Supplementary material to:

Settling for Academia? H-1B Visas and the Career Choices of International Students in the United States

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November 27, 2017

Appendix A. Additional Tables

Table A.1: Robustness Check Using Alternative Classifications of Cap Exempt Jobs (Dependent Variable: Employment in Cap Exempt Job)

Model Specification	**(1)**	**(2)**	**(3)**	**(4)**
Bound by H-1B Visa Cap	0.071**	0.083**	0.079**	0.067**
	(0.030)	(0.030)	(0.029)	(0.025)
Classification of Cap Exempt Job	Baseline	Baseline plus Federal Government	Baseline plus Federal & State Government	Baseline plus all in Government and Nonprofit Sectors Conducting Research
Dependent Variable Mean	0.231	0.247	0.248	0.259
Observations	9,626	9,626	9,626	9,626
R-squared	0.306	0.319	0.319	0.349

Notes: See notes under Table 1A for a description of our baseline sample. All regressions include a constant term and the full set of controls shown in the most complete specification of Table 3, including graduation year, country of origin, survey year, region of residence, and field of expertise fixed effects, as well as field of expertise trends. In column 1, only academic sector jobs are considered cap-exempt. This column simply reproduces our baseline estimates for convenience. In column 2, federal government jobs are also considered cap exempt, and in column 3, both federal and state government jobs are added to our baseline academic sector classification of cap exemption. In column 4, again all academic sector jobs are considered cap exempt, but individuals in the government or nonprofit sectors are only considered to have a cap exempt job if they list basic or applied research as a primary or secondary activity in their principal job. Standard errors, reported in parentheses, are clustered on country of origin. Asterisks denote statistical significance as follows: * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Table A.2: Effect of Visa Cap Cut on Employment in Colleges or Universities vs. University Research Institutes

Panel A:	**Dependent Variable: Employment in College or University**
Bound by H-1B Visa Cap	0.073** (0.030)
Exclusion	Individuals employed in university research institutes
Dependent Variable Mean	0.198
Observations	9,038
R-squared	0.290
Panel B:	**Dependent Variable: Employment in University Research Institute**
Bound by H-1B Visa Cap	0.015 (0.013)
Exclusion	Individuals employed in colleges or universities
Dependent Variable Mean	0.051
Observations	7,304
R-squared	0.173

Notes: See notes under Table 1A for a description of our baseline sample. All regressions include a constant term and the full set of controls shown in the most complete specification of Table 3, including graduation year, country of origin, survey year, region of residence, and field of expertise fixed effects, as well as field of expertise trends. In Panel A, all individuals employed in university research institutes are dropped from the sample, and in Panel B, all individuals employed in colleges and universities are dropped from the sample. Standard errors, reported in parentheses, are clustered on country of origin. Asterisks denote statistical significance as follows: * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Table A.3:
Propensity Score Matching Results using Alternative Sets of Controls and Matching Algorithms

PSM	Kernel		Radius	
Specification	**BW=0.01**	**BW=0.05**	**Caliper=0.005**	**Caliper=0.010**
Panels A & B: Control Set #1				
Panel A: Treatment Effect using Propensity Score Estimator				
ATE	0.053***	0.055***	0.055***	0.053***
	(0.011)	(0.012)	(0.012)	(0.011)
Observations	9,626			
Panel B: Estimates from Regressions with PSM Weights				
Bound by H-1B Visa Cap	0.090**	0.118**	0.114**	0.085*
	(0.044)	(0.048)	(0.045)	(0.044)
Observations	9,580	9,580	9,572	9,580
Panels C & D: Control Set #2				
Panel C: Treatment Effect using Propensity Score Estimator				
ATE	0.052***	0.054***	0.051***	0.051***
	(0.013)	(0.012)	(0.013)	(0.013)
Observations	9,626			
Panel D: Estimates from Regressions with PSM Weights				
Bound by H-1B Visa Cap	0.108**	0.108**	0.107**	0.100**
	(0.042)	(0.047)	(0.043)	(0.045)
Observations	9,596	9,600	9,573	9,596

Notes: Panels A and B use the following set of controls, which fulfills the balancing requirement: age, age squared, male, married, MA degree, PhD degree, professional degree, father with college degree, father with more than college degree, mother with more than college degree, mother with more than college degree. Panel A: Estimates of average treatment effects are reported with bootstrapped standard errors in parentheses. Panel B: Estimates from baseline regressions (Equation 1 in text with full set of controls and fixed effects) using PSM weights. Regressions are ran on samples with common support. Standard errors are clustered on country of origin and do not account for the two-stage nature of the estimates. Panels C and D use an alternative set of controls, which also fulfills the balancing prerequisite: age, age squared, male, married, MA Degree, PhD degree, professional degree. Panel C: Estimates of average treatment effects are reported with bootstrapped standard errors in parentheses. Panel D: Estimates from baseline regressions (Equation 1 in text with full set of controls and fixed effects) weighted using the PSM weights. Regressions are ran on samples with common support. Standard errors are clustered on country of origin and do not account for the two-stage nature of the estimates. All propensity scores are estimated using probit models with the PSMATCH2 command in Stata. Asterisks denote statistical significance as follows: * $p<0.1$; ** $p<0.05$; *** $p<0.01$.

Appendix B. Which Countries Acquire H-1B Substitute Visas?

Another challenge to the proper identification of our policy impact stems from a potential non-random designation of countries with H-1B visa substitutes. It seems unlikely that countries have H-1B substitutes specifically because nationals from these countries were increasingly likely to work in the private sector after 2004. After all, some of the substitutes were created many years before 2004 and were small parts of large trade treaties. Nonetheless, to address the potential concern that these countries had H-1B substitute visas for reasons related to future changes in career trajectories of nationals, we aggregate the data for the period preceding the visa cap implementation –namely, prior to 2004. We then estimate the following model:

(A1) $$Eligibility_c = \alpha + \beta Y_c + Z_c \delta + \varepsilon_c,$$

where $Eligibility_c$ equals zero for countries with substitute visas (Canada, Mexico, Chile, Australia, and Singapore) and equals one for all other countries; Y_c is the average employment rate in academia of migrants from country *c* prior to 2004; and Z_c is a vector of controls used in our prior estimations (aggregated at the country-of-origin level over the pre-visa cap period) reflecting average country level characteristics prior to the implementation of the visa cap.

Table A.1 displays the results from this exercise. If we do not account for any other characteristics of the foreign-born, we find a statistically significant *inverse* relationship between the share of citizens employed in academia and the likelihood of being from a country that is dependent on the H-1B visa. This suggests that, if anything, immigrants from countries which would eventually be impacted by H-1B restrictions were less likely to work in academia, as opposed to more. In any event, columns 2 and 3 of Table A.1 show how, as soon as we account for basic demographic and educational characteristics of the foreign-born from the various countries of origin prior to 2004, the statistical significance disappears. As such, there seems to

be no significant link between the likelihood of originating from a non-exempt visa cap nation and the employment rates in academia of foreign-born graduates *prior* to the implementation of the visa cap. Therefore, the selection of which nations are bound from the H-1B visa cap does not appear to have been correlated with the employment rate of their nationals in the academia sectors prior to the implementation of the cap.

Table B.1: Assessing the Endogeneity of Access to Substitute Visas (Dependent Variable: Country without a Substitute Visa)

Model Specification	(1)	(2)	(3)
Employment Rate in the Academic Sector	0.446	0.213	0.124
	(0.335)	(0.368)	(0.369)
Average Age		-0.125	-0.066
		(0.097)	(0.121)
Average Age Squared		0.001	0.001
		(0.001)	(0.001)
Share Male		-0.172	-0.101
		(0.150)	(0.168)
Share Black		0.424***	0.035
		(0.123)	(0.155)
Share Asian		0.179**	0.146*
		(0.070)	(0.087)
Share Hispanic		-0.054	-0.110
		(0.082)	(0.100)
Share Married		-0.082	0.049
		(0.183)	(0.209)
Share with a M.A. Degree		0.058	0.147
		(0.177)	(0.226)
Share with a Ph.D. Degree		0.656**	0.350
		(0.325)	(0.433)
Share with a Professional Degree		0.425	0.876*
		(0.400)	(0.461)
Share with a Father w/College Degree		0.009	-0.285
		(0.201)	(0.227)
Share with a Father w/More than College		0.262	-0.344
		(0.198)	(0.234)
Share with a Mother w/College Degree		0.535***	0.772***
		(0.201)	(0.231)
Share with a Mother w/More than College		-0.167	0.260
		(0.293)	(0.319)
Shares Graduating in Each Year	N	N	Y

Shares in Each Survey Year	N	N	Y
Shares in Each of the Regions	N	N	Y
Shares of Each of the Fields of Expertise	N	N	Y
Observations	176	176	176
R-squared	0.010	0.250	0.497

Notes: Data are collapsed at the country-of-origin level. The foreign-born from all countries except Canada, Mexico, Chile, Singapore, and Australia need an H-1B visa. All regressions include a constant term. Asterisks denote statistical significance as follows: * $p<0.1$; ** $p<0.05$; *** $p<0.01$.