Università di Pisa
Sant'Anna Scuola Universitaria Superiore Pisa
Consiglio Nazionale delle Ricerche
Università degli Studi di Cagliari

Book of Short Papers

SIS 2021

SIS 2021
PISA, 21-25 GIUGNO 2021

SIS Società Italiana di Statistica

Editors: Cira Perna, Nicola Salvati and Francesco Schirripa Spagnolo

PUBLISHED BY PEARSON

WWW.PEARSON.COM

ISBN 9788891927361

3.2 Changes in the life course and social inequality

Heterogeneous Income Dynamics: Unemployment Consequences in Germany and the US

Dinamiche di reddito ineguali: le conseguenze della disoccupazione in Germania e negli Stati Uniti

Raffaele Grotti

Abstract This paper studies income trajectories after unemployment and their stratification by education in Germany and the United States. In the specific, this paper investigates how the labour market and the household shape income trajectories and buffer income losses following unemployment, and how this varies across educational levels, between sexes and in a comparative perspective. Empirical analyses are based on SOEP and PSID data and employ distributed fixed-effects models. Results show that institutions play a considerable role in shaping the consequences of unemployment but with varying intensity across groups and countries.

Abstract *Questo articolo studia le traiettorie di reddito associate alla disoccupazione e la loro stratificazione per livello di istruzione in Germania e negli Stati Uniti. Inoltre, l'articolo indaga come il mercato del lavoro e la famiglia siano in grado di modellare le traiettorie di reddito e contenere le perdite di reddito a seguito della disoccupazione, e come questo varia tra livelli di istruzione, tra uomini e donne e in una prospettiva comparativa. Le analisi empiriche si basano su dati SOEP e PSID e utilizzano modelli a effetti fissi. I risultati mostrano come mercato del lavoro e famiglia svolgano un ruolo importante nel plasmare le conseguenze della disoccupazione, anche se con differente intensità tra gruppi e paesi.*

Key words: income dynamics, unemployment, household, distributed fixed-effects

[1] Raffaele Grotti, Dept. of Sociology and Social Research, University of Trento, email: raffaele.grotti@unitn.it

1 Introduction

This paper studies the unemployment consequences for individual income trajectories and the extent to which the household shape such trajectories in Germany and the United States. The current paper aims to expand existing research by studying how income trajectories vary between individuals with different levels of education. The experience of a critical life event may trigger processes of increasing inequality over the life-course if the least resourceful individuals experience larger negative consequences. Therefore, my first research question is: *Do income trajectories after job loss differ across educational levels?*

The interaction between events and social stratification, moreover, takes place embedded in context, i.e. country. Differences between countries may affect (1) the labour income trajectories coming with job loss; (2) and the capacity of the household to buffer income losses. This raises further research questions: *To what extent does the household shape income trajectories? Does its role differ across educational levels? How does it operate in different countries?*

Existing literature agrees that unemployment has substantial negative consequences on earnings at the time the job is lost and potentially in the subsequent years (Gangl 2006). Reemployment is the main mechanism for compensating income losses. It's buffering capacity depends on the labour market structure and the standardization and reliability of worker's educational qualifications that the educational system provides. Given countries' differences in these institutional aspects, in Germany high-educated workers will experience faster re-entry and higher wages in the new job compared to low-educated workers. This stratified pattern should be less evident in the US.

A second mechanism that can buffer the consequences of job loss operates at the household level, namely the pooling of incomes from the partner and other household members. Income pooling should be stronger for women, as men usually can provide a larger amount of income. Moreover, when the man loses the job, income pooling should be stronger in the US as compared to Germany, given the higher labour market participation and intensity of women in the US. In addition, because of assortative mating, particularly educational homogamy, the capacity of the household to compensate for income losses via partner's income should increase with education in both countries (Grotti and Scherer, 2016).

2 Data and methods

I use data from the Socio-Economic Panel for Germany and the Panel Study of Income Dynamics for the US. I focus on the period from 1984 to 2015 and select individuals from 25 to 54 years. Analysis are separate for men and women and by education.

The consequences of job loss are studied for two income concepts: *individual labour earning* (*labour income* for simplicity); and *equivalent pre-government household income* (*household income*). Income losses are presented in relative terms.

The household buffer is measured in terms of percentage points: namely the difference between the percentage loss in labour income and the percentage loss in household income. I define the job loss event as the transition from a spell of employment to a spell of unemployment that lasts at least 3 months during the year.

The model – the 'distributed' fixed-effect
I model income trajectories in the years around job loss using distributed fixed-effects models (Dougherty 2006). My fixed-effects income equation can be written as

$$(1) \quad y_{it} - \bar{y}_i = \sum_j \beta_j \left(X_{jit} - \bar{X}_{ji}\right) + \gamma(UNEMP_{it} - \overline{UNEMP_i}) + (u_i - u_i) + (\varepsilon_{it} - \bar{\varepsilon}_i)$$

where y_{it} is a measure of income for individual i at time t, X_{jit} is a vector of time-varying covariates other than the employment status, $UNEMP_{it}$ stands for the (un)employment status while u_i and ε_{it} are respectively the individual-specific (that via demeaning disappears) and idiosyncratic error terms. i, j and t index over individuals, time-varying covariates, and time periods, respectively. In the distributed specification, the dummy variable $UNEMP_{it}$ in eq. (1) is substituted with a set of dummy variables $UNEMP_{pit}$ as in eq. (2), where p is the number of years before unemployment if negative, and the number of years after unemployment if positive, while s represents the maximum horizon in years backward (-5) and forward (+5) from the time to unemployment. Observations in which individuals are observed more than 5 years prior or after unemployment are coded as -5 and $+5$, respectively.

$$(2) \quad \sum_{p=-s}^{s} UNEMP_{pit} = UNEMP_{it}$$

In line with this model specification, the reference category ($s = -5$) also includes those who never experience unemployment. Results are presented in two-year intervals. In addition to the distributed employment status, the models control for partnership status, number of children younger than 14, age, age squared, and year.

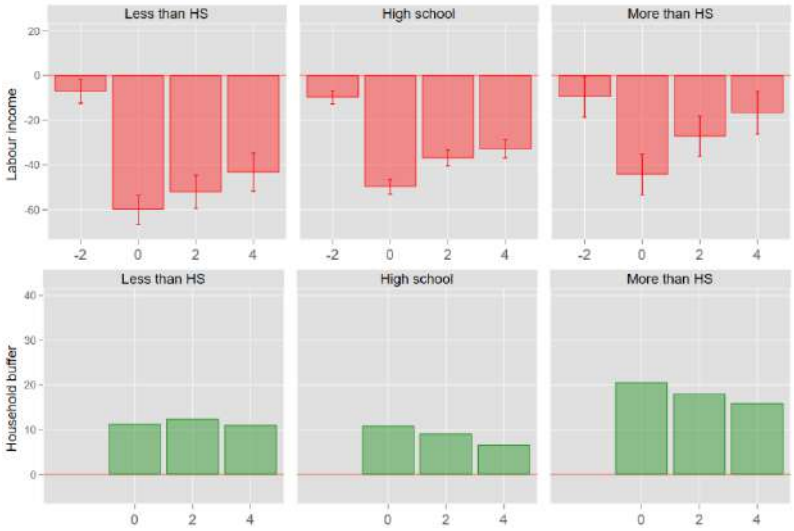
3 Results

Germany
I present income trajectories separately for levels of education and at different points in time. The first row in Figure 1 reports income trajectories in men's labour income in terms of percentage income losses with respect to 5 years before job loss. In the year of job loss, German men with less than high school experience an income reduction of 60%. Those with high school education lose 50% of income while those with more than high school lose 44%. The low educated also face more difficulties in recovering from their income losses later on, at both two and four years after the event. Results confirm my first expectation: a larger penalty in the after the event for the low educated compared to the high educated.

Results for German women (Figure 2) largely resemble those for German men: the higher the level of education, the lower the income losses. This is especially true

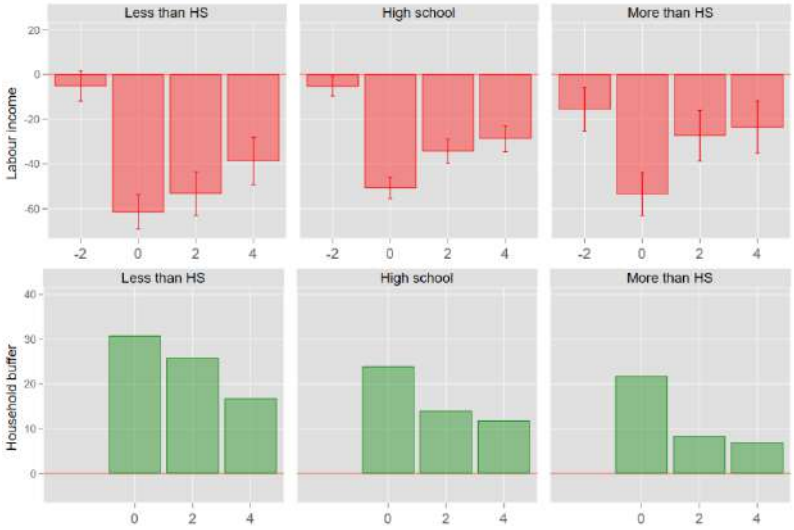
in the years after the event.

Figure 1: Estimated income trajectories for Individual Labour Income, and the Household buffer, by education. Germany, men



The second row of Figure 1 reports the 'household buffer'. For German men, the household redistributive capacity reduces income losses, especially among the high educated. German men, benefit from a smaller household buffer than women, which can be attributed to the lower employment of women – which less likely to provide additional income to the male partner.

Figure 2: Estimated income trajectories for Individual Labour Income, and the Household buffer, by education. Germany, women



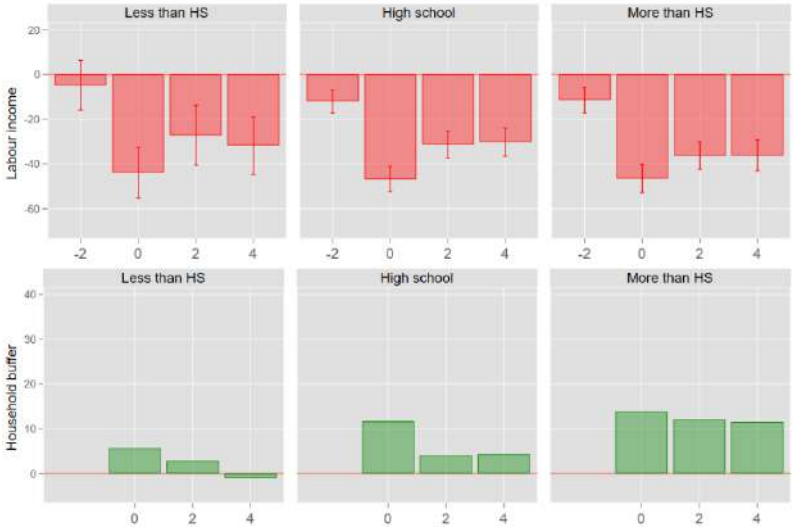
Differences across levels of education are in line with the expectation only for men: larger household buffer for the most educated. The pattern that we observe for

women could be partly explained by the largest share of total household income that high-educated women earn. In such situation, woman unemployment reduces household income strongly and the household will have a limited capacity to buffer the loss.

United States

I now turn my attention towards the US. At the time of the event, men lose between 44 (low-educated) and 47 (mid- and high-educated) percent of their labour income (Figure 3). In the following years, the losses decrease only slightly. As expected, in the US income losses after job loss do not vary significantly across levels of education.

Figure 3: Estimated income trajectories for Individual Labour Income, and the Household buffer, by education. United States, men



Income trajectories for American women, presented in Figure 4, are similar to those for men. However, we observe a larger penalty for the less educated groups in the year of job loss (55 percent), although differences are contained – by 3 and 7 percentage points compared to mid- and high educated respectively.

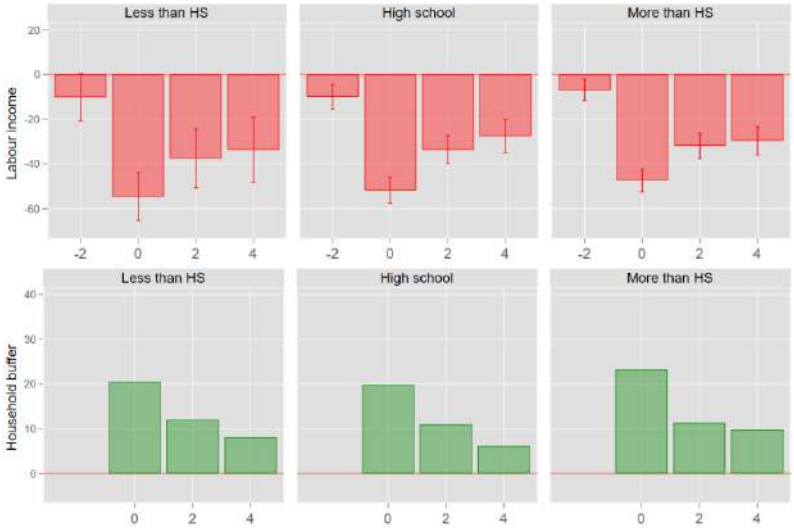
The household buffer reduces men's losses to a limited extent, with the most educated benefitting the most over the trajectory. The household role is considerably larger for women compared to men. However, for women I find only limited support to the expectation of a household buffer that increases with education.

4. Conclusions

This paper investigates the economic consequences of job loss in international comparison and among individuals with different educational levels. I find some evidence of the accumulation of inequalities over the life-course. Overall, at the time of the event we observed lower income losses in the US than in Germany, which might

be attributed to the higher dynamism of the US labour market. Education affects the consequences of job loss and exacerbates the disadvantage of the less educated, especially in Germany. The household substantially contributes in managing the consequences of unemployment. Women benefit the most from the support of other household members, mainly the partner, in both countries. Comparing men in the two countries, American men are not supported by their partner to a greater extent than German men, notwithstanding the higher labour market intensity of women in the US.

Figure 4: Estimated income trajectories for Individual Labour Income, and the Household buffer, by education. United States, women



To conclude, institutions in both countries play a considerable role in strengthening inequality and in (re)producing the system of socioeconomic stratification. These patterns are especially clear-cut for men. The market leads to an accumulation of disadvantages: the least educated have the lowest levels of income, experience the highest risk of unemployment, and suffer from the largest income losses with job loss. The market operates as an inequality 'booster', especially in Germany. The role of the household points toward the same direction by supporting the highest educated the most, with the exception of German women. Overall, my results show that the household plays a substantial role in shaping income trajectories of individuals. However, the extent to which it mitigates the income losses associated with unemployment varies according to several aspects, especially gender.

References

1. Dougherty, C. (2006). The marriage earnings premium as a distributed fixed effect. Journal of Human Resources, 41(2), 433-443.
2. Gangl, M. (2006). Scar effects of unemployment: An assessment of institutional complementarities. American Sociological Review, 71(6), 986-1013.
3. Grotti, R., & Scherer, S. (2016). Does gender equality increase economic inequality? Evidence from five countries. *Research in Social Stratification and Mobility*, 45, 13-26.