

# RESEARCH STATEMENT

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I am quantitative macroeconomist with a focus on labor economics and public policy. I am interested in the effects of government policies on individual behavior and aggregate macroeconomic outcomes. I also seek to understand how such effects differ for individuals of different age, gender, educational attainment and marital status. One line of my research investigates the increase in the labor supply behavior of the seniors in the US, that occurred during the three recent decades. I try to understand the reasons behind this change, and the effect of this change on the Social Security system. Another line of my research examines the effects of minimum wage on unemployment duration and reservation wages in Germany. In my research, I combine empirical techniques with theoretical modeling and structural estimation. This allows me to expose the mechanisms underlying empirical findings, disentangle interactions between the various mechanisms, and simulate the effects of alternative economic environments and policy arrangements.

## Why Are Older Americans Working More Nowadays?

In my job market paper, titled "Why Are Older Americans Working More Nowadays?", I study the differences in the labor supply behavior of the two cohorts of seniors in the US. The labor supply behavior of seniors has very important implications for the sustainability of the Social Security system. Therefore, it is critical to understand the potential forces causing these differences and to quantify their relative importance. To this end, I build and estimate a life-cycle model of labor supply, retirement, and asset accumulation.

My paper addresses the striking change in the labor supply behavior of the seniors in the US that began in the mid-1980s. In particular, both labor force participation and annual hours worked by individuals of 62 and above in the US made the U-turn from the steady decline to the steady rise. The change in the trend is likely to be the aggregate result of a number of driving forces, both policy-related and non policy-related ones. Policies I investigate include the gradual increase in the Normal Retirement Age (the NRA), elimination of the earnings test at the NRA, changes in the rules of Social Security benefits calculation, and changes in the effective income tax. Factors not directly related to policies include the increase in longevity, changes in the earnings and health dynamics, and the increase in the out-of-pocket medical expenditures.

I find that the effects of policy-unrelated factors are of similar magnitude to the effects of policies. Among the non-policy factors, it is the joint effect of the increase in longevity and the increase in the out-of-pocket medical expenditures, that has the most impact on the labor force activity of the seniors. I argue that the primary mechanism behind this effect is the desire to insure against extreme medical conditions at the very old age. In particular, due to higher life expectancy, individuals stand a good chance of living past 90, where expensive medical conditions are common. I further argue that individuals insure against this risk by staying in the labor force longer, hoarding additional resources and at the same time decreasing the expected period, during which they would have to rely on accumulated assets and Social Security benefits.

From the policy side, the elimination of the earnings test at the NRA has the largest impact, following closely by the increase in the NRA. Changes in the rules of Social Security benefits calculation, namely, the increase in the bonus for delayed retirement, further augmented the impact of the Earnings Test elimination.

In my model, I consider individuals who belong to one of the two cohorts in the US: those born between 1915 and 1934 (post-World War I period and the Great Depression, "Great Depression Kids"), and those born between 1945 and 1964 (post-World War II period, "the Baby Boomers"). Cohorts define the policies that the agents face. Individuals are of the different genders and can be single or married. Combination of a cohort, gender, and health status determines average life-cycle profiles of wages, out-of-pocket medical expenditures, and survival probabilities for an individual. On top of that, health status is stochastic and follows a Markov process that depends on cohort and gender. Both wages and out-of-pocket medical expenditures are a combination of a life-cycle profile and persistent idiosyncratic shocks. In order to maximize lifetime utility, every period agents choose how much to work, how much to save and whether or not to claim Social Security benefits if they are eligible. For each cohort, I carefully model taxation, Social Security system, and the Earnings Test, in order to capture the differences in policies that the two cohorts face.

The main data source for my paper is the Health and Retirement Study (the HRS). I use this data source to construct exogenous life-cycle profiles of wages and out-of-pocket medical expenditures, as well as survival

rates, health dynamics and stochastic elements of wages and OOP medical expenditures. Furthermore, I use the HRS to construct calibration targets, which include life-cycle profiles of labor force participation rates, average hours worked, and average assets for each of the cohorts.

I use the two-step strategy to estimate the parameters of the model. As a first step, I construct the exogenous profiles directly from the data. On the second step, I use the exogenous profiles and estimated data-generating processes to estimate the structural parameters of the model to match the behavior of the older cohort. In order to validate the model, I keep the estimated parameters of the benchmark economy fixed, but subject the individuals to exogenous factors (health, wage, and medical expenditure shocks) as well as policies that are faced by the Baby Boomers. The model does a very good job in accounting for the differences between the two cohorts.

In addition, I use the model to calculate the difference between total Social Security benefits received over a lifetime and total social security payroll taxes paid after the age of 59. In particular, I calculate these quantities using baseline calibrated model to simulate Great Depression Kids cohort. I further simulate Baby Boomers, using the model with the same structural parameters, but all the exogenous profiles and policies of the Baby Boomer cohort. I find that due to the increase in labor force supply Baby Boomers pay in total more taxes than their counterparts from the older cohort. Furthermore, they also receive fewer benefits over their lifetime. This result suggests that an increase in the labor force supply of Baby Boomers indeed alleviates the burden of aging population on the Social Security system.

### **Future Work**

In the nearest future, I'm planning to continue my investigation of the labor force attachment of the seniors. In particular, one important factor that can potentially allow seniors to stay in the labor market longer is the so-called "job polarization". This refers to the decline in agriculture, manufacturing and similar occupations that are physically intensive, and simultaneous rise in service sector and "blue-collar" jobs, that are much less physically demanding. The relative abundance of sedentary jobs may lead more seniors to delay retirement since they do not require physical strength and bear fewer health risks. Furthermore, this could potentially affect the self-reported health measure that I utilize in my job market paper. Namely, those individuals of the older cohorts who were involved in physically demanding jobs might have reported their health status as poor only because they became unable to perform their duties. It is possible that blue-collar individuals in similar health condition to perceive their health status as fair or good. The model economy in my job market paper can be extended to include occupations and objective health measure.

## **Minimum Wage, Reservation Wages, and Unemployment Duration**

In a separate paper written with Alexandra Fedorets (DIW Berlin) and Cortnie Shupe (DIW Berlin), we empirically study the effect that the introduction of the federal minimum wage on January 1, 2015, had on the distribution of individual reservation wages in Germany. Reservation wages are defined as threshold wages at which a potential worker is willing to accept a job offer. The idea is that in the medium and long-run, reservation wages are likely not static and may themselves adjust to the economic environment and changes in the minimum wage. We use the German Socio-Economic Panel dataset, a representative longitudinal survey of the German population, to assess this question. The survey asks non-workers the questions that allow us to construct a measure of individual hourly reservation wage. In the paper titled "Reservation Wages and the Minimum Wage Reform", we document the impact channel of minimum wages on labor supply through reservation wages. In particular, we show that introduction of high-impact minimum wages induces a substantial increase in reservation wages, especially at the lower end of the distribution.

### **Work in Progress and Future Agenda**

In a companion paper with the same coauthors, we are looking at the effect of the minimum wage reform on the duration of unemployment. Preliminary examination suggests that the average duration of unemployment has increased on average, especially for individuals living in the areas with high reform bite (where "bite" is defined as a share of the population with pre-reform wages lower than the introduced minimum). We are next going to assess the robustness of the result with respect to different demographic groups and various

exit hazard specifications. Furthermore, we would like to estimate the significance of the reservation wage channel in driving this result. We're planning to build a model to be able to distinguish between different channels that affect unemployment duration. One possible channel is the reaction of a firm that may reduce the job postings in response to the legal obligation of paying no less than the minimum wage. This can lead to the tightening of the labor market.