Gender Differences in Reference Letters:
Evidence from the Economics Job Market
Online Appendix [*]

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Abstract

Academia, and economics in particular, faces increased scrutiny because of gender imbalance. This paper studies the job market for entry-level faculty positions. We employ machine learning methods to analyze gendered patterns in the text of 12,000 reference letters written in support of over 3,700 candidates. Using both supervised and unsupervised techniques, we document widespread differences in the attributes emphasized. Women are systematically more likely to be described using 'grindstone' terms and at times less likely to be praised for their ability. Using information on initial placement we highlight the implications of these gendered descriptors for the quality of academic placement.

JEL Codes: J16, A11.
Keywords: Gender, Natural Language Processing, Diversity.

A   Variable and methods description

Validation exercise

To construct Figure 4 we assess the correspondence between the validators' chosen categories and ours as follows. Within each of the authors' chosen categories, for each word, we identify the category chosen by a plurality of validators. In the case of ties (e.g. "diligent", which the authors classified as "grindstone", was classified by 28.5% of validators as "ability", and 28.5% as "grindstone"), we attribute that word to both categories ("diligent" is attributed both to "ability" and "grindstone"). For each of our chosen categories, Figure 4 presents the distribution of winning categories. Words for which there are two winning categories count twice in the total, so that the sum of the bars is equal to 1.

Table A.1: Summary Statistics of words in each category

Category	Av. Doc Freq	Av. TF-IDF (x 1000)	N Words	Av. Validators per Word
Ability	489.44	5.77	57	6.98
Grindstone	394.40	4.99	20	6.56
Recruitment	374.31	4.32	118	6.72
Research	347.88	4.77	210	6.46
Standout	427.13	5.02	106	6.70
Teach-Citizen	414.12	5.06	94	6.81

Notes: This table shows summary statistics of words in each category. The First column gives the categories. The second (third) columns give the average TF-IDF (document frequency) of words in each category. The fourth column gives the number of words in each category. The fifth column gives the average number of validators who cross-validated our categorisation for each word.

Institutional Ranking

We used the Research Papers in Economics (RePEc) ranking for the top 5% of economic institutions as our guide to rank writer and candidate institutions.[1] We drop three research organisations (NBER, IZA, CEPR) but keep international institutions like the IMF as well as the Federal Reserve Banks in the rankings since referees from these institutions are not uncommon. Writer institutional affiliation is collected from their CV via manual internet search and manually matched to the RePEc institutions. We categorise writers into bands on the basis of their institutional ranking: 1-25, 26-50, 51-100, 101-200, 201-500, and higher (omitted category in our regressions). We are missing RePEc-listed affiliation and hence rankings for around 16% of writers, but these only account for 12% of our sample of reference letters. The rank of candidate PhD-institutions has been similarly constructed.

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[1]Version January 2021, see `https://ideas.repec.org/top/top.inst.all.html` for the current version. The RePEc ranking refers to the top 10% but only the top 5% are ranked, the remainder are unranked within the percentile (all those within the 6th percentile, all those within the 7th percentile, etc).

B Additional Descriptive Statistics

Figure B.1: RePEc Rank of Candidate and Letter Writer Institution, Zooming into Top-100 institutions
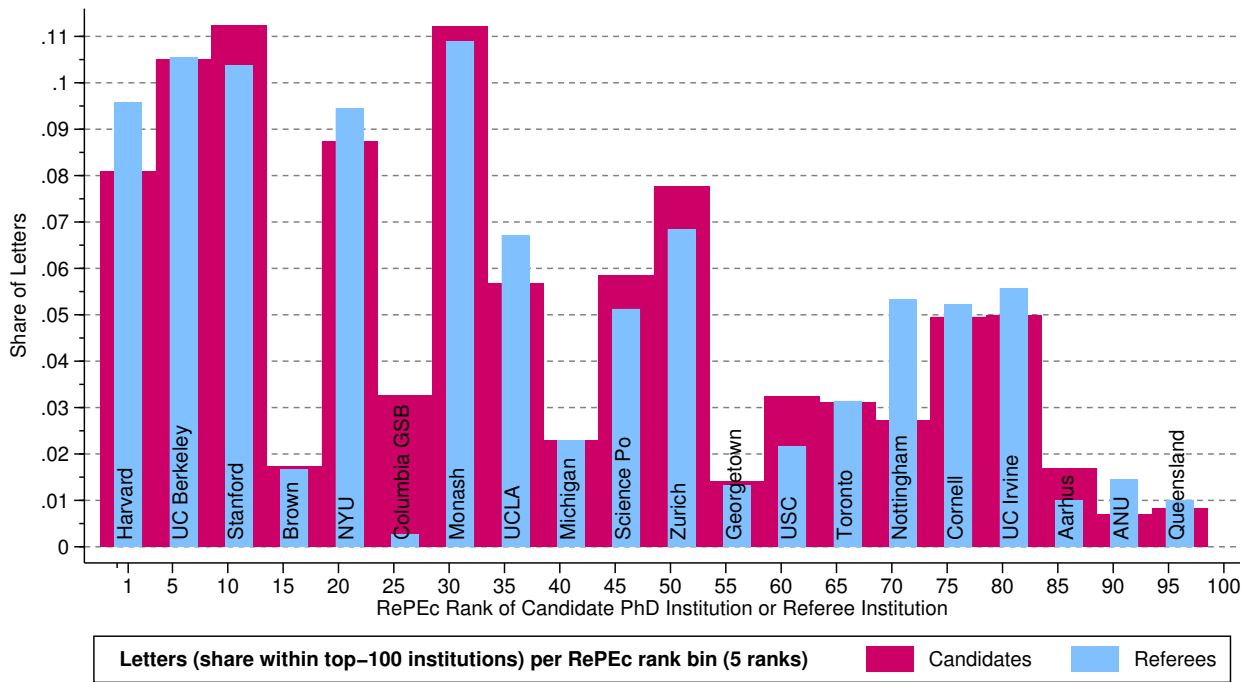
Notes: The figure presents the frequency distribution of candidate and letter writer institution rank, zooming in on the top-100 (bin width 5 ranks), highlighting one institutions for each bin.

Figure B.2: Word clouds for each sentiment

(a) Ability

(b) Grindstone

(c) Recruitment

(d) Research

(e) Standout

(f) Teach and Citizen

Notes: The word clouds depict the expressions attributed to each sentiment. The size of the word is illustrative of its document frequency. Within each cloud, larger words are more common in the corpus. The size of the words should not be compared across wordclouds, as the font sizes are adjusted to improve legibility.

C Results Tables

Baseline results

Table C.1: Baseline Results by Writer Institutional Rank

| | (1) | (2) | (3) |
Writer RePEc Rank	All	Top-25	Top-100
Ability	-0.0231	-0.0312	-0.0354
	(1.10)	(0.65)	(1.14)
Grindstone	0.0512	0.0921	0.0541
	(2.41)**	(1.87)*	(1.72)*
Recruitment	-0.0249	-0.0445	-0.0296
	(1.20)	(0.89)	(0.95)
Research	-0.0560	-0.0534	-0.0575
	(2.71)***	(1.10)	(1.88)*
Standout	-0.0136	-0.0583	0.0072
	(0.66)	(1.20)	(0.24)
Teaching &	0.0070	0.0102	0.0252
Citizenship	(0.33)	(0.20)	(0.80)
FE/Variables absorbed	25	20	23
Additional covariates	7	7	7
Number of Letters	11846	2224	5344
dto for females	3360	616	1508
Number of candidates	3721	1111	2301
dto female	1082	318	664
Number of writers	5655	969	2285
dto female	985	156	382
Letters by fem writers	1751	314	735
Year FE	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes
Institution Rank FE	yes	yes	yes
Years since PhD	yes	yes	yes
Research Field FE	yes	yes	yes
Publications	yes	yes	yes
Writer characteristics	yes	yes	yes
Letter length	yes	yes	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator in the full sample, column 1, and for writer institutions in the top-25 and top-100 in columns 2 and 3, respectively. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.
Return to Figure 6 in the maintext.

Male and Female Writers

Table C.2: Male Writers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	-0.0241	-0.0228	-0.0242	-0.0267	-0.0267	-0.0267	-0.0267
	(1.04)	(0.98)	(1.05)	(1.16)	(1.16)	(1.16)	(1.16)
Grindstone	0.0504	0.0477	0.0500	0.0450	0.0436	0.0447	0.0447
	(2.20)**	(2.08)**	(2.18)**	(1.95)*	(1.88)*	(1.93)*	(1.93)*
Recruitment	-0.0235	-0.0229	-0.0220	-0.0309	-0.0276	-0.0280	-0.0281
	(1.00)	(0.98)	(0.94)	(1.32)	(1.18)	(1.20)	(1.23)
Research	-0.0732	-0.0718	-0.0715	-0.0836	-0.0834	-0.0834	-0.0834
	(3.25)***	(3.19)***	(3.17)***	(3.69)***	(3.67)***	(3.66)***	(3.69)***
Standout	-0.0089	-0.0060	-0.0084	-0.0199	-0.0171	-0.0184	-0.0184
	(0.38)	(0.26)	(0.36)	(0.85)	(0.73)	(0.79)	(0.80)
Teaching &	0.0209	0.0118	0.0108	0.0054	0.0026	0.0055	0.0055
Citizenship	(0.89)	(0.51)	(0.47)	(0.23)	(0.11)	(0.24)	(0.24)
FE/Variables absorbed	10	15	15	19	19	24	24
Additional Variables	0	0	1	1	5	6	7
Number of Letters	10095	10095	10095	10095	10095	10095	10095
dto for females	2729	2729	2729	2729	2729	2729	2729
Number of candidates	3683	3683	3683	3683	3683	3683	3683
dto female	1057	1057	1057	1057	1057	1057	1057
Number of writers	4670	4670	4670	4670	4670	4670	4670
dto female	0	0	0	0	0	0	0
Letters by fem writers	0	0	0	0	0	0	0
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The sample is restricted to male letter writers. The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.
Return to Figure 7 in the maintext.

Table C.3: Female Writers

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	0.0022	0.0056	0.0017	-0.0040	-0.0049	-0.0089	-0.0086
	(0.04)	(0.11)	(0.03)	(0.08)	(0.10)	(0.17)	(0.17)
Grindstone	0.0804	0.0793	0.0807	0.0798	0.0829	0.0757	0.0756
	(1.52)	(1.52)	(1.54)	(1.53)	(1.58)	(1.45)	(1.45)
Recruitment	0.0082	0.0012	0.0028	-0.0096	-0.0080	-0.0133	-0.0127
	(0.16)	(0.02)	(0.06)	(0.19)	(0.16)	(0.27)	(0.26)
Research	0.0689	0.0787	0.0757	0.0790	0.0766	0.0754	0.0753
	(1.33)	(1.53)	(1.47)	(1.52)	(1.48)	(1.46)	(1.46)
Standout	0.0242	0.0202	0.0193	0.0178	0.0206	0.0211	0.0218
	(0.49)	(0.41)	(0.39)	(0.36)	(0.42)	(0.43)	(0.46)
Teaching &	0.0211	0.0140	0.0134	0.0147	0.0165	0.0264	0.0264
Citizenship	(0.40)	(0.27)	(0.26)	(0.28)	(0.31)	(0.51)	(0.51)
FE/Variables absorbed	10	15	15	19	19	24	24
Additional Variables	0	0	1	1	5	6	7
Number of Letters	1751	1751	1751	1751	1751	1751	1751
dto for females	631	631	631	631	631	631	631
Number of candidates	1414	1414	1414	1414	1414	1414	1414
dto female	482	482	482	482	482	482	482
Number of writers	985	985	985	985	985	985	985
dto female	985	985	985	985	985	985	985
Letters by fem writers	1751	1751	1751	1751	1751	1751	1751
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The sample is restricted to female letter writers. The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Figure 7 in the maintext.

Cultural Background

Table C.4: Cultural Background

'Traditional Norms'	(1)	(2) Pre-Schooler	(3) Uni Boys	(4) Male Execs	(5) Average
Ability	-0.0263	-0.0129	-0.0138	-0.0194	-0.0194
	(1.13)	(0.43)	(0.54)	(0.48)	(0.67)
Interaction:		-0.0178	-0.0423	-0.0102	-0.0093
Traditional Norms		(0.40)	(0.82)	(0.21)	(0.21)
Grindstone	0.0504	0.0650	0.0523	0.0066	0.0477
	(2.25)**	(2.14)**	(2.05)**	(0.17)	(1.64)
Interaction:		-0.0250	-0.0053	0.0680	0.0094
Traditional Norms		(0.55)	(0.10)	(1.45)	(0.21)
Recruitment	-0.0301	-0.0395	-0.0325	-0.0465	-0.0427
	(1.37)	(1.30)	(1.29)	(1.18)	(1.46)
Interaction:		0.0291	0.0187	0.0196	0.0355
Traditional Norms		(0.66)	(0.37)	(0.41)	(0.80)
Research	-0.0434	0.0005	-0.0367	-0.0476	-0.0079
	(1.99)**	(0.02)	(1.48)	(1.27)	(0.28)
Interaction:		-0.0884	-0.0111	0.0050	-0.0755
Traditional Norms		(2.03)**	(0.21)	(0.11)	(1.72)*
Standout	0.0058	-0.0093	0.0015	0.0094	-0.0118
	(0.26)	(0.31)	(0.06)	(0.24)	(0.41)
Interaction:		0.0336	0.0203	-0.0048	0.0416
Traditional Norms		(0.76)	(0.40)	(0.10)	(0.93)
Teaching & Citizenship	0.0064	-0.0046	-0.0102	-0.0351	-0.0083
	(0.29)	(0.15)	(0.40)	(0.97)	(0.28)
Interaction:		0.0230	0.0656	0.0631	0.0326
Traditional Norms		(0.52)	(1.23)	(1.38)	(0.72)
FE/Variables absorbed	25	46	46	46	46
Additional Variables	6	6	6	6	6
Number of Letters	10542	10542	10542	10542	10542
dto for females	3005	3005	3005	3005	3005
Number of candidates	3675	3675	3675	3675	3675
dto female	1066	1066	1066	1066	1066
Number of writers	4910	4910	4910	4910	4910
dto female	831	831	831	831	831
Letters by fem writers	1509	1509	1509	1509	1509
Year FE	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes
Institution Rank FE	yes	yes	yes	yes	yes
Years since PhD	yes	yes	yes	yes	yes
Research Field FE	yes	yes	yes	yes	yes
Publications	yes	yes	yes	yes	yes
Writer characteristics	yes	yes	yes	yes	yes
Letter length	yes	yes	yes	yes	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator interacted with a binary variable indicating whether the writer's country of birth has traditional gender norms and the full set of controls. Column (5) reports estimates when the average of the 3 WVS questions is used to construct the 'gender norms' indicator, whereas columns (2)-(4) use each question separately. The questions are stated fully in the main text. Column (1) reports the benchmark result for this reduced sample (birth or UG countries could be identified for 87% of referees). The table reports the estimate for the female indicator and the interaction term. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Figure 8 in the main text.

Specifications with Fixed Effects

Table C.5: Candidate Institution FE

	(1)	(2)	(3)	(4)	(5)	(6)
Ability	-0.0147	-0.0184	-0.0216	-0.0212	-0.0264	-0.0257
	(0.66)	(0.83)	(0.97)	(0.95)	(1.18)	(1.15)
Grindstone	0.0520	0.0531	0.0482	0.0482	0.0430	0.0430
	(2.32)**	(2.37)**	(2.15)**	(2.14)**	(1.91)*	(1.91)*
Recruitment	-0.0211	-0.0210	-0.0299	-0.0284	-0.0257	-0.0236
	(0.97)	(0.96)	(1.36)	(1.29)	(1.17)	(1.09)
Research	-0.0321	-0.0327	-0.0430	-0.0419	-0.0387	-0.0398
	(1.47)	(1.49)	(1.95)*	(1.89)*	(1.75)*	(1.80)*
Standout	0.0003	-0.0018	-0.0138	-0.0119	-0.0139	-0.0120
	(0.01)	(0.08)	(0.63)	(0.54)	(0.63)	(0.55)
Teaching &	0.0063	0.0072	0.0084	0.0067	-0.0005	0.0003
Citizenship	(0.29)	(0.33)	(0.39)	(0.31)	(0.02)	(0.01)
FE/Variables absorbed	233	233	237	237	243	243
Additional Variables	0	1	1	5	6	7
Number of Letters	10604	10604	10604	10604	10604	10604
dto for females	3158	3158	3158	3158	3158	3158
Number of candidates	3309	3309	3309	3309	3309	3309
dto female	1010	1010	1010	1010	1010	1010
Number of writers	4918	4918	4918	4918	4918	4918
dto female	853	853	853	853	853	853
Letters by fem writers	1553	1553	1553	1553	1553	1553
Year FE	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes
Institution FE	yes	yes	yes	yes	yes	yes
Years since PhD	no	yes	yes	yes	yes	yes
Research Field FE	no	no	yes	yes	yes	yes
Publications	no	no	no	yes	yes	yes
Writer Characteristics	yes	yes	yes	no	yes	yes
Letter length	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. These specifications include FE for the candidate's institution. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.
Return to Figure 9 in the maintext.

Table C.6: Writer FE

	(1)	(2)	(3)	(4)	(5)	(6)
Ability	-0.0391	-0.0367	-0.0381	-0.0372	-0.0377	-0.0360
	(1.39)	(1.30)	(1.35)	(1.31)	(1.33)	(1.27)
Grindstone	0.0209	0.0191	0.0179	0.0161	0.0167	0.0179
	(0.73)	(0.66)	(0.62)	(0.56)	(0.58)	(0.62)
Recruitment	-0.0056	-0.0049	-0.0044	-0.0062	-0.0033	-0.0006
	(0.22)	(0.19)	(0.18)	(0.25)	(0.13)	(0.02)
Research	-0.0273	-0.0248	-0.0236	-0.0276	-0.0279	-0.0306
	(1.00)	(0.91)	(0.86)	(1.00)	(1.01)	(1.11)
Standout	-0.0181	-0.0187	-0.0208	-0.0200	-0.0166	-0.0119
	(0.65)	(0.67)	(0.74)	(0.71)	(0.59)	(0.43)
Teaching &	-0.0244	-0.0254	-0.0279	-0.0293	-0.0323	-0.0304
Citizenship	(0.93)	(0.97)	(1.06)	(1.11)	(1.21)	(1.15)
FE/Variables absorbed	1319	1324	1324	1328	1328	1328
Additional Variables	0	0	1	1	5	6
Number of Letters	5226	5226	5226	5226	5226	5226
dto for females	1997	1997	1997	1997	1997	1997
Number of candidates	2774	2774	2774	2774	2774	2774
dto female	924	924	924	924	924	924
Number of writers	1314	1314	1314	1314	1314	1314
dto female	197	197	197	197	197	197
Letters by fem writers	699	699	699	699	699	699
Writer FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes
Publications	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. These specifications include letterwriter fixed effects. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.
The sample includes only those letters from writers with two or more references for at least one male and one female candidate (gender mix). Return to Figure 9 in the maintext.

Table C.7: Writer FE, writers 'more familiar' with female candidates

	(1)	(2)	(3)	(4)	(5)	(6)
Ability	0.0057	0.0085	0.0075	0.0084	0.0061	0.0073
	(0.15)	(0.22)	(0.19)	(0.21)	(0.15)	(0.18)
Grindstone	-0.0278	-0.0313	-0.0311	-0.0286	-0.0262	-0.0260
	(0.70)	(0.79)	(0.79)	(0.72)	(0.65)	(0.65)
Recruitment	-0.0134	-0.0118	-0.0121	-0.0108	-0.0038	-0.0020
	(0.38)	(0.33)	(0.34)	(0.30)	(0.11)	(0.06)
Research	-0.0408	-0.0344	-0.0328	-0.0350	-0.0356	-0.0373
	(1.09)	(0.92)	(0.87)	(0.93)	(0.94)	(0.99)
Standout	-0.0558	-0.0548	-0.0564	-0.0533	-0.0496	-0.0464
	(1.42)	(1.40)	(1.44)	(1.35)	(1.25)	(1.18)
Teaching &	-0.0488	-0.0497	-0.0513	-0.0525	-0.0596	-0.0582
Citizenship	(1.35)	(1.38)	(1.42)	(1.45)	(1.64)	(1.60)
FE/Variables absorbed	754	759	759	763	763	763
Additional Variables	0	0	1	1	5	6
Number of Letters	2512	2512	2512	2512	2512	2512
dto for females	1334	1334	1334	1334	1334	1334
Number of candidates	1682	1682	1682	1682	1682	1682
dto female	793	793	793	793	793	793
Number of writers	749	749	749	749	749	749
dto female	129	129	129	129	129	129
Letters by fem writers	408	408	408	408	408	408
Writer FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes
Publications	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. These specifications include letterwriter FE. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Sample includes only those letters from writers with two or more references for at least one male and one female candidate (gender mix), and who have had more than 1/3 of female Ph.D. students. Return to Figure 9 in the main text.

Table C.8: Writer FE, writers 'less familiar' with female candidates

	(1)	(2)	(3)	(4)	(5)	(6)
Ability	-0.0961	-0.0953	-0.0973	-0.0972	-0.0963	-0.0940
	(2.35)**	(2.33)**	(2.38)**	(2.36)**	(2.33)**	(2.28)**
Grindstone	0.0840	0.0842	0.0817	0.0805	0.0833	0.0860
	(1.98)**	(1.98)**	(1.92)*	(1.88)*	(1.95)*	(2.01)**
Recruitment	0.0033	0.0009	0.0024	-0.0029	-0.0027	0.0008
	(0.09)	(0.02)	(0.06)	(0.08)	(0.07)	(0.02)
Research	-0.0135	-0.0129	-0.0121	-0.0203	-0.0226	-0.0266
	(0.33)	(0.32)	(0.30)	(0.50)	(0.55)	(0.65)
Standout	0.0342	0.0331	0.0303	0.0260	0.0279	0.0343
	(0.84)	(0.81)	(0.74)	(0.63)	(0.68)	(0.85)
Teaching &	0.0014	-0.0015	-0.0046	-0.0029	-0.0017	0.0004
Citizenship	(0.03)	(0.04)	(0.12)	(0.07)	(0.04)	(0.01)
FE/Variables absorbed	570	575	575	579	579	579
Additional Variables	0	0	1	1	5	6
Number of Letters	2714	2714	2714	2714	2714	2714
dto for females	663	663	663	663	663	663
Number of candidates	1905	1905	1905	1905	1905	1905
dto female	478	478	478	478	478	478
Number of writers	565	565	565	565	565	565
dto female	68	68	68	68	68	68
Letters by fem writers	291	291	291	291	291	291
Writer FE	yes	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes
Publications	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. These specifications include letterwriter FE. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.

Sample includes only those letters from writers with two or more references for at least one male and one female candidate (gender mix), and who have had less than 1/3 of female Ph.D. students. Return to Figure 9 in the main text.

Table C.9: Candidate Fixed Effects

	(1)	(2)	(3)
Ability: Female writer	0.0789	0.0790	0.0814
	(1.48)	(1.46)	(1.51)
Female writer × Female candidate	0.0265	0.0279	0.0272
	(0.29)	(0.31)	(0.30)
Grindstone: Female writer	0.1724	0.1513	0.1535
	(3.32)***	(2.88)***	(2.92)***
Female writer × Female candidate	-0.0708	-0.0788	-0.0794
	(0.76)	(0.84)	(0.85)
Recruitment: Female writer	-0.1167	-0.1130	-0.1025
	(2.28)**	(2.19)**	(2.00)**
Female writer × Female candidate	-0.0145	-0.0259	-0.0288
	(0.16)	(0.29)	(0.33)
Research: Female writer	-0.0594	-0.0524	-0.0542
	(1.18)	(1.03)	(1.07)
Female writer × Female candidate	0.0536	0.0563	0.0567
	(0.62)	(0.65)	(0.66)
Standout: Female writer	-0.0851	-0.0793	-0.0731
	(1.65)*	(1.52)	(1.41)
Female writer × Female candidate	0.1089	0.1078	0.1061
	(1.28)	(1.27)	(1.26)
T&C: Female Writer	0.1081	0.1074	0.1104
	(2.26)**	(2.22)**	(2.29)**
Female writer × Female candidate	0.0667	0.0673	0.0665
	(0.78)	(0.78)	(0.77)
FE/Variables absorbed	822	827	827
Additional Variables	0	1	2
Number of Letters	2335	2335	2335
dto for females	778	778	778
Number of candidates	822	822	822
dto female	274	274	274
Number of writers	1204	1204	1204
dto female	348	348	348
Letters by fem writers	930	930	930
Year FE	no	no	no
Candidate FE	yes	yes	yes
Writer Characteristics	no	yes	yes
Letter length	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. These specifications include candidate FE interacted with the gender of the letterwriter. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Figure 7 in the maintext.

D Candidate Research Fields

In this section, we describe the procedure to establish candidates' fields using an unsupervised approach.

From the recommendation letters we extract the text slice that is most likely to discuss the candidates' job market paper. To do so we flag the first instance of the term 'job market paper' or 'dissertation'. We then slice the subsequent 400 words and assemble the research slices from all the recommendation letters written for the same candidate into a single text.[2] We process these texts as described in section 3.1 and cluster them into four groups using an unsupervised k-means clustering approach.

Given that the objective of this procedure is to group texts that use similar terms, we deploy a different approach when transforming the text into a database. Instead of computing the tfidf, which would give more weight to terms that are more frequently used in a document compared to the rest of the corpus, we just use a binary representation in which a term is given a value equal to one if it appears in the text. This approach allows us to more easily identify the research texts that contain broad terms that could characterise a field (e.g. 'macro', 'Nash equilibrium', 'causality'), rather than singling out terms used multiple times to describe the job market paper, but that could be very specific to a particular piece of research (e.g. 'assortative matching', 'babbling equilibiria'). Finally, following common recommendations for k-means clustering, we reduce the dimensionality of the problem by carrying out a PCA.

Figure D.1 shows the SSE of the k-means clustering procedure as a function of the number of clusters chosen. We identify a kink at four clusters, hence, using the 'elbow method', that is the final number of clusters we select in our analysis.

We validate these groupings by highlighting the mapping between them and the self-reported, unstructured primary research field that candidates add to their CV.[3] The word clouds in Figure D.2 show the frequency of the reported main fields for each of the candidates in each broad category. Three clearly identified broad groups emerge: macro, applied, and theory. 47% of candidates report 'Macro' as their main field in panel (a). Similarly, applicants listing 'Labor', 'Development', 'Public' or 'Applied Micro' make up 45% of those in panel (b); and those indicating 'Micro Theory', 'Industrial Organization', 'Econometrics', 'Behavioral', 'Applied Theory', 'Game Theory' or 'Economic Theory' represent 44% of the individuals in panel (c). The clustering procedure also creates a fourth category which we cannot credibly assign to a specific broad area and which as a result has been treated as residual.[4]

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[2] 84% are sliced based on the word 'job market paper' and 16% on 'dissertation'.

[3] 222 distinct fields are reported. While these fields do not necessarily map precisely into an existing JEL code, they are typically highly informative when it comes to the actual content of research pursued by the candidates. Moreover, not all candidates report a main field of specialization.
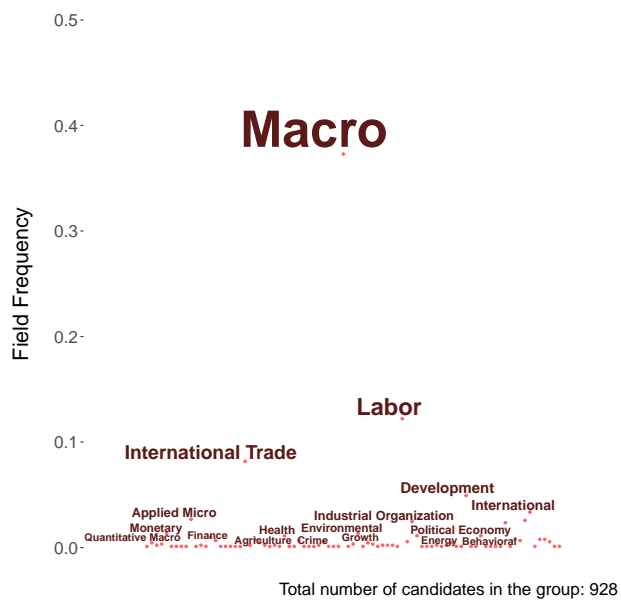
[4] We experiment with alternative definitions of research fields as controls in the baseline regressions in Section 5.3.
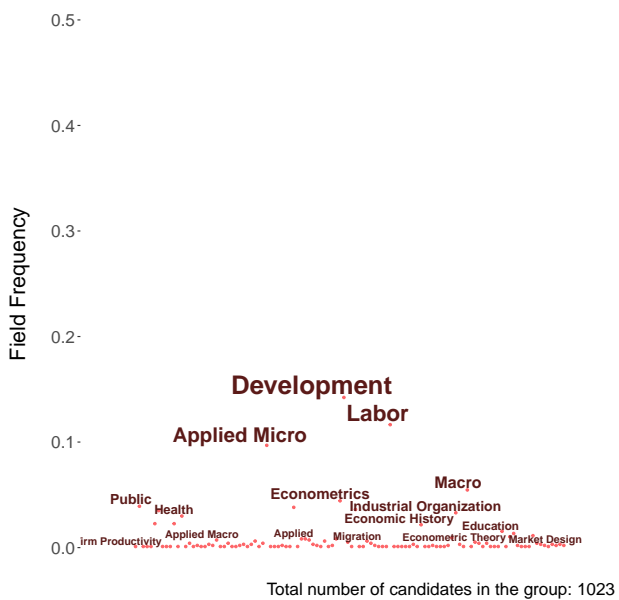
Figure D.1: SSE per cluster number
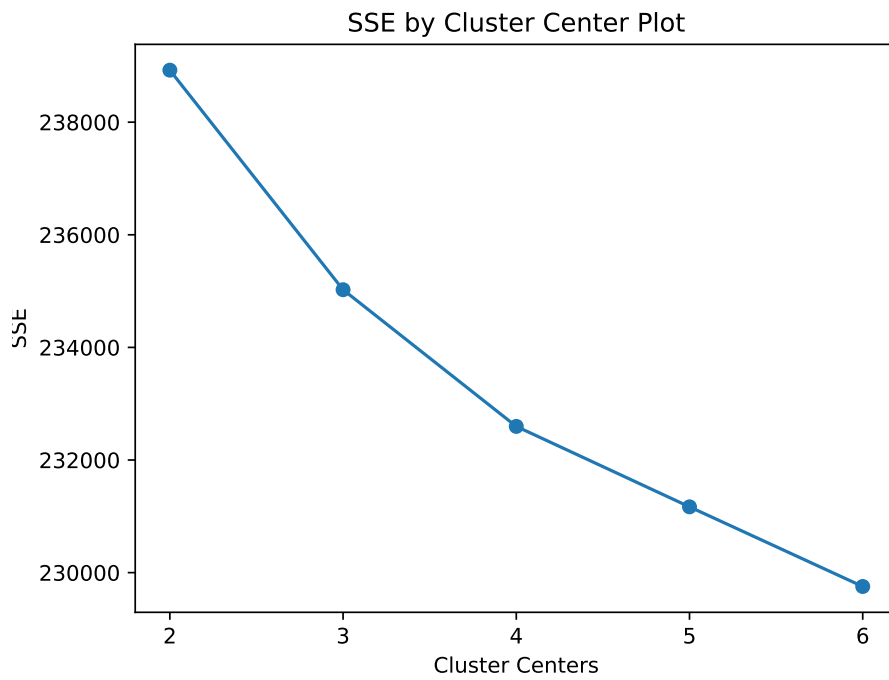
Notes: This figure presents the SSE of the k-means clustering procedure as a function of the number of clusters used to group candidates into research fields.
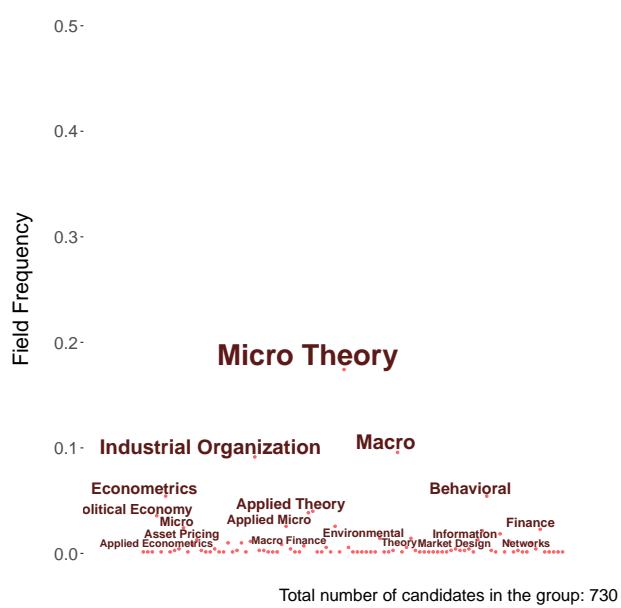
Figure D.2: Word clouds for Fields

(a) Macro

Total number of candidates in the group: 928

(b) Applied

Total number of candidates in the group: 1023

(c) Theory

Total number of candidates in the group: 730

(d) Residual

Total number of candidates in the group: 964
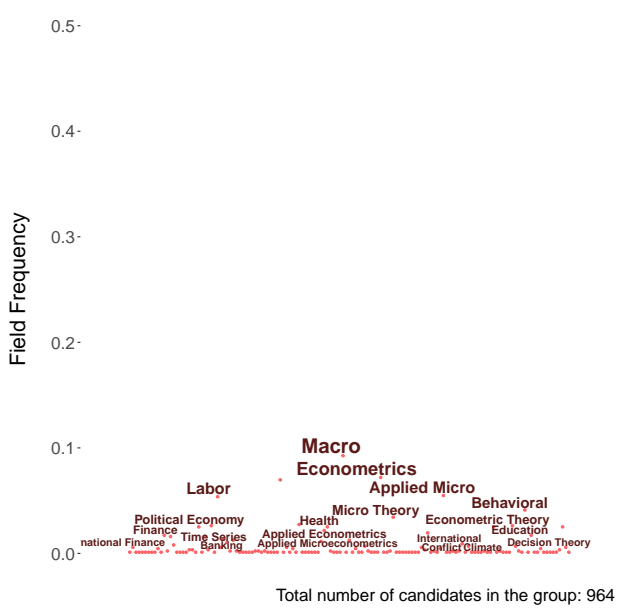
Notes: The word clouds depict the research fields freely written by candidates for each of the categories. For each category, the y-axis and the font size of the fields reflects its frequency as a primary field in the CVs of candidates that reported them. The fields are randomly distributed across the x-axis.

Figure D.3: Regression results, different candidate research fields
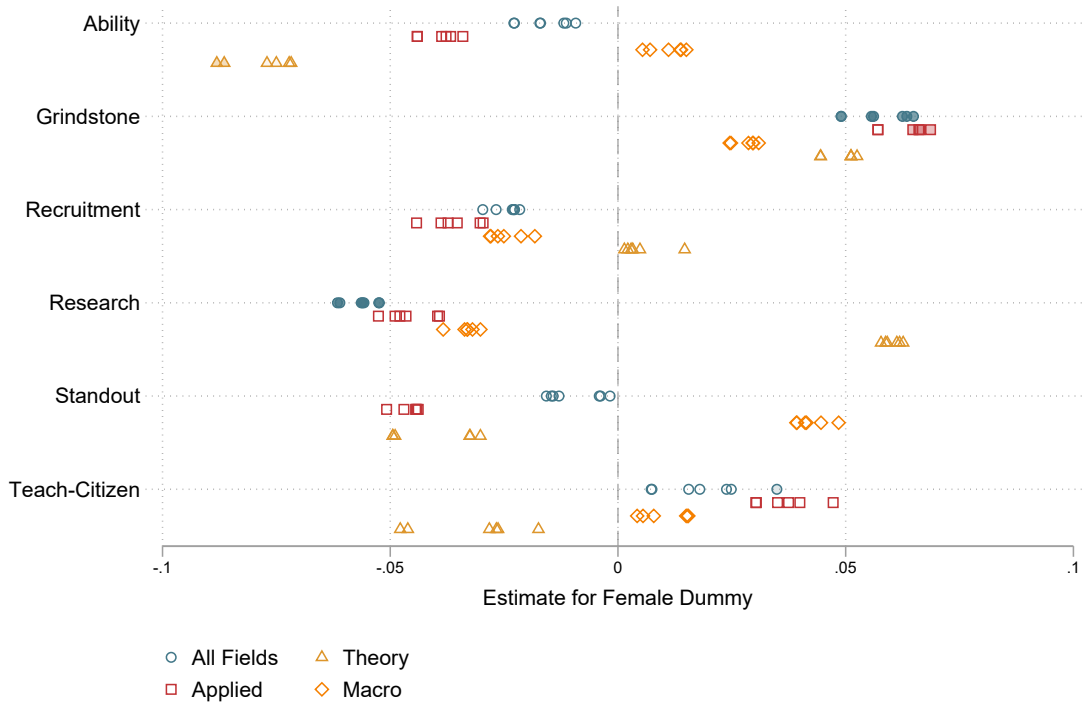
Notes: This figure shows the coefficient estimates for the regressions specified in equation 6, estimated separately for different (aggregated) research field clusters. We show the three most demanding specifications. The symbol's filling permit visualizing significance. The symbol's filling permits visualizing significance. Using 4 levels of possible standard error clustering (none, candidate's institution,letter-writer's institution, or letter writer), we flag significance at 3 different levels (10%, 5%, and 1%). We thus flag 12 possible significance indicators. Then, for each level of clustering, the symbol in the graph is shadowed with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. Additional information on the sample and results for the clustered standard errors by letter-writer are contained in Appendix Section D.

Table D.1: By Candidate Research Field

Broad Research Fields	(1) All Fields	(2) Macro	(3) Theory	(4) Applied Micro
Ability	-0.0229	0.0071	-0.0865	-0.0440
	(1.08)	(0.16)	(1.74)*	(1.22)
Grindstone	0.0490	0.0248	0.0445	0.0571
	(2.30)**	(0.59)	(0.81)	(1.52)
Recruitment	-0.0232	-0.0182	0.0048	-0.0303
	(1.12)	(0.45)	(0.08)	(0.85)
Research	-0.0561	-0.0319	0.0612	-0.0392
	(2.69)***	(0.77)	(1.14)	(1.08)
Standout	-0.0146	0.0446	-0.0302	-0.0444
	(0.70)	(1.10)	(0.59)	(1.22)
Teaching & Citizenship	0.0073	0.0055	-0.0461	0.0303
	(0.34)	(0.13)	(0.85)	(0.82)
FE/Variables absorbed	24	21	21	21
Additional Variables	7	7	7	7
Number of Letters	11638	2984	2328	3451
dto for females	3328	899	455	1144
Number of candidates	3645	928	730	1023
dto female	1068	284	146	352
Number of writers	5523	1614	1476	2367
dto female	965	270	163	465
Letters by fem writers	1723	445	210	654
Year FE	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes
Institution Rank FE	yes	yes	yes	yes
Years since PhD	yes	yes	yes	yes
Research Field FE	yes	n/a	n/a	n/a
Publications	yes	yes	yes	yes
Writer characteristics	yes	yes	yes	yes
Letter length	yes	yes	yes	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The regressions are run separately for candidates in each research field. See Section D for details on how the fields are constructed.

Return to Section 5.3 in the maintext.

E Robustness checks

Splitting the Teaching and Citizenship 'Sentiment'

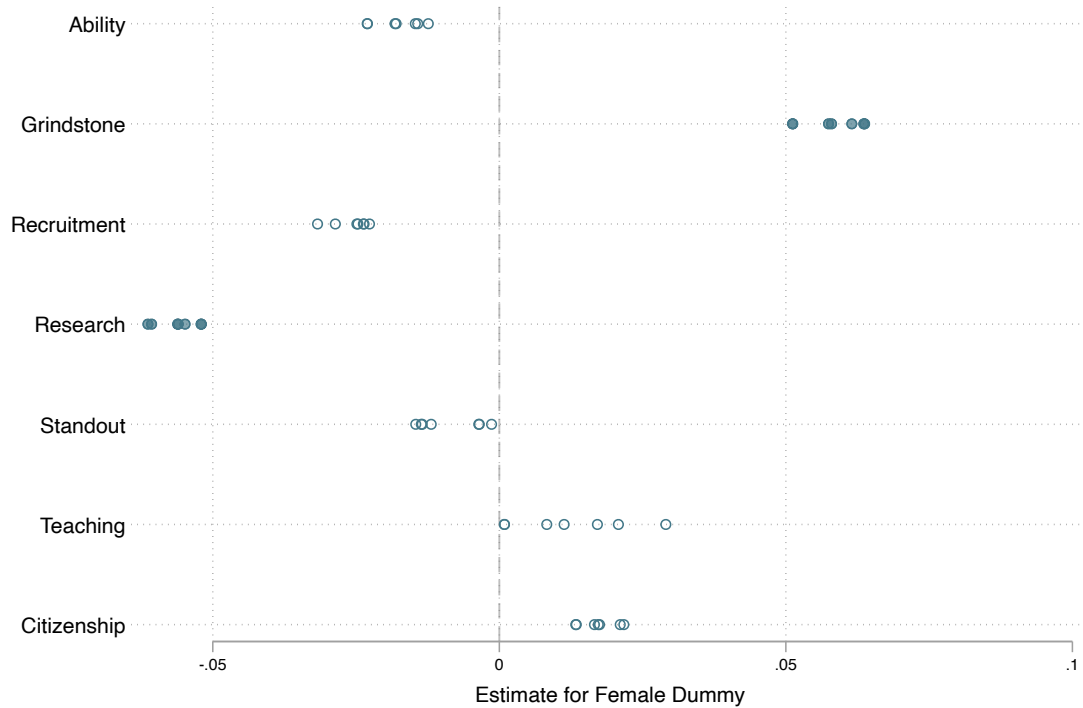Figure E.1: Regression results, separating teaching and citizenship

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Section 5.3 in the maintext.

Different letter end lengths

Figure E.2: Regression results, different end of letter lengths and full letter
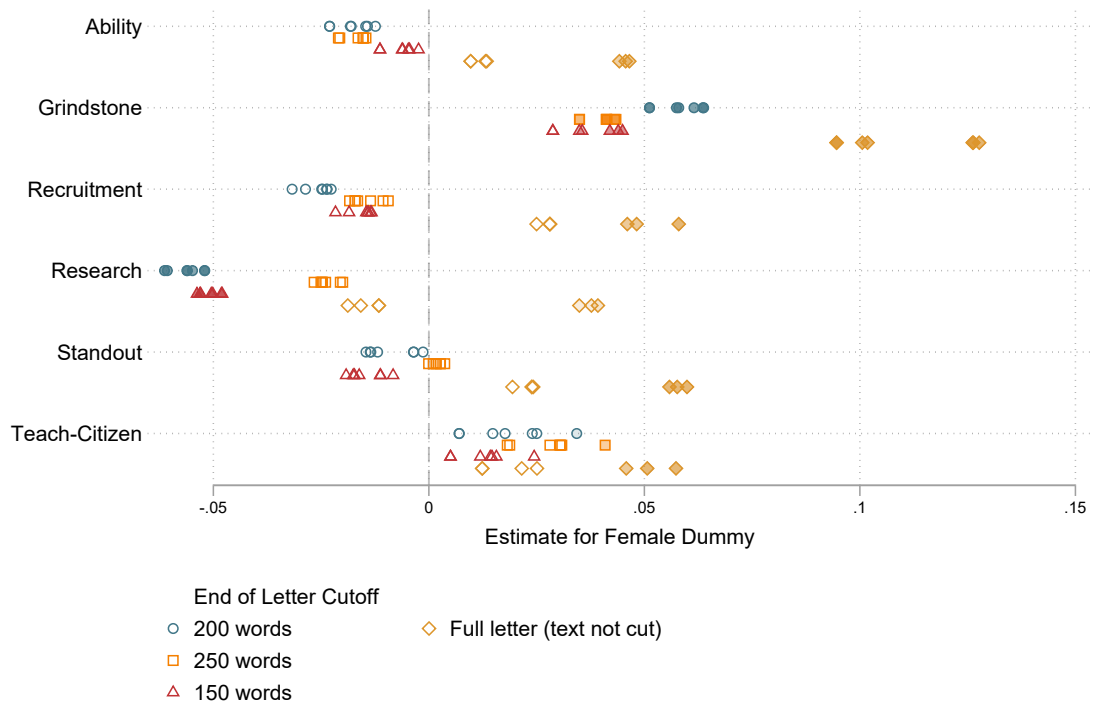
Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Regressions are estimated separately for the full letter and samples where the end letter is defined using 150, 200, or 250 words. Return to Section 5.3 in the maintext.

Table E.1: Different end of letter lengths and full letter

	(1)	(2)	(3)	(4)	(5)	(6)
	150 words		200 words		250 words	
Ability	-0.0048	-0.0114	-0.0147	-0.0231	-0.0164	-0.0207
	(0.23)	(0.54)	(0.70)	(1.10)	(0.79)	(0.98)
Grindstone	0.0449	0.0288	0.0637	0.0512	0.0434	0.0349
	(2.10)**	(1.35)	(3.02)***	(2.41)**	(2.08)**	(1.68)*
Recruitment	-0.0140	-0.0145	-0.0236	-0.0249	-0.0165	-0.0094
	(0.65)	(0.69)	(1.11)	(1.20)	(0.77)	(0.45)
Research	-0.0530	-0.0479	-0.0548	-0.0560	-0.0266	-0.0205
	(2.56)**	(2.29)**	(2.66)***	(2.71)***	(1.28)	(0.99)
Standout	-0.0112	-0.0175	-0.0035	-0.0136	0.0017	0.0010
	(0.53)	(0.83)	(0.17)	(0.66)	(0.08)	(0.05)
Teaching &	0.0244	0.0050	0.0343	0.0070	0.0409	0.0188
Citizenship	(1.15)	(0.24)	(1.60)	(0.33)	(1.90)*	(0.89)
FE/Variables absorbed	10	25	10	25	10	25
Additional Variables	1	7	1	7	1	7
Number of Letters	11814	11814	11846	11846	11794	11794
dto for females	3355	3355	3360	3360	3344	3344
Number of candidates	3722	3722	3721	3721	3718	3718
dto female	1082	1082	1082	1082	1079	1079
Number of writers	5652	5652	5655	5655	5617	5617
dto female	981	981	985	985	981	981
Letters by fem writers	1746	1746	1751	1751	1745	1745
Year FE	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	no	yes	no	yes
Years since PhD	no	yes	no	yes	no	yes
Research Field FE	no	yes	no	yes	no	yes
Publications	no	yes	no	yes	no	yes
Writer characteristics	no	yes	no	yes	no	yes
Letter length	no	yes	no	yes	no	yes

Notes: This table presents results for the analysis of three different letter end cut-offs: 150 words, 200 words or 250 words. For each category, we present the most parsimonious and the most elaborate regression model.
Return to Section 5.3 in the maintext.

Full Letter

Table E.2: Full Letters — By Writer Institutional Rank

Writer RePEc Rank	(1) All	(2) Top-25	(3) Top-100
Ability	0.0097	0.0303	-0.0003
	(0.46)	(0.64)	(0.01)
Grindstone	0.0946	0.1500	0.0843
	(4.51)***	(3.05)***	(2.75)***
Recruitment	0.0281	0.1130	0.0717
	(1.34)	(2.26)**	(2.30)**
Research	-0.0116	0.0345	0.0025
	(0.57)	(0.68)	(0.08)
Standout	0.0239	0.0593	0.0370
	(1.14)	(1.21)	(1.19)
Teaching &	0.0124	0.0577	0.0384
Citizenship	(0.63)	(1.19)	(1.29)
FE/Variables absorbed	25	20	23
Additional Variables	7	7	7
Number of Letters	11898	2228	5371
dto for females	3367	616	1513
Number of candidates	3721	1111	2304
dto female	1082	318	667
Number of writers	5670	971	2292
dto female	986	156	382
Letters by fem writers	1756	314	737
Year FE	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes
Institution Rank FE	yes	yes	yes
Years since PhD	yes	yes	yes
Research Field FE	yes	yes	yes
Publications	yes	yes	yes
Writer characteristics	yes	yes	yes
Letter length	yes	yes	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively.
The regressions are run for the full letter.
Return to Section 5.3 in the maintext.

Additional Controls

Figure E.3: Regression results, fields defined by platform and JMP acknowledgements as controls
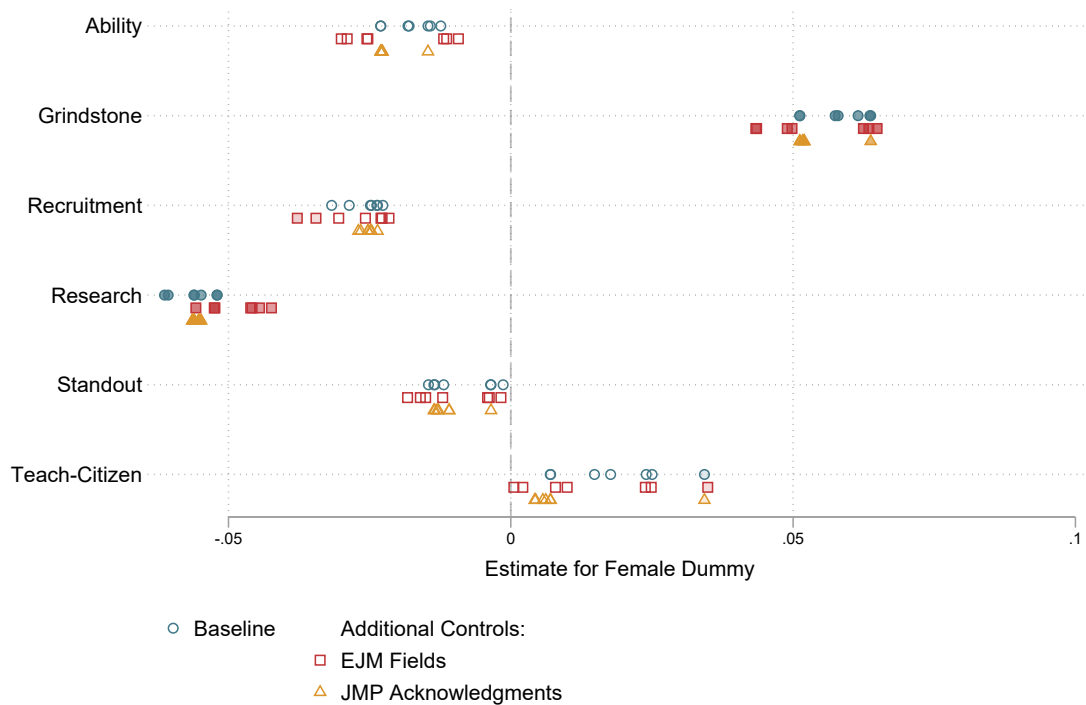

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. These specifications also include two sets of additional controls, either proxies of candidate's visibility using JMP acknowledgements, or alternative definitions of research fields using those pre-defined in the application platform. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Section 5.3 in the maintext.

Table E.3: Platform Fields as Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	-0.0119	-0.0093	-0.0113	-0.0253	-0.0255	-0.0300	-0.0290
	(0.56)	(0.44)	(0.54)	(1.16)	(1.17)	(1.38)	(1.33)
Grindstone	0.0649	0.0625	0.0634	0.0498	0.0490	0.0435	0.0434
	(3.05)***	(2.94)***	(2.99)***	(2.25)**	(2.21)**	(1.97)**	(1.97)**
Recruitment	-0.0230	-0.0228	-0.0216	-0.0378	-0.0345	-0.0305	-0.0257
	(1.08)	(1.08)	(1.02)	(1.75)*	(1.59)	(1.40)	(1.21)
Research	-0.0558	-0.0525	-0.0524	-0.0461	-0.0458	-0.0424	-0.0445
	(2.69)***	(2.53)**	(2.53)**	(2.15)**	(2.14)**	(1.97)**	(2.08)**
Standout	-0.0041	-0.0017	-0.0038	-0.0183	-0.0151	-0.0160	-0.0121
	(0.19)	(0.08)	(0.18)	(0.84)	(0.69)	(0.74)	(0.56)
Teaching &	0.0349	0.0249	0.0238	0.0100	0.0079	0.0006	0.0021
Citizenship	(1.62)	(1.16)	(1.11)	(0.45)	(0.35)	(0.02)	(0.10)
FE/Variables absorbed	10	15	15	159	159	165	165
Additional Variables	0	0	1	1	5	6	7
Number of Letters	11638	11638	11638	11482	11482	11482	11482
dto for females	3328	3328	3328	3268	3268	3268	3268
Number of candidates	3645	3645	3645	3591	3591	3591	3591
dto female	1068	1068	1068	1048	1048	1048	1048
Number of writers	5523	5523	5523	5466	5466	5466	5466
dto female	965	965	965	956	956	956	956
Letters by fem writers	1723	1723	1723	1704	1704	1704	1704
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
EJM Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. These specifications also include as controls alternative definitions of research fields using the fields pre-defined by the platform. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Section 5.3 in the maintext.
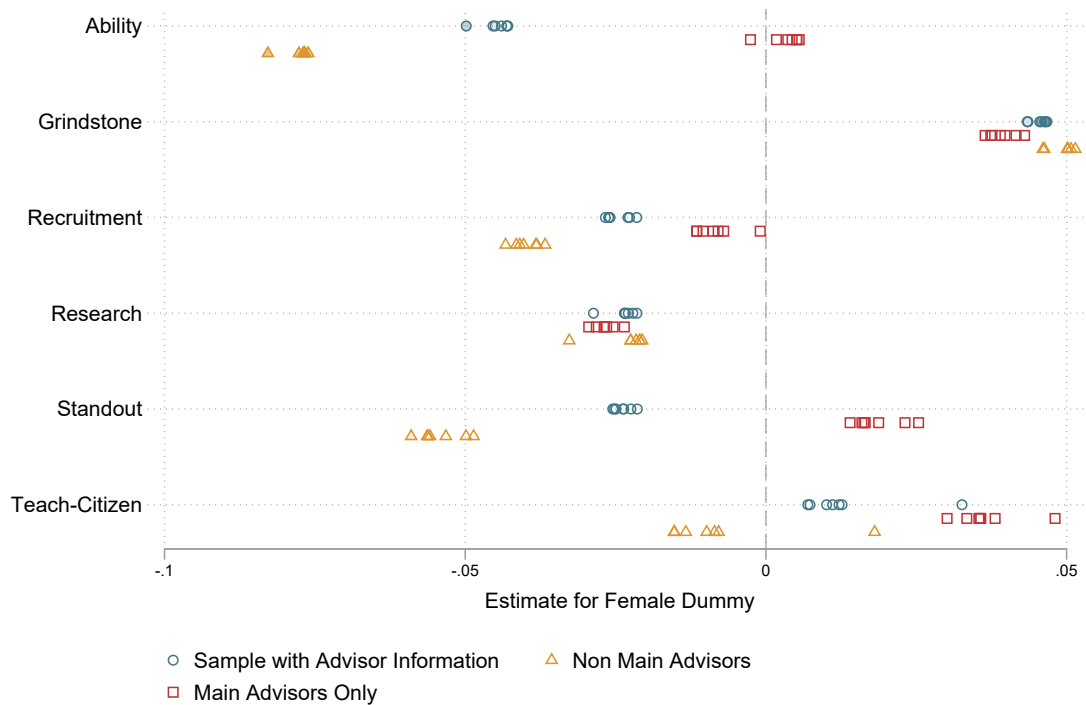
Main Advisor vs Other Letter Writers

Figure E.4: Regression results, main advisor vs other letter writers

Notes: This figure shows the coefficient estimates for the regressions specified in **??**, estimated separately for letters written by the main advisor and by others. We show the three most demanding specifications. The symbol's filling permit visualizing significance. Using 4 levels of possible standard error clustering (none, candidate's institution, letter-writer's institutions, and field), we flag significance at 3 different levels (10%, 5%, and 1%). We thus flag 12 possible significance indicators. Then, for each level of clustering, the symbol in the graph is shadowed with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The darker the symbol the more often they are significant. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. See overleaf for information on sample and results tables for clustering by letter writer. Return to Section 5.3 in the maintext.

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Table E.4: Main Advisors Only

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	-0.0026	0.0052	0.0051	0.0036	0.0055	-0.0016	0.0011
	(0.05)	(0.11)	(0.11)	(0.08)	(0.12)	(0.03)	(0.02)
Grindstone	0.0416	0.0364	0.0374	0.0376	0.0430	0.0401	0.0393
	(0.91)	(0.80)	(0.82)	(0.83)	(0.95)	(0.88)	(0.86)
Recruitment	-0.0088	-0.0105	-0.0115	-0.0115	-0.0070	-0.0036	0.0038
	(0.19)	(0.22)	(0.25)	(0.25)	(0.15)	(0.08)	(0.08)
Research	-0.0254	-0.0265	-0.0269	-0.0282	-0.0268	-0.0229	-0.0291
	(0.57)	(0.59)	(0.60)	(0.63)	(0.60)	(0.51)	(0.65)
Standout	0.0254	0.0163	0.0160	0.0140	0.0165	0.0190	0.0236
	(0.54)	(0.35)	(0.34)	(0.30)	(0.35)	(0.41)	(0.50)
Teaching &	0.0481	0.0356	0.0357	0.0354	0.0381	0.0248	0.0282
Citizenship	(1.03)	(0.77)	(0.77)	(0.76)	(0.82)	(0.53)	(0.61)
FE/Variables absorbed	10	15	15	19	19	25	25
Additional Variables	0	0	1	1	5	6	7
Number of Letters	2348	2348	2348	2348	2348	2348	2348
dto for females	683	683	683	683	683	683	683
Number of candidates	1875	1875	1875	1875	1875	1875	1875
dto female	536	536	536	536	536	536	536
Number of writers	1523	1523	1523	1523	1523	1523	1523
dto female	217	217	217	217	217	217	217
Letters by fem writers	298	298	298	298	298	298	298
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The sample includes letters written by the main advisors, for candidates for whom that information was available and who obtained their Ph.D. 0-3 years before they enter our sample. Return to Section 5.3 in the maintext.

Table E.5: Exclude Main Advisors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	-0.0828	-0.0769	-0.0767	-0.0776	-0.0761	-0.0869	-0.0869
	(2.23)**	(2.07)**	(2.06)**	(2.08)**	(2.04)**	(2.32)**	(2.32)**
Grindstone	0.0501	0.0507	0.0515	0.0502	0.0502	0.0362	0.0362
	(1.32)	(1.33)	(1.35)	(1.31)	(1.31)	(0.95)	(0.95)
Recruitment	-0.0433	-0.0415	-0.0409	-0.0403	-0.0381	-0.0316	-0.0316
	(1.11)	(1.07)	(1.06)	(1.04)	(0.98)	(0.82)	(0.84)
Research	-0.0327	-0.0225	-0.0225	-0.0216	-0.0210	-0.0102	-0.0102
	(0.86)	(0.59)	(0.59)	(0.56)	(0.55)	(0.26)	(0.27)
Standout	-0.0590	-0.0562	-0.0563	-0.0558	-0.0532	-0.0504	-0.0504
	(1.60)	(1.52)	(1.52)	(1.51)	(1.44)	(1.36)	(1.38)
Teaching &	0.0181	-0.0079	-0.0085	-0.0098	-0.0133	-0.0299	-0.0299
Citizenship	(0.47)	(0.21)	(0.23)	(0.26)	(0.35)	(0.80)	(0.80)
FE/Variables absorbed	10	15	15	19	19	25	25
Additional Variables	0	0	1	1	5	6	7
Number of Letters	3733	3733	3733	3733	3733	3733	3733
dto for females	1030	1030	1030	1030	1030	1030	1030
Number of candidates	1850	1850	1850	1850	1850	1850	1850
dto female	524	524	524	524	524	524	524
Number of writers	2522	2522	2522	2522	2522	2522	2522
dto female	434	434	434	434	434	434	434
Letters by fem writers	628	628	628	628	628	628	628
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The sample includes the letters written by referees who are not the main advisor, for candidates for whom this information was available and who obtained their Ph.D. 0-3 years before they appear in our data. Return to Section 5.3 in the maintext.

Location of PhD-granting institution

Figure E.5: Regression results, by location of letter writer institution
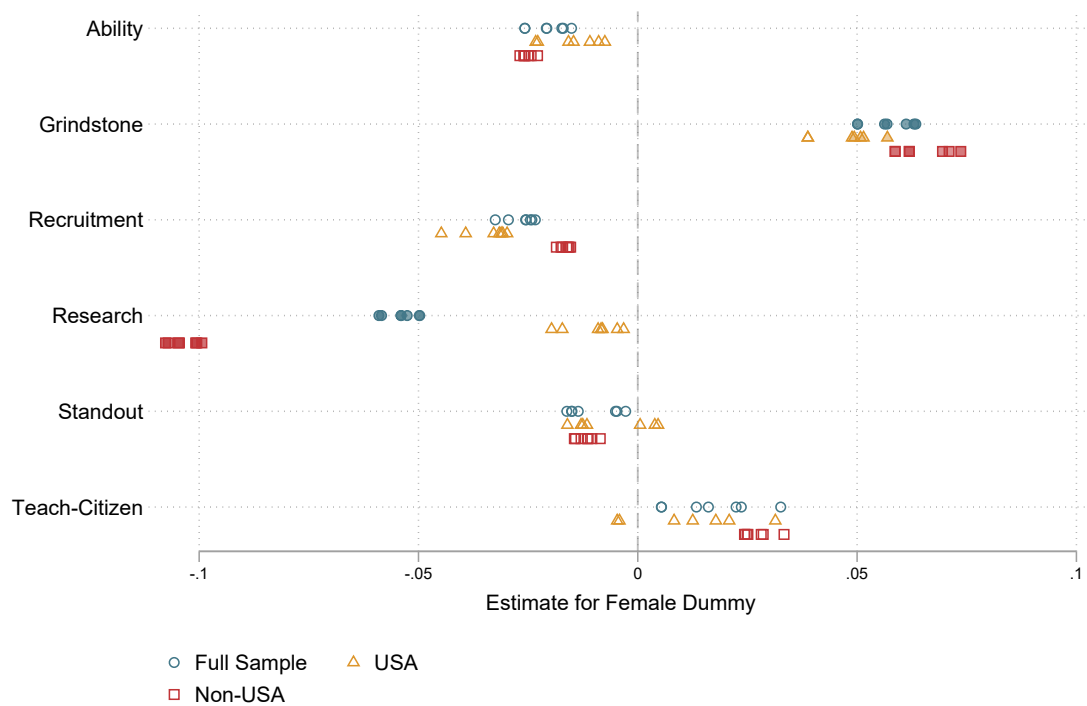
Notes: This figure shows the coefficient estimates for the regressions specified in **??**, estimated separately for letter writers based in the US and in all other countries. We show the three most demanding specifications. The symbol's filling permit visualizing significance. Using 4 levels of possible standard error clustering (none, candidate's institution, letter-writer's institutions, and field), we flag significance at 3 different levels (10%, 5%, and 1%). We thus flag 12 possible significance indicators. Then, for each level of clustering, the symbol in the graph is shadowed with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The darker the symbol the more often they are significant. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. Return to Section 5.3 in the maintext.

Table E.6: US-based candidates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	-0.0089	-0.0075	-0.0109	-0.0158	-0.0146	-0.0228	-0.0233
	(0.31)	(0.26)	(0.38)	(0.56)	(0.51)	(0.79)	(0.81)
Grindstone	0.0569	0.0515	0.0508	0.0494	0.0489	0.0388	0.0388
	(1.91)*	(1.73)*	(1.70)*	(1.64)	(1.61)	(1.30)	(1.30)
Recruitment	-0.0308	-0.0329	-0.0316	-0.0448	-0.0392	-0.0298	-0.0311
	(1.04)	(1.12)	(1.08)	(1.53)	(1.34)	(1.02)	(1.09)
Research	-0.0080	-0.0032	-0.0047	-0.0197	-0.0172	-0.0090	-0.0084
	(0.28)	(0.11)	(0.16)	(0.68)	(0.60)	(0.31)	(0.29)
Standout	0.0046	0.0039	0.0005	-0.0160	-0.0125	-0.0116	-0.0129
	(0.16)	(0.13)	(0.02)	(0.56)	(0.44)	(0.40)	(0.46)
Teaching & Citizenship	0.0314	0.0209	0.0178	0.0125	0.0083	-0.0042	-0.0047
	(1.05)	(0.71)	(0.60)	(0.42)	(0.28)	(0.14)	(0.16)
FE/Variables absorbed	10	15	15	19	19	25	25
Additional Variables	0	0	1	1	5	6	7
Number of Letters	5969	5969	5969	5969	5969	5969	5969
dto for females	1716	1716	1716	1716	1716	1716	1716
Number of candidates	1874	1874	1874	1874	1874	1874	1874
dto female	552	552	552	552	552	552	552
Number of writers	2749	2749	2749	2749	2749	2749	2749
dto female	521	521	521	521	521	521	521
Letters by fem writers	981	981	981	981	981	981	981
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The sample includes letters in support of candidates who obtained their Ph.D. in institutions in the U.S.. Return to Section 5.3 in the maintext.

Table E.7: Non US-based candidates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ability	-0.0217	-0.0174	-0.0188	-0.0205	-0.0195	-0.0203	-0.0205
	(0.71)	(0.57)	(0.62)	(0.67)	(0.64)	(0.66)	(0.67)
Grindstone	0.0699	0.0714	0.0744	0.0634	0.0636	0.0601	0.0602
	(2.34)**	(2.40)**	(2.50)**	(2.13)**	(2.13)**	(2.01)**	(2.01)**
Recruitment	-0.0178	-0.0143	-0.0149	-0.0146	-0.0139	-0.0155	-0.0167
	(0.58)	(0.48)	(0.49)	(0.48)	(0.46)	(0.51)	(0.56)
Research	-0.1052	-0.1050	-0.1040	-0.1116	-0.1121	-0.1088	-0.1082
	(3.59)***	(3.56)***	(3.53)***	(3.74)***	(3.75)***	(3.64)***	(3.65)***
Standout	-0.0105	-0.0059	-0.0077	-0.0085	-0.0085	-0.0111	-0.0118
	(0.34)	(0.19)	(0.25)	(0.28)	(0.28)	(0.36)	(0.39)
Teaching &	0.0367	0.0313	0.0320	0.0283	0.0283	0.0277	0.0273
Citizenship	(1.21)	(1.03)	(1.05)	(0.93)	(0.92)	(0.92)	(0.91)
FE/Variables absorbed	10	15	15	19	19	25	25
Additional Variables	0	0	1	1	5	6	7
Number of Letters	5877	5877	5877	5877	5877	5877	5877
dto for females	1644	1644	1644	1644	1644	1644	1644
Number of candidates	1847	1847	1847	1847	1847	1847	1847
dto female	530	530	530	530	530	530	530
Number of writers	3301	3301	3301	3301	3301	3301	3301
dto female	505	505	505	505	505	505	505
Letters by fem writers	770	770	770	770	770	770	770
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer characteristics	no	no	no	no	no	yes	yes
Letter length	no	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of each 'sentiment' (e.g. ability, grindstone, etc) on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The sample includes letters in support of candidates who obtained their Ph.D. in institutions outside the U.S.. Return to Section 5.3 in the maintext.

Postdocs vs Others

Figure E.6: Regression results, Postdocs and Candidates Freshly out of Ph.D.
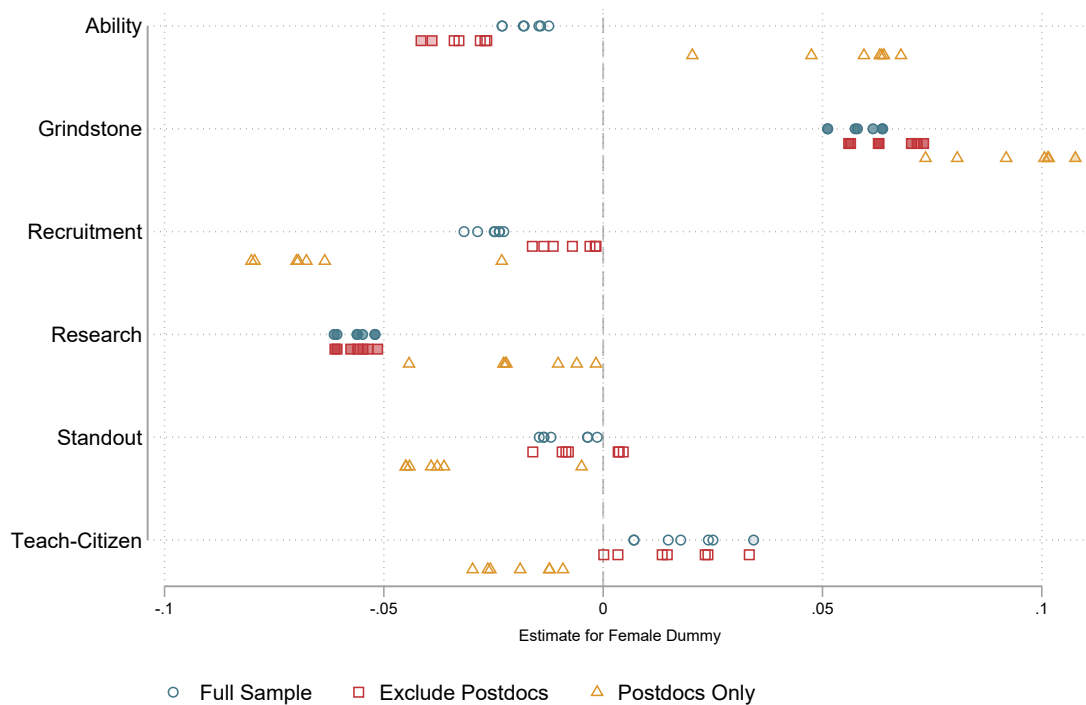
Notes: This figure shows the coefficient estimates for the regressions specified in **??**, estimated separately for postdocs and those who are freshly out of PhD programs. We show the three most demanding specifications. The symbol's filling permit visualizing significance. Using 4 levels of possible standard error clustering (none, candidate's institution, letter-writer's institutions, and field), we flag significance at 3 different levels (10%, 5%, and 1%). We thus flag 12 possible significance indicators. Then, for each level of clustering, the symbol in the graph is shadowed with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The darker the symbol the more often they are significant. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. See overleaf for information on sample and results tables for clustering by letter writer. Return to Section 5.3 in the maintext.

Seniority of Letterwriter

Figure E.7: Regression results, by year of PhD for letterwriter

Notes: This figure shows the coefficient estimates for the regressions specified in **??**, estimated separately for letters written by the advisors who obtained their PhDs before or after 2000. We show the three most demanding specifications. The symbol's filling permit visualizing significance. Using 4 levels of possible standard error clustering (none, candidate's institution, letter-writer's institutions, and field), we flag significance at 3 different levels (10%, 5%, and 1%). We thus flag 12 possible significance indicators. Then, for each level of clustering, the symbol in the graph is shadowed with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The darker the symbol the more often they are significant. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. See overleaf for information on sample and results tables for clustering by letter writer. Return to Section 5.3 in the maintext.
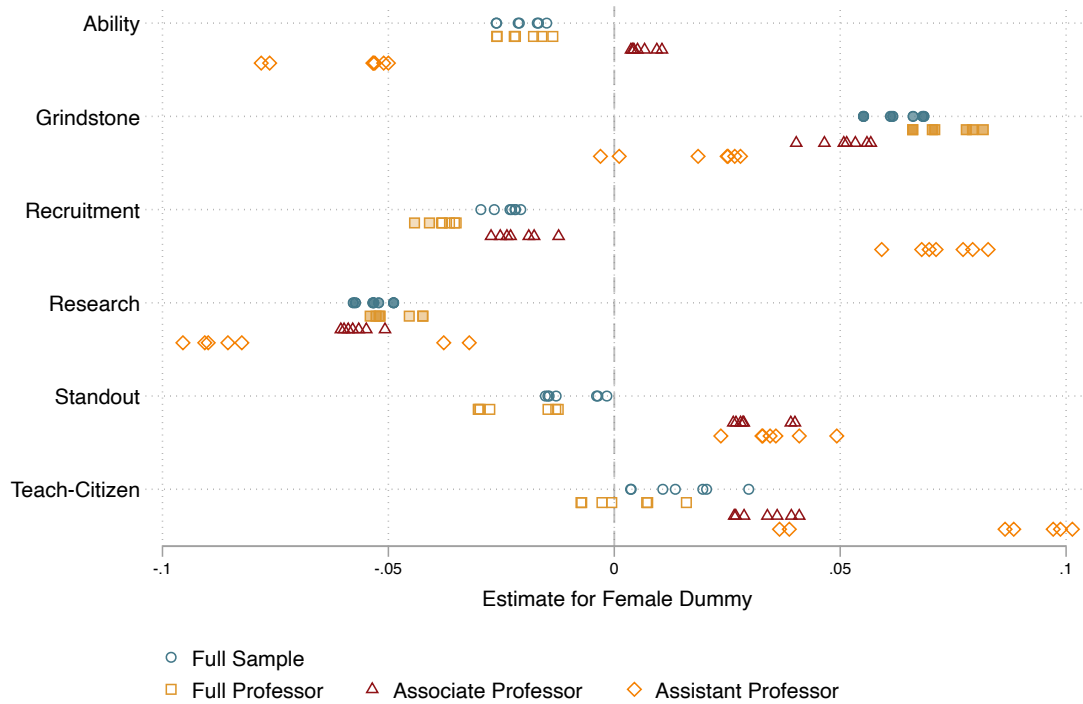
Figure E.8: Regression results, by Academic Rank of Letterwriter

Notes: This figure shows the coefficient estimates for the regressions specified in **??**, estimated separately for letters written by the advisors who obtained their PhDs before or after 2000. We show the three most demanding specifications. The symbol's filling permit visualizing significance. Using 4 levels of possible standard error clustering (none, candidate's institution, letter-writer's institutions, and field), we flag significance at 3 different levels (10%, 5%, and 1%). We thus flag 12 possible significance indicators. Then, for each level of clustering, the symbol in the graph is shadowed with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The darker the symbol the more often they are significant. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. See overleaf for information on sample and results tables for clustering by letter writer. Return to Section 5.3 in the maintext.
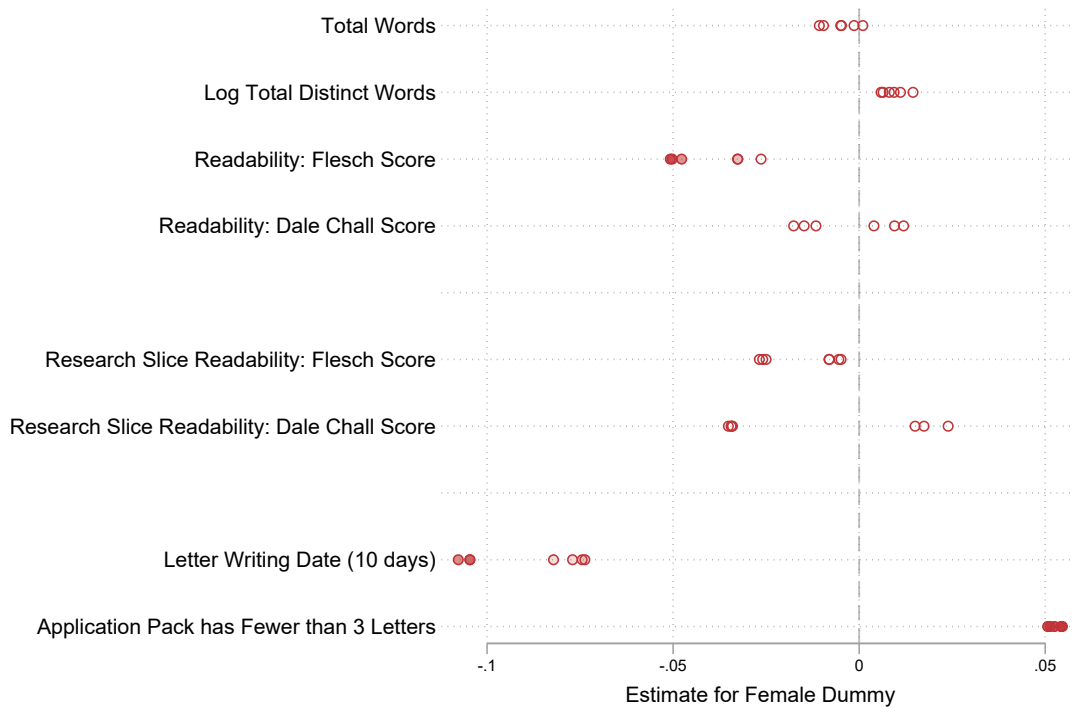
F   Additional Results

Figure F.1: Regression Results Length, Readability and Timeliness

Notes: This figure shows the coefficient estimates for the regressions specified in **??** when outcomes are proxies for length and readability of the letter (first four rows), readability of the research slice (next two rows), and the letter date (final row). The symbol's filling permit visualizing significance. In the first to seventh line, we use four levels of possible standard error clustering (none, candidate's institution, letter-writer's institution, or letter writer), flag significance at three different levels (10%, 5%, and 1%). Then, for each level of clustering, the symbol in the graph is shaded with a 9% ($\approx 100/12$) opacity when it reaches significance at each possible level. The regression reported in the eighth line is conducted at the *candidate* level, hence only two clustering levels are used (none, and letter writer institution). The symbols are then shaded accordingly. The darker the symbol the more often they are significant. The darker the symbol, the more often it is significant. Fully filled symbols are significant at 1% level across all possible clustering. Hollow symbols do not reach significance for any level of standard error clustering. Return to Section 5.4 in the maintext.

Table F.1: Readability

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Full Letter						
(a) Word Counts as Dependent Variable						
Number of words	-0.0096	-0.0048	-0.0107	-0.0049	-0.0014	0.0010
	(0.44)	(0.22)	(0.51)	(0.24)	(0.07)	(0.05)
Log (Number of words)	0.0081	0.0145	0.0064	0.0059	0.0094	0.0111
	(0.38)	(0.70)	(0.31)	(0.30)	(0.48)	(0.56)
(b) Writing Quality Measures as Dependent Variable						
Flesch Readability	-0.0477	-0.0502	-0.0507	-0.0326	-0.0327	-0.0264
(higher=easier)	(2.28)**	(2.39)**	(2.41)**	(1.56)	(1.56)	(1.27)
Dale-Chall Readability	0.0095	0.0040	0.0119	-0.0116	-0.0148	-0.0176
(higher=harder)	(0.45)	(0.19)	(0.57)	(0.57)	(0.73)	(0.88)
FE/Variables absorbed	10	15	15	19	19	25
Additional Variables	0	0	1	1	5	6
Number of Letters	11846	11846	11846	11846	11846	11846
dto for females	3360	3360	3360	3360	3360	3360
Number of candidates	3721	3721	3721	3721	3721	3721
dto female	1082	1082	1082	1082	1082	1082
Number of writers	5655	5655	5655	5655	5655	5655
dto female	985	985	985	985	985	985
Letters by fem writers	1751	1751	1751	1751	1751	1751
Panel B: Research 'Slice'						
Writing Quality Measures as Dependent Variable						
Flesch Readability	-0.0268	-0.0259	-0.0250	-0.0081	-0.0080	-0.0049
(higher = easier)	(1.03)	(0.99)	(0.96)	(0.31)	(0.31)	(0.19)
Dale-Chall Readability	0.0239	0.0150	0.0174	-0.0344	-0.0343	-0.0340
(higher = harder)	(0.91)	(0.58)	(0.67)	(1.35)	(1.35)	(1.36)
FE/Variables absorbed	10	15	15	18	18	24
Additional Variables	0	0	1	1	5	6
Number of Letters	8010	8010	8010	8010	8010	8010
dto for females	2348	2348	2348	2348	2348	2348
Number of candidates	3203	3203	3203	3203	3203	3203
dto female	934	934	934	934	934	934
Number of writers	3834	3834	3834	3834	3834	3834
dto female	659	659	659	659	659	659
Letters by fem writers	1199	1199	1199	1199	1199	1199
Year FE	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes
Publications	no	no	no	no	yes	yes
Writer	no	no	no	no	no	yes

Notes: The table shows results of the OLS regression of proxies of length and readability of the letter (Panel A), readability of the research slice (Panel B), and the letter date (Panel C), on a female candidate indicator as well as controls mentioned in the text. The table reports the estimate for the female indicator. Each row reports a different outcome, whereas each column reports a different specification. Standard errors are clustered at the letter writer level, we report the absolute t-statistics in parentheses. The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. The sample includes letters in support of candidates who obtained their Ph.D. in institutions outside the U.S. Return to Section 5.4 in the maintext.

Table F.2: Timing of the Reference Letter; Incomplete Set of References

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Letter dates							
Female candidate	-1.0772	-1.0461	-1.0461	-0.7702	-0.8214	-0.7443	-0.7371
	(2.47)**	(2.39)**	(2.39)**	(1.76)*	(1.88)*	(1.71)*	(1.69)*
FE/Variables absorbed	10	15	15	19	19	25	25
Additional variables	0	0	1	1	5	6	7
Number of Letters	6335	6335	6335	6335	6335	6335	6335
dto for females	1921	1921	1921	1921	1921	1921	1921
Number of candidates	2518	2518	2518	2518	2518	2518	2518
dto female	766	766	766	766	766	766	766
Number of writers	3362	3362	3362	3362	3362	3362	3362
dto female	571	571	571	571	571	571	571
Letters by fem writers	962	962	962	962	962	962	962
Year FE	yes	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	yes	yes	yes	yes	yes	yes	yes
Institution Rank FE	no	yes	yes	yes	yes	yes	yes
Years since PhD	no	no	yes	yes	yes	yes	yes
Research Field FE	no	no	no	yes	yes	yes	yes
Publications	no	no	no	no	yes	yes	yes
Writer	no	no	no	no	no	yes	yes
letter	no	no	no	no	no	no	yes
Panel B: Missing Letters							
Female candidate Female candidate	0.0520	0.0513	0.0533	0.0551	0.0547		
	(4.59)***	(4.58)***	(4.79)***	(4.99)***	(4.96)***		
FE/Variables absorbed	10	15	15	19	19		
Additional Variables	0	0	1	1	5		
Number of candidates	3617	3617	3617	3617	3617		
dto female	1019	1019	1019	1019	1019		
Year FE	yes	yes	yes	yes	yes		
Ethnicity/Race FE	yes	yes	yes	yes	yes		
Institution Rank FE	no	yes	yes	yes	yes		
Years since PhD	no	no	yes	yes	yes		
Research Field FE	no	no	no	yes	yes		
Publications	no	no	no	no	yes		

Notes: The table shows two sets of OLS regression results: in Panel (A), we provide results for the date of creation mentioned in reference letter (analysis at the *letter* level; not all letters carry a date); in Panel (B), we provide results for a dummy variable indicating candidates which received fewer than three reference letters (analysis at the *candidate* level). In both cases, the dependent variable is regressed on a female candidate indicator as well as controls as indicated. Standard errors are clustered at the letterwriter level in Panel (A) and at the candidate institution level in Panel (B), we report the absolute t-statistics in parentheses. Results can be interpreted as follows: in Panel (A) in days relative to letters for male candidates; in Panel (B) as percentage differences in the propensity of having fewer than 3 letters for women relative to men (unconditional propensity: 4%). The coefficients are reported in terms of standard deviations of the dependent variable. *, ** and *** indicate statistical significance at the 10%, 5% and 1% level, respectively. Return to Section 5.4 in the maintext.

Table F.3: Letter Sentiment and Placement (Robustness)

	(1)	(2)	(3)	(4)
Dependent Variable	Inst. RePEc Score (log)		Top-100 RePEc Inst.	
Sample	Academic Placements		AP & Postdoc	
Controls	Sentiment	All	Sentiment	All
Female Candidate	9.3252	19.2084	7.5799	10.9847
	(0.58)	(1.25)	(1.91)*	(2.86)***
Ability	1.6531	1.8071	0.5855	0.5609
	(0.61)	(0.67)	(0.97)	(0.96)
Ability ×	2.7112	1.4957	-0.1985	-0.4135
Female Candidate	(0.58)	(0.32)	(0.18)	(0.37)
Grindstone	-2.9895	-1.8209	-0.1255	0.2650
	(1.28)	(0.80)	(0.20)	(0.45)
Grindstone ×	-7.5681	-7.7581	-2.4693	-2.7180
Female Candidate	(1.71)*	(1.78)*	(2.31)**	(2.63)***
Recruitment	2.9000	1.5280	1.7340	0.6311
	(1.15)	(0.61)	(2.84)***	(1.04)
Recruitment ×	-1.5203	-1.0979	-1.5329	-1.3706
Female Candidate	(0.34)	(0.25)	(1.44)	(1.30)
Research	0.5148	2.4035	0.4740	0.8602
	(0.21)	(1.01)	(0.79)	(1.50)
Research ×	1.4390	-0.9855	-0.6586	-0.9413
Female Candidate	(0.32)	(0.23)	(0.58)	(0.85)
Standout	0.9753	-0.6135	1.0028	-0.0220
	(0.37)	(0.24)	(1.72)*	(0.04)
Standout ×	5.7513	6.0360	1.0984	0.8186
Female Candidate	(1.25)	(1.37)	(0.96)	(0.74)
Teaching and	2.1171	5.1195	-0.8781	0.4205
Citizenship	(0.84)	(2.05)**	(1.45)	(0.72)
T&C ×	-6.0157	-7.8696	-1.1095	-1.4545
Female Candidate	(1.42)	(1.89)*	(1.05)	(1.42)
FE absorbed	5	25	5	25
Add. covariates	0	6	0	6
Number of Letters	3119	3119	6008	6008
dto for females	991	991	1872	1872
Number of candidates	957	957	1865	1865
dto female	313	313	596	596
Number of writers	2091	2091	3453	3453
dto female	324	324	586	586
Letters by fem writers	445	445	910	910
Year FE	yes	yes	yes	yes
Letter Sentiments	yes	yes	yes	yes
Ethnicity/Race FE	no	yes	no	yes
Institution Rank FE	no	yes	no	yes
Years since PhD	no	yes	no	yes
Research Field FE	no	yes	no	yes
Publications	no	yes	no	yes
Writer Chars	no	yes	no	yes
Letter length	no	yes	no	yes

Notes: This table presents alternative definitions of placement outcomes (rank score in logs and top-100 institutions). See footnote in Table **??**. Return to Section **??** in the maintext.

Table F.4: Letter Sentiment and Placement (including Signals)

Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
	Academia (dummy)		Inst. RePEc Score		Top-200 RePEc Inst.	
Sample	All Placements		Academic Placements		AP & Postdoc	
Controls	Sentiment	All	Sentiment	All	Sentiment	All
Female Candidate	8.6237	7.8232	16.8397	24.9645	7.5741	11.4953
	(2.29)**	(2.09)**	(1.16)	(1.74)*	(1.65)*	(2.57)**
Ability	0.1386	0.0870	0.9225	0.4153	0.9198	0.8562
	(0.23)	(0.15)	(0.38)	(0.17)	(1.30)	(1.26)
Ability × Female Candidate	0.0067	0.0308	1.7861	1.4028	0.3317	0.1342
	(0.01)	(0.03)	(0.43)	(0.33)	(0.26)	(0.11)
Grindstone	-0.4505	-0.5431	-2.4371	-1.1046	-0.2880	0.0184
	(0.76)	(0.92)	(1.03)	(0.48)	(0.40)	(0.03)
Grindstone × Female Candidate	0.1612	0.2200	-10.1305	-10.4176	-2.3120	-2.5590
	(0.16)	(0.22)	(2.42)**	(2.51)**	(1.91)*	(2.14)**
Recruitment	0.5132	0.6884	0.9931	-0.4495	0.8063	-0.1262
	(0.75)	(1.01)	(0.37)	(0.17)	(1.02)	(0.17)
Recruitment × Female Candidate	-0.4642	-0.6470	-1.7615	-1.2264	-0.3591	-0.1618
	(0.40)	(0.56)	(0.39)	(0.27)	(0.26)	(0.12)
Research	-0.5320	-0.3237	3.1107	4.9813	0.5463	1.0802
	(0.86)	(0.53)	(1.32)	(2.17)**	(0.78)	(1.60)
Research × Female Candidate	-1.7531	-1.7302	0.2748	-1.4458	-0.6939	-1.0414
	(1.64)	(1.62)	(0.07)	(0.36)	(0.54)	(0.82)
Standout	1.7139	1.7950	-1.7321	-2.5848	0.4953	-0.3647
	(2.90)***	(3.05)***	(0.71)	(1.07)	(0.72)	(0.56)
Standout × Female Candidate	-1.9051	-1.8428	8.0671	7.2202	2.7592	2.4037
	(1.75)*	(1.72)*	(1.96)**	(1.80)*	(2.06)**	(1.84)*
Teaching and Citizenship	0.2128	-0.0931	2.4058	4.8624	-0.9439	0.6052
	(0.35)	(0.15)	(1.02)	(2.08)**	(1.31)	(0.87)
T&C × Female Candidate	1.7578	1.9892	-7.5156	-9.0258	-3.6498	-4.1713
	(1.71)*	(1.95)*	(1.87)*	(2.29)**	(2.92)***	(3.41)***
Positive Signal	3.6735	3.7595	22.1071	15.7472	12.1105	7.6013
	(2.66)***	(2.73)***	(4.15)***	(2.99)***	(6.85)***	(4.48)***
Positive Signal × Female Candidate	0.2141	0.1707	-3.0156	-4.5775	-1.0424	-1.5793
	(0.09)	(0.07)	(0.32)	(0.50)	(0.33)	(0.51)
Negative Signal	-3.9254	-3.6353	-15.5574	-9.4048	-8.9975	-5.8144
	(2.13)**	(1.97)**	(1.98)**	(1.22)	(4.24)***	(2.84)***
Negative Signal × Female Candidate	8.1602	7.8623	-4.5804	-7.6069	3.9169	2.2198
	(2.57)**	(2.47)**	(0.33)	(0.56)	(1.00)	(0.57)
Comparison	2.0270	1.6018	15.6283	14.7023	4.3365	3.5977
	(0.84)	(0.66)	(1.79)*	(1.69)*	(1.41)	(1.25)
Comparison × Female Candidate	1.1538	1.6505	-24.6483	-21.6779	-5.5608	-4.9854
	(0.28)	(0.41)	(1.53)	(1.34)	(1.11)	(1.02)
FE absorbed	5	25	5	25	5	25
Add. covariates	0	6	0	6	0	6
Number of Letters	8760	8760	3119	3119	6008	6008
dto for females	2588	2588	991	991	1872	1872
Number of candidates	2738	2738	957	957	1865	1865
dto female	830	830	313	313	596	596
Number of writers	4461	4461	2091	2091	3453	3453
dto female	774	774	324	324	586	586
Letters by fem writers	1339	1339	445	445	910	910
Year FE	yes	yes	yes	yes	yes	yes
Letter Sentiments	yes	yes	yes	yes	yes	yes
Ethnicity/Race FE	no	yes	no	yes	no	yes
Institution Rank FE	no	yes	no	yes	no	yes
Years since PhD	no	yes	no	yes	no	yes
Research Field FE	no	yes	no	yes	no	yes
Publications	no	yes	no	yes	no	yes
Writer Chars	no	yes	no	yes	no	yes
Letter length	no	yes	no	yes	no	yes

Notes: See footnote in Table 5. Return to Section 6 in the maintext.