

Retirement and Intra-Household Labour Division of Italian Couples: A Simultaneous Equation Approach

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Introduction

Does the retirement of one among the partners lead to a more equitable labour division within the couple? The effect of retirement of one among the partners on labour division has been investigated especially for the US using cross-sectional [6, 7] and longitudinal survey data [3]. These studies provide different results regarding the influence of retirement on the gendered division of labour between partners. In particular, different conclusions were reached about the question if gender can be considered a valid predictor of working activity.

The effect of retirement on labour division between partners has not been extensively analyzed for Italy, where Italian women generally suffer a higher gender gap in intra-household labour division than elsewhere in Europe [1]. The gendered division of work between Italian partners is influenced by psychological and cultural factors, as the agreement of partners to the gender-role social norms [5]. However, the influence of gender attitudes on both labour division and retirement decision is not easy to observe and to specify in a regression model, and several methodological problems arise, especially analyzing the problem in a life-course perspective.

In this study, using data on Italian couples from the Istat FFS survey for the years 2003 and 2007, we focus our interest on the effect of the retirement of man on the change in working behaviour of both partners. We adopt a longitudinal approach, providing an estimation method that allows us to correct misspecification effects, due to the latent influence of the bargaining process between partners and the gender-role attitudes. Thus, a Difference-in-Differences (*DID*) specification of simultaneous equations of market and domestic work of both partners is adopted, estimating the effects of retirement of a man on market and domestic work (measured in weekly working hours) of both partners.

Estimation results show that the retirement of Italian men leads to a reduction of the domestic activity of woman, but not of the woman paid work. Moreover, a gender-role cultural component, independent with respect to retirement decisions, strongly influences woman paid work supply, in the sense that women who agree with gender-role social norms work less in the market.

Model Specification and Methodology

We model simultaneously four equations referring to both partners' domestic (*D*) and paid work (*L*) hours as in a Seemingly Unrelated Tobit Regression model (*SUTR*) [4]:

$$\ln L_{wti} = \alpha_{Lw} r_{mi} + \lambda_{Lw} t + \delta_{Lw} t \cdot r_{mi} + \mathbf{x}'_i \beta_{Lw} + \mathbf{z}'_{ti} \gamma_{Lw} + u_{Lwti} \quad (1)$$

$$\ln D_{wti} = \alpha_{Dw} r_{mi} + \lambda_{Dw} t + \delta_{Dw} t \cdot r_{mi} + \mathbf{x}'_i \beta_{Dw} + \mathbf{z}'_{ti} \gamma_{Dw} + u_{Dwti} \quad (2)$$

$$\ln L_{mti} = \alpha_{Lm} r_{mi} + \lambda_{Lm} t + \delta_{Lm} t \cdot r_{mi} + \mathbf{x}'_i \beta_{Lm} + \mathbf{z}'_{ti} \gamma_{Lm} + u_{Lmti} \quad (3)$$

$$\ln D_{mti} = \alpha_{Dm} r_{mi} + \lambda_{Dm} t + \delta_{Dm} t \cdot r_{mi} + \mathbf{x}'_i \beta_{Dm} + \mathbf{z}'_{ti} \gamma_{Dm} + u_{Dmti} \quad (4)$$

The dependent variables of Eqs. (1, 3), given by the logarithm of weekly working hours, are censored, while the dependent variables of Eqs. (2, 4), given by the logarithm of weekly domestic work, are uncensored. The indexes *i* and *t* refer respectively to the *i*-th individual and to time *t* (0, 1). The indexes *w* and *m* refer, respectively, to women and men. On the right side of each equation, Greek letters refer to parameters. Namely, in each equation, the parameters α_m and α_w measure the

impact of retirement of men on market and domestic work of both partner. The (time invariant) dummy, r_m is equal to one if the subject has retired between 2003 and 2007. The product between the dummy $t \cdot r_m$ and the coefficient δ , given by $\delta \cdot t \cdot r_m$, measures the interaction effect of both status and time. This represents the *DID* specification of retirement of man. The impact of time-invariant and time-varying vectors of control variables on dependent variables is measured, respectively, by the scalar products $\mathbf{x}'\boldsymbol{\beta}$ and $\mathbf{z}'\boldsymbol{\gamma}$.

In order to handle the influence of censoring in dependent variables, we apply an estimation procedure that allows to manage a longitudinal-panel specification of the model [4]. Hence, a two stage procedure is implemented. At a first stage, both censored and uncensored equations are estimated (with *Tobit* and *OLS* estimator, respectively) equation-by-equation. At the second stage, a Generalized Methods of Moments (*GMM*) estimator is performed. In particular, as in [2], we introduce an intermediate step in order to estimate the covariances of the disturbances between equations and between repeated observations over time using the residuals obtained by the first-stage regressions. In this way, “nonzero restrictions” on covariances are incorporated in the estimation procedure in order to control estimation results for the latent influence of the bargaining process between partners (correlation between equations), and for the endogenous influence of paid and unpaid working activity on retirement decision (correlation over time).

In order to obtain a proxy of gender and familistic attitudes to introduce in the model as a regressor, we provide an item score index that allows us to classify the couples according to their answer to normative statements. This index is obtained taking into account the level of agreement of each subject in 2003 with eight statements regarding the importance of marriage and the role of women in the care of children and elderly relatives. The degree of agreement is expressed by the interviewed subjects on a five items scale from (a) strongly disagree to (e) strongly agree. We compute the mean of the standardized scores for each subject and, after testing the reliability of the items scores (Cronbach’s alpha = 0.73), we create a scalar index. This index and a categorical variable measuring the women’s level of satisfaction about the division of labour in 2003 are used to perform a cluster procedure applying the Ward algorithm. Hence a Calinski-Harabasz pseudo-F test is applied to choose the optimal number of groups (No 2 clusters; $F = 528.88$).

Finally, we divide the sample in two groups defined, respectively, as “traditional” (couples whose partners reported a low level of the gender attitudes score-index and that are satisfied of the intra-household division of domestic work) and “modern” (partners with a high score-index and that are generally unsatisfied of the intra-household division of domestic work). We use the results of the clustering to stratify the analysis and to estimate our model for couples belonging to a more traditional or to a modern group.

Estimation Results and Discussion

In Table 1 we report the most relevant estimated coefficients of our *SUTR-DID* model. The effect of the retirement of man on woman paid work is not significant, while the effect on woman nonmarket work leads to a decrease of domestic activity of 22%. This reduction seems to be compensated by an increased commitment in domestic chores by the male partner. Namely, estimates show that the average increase of man domestic work is equal to 43%.

Regarding the gender-role influence on labour division after retirement, the effect of retirement on working activity does not show significant changes moving from couples classified as “traditional” to couples classified as “modern” in terms of agreement with gender-role social norms. However, regardless of the decision to retire, the gender role seems to strongly influence the work activities of both partners. As the estimates in Table 1 show, the impact of the Gender Attitudes Score-Index on both men’s and women’s paid work is highly significant, whereas it results

negligible on women's domestic work. In general, the retirement of man seems to contribute to a more equitable labour division between partners.

In addition, considering the influence of gender-role, "more traditional" women work less in the market than "modern" women, independently on the retirement decision of their partner. Therefore, a gender-role index can be considered a good predictor of working activity, even if empirical analysis shows that *DID* coefficients measuring retirement effect on work are not significantly influenced by differences in gender-role attitudes.

Table 1: *SUTR-DID* model estimation results - The effect of retirement of man on both partners working activity

Log Weekly work hours N.1080 (no. 97 Transitions to retirement)	WOMEN		MEN	
	PAID coeff.	UNPAID coeff.	PAID coeff.	UNPAID coeff.
Education (years of schooling)	0.08 ***	-0.04 ***	0.12 ***	0.02 **
Religiosity- Proxy: Attendance at church (1= at least once a week; 0=otherwise) TV	-0.15 *	0.03	-0.32 ***	0.20 **
Help received (paid) TV	0.37 ***	-0.16 **	0.55 ***	-0.06
Wave (1=2007, 0=2003)	0.03	-0.10	0.18	0.31
Retired (1=yes; 0=no)	-0.05	0.19 **	0.44 ***	0.43 **
DID (Wave*Retired)	0.11	-0.22 *	-5.12	0.05
Log Wage (differences.....)	0.84 ***	-0.05	-1.95 **	0.68
Score- gender attitudes	0.29 ***	-0.07	0.81 ***	0.23 ***
Constant	-4.41 *	6.48 ***	-9.14 ***	5.53
R ²		0.13		0.17
<i>SUTR-DID</i> model estimation results–Subsamples of traditional and modern couples				
TRADITIONAL N. 412 (no 40 Transitions to retirement)				
Wave (1=2007, 0=2003)	0.30	-0.09	1.06 ***	0.29
Retired (1=yes; 0=no)	0.13	0.02	2.12 ***	0.43 *
DID (WAVE*RETIRED)	-0.06	-0.16	-5.64	0.15
MODERN N. 668 (no 57 Transitions to retirement)				
Wave (1=2007, 0=2003)	0.04	-0.12	-0.18	0.06
Retired (1=yes; 0=no)	-0.36 *	0.28 **	-0.03	0.41 *
DID (WAVE*RETIRED)	0.20	-0.23	-4.68	0.03

Note: (TI) = Time Invariant; (TV) = Time Variant. P-value: *p<0.05; ** p<0.01; *** p<0.001

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