Family Channel and Cyclical Volatility Across Countries

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Abstract

Countries with high female labor force participation exhibit larger differences in cyclical volatility for men and women. While gender convergence occurs across many dimensions such as employment, occupation, and pay, cyclicality of employment and hours actually diverges. We think of this fact as the result of an active within-family insurance mechanism: men and women sort into jobs with different business cycle risks in order to smooth out their consumption around business cycles. We confirm this hypothesis by showing a higher degree of sorting among married people compared to single people. Our quantitative model shows that part of the gender pay gap can be explained by this sorting which helps families to smooth out their income stream by paying an insurance price: lower female earnings.

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1 Introduction

Over the past 50 years, gender convergence has occurred along many dimensions including employment, hours, occupational choice, and pay in the United States (Goldin 2014). However, there is significant heterogeneity across developed countries in terms of the level and the growth rate of female labor force participation (Olivetti and Petrongolo (2016)). In this paper, we show that although gender convergence occurs along many dimensions, men and women’s cyclical volatility of employment diverge from each other over time, where the cyclical volatility of employment is measured as in Doepke and Tertilt (2016). We observe larger gender differences in cyclical volatility of employment in countries with low gender hours gap (that is, the difference between average female hours per capita and average male hours per capita).

We argue that this observation stems from an active family insurance mechanism. As noted earlier by Lundberg (1985) and more recently by Ellieroth (2019), married women act as family insurers by either entering the labor market when their husbands lose jobs, or by increasing their hours if already working. Bardóczy (2020) shows that this type of spousal insurance mitigates volatility of aggregate consumption. We argue that this type of insurance through labor supply adjustment becomes less relevant in countries with low gender gaps in employment because many women are already working full time. Hence, women instead sort into safer, less cyclical jobs in order to stabilize household income in economic downturns. In this paper, we show that part of the gender pay gap differences across countries can be explained by this sorting. We also show that this mechanism smooths aggregate consumption relative to an economy where gender sorting does not increase as female labor force participation rises.

Our paper provides a novel perspective for family insurance mechanism through gender differences in cyclical properties of labor supply. We also contribute to the literature by highlighting cross-country differences in gender gaps and showing how these differences result in different types of family insurance: added worker effect vs. industry sorting.

2 Facts

In Figure 1, we show that countries like Sweden which had low levels of the gender hours gap in the 1990s exhibited larger gender differences in cyclical volatility of hours over the period 1995-2019. We further show that the cross-country fact is primarily
Figure 1: Relative Cyclical Volatility

Notes: Data source is EU-LFS, all individuals between age 25-54. Gender hours gap is defined as the difference between average female hours (per capita) and average male hours (per capita). Cyclical volatility is the percentage deviation of the predicted value of a regression of the HP-residual of men’s and women’s hours on the HP-residual of GDP over the period 1995-2019.

Driven by the behavior of married women. Figure 2 shows that gender differences in cyclical volatility among married people are correlated with the gender hours gap but gender differences among single people are not. In other words, it is mostly married women who sort into safe jobs, pointing towards a family insurance motive for sorting. Coskun and Dalgic (2020) shows that in the US, industry sorting is pronounced among couples too; the majority of couples are working in industries with different cyclical properties. Moreover, Figure 2 shows that overall cyclical volatility of married couples is lower in countries with low gender hours gap where the cyclical volatility of unmarried people is not correlated with gender hours gap.

We next analyze how men and women sort into different industries in different countries. We then calculate a hypothetical relative cyclical volatility assuming the same fraction of women in each industry across countries to understand if the relationship in Figure 1 is driven by differences in the cyclicality of different industries across countries. We follow the aggregate industry classification as in Alon et al. (2021) and calculate the female share of hours in each industry and country over the period 2008-2019. We then
Figure 2: Marital Status and Cyclical Volatility

(a) Married Volatility  
(b) Unmarried Volatility  
(c) Married Women’s Volatility  
(d) Unmarried Women’s Volatility

Notes: Data source is EU-LFS, all individuals between age 25-54. Gender hours gap is defined as the difference between average female hours (per capita) and average male hours (per capita). Cyclical volatility is the percentage deviation of the predicted value of a regression of the HP-residual of men’s and women’s hours on the HP-residual of GDP over the period 1995-2019.
recalculate the aggregate male and female hours as the sum of industry hours where the female shares are replaced by EU-average shares rather than country-specific ones.

In Figure 3, we show that the relationship between gender differences in cyclical volatility and the gender hours gap disappears completely when we assign the same gender industry sorting to all countries. In other words, if all countries had the same gender sorting across industries, relative cyclical volatility would not be correlated with the gender gap, showing that gender industry sorting is the driving mechanism of the observed fact.

Figure 3: Role of Industry Gender Shares

![Figure 3](image)

Notes: Data source is EU-LFS, all individuals between age 25-54. Gender hours gap is defined as the difference between average female hours (per capita) and average male hours (per capita). Cyclical volatility is the percentage deviation of the predicted value of a regression of the HP-residual of men’s and women’s hours on the HP-residual of GDP over the period.

We then ask to what extent women’s sorting into safer jobs can explain the differences in the gender pay gap across countries. We investigate the lifetime income profiles of safer and riskier jobs using the EU Labor Force Survey. We expect that safer jobs pay less because one amenity of these jobs is lower income risk and less correlation with the business cycle. It is perhaps surprising that countries like Italy, with a large gender gap in hours that might suggest lingering gender norms around work and the division of household duties, have some of the smallest gender pay gaps in Europe, while countries like Denmark and Sweden have comparatively large gender pay gaps (Olivetti and Petrongolo (2008)). Sorting into safe jobs is one way to rationalize this fact.
3 Model

To answer these questions, we build a model similar to Alon et al. (2020) but with endogenous industry choice over two industries, one safe and one risky, with different expected income profiles and risk. The model features singles and married couples. Each period agents receive at most one job offer and decide whether to reject the offer, accept and work part time, or accept and work full time. Married couples make labor supply and consumption decisions to maximize joint utility. Gender differences in labor supply occur for two reasons. First, there is an exogenous gender pay gap that can capture things like gender discrimination in the labor market. Second, men and women differ in the amount of disutility they get from working.

Agents differ in terms of gender, marital status, wealth, and human capital in the two sectors. In recessions, job finding rates and layoffs in the risky sector fall more than in the safe sector. We then study how gender sorting between the two sectors varies as the steady state level of the female labor force participation rate rises because of either reduced discrimination (smaller exogenous gender pay gap) or changes in social norms that reduce women’s disutility from working. Because human capital accumulation is endogenous and occurs more quickly in the riskier sector, this can have counterintuitive effects on the observed gender pay gap. Marginal women who are induced to work because of these changes sort into safer jobs, so the gender pay gap conditional on working can actually grow even as discrimination falls. We then use the model to explore a counterfactual where industry sorting remains the same as women’s labor force participation rate increases and quantify how much smaller the gender pay gap would be in this case. We will also explore how important this gender sorting into industries is for the stabilization of household consumption to quantify the importance of this insurance. Finally, we do policy counterfactuals to explore how greater generosity of unemployment insurance impacts gender industry sorting and ultimately the gender pay gap and consumption volatility.
References


