

**SHASHA WANG**

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**UNIVERSITY OF PENNSYLVANIA**

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**Personal Information**

Languages: English (fluent), Mandarin (native)  
Pronoun: She/Her/Hers  
Computer Skills: MATLAB, STATA, R, Python

**Undergraduate Studies:**

B.A., Economics, Guanghua School of Management, Peking University

**Masters Level Work:**

Khenmo, Tibetan Buddhist Philosophy (summa cum laude), Larung Gar Five Sciences Buddhist Academy, Tibet

**Graduate Studies:**

University of Pennsylvania, 2018 to present  
Ph.D. Candidate in Economics

Thesis Title: Understanding the Sources of Gender Disparities in STEM and in Marriage Markets

Expected Completion Date: May 2024

**Thesis Committee and References:**

Professor Petra Todd  
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**Research and Teaching Fields:**

Primary Fields: Labor Economics, Economics of Education, Economics of Health  
Secondary Fields: Machine learning and structural modeling applied to economics, especially in the topics of gender, labor, health, education, marriage market, and family economics

**Teaching Experience:**

## At the University of Pennsylvania

Fall, 2023	Intermediate Microeconomics, teaching assistant for Professor Francesco Agostinelli
Spring, 2023	Intermediate Microeconomics, teaching assistant for Professor George Mailath
Spring, 2022	Intermediate Microeconomics, teaching assistant for Professor George Mailath
Fall, 2021	Introduction to Microeconomics, teaching assistant for Professor Anne Duchene
Spring, 2021	Political Economy, teaching assistant for Professor Deniz Selman
Fall, 2020	Introduction to Microeconomics, teaching assistant for Professor Anne Duchene
Spring, 2020	Introduction to Macroeconomics, teaching assistant for Professor Luca Bossi
Fall, 2019	Introduction to Microeconomics, teaching assistant for Professor Anne Duchene

## **Research Experience and Other Employment:**

08/2020 - 12/2022	Econometrician [Short-Term Consultant], World Bank
05/2020 - 07/2020	Research Assistant, Professor Toni Whited, University of Michigan
09/2017 - 04/2018	Visiting Researcher, China Center for Health Economic Research, Peking University, Beijing
02/2013 - 04/2017	Lecturer & Translator of Tibetan Buddhist Philosophy, Larung Gar Five Sciences Buddhist Academy, Tibet

## **Honors, Scholarships, and Fellowships:**

01/2023	Travel grant from the Graduate Student Government of the School of Arts and Sciences at the University of Pennsylvania
11/2022	Travel grant from the Graduate Student Government of the School of Arts and Sciences at the University of Pennsylvania
07/2022	Travel grant from the Graduate Student Government of the School of Arts and Sciences at the University of Pennsylvania
2022-2023	Pilot grant (\$18k) from the Population Aging Research Center at the University of Pennsylvania
2018-2024	Fellowship from the University of Pennsylvania
2013-2017	Outstanding Academic Scholarship from Larung Gar Five Sciences Buddhist Academy

## **Conferences & Seminars:**

03/2023	Society for Benefit-Cost Analysis, Washington D.C.
01/2023	American Economic Association, New Orleans, Louisiana
11/2022	Southern Economic Association, Fort Lauderdale, Florida
07/2022	Western Economic Association International, Portland, Oregon

## **Research Papers:**

### ***“STEMming the Gender Gap in the Applied Fields: Where are the Leaks in the Pipeline?” (Job Market Paper)***

In pure-STEM fields, such as biology, chemistry, and mathematics, women have ceased to be the gender minority. However, in applied-STEM fields, such as computer science and engineering, female representation has been persistently low, staying below 20% for nearly half a century. These low participation rates are puzzling, considering that women have recently reached parity with men in average mathematics skills and reduced the gap in science skills, and that the gender wage gap in the applied STEM fields is comparatively smaller than in other fields. To understand where the leaks are in the applied-STEM fields' pipeline, I develop and estimate a dynamic discrete choice model of education and career choices that follows individuals as they choose high school coursework, whether to attend two-year or four-year colleges, college majors, and occupations. I identify four potential sources of female under-representation: initial 10th-grade skill gaps, choice-specific preference differences, wage offer disparities, and distaste for working in occupations with few women. As measured by test scores in the NLSY79

data, males have, on average, better STEM skills than females as early as the 10th grade. This initial skill gap, coupled with females' lower preference for taking STEM-related high school coursework, leads to widening skill disparities upon exiting high school. My analysis shows that upon exiting high school, a higher level of mechanical skills alone makes the noncollege option more attractive, but combined with a higher level of math skills, it increases one's likelihood of choosing four-year college applied-STEM majors. Simulation results show that closing the gender skill gap in mechanical skills upon exiting high school lowers the percentage of women choosing four-year colleges by 8.8%, while increasing the percentage of women choosing applied-STEM majors by 2.5% and applied-STEM occupations by 1.4%. Mechanical skills are more important than math skills in explaining women's under-representation in applied-STEM college majors and occupations. Lower wage offers for women in applied-STEM occupations and an estimated strong distaste for working in predominantly male occupations also play important roles. Simulations based on the estimated model reveal that closing the gender skill gaps upon exiting high school reduces female under-representation by 67% in applied-STEM majors and by 31% in applied-STEM occupations. Mandating more high school STEM coursework is effective in increasing overall STEM participation but has little effect on the gender gap. Equalizing wage offers across genders in STEM sectors reduces female under-representation only by 2% in applied-STEM majors and by 9% in applied-STEM occupations.

***“How Early Skill Gaps Contribute to Gender Differences in STEM Major and Occupation Choices: A Random Forest Approach,”*** with Petra Todd, submitted

In the US, women go to college at higher rates than men, but they are less likely to choose applied-STEM college majors or occupations. Using the NLSY79 and 97 datasets, this paper assesses the importance of adolescent skill profiles and high school course-taking in explaining gender disparities in four-year college completion, college major, and occupational choices. It considers five cognitive skill measures (math, verbal, science, administrative, and mechanical) and one non-cognitive measure and examines gender skill convergence over a twenty-year time span. Results show that high-school-aged women in the NLSY97 cohort reached parity with men, on average, in mathematics skills and exceed men in verbal and noncognitive skills, but they lag behind in mechanical and, to a lesser extent, science skills. To identify the skill sets, course-taking, and family background characteristics that best predict entry into STEM majors and occupations, we estimate logistic and nonparametric random forest models. The estimates reveal that a combination of mathematics and mechanical skills along with intensive high school exposure to science and math courses are key predictors of choosing STEM majors and careers. A nonparametric decomposition approach is developed and used to quantify how eliminating gender skill disparities would affect entry into STEM fields.

### **Work in Progress:**

***“Unraveling the Female Thinness Premium: Marriage and Employment”***

This paper studies two mechanisms that jointly contribute to thinness premium in the marriage market: the economic mechanism and the non-economic mechanism. My empirical findings from the Panel Study of Income Dynamics (PSID) reveal that all else being equal, thinner females are more likely to marry richer males. A one-unit increase in BMI (Body Mass Index), roughly equivalent to a six-pound increase for a 5'6" figure, is associated with a 3.9% decrease in the husband's annual labor income for noncollege wives and a 4.3% decrease for college-educated wives. Using the Simulated Method of Moments to estimate a two-stage static matching equilibrium model, this paper determines whether the observed preference for thinner female partners in the marriage market is a result of assortative mating due to the thinness premium in the labor market or is driven by non-economic factors such as a preference for smaller body sizes or other traits associated with smaller body sizes, such as self-discipline, active social interactions, and positive social image. The estimation results indicate that the positive correlation between a husband's income and his wife's thinness is primarily attributed to a male preference for thinner spouses. Women with a BMI below 25 only earn 4% more income than those with a BMI above 25 (assuming all other factors are equal), but having a wife with a BMI below 25 significantly enhances a husband's utility, akin to a 1.15 times increase in his consumption.