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**Working Paper**

## Women in economics in CEE

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## **Women in Economics in CEE**

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**CERS-IE WP – 2020/40**

10 / 2020

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## ABSTRACT

This paper shows descriptive evidence about the gender disparities in economics profession in three Visegrad countries. We show that the employment gender gap in highly ranked institutions is in par with the gap found in the United States and in other Western countries. However, the gap is smaller and sometimes even reversed at lower ranked institutions. To the extent that these patterns are due to institutional constraints - as suggested by previous literature - making academia more inclusive would have a potential to close the gap in higher ranked institutions. Some practical suggestions are discussed.

Keywords: economics, female

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# **A nők helyzete a közgazdaságtudományban, három visegrádi országban**

KISS ANDREA – PERTOLD-GEBICKA BARBARA

SZABÓ-MORVAI ÁGNES

## ÖSSZEFOGLALÓ

Ez a tanulmány bemutatja a közgazdaságtudományi kutatói szakma területén tapasztalható nemek közötti egyenlőtlenségeket három visegrádi ország vonatkozásában. A foglalkoztatottság tekintetében a nemek közötti eltérés mértéke az élvonalba tartozó intézményekben megegyezik az Egyesült Államokban és más nyugati országokban tapasztalt mértékkel. A kevésbé előkelő helyre rangsorolt intézményekben azonban ez a különbség kisebb, sőt némely esetben a nők javára fordul át. Amennyiben az intézményi korlátok hoznak létre ilyen mintát – erre utal a korábbi szakirodalom – a tudományos intézmények befogadóbbá tételével potenciálisan megszüntethetőek lennének az élvonalba tartozó intézményekben tapasztalt különbségek. Tanulmányunkban néhány gyakorlati javaslatot vitatunk meg.

Kulcsszavak: közgazdaságtudomány, nők

# Women in Economics in CEE

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## Abstract

This paper shows descriptive evidence about the gender disparities in economics profession in three Visegrad countries. We show that the employment gender gap in highly ranked institutions is in par with the gap found in the United States and in other Western countries. However, the gap is smaller and sometimes even reversed at lower ranked institutions. To the extent that these patterns are due to institutional constraints – as suggested by previous literature – making academia more inclusive would have a potential to close the gap in higher ranked institutions. Some practical suggestions are discussed.

**Keywords**— economics, female



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# 1 Introduction: Why is gender an issue?

In the recent years, the position of women in the economics profession received an increasing attention. Several research projects identified gender gaps in various dimensions - from graduation rates, through employment levels, to publication records. These gaps are shown to be more pronounced at higher academic levels, which points to possible barriers facing female economists. It is important to deal with this problem for the sake of the diversity in the field of economics, because diversity ensures that a wider range of questions and research approaches appear in the field. Also, if the gender differences are due to biases in assessment or discrimination, then the environment might suffer productivity losses and it is a simple matter of fairness to deal with these problems.

In this study, we provide descriptive evidence about the gender disparities in economics in three Visegrad countries. Also in this region the discussion about the presence of women in science in general and in Economics in particular is taking place. For example, in 2014 the Czech Economic Society has established an award for female economist with exceptional standards of publication activity with the goal to support female economists and their further professional development. We supplement the discussion about the position of women in economics profession with an extensive world literature review and analysis of recent data from Czechia, Hungary and Poland that provide full coverage of universities in these countries.

## 2 State of the literature

### 2.1 Stylized facts

We start our discussion with some stylized facts based on US data, to describe the position of females in economics. The situation is often referred to as a leaky pipeline, reflecting on the fact that the female ratio is ever lower at each step upwards the academic ladder. At the first part of the pipeline, females face the decision, whether to enter the field of economics at all. We may call this the extensive margin, and the ultimate result of this phase is females deciding to do a PhD in economics. According to Buckles (2019), In the late 2010's, female ratio among undergrad students was as high as 56 percent, but this ratio shrinks to only 36% in the economics majors.

The second part of the pipeline starts with being an economics PhD student and ends with being a tenured professor in the field. In the field of economics, at least in the US, most of the leakage happens on the extensive margin, and we can observe a relatively smaller leakage after PhD. After getting accepted to an economics PhD program, the intensive margin is starting. The female ratio in economics at the PhD level is more or less the same as at the economics majors, around 35 percent. These females have mostly decided to go for an academic career, but there is significant female dropout even after this point, relative to males. The ratio of females decreases further, and it is 23% for assistant professors and 14% of full professors (Buckles 2019). At each stage of the pipeline, the female ratio decreases by about one-third. Compared

to other sciences, the leakage at the stage of assistant professorship is much lower in math-intensive fields compared to female-dominated fields like social sciences and psychology, but it is still high (S. Ceci et al. 2014). The female ratio among economics bachelor’s degrees and doctorate degrees remains far below those in STEM fields (30% versus about 60%) (Bayer and Rouse 2016).

We go on with a review of possible explanations for gender gaps in economics. First, we describe explanations that underpin the discourse. Then we zoom in to each step of the career path and evaluate whether the explanations are reasonable or not. Most of the relevant literature studies Western countries, especially the United States. We will highlight the ones that are closer in geographic terms to Central-Eastern Europe and discuss how this region could differ from the Western countries. Based on the literature we argue that changing the way how economics as a discipline is organized (its institutions) would lead to higher gender balance.

## 2.2 Possible explanations

Building on the discrimination literature in labor economics, we are considering three type of explanations for the “leaky pipeline”. One of these theories is statistical discrimination. This theory implies that underrepresented groups are underrepresented precisely because they perform worse than the non-underrepresented groups, on average. Therefore, the main question asked in studies investigating the statistical discrimination is whether women are *sub par vis-à-vis* men in economics. If this were true, the policy intent behind increasing the share of women would be less supported: losing women would not imply losing exceptional talent. Overall, papers studying statistical discrimination within economics find that women’s performance is only slightly worse than men’s, and this difference cannot explain why women are underrepresented in the profession, especially at high levels.

The second possibility is that on average, preferences of men and women differ. The preference differences in turn could lead to different career choices and ultimately to different shares of women and men in the economics profession. For example, if women prefer to be nurses than miners, we will see optimal gender differences in the occupation on average: there will be more female nurses and fewer female miners. As we will show, the literature indeed uncovers such preference differences about economics. Given the difference in preferences, it is not clear whether a policymaker should intervene. On the one side of the extremes, if we think of preferences as given and assume that individuals’ decisions are optimal, there is little scope for interventions. Everyone is doing what is best for them. On the other extreme, if we think that preferences are to some extent influenced by the environment, for example one person’s decision affects others, then carefully designed policies could change the gender composition of any profession. It is more likely that we live in this second type of world and policies (such as promoting female role-models) could make an effect. Yet, the ethics of these policies should be seriously considered before implementing them. Our concern is that this perspective sends a message that something is wrong with women, because they are not interested in economics. We do not believe in such narrative.

The third general explanation for why there are few women in economics, looks into the discipline itself and tries to understand what are the features of economics that make it a less appealing discipline for women than for men. We will show that the way how economics works (which we summarized in one word: institutions) disadvantages women. The institutional favoritism may very well be unintentional, yet, it offers a clear policy to promote the number of women in the field: changing the rules of the game to make it less biased. From the perspective of the ethics, this route is easier to support as it would not require retraining women (if preferences were to be addressed), but leveling the playing field.

### 2.3 Decision to enter the field

We highlighted earlier that fewer women major in economics than men. This fact is surprising given that the share of women in higher education is increasing. What factors can explain that women major in economics less often than men?

Emerson, KimMarie McGoldrick, and Mumford (2012) document that fewer women engage with economics even before choosing their major in the United States. This mechanically lowers the rate at which women can major in economics. However, even if women engage with economics, they perform worse than men. Women have lower economics AP credits (Goldin 2015), GRE scores in economics (S. B. Kahn 1995) and grades in introductory economics courses (Dynan and Rouse 1997). Among these, the lower introductory grades seem to matter to major choice: low grades explain well the gender gap in majoring in economics (Goldin 2015). To summarize, there's evidence that women do not perform well in economics and as a result they choose other courses to study setting them on the path to major in other fields.

Bollinger, Mitchell Hoyt, and KimMarie McGoldrick (2006) find support for preference differences: after the introductory economics course, women's attitude towards economics is worse than men's. We go beyond this explanation and see if female students' preferences could be shaped by existing statistical discrimination and institutional challenges that are easier to change. The statistical discrimination literature hypothesizes that women may have lower abilities in the dimensions that are needed to succeed in the economics. Economics requires solid mathematical foundations and researchers reported a significant gender gap in mathematical abilities. On average women have lower average mathematical test scores than men (S. B. Kahn 1995). Yet, there is growing evidence that these differences are not necessarily biological (S. J. Ceci et al. 2014) and that they are unlikely to be able to explain the gender gap in majoring (S. Kahn and D. Ginther 2018; Goldin 2015). These findings together question the role of statistical discrimination.

The institutional explanations center around understanding how economics is taught. To begin with, the low number of female professors mean that undergraduate students rarely take courses by female professors and thus female students have fewer role models and mostly men mentors. Although these seem to be minor points, the current evidence suggest otherwise. Porter and Serra (2020) ran a field experiment to measure the effects of female role models on majoring in economics. The authors found large



effects: the probability that a female student will major in economics increased by 8 percentage points if they had a female role model. In a similar fashion, Li (2018) run another randomized trial to see if a mentoring program can be effective in increasing the share of women who choose economics as a major. They too found positive effects.

The second theme under the institutional challenges targets the curriculum. The entry level economics curriculum and textbooks in the US are primarily masculine and ignore topics that are less mainstream (i.e. race, gender, class). This pedagogy is challenged at all levels of economics education for not being inclusive and being uninteresting for female students; starting at K-12 levels (Shanks 2019), in high-schools (Lewis and Kimmarie McGoldrick 2001) and then at universities (Marianne A Ferber 1984; Marianne A Ferber 1999). While this phenomena may seem to be U.S. specific, the textbooks used in the U.S. are widely translated and used worldwide shaping the education of the economics globally (Marianne A Ferber 1999).

Both the lack of role models and the unexciting curriculum have potential to explain both the low performance and the low rate of female majors. The studies in mentoring and role models are promising, while evidence is needed about the effect of curriculum changes on females performance and majoring decisions.

## **2.4 Intensive margin**

### **2.4.1 Statistical discrimination**

In the past few decades, many articles provided evidence about the measure of discrimination in the publication process. Many studies concluded that females tend to discriminate more against females. Bagues and coauthors find female evaluators to significantly decrease the chance of success of female candidates in the Italian academic evaluation process (Bagues, Sylos-Labini, and Zinovyeva 2014). Moreover, mixed-gender scientific committees are less favourable towards female candidates compared to all-male committees (Bagues, Sylos-Labini, and Zinovyeva 2017). In the case of peer-reviewed journal submissions, female editors tend to accept a lower ratio of articles authored by females (Bransch and Kvasnicka 2017). Also, female reviewers rate female-authored papers lower compared to male reviewers (Broder 1993). On the other hand, some studies do not find any evidence for gender discrimination (Card et al. 2019; S. Ceci et al. 2014; Carlsson, Löfgren, and Sterner 2012). Some insight in this gender bias is given by the study of (Krause, Rinne, and Zimmermann 2012), who investigate the process of hiring fresh PhD graduates at one European-based research institution. When gender of applicants was kept anonymous, females were invited to interviews at lower rates than in case of revealed gender.

### **2.4.2 Preferences: Family**

In general, females perform a higher share of parental tasks and household chores compared to males. Figure 1 uses Eurostat Time Use data to visualize the gender difference of hours spent on various activities. The graph indicates that in each country, females spend 1 to 4.5 hours more with household chores and childcare, whereas they

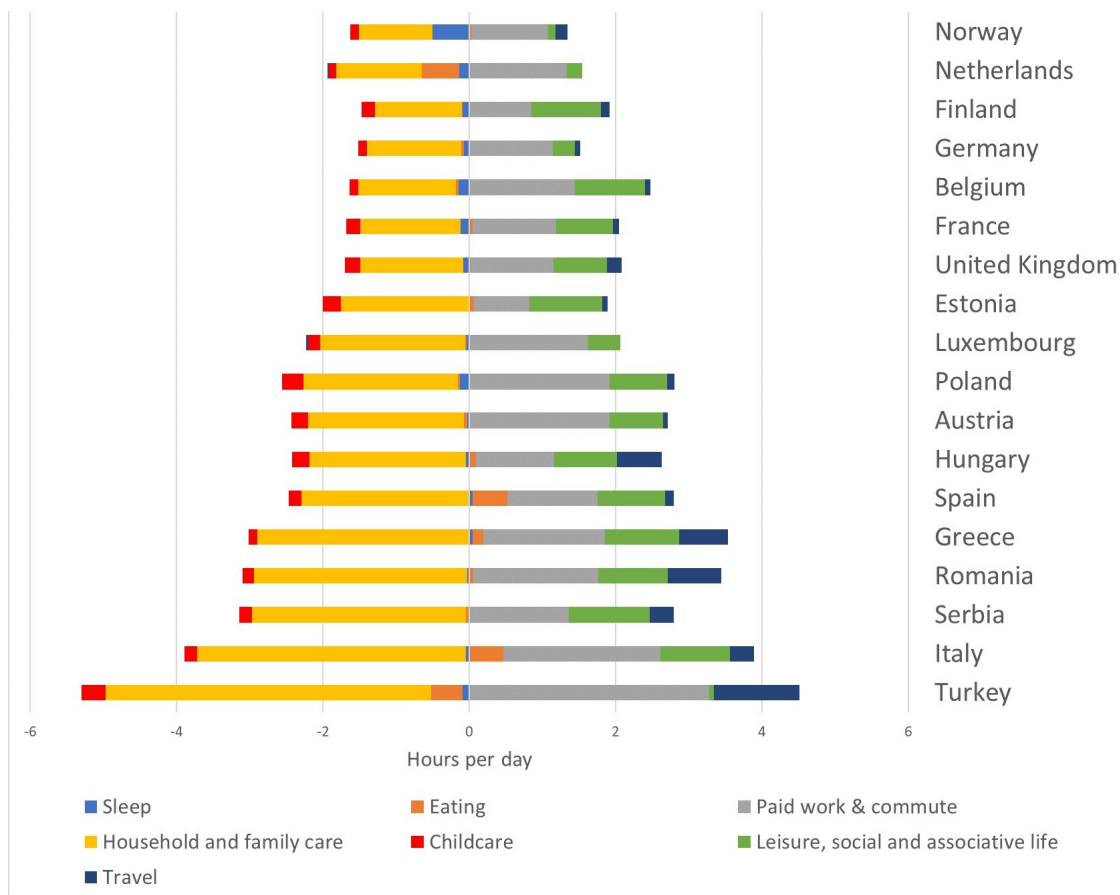


Figure 1: Male - female difference between time spent on various activities (average hours per day). Based on Eurostat Time Use Survey data.

spend 1 to 2.5 hours less with paid work. These inequalities are more pronounced in the Eastern parts of Europe. Thus, it is straightforward to suspect that family obligations play an important role in hindering female researchers from advancing in their career. Most probably, the organizing tasks related to the family and children are also mostly handled by the females, which may use a significant amount of cognitive capacity, which could otherwise be utilized in research.

Moreover, female researchers with small children are much less mobile, in many cases, it is challenging if not impossible to go for research stays abroad or even participate in a conference where research networks are forming. There have been babysitting in large conferences in the past few years; however, it is rather difficult to utilize them for non-English speakers. The literature shows that this immobility is quite an important factor for researchers: in the market for business and economics professors, the search committees mainly reward international experience and youth (Schulze, Warning, and Wiermann 2008). However, based on data from Germany, Austria and Switzerland, childbearing is positively associated with publication records (Joecks, Pull, and Backes-Gellner 2013). The authors argue that there is a selection going on, where only the most productive female researchers choose to have children and go on with their research career. The less productive researchers either stay in the academic profession childless or leave the academy and bear a child.

### **2.4.3 Preferences: Mobility**

There are significant gender differences in career mobility too. US data show that males tend to switch academic jobs to advance their careers. Whereas in the case of female researchers, the moves from one job to another do not significantly increase their salaries. This observation suggests that females move between jobs for non-pecuniary reasons (C. Hilmer and M. Hilmer 2010).

### **2.4.4 Preferences: Climate**

There is evidence in the literature that females reach a lower level of satisfaction in occupations, where the ratio of females is lower (Lordan and Pischke 2016). Females are more likely to leave male-dominated professions (Hunt 2010) and females with children have particularly high propensity to leave. The climate in male-dominated occupations and fields may include the tone of communication and feedback as well as non-pecuniary features of the jobs, like time flexibility or child-friendliness.

### **2.4.5 Preferences: Time allocation**

Even when on-the-job time is considered, there are significant gender differences in time allocation patterns. Females tend to concentrate their research time to summer months, which results in a lower number of submitted articles to peer-reviewed journals (C. Manchester and Barbezat 2013). Furthermore, females spend a significantly higher fraction of their time with non-research tasks such as teaching (Harter, Becker, and Watts 2011) or other non-promotable tasks such as administrative duties or being a committee member. According to an experiment, women are more likely to be asked and to accept such non-promotable tasks (Babcock et al. 2017). This may be even more pronounced in Visegrad countries, where research institutes and university departments have a lower budget and researchers do some part of the administrative work. As a result, the gap may become bigger for CEE female researchers.

### **2.4.6 Institutional problems**

According to D. K. Ginther and S. Kahn (2004), women are significantly less likely to get tenure, and they take longer to get it. In their analysis, they control for a variety of variables, yet, the unexplained gap is relatively big, whereas in other sciences, the gap disappears after controlling for these variables. Surveys were sent to individuals who left their academic jobs, to find out more about the reasons for leaving academia. One-third of the females listed as an essential reason for leaving that they did not like their job, whereas only 13% of males indicated this as the reason.

### **2.4.7 Institutional problems: Handling family**

There are significant institutional problems related to childbearing. In some cases, the universities and research institutions try to slip aside from bearing the burden associated with the maternity of female researchers. Thornton (2003) found that 35%

of random US universities did not comply with federal maternal leave regulations. On the other hand, there are several instances when the institutions aimed to help female colleagues in the times of childbearing. Stopping the tenure clock (STC) policies are estimated to have a positive relationship with promotion chances (C. Manchester, L. Leslie, and Kramer 2013)<sup>1</sup>. However, STC utilization may have negative consequences for salary (C. F. Manchester, L. M. Leslie, and Kramer 2010). Gender-neutral STC policies are shown to have substantially reduced female tenure rates and increased that of males (Antecol, Bedard, and Stearns 2018).

In some of the Visegrad countries, childbearing related difficulties may be even more pronounced. Paid childcare leaves are three years long in all V4 countries except for Poland, where paid leave is available till the child's first birthday, after which parents can opt for an unpaid parental leave. In all analyzed countries childcare slots are scarce for children below 3. In general, women are expected by society, by their family and by themselves to take 100% care of their children for at least one, but ideally three years after birth. The result is very long career breaks that coincide with early career. Only the most assertive and the most supported (by their family or employer) women manage to compete with men given these circumstances. Poland stands out among the V4 countries, as it reports the highest employment rate of women with children below 3. Female researchers with a child younger than 3, typically do not travel to conferences without their child. But the travel of children to conferences or more extended research visits (i.e. children accompanying mothers on their business trips) is not financially supported by the research budgets.

#### **2.4.8 Institutional problems: Publication and citations**

The number of publications and citations are a standard measure of productivity in the field of the economics science. Nevertheless, there is evidence that there is homophily in citations, that is, males cite more males and females cite more females (Marianne A. Ferber 1986). This finding is in line with Grossbard, Yilmazer, and Zhang (2018), who find that females get more citations in fields with relatively higher female researcher ratio. A possible consequence of this phenomenon might be the segregation of science fields, which is indeed often observed. Marianne A. Ferber and Brün (2011) also finds that when women are in a small minority in a field, then they have a disadvantage in citations. In the publication process, there is some evidence that women are held to a higher standard than men, given that female-authored papers have more citations and have more readable abstracts conditional on acceptance (Erin Hengel 2019). Also, females spend 3 to 6 months more to rewrite old articles, and the abstract readability gap increases significantly through the peer-review process (E. Hengel 2017). Females differ from male researchers also in coauthoring. They have fewer coauthors, there is a higher level of clustering between coauthors (Lundberg and Stearns 2019). Strong

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<sup>1</sup>The term tenure clock refers to a fixed number (usually around 6 years) of years of probationary period between when a new assistant professor begins his/her appointment and when the tenure decision is made. At the tenure decision, faculty peers are evaluating the candidate's teaching, research, and service. A tenured individual can be removed from her/his university position only for a good reason.

clustering of same-gender co-authors was also identified in the context of Visegrad countries (Jurajda et al. 2017).

#### 2.4.9 Institutional problems: Role models, mentoring

In economics and especially in male-dominated fields, there is a lack of opportunities for junior female academics to follow a role model. However, it would be a great help if mentors were available, as shown by a mentoring program experiment, where those randomly included in a mentoring program, had a 25 percentage points higher chance to have a top-tier publication (Blau et al. 2010). Senior female mentors can help assistant professors by giving valuable information on publication and tenure, which are transmitted informally within the research networks (Lundberg and Stearns 2019).

### 3 Data collection

To present a full picture on the situation of women in Economics in Visegrad countries, we have collected student enrollment data and data about economics department's employees from the Czech Republic, Hungary and Poland. The value added of this article hinges on the high quality of the data, which is either derived from administrative records or collected through web-scraping of universities' web-pages. This provides a (nearly) full coverage for the analyzed countries, and allows for a full-scale analysis of the Economics profession in these countries.

In the previous literature devoted to monitoring the situation of Women in Economics, there are two approaches to data collection. First, CSWEP (Committee on the Status of Women in the Economics Profession - American Economic Association) uses a questionnaire each year to assess the position of female students and academics at universities. This approach allows to collect a wide range of information, supplemented with actual questions each year. In 2015, CSWEP surveyed 124 PhD-granting economics departments and 117 economics departments without PhD programs.

Women in European Economics (<https://www.women-economics.com/>) takes a very different approach.<sup>2</sup> They select top 300 universities in Europe in terms of research output, based on the listing of Repec (<https://ideas.repec.org/top/top.europe.html>). Then, they retrieve a list of academic employees from universities' websites by web-scraping. This approach ensures that sample selection due to non-response is not an issue. However, universities with lower research performance are completely missing from the sample. There are some departments that are not even listed in the Repec list, and there are others which are not on the top 300 list. For instance, there are 37 Czech institutions listed on Repec site, but only 22 of those are included in the web-scraping. The corresponding numbers are 79 and 28 for Hungary, 141 and 76 for Poland (see p4 in The Women in European Economics Monitoring Tool: Technical Description).

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<sup>2</sup>[https://www.women-economics.com/download/Friebel.Wilhelm\\_2019\\_Women.in.Economics\\_Technical.Paper.pdf](https://www.women-economics.com/download/Friebel.Wilhelm_2019_Women.in.Economics_Technical.Paper.pdf)

### 3.1 Czech Republic

The data on university teachers in the Czech Republic was web-scraped from the webpages of all faculties of Czech public universities listed in Repec as of June 2020. For each individual listed at a web-page of a relevant faculty we observe their name, surname, and academic titles. Wherever relevant we also record their employment title and department/institute within the faculty. The process of web-scraping took place in July and August 2020 and thus the collected information is a snapshot of Economists employer at Czech universities in Summer 2020.

Some faculties listed in Repec have not only Economics departments, but also other departments, for example Management or Law. However, some webpages do not provide information about distribution of employees across departments. This is why for the sake of consistency we work with a database of all internal academic and teaching staff listed at webpages of the relevant faculties. As a robustness check we compare the results when only economics departments are included and when all departments are included within the sample of faculties that provide information about departments.

We classify those whose highest academic title is PhD as „assistant professors”, those whose highest degree is docent as „associate professors” and those whose highest degree is professor as „professors”. This might not correspond to the position at the institution of employment (see the institutional description), however is a good approximation of it.

To recognize the gender of each individual in the database we take advantage of the property of the Czech language where all female surnames end with the letter „á”. Foreign names were manually assigned gender after inspecting the webpage of the foreigner’s institution and/or doing a web search.

The data on students is downloaded from the server of the Ministry of Education, Youth and Sports (<http://statis.msmt.cz/statistikyvs/vykonyVS1.aspx>). The dataset is based on administrative data. One can find there statistics about all signed-up students, enrolled students, and graduates by gender, level of study, university, and by the field of study.

### 3.2 Hungary

We have collected detailed information on university applications, university students and university teachers. The university application data is administrative data collected by the Hungarian Education Bureau, and available for analysis in the Databank of Center for Economic and Regional Studies - Institute of Economics <sup>3</sup>. The university application data includes all registered university applications for years 2001 to 2017. Here, both successful and unsuccessful applications are administered, along with a very detailed background information at the university department level (like number of applicants, number of enrolments, minimum score to get accepted), and at the individual level (basic demographics, high school information, very detailed application

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<sup>3</sup><https://adatbank.krtk.mta.hu/en/>

information, including list of departments applied to, points and acceptance decision)

University student data can be downloaded from the website of the Hungarian Education Bureau <sup>4</sup> This database includes number of students and number of female students for each level of education (BA, MA and PhD) and each university department. It includes all university students in Hungary covering the period 2008 to 2017.

The data on university teachers is administrative data which was kindly provided by the Hungarian Education Bureau. This database includes the number of teachers and number of female teachers for each university departments by year and academic level. Academic years from 2013 to 2019 are covered by the data. We have supplemented the data by webscraping, where needed.

### 3.3 Poland

The data on university teachers has been downloaded from the POLon register in July 2020. POLon (<https://polon.nauka.gov.pl/zasoby>) is a centralized integrated information system on researchers and academic teachers. We use three databases from this register: (1) the database of all academic teachers and researchers currently employed in Polish universities, colleges and the academy of sciences, (2) the database of all people awarded the professor title since January 10, 2014, and (3) the database of all people awarded the degrees of PhD and habilitation. The first database contains names, surnames, academic titles, and the institution of employment of all academic teachers and researchers. However, there is no information about the field of research/teaching and no information about the faculty or department within the institution. The database of professors contains names, surnames, field in which the professorship title is awarded, institution where the application for professorship was filed, and date of awarding the title. The database of PhDs and habilitations contains names, surnames, field in which the title is awarded, and institution where the degree was awarded. We merge individuals across databases by given name, middle name (which is common in Poland), last name and field, where applicable. This allows us to identify the field of research of all merged individuals from the database of academic teachers and researchers. The entries in this database were merged with an entry from either professors or PhDs and habilitations databases. Unmatched individuals might be those who received their highest academic degree abroad (usually a PhD) or those who received their highest degree prior to 2014.

For the purpose of our analysis we kept individuals who are currently employed at a teaching institution (university or college) and whose highest academic degree was awarded in the field of Economics. We classify those whose highest academic degree awarded is PhD as „assistant professors”, those whose highest degree is habilitation as „associate professors” and those whose highest degree is professor as „professors”. This might not correspond to the position at the institution of employment (see the institutional description), however is a good approximation of it.

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<sup>4</sup>[https://www.oktatas.hu/felsooktatas/kozerdeku\\_adatok/felsooktatasi\\_adatok\\_kozzetetele/felsooktatasi\\_statistikak](https://www.oktatas.hu/felsooktatas/kozerdeku_adatok/felsooktatasi_adatok_kozzetetele/felsooktatasi_statistikak)

To recognize the gender of each individual in the database we take advantage of the property of the Polish language where all female first names end with the letter „a”. Foreign names were manually assigned gender after inspecting the web-page of the foreigner’s institution and/or doing a web search.

The data on students comes from the statistical yearbook of higher education, which can be downloaded from the web-page of the Polish Statistical office (<https://stat.gov.pl/obszary-tematyczne/edukacja/edukacja/szkolnictwo-wyzsze-w-roku-akademickim-20182019-wyniki-wstepne,8,6.html>). Although statistical yearbooks in electronic format are available since 2014, only those for academic years 2016/17 and 2018/19 contain information relevant for our analysis. Namely, we need to observe the number of students by gender, university and field of study.

## 4 Position of women in Economics in Visegrad countries

### 4.1 Statistics

We start the presentation with a comparison of the share of females among economics students in three Visegrad countries with the corresponding figures for economics university departments in the US. Figure 2 reveals a striking difference between female ratios of 33 to 35% in the US, and 40 to 68% in the Visegrad countries.

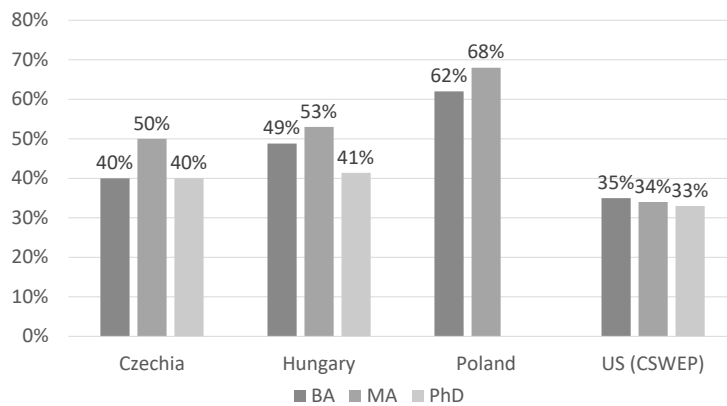


Figure 2: Share of females among economics students in the academic year 2016-2017

There might be several reasons behind the observed differences, one of them being the quality and mathematical rigorousness of economics education in the US and in Visegrad countries. To zoom into this potential explanation, we stratify the data summarized in Figure 2 according to research performance of universities, which is



expected to be highly correlated with the quality of education. Research performance is captured by Repec classification of publication quality and quantity. All economics departments in Visegrad countries were categorized as Tier 1, 2 or 3 based on their research activity reported in Repec. Tier 1 economics departments are on the list of top 10% of the university departments worldwide <sup>5</sup>. Departments appearing in regional top 25%<sup>6</sup> and not belonging to tier 1 are categorized as tier 2 departments. All other university departments which were not categorized as tier 1 or 2, were marked as tier 3.

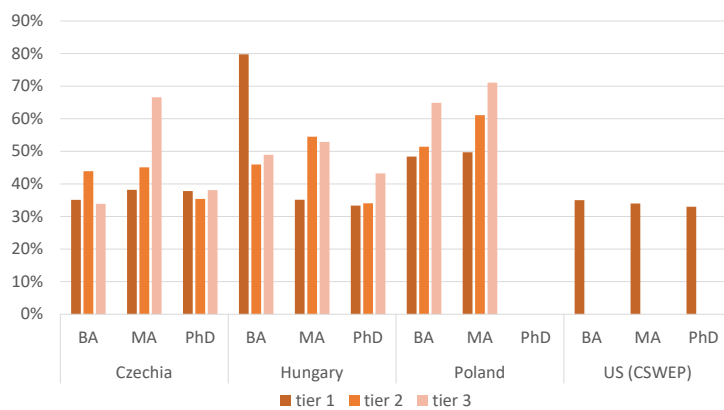


Figure 3: Share of females among economics students in the academic year 2016-2017, by tier

Figure 3 shows the female student ratios broken down by tiers, and in most of the cases, higher tier economics departments have lower share of female students. The share of females in tier 1 departments is comparable to those in the US, at least for MA and PhD students in Czechia and Hungary. Poland reports slightly higher female shares among economics students.

In the next step we analyze the second part of the economics career pipeline. Using the data on university teachers we ask what is the ratio of females among all economics teachers at universities in Visegrad countries. Figure 4 reports the shares of females in economics departments, again broken up by tiers. It reveals that the ratio of females is a lot lower in tier 1 economic departments than in tier 2 and tier 3 economics departments, where the share of female academics is a lot more favorable. A natural question arises, whether the observed difference between tier 1 and lower ranked economics departments is due to the difference in the academic level composition of the faculty. Figure 5 shows the mean ratio of professors by country

<sup>5</sup><https://ideas.repec.org/top/top.inst.all.html>

<sup>6</sup><https://ideas.repec.org/top/top.hungary.html>; <https://ideas.repec.org/top/top.czech.html> and <https://ideas.repec.org/top/top.poland.html>

and by tier. There is no evidence that the higher share of more advanced academic staff would explain the lower share of females in tier 1 economics departments.

In Figure 6, the share of females is broken down by academic levels – assistant professor, associate professor, and full professor – which gives an insightful result. The share of females in a given academic level increases with decreasing department rank. At the same times, within a given rank, the share of females decreases with academic level. All in all, females seem to be more likely to work at lower-ranked institutions and at lower academic levels. These findings are in line with the bibliometric analysis presented in (Jurajda et al. 2017). It has been shown that although women constitute about 40% of publishing researchers in the broad field of humanities in Czechia, they publish only slightly above 30% of scientific articles coming from this country and only 18% of articles coming from Czechia and published in top journals.

These usually require relatively less research and more teaching. This is in line with the previous literature, which points out the constraints faced by a female researcher.

One should note that Poland stands out in our analysis. Poland has a rather different culture than the remaining Visegrad countries when it comes to combining motherhood and professional life. Among the highly skilled female professionals, getting back early after childbirth to a steep career path seem to be more tolerated and supported in Poland than in other Visegrad countries. Although public daycare doesn't have high coverage in Poland, there is good access to private care, like nannies, who are relatively affordable, and in high supply. Moreover, relying on nannies is socially accepted. Further, let us point out that female professionals, and female researchers in particular, were historically more accepted in Poland than in the other Visegrad countries. As the result there are more female role-models motivating female students and young researchers.

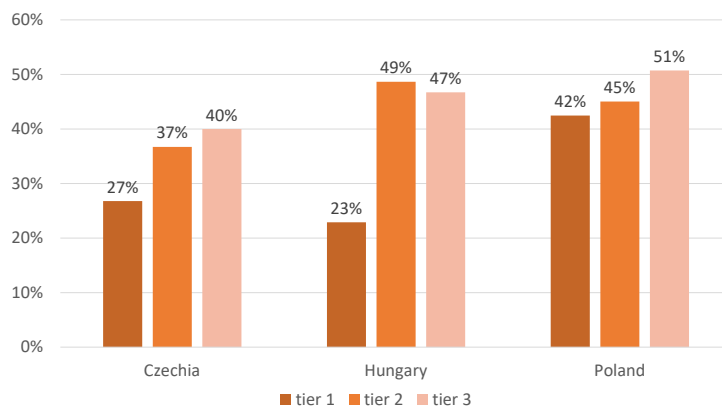


Figure 4: Share of females among university teachers in economics departments in the academic year 2019/2020

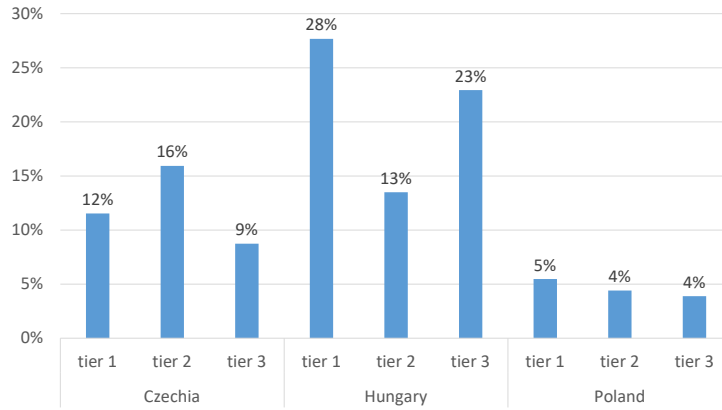


Figure 5: Share of professors in economics departments in the academic year 2019/2020

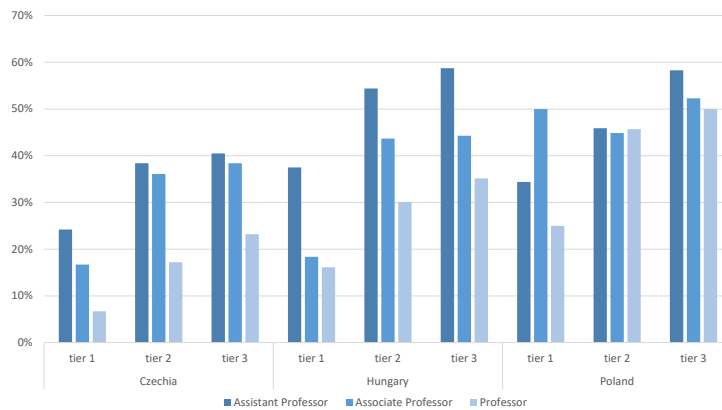


Figure 6: Share of females among university teachers in economics departments in the academic year 2019/2020 (by academic levels)

## 5 Conclusions

Previous research found striking differences between the academic career trajectory of female and male economists in the Western countries. We find the same pattern in Visegrad countries for those departments that are highly ranked in the region, however, gender disparities are much more attenuated and sometimes even reversed at lower ranked institutions.

We can explain these patterns by two possible, albeit very different reasons. First

women may seek lower ranked institutions. In lower ranked institutions the research expectations are lower and consequently the tasks are more concentrated on administrative and teaching duties. Therefore, these jobs are better fit for anyone who finds non-research related tasks more enjoyable, or for those who would prefer a job with less research expectation. We are concerned that some females choose lower ranked institutions due to this latter case: capable women may move to the periphery of the science because they find it difficult to meet research expectations and handle their family responsibilities at the same time.<sup>7</sup> This issue has been pointed out in the profession earlier, hence we rely on recommendations to make academia more inclusive for women, so they do not have to choose between their career and their family.

The other possible explanation is that higher ranked universities have a preference for male researchers and would prefer to hire a male researcher over an equally qualified female researcher. We cannot rule this out without further data analysis. However, the most recent hires of the higher ranked institutions point to a direction that these departments are shifting their hiring practices and are open to hiring female candidates. It remains a question if successful recruitment practices will turn to retention as well, where again, more inclusive practices will be helpful.

## 6 Policy recommendation

In this study we show that the academic economics environment in Visegrad countries suffers from similar gender issues as Western economics departments. Following the up-to-date literature, we conclude that this might not be a desirable situation, because under-representation of women leads to lower diversity in research topics and potential productivity losses. Several channels leading to the observed situation were identified by the earlier literature and some solutions were discussed. Below we discuss what could be done in the context of Visegrad countries to increase participation of women in high-level economics research.

First, there is a need to attract more female students to the field of economics. This might be difficult, because especially in Visegrad countries economics is often treated as a synonym for financial or monetary economics, which are not particularly interesting for women. Educating the general public and bringing up a picture of economics as not only finance and money related field but also a socially-related field might help here. Appearance of economists (especially female economists) commenting social policy in the media might be one of the ways to achieve it.

Second, once women enter the field, they should be willing and have a chance to stay within it. Early career, when researchers build their reputation and also their explications about own performance, coincides with childbearing period for women. Visegrad countries are known for long parental leaves. In Czechia and Hungary, mothers usually leave work for three years after childbirth, in Poland usually for one year. To succeed in academia, however, they need to stay in touch with the field. It would

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<sup>7</sup>An analysis of within-person publication records and employment history might be used to verify this hypothesis.

help if there was lower pressure from the society, including male colleagues, on full-time parenting. It would help if childcare was offered, for example in the form of university nurseries, or in the form of a subsidy to hire a nanny. Nannies could be recruited from among the pedagogy students.

Related policies could be introduced to help young mothers combine career and parenthood duties. This involves scheduling of teaching, seminars, and faculty meetings during family-friendly times or allowing to on-line participation in some of the meetings. Young mothers could be also given more support when traveling to conferencing or research visits. One of the largest obstacles they face is financing travel and daycare for their accompanying children.

The current covid crisis moved most of academic activities to the on-line space. This might be an opportunity to equalize access to conferences and seminars among men and women. Let us hope that the technological and organizational solutions adopted during the current crisis will be to some extent used also in the future and will allow less mobile women to participate in the professional debate.

## References

- Ferber, Marianne A (1984). "Suggestions for improving the classroom climate for women in the introductory economics course: A review article". In: *The Journal of Economic Education* 15.2, pp. 160–168.
- (1986). "Citations: Are They an Objective Measure of Scholarly Merit?" In: *Signs: Journal of Women in Culture and Society* 11.2, pp. 381–389. DOI: 10.1086/494230. eprint: <https://doi.org/10.1086/494230>. URL: <https://doi.org/10.1086/494230>.
- Broder, Ivy E. (1993). "Review of NSF Economics Proposals: Gender and Institutional Patterns". In: *The American Economic Review* 83.4, pp. 964–970. ISSN: 00028282. URL: <http://www.jstor.org/stable/2117588>.
- Kahn, Shulamit B (1995). "Women in the economics profession". In: *Journal of Economic Perspectives* 9.4, pp. 193–206.
- Dynan, Karen E and Cecilia Elena Rouse (1997). "The underrepresentation of women in economics: A study of undergraduate economics students". In: *The Journal of Economic Education* 28.4, pp. 350–368.
- Ferber, Marianne A (1999). "Guidelines for pre-college economics education: a critique". In: *Feminist Economics* 5.3, pp. 135–142.
- Lewis, Margaret and Kimmarie McGoldrick (2001). "Moving beyond the masculine neoclassical classroom". In: *Feminist Economics* 7.2, pp. 91–103.
- Thornton, Saranna (Spring 2003). "Maternity and Childrearing Leave Policies for Faculty: The Legal and Practical Challenges of Complying with Title VII." In: *University of Southern California Review of Law and Women's Studies* 12.2, pp. 161–90.

- Ginther, Donna K. and Shulamit Kahn (Sept. 2004). “Women in Economics: Moving Up or Falling Off the Academic Career Ladder?” In: *Journal of Economic Perspectives* 18.3, pp. 193–214. DOI: 10.1257/0895330042162386. URL: <https://www.aeaweb.org/articles?id=10.1257/0895330042162386>.
- Bollinger, Christopher R, Gail Ann Mitchell Hoyt, and KimMarie McGoldrick (2006). “Chicks don’t dig it: Gender, attitude and performance in principles of economics classes”. In: *Attitude and Performance in Principles of Economics Classes (September 14, 2006)*.
- Schulze, Gunther, Susanne Warning, and Christian Wiermann (Feb. 2008). “What and How Long Does It Take to Get Tenure? The Case of Economics and Business Administration in Austria, Germany and Switzerland”. In: *German Economic Review* 9, pp. 473–505. DOI: 10.1111/j.1468-0475.2008.00450.x.
- Blau, Francine D. et al. (May 2010). “Can Mentoring Help Female Assistant Professors? Interim Results from a Randomized Trial”. In: *American Economic Review* 100.2, pp. 348–52. DOI: 10.1257/aer.100.2.348. URL: <https://www.aeaweb.org/articles?id=10.1257/aer.100.2.348>.
- Hilmer, Christiana and Michael Hilmer (May 2010). “Are There Gender Differences in the Job Mobility Patterns of Academic Economists?” In: *American Economic Review* 100, pp. 353–57. DOI: 10.1257/aer.100.2.353.
- Hunt, Jennifer (Mar. 2010). *Why Do Women Leave Science and Engineering?* NBER Working Papers 15853. National Bureau of Economic Research, Inc. URL: <https://ideas.repec.org/p/nbr/nberwo/15853.html>.
- Manchester, Colleen Flaherty, Lisa M. Leslie, and Amit Kramer (May 2010). “Stop the Clock Policies and Career Success in Academia”. In: *American Economic Review* 100.2, pp. 219–23. DOI: 10.1257/aer.100.2.219. URL: <https://www.aeaweb.org/articles?id=10.1257/aer.100.2.219>.
- Ferber, Marianne A. and Michael Brünn (2011). “The Gender Gap in Citations: Does It Persist?” In: *Feminist Economics* 17.1, pp. 151–158. DOI: 10.1080/13545701.2010.541857. eprint: <https://doi.org/10.1080/13545701.2010.541857>. URL: <https://doi.org/10.1080/13545701.2010.541857>.
- Harter, Cynthia L., William E. Becker, and Michael Watts (2011). “Time Allocations and Reward Structures for US Academic Economists from 1995–2005: Evidence from Three National Surveys”. In: *International Review of Economics Education* 10.2, pp. 6–27. ISSN: 1477-3880. DOI: [https://doi.org/10.1016/S1477-3880\(15\)30031-1](https://doi.org/10.1016/S1477-3880(15)30031-1). URL: <http://www.sciencedirect.com/science/article/pii/S1477388015300311>.
- Carlsson, Fredrik, Åsa Löfgren, and Thomas Sterner (June 2012). “Discrimination in Scientific Review: A Natural Field Experiment on Blind versus

- Non-Blind Reviews\*". In: *The Scandinavian Journal of Economics* 114. DOI: 10.1111/j.1467-9442.2011.01690.x.
- Emerson, Tisha LN, KimMarie McGoldrick, and Kevin J Mumford (2012). "Women and the choice to study economics". In: *The Journal of Economic Education* 43.4, pp. 349–362.
- Krause, Annabelle, Ulf Rinne, and Klaus F Zimmermann (2012). "Anonymous job applications of fresh Ph. D. economists". In: *Economics Letters* 117.2, pp. 441–444.
- Joecks, Jasmin, Kerstin Pull, and Uschi Backes-Gellner (July 2013). "Child-bearing and (Female) Research Productivity – A Personnel Economics Perspective on the Leaky Pipeline". In: *SSRN Electronic Journal* 84. DOI: 10.2139/ssrn.2239004.
- Manchester, Colleen and Debra Barbezat (Jan. 2013). "The Effect of Time Use in Explaining Male–Female Productivity Differences Among Economists". In: *Industrial Relations A Journal of Economy and Society* 52. DOI: 10.1111/irel.12011.
- Manchester, Colleen, Lisa Leslie, and Amit Kramer (Jan. 2013). "Is the Clock Still Ticking? An Evaluation of the Consequences of Stopping the Tenure Clock". In: *Industrial and Labor Relations Review* 66, pp. 3–32. DOI: 10.1177/001979391306600101.
- Bagues, Manuel, Mauro Sylos-Labini, and Natalia Zinovyeva (June 2014). *Do gender quotas pass the test ? Evidence from academic evaluations in Italy*. LEM Papers Series 2014/14. Laboratory of Economics and Management (LEM), Sant'Anna School of Advanced Studies, Pisa, Italy. URL: <https://ideas.repec.org/p/ssa/lemwps/2014-14.html>.
- Ceci, Stephen J et al. (2014). "Women in academic science: A changing landscape". In: *Psychological Science in the Public Interest* 15.3, pp. 75–141.
- Ceci, Stephen et al. (Dec. 2014). "Women in Academic Science: A Changing Landscape". In: *Psychological Science in the Public Interest* 15, pp. 75–141. DOI: 10.1177/1529100614541236.
- Goldin, Claudia (2015). "Gender and the undergraduate economics major: Notes on the undergraduate economics major at a highly selective liberal arts college". In: *manuscript*, April 12.
- Bayer, Amanda and Cecilia Elena Rouse (Nov. 2016). "Diversity in the Economics Profession: A New Attack on an Old Problem". In: *Journal of Economic Perspectives* 30.4, pp. 221–42. DOI: 10.1257/jep.30.4.221. URL: <https://www.aeaweb.org/articles?id=10.1257/jep.30.4.221>.
- Lordan, Grace and Jörn-Steffen Pischke (Aug. 2016). *Does Rosie Like Riveting? Male and Female Occupational Choices*. CEP Discussion Papers dp1446.

- Centre for Economic Performance, LSE. URL: <https://ideas.repec.org/p/cep/cepdps/dp1446.html>.
- Babcock, Linda et al. (Mar. 2017). “Gender Differences in Accepting and Receiving Requests for Tasks with Low Promotability”. In: *American Economic Review* 107.3, pp. 714–47. DOI: 10.1257/aer.20141734. URL: <https://www.aeaweb.org/articles?id=10.1257/aer.20141734>.
- Bagues, Manuel, Mauro Sylos-Labini, and Natalia Zinovyeva (Apr. 2017). “Does the Gender Composition of Scientific Committees Matter?” In: *American Economic Review* 107.4, pp. 1207–38. DOI: 10.1257/aer.20151211. URL: <https://www.aeaweb.org/articles?id=10.1257/aer.20151211>.
- Bransch, Felix and Michael Kvasnicka (Oct. 2017). “Male Gatekeepers Gender Bias in the Publishing Process?” In: *IZA DP* 11089. URL: <https://www.iza.org/publications/dp/11089/male-gatekeepers-gender-bias-in-the-publishing-process>.
- Hengel, E. (Dec. 2017). *Publishing while Female. Are women held to higher standards? Evidence from peer review*. Cambridge Working Papers in Economics 1753. Faculty of Economics, University of Cambridge. URL: <https://ideas.repec.org/p/cam/camdae/1753.html>.
- Jurajda, Štěpán et al. (2017). “Ženy a muži v českém vzkumu: publikační vkon, produktivita, spoluautorství a trendy”. In: *IDEA Study* 3.
- Antecol, Heather, Kelly Bedard, and Jenna Stearns (Sept. 2018). “Equal but Inequitable: Who Benefits from Gender-Neutral Tenure Clock Stopping Policies?” In: *American Economic Review* 108.9, pp. 2420–41. DOI: 10.1257/aer.20160613. URL: <https://www.aeaweb.org/articles?id=10.1257/aer.20160613>.
- Grossbard, Shoshana, Tansel Yilmazer, and Lingrui Zhang (Oct. 2018). *The Gender Gap in Citations: Lessons from Demographic Economics Journals*. Working Papers 2018-078. Human Capital and Economic Opportunity Working Group. URL: <https://ideas.repec.org/p/hka/wpaper/2018-078.html>.
- Kahn, Shulamit and Donna Ginther (2018). “Women and science, technology, engineering, and mathematics (STEM): are differences in education and careers due to stereotypes, interests, or family?”. In: *The Oxford handbook of women and the economy*. Oxford University Press, New York, pp. 767–798.
- Li, Hsueh-Hsiang (2018). “Do mentoring, information, and nudge reduce the gender gap in economics majors?” In: *Economics of Education Review* 64, pp. 165–183.
- Buckles, Kasey (Feb. 2019). “Fixing the Leaky Pipeline: Strategies for Making Economics Work for Women at Every Stage”. In: *Journal of Economic*



- Perspectives* 33.1, pp. 43–60. DOI: 10.1257/jep.33.1.43. URL: <https://www.aeaweb.org/articles?id=10.1257/jep.33.1.43>.
- Card, David et al. (Nov. 2019). “Are Referees and Editors in Economics Gender Neutral?\*”. In: *The Quarterly Journal of Economics* 135.1, pp. 269–327. ISSN: 0033-5533. DOI: 10.1093/qje/qjz035. eprint: <https://academic.oup.com/qje/article-pdf/135/1/269/32526130/qjz035.pdf>. URL: <https://doi.org/10.1093/qje/qjz035>.
- Hengel, Erin (2019). “Gender differences in citations at top economics journals Even more evidence that women are held to higher standards in peer review”. In: *AEA Conference Paper*. URL: <https://www.aeaweb.org/conference/2019/preliminary/paper/Y4Fdr86H>.
- Lundberg, Shelly and Jenna Stearns (Feb. 2019). “Women in Economics: Stalled Progress”. In: *Journal of Economic Perspectives* 33.1, pp. 3–22. DOI: 10.1257/jep.33.1.3. URL: <https://www.aeaweb.org/articles?id=10.1257/jep.33.1.3>.
- Shanks, Neil (2019). “Against ‘economic man’: A feminist challenge to prevailing neoclassical norms in K-12 economics education”. In: *Theory & Research in Social Education* 47.4, pp. 577–603.
- Porter, Catherine and Danila Serra (2020). “Gender differences in the choice of major: The importance of female role models”. In: *American Economic Journal: Applied Economics* forthcoming.