The educational landscape in the U.S. has gone through major changes since the end of World War II. Real expenditures per student have risen from approximately $2,100 to more than $10,000 by the turn of the century and more than $12,000 since the Great Recession. At the same time, the student-teacher ratio has fallen from a national average of almost 27 in 1955 to 16 by the 2010s. Yet despite the rise in expenditures and the reduction in class sizes, educational outcomes in the U.S. don't compare very favorably with countries at similar income levels.

One aspect of U.S. education that has not garnered a lot of attention until fairly recently is occupational choice. We propose a unified theory to account for the joint evolution of education expenditures, class sizes, labor force participation, and occupational choice. To this end, we add a teaching technology to an otherwise standard Hsieh et al. (2018) style Roy model to explore the extent to which changes in career opportunities in other occupations affect the selection of heterogeneous workers into teaching careers. These choices, in turn, affect class size and other human capital investments (in terms of both time and goods / services).

In our model, teaching is distinct from other occupations in the economy. Teachers contribute to their students’ accumulation of human capital, while other workers produce final goods or services, which are used for consumption or investment. After completing their education, these students join the labor force and they make an occupational choice at this time. They either become production workers or teachers.

In the former case, the workers’ human capital translates one-for-one into efficiency units of labor. More skilled workers supply more efficiency units and earn higher incomes.

In the latter case, the teacher’s human capital is an input, together with parental time and resource investments, into the production function of the next generation’s human capital stock. The (social) value of a teacher is determined by her contribution to each student’s human capital, by the number of students in her class room, and, in expectation, the students’ own occupational choice.

In contrast to the existing literature we are allowing the teacher’s social value to be non-linear in her own human capital. Put differently, we’re allowing for the possibility that good teachers may have a disproportional impact on their students, a point that has been raised in the literature previously (see Chetty et al., XXXX, for instance). This non-linearity has implications for the shape of the teachers’ earnings profile and it can give rise to selection into and exit from the teaching profession that varies across the talent distribution in the population and over time.

This is particularly true when labor market discrimination and educational barriers in teaching as well as other professions are changing, which has arguably been the case in the decades after World War II. Improved career prospects in non-teaching jobs can give rise to a re-allocation of teaching talent, in terms of *initial* career choice across different age cohorts as well as entry and exit *mid-career*.

Moreover, our theoretical approach is general in that it allows us to characterize dynamic inefficiencies in addition to the static allocation of talent across occupations, which is the main concern of the earlier occupational choice literature. Put differently, while it is arguably wasteful to bar women and minorities from certain occupations, we allow for the possibility that students benefitted from the relative abundance of high-ability teachers in the early post-war decades. Of particular interest to us is the extent to which the static misallocation of talent across occupations is counterbalanced by the dynamic human capital accumulation effects associated with the clustering of exceptionally skilled women – and possibly minorities – in America’s public schools.

In order to discipline the model, we use panel data from the *National Longitudinal Survey of Youth* (NLSY) and, separately, from multiple *Project TALENT* waves, together with data from the US Department of Education on teacher and classroom characteristics and from the OECD on cognitive achievement.

Using tools introduced by Hsieh et al. (2018) and adapted to our non-linear environment, we identify changes in labor market discrimination, barriers to human capital accumulation, and social norms from data on educational attainment and career choices in *Project TALENT* and in the NLSY.

Much of the salient information on educational and professional outcomes is in the 5-year and 11-year follow-up samples as well as the 2012 Pilot Study in *Project TALENT*. We have a particular interest in the differential socio-economic, educational, and gender characteristics of those who chose to become non-tertiary teachers, that is, 3-digit TALENT job codes starting with 4, except 461, 462, and 499, and, if applicable, when and why they exit the labor force or choose to take a different job. To further discipline the heterogeneity of individuals we plan to use several of the aptitude and ability tests listed in Table 3.2 and Appendix A of “The *Project TALENT* Data Bank Handbook” as proxies for various dimensions of cognitive ability. Our aim is to distinguish the teachers’ occupational choice and tenure as well as their labor force participation patterns as sharply as possible from other jobs.

We then use the NLSY to carry out a comparable exercise for more recent birth cohorts born between 1957 and 1965.

By using both *Project TALENT* and the NLSY we are able to disentangle *age*, *cohort*, and *time* effects, which is particularly salient during the post-World War II period, where educational and career opportunities are changing rapidly for women, but also for racial and other minorities. While the entry barriers for women were relatively low in the teaching profession throughout the period, for instance, they declined rather sharply in other areas. As a result, the range of careers that was available to talented women was broadening gradually in the post-war decades and the talent composition of America’s teachers, who to this day are to a large extent female, changed accordingly.[[1]](#footnote-1)

We then link the effect of teacher selection and quality on educational outcomes of more recent birth cohorts of students who were not themselves survey participants in either the NLSY or *Project TALENT*. To this end, we plan to use data from the OECD’s *Program for International Student Assessment* (*PISA*) as well as other standardized test scores.

In future work, we plan to use additional information on local school funding and teachers’ compensation to capture more granular institutional features of public education in the United States. We have a particular interest in understanding the extent to which these institutional characteristics interact with human capital investment decisions, career choices, and thus the skill composition of America’s public school teachers.

Based on this structural framework we aim to develop a set of policy recommendations with the aim of shoring up America’s educational foundation for today’s knowledge-based economy.

1. This evolution has been documented extensively in Hsieh et al. (2018) [↑](#footnote-ref-1)