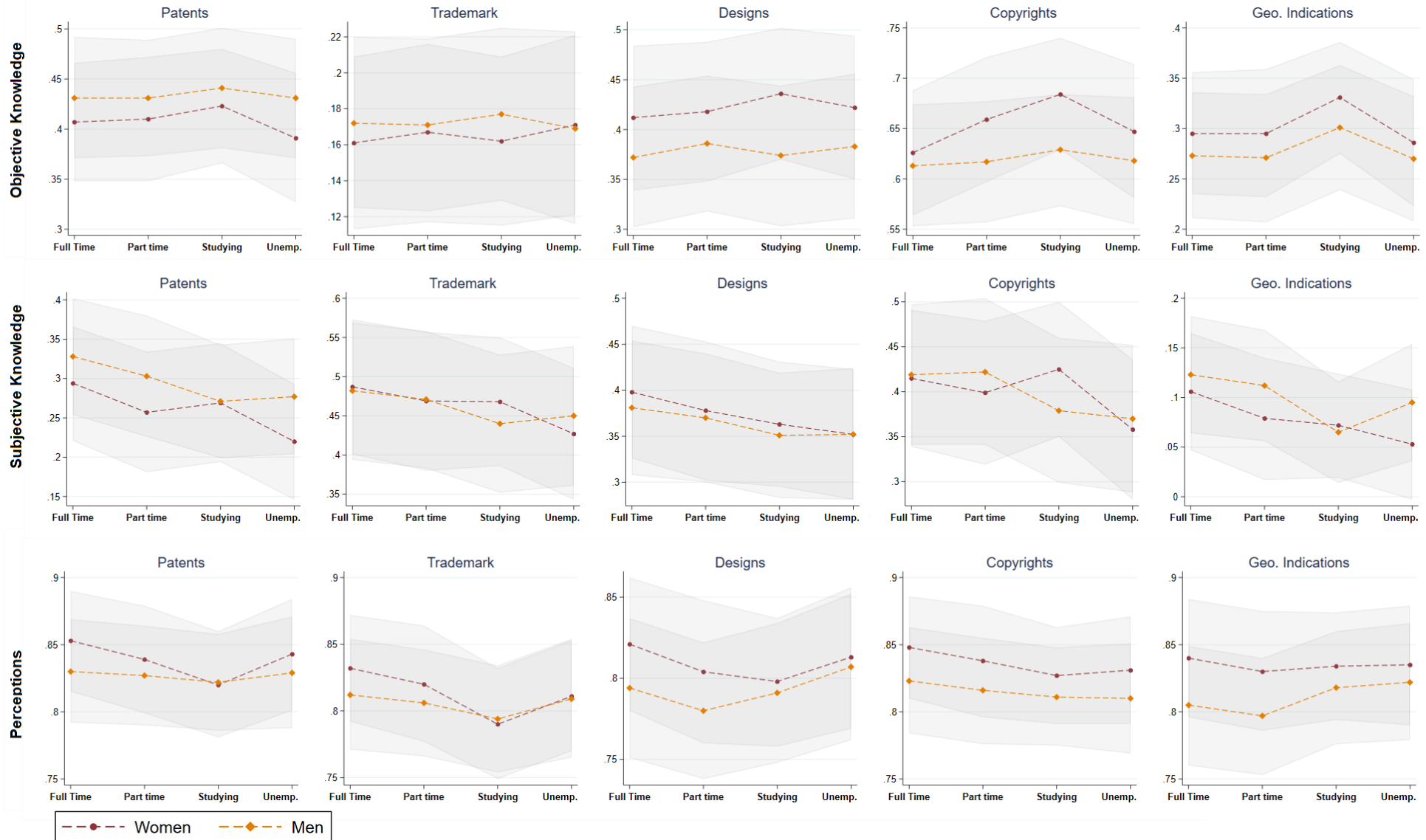
OLS regression coefficients. For each regression, the outcome variable is objective knowledge, subjective knowledge and perceptions for each IP right. The coefficients reported are those corresponding to the interaction between the respondents' gender and the cohort of birth. The cohorts are defined as: Baby Boomers (born between 1958 and 1964); Generation X (born between 1965 and 1980); Generation Y (born between 1981 and 1996); Generation Z (born after 1996). Coefficients not reported: education, employment status, household income, rural or urban location. Regressions are run excluding the constant. Each regression includes country fixed effects. Standard errors are clustered at the country level.

Figure 10: Knowledge and perceptions of IP rights, by level of education



OLS regression coefficients. For each regression, the outcome variable is objective knowledge, subjective knowledge and perceptions for each IP right. The coefficients reported are those corresponding to the interaction between the respondents' gender and their level of education. Coefficients not reported: employment status, household income, rural or urban location, age and age2. Regressions are run excluding the constant. Each regression includes country fixed effects. Standard errors are clustered at the country level.

Figure 11: Knowledge and perceptions of IP rights, by employment status



OLS regression coefficients. For each regression, the outcome variable is objective knowledge, subjective knowledge and perceptions for each IP right. The coefficients reported are those corresponding to the interaction between the respondents' gender and their occupation. Coefficients not reported: employment status, household income, rural or urban location, age and age². Regressions are run excluding the constant. Each regression includes country fixed effects. Standard errors are clustered at the country level.

In Figure 10, although individuals with higher levels of education demonstrate greater knowledge and more positive perceptions about intellectual property rights, we do not observe significant differences between men and women. In Figure 11, we compare outcomes based on respondents' occupation. Individuals who are currently studying appear to be more knowledgeable than employed and unemployed individuals. For instance, women who are studying have higher knowledge about patents than full-time employed men (although not statistically significant), but the differences between men and women do not vary by occupation (men remain more knowledgeable about patents and trademarks, while women demonstrate greater knowledge about designs, copyrights, and geographical indications). For perceptions, we similarly do not observe significant differences between men and women based on their occupation.

Our data are cross-sectional which limits the possibility to identify whether these results depend on people's trajectories departing as they age, or on the fact that younger generations are exposed to more, and more accessible information and fewer barriers. Nevertheless, our results suggest the presence of a cohort effect more than an education effect, with differences in knowledge between men and women shrinking for younger cohorts.

Discussion and Conclusions

Technological advancement is a fundamental driver of economic growth, yet persistent gender disparities in intellectual property rights limit the full potential of innovation and creative outputs. Women remain significantly under-represented among inventors and creators, despite increasing participation in higher education, especially in STEM fields. This under-representation is not only a matter of equality but also an issue of economic inefficiency, as it restricts the diversity of ideas and potential market innovations. While structural barriers such as income disparities, limited access to networks, and biases in patenting processes have been well-documented, less attention has been given to the role of IP awareness and knowledge in shaping women's participation in innovation. If individuals make career choices based on their perceptions of their own knowledge and capabilities, then gaps in IP awareness could be a contributing factor to the gender imbalance in innovation. This paper examines the extent of gender disparities in IP knowledge, distinguishing between subjective (self-reported) and objective (tested) knowledge.

To investigate these issues, we analyze data from a survey conducted with 58,135 individuals across seventy-four countries in two editions – 2023 and 2025. The survey assessed both subjective and objective knowledge of different types of IP rights, namely patents, trademarks, copyrights, industrial designs, and geographical indications. First, we complement the existing literature by providing stylized facts on the geographical distribution of knowledge and perceptions, and how they correlate with country-level characteristics. Not

only do we show that perception and subjective knowledge have a positive relationship, probably due to the fact that they both depend on priors, but we also identify a negative correlation between objective and subjective knowledge (referred to in the literature as Dunning-Krueger effect).

At the individual level, our findings reveal significant gender differences in both subjective and objective knowledge of IP rights. Women consistently report lower familiarity than men with patents, while they are more likely to report familiarity with industrial designs. These patterns persist even after controlling for socioeconomic characteristics (such as education, employment status, income, and geographic location), suggesting that gender disparities in IP awareness are not solely driven by observable differences in individual characteristics. When examining objective knowledge, a similar trend emerges: women score lower than men on patents and trademarks but outperform them in industrial designs, copyrights, and geographical indications. An important aspect of our study is the exploration of self-confidence, namely the alignment between objective and subjective knowledge. Women exhibit lower self-confidence in areas where they perform well. This is consistent with existing literature on gender differences in self-perception and confidence, particularly in competitive and technical fields.

A key finding is that among younger cohorts, the differences between men and women become smaller compared to previous generations. The larger differences among older cohort could reflect workplace specialization and the influence of gendered career paths and life choices. Education level and employment do not seem to be significant factors shaping the results. Even if we cannot clearly determine whether younger women have higher awareness because knowledge polarization occurs at later life stages, or because they live in a world with greater access to information and opportunities, these findings suggest that exposure to innovation and technology is shaped by broader social norms and occupational segregation, reinforcing gendered patterns in IP knowledge and participation.

Our results suggest that addressing gender disparities in IP awareness and participation requires a multi-faceted policy approach that combines education, institutional reforms, and targeted interventions. Gender disparities in IP knowledge and participation are not simply a reflection of individual choices but are shaped by systemic factors, occupational patterns, and societal norms. While educational exposure can mitigate some of these gaps, the re-emergence of gender differences in older cohorts suggests that deeper structural barriers persist. Policies aimed at increasing IP awareness, reducing biases, and supporting women in innovation are critical to unlocking the full potential of diverse talent in research and development. Interventions in this direction should address these gaps at different life and career stages. In the workplace, women encounter barriers that limit their engagement with IP systems. Policies should focus on ensuring equal access to networks, funding, and legal assistance, simplifying IP registration processes and offering financial incentives for women

applicants could enhance participation. By addressing these barriers at different career stages, policies can create a sustainable pipeline of women innovators, ensuring that IP knowledge translates into active participation in innovation ecosystems.

While this study provides valuable insights into the gender disparities in intellectual property awareness and participation, some limitations should be acknowledged. First, the analysis relies on self-reported survey data, which may be subject to biases such as social desirability bias or differences in self-assessment across genders (although we cannot test for the former, our analysis of self-confidence and hesitance allows us to rule out the latter). Moreover, while this study focuses on knowledge and perceptions, it does not assess how individuals apply IP knowledge in real-world contexts and specifically, their understanding and actual usage of IP rights. Understanding whether increased awareness translates into higher engagement with the IP system is crucial for designing effective policies. Future research should focus on these aspects.

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Appendix

Table A 1: Number of completed interviews per country and year

African Countries	2023	2025	Asian Countries	2023	2025	European Countries	2023	2025	European Countries (cont.)	2023	2025
Angola	501	500	Bangladesh	500	500	Bosnia and Herzegovina	n/a	500	Netherlands	n/a	500
Cameroon	n/a	500	China	501	500	Bulgaria	503	500	Poland	500	500
Ghana	500	500	India	501	500	Croatia	506	500	Portugal		500
Kenya	530	500	Indonesia	562	500	Czechia	500	500	Romania	501	500
Mozambique	562	500	Japan	500	500	Estonia	n/a	500	Serbia		500
Nigeria	513	500	Malaysia	n/a	500	France	501	500	Slovak Republic	506	500
Rwanda	n/a	500	Pakistan	500	500	Germany	503	500	Slovenia		500
Senegal	502	500	Philippines	n/a	500	Greece	n/a	500	Spain	501	500
South Africa	502	500	Rep. of Korea	502	500	Hungary	501	500	Sweden	502	500
Tanzania	504	500	Singapore	n/a	500	Italy	501	500	Switzerland	508	500
Zimbabwe	n/a	500	Vietnam	504	500	Latvia	n/a	500	United Kingdom	507	500
						Lithuania	501	500			
Middle Eastern and Central Asian Countries	2023	2025	Latin American and Caribbean Countries	2023	2025	Latin American and Caribbean Countries (cont.)	2023	2025	North America and Australia	2023	2025
Algeria	559	500	Argentina	500	500	Ecuador	n/a	500	Australia	500	500
Azerbaijan	522	500	Bolivia		500	Guatemala	n/a	500	Canada		500
Egypt	500	500	Brazil	500	500	Mexico	500	500	United States	501	500
Kazakhstan	518	500	Caribbean group	1000	500	Panama	500	500			
Morocco	n/a	500	Chile	501	500	Paraguay	n/a	500			
Saudi Arabia	500	500	Colombia	501	500	Peru	500	500			
Türkiye	500	500	Costa Rica	n/a	500	Uruguay	500	500			
United Arab Emirates	500	500	Dominican Republic	n/a	500						

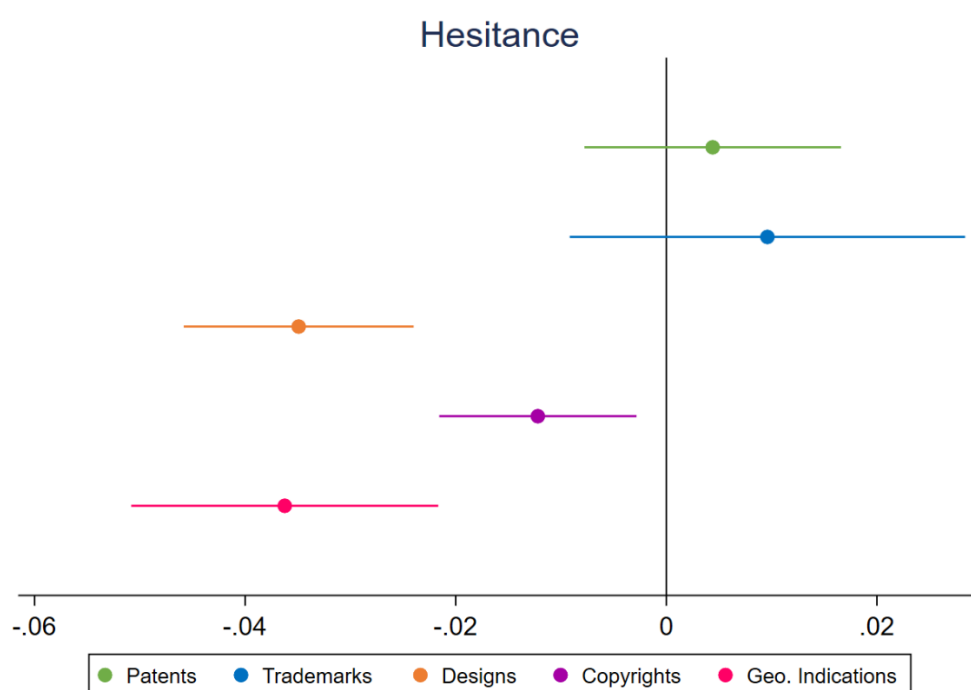
Caribbean group includes observations from Antigua and Barbuda, Bahamas, Jamaica, Trinidad and Tobago. Due to the small number of observations these countries have been grouped together.

Table A 2: Descriptive statistics of countries characteristics

	Nr Countries	Mean	SD	Min	Max	Source
GDP per capita, 2015 USD (log)	71	9.1605	1.2025	6.4038	11.3848	World Bank Development Indicators
Economic Complexity Index	71	0.2931	0.9319	-2.3125	1.8382	Harvard Growth Lab
Human Capital Index	70	0.6173	0.1367	0.3577	0.8831	World Bank Development Indicators
Women Inventor Rate (%)	52	18.2587	7.8158	6.3	56.3	WIPO statistics database
Employment to population ratio (%)	71	57.9338	9.1543	35.5545	82.1853	World Bank Development Indicators
Expenditure R&D (% GDP)	58	1.2167	1.0606	0.0408	4.81195	World Bank Development Indicators
STEM graduates (%)	59	23.1833	6.5080	9.5600	40.6189	UNESCO Institute for Statistics
Patents per million people (log)	69	4.0220	1.8695	-0.1194	8.3960	WIPO statistics database
Women academics (%)	55	42.4889	10.1194	12.9473	65.3326	World Bank Development Indicators

The table reports the descriptive statistics of the macroeconomic variables used to compile the stylized facts. The mean corresponds to the average value of the variable between 2018 and 2023. The Women Inventor Rate is computed as the percentage of inventors who are women. The employment to population ratio is calculated for the population above 15. The percentage of STEM graduates is calculated from all tertiary graduates. Women academics corresponds to the percentage of academic staff (tertiary education) who are women. All data has been downloaded in February 2026.

Figure A 1: Estimated coefficients of being a woman on hesitance, by IP right



OLS regression coefficients. For each regression, the outcome variable is hesitance for each IP right (patents, trademarks, designs, copyrights, geographical indications). The comparison category consists of individuals who only selected one correct answer. The coefficients reported are those corresponding to "being a woman. Coefficients not reported: education, employment, age, age², household income, rural or urban location. Each regression includes country fixed effects. Standard errors are clustered at the country level.

Regression tables

Table A 3: Objective and subjective knowledge of IP rights. Country FEs

	Objective Knowledge					Subjective Knowledge				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Women	-0.0251*** (0.0051)	-0.0084** (0.0035)	0.0397*** (0.0048)	0.0228*** (0.0059)	0.0223*** (0.0054)	-0.0367*** (0.0064)	0.0021 (0.0066)	0.0127* (0.0066)	-0.0048 (0.0063)	-0.0213*** (0.0065)
Education										
Secondary	0.0147 (0.0114)	-0.0017 (0.0074)	0.0231** (0.0103)	0.0326** (0.0124)	0.0360*** (0.0114)	0.0081 (0.0128)	0.0434*** (0.0128)	0.0085 (0.0107)	0.0235* (0.0119)	0.0139 (0.0108)
Tertiary	0.0397*** (0.0105)	-0.0039 (0.0068)	0.0491*** (0.0104)	0.0560*** (0.0129)	0.0762*** (0.0108)	0.0704*** (0.0124)	0.0975*** (0.0118)	0.0568*** (0.0103)	0.0872*** (0.0119)	0.0569*** (0.0097)
Employment status										
Studying	0.0132 (0.0091)	0.0024 (0.0062)	0.0142 (0.0107)	0.0387*** (0.0110)	0.0318*** (0.0092)	-0.0391*** (0.0098)	-0.0291*** (0.0102)	-0.0323*** (0.0118)	-0.0126 (0.0132)	-0.0454*** (0.0099)
Part time	0.0012 (0.0079)	0.0024 (0.0043)	0.0098 (0.0064)	0.0188*** (0.0069)	-0.0013 (0.0061)	-0.0309*** (0.0068)	-0.0146** (0.0069)	-0.0155** (0.0061)	-0.0072 (0.0071)	-0.0196*** (0.0063)
Unemployed	-0.0098 (0.0074)	0.0046 (0.0055)	0.0107 (0.0086)	0.0135 (0.0087)	-0.0069 (0.0083)	-0.0646*** (0.0080)	-0.0481*** (0.0071)	-0.0384*** (0.0076)	-0.0538*** (0.0077)	-0.0429*** (0.0077)
Perceived household income										
Finding it difficult	0.0051 (0.0095)	-0.0043 (0.0044)	0.0083 (0.0084)	0.0449*** (0.0097)	0.0130 (0.0092)	-0.1069*** (0.0090)	-0.0648*** (0.0085)	-0.0858*** (0.0089)	-0.0762*** (0.0107)	-0.1012*** (0.0093)
Coping	0.0300*** (0.0069)	0.0034 (0.0037)	0.0290*** (0.0054)	0.0590*** (0.0075)	0.0301*** (0.0072)	-0.0687*** (0.0070)	-0.0401*** (0.0082)	-0.0796*** (0.0082)	-0.0503*** (0.0098)	-0.0835*** (0.0091)
Location										
Rural	-0.0267*** (0.0083)	0.0035 (0.0050)	0.0005 (0.0065)	-0.0239** (0.0099)	-0.0252** (0.0100)	-0.0964*** (0.0079)	-0.1045*** (0.0091)	-0.0771*** (0.0076)	-0.0994*** (0.0087)	-0.0587*** (0.0072)
Semi-urban	0.0064 (0.0060)	0.0071** (0.0031)	0.0069 (0.0055)	0.0139** (0.0061)	0.0035 (0.0061)	-0.0598*** (0.0057)	-0.0574*** (0.0059)	-0.0548*** (0.0062)	-0.0592*** (0.0057)	-0.0487*** (0.0060)
Age	0.0000 (0.0015)	0.0025** (0.0011)	-0.0037** (0.0017)	-0.0028* (0.0015)	-0.0052*** (0.0013)	0.0072*** (0.0019)	0.0038* (0.0019)	-0.0001 (0.0016)	0.0002 (0.0018)	0.0070*** (0.0013)
Age ²	0.0000** (0.0000)	-0.0000 (0.0000)	0.0001*** (0.0000)	0.0001*** (0.0000)	0.0001*** (0.0000)	-0.0000** (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	0.0000 (0.0000)	-0.0001*** (0.0000)
Year = 2025	0.0105 (0.0070)	0.0117*** (0.0040)	0.0130* (0.0073)	-0.0000 (0.0091)	0.0111* (0.0064)	-0.0494*** (0.0056)	-0.0504*** (0.0062)	-0.0407*** (0.0065)	-0.0487*** (0.0071)	-0.0318*** (0.0072)
Observations	54573	55529	54581	55051	54634	56056	56056	56056	56056	56056
R-squared	0.062	0.037	0.024	0.060	0.045	0.067	0.078	0.080	0.058	0.053
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*OLS regressions. The outcomes of interest are binary variables that indicate objective knowledge in Columns 1 to 5 and Subjective knowledge in columns 6 to 10 (Patents: columns 1 and 6; Trademarks: columns 2 and 7; Industrial Designs: columns 3 and 8; Copyright: columns 4 and 9; Geographical indications: columns 5 and 10. Each regression includes country fixed effects. Standard errors are clustered at the country level. *** p<0.01 ** p<0.05 *p<0.1*

Table A 4: Self-confidence about knowledge of IP rights. Country FEs

	Lower self-confidence					Higher self-confidence				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Women	0.0084 (0.0061)	-0.0060 (0.0040)	0.0378*** (0.0050)	0.0234*** (0.0052)	0.0303*** (0.0057)	-0.0073 (0.0068)	0.0041 (0.0068)	0.0103 (0.0066)	-0.0025 (0.0066)	-0.0101 (0.0063)
Education										
Secondary	0.0042 (0.0088)	-0.0188** (0.0089)	0.0033 (0.0107)	-0.0002 (0.0129)	0.0120 (0.0109)	0.0074 (0.0113)	0.0330** (0.0131)	-0.0032 (0.0108)	-0.0029 (0.0108)	0.0076 (0.0118)
Tertiary	-0.0040 (0.0082)	-0.0223** (0.0093)	0.0088 (0.0100)	-0.0297** (0.0125)	0.0316*** (0.0103)	0.0440*** (0.0102)	0.0858*** (0.0125)	0.0305*** (0.0105)	0.0090 (0.0105)	0.0398*** (0.0105)
Employment status										
Studying	0.0276*** (0.0104)	0.0014 (0.0083)	0.0117 (0.0098)	0.0236** (0.0110)	0.0432*** (0.0098)	-0.0316*** (0.0100)	-0.0275*** (0.0097)	-0.0319*** (0.0102)	-0.0252** (0.0104)	-0.0349*** (0.0101)
Part time	0.0019 (0.0064)	0.0033 (0.0056)	0.0047 (0.0064)	-0.0002 (0.0064)	-0.0040 (0.0057)	-0.0310*** (0.0077)	-0.0132* (0.0067)	-0.0201** (0.0085)	-0.0261*** (0.0061)	-0.0246*** (0.0073)
Unemployed	0.0234** (0.0089)	0.0229*** (0.0065)	0.0264*** (0.0084)	0.0396*** (0.0086)	0.0078 (0.0090)	-0.0418*** (0.0087)	-0.0383*** (0.0078)	-0.0302*** (0.0078)	-0.0302*** (0.0078)	-0.0407*** (0.0086)
Perceived household income										
Finding it difficult	0.0309*** (0.0070)	0.0089* (0.0053)	0.0213*** (0.0075)	0.0689*** (0.0062)	0.0275*** (0.0088)	-0.0821*** (0.0104)	-0.0513*** (0.0089)	-0.0682*** (0.0098)	-0.0434*** (0.0098)	-0.0862*** (0.0103)
Coping	0.0238*** (0.0051)	0.0027 (0.0042)	0.0234*** (0.0052)	0.0415*** (0.0066)	0.0244*** (0.0066)	-0.0688*** (0.0084)	-0.0365*** (0.0078)	-0.0740*** (0.0086)	-0.0582*** (0.0078)	-0.0795*** (0.0095)
Location										
Rural	0.0092 (0.0079)	0.0082 (0.0067)	0.0182** (0.0084)	0.0416*** (0.0075)	-0.0155* (0.0079)	-0.0630*** (0.0076)	-0.0969*** (0.0092)	-0.0579*** (0.0091)	-0.0326*** (0.0088)	-0.0519*** (0.0080)
Semi-urban	0.0143** (0.0056)	0.0132*** (0.0047)	0.0110 (0.0067)	0.0364*** (0.0053)	0.0061 (0.0057)	-0.0495*** (0.0057)	-0.0512*** (0.0064)	-0.0480*** (0.0063)	-0.0330*** (0.0072)	-0.0457*** (0.0065)
Age	0.0006 (0.0015)	0.0021 (0.0013)	-0.0020 (0.0018)	0.0010 (0.0017)	-0.0043*** (0.0013)	0.0082*** (0.0015)	0.0030 (0.0020)	0.0018 (0.0017)	0.0044** (0.0017)	0.0080*** (0.0016)
Age ²	0.0000 (0.0000)	-0.0000 (0.0000)	0.0000*** (0.0000)	-0.0000 (0.0000)	0.0001*** (0.0000)	-0.0001*** (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)	-0.0001*** (0.0000)	-0.0001*** (0.0000)
Year = 2025	0.0112** (0.0052)	0.0056 (0.0051)	0.0158** (0.0065)	0.0237*** (0.0063)	0.0075 (0.0063)	-0.0456*** (0.0060)	-0.0509*** (0.0064)	-0.0320*** (0.0060)	-0.0252*** (0.0073)	-0.0322*** (0.0076)
Observations	42989	29445	43157	45590	44859	43327	52289	41789	40411	43547
R-squared	0.034	0.032	0.026	0.038	0.030	0.047	0.064	0.052	0.041	0.040
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: OLS regressions. The outcomes of interest are binary variables that indicate lower self-confidence in Columns 1 to 5 and higher self-confidence in columns 6 to 10 (Patents: columns 1 and 6; Trademarks: columns 2 and 7; Industrial Designs: columns 3 and 8; Copyright: columns 4 and 9; Geographical indications: columns 5 and 10). The comparison category consists of individuals whose subjective and objective awareness match. Each regression includes country fixed effects. Standard errors are clustered at the country level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

Table A 5: Perceptions about products protected by IP rights

	Patents (1)	Trademarks (2)	Designs (3)	Copyrights (4)	Geo. Indications (5)
Women	0.0175*** (0.0038)	0.0148*** (0.0043)	0.0225*** (0.0049)	0.0231*** (0.0042)	0.0309*** (0.0042)
Education					
Secondary	-0.0115 (0.0077)	-0.0006 (0.0077)	-0.0083 (0.0072)	-0.0132* (0.0075)	-0.0030 (0.0080)
Tertiary	-0.0215*** (0.0065)	-0.0114* (0.0067)	-0.0262*** (0.0057)	-0.0137** (0.0065)	-0.0097 (0.0069)
Employment status					
Studying	-0.0211*** (0.0067)	-0.0312*** (0.0071)	-0.0140** (0.0068)	-0.0168*** (0.0059)	0.0026 (0.0069)
Part time	-0.0084* (0.0043)	-0.0090* (0.0047)	-0.0153*** (0.0045)	-0.0088** (0.0043)	-0.0085* (0.0044)
Unemployed	-0.0058 (0.0054)	-0.0132** (0.0057)	0.0006 (0.0058)	-0.0154*** (0.0051)	0.0042 (0.0066)
Perceived household income					
Finding it difficult	-0.0630*** (0.0072)	-0.0733*** (0.0079)	-0.0683*** (0.0074)	-0.0658*** (0.0067)	-0.0686*** (0.0062)
Coping	-0.0505*** (0.0060)	-0.0498*** (0.0062)	-0.0551*** (0.0060)	-0.0414*** (0.0057)	-0.0522*** (0.0054)
Location					
Rural	-0.0151** (0.0072)	-0.0231*** (0.0074)	-0.0136* (0.0072)	-0.0228*** (0.0076)	-0.0187*** (0.0061)
Semi-urban	-0.0226*** (0.0043)	-0.0198*** (0.0049)	-0.0162*** (0.0050)	-0.0160*** (0.0047)	-0.0222*** (0.0042)
Age	0.0001 (0.0010)	0.0018 (0.0011)	0.0019 (0.0011)	0.0004 (0.0010)	-0.0001 (0.0012)
Age ²	-0.0000 (0.0000)	-0.0000** (0.0000)	-0.0000*** (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)
Year = 2025	-0.0079 (0.0055)	-0.0031 (0.0056)	-0.0049 (0.0059)	-0.0077 (0.0052)	-0.0029 (0.0048)
Observations	56056	56056	56056	56056	56056
R-squared	0.093	0.114	0.089	0.099	0.059
Country FE	Yes	Yes	Yes	Yes	Yes

*OLS regressions. The outcomes of interest are summary indices that indicate perceptions about IP rights (higher values indicate more positive perceptions). Each regression includes country fixed effects. Standard errors are clustered at the country level. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$*

Table A 6: Benefits from innovations. Country FE.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Women	-0.0290*** (0.0057)	-0.0379*** (0.0075)	-0.0394*** (0.0080)	0.0574*** (0.0057)	0.0693*** (0.0049)	0.0280*** (0.0043)	0.0337*** (0.0055)	0.0760*** (0.0070)	0.0239*** (0.0064)	0.0616*** (0.0051)
Education										
Secondary	0.0328*** (0.0102)	-0.0011 (0.0102)	0.0119 (0.0105)	-0.0078 (0.0085)	0.0084 (0.0093)	0.0285*** (0.0086)	0.0041 (0.0107)	-0.0215* (0.0111)	-0.0160 (0.0125)	0.0197** (0.0090)
Tertiary	0.0831*** (0.0103)	0.0208* (0.0108)	0.0239** (0.0111)	0.0236*** (0.0087)	0.0318*** (0.0087)	0.0519*** (0.0091)	0.0254** (0.0108)	-0.0145 (0.0093)	0.0100 (0.0125)	0.0299*** (0.0089)
Employment status										
Studying	-0.0072 (0.0119)	-0.0347*** (0.0093)	-0.0199* (0.0103)	0.0015 (0.0100)	-0.0357*** (0.0109)	0.0043 (0.0086)	-0.0029 (0.0110)	-0.0666*** (0.0103)	-0.0287*** (0.0087)	0.0004 (0.0095)
Part time	-0.0234*** (0.0047)	-0.0256*** (0.0066)	-0.0234*** (0.0073)	-0.0113* (0.0067)	-0.0152*** (0.0052)	-0.0070 (0.0043)	-0.0149** (0.0057)	-0.0380*** (0.0067)	-0.0178*** (0.0058)	-0.0034 (0.0049)
Unemployed	-0.0628*** (0.0069)	-0.0615*** (0.0078)	-0.0695*** (0.0096)	-0.0367*** (0.0086)	-0.0464*** (0.0082)	-0.0319*** (0.0057)	-0.0581*** (0.0076)	-0.0342*** (0.0089)	-0.0361*** (0.0085)	-0.0323*** (0.0075)
Perceived household income										
Finding it difficult	-0.0818*** (0.0068)	-0.0927*** (0.0088)	-0.1454*** (0.0098)	-0.0848*** (0.0070)	-0.0803*** (0.0071)	-0.0437*** (0.0059)	-0.0915*** (0.0068)	-0.0975*** (0.0110)	-0.1321*** (0.0097)	-0.0825*** (0.0068)
Coping	-0.0290*** (0.0054)	-0.0431*** (0.0057)	-0.0746*** (0.0083)	-0.0439*** (0.0055)	-0.0290*** (0.0049)	-0.0059 (0.0050)	-0.0499*** (0.0055)	-0.0742*** (0.0084)	-0.0892*** (0.0089)	-0.0402*** (0.0050)
Location										
Rural	-0.0866*** (0.0077)	-0.0422*** (0.0104)	-0.0679*** (0.0070)	-0.0730*** (0.0071)	-0.0621*** (0.0079)	-0.0522*** (0.0065)	-0.0761*** (0.0094)	-0.0267*** (0.0096)	-0.0412*** (0.0098)	-0.0531*** (0.0063)
Semi-urban	-0.0421*** (0.0050)	-0.0317*** (0.0061)	-0.0411*** (0.0063)	-0.0386*** (0.0057)	-0.0394*** (0.0050)	-0.0251*** (0.0045)	-0.0505*** (0.0056)	-0.0340*** (0.0067)	-0.0482*** (0.0068)	-0.0284*** (0.0044)
Age	0.0048*** (0.0013)	0.0062*** (0.0014)	0.0022 (0.0013)	0.0009 (0.0015)	0.0069*** (0.0011)	0.0032*** (0.0011)	-0.0002 (0.0016)	0.0254*** (0.0017)	-0.0003 (0.0013)	-0.0010 (0.0012)
Age^2	-0.0001*** (0.0000)	-0.0001*** (0.0000)	-0.0001*** (0.0000)	-0.0000 (0.0000)	-0.0001*** (0.0000)	-0.0000*** (0.0000)	-0.0000 (0.0000)	-0.0004*** (0.0000)	-0.0000 (0.0000)	-0.0000 (0.0000)
Year = 2025	-0.0288*** (0.0069)	-0.0057 (0.0077)	-0.0072 (0.0077)	-0.0033 (0.0083)	-0.0068 (0.0060)	-0.0115* (0.0059)	0.0015 (0.0080)	-0.0310*** (0.0101)	-0.0136 (0.0103)	-0.0030 (0.0059)
Observations	55204	54917	54885	54971	55270	55333	55131	53402	53804	55293
R-squared	0.062	0.079	0.072	0.084	0.062	0.043	0.063	0.077	0.100	0.053
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

OLS regressions. The outcomes of interest are binary variables that equal one if the respondent reports benefiting from innovation in a life aspect. Column 1: computer technologies. Column 2: Electrical tools. Column 3: Sport and leisure. Column 4: Medicine. Column 5: Household appliances. Column 6: Digital communication. Column 7: Transport. Column 8: Children entertainment. Column 9: Renewable energies. Column 10: Food. Each regression includes country fixed effects. Standard errors are clustered at the country level. *** p<0.01 ** p<0.05 *p<0.1

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