

## Research Statement

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My research interests, more broadly, is to apply economic theory and econometric methodology to better understand the formation of and the underlying incentives to promote human capital. Coming out of graduate school, my interests were more narrowly confined to Economics of Education. Since taking up an Assistant Professor of Economics position at UC Irvine in 2002, my research agenda has evolved beyond specific issues in education policy that affect human capital. My ongoing work reflects my interest in examining how larger phenomenon in labor markets—for example, the increase in wage inequality, changes in female labor market participation, or agglomeration economies—affect human capital accumulation and the returns to skill.

My previous work includes a study documenting the widely perceived but little investigated notion that American schoolteachers today are less qualified than they once were. In “Do Alternative Opportunities Matter? The Role of Female Labor Markets in the Decline of Teacher Quality, 1960-1990”, published in *The Review of Economics and Statistics*, I provide evidence showing a marked decline in the quality of young women going into teaching. In contrast, the quality of young women becoming professionals increased. I then turn to the Roy model of self-selection to highlight how occupation differences in the returns to skill determine average teacher quality. My estimates show the significance of increased professional opportunities for women in affecting the decline in teacher quality.

The results from the paper received some media attention and sparked calls for raising teacher salaries. It was written up in *The Washington Post* and blogged about in Freakonomics at *The New York Times*. A figure from the paper has also been requested for reproduction in the *Handbook of Economics of Education*.

I followed up the historical analysis in that paper with one examining current determinants of entry into teaching and the subsequent sorting of teachers across schools, with particular implications for the sorting of lower achieving teachers to poorer and more diverse urban schools. This paper, which was funded by a grant from the American Educational Research Association and the National Science Foundation, was the lead article in the Sept 2007 issue of *Educational Evaluation and Policy Analysis*. The paper led Eduwonkette, a blogspot, to add my name on the site’s features of “Cool People to Know.”<sup>1</sup>

My early work in how larger phenomenon (changes in female labor market opportunities) affects human capital (teacher and school quality) is the overall theme guiding the evolution of my research agenda. My ongoing work represent two larger interests and showcase this agenda: (1) how the rise in female opportunities and other changes in the structure of the U.S. labor market—the increase in wage inequality, the growth in female labor force participation, urbanization—affect human capital accumulation and the skill premium; and (2) the impact of specific educational policies and the school accountability movement on human capital accumulation. Both are ultimately concerned with the development of skills and of human capital.

There have been two major developments in the US labor market since the late 1960s: converging gender wage gap and rising wage inequality, and a broad literature has examined how these can be explained by changes in returns to skills. Current studies suggest that, because women tend to have lower levels of schooling and experience than men, rising returns to skills should *widen* the gender gap—a conclusion at odds with the data. In “Two Sides of the Same Coin: U.S. Residual Inequality and the Gender Gap” forthcoming at the *Journal of Human Resources*, Bernardo Blum and I show that both phenomenon can be explained by changes in returns to skill—if skills are measured multi-dimensionally. We show that the increase in the returns to cognitive and people skills and the decrease in returns of motor skills contributed to rising inequality and the narrowing of the gender wage gap.

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<sup>1</sup> It is odd to include this factoid in my research statement, but it *is* cool to be included in a list of “Cool People ...” that features Claudia Goldin, Charlie Clotfelter, and Meredith Phillips.

We make a related point on the importance of multiple skills in “Skills in the City” (joint with Bernardo Blum and Will Strange, forthcoming at *Journal of Urban Economics*). In this paper, we estimate the role of agglomeration on the hedonic prices of worker skills. In contrast to the prior literature that simply rely on worker education, we show that the urban wage premium is larger for workers with stronger cognitive skills and people skills, while there are no such rewards for motor skills and physical strength. These estimates suggest urbanization enhances thinking and social interaction, rather than physical abilities, and has particular implications for urban renewal policies and human capital investment in cities. “Urban Interactions...” (under revise and resubmit with *Journal of Economic Geography*) extends this analysis by examining the distribution of skills related to social interaction across cities, positing that while such skills are enhanced with urbanization, such may not be the case with industrial clusters.

Ongoing work with Joe Hotz, Marc Luppino, and Doug McKee investigates the roles of changes in the labor market since the late 1960s—the increase in wage inequality, the rise in the college wage premium and college costs, the growth in female labor force participation—on the accumulation and returns of various types of work and schooling experiences. We develop and apply an econometric framework to consistently estimate the returns to schooling and to work experience.

On the education front, I have studied the roles of schools, teachers, and family background, on the formation of human capital. A staple in the literature for identifying the relative importance of various educational inputs in determining student academic achievement is the education production function. In “Schools, School Quality and Academic Achievement: Evidence from the Philippines”<sup>2</sup>, Justin Tobias and I highlight the importance of flexibly specifying the relationship between the baseline and follow-up achievement test scores in such production functions in interpreting school effects. Using data from the Philippines we find evidence against widely-used parametric models. More importantly, we find the linear “value-added” specification (such as those used by some U.S. states’ accountability systems) gives considerably different predictions regarding school performance, school rankings, and the effectiveness of school inputs.

My ongoing work also includes an examination of California’s accountability system. “Beyond Incentives: Do Schools Use Accountability Rewards Productively?” (with John DiNardo and Mireille Jacobson) notes that California’s accountability system rewards schools (and subgroups within schools) based on a deterministic function of test scores. The sharp discontinuity in the assignment rule—schools that barely missed their target received no funding—generates “as good as random” assignment of awards for schools near their eligibility threshold and allows us to explore an understudied aspect of accountability systems—how schools use their (untargeted) financial rewards. Our findings indicate that California’s accountability system significantly increased resources allocated to some schools. Despite the increase in revenues, however, we find no evidence that these resources were used productively. And, perhaps not surprisingly, we find little improvement in test scores or other measures of achievement. More worrisome, we also find a practical effect of assigning the award based in part on the performance of “numerically significant subgroups” within a school was to reduce the relative resources of schools attended by traditionally disadvantaged students. We have now turned to an investigation of the consequence of these accountability subgroup rules on the health and fitness of schoolchildren.

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<sup>2</sup> Published in *Economics of Education Review*. I have also written two other papers using the same data from the Philippines. One is a theoretical and empirical analysis of child labor and child activities with Priya Ranjan, which came out in *Economic Development and Cultural Change*, and another on school choice with Beth King.