Gender Differences in Fields of Specialization and Placement Outcomes among PhD in Economics

By NICOLE FORTIN, THOMAS LEMIEUX, AND MARIT REHAVI *

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There has been a growing concern about the stalled progress in women's representation in the Economics discipline (Ginther and Kahn, 2004; Lundberg and Stearns, 2019). There are undoubtedly many reasons for the lack of improvement, some with deeper societal roots, but other dimensions of the discipline that are not female-friendly have also been implicated.[1]

Here we look at Economics' sub-disciplines to help unravel this troubling trend. This paper asks to what extent do gender differences in fields of specialization account for gender differences in placement outcomes especially between research-oriented and non-academic positions. We analyze the placement outcomes of nearly 5,000 Economics PhD graduates from 82 U.S. and Canadian institutions ranked among the top 200 in the RePEc Rankings who have sought employment through Econ Job Market (EJM) between 2010 and 2017.[2] By using this sample, we are able to cross-reference the self-declared field of specialization on EJM with the information available in the annual JEL list of PhD graduates.[3] Women's representation in this sample is 32.1%, a proportion similar to that reported in Boustan and Langan (2019).

Our decomposition results show that our parsimonious set of variables can account for 28% to 67% of the gender gap in placement outcomes. As a portion of the explained gap, the entirety of the female under-representation

[1] Boustan and Langan (2019) utilize CSWEP data on graduates of 88 PhD programs in the United States from 1994 to 2017, together with hand-collected faculty rosters data from PhD-granting economics departments. They find that departments with better outcomes for women have more women faculty, facilitate advisor-student contact, provide collegial research seminars, and include senior faculty with increased awareness of gender issues.

[2] PhD granting institutions' ranking are from the RePEc rankings of the Top 25% Economics Departments as of February 11, 2019 (https://ideas.repec.org/top/top.econdept. html).

[3] These are available in the yearly articles in the December issue of the *Journal of Economic Literature* entitled "Doctoral Dissertations in Economics One-Hundred-Seventh Annual List" to "Doctoral Dissertations in Economics One-Hundred-Fiftheen" Annual List" from 2010 to 2018.

in assistant-professor positions, outside of Top 50 institutions, can be accounted for by gender differences in fields of specialization. That explanatory power ranges from 75% to 132% for other outcomes. On the other hand, for positions in top 50 institutions, the applicants' PhD institution, in particular coming from a top 10 institution, has more explanatory power than their field of specialization.

[Insert Table 1 Here]

I. Gender Differences in Placement Outcomes

Our placement outcomes have been collected from a web search of PhD graduates' public CVs and corroborated with the placement lists available for most (64 out of 82) institutions under study. We differentiate placements as assistant professors, lecturers (that include various teaching stream academic positions), and post-docs among academic positions. Among non-academic positions, we distinguish positions at Central Banks (CBs) (such Federal Reserve Banks), Multilateral Development Banks (MDB) (such as the World Bank), Multilateral Financial Institutions (MFIs), and other similar organizations, who conduct original research and where publishing is rewarded, from other private sector positions.[4] We use the acronym CB/MDB to denote these placements.

Gender-specific distribution across these placement outcomes and differences therein are reported in the first three rows of Tables 1 and 2. They show that the largest and most significant gender differences are for research positions, the combination of assistant professors and CB/MDB positions, where we find 61.4% of men vs. 55.3% of women. Conversely, 11.8% of women vs. 9.7% of men accept post-doctoral positions, and 24.2% of women vs. 20.5% of men are in other non-academic positions. In percentage terms, the largest male advantage is in the CB/MDB positions (24%), and the largest female advantage is in post-docs positions (20%), closely followed by other non-academic positions (17%). There are no statistically significant gender differences in teaching stream positions.

When we focus on placement in Top 50 Institutions, the most considerable gender differences in placement outcomes are for assistant professors' positions, where we find a 31% male advantage.

[Insert Table 2 Here]

[4] The distinction is prompted by Card et. al. (2019), who found that the publication process subject to a "higher bar" for women. See online appendix Table A1 for the list of principal non-academic employers.

II. Gender Differences in Characteristics

A. Fields of Specialization

Our data on fields of specialization comes from two sources. The primary JEL field listed in the December issue of the *Journal of Economic Literature* is supplied by the degree-granting department.[5] The title of the PhD Thesis accompanies it, which enables us to correct the occasional obvious discrepancy. The second source is the principal field that applicants enter when creating an account on the EJM application system and is available at a more detailed level (e.g., Experimental Economics is its own category). Figure 1 displays the female share by field: wider standard errors indicate either sparse fields or those have seen changes over time.[6] The vertical line indicates the average 32% female share.

[Insert Figure 1 Here]

The list of fields from the top (highest female share) to the bottom (lowest female share) looks like another case of "the importance of money vs. people" (Fortin, 2008).[7] The fields of "Health, Education, and Welfare (I)" and "Labor and Demographic Economics (J)" have significantly higher than average female shares, exceeding 44%. Meanwhile, the female shares in "Macro and Monetary Economics (E)," "Finance/Business," and "Macro" at less than 24% female, are statistically significantly lower than the average. Most fields (8 out of 14) have seen a decline in female share. Figure 2 displays the within-field trend in female share against the female responses to the AEA Climate Survey (2019) on experiences of exclusion and harassment by research field (Table 12).[8] We single out experiences of unwanted sexual advances because of their relatively high prevalence: 23% among female respondents (Table 8). [9]

[Insert Figure 2 Here]

Although we make no claim of causality, the significant negative slope is consistent with a deterrent effect of adverse workplace climate.[10]

[5] For simplicity, we focus only on the primary field of specialization; see Sierminska and Oaxaca (2020) for an analysis that addresses multiple fields of specialization.

[6] See Online Appendix Table A2 for more details. Because of the cross-listing with JEL PhD graduates, Business is sparse, while the female share in Economic History has increased over time. The distributions of men and women across fields are reported in Table A3.

[7] Using data from the NLS72 and the NELS88, Fortin (2008) finds that the largest gender differences in what is important in selecting a career are: "Making a lot of money"' and "'The chance to be a leader" with a male advantage, and "Opportunities to be helpful to others or useful to society," and "Opportunities to work with people rather than things" with a female advantage. Cortes and Pan (2018) report similar findings from their own analysis of ACS data linked to O*NET characteristics, and from secondary sources.

[8] Important exceptions are Economic History and Misc. Fields for which we find a positive female trend of 0.06, and 0.04, respectively over the study period. These are relatively small fields with 35 applicants or less.

[9] The list of experiences included in this category are listed in Table 8A of AEA (2019). We focus a behavior that may lead women to withdraw from usual interactions, "Unwanted advances: Another economist or economics student made unwanted attempts to establish a dating, romantic, or sexual relationship with you despite your efforts to discourage it."

[10] The AEA climate survey (Table 14) shows that Asians have fewer experiences of exclusion and harassment. If there were a causal

The under-representation of women among PhDs in several macroeconomic fields has important ramifications for leading economic organizations and policymaking worldwide.

B. Candidates' Quality Indicators

For this analysis, we use a parsimonious set of "quality" control variables. These include spending seven years or more in the PhD programs, which apply to about 10% of both men and women, and the rank of degree-granting institutions. We divide our eighty-two degree-granting departments into four categories: Top 10, Top 12-50, Top 51-100, below Top 100.[11] Overall, 27.7% of applicants come from Top 10 Departments, but men are over-presented by 6.4%. Top 12-50 and Top 51-100 contribute 32% and 21% of our applicants, with no significant gender differences. At the lowest rankings, 19.8% of applicants are from Departments ranked below the Top 100, but within the Top 200; there, women are over-represented by 5.1%. We thus expected degree-granting school rankings to contribute to differential placement outcomes by gender.

III. Decomposition Results

We estimate linear probability models of placement outcomes to evaluate whether the above gender differences in characteristics can account for gender differences in outcomes:

$$(1) \quad Y_{ig} = \delta \cdot F + X'\beta + \varepsilon_i, \;\; g = f, m$$

Using the regression-compatible variant (Fortin, 2008) of the Oaxaca-Blinder decomposition, we can apportion the gender differences that arise from differences in characteristics rather than unexplained factors:

$$(2) \quad \bar{Y}_m - \bar{Y}_f = (\bar{X}_m - \bar{X}_f)\hat{\beta} + \hat{\delta}$$

In this framework, the coefficient of the female dummy in the pooled regression is equal to the unexplained component of the decomposition in (2), while the first right-hand side expression corresponds to the part explained by gender differences in characteristics.[12]

The results reported in Tables 1 and 2 show that our parsimonious specification is relatively more successful when central banks positions are in the mix: the total explained ranges from 28% (for post-docs) to 67% (for CB/MDB or Top 50 research positions) of the gap. These results are consistent with our finding that central banks primarily hire macroeconomists.

relationship between these negative experiences and the choice of field of research, we should expect to see relatively more Asian women in macroeconomic and monetary economics, for example. Our limited ethnicity data is consistent with this hypothesis, but it ultimately awaits more rigorous testing with more complete data.

[11] Descriptive statistics on these quality indicators are presented in the Online Appendix table A4.

[12] The maintained assumption here is the female dummy absorbs the unexplained component of the gender gap leaving the pooled coefficients uncontaminated by discrimination effects.

For assistant professor and post-doc positions in general, research fields over-explained the gender gap in these outcomes: 104% for assistant professor and 132% for post-docs. Women appear to be crowding into a few fields, where there are limited positions available. Women are concentrating in the traditionally female fields of "Health, Education, and Welfare," and "Labor and Demographic Economics": 28.9% of women vs. 16.7% of men (using the JEL classification I and J), consistent with the findings of Sierminska and Oaxaca (2020). We note these proportions for women is similar to those found in the economy more generally for occupations in these sectors.

However, as single fields, the under-representation of women in Math and Quant Methods (JEL-C) and Macroeconomics (EJM) dominates with the highest significance and explanatory power across all outcomes, except for lecturer and post-doc positions.[13] We note that the self-declared EJM fields have generally more explanatory power than the JEL research fields except in assistant-professor positions and other non-academic positions.

For positions in the Top 50 research institutions (Table 1, col. 4), the research field is relatively less critical, accounting for 36% of the explained gap. This lesser importance is likely attributable to the fact that those positions are often open to the best candidates regardless of field. The ranking of the degree-granting institutions accounts the other 63% of the explained gap, most importantly graduating from a Top 10 school. For CB/MDB positions, the over-representation of women among the lowest ranked schools is playing a significant role. For Top 50 research positions, our parsimonious set of variables account for only 67.5% of the gap, leaving about a third to be explained by more refined measures of JMP quality like letters of reference. These findings appear in accord with common wisdom about the Economics Job Market, but it is good to back up beliefs with numbers.

IV. Conclusion

Many of the factors that work against women climbing up the economic ladder's higher echelons find an echo in the Economics profession. Here we find that women's fields of specialization have substantial explanatory power for most placement outcomes, with the exception of positions at top 50 research institutions. Women appear crowded in

[13] Noting that the interpretation of single categories depends on the choice of omitted category, this result is robust to the use of Business/Business Economics, Industrial Organization, or Urban Economics as base categories. We also note that the results are robust to the traditional OB decomposition using either the male or female coefficients, although as is often the case, the explanatory power is reduced with the use of female coefficients.

relatively more traditional fields, which have lower employment prospects. Women are under-represented in fields such as Macroeconomics, Monetary Economics, and Finance, which have better employment prospects because of more positions outside of academia. Yet, as in the case of the negotiating divide, where it is not always advisable to push women to mimic male behaviors, one is hesitant to encourage women to enter these above male fields if the climate is less hospitable, as reported in the AEA climate survey.

On the other hand, aiming for a higher representation of women in top PhD programs would reduce the gender gap in placement outcomes of PhDs in Economics.

REFERENCES

American Economic Association (AEA). 2019. Committee on Equity, Diversity and Professional Conduct. *AEA Professional Climate Survey: Final Report.*

Boustan, Leah, and Andrew Langan. 2019. "Variation in Women's Success across PhD Programs in Economics." *Journal of Economic Perspectives* 33(1): 23 –42.

Card, David, Stefano DellaVigna, Patricia Funk, and Nagore Iriberri. 2020. "Are Referees and Editors in Economics Gender Neutral?" *Quarterly Journal of Economics* 135(1): 269 –327.

Cortes, Patricia, and Jessica Pan. 2018. "Occupation and gender." *The Oxford handbook of women and the economy*. 425–452.

Fortin, Nicole M. 2008. "The Gender Wage Gap among Young Adults in the United States: the Importance of Money versus People." *Journal of Human Resources* 43(4): 884–918.

Ginther, Donna K., and Shulamit Kahn. 2004. "Women in economics: moving up or falling off the academic career ladder?." *Journal of Economic Perspectives* 18(3): 193–214.

Lundberg, Shelly, and Jenna Stearns. 2019. "Women in Economics: Stalled Progress." *Journal of Economic Perspectives* 33(1): 3 – 22.

Sierminska, Eva, and Ronald L. Oaxaca 2020. "Field Specializations Among Beginning Economists: Are There Gender Differences?, Paper presented at the 2021 AEA Meetings.

Table 1. Decomposition of Gender Gaps in PhD Placement Outcomes

	(1)	(2)	(1) +(2)	(4)
	Asst Prof	CB/MDB	Research	Top 50 Research
Men	49.921***	11.499***	61.420***	15.269***
	(0.886)	(0.565)	(0.863)	(0.638)
Women	46.405***	8.921***	55.326***	11.451***
	(1.287)	(0.736)	(1.283)	(0.822)
Difference	3.517**	2.577***	6.094***	3.817***
	(1.563)	(0.928)	(1.546)	(1.040)
% Difference	7%	24%	10%	27%
Total Explained	1.304***	1.722***	3.026***	2.577***
	(0.462)	(0.335)	(0.504)	(0.430)
Research Field	1.352***	1.292***	2.643***	0.939***
	(0.419)	(0.311)	(0.461)	(0.260)
JEL Field[a]	1.058***	-0.135	0.923**	0.058
	(0.409)	(0.245)	(0.391)	(0.253)
EJM Field[a]	0.293	1.426***	1.720***	0.881***
	(0.420)	(0.309)	(0.468)	(0.271)
PhD Institution	0.036	0.370***	0.406***	1.612***
	(0.144)	(0.116)	(0.145)	(0.318)
Top 10[b]	0.247*	-0.062	0.185	1.174***
	(0.132)	(0.081)	(0.123)	(0.267)
Top 101-200[b]	-0.096	0.300***	0.204*	0.323***
	(0.108)	(0.097)	(0.116)	(0.098)
Long PhD	-0.021	-0.001	-0.022	-0.011
	(0.101)	(0.004)	(0.104)	(0.054)
Market Year	-0.063	0.061	-0.002	0.038
	(0.089)	(0.064)	(0.098)	(0.088)
Total	2.213	0.855	3.068**	1.24
Unexplained	(1.586)	(0.913)	(1.554)	(1.012)

Note: Sample comprises 4,685 applicants in 2010-17, including 3,183 males and 1,502 females. Each column has a different job outcome as the dependent variable. The percentage gender difference is computed with reference to the sample average. Explanatory variables are research fields, dummies for top 10, top 51-100, top 101-200 graduating PhD insitutions (to 12-50 omitted), dummy for spending more than 6 years in the PhD program, and indicators of job market years. Robust standard errors in parentheses (* p <0.1, ** p<0.05, *** p<0.01).

[a] sub-component of "Research Field"

[b] sub-component of "PhD Institution"

Table 2— Decomposition of Gender Gaps in PhD Placement Outcomes

	(1)	(2)	(3)
	Lecturer	Post-Doc	Other (Non-Acad)
Men	8.640***	9.708***	20.484***
	(0.498)	(0.525)	(0.715)
Women	8.855***	11.784***	24.234***
	(0.733)	(0.832)	(1.106)
Difference	-0.215	-2.076**	-3.751***
	(0.886)	(0.984)	(1.317)
% Difference	-2%	-20%	-17%
Total Explained	-0.908***	-0.573**	-1.539***
	(0.260)	(0.281)	(0.412)
Research Field	-0.481**	-0.758***	-1.384***
	(0.219)	(0.256)	(0.374)
JEL Field[a]	0.011	-0.222	-0.725**
	(0.212)	(0.211)	(0.341)
EJM Field[a]	-0.492**	-0.535**	-0.660*
	(0.236)	(0.260)	(0.385)
PhD Institution	-0.182**	0.125	-0.350***
	(0.083)	(0.097)	(0.130)
Top 10[b]	-0.08	0.283***	-0.388***
	(0.069)	(0.096)	(0.127)
Top 101-200[b]	-0.106	-0.129*	0.025
	(0.069)	(0.071)	(0.090)
Long PhD	-0.011	0.00	-0.011
	(0.052)	(0.003)	(0.054)
Market Year	-0.042	0.08	0.038
	(0.060)	(0.055)	(0.088)
Total	0.693	-1.503	-2.211*
Unexplained	(0.914)	(0.992)	(1.318)

Note: Sample comprises 4,685 applicants in 2010-17, including 3,183 males and 1,502 females. Specifications are identical to those of Table 1. Robust standard errors in parentheses (* p<0.1, ** p<0.05, *** p<0.01).

[a] sub-component of "Research Field"

[b] sub-component of "PhD Institution"

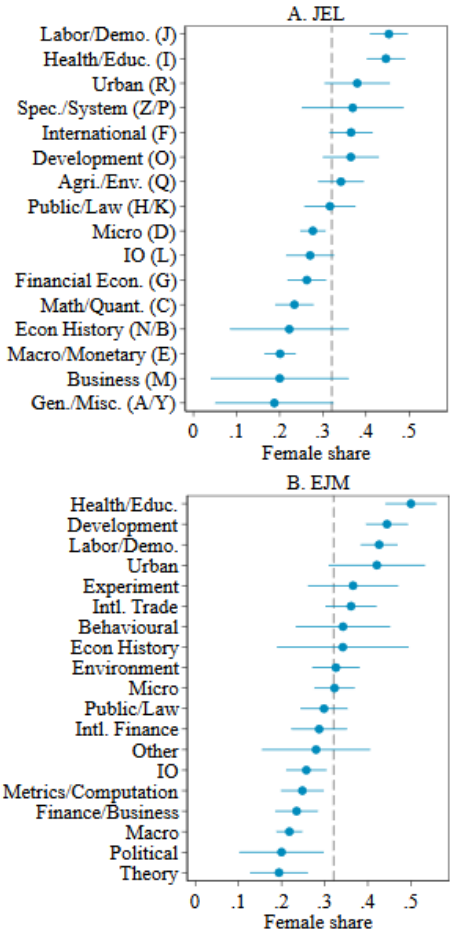

FIGURE 1. FEMALE SHARE BY FIELD OF SPECIALIZATION

Note: See the online appendix for the non-abbreviated field names.

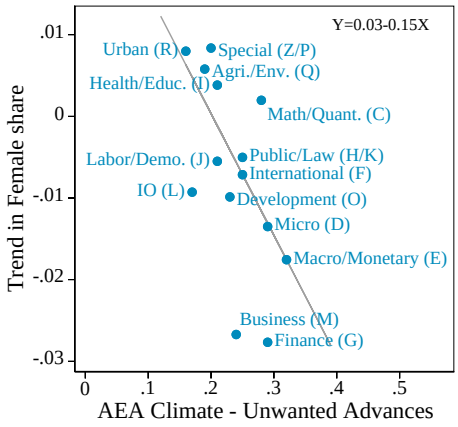

FIGURE 2.TRENDS IN FEMALE SHARE BY FIELD OF SPECIALIZATION AGAINST FEMALE RESPONSES TO THE AEA CLIMATE SURVEY

Note: For clarity, the figure truncates Economic History and General/Teaching, whose female trends are 0.06 and 0.04 respectively; these are relatively sparse fields.

ON-LINE APPENDIX for
Gender Differences in Fields of Specialization and Placement Outcomes among Ph.D. in Economics

By NICOLE FORTIN, MARIT REHAVI, AND THOMAS LEMIEUX *

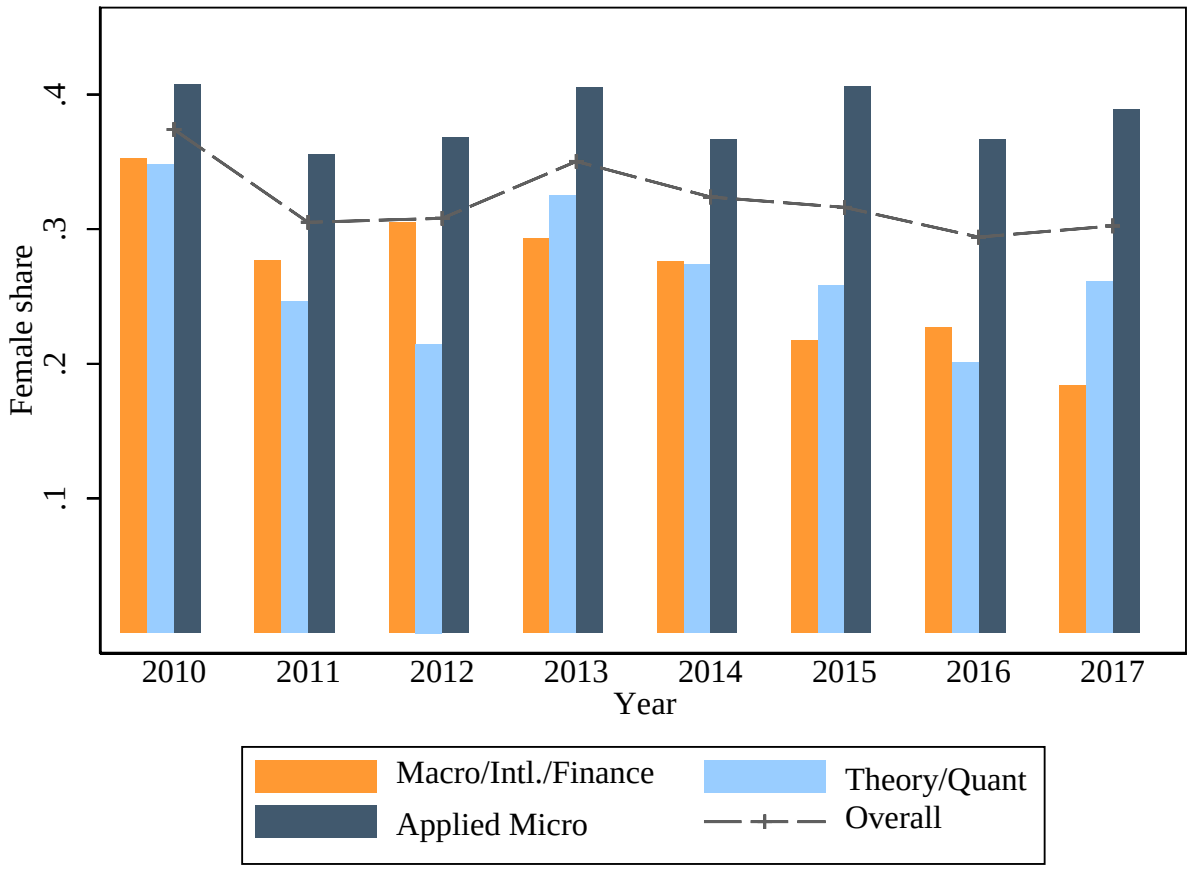

Figure A1. Female Share by Broad Areas of Specialization

Table A1. Principal Non-Academic Employers

Non-Academic Employers	CB/MCB	RePec Ranking	Count
ABT Associates	No		11
Amazon	No		60
Analysis Group	No		59
Asian Development Bank (ADB)	Yes		-
B.C. Ministry of Finance	Yes		-
Bank for International Settlements	Yes	45	-
Bank of America	No		14
Bank of Canada	Yes	124	34
Bank of Chile	Yes		5
Bank of Colombia	Yes		-
Bank of England	Yes	88	-
Bank of Finland	Yes		-
Bank of France	Yes		-
Bank of Hungary	Yes		-
Bank of Ireland	Yes		-
Bank of Italy	Yes	44	7
Bank of Japan	Yes		-
Bank of Korea	Yes		18
Bank of Mexico	Yes		13
Bank of Peru	Yes		-
Bank of Portugal	Yes		-
Bank of Spain	Yes		-
Bank of Taiwan	Yes		-
Bank of Turkey	Yes		11
Bates White	No		13
Brattle Group	No		12
Census Bureau	No		20
Central American Monetary Council	Yes		-
Charles River Associates	No		15
Congressional Budget Office	Yes		12
Cornerstone Research	No		36
Ernst & Young	No		14
European Bank for Reconstruction and Development	Yes		-
European Central Bank	Yes	19	-
Financial Supervisory Service, South Korea	Yes		-
Freddie Mac	No		14
Hong Kong Monetary Authority	Yes		-
IMPAQ International	No		18
Inter-American Development Bank	Yes	120	13
International Fund for Agricultural Development	Yes		-
International Initiative for Impact Evaluation	Yes		-
International Monetary Fund	Yes	6	67
JP Morgan	No		14

Table A1. Principal Non-Academic Employers (ctd.)

Non-Academic Employers	CB/MCB	RePec Ranking	Count
Korea Development Institute	No		12
Korea Institute of Finance	Yes		-
Korea Institute of Public Finance	No		10
Mathematica	No		28
Ministry of Finance and Public Credit of Mexico.	Yes		-
Ministry of Finance of Chile	Yes		-
Ministry of the Interior, Cambodia	Yes		-
Moody's Analytics	No		18
NERA Economic Consulting	No		10
New York City Independent Budget Office	Yes		-
Norges Bank	Yes		-
OECD	Yes		6
Office of the Comptroller of the Currency	Yes		8
PwC	No		15
RAND	No		18
Reserve Bank of New Zealand	Yes		-
Saudi Arabian Monetary Agency	Yes		-
Sveriges Riksbank	Yes	237	-
U.S. Department of Agriculture	No		15
U.S. Federal Deposit Insurance Corporation	No		10
U.S. Federal Reserve (other)	Yes		-
U.S. Federal Reserve Bank of Atlanta	Yes	177	-
U.S. Federal Reserve Bank of Boston	Yes	181	6
U.S. Federal Reserve Bank of Chicago	Yes	59	-
U.S. Federal Reserve Bank of Cleveland	Yes	170	6
U.S. Federal Reserve Bank of Dallas	Yes	104	-
U.S. Federal Reserve Bank of Kansas City	Yes	364	6
U.S. Federal Reserve Bank of Minneapolis	Yes	72	6
U.S. Federal Reserve Bank of New York	Yes	39	13
U.S. Federal Reserve Bank of Philadelphia	Yes	145	5
U.S. Federal Reserve Bank of Richmond	Yes	214	-
U.S. Federal Reserve Bank of San Francisco	Yes	80	-
U.S. Federal Reserve Bank of St Louis	Yes	61	-
U.S. Federal Reserve Board of Governors	Yes	17	85
U.S. Federal Trade Commission	Yes		11
U.S. International Trade Commission	Yes		-
U.S. Securities and Exchange Commission	Yes		-
U.S. Treasury Department	Yes		17
United Nations Development Programme	Yes		-
World Bank Group	Yes	4	58

Note: The list include all institutions in our Central Bank (CB)/Multilateral Development Bank (MCB) list, plus non-academic employers with a least 10 placements. The dash indicates less than 5 placements.

Table A2. List of Research Fields

Field	Index	Narrow Groups	Broad Areas
JEL			
General Economics and Teaching	A	Misc.(A/P/Y/Z)	
History of Economic Thought, Methodology, and Heterodox Approaches	B	Econ History (N/B)	Applied Micro
Mathematical and Quantitative Methods	C	Math/Quant. (C)	Theory/Quant
Microeconomics	D	Micro (D)	Theory/Quant
Macroeconomics and Monetary Economics	E	Macro/Monetary (E)	Macro/Intl./Finance
International Economics	F	International (F)	Macro/Intl./Finance
Financial Economics	G	Finance/Business (G/M)	Macro/Intl./Finance
Public Economics	H	Public/Law (H/K)	Applied Micro
Health, Education, and Welfare	I	Health/Educ. (I)	Applied Micro
Labor and Demographic Economics	J	Labor/Demo. (J)	Applied Micro
Law and Economics	K	Public/Law (H/K)	Applied Micro
Industrial Organization	L	IO (L)	Applied Micro
Business Administration and Business Economics • Marketing • Accounting • Personnel Economics	M	Finance/Business (G/M)	Macro/Intl./Finance
Economic History	N	Econ History (N/B)	Applied Micro
Economic Development, Innovation, Technological Change, and Growth	O	Development (O)	Applied Micro
Economic Systems	P	Special/System (Z/P)	
Agricultural and Natural Resource Economics • Environmental and Ecological Economics	Q	Agri./Env. (Q)	Applied Micro
Urban, Rural, Regional, Real Estate, and Transportation Economics	R	Urban (Q)	Applied Micro
Miscellaneous Categories	Y	Misc.(A/P/Y/Z)	
Other Special Topics	Z	Special/System (Z/P)	

Source: American Economic Association (https://www.aeaweb.org/econlit/jelCodes.php, retrieved September 21, 2020); EconJobMarket (https://econjobmarket.org, retrieved September 21, 2020).

Note: Fields with a smaller number of applicants have been regrouped with similar for illustrative purposes. The narrow groups are used in Figure 1, and the broad areas in Figure A1.

Table A2. List of Research Fields (ctd.)

Field	Index	Narrow Groups	Broad Areas
EJM			
Economic Development	1	Development	Applied Micro
Econometrics/Computational Economics	2	Metrics/Computational	Theory/Quant
Economic History	3	Econ History	Applied Micro
Environmental Economics	4	Environment	Applied Micro
Experimental Economics	5	Experiment	Applied Micro
Finance	6	Finance	Macro/Intl./Finance
Industrial Organization	7	IO	Applied Micro
International Finance	8	Intl. Finance	Macro/Intl./Finance
International Trade	9	Intl. Trade	Macro/Intl./Finance
Labor and Demographic Economics	10	Labor/Demo	Applied Micro
Macroeconomics	11	Macro	Macro/Intl./Finance
Microeconomics	12	Micro	Theory/Quant
Public Economics/Law and Economics	13	Public/Law	Applied Micro
Theory	14	Theory	Theory/Quant
Behavioural Economics	15	Behavioural	Applied Micro
Other	16	Other	
Urban and Regional Economics	17	Urban	Applied Micro
Health, Education and Welfare	18	Health/Educ.	Applied Micro
Business Economics	19	Business	Macro/Intl./Finance
Political Economy	20	Political	Applied Micro

Note: Fields with a smaller number of applicants have been regrouped with similar for illustrative purposes. The narrow groups are used in Figure 1, and the broad areas in Figure A1.

Table A3. Summary Statistics by Research Fields

Field	Number of applicants	Distribution across Fields			Female share
		All	Men	Women	
JEL					
Math and Quant Methods (C)	346	0.074	0.083	0.054	0.234
Microecomics (D)	874	0.187	0.199	0.161	0.277
Macro and Monetary Econ (E)	463	0.099	0.116	0.062	0.201
International Econ (F)	353	0.075	0.070	0.086	0.365
Financial Econ (G)	369	0.079	0.085	0.065	0.263
Public (H) / Law and Econ (K)	237	0.051	0.051	0.050	0.316
Health, Education, Welfare (I)	475	0.101	0.083	0.141	0.446
Labor and Demographic Econ (J)	490	0.105	0.084	0.148	0.453
Industrial Organization (L)	244	0.052	0.056	0.044	0.270
Business (M)	25	0.005	0.006	0.003	0.200
Econ History (N) / Thought (B)	36	0.008	0.009	0.005	0.222
Econ Development (O)	211	0.045	0.042	0.051	0.365
Agriculture and Environment (Q)	307	0.066	0.063	0.070	0.342
Urban, Rural, Transportation (R)	158	0.034	0.031	0.040	0.380
Misc (Y) / General, Teaching (A)	32	0.007	0.008	0.004	0.188
Special (Z) / Econ Systems (P)	65	0.014	0.013	0.016	0.369
Total	4,685	1.000	1.000	1.000	0.321
EJM					
Development	396	0.085	0.069	0.117	0.444
Econometrics / Computational	290	0.062	0.068	0.048	0.248
Economic History	38	0.008	0.008	0.009	0.342
Environmental Economics	279	0.060	0.059	0.061	0.326
Experimental Economics	82	0.018	0.016	0.020	0.366
Finance/Business Economics	281	0.060	0.068	0.044	0.235
Industrial Organization	334	0.071	0.078	0.057	0.257
International Finance	188	0.040	0.042	0.036	0.287
International Trade	252	0.054	0.051	0.061	0.361
Labor and Demographic	509	0.109	0.092	0.144	0.426
Macroeconomics	715	0.153	0.176	0.104	0.218
Microeconomics	381	0.081	0.081	0.082	0.323
Public / Law	268	0.057	0.059	0.053	0.299
Theory	134	0.029	0.034	0.017	0.194
Behavioural	73	0.016	0.015	0.017	0.342
Other	50	0.011	0.011	0.009	0.280
Urban, Regional	76	0.016	0.014	0.021	0.421
Health, Education, Welfare	274	0.058	0.043	0.091	0.500
Political Economy	65	0.014	0.016	0.009	0.200
Total	4,685	1.000	1.000	1.000	0.321

Notes: Sample comprises 4,685 applicants in 2010-17, including 3,183 males and 1,502 females.

Table A4. Summary Statistics of Quality Indicators

Quality Indicators	All		Men		Women		Female
	Count	Freq.	Count	Freq.	Count	Freq.	share
Phd Institutions							
Top 10	1,296	0.277	946	0.297	350	0.233	0.270
Top 12-50	1,493	0.319	1022	0.321	471	0.314	0.315
Top 51-100	968	0.207	636	0.200	332	0.221	0.343
Top 101-200	928	0.198	579	0.182	349	0.232	0.376
7+ Yrs PhD	471	0.101	322	0.101	149	0.099	0.316

Note: PhD granting institutions' ranking are from the RePEc rankings of Top 25% Economics Departments as of February, 2019 (https://ideas.repec.org/top/top.econdept.html).