The Added-Worker Effect within Italian Households

Donata Favaro[a], Anna Giraldo[b]

[a] Department of Economics and Management, via del Santo 33, Padova; donata.favaro@unipd.it
[b] Department of Statistical Sciences, via C. Battisti 241, Padova; anna.giraldo@unipd.it

Abstract

In this article, we study the relationship between female and male labour supply within Italian households. In particular, by focusing on the relationship between male transitions from employment to unemployment and—at the same time—female partner transitions from labour market inactivity to activity, we evaluate the Added-Worker Effect in Italy at the household level. The analysis is carried out over a long period of time—between 2004 and 2019—on data from the Italian Labour Force Survey (ILFS). To identify the Added-Worker Effect, we adopt a differences-in-differences methodology. By exploiting the richness of information contained in the ILFS data on unemployment status and unemployment risk, we were able to evaluate different "dimensions" of the Added-Worker Effect.

Keywords: household labour supply, differences-in-differences, female labour market participation

1. Introduction

The aim of the present article is to study the relationship between female and male labour supply within Italian households. In particular, we evaluate whether an Added-Worker Effect (AWE) exists in Italy, focusing on the transition of women from labour market inactivity to unemployment when their male partners move from employment to unemployment.

The literature on the topic goes back to the first contributions of Humphrey (1940) and Woytinsky (1940) and the empirical studies on the Added-Worker Effect (AWE) by Mincer (1962), Heckman and Macurdy (1980), Lundberg (1985). The AWE has been revived with the recent economic crisis. The latest contributions seem to agree much more on the existence of an AWE. Gong (2011), focusing on Australia, found a significant AWE in terms of increased full-time employment and working hours. Bredtmann et al. (2014) investigated the AWE across the European countries (28 countries) in the period 2004-2011 using the European Union Statistics on Income and Living Conditions survey (EU-SILC) and showed that an AWE exists, both at the extensive and at the intensive margin of labour supply. Hardoy and Schøne (2014) found no support for the AWE in Norway, although the AWE was detected in some subsamples. Starr (2014) found, for the USA, that employment rates of women whose husbands were non-employed rose significantly during the recession. Ayhan (2018) showed that the probability of participation in the labour force of Turkish women increases by 15-28% in response to their husband's unemployment. As to the Italian case, facts show that during the recent recession female employment in Italy has increased and has partially counterbalanced the increase in male unemployment (Istat, 2013). According to data from the World Bank the ratio of female to male participation rate increased in Italy over the period 2010-2020. The existing empirical analyses have already provided some evidence of this counter-cyclical trend in female employment compared to the reduction in male employment. Ghignoni and Verashchagina (2016) found that an AWE exists, even if only in cases of serious hardship. More recently, Baldini et al. (2018), studying Italy in the years 2004-2014 using EU-SILC, found a strong and robust evidence that households hit by an employment shock do respond by increasing labor supply. Then, they documented an AWE effect in Italy that affects not only wives but also

teenage children.

Our study evaluates the AWE in Italy during a long period of time—2004 to 2019—by employing the Italian Labour Force Survey (ILFS), a rotating panel provided by the Italian Statistical Institute (Istat). To identify AWE, we employ a differences-in-differences methodology (DD).

2. Data and methodology

Our study evaluates the AWE in Italy over a long period of time—between 2004 and 2019—by employing the ILFS, a rotating panel provided by the Istat. The longitudinal data of the ILFS observe individuals across couples of years (t_0, t_1): in the quarter of entrance in the panel, in the subsequent one (first two quarters of observation), and in the 5th and 6th quarter. In each quarter, new individuals enter the survey, for a share of one fourth of the total sample. The available data are from 2004-05 to 2018-19. Unfortunately, until 2012 Istat only makes available the panel data related to the first quarter of each year. Thus, for reasons of balance and comparability between samples, we carried out our analysis on the first quarter only. This means that our database is made by 15 panels of individuals observed in the first quarter of year t_0 and in the first quarter of year t_1.

Our analysis focuses on couples—married or cohabiting—with or without children, with partners not retired and not unable to work, in the age range 25-54. To our purpose, we focus on households with unchanged composition in the two occasions (t_0 and t_1). It is worth mentioning that the original longitudinal data are individual panels without information on the marital status and the relationships within the household. Thanks to the availability of a common household identifier and on the basis of individual characteristics, family relationships were reconstructed.

To identify AWE, we employ a differences-in-differences methodology (DD). Our first definition of treated women includes those women whose partners became unemployed between t_0 and t_1. Then, by exploiting the richness of the ILFS, we defined a broader group of treated, by including also those men who moved from employment to forms of job protection and those who experienced a reduction in activity or lost jobs other than the main one between t_0 and t_1. This broader definition of treatment, which is new in the literature, allowed us to consider situations that might reveal an increased risk of losing one's job or a reduction in the available income, which may affect the decision of female partners to enter the labour market.

AWE occurs when the probability of changing employment status from inactive to unemployed or employed is significantly different between treated and untreated women. Then, the equation we estimated to detect AWE is as follows[1]:

$$ES_{it} = \beta_0 + \beta_1 D_t + \beta_2 T_i + \beta_3 T_i D_t + \beta_4 X_{it_0} + \varepsilon_{it} \quad (1)$$

where ES_{it} is the employment status of female i at time t. D_t is a dummy with value equal to 0 in t_0 and 1 in t_1. T_i is a dummy that captures whether the woman is treated or not (1 if treated, 0 if not). $D_t T_i$ is our variable of interest: the parameter β_3 captures the effect of being treated, compared to not being treated, on the change of employment status of females. X_{it_0} includes several covariates, all evaluated at t_0. Among the covariates, we include: cultural proxies (female age cohort and male nationality), female educational level, male educational level, male type of job, male sector of activity, number of children, number of children who work, number of children NEET, number of children under 15 years old and dummies that capture male unemployment risk.

Equation 1 is estimated under different specifications of the treatment (T_i) and the outcome (ES_{it}).[2] The first treatment we consider is the partner's transition from employed to unemployed. In this case, T_i assumes value zero if the man is employed and 1 if he is unemployed. We then consider other categories of the man's employment status to define the treatment. The aim here is to analyse how the emergence of the partner's risk of losing his job or a change in his economic situation can influence the woman's employment choices. To capture the emergence of a risk in the partner's employment stability, we have considered men's transitions (between t_0 and t_1) from employment to CIG. CIG stands for Cassa Integrazione Guadagni (Wages Guarantee Fund) and is an institution under Italian law consisting of an economic benefit, provided by the Italian Security System, for workers suspended from the obligation to perform work or working reduced hours. CIG

[1] We follow Angrist and Pischke (2009) and employ a linear model.

[2] In the next section, we will provide a precise description of all the definitions we have adopted for *ES* and *T*.

is a cash grant the Italian Security System pays to workers when companies are in temporary difficulty. In order to capture the effects of a worsening in the economic condition of the family due to a reduction in men's work, we consider men's transitions from working full hours in t_0 to reduced hours in t_1 and men losing jobs other than the main one between the two years. To complete the analysis, we of course also consider male transitions between the two years from employment to non-employment.

With regard to women's employment transitions, the first objective is to evaluate the AWE in its traditional version, assessing the transition of women from inactive to unemployed. In this case, the outcome variable ES_{it} takes a value of 1 if the woman is unemployed, and 0 if she is out of the labour force. After that, we use further specifications of the outcome variable to capture both different 'degrees' of transition to activity and the effect on labour supply. We evaluate the transition from inactivity not searching to inactivity searching or unemployment by assigning the outcome variable the value zero if the woman is inactive and not searching for work and the value 1 if the woman is inactive but looking for work, or unemployed. Then, we assess the transition from inactivity to unemployment or employment by assigning the outcome variable value 1 if the woman is either unemployed or employed. This specification allows us to detect the extensive margin effect of treatment. Differently, to evaluate the intensive margin effect of treatment, that is the effect on labour supply, we consider only women who already work and observe the transition from part-time to full-time. In this case, the outcome variable ES_{it} takes value zero if the woman works part-time and value 1 if she has a full-time job.

3. Results

In this Section, we discuss the results of the estimates of Equation 1 for the different work transitions of women and their partners (see Table 1). Specifically, *T1* is the treatment variable that captures men's transitions from employment towards unemployment and takes on a value of 1 if the man becomes unemployed and a value of 0 if he remains employed. *T2* captures men's transitions from employment to extended CIG or transitions to reduced activity, including job losses other than their primary job. *T3* relates to men's transitions from employment to non-employment—either unemployment or inactivity.

Table 1: The AWE with different treatments and outcomes

Classes	T1	T2	T3
ES1	0.149***	0.023*	0.060***
ES2	0.123***	0.020	0.051***
ES3	0.138***	0.020	0.093***
ES4	0.038***	0.027***	0.028***
ES5	0.014	0.051***	0.023

[a] T1: men's transitions from employment to unemployment; T2: men's transitions from employment to CIG /reduced activity/lost jobs other than the main; T3: men's transitions from employment to non-employment. ES1: females' transitions from inactivity to unemployment; ES2: females' transitions from inactivity to unemployment or employment; ES3: females' transitions from inactivity "not searching" to inactivity "searching" or unemployment; ES4: females' transitions from employment "not wishing more hours" to employment "wishing more hours of work"; ES5: females' transitions from part time employment to full time employment.

For women, we adopted different definitions of the dependent variable *ES*, so as to capture different 'degrees' of exit from inactivity and changes in preferences for work involvement. *ES1* is the dependent variable definition that captures women's transitions from inactivity to unemployment; *ES1* takes on a value of 0 if women are inactive in either period and a value of 1 if they are unemployed in t_1. *ES2* evaluates transitions from inactivity to the labour force - either unemployed of employed; in this case, the dependent variable assumes a value of 1 in period t_1 if the woman enters the labour force between the two periods. *ES3* captures the intention to work and the change of the status from 'not searching' to 'searching' for work. Thus, the sample of women is restricted to the only ones who are inactive and 'not searching' for work in period t_0; then, the dependent variable *ES* assumes a value of 1 if the woman is 'searching' for work in period t_1 and a value of 0 otherwise, either in period t_0 or t_1. *ES4* assesses preferences for greater work involvement, i.e. more working hours; in this case, the sample consists of women who are already employed in t_0 and who do not wish more hours of work. The dependent variable takes the value 1 in period t_1 if women state that they wish more hours of work. We also considered a further specification to assess preferences for greater work

involvement. In this case, we selected only women with a part-time job in period t_0 and looked at the transition from part-time to full-time work between the two years; in this specification the variable *ES5* takes the value of 1 in period t_1 if women are employed full-time in that period and the value of 0 otherwise.

The results show that an AWE exists within Italian families. The classical definition of AWE, measured by women's transitions from inactivity to unemployment as their partners move from employment to unemployment, compared to women whose partners do not move to unemployment (ES1-T1), is significant and positive. The effect is also positive when the treated group includes only families whose men are "at risk of unemployment" (ES1-T2), meaning that females react to changes in the family economic situation. Interestingly, working women are willing to work more hours (ES4) when the partner loses his job or he is at risk of losing it; this effect is significant for all treatment types. However, the transition from part-time to full-time is weakly significant, only for T2 transition. Possible explanations for this result could be the existence of labour market rigidities in the transformation of part-time work into full-time work or constraints on the supply side of the labour market (due to care activities that limit women's working hours).

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