Appendix A: Selected examiner-firm communication

Example 1: Cover page of non-final rejection re: Google application for PageRank (1998)

	UNITED STATES DEPARTMENT OF COMMERCE		
	Patent and Trademark Office		
	Address: COMMISSIONER OF PATENTS AND TRADEMARKS		
	Washington, D.C. 20231		

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/004,827	01/09/98	PAGE	S96-213

EXAMINER
LE,U

ART UNIT	PAPER NUMBER
2171	

026615
HARRITY & SNYDER, LLP
11240 WAPLES MILL ROAD
SUITE 300
FAIRFAX VA 22030

TM02/1205

DATE MAILED:
12/05/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

PTO-90C (Rev. 2/95)
*U.S. GPO: 2000-473-000/44602

1- File Copy

Example 2: Cover page of non-final rejection re: GoPro application camera attachment to body (2004)

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,287	02/11/2004	Nicholas D. Woodman	23769-07988	5427

			EXAMINER
758	7590	01/19/2005	GRAY, DAVID M

FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 01/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Example 3: Cover page of non-final rejection re: Square application for mobile credit capture (2010)

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/903,801	10/13/2010	Sam Wen	SQU 0003	4648

77845   7590   11/14/2011
Goodwin Procter LLP
Attn: Patent Administrator
135 Commonwealth Drive
Menlo Park, CA 94025-1105

EXAMINER
HAUPT, KRISTY A

ART UNIT	PAPER NUMBER
2876	

NOTIFICATION DATE	DELIVERY MODE
11/14/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Patentsv@goodwinprocter.com
dnakley@goodwinprocter.com

PTOL-90A (Rev. 04/07)

Appendix B: Abandoned patent coverage pre- and post-AIPA

The America Inventors Protection Act ("AIPA") was passed late-November 2000 and went into effect one year later. The USPTO publishes applications 18 months after filing. Prior to AIPA, if the application was abandoned before the 18 month point, then it was never published. Following AIPA, all applications are published (regardless of whether or when they are abandoned). As a result, applications filed before late-November 2001 and abandoned prior to the 18 month point are absent from our data. The first panel of Figure A.I shows the effect this has on the number of filings over the longitudinal dimension of the data. This creates obvious complications when determining the factors that affect the likelihood of receiving a patent [Graham, Marco, and Miller, 2015]. To sidestep the issue, the sample we use to assess grant behavior begins on December 1, 2000, the day after the legislation went into effect. The number of abandonments and grants is otherwise very stable over the panel, which is evident from the bottom panel of Figure A.I. This expands the window around the AIPA effective date to coverage from 1996 through 2006.

[Figure A.I about here.]

Appendix C: Examiner leniency on the intensive margin

Data sources

The Patent Claims Research Dataset provides application- and patent-level data including the number of independent claims and the length of the shortest independent claim.[41] The dataset covers applications, i.e. pre-grant publications, filed after November 29, 2000 and published before January 1, 2015, and it covers patents granted between January 1, 1976 and December 31, 2015. Since we are interested in the change in scope due to examination, we limit the sample to only applications and grants that match to one another. (There is currently no data on changes to claims for applications that are abandoned [Marco, Sarnoff, and deGrazia, 2016]). We further exclude observations that are obviously in error, i.e. applications or patents with zero independent claims, which is legally impermissable, and then impose identical restrictions on the data, e.g. that we confine ourselves to utility patents, to applications where we observe the examiner name, etc. (For the step-by-step instructions on panel construction, see Appendix E.)

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[41]USPTO. https://www.uspto.gov/learning-and-resources/electronic-data-products/patent-claims-research-dataset (retrieved on May 30, 2017).

Data summary

We observe valid claim-related measures for 456,079 application-patent pairs. The difference in the number of claims from application to grant is -0.33 with a standard deviation of 2.07. The minimum is -173, and the maximum is 51. Winsorizing the distribution at the 5% level shifts the mean to -0.26, the standard deviation to 1.15, the minimum to -3, and the maximum to 2. The difference in the minimum claim length from application to grant is 65.69 with a standard deviation of 93.27. The minimum is -6531, and the maximum is 2864. Winsorizing the distribution at the 5% level shifts the mean to 64.5, the standard deviation to 63.76, the minimum to -2, and the maximum to 217.

Estimating the effects on patent claims

The estimating equations are the same as equations 5 and 6, i.e. the specifications applied to citations.

Results

Tables A.II and A.I report the relevant claims-based results. They regress the two measures of scope suggested by the USPTO on indicators for whether the filing firm later hires the examiner, is in the same ZIP code as the firm that later hires the examiner, or is in the same city (but not ZIP code) as the firm that later hires the examiners.

[Table A.I about here.]

[Table A.II about here.]

All eighteen coefficients are signed consistent with our earlier estimates. For example, revolving door examiners increase the shortest independent claim by 14 words and eliminate 1.42 fewer claims for firms for whom they later work. Also, the relationship between the coefficients on the three right-hand side variables is the same as in the grant-based tables. Some estimates are sensitive to outlier values, i.e. fall when we winsorize the left-hand side measures, although in many or most cases the precision increases approximately commensurate with the coefficients so that the significance is not very effected.

Appendix D: Robustness tests

Robustness to variation in technology controls

Table IX conditions on *Technology center* rather than *Patent class* fixed effects. The latter are more granular and used throughout the rest of this paper. To provide us confidence that the estimates are not too sensitive to that choice, we replicate the final four columns but substitute in *Patent class* fixed effects.

[Table A.III about here.]

Table A.III reports those results. Columns 1 and 3 replicate columns 5 and 7 from Table IX (for the sake of comparison). Despite a sharp increase in the number of discrete controls, the coefficients move very little as we vary the technology controls.

Robustness to winsorized distances

Figure III shows that revolving door examiners are more likely to work near where they were educated. In it, distances are residualized for examiner, city, and year fixed effects. Figure A.II replicates this exercise, with changes, to demonstrate robustness of the relationship. The top graph plots raw distances. The middle graph plots distances winsorized at the top 1%. The bottom graph plots residualized, winsorized values. Each graph bears a very close resemblence to Figure III in the body of the text.

[Figure A.II about here.]

Appendix E: Dataset construction

When the source is PatEx

PatEx consists of individual files ("application_data.dta," 'transactions.dta," "foreign.dta," and "correspondence.dta") that are merged to one another using the variable "application_number." Cleaning the data consists of removing a very small number observations, i.e. always < 0.1% of the total, related to missing or erroneous data, including instances where the

- examiner name is missing
- examiner name is erroneous, i.e. it is listed as "None" or "Not defined"
- correspondence information is missing, i.e. no ZIP code is listed

- correspondence information is erroneous, i.e. the ZIP code is neither five digits alone or five digits followed by a hyphen and four additional digits

- status indicates a patent was issued but an abandonment date is given

- status indicates an abandonment but an issue date is given

- issue date and abandonment date are missing

- filing date or disposal date is missing

- art unit is missing

As per Section 3 in the body of the paper and the accompanying references in this appendix, we then

- keep regular utility patent applications, i.e. exclude provisional, PCT, divisional, or continuation applications

- keep applications filed on or after December 1, 2000 and grants filed on or after July 1, 1995

- remove observations related to examiners whom we have matched with the practitioner rosters but cannot confirm using the biographical-related sources, i.e. agent/attorney directors or social media websites

- remove observations where there is likely to be a pre-existing grant-related decision by another Patent Cooperation Treaty (PCT) nation, specifically ones in which the foreign country priority date is more than 365 days earlier than the US country priority date

- remove applications related to examiners whose total tenure at the USPTO exceeds ten years

- remove observations where multiple examiners have the same name, which makes it impossible to disambiguate and subsequently match to other data, e.g. more than one "Brian Johnson," "John Lee," "Michael Anderson," and "Huong Nguyen" have been employed by the USPTO


When the source is the USPTO claims supplement

We begin with the full texts of all published application claims, "pgpub_claims_fulltext.dta." This will provide us data on claims cancelled prior to publication of the application (which are not in the summary file, "pgpub_document_stats.dta.", and not properly counted in the more detailed summary file, "pgpub_claims_stats.dta."). We keep any observations for which the *claim_text* includes "cancelled" and is shorter than 25 characters, the latter of which eliminates claims related to actually "cancelling" something object. *claim_text* then provides us with a count of the claims cancelled prior to publication. Note that oftentimes contiguous cancelled claims are summarized with a dash, e.g. "2-5" to indicate that claims two through five are all cancelled. (Note further that "pgpub_claims_stats.dta" counts these as a single cancelled claim.) We merge this file to the published applications claims data summary file, "pgpub_document_stats.dta," on application number. Since the summary file explicitly does not count cancelled claims, we add the number of published application claims from the summary file to the cancelled claims obtained from the full text file. This completes the first intermediate step.

We proceed with the published patents claims data file, "patent_document_stats.dta." We merge to "application_data.dta" from PatEx on the patent number and then drop a small number of observations for which the application number in the claims data does not match with the application number in PatEx. This completes the second intermediate step.

We merge files from the intermediate steps on application number. The data contains obvious (but understandable) parsing errors. The text of older applications and grants is not digitally stored; the technical nature of many or most mean that highly non-standard characters included, exacerbating the already-difficult task of counting words; and the the sheer volume of claim text makes it prohibitively large to manually compute. Small errors can create large measurement problems, though. For example, in certain instances especially lengthy claims were erroneously broken into a very large number of single word claims, sharply skewing our measures away from the truth. Instead of a large number of subjective corrections to the data, we merely apply to blunt corrections: we exclude a small number of observations for which the number of independent claims is zero or missing (both of which are legally impermissible for a valid application or valid grant), and we exclude a small number of observations for which the minimum number of words among independent claims is less than eight (which in the examples we manually checked was always the result of an error) or missing (which is, again, impermissible).

Figures
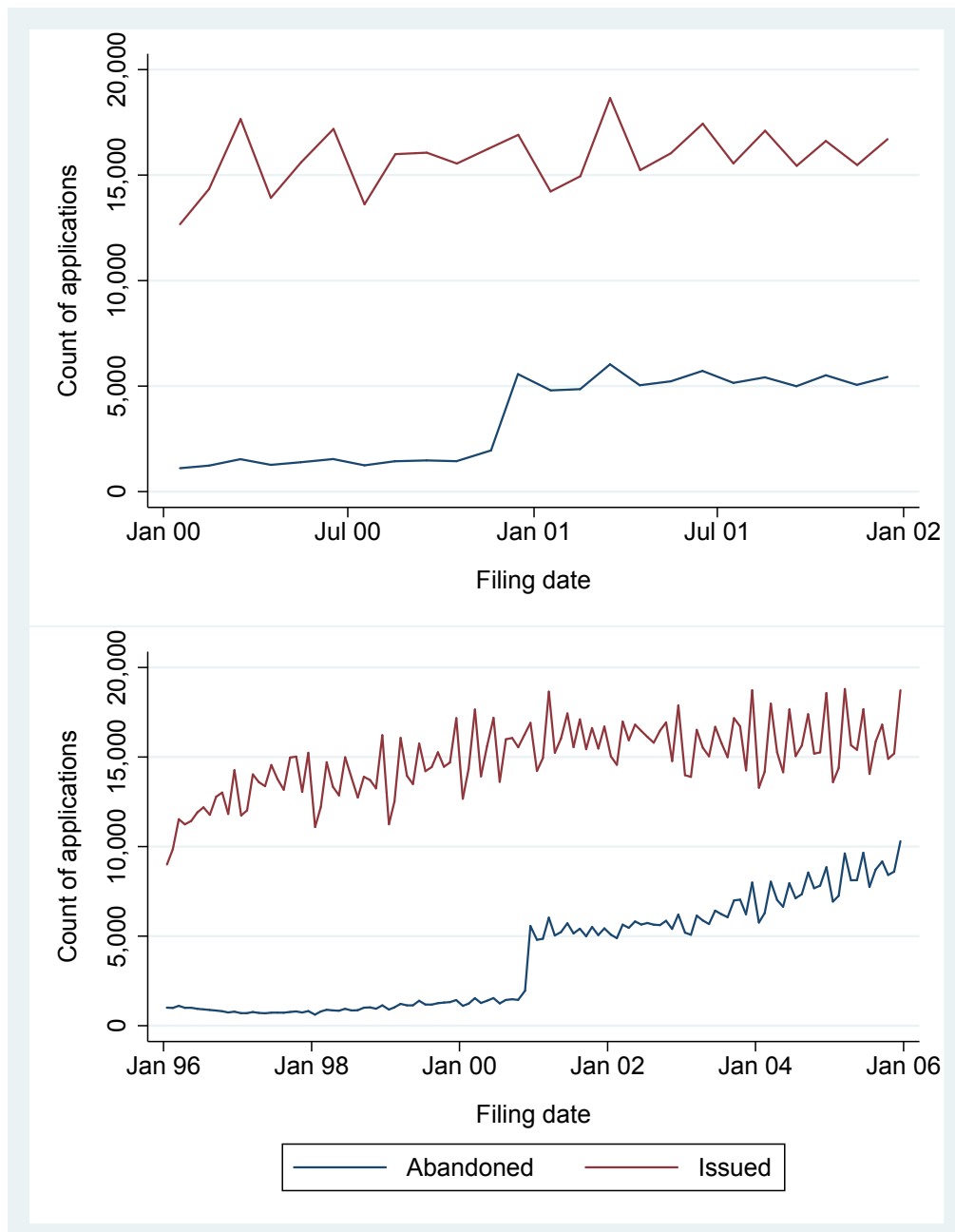
**Figure A.I:** *Applications that result in abandonments but not grants increase with AIPA legislation*

Values correspond to counts of applications by month and manner of eventual disposal, i.e. whether the application resulted in a grant or not. Note that the sharp increase in abandonments circa November 2000 is driven by a change in what applications are published rather than by a change in the grant rate.
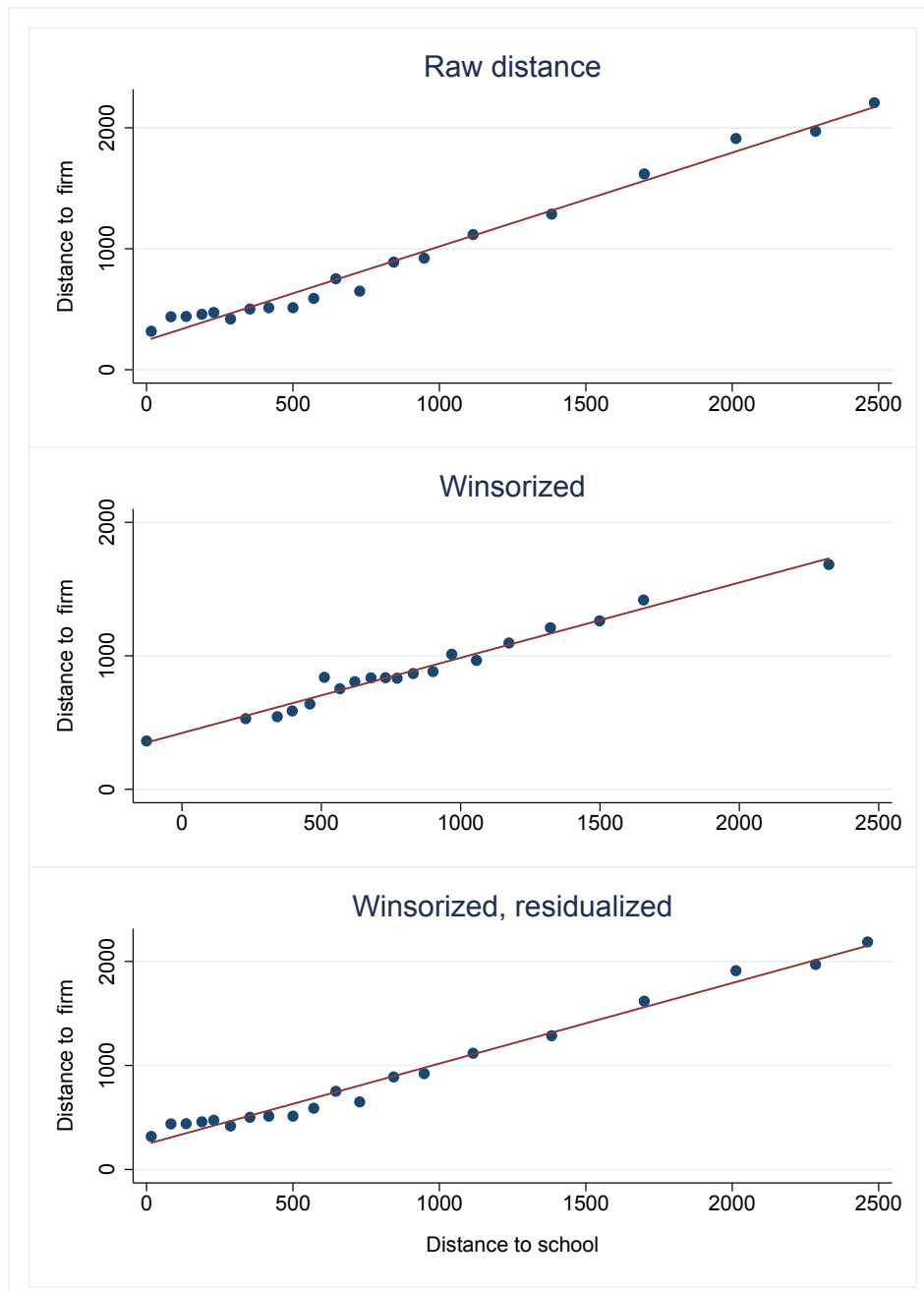
Figure A.II: *Where an examiner is educated predicts his or her post-USPTO employment location*

The unit of observation is the application (to remain consistent with forthcoming specifications). The x-axis measures the distance, in miles, from the filing firm to the examiner alma mater, and the y-axis measures the distance, in miles, from the filing firm to the the firm that later hires the examiner.

Tables

Table A.I: *Patents granted to subsequent and prospective employers are allowed shorter independent claims*

VARIABLES	(1) Difference	(2) Difference	(3) 2.5% Wins. difference	(4) 2.5% Wins. difference	(5) 5.0% Wins. difference	(6) 5.0% Wins. difference
1[Filing firm hires examiner]	-13.9**		-12.7**		-11.5**	
	(6.21)		(5.72)		(5.53)	
1[Filing ZIP hires examiner]		-8.46***		-5.96**		-4.65*
		(2.35)		(2.49)		(2.48)
1[Filing city, not ZIP, hires examiner]		-4.22**		-1.04		-.234
		(1.76)		(1.39)		(1.3)
Observations	423,568	423,379	423,568	423,379	423,568	423,379
R-squared	.156	.158	.196	.198	.2	.202
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	No	Yes	No	Yes	No
City FE	No	Yes	No	Yes	No	Yes
Examiner FE	Yes	Yes	Yes	Yes	Yes	Yes

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The left-hand side measure variable is the difference between the length of the shortest independent claim in the published patent and in the submitted application. More independent claims indicate more patent scope. Thus, the left-hand side measure gives one indication of how much scope is reduced in the patent prosecution process. That measure is winsorized at 2.5% in columns 3-4 and at 5% in columns 5-6. The right-hand side measures comprise an indicator for whether the filing firm later hired the examiner (in the first row of coefficients), and indicators for whether the firm resides in a city or ZIP code in which the examiner was later hired (in the second and third rows of coefficients, respectively). As in prior tables, for our location-based specifications, i.e. those whose results are reported in even-numbered columns here, the sample is restricted to observations where the filing firm did not subsequently hire the examiner. Standard errors are clustered at the examiner and firm level in odd-numbered columns and at the examiner and city level in even-numbered columns.

Table A.II: *Patents granted to subsequent and prospective employers are allowed more independent claims*

VARIABLES	(1) Difference	(2) Difference	(3) 2.5% Wins. difference	(4) 2.5% Wins. difference	(5) 5.0% Wins. difference	(6) 5.0% Wins. difference
1[Filing firm hires examiner]	1.42**		.698***		.438**	
	(.629)		(.263)		(.171)	
1[Filing ZIP hires examiner]		1.07**		.37**		.282**
		(.429)		(.187)		(.115)
1[Filing city, not ZIP, hires examiner]		.274		.0147		.0612
		(.386)		(.108)		(.0553)
Observations	456,637	456,445	456,637	456,445	456,637	456,445
R-squared	.0298	.0328	.085	.0846	.0897	.0898
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	No	Yes	No	Yes	No
City FE	No	Yes	No	Yes	No	Yes
Examiner FE	Yes	Yes	Yes	Yes	Yes	Yes

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The left-hand side measure is the difference between the number of independent claims in the published patent and in the submitted application. Fewer independent claims indicate less scope. Thus, the left-hand side measure gives one indication of how much scope is reduced in the patent prosecution process. That measure is winsorized at 2.5% in columns 3-4 and at 5% in columns 5-6. The right-hand side measures comprise an indicator for whether the filing firm later hired the examiner (in the first row of coefficients), and indicators for whether the firm resides in a city or ZIP code in which the examiner was later hired (in the second and third rows of coefficients, respectively). As in prior tables, for our location-based specifications, i.e. those whose results are reported in even-numbered columns here, the sample is restricted to observations where the filing firm did not subsequently hire the examiner. Standard errors are clustered at the examiner and firm level in odd-numbered columns and at the examiner and city level in even-numbered columns.

Table A.III: *Quality estimates are robust to varying technology-related controls*

VARIABLES	(1) Count	(2) Count	(3) Count	(4) Count
1[Revolving examiner]	2.03**	1.66**	2.34**	1.99*
	(.811)	(.755)	(1.17)	(1.08)
1[Filing firm hires examiner]	-9.78***	-9.64***		
	(2.32)	(2.52)		
1[Filing ZIP hires examiner]			-4.73***	-3.27**
			(1.47)	(1.46)
1[Filing city, not ZIP, hires examiner]			-6.87***	-6.97***
			(.934)	(.983)
Observations	727,920	727,911	727,616	727,607
R-squared	.19	.201	.194	.203
Year FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	No	No
City FE	No	No	Yes	Yes
Technology center FE	Yes	No	Yes	No
Patent class FE	No	Yes	No	Yes
Experience FE	Yes	Yes	Yes	Yes

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The left-hand side measure is citations. The right-hand side measures comprise an indicator for whether the filing firm later hired the examiner (in the first row of coefficients), and indicators for whether the firm resides in a city or ZIP code in which the examiner was later hired (in the second and third rows of coefficients, respectively). As in prior tables, for our location-based specifications, i.e. those whose results are reported in the final two columns here, the sample is restricted to observations where the filing firm did not subsequently hire the examiner. Standard errors are clustered at the examiner and firm level in the first two columns and at the examiner and city level in the last two columns.