

# Mehrdad Esfahani

---

## *Research Statement*

### *Overarching Themes in My Research*

I am a macroeconomist with an interest in economic outcomes across countries. These outcomes cover multiple perspectives, spanning income and wealth inequality to differences in productivity, and economic growth and development. In my research, I use dynamic equilibrium models to analyze economic behavior and choices under different scenarios and policies. In doing so, I utilize computational methods and applied econometrics models. I use variations in demographics, resource endowments, and aggregate policies across countries to understand how aggregate policies result in different distributions of income and wealth across countries, what are the sources and trends in local and global productivity growth, and why some nations are richer than others.

### *Income and Wealth Inequality*

Inequality in labor earnings is higher in the U.S. cross-section than Europe, as measured by several indicators such as the Gini coefficient, share of earnings going to the top percentile, etc. One critical step in understanding earnings inequality in the cross-section is focusing on the forces that shape inequality over the life-cycle. Specifically, I ask, what are the determinants of life-cycle inequality in labor earnings? Are there significant differences in life-cycle inequality across the U.S. and Europe? How do these determinants interact with taxation and education policies?

The goal of my job market paper, *Inequality Over the Life-Cycle: U.S. vs Europe*, is a quantitative exploration of these questions by studying life-cycle inequality in (pre-tax) labor earnings and the impact of labor market (tax) policies and higher education subsidies/transfers on college attainment and life-cycle earnings, using cross-country data, and focusing on the U.S., U.K., Netherlands, and France.

I document that the mean and dispersion of labor earnings (as measured by variance of log earnings) over the life-cycle grow faster in the U.S., followed by the U.K., Netherlands and France. The bulk of these facts are driven by individuals with a college degree. I also document that the labor earnings taxation schedule is generally steeper in Europe than in the U.S. This means that as the earnings of individuals grow, the marginal tax rates on their earnings increase more in Europe than the U.S. College subsidies/transfers are more generous in Europe, but the U.S. spends a higher share of its GDP on college and has higher college attainment.

To understand the interplay between the differences in life-cycle earnings growth and inequality, the taxation schedule, and higher education policies across these countries, I develop a model which features uninsurable shocks, investments in risky human capital, and college choice. Labor earnings are subject to non-linear taxation and government provides subsidies/transfers for college. Individuals make a choice about whether to go to college or not, and if they choose to attend,

how much to invest in their human capital. While working, individuals supply labor elastically. Steeper taxation schedule distorts human capital accumulation since new and previous investments would be taxed at a higher rate. Attending college amplifies this distortion since human capital accumulation is rapid during college and those who attend college face higher marginal taxes over the life-cycle.

I find that the differences in the steepness of labor earnings taxation and college subsidies/transfers account for 94% of the growth in mean earnings profiles and 80% of the growth in variance of log earnings. On an aggregate level, my model accounts for 91% of the differences in cross-section Gini coefficient across U.S., U.K., Netherlands, and France, and it is consistent with differences in hours worked and college attainment.

## Local and Global Productivity Trends

With the rise of globalization and changes in the center of gravity in production in the past two decades, the issue of world productivity became a central topic in models of economic growth and innovation. In *World Productivity: 1995-2014, (joint with John Fernald and Bart Hobijn)*, we use new global growth-accounting techniques and datasets to decompose world GDP growth into parts driven by technology, labor, and capital—importantly, accounting for markups and factor reallocation.

Our results show that first, world productivity growth is highly volatile from year to year and even over multi-year periods. Second, despite this volatility, the contribution of underlying productivity growth at a country-industry level is relatively constant until the Great Recession. Since the Great Recession, growth in country-industry productivity (as well as in overall world productivity) has been markedly slower. Third, (net) reallocations of labor across countries are the major source of year-to-year volatility in world productivity growth. Labor reallocation is, on average, a drag of about half a percentage point per year on world productivity growth, as hours typically grow faster in low-wage/low-productivity countries.

We make three contributions. First, we develop a new growth-accounting decomposition that isolates distortions in product, labor, and capital markets. Second, we use the World Input-Output Database as a global growth accounting database, augmented by new capital data. Third, to allow for output distortions, we estimate (rising) economic profits and (sizeable) markups of price over marginal cost across countries and industries. Interestingly, though profits and markups are quantitatively important, the broad narrative about global productivity is robust to whether we control for this source of distortion, or not. Our results are also robust to accounting for PPP.

## Economic Growth and Development

Last but not least, I arrive at one of the most important questions in economics: why are some nations richer than others? Development accounting methodology reveals that differences in total factor productivity (TFP) are crucial in understanding why some countries produce more than others. There are multiple proposals for the roots of productivity differences such as measurement of the physical capital and its composition, measurement of the quality of human capital, and monopolistic barriers to technology adoption. There is a relatively recent empirical literature that highlights the role of management practices as a root of productivity differences.

In *Investment in Skills, Managerial Quality, and Economic Development*, I document

that for a group of 38 countries ranging from low to high income: (1) the share of skilled managers is higher in richer countries, (2) the relative income of managers to non-managers is lower in richer countries, and (3) the relative income of skilled to unskilled individuals is lower in richer countries. In addition, the share of managers is lower in richer countries while the mean plant size is larger in richer countries. I explore these facts through the lens of a general equilibrium model of investment in skills and occupational choice. Countries differ in productivity level in production and the level of size-dependent distortions. I find that exogenous productivity differences alone can produce the above facts qualitatively, but size-dependent distortions are needed to account for these facts quantitatively.

## ***Future Work***

In line with my research agenda, I have multiple projects that I am working on. In *Normative Growth Accounting: The Distorted-Planner Approach*, (joint with John Fernald and Bart Hobijn), we propose a new framework that connects the standard growth-accounting methods to the misallocation literature. This theoretical contribution allow us to reinterpret the results of a new growth accounting decomposition, which we carry out for the U.S.

My job market paper shows that more generous subsidies/transfers for college increases earnings inequality. The reason is that individuals who choose to go to college regardless of the generosity of the government program will invest in their human capital much more than the marginal individual who chooses college only under a more generous transfer. This means that from a planner perspective, who is concerned about the distributional effects of college programs and average earnings growth over the life-cycle, this is not the optimal way of incentivizing individuals to choose college. In *Who Benefits From College Subsidies? A Cross-country Analysis*, I explore different college transfer systems under complete and incomplete information on the planner side (i.e. whether the planner knows the type of the individuals or just receive a noisy signal about their type) and their welfare implications of those policies. I then use the model to create a counterfactual world where countries transfer the same amount of college benefits but in more efficient ways and what are the implications for cross-country income and education disparities.

In *Subjective Expectations and Earnings Dynamics in the U.S.*, I use expectation data from *Survey of Consumer Expectations* to estimate a more general income process for the U.S. These new estimates are used in an overlapping generations model to identify the insurance provided in the U.S. labor market when data on individual's earnings expectation is available.

In *Lifetime Earnings Inequality Across U.S. and Europe: Males, Females, and Households*, I am documenting lifetime earnings inequality facts across U.S. and Europe and ask, what are the differences between males and females when it comes to lifetime inequality? Are these differences non-trivially change across countries? How do they relate to household level inequality and government policies? For answering these questions, I am developing a life-cycle model of human capital accumulation, labor force participation, and elastic labor supply within a household. Males and females accumulate human capital differently and government policies in terms of taxation and unemployment benefits differ across countries. I then evaluate how counterfactual policies across countries contribute to welfare and income inequality.