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Well-being, time use, and women's empowerment after couple separation: Longitudinal evidence for Uruguay

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Resumen

Si bien se dispone de estudios que analizan los efectos de la disolución de uniones en el acceso a recursos económicos, en particular en el caso de las mujeres con niños, así como en un amplio conjunto de resultados educativos y socioemocionales para los niños, existen menos trabajos que analicen los cambios en otras dimensiones de las condiciones de vida de las mujeres que pueden verse afectadas cuando se produce una separación de pareja en hogares con niños pequeños. En este estudio analizamos los efectos de la disolución de uniones (divorcio y/o separación de parejas) en el bienestar y empoderamiento de las mujeres en el corto plazo, con base en las dos primeras rondas de la Encuesta Nacional de Desarrollo Infantil y Salud (ENDIS), estudio longitudinal oficial que sigue una muestra de hogares uruguayos con niños de 0 a 3 años en 2013. Específicamente, estudiamos los efectos de la separación sobre el bienestar económico y subjetivo; el uso del tiempo y la carga de trabajo del hogar; y el empoderamiento y las actitudes hacia las normas de género. Para controlar la selectividad potencial de la disolución de la unión, llevamos a cabo una estimación combinada de *Propensity Score Matching* en la línea de base y diferencias en diferencias. Encontramos que, para las mujeres con custodia, la disolución de la unión implica, en promedio, una pérdida neta de ingresos per cápita del hogar del 29%, un aumento en el esfuerzo laboral remunerado y una disminución en el tiempo dedicado al trabajo doméstico. Al mismo tiempo, el empoderamiento y las normas tradicionales de género se ven escasamente afectadas por la disolución, aunque las actitudes igualitarias sobre las normas de género predicen la separación o divorcio. Luego de descartar un conjunto de posibles canales relacionados con los efectos de sustitución (como el aumento de la asistencia a centros educativos o de cuidado, la ayuda por parte de familiares o la contratación de trabajadores domésticos) que podrían explicar la disminución de la carga de trabajo del hogar, proporcionamos evidencia sugerente acerca de la relajación de las normas de género posteriores a la salida de varón del hogar o arreglos de cuidado más estructurados con padres no corresidentes. Estos aspectos requieren ser profundizados en nuevas investigaciones.

Palabras clave: uso del tiempo, actitudes hacia normas de género, empoderamiento, separación, Uruguay, datos longitudinales, ENDIS

Código JEL: J12, J13, I30

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Abstract

Although many studies have assessed the effects of union dissolution on access to economic resources, on economic outcomes for adults, particularly custodial mothers, and on a broad set of educational and socioemotional outcomes for children, there is less literature analysing changes in other domains of women's quality of life that might be affected when couple separation occurs in households with small children. In this study, we analyse the effects of union dissolution (divorce and couple separation) on women's well-being and empowerment in the short run, based on two waves of *Encuesta de Nutrición, Desarrollo Infantil y Salud* (ENDIS), an official longitudinal study that followed Uruguayan households with children who were age 0 to 3 years in 2013. Specifically, we assess the effects of separation on economic and subjective well-being, time use and household workload, empowerment, and attitudes towards gender norms. To control for the potential selectivity of union dissolution, we carry out a combined PSM/difference-in-difference estimation. We find that, for women who are custodial mothers, union dissolution entails, on average, a net per capita household income loss of 29%, an increase in paid labour effort, and a decrease in time devoted to household work. At the same time, empowerment and traditional gender norms are scarcely affected by union dissolution, though equalizing gender norm attitudes predict union dissolution. After ruling out a set of potential channels related to substitution effects (such as increased school attendance, seeking help from relatives, or hiring domestic workers) that might explain the decrease in household workload, we provide suggestive evidence on the role of loosened gender norms following the exit of a male household member or more structured care arrangements with non-coresident fathers that needs to be tested in further research.

Keywords: time use, gender role attitudes, empowerment, separation, Uruguay, ENDIS

JEL Classification: J12, J13, I30

I. Introduction

In recent decades, social norms and union dissolution regulations have been changing in developed and developing countries. After a longstanding upward trend, divorce rates in most developed countries have stabilized at a high level. Meanwhile, couple separation is a more recent phenomenon in the developing world, and divorce rates are still on the rise.

Unsurprisingly, the phenomenon of couple dissolution came to the attention of social science researchers, generating extensive literature on its economic impact on adults, particularly custodial mothers, and a wide set of educational and socioemotional outcomes for children (Amato, Kane, and James, 2011; McLanahan, Tach, and Schneider, 2013; Mooney, Oliver, and Smith, 2009).

In fact, most empirical evidence for developed countries concludes that women suffer more profound losses than men in the short and long run (Mortelmans, 2020). The scant evidence for Latin American countries also identifies a net income loss of around 8-16%, depending on the country and children's ages (Reynolds et al., 2018; Bucheli and Vigorito, 2019; Bucheli and Vigorito, 2023).

Aside from access to material resources, custodial mothers' well-being might be affected in several ways. For instance, the loss of economic resources, usually results in an increase in mothers' hours worked and their labour earnings, might affect their time use, depending on care arrangements with non-coresident fathers, among other factors. In this regard, there is conflicting evidence for developed countries on whether lone mothers experience more time poverty and shortages than two parents (Burton and Phipps, 2007; Harvey and Mukhopadhyay, 2007); Kalekonski, Hamrick and Andrews, 2011). At the same time, increased labour force participation coupled with other consequences of union dissolution might empower or disempower women and affect their attitudes toward gender roles. Conversely, empowerment and gender norm attitudes might predict divorce.

The former aspects have scarcely been assessed in quantitative studies using country-level representative data (Symoens et al., 2014). However, exploring these dimensions can contribute to a broader assessment of the impacts of demographic change on different family members and, particularly, on women's well-being.

To contribute to filling this gap, in this study we provide evidence related to three relevant post-union dissolution dimensions that might particularly affect women who are custodial mothers: economic and subjective well-being, time use and the load of household work, and empowerment and attitudes towards gender norms. Negative or positive effects on these

outcomes might contribute to a more complex picture of post-separation outcomes and additional inputs for public policy design, going beyond child support regulations.

Uruguay is an interesting context for assessing these topics, as a divorce law was passed in 1907 and related social norms changed many decades ago. Divorce rose steadily five decades ago, making couple separation a widespread phenomenon (Cabella, Fernández, and Prieto, 2015).

Our empirical exercise is based on the first two waves from an official longitudinal study, *Encuesta de Nutrición, Desarrollo Infantil y Salud* (ENDIS), that follows a sample of households with children who were age 0 to 3 in the baseline year (2013) and who were married or cohabiting. We compare the pre- and post-separation outcomes of those women who experienced a couple separation between the baseline and the second wave (2016) to those of a similar group who remained married/cohabiting. Since one of the main difficulties in identifying the effects of couple dissolution is selectivity (McLanahan, Tach, and Schneider, 2013), we use a PSM/difference-in-difference identification strategy. We also assess whether our outcomes of interest predict divorce and separation.

The remainder of this paper is organized as follows. Section II contains a review of previous studies, while Section III gathers methodological details and provides a description of the database and variables used in this study. The main results are discussed in section IV, and section V includes some final comments.

II. Previous literature

We summarize previous findings by separately assessing each of the three groups of outcomes of interest in this study.

II.1 Economic and subjective well-being

From a theoretical point of view, the expected economic effect of union dissolution on the new female-headed lone-parent households is ambiguous. On the one hand, economic resources might decrease due to a loss in economies of scale in housing and other expenditure items, division of family wealth, and the exit of one adult earner, usually the one with a higher income. On the other hand, women's behavioural responses can mitigate these negative impacts by increasing time spent in the labour market, returning to their initial home, re-partnering, or returning to their parental household (Cuesta and Cancian, 2015; Mooney, Oliver and Smith, 2009; Jenkins, 2008; Liu, Esteve and Treviño, 2016). In addition, depending on the coverage and generosity of public transfer programs and the

enforcement of child support payments, these factors can also outweigh income losses (Aasve, Mazzuco and Mencarini, 2007; Cuesta and Meyer, 2014).

Despite this ambiguous theoretical impact, as mentioned in the introduction, empirical evidence finds that women suffer more profound income and wealth losses than men in the short and long run (Mortelmans, 2020). Regarding Latin America, findings for Chile and Uruguay also identify a net income loss for custodial mothers of around 8–16% depending on the country, and an increased probability of experiencing monetary poverty (Reynolds et al., 2018; Bucheli and Vigorito, 2019; Bucheli and Vigorito, 2023).

Variations in material well-being coupled with the emotional distress surrounding separation might affect women's subjective well-being in different ways (Amato, 2000; Symoens et al., 2014). For instance, Symoens et al. (2014) find that divorce is associated with increased feelings of depression and lowered self-esteem and competence. Empirical research finds mixed evidence regarding subjective well-being, even when the happiness literature indicates that divorce is one of the primary sources of decreases in life satisfaction (Clark, 2016). Based on twenty waves of the German Socioeconomic Panel (GSOEP), Clark et al. (2008) identify a negative effect of divorce on life satisfaction but a later recovery, which they interpret as an adaptation process occurring in the long run. However, few studies assess the effect of couple separation on subjective well-being controlling for divorce selectivity. One exception is the work of Zimmerman and Easterlin (2006), also based in the GSOEP data, which concludes that persons living in married/cohabiting couples experience an increase in life satisfaction in the first stages (including the ones experiencing divorce afterward), but those who divorce experience a reduction that brings them back to their baseline level of satisfaction.

II.2 Time use and household workload

The increase in mothers' hours worked might also affect their time use in two distinct ways. On the one hand, augmented labour effort might be coupled with a reduction of time dedicated to home production or leisure time. In a standard Beckerian approach, assuming that the total supply of maternal hours of paid and unpaid work is fixed, an increase in paid work might result in a reduction of domestic work (Becker, 1991). Thus, subject to the budget constraint, custodial mothers might substitute their unpaid domestic work by hiring domestic workers, asking for help from their relatives (usually mothers), changing household consumption patterns (e.g. buying prepared meals), or increasing the time children spend at school. Meanwhile, the relative price of leisure might increase. Consistent with this idea, in their study for the United States, Kalekoniski, Hamrick and Andrews (2011)

conclude that an additional household adult does not add much to the household's time resources.

On the other hand, the reduction in economic resources might constrain the possibility of compensating for increased domestic work, and on top of this, some tasks might not find perfect substitutes in the market, preventing outsourcing. Thus, even if the income loss is offset, this might be at the expense of an increase in the total number of hours worked by women, which might significantly erode their well-being. Due to the exit of fathers, the burden of housework faced by custodial mothers might increase after separation.

In this vein, studies based on cross-sectional data show that lone-parent families are more vulnerable to experiencing time deficits than two-parent ones. Burton and Phipps (2007) estimate the available adult time of households with children in the US, Canada, Germany, Sweden, and the UK. They conclude that lone mothers are more prone to suffer severe time shortages than two-parent families due to the lack of a second adult. Similarly, in a poverty time study, Harvey and Mukhopadhyay (2007) find that poverty is exceptionally high among employed single parents in Canada.

However, a gender norms perspective can shed new light on expected behaviours. In fact, some authors argue that divorce/separation might cause a reduction in housework solely because marriage and cohabitation are gendered institutions. Since being in charge of housework has been a symbol of the appropriate behaviour of a married woman, the lack of a male spouse might directly reduce these duties (Pepin, Sayer and Casper, 2018). In contrast, divorce is not expected to affect women's identities regarding motherhood, so it does not necessarily directly impact their time spent in childcare. Based on data from mothers with children under age 13 in the United States, Pepin, Sayer and Casper (2018) find that time spent on housework is higher among partnered than lone mothers, whereas differences in childcare time are minimal. In the same vein, a study for Germany using panel data also finds that women reduce their daily housework time by around a half hour after divorce (Leopold, 2018). This conclusion also holds even if women carried out the total household workload before the separation. Under these assumptions, a positive post-union dissolution outcome might be a reduction in the number of hours women devote to domestic work. Thus, the net effect on time allocation to paid and unpaid work, and the total work burden, remains a question of evidence. To our knowledge, no quantitative studies have addressed this research question for developing countries.

II.3 Empowerment and gender attitudes

Separation could affect personal autonomy through an empowerment process that might change attitudes toward gender roles. Alkire and Ibrahim (2007) understand empowerment as the change in autonomy levels and identify four dimensions where this can happen: control within the household, choice, potential for change, and impact on the community.¹ Relying on the former definitions, Kabeer (2011) argues that women's empowerment processes can "touch on many aspects of women's lives, both personal and public: their sense of self-worth and social identity; their willingness and ability to question their subordinate status in society; their capacity to exercise strategic control over their own lives and to negotiate better terms in their relationships with others; and finally, their ability to participate on equal terms with men in reshaping society to better accord with their vision of social justice".

Women might prefer ending an unfulfilling relationship even at the expense of experiencing decreased economic resources. Many authors argue that empowerment can vary positively or negatively after relevant or stressful life events and is sensitive to the external context (Dreze and Sen, 1995; Alsop, Bertelsen, and Holland, 2006; Symoens et al., 2014). Conversely, pre-divorce empowerment might predict divorce (we will return to this point at the end of this section).

Gender norm attitudes, which are closely connected to empowerment, have been assessed to a larger extent, but mainly as a predictor of separation rather than a post-divorce outcome. Because identity is thought to experience minimal changes in adulthood, most theoretical and empirical work assumes that attitudes are a stable identity component at the individual level. However, in line with the previous comments on variations of empowerment in the life course, Moen, Kelly, and Magennis (2008) point out that life events such as a divorce might trigger alterations in individuals' views of roles, responsibilities, and, ultimately, attitudes. We consider both directions in this research.

Exploring the effect of a legal reforms, Bargain, Loper and Ziparo (2020) show that in the case of Malawi, a society with low divorce rates, women educated in matrilineal ethnic groups tend to divorce more than those raised in patrilineal ethnic groups. However, empirical evidence on this theoretical hypothesis is scarce. A study by Amato and Booth (1991) for the United States using longitudinal data from the 1980s concludes that experiencing divorce increases pro-divorce attitudes. Meanwhile, the effect on gender role attitudes is weak. More recently, using 20 years of longitudinal data, Lucier-Greer and Adler-Baeder (2011;

¹ Autonomy, or agency in terms of Sen's work, can be linked to the ability of individuals to choose and achieve valued goals, constrained by their opportunities and the social and political structures in which they live (Sen, 1992; Alsop, Bertelsen, and Holland, 2006; Crocker, 2008).

2016) each find that individuals report more egalitarian gender attitudes after divorce and a change towards a more conservative attitude in the case of remarriage. Interestingly, their findings also suggest that the attitudinal change process observed after divorce might start before union dissolution. However, they identify a sort of reverse causality problem; they argue that couples divorce due to personality traits and lower socioeconomic status rather than different life satisfaction levels in the first years of marriage. This is an interesting fact that will also be tested in this paper.

III. Data and methods

III.1 Database and sample

ENDIS is a longitudinal survey collected by the Uruguay Statistical Office (Instituto Nacional de Estadística, INE) composed of two cohort studies. The first cohort—the one used here—follows the full set of urban households with children age 0 to 3 years old that were interviewed by the official household survey (Encuesta Continua de Hogares, ECH) between February 2012 and December 2013 (Cabella et al., 2015; INE, 2022).² The fieldwork for the first wave was carried out between October 2013 and February 2014. Households were revisited between December 2015 and April 2016 (second wave) and in 2019 (third wave). Since the first two waves collected the information of interest in this paper, we do not use the third one. Of the 3,077 children included in the first wave, 77% were found in the second wave (attrition rate = 23%). Most interviews were completed by mothers.

Aside from standard socioeconomic and demographic household survey questions, ENDIS gathered information on child health, nutritional status, child development, and a broad scope of questions on maternal well-being, including life satisfaction in many domains, depression, household chore distribution, self-reported autonomy, and gender norm attitudes.

To answer our research questions, we restrict the sample to cohabiting couples (married or not) in the baseline, excluding those cases in which one of the partners died or was imprisoned in wave 2. Thus, in the second wave, women may continue living with their partners or may have undergone a union dissolution and, eventually, re-partner. The event of interest (or "treatment") is the union dissolution or separation, including those women

² Urban areas account for 85% of the Uruguayan population.

who re-partnered later. This sub-sample is composed of 1521 women, 168 of whom divorced or separated between waves (11% and 10.4% using sampling weights).

III.2 Empirical strategy

The episodes of union dissolution are not randomly distributed among couples. Like previous papers on this topic (Aasve, Mazzuco and Mencarini, 2007; McLanahan, Tach, and Schneider, 2013; Bucheli and Vigorito, 2019), we follow the two-step methodological strategy pursued by Heckman, Ichimura and Todd (1997) to control for potential unobservable heterogeneity. First, we conduct a propensity score matching (PSM) estimation with the baseline data. This estimation allows us to restrict the baseline sample to comparable cases, that is, those which lie in the common support. In the second step, we estimate a difference-in-difference model using the comparable baseline sample and the propensity score weights.

Formally, a woman i living with her partner in the baseline has two potential situations in wave 2: Y_{0i} if she remains married/cohabiting (control) and Y_{1i} if she does not (treated). Ideally, the causal effect of the union dissolution or separation would be the difference between the two states, but the two outcomes are not observable for the same individual. Thus, to generate a credible counterfactual, we take advantage of a vector of variables X that makes the group of cohabiting and separated women comparable in observables. We estimate a probit model on the probability of separation between waves (S) using a set of control variables (X) in wave 1 (before separation):

$$E(S_i/X_{1i}) = P(S_i = 1/X_{1i}) \quad (1)$$

Thus, observations with an identical propensity score p have a similar distribution in the set of covariates X_i :

$$(Y_{2i}, Y_{1i}) \perp S_i/p(X_{1i}) \quad (2)$$

To assess the goodness of fit of our PSM model, we carry out balance tests and analyse the number of observations under a common support. The common support condition ($0 < P(S_i = 1/X_{1i}) < 1$) ensures that all individuals included in our estimations have a positive probability of union dissolution.

In the second stage, we carry out a difference-in-difference estimation. Specifically, we estimate:

$$\Delta Y_{ti} = \alpha + \beta S_i \quad t + \varphi Z_{ti} + \eta_i + \varepsilon_{it} \quad (3)$$

where Y_{ti} is the outcome of interest, S is the separation binary variable, Z is a set of time-variant covariates, and η is mothers' fixed effects. We are interested in the estimation of the coefficient β that captures the effect of union dissolution. In this step, we use two different estimation strategies. On the one hand, we carry out an estimate using the subsample that lies in the common support (DiD estimation) in which the covariates are age and a binary variable that identifies the wave. On the other hand, we carry out a weighted version using the propensity scores as weights (PSM-DiD estimation). Specifically, we implement nearest-neighbour matching, which matches every treated unit with the closest control unit according to propensity score (Leuven and Sianesi, 2013).

For the DiD and DiD-PSM estimators to be interpreted correctly, the error term must be uncorrelated with the other variables in the equation. At the same time, under the parallel trends difference-in-difference assumption, potential biases can be controlled if unobserved heterogeneity does not vary over time. However, if union dissolution generates time-varying changes in unobservable variables, estimators will be biased. Unfortunately, we lack a suitable instrumental variable to overcome this potential problem. To check the robustness of our results, we assess how omitted variables and selectivity might affect our results using the method proposed by Oster (2019). We quantify the ratio of selection on unobservables to observables (δ) needed to attribute the full estimated effect of union dissolution (β) to selection bias. For instance, if δ is equal to 2, unobservables should be twice as relevant as observables, causing $\beta = 0$. Altonji et al. (2005) suggest that $\delta = 1$ is an appropriate cut-off. The sign of δ indicates the direction of the correlation between observables and unobservables. This procedure is carried out under the assumption that the full set of unobservables and observables would yield an R-squared (R-max) equal to 1. Oster (2019) argues that $R_{\max} = 1$ may lead to an overadjustment, and she proposes instead $R_{\max} = 1.5R$ (where R is the R-squared of the estimation on observables) as an appropriate minimum. In this paper, we present our results for both $R_{\max} = 1.5R$ and $R_{\max} = 1$, and we find that all of our results are robust (Table A.2).

III.3 Outcome variables

After removing variables with missing data in our outcomes of interest and covariates, and two cases that do not lie in the common support, the valid data set contains 1426

observations in each wave, 168 of which correspond to women that separated between the two waves.

We study three sets of outcomes for which we have information in both the baseline and the second wave. In Table 1, we report descriptive statistics for each wave, splitting the second wave by separation status.

The first group of outcomes refers to objective and self-perceived access to economic resources. It includes per capita household income, labour earnings from custodial women (taking a value of 0 for those who do not participate in the labour market), self-perceived location in the income scale reported by the interviewees on a 10-point scale (where 1 is poor and 10 is rich) and two variables reflecting hedonic well-being: life satisfaction as a whole and with income (where 1 is completely dissatisfied and 10 is completely satisfied). The average household income and perceived poverty status indicate that separated women experience lower well-being in wave 2 compared to married women in wave 2. Meanwhile, average individual earnings suggest that separated women increase their labour effort.

The second vector of outcomes reported in Table 1 refers to time use. A binary variable distinguishes whether a woman participates in the labour market. Labour force participation is higher in the second wave than in the first wave; although it is lower among separated than non-separated women, the difference is not statistically significant at conventional levels. We also built three variables reflecting weekly hours assigned to the labour market, domestic work, and childcare. Some observations report a total number of weekly hours of more than 122. As this is unfeasible and is probably due to overreporting, we remove these observations from the statistics and further estimations involving time use.³ The average time spent in domestic work is lower for separated than non-separated women, whereas it is similar for labour market work.

The third block of outcomes includes information on autonomy, gender role attitudes embedded in childcare practices, and subjective well-being regarding the family situation, health, and the neighbourhood. Autonomy is captured by two questions reflecting self-perceived power in society and at work. Since the latter is conditional on being employed, it is available only for the subset of women who worked in both waves. As shown in Table 1, self-perception of power in society is lower among separated than non-separated women, and there are no significant differences in average self-perceptions of power at work.

³ We also carried out all the estimations for the whole sample and the results are not qualitatively different from those obtained with the restricted sample. Results are available upon request to the authors.

Three statements reported in Table 1 reflect gender role attitudes related to parenting. These variables are equal to 0 if the respondent disagrees and 1 if she agrees. We considered each variable separately, and, in addition, we built two composite indexes. The first one takes the value 1 when the woman agrees with at least one proposition and the second one adds up the three answers, ranging from 0 to 3. We do not observe differences between groups in any statement or in the composite indexes.

Finally, the three dimensions of satisfaction are measured on a 10-point scale in which satisfaction increases with the score. It is noteworthy that, although separated women report lower satisfaction levels in all domains except health, the most noticeable difference corresponds to family satisfaction.

Table 1. Outcomes: mean (weighted values), standard errors in parenthesis, and number of cases

Outcomes	Baseline	Wave 2		Cases in baseline
		Mar./Cohab.	Separated	
Per capita income household (log)	8.88 (0.029)	9.23 (0.049)	8.68*** (0.096)	1426
Self-perceived position in the income scale (1/poorest-10/richest)	5.13 (0.056)	5.17 (0.055)	4.75* (0.158)	1425
Women's labour earnings	4.57 (0.339)	6.65 (0.464)	6.97 (0.786)	1424
Life satisfaction (increasing scale 1-10)	8.10 (0.069)	8.08 (0.072)	6.97*** (0.194)	1424
Satisfaction with income (increasing scale 1-10)	6.55 (0.091)	8.81 (0.069)	8.09*** (0.236)	1378
Labour market participation (Yes=1; No=0)	0.60 (0.017)	0.69 (0.017)	0.66 (0.051)	1426
Hours of paid work (weekly)	18.33 (0.699)	22.21 (0.800)	22.20 (2.324)	1261
Hours allocated to domestic work (weekly)	22.30 (0.550)	21.96 (0.583)	17.85*** (1.192)	1266
Total hours of domestic and paid work (weekly)	40.90 (0.807)	44.17 (0.803)	40.05 (2.425)	1248
Hours devoted to childcare (weekly)	71.28 (1.135)	36.72 (0.873)	38.55 (2.179)	1239
Total workload (weekly hours)	111.44 (1.319)	80.89 (1.087)	78.60 (3.223)	1218
Self-perception of power in society (increasing scale 1-10)	3.70 (0.076)	4.68 (0.075)	4.20** (0.184)	1404
Self-perception of power at work (increasing scale 1-10)	5.51 (0.120)	5.74 (0.113)	5.69 (0.267)	859
Boys should be raised to master at home (Disagree=0; Agree=1)	0.07 (0.009)	0.04 (0.008)	0.04 (0.019)	1425
Boys should be raised to look out for themselves, and girls should be cared for (Disagree=0; Agree=1)	0.06 (0.007)	0.04 (0.007)	0.06 (0.025)	1426
Girls should be taught that their place is at home (Disagree=0; Agree=1)	0.07 (0.008)	0.06 (0.008)	0.08 (0.028)	1425
At least one answer=1 in gender role attitudes questions	0.13 (0.012)	0.09 (0.010)	0.11 (0.032)	1424
Sum of responses to gender role attitudes questions	0.20 (0.019)	0.14 (0.018)	0.18 (0.056)	1424
Satisfaction with health (increasing scale 1-10)	8.65 (0.063)	8.34 (0.067)	8.27 (0.232)	1426
Satisfaction with family (increasing scale 1-10)	9.31 (0.047)	8.71 (0.068)	4.79*** (0.441)	1426
Satisfaction with the neighbourhood (increasing scale 1-10)	7.25 (0.091)	5.96 (0.099)	5.33** (0.265)	1426

Source: own elaboration based on ENDIS. *** p<0.01, ** p<0.05, * p<0.1

IV. Results

In what follows, we first analyse the factors associated with union dissolution (IV.1) and afterward present the post-separation effects for each group of outcomes (IV.2 to IV.4).

IV.1 The likelihood of separation

We estimate a probit model on the probability of separation after wave 1 against a broad set of potential predictors. All covariates refer to the situation in the baseline year, that is, before separation. We present the estimated coefficients and the marginal effects of variables in Table 2.

A block of seven explanatory variables comprises women's socio-demographic characteristics. The probability of separation declines with age and is higher when women declare no religion. Also, marriage makes separation less likely. Meanwhile, as previous studies for Uruguay have shown, separation is not associated with the region of residence, education, ethnicity, or the number of small children (Bucheli and Vigorito, 2019).

In addition, we include three variables that capture the household's economic situation and women's labour force participation before separation. The per capita household income (in logs) coefficient indicates a negative correlation, suggesting that richer women are less likely to separate. Regarding labour market-related variables, our findings indicate no association between separation and labour force participation or the number of hours worked.

Additionally, three variables reflect women's subjective well-being in the domains of the family, neighbourhood, and distribution of household chores. It is interesting to note that although all of the estimated coefficients are negative, they are statistically significant only for neighbourhood and distribution of household chores. The latter might indicate pre-separation conflict.

We also consider gender norm attitudes. Since including the full set entailed multicollinearity problems with other model covariates, we include only the statement Boys should be raised to look out for themselves and girls should be cared for. The estimated coefficient is negative, indicating that separation is less likely when mothers agree with traditional views. Thus, autonomy and less traditional gender role attitudes might favour exiting an unfulfilling relationship. In the following sections we will assess whether these outcomes are also affected by divorce.

Finally, the last variable seeks to reflect women's backgrounds by indicating whether their parents separated in their childhoods. Although a strand of the literature has found an

intergenerational transmission of family formation patterns, having experienced parents' separation in childhood is unrelated to separation in adulthood in our estimation. Either this might not be the case in Uruguay, or the time span between waves is too short and this hypothesis needs to be tested in further ENDIS waves.

Table 2. Factors associated with experiencing separation between waves 1 and 2. Covariates corresponding to wave 1 (2013). Probit model estimates (coefficients and marginal effects at means)

Variables	Coeff.	Marginal effects
Age	-0.0315*** (0.00787)	-0.00488*** (0.00121)
Household located in Montevideo (Yes=1; No=0)	0.0345 (0.0999)	0.00535 (0.0155)
Education (at least 12 years of schooling=1; less than 12=0)	-0.123 (0.116)	-0.0197 (0.0194)
Afro-descendance (Yes=1; No=0)	-0.0274 (0.194)	-0.00418 (0.0291)
Religion (None=1; Any=0)	0.205** (0.0984)	0.0318** (0.0152)
Married (Yes=1; No=0)	-0.250** (0.112)	-0.0388** (0.0171)
Number of children age 0 to 3	-0.115 (0.0980)	-0.0178 (0.0152)
Per capita household income (in logs)	-0.170** (0.0694)	-0.0264** (0.0107)
Labour market participation (Yes=1; No=0)	-0.0233 (0.158)	-0.00363 (0.0247)
Weekly hours worked in labour market	0.00635 (0.00391)	0.000986 (0.000606)
Family satisfaction (increasing scale 1-10)	-0.0484 (0.0333)	-0.00752 (0.00517)
Neighbourhood satisfaction (increasing scale 1-10)	-0.0383** (0.0188)	-0.00594** (0.00290)
Distribution of household chores satisfaction (increasing scale 1-10)	-0.0456** (0.0211)	-0.00707** (0.00327)
Boys should be raised to look out for themselves and girls should be cared for (Disagree=0; Agree=1)	-0.587*** (0.227)	-0.0911*** (0.0350)
Experienced parents' separation in childhood (Yes=1; No=0)	0.147 (0.0963)	0.0228 (0.0149)
Constant	2.273*** (0.711)	
Observations	1,428	1,428

Notes: *** p<0.01, ** p<0.05, * p<0.1. Independent variables correspond to the first wave values in all cases. Source: own elaboration based on ENDIS

As mentioned in Section III, we use the model to control for separation selectivity. Table 3 shows overall measures of covariate imbalance, and Table A1 (Annex) reports balancing

indicators for each variable. According to the results of these tests, we have a balanced baseline. Indeed, after matching, the t-tests reject the differences in means hypotheses for the regressors, and the joint likelihood-ratio test exhibits a high p-value. In line with these results, summary mean and median bias indicators show a substantial reduction after matching, and Rubin's R lies within the recommended interval (0.5;2) (Rubin, 2001; Stuart 2010). The only exception is Rubin's B (the absolute standardized difference of the means of the linear index of the propensity score in the treated and matched non-treated group), which is above the recommended threshold of 25. Finally, Figure 1 shows the PSM histograms by treatment status. Only two observations do not lie in the common support, so we removed them prior to carrying out our estimations of separation effects.

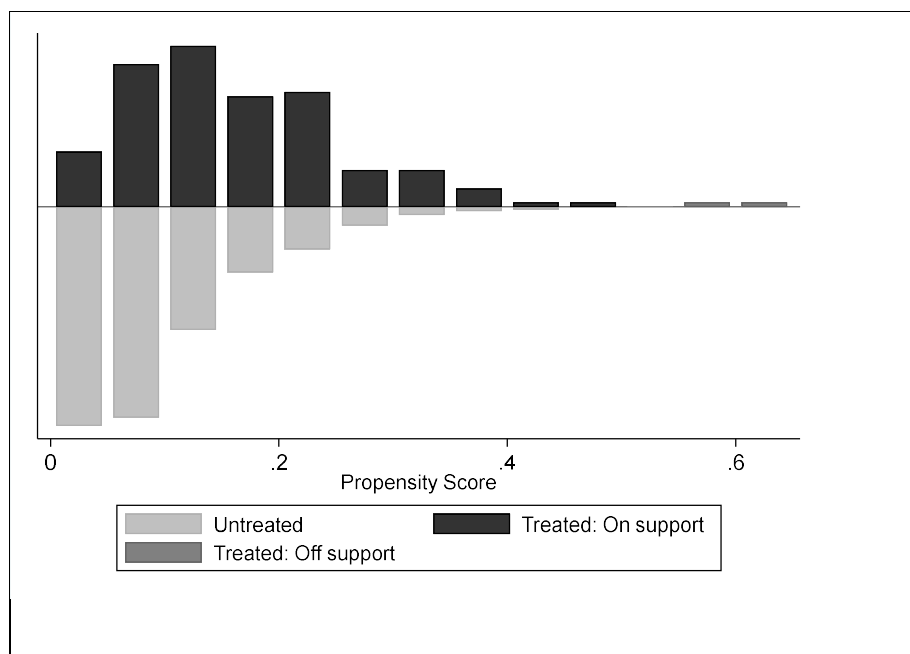
Table 3. Overall measures of covariate imbalance

Sample	From probit estimations		Bias distribution		Rubin's B	Rubin's R	%Var	
	Pseudo R2	Chi2 test of joint significance of regressors	Mean	Median				
								Likelihood-ratio
Unmatched	0.088	83.8	0	21.8	27.4	84.0*	0.77	14
Matched	0.026	10.84	0.764	7.5	4.4	38.0*	0.97	0

*Above Rubin's (2001) recommended threshold (25)

Source: own elaboration based on ENDIS

Figure 1. PSM histogram



Source: author's elaboration based on ENDIS

IV.2 Income and earnings

Post-separation economic hardship is one of the most expected results due to the exit of the principal income earner. Previous studies for Uruguay based on a different data set indicate that households with children attending public primary schools had a net income loss of around 16% after separation, whereas when parental separation occurs in a child's adolescence, income falls approximately 3% (Bucheli and Vigorito, 2019; Bucheli and Vigorito, 2023).

Our estimations using ENDIS data show that the income loss among mothers with small children is much higher, from 27% to 29% (Table 4). This loss can be understood as a short-run effect, since the time span between waves is two to three years, which is lower than in the previous work. At the same time, ENDIS is representative of the whole Uruguayan population, whereas previous estimations lack data from the higher socioeconomic strata.

The estimates on self-location in the income scale and life satisfaction match the evolution of objective indicators in direction, although the magnitudes are small. The effect on satisfaction in the economic domain is not statistically significant. This feeling might suggest that, despite their income loss, women are in better situation in other spheres, which might also be related to their command over economic resources within the household.

Table 4. Estimated effects of separation on income and self-reported poverty status (robust standard errors in parentheses)

Variables	All women		Separation*High education	
	PSMDiD	DiD	Base cat.	High educ.
Household income	-5,481 (1,125)***	-5,506 (686.5)***	-6,465 (670.7)***	1,744 (1,030)*
Log household income	-0.258 (0.112)**	-0.320 (0.0742)***	-0.407 (0.114)***	0.147 (0.133)
Labour earnings (mother)	0.267 (0.0872)***	0.245 (0.223)***	0.231 (0.0872)***	0.0234 (0.044)
Self-perceived location in the income scale	-0.266 (0.141)*	-0.261 (0.141)*	-0.0502 (0.237)	-0.359 (0.280)
Life satisfaction (a)	-0.368 (0.183)*	-0.353 (0.192)	-0.125 (0.341)	-0.410 (0.379)
Economic satisfaction	-0.0158 (0.224)	-0.0907 (0.275)	0.346 (0.475)	-0.750 (0.553)
Number of cases	2852 1426	2852 1426	2852 1426	2852 1426

Source: author's elaboration based on ENDIS

(a) The significance levels reported for this variable include the Romano Wolf adjusted p-values correction to account for multiple hypothesis testing for the full set of satisfaction variables.

As highlighted in the previous literature, we may expect noticeable differences in separation consequences by maternal socioeconomic status (Leturq and Panico, 2019). To assess these differences for our case, we run the previous models, adding an interaction term that captures the additional income loss of women that at least completed high school. The value of this coefficient indicates that although the income loss is not completely offset for high-skilled women (0,252%), low-skilled women are the ones that experience the greatest extent of income loss. More educated women report a higher fall in the income scale and satisfaction, but the estimations lack precision.

IV.3 Time allocation

To analyse the effects of separation on women's allocation of paid and unpaid work, we restricted the sample to the interviewees that reported a total (market and domestic) workload of 112 hours a week or less.⁴ Table 5 reports the estimated effects of separation for the restricted sample and for a sub-sample of women working in both waves. Although we are aware that the latter estimation suffers from self-selection bias, it might be suggestive of the behaviour of the subset of women that exhibit a higher labour market attachment.

Using a sample of women separated after their children were 6 years old, Bucheli and Vigorito (2019) concluded that mothers responded to separation by increasing their labour force participation by 7.5%. Women working before separation did not increase their working hours. As our sample refers to mothers with recently-born and small children, we may speculate that the labour market behavioural response is milder than that observed in the previous study. However, our estimations indicate that separation fosters entrance into the labour market even in our sample.

Indeed, the participation rate was 60% in the baseline, and the average effect of separation is around 9%, which is non-negligible, although the coefficient is non-significant under the DiD estimation (Table 5). The impact on time spent in the labour market is around 3 hours per week and, once again, is non-significant under the DiD estimations. When restricting the sample to women working in both waves, the coefficients are low and are not statistically significant.

These full results suggest that the impact on working hours is a result of women entering the labour market rather than an increasing effort among women already working in the

⁴ Those cases reporting a higher weekly burden are concentrated in wave 1 and mostly correspond to women that had newborns and reported that they devote the full day to childcare.

baseline. The rise of average working hours after separation leads to the increase in labour income shown in Section IV2.

Meanwhile, separation reduces the time spent in domestic work by around 3 hours per week, and the reduction for women working in both waves is slightly more pronounced. This drop outweighs the increase in labour market working hours, stabilizing the workload from the two activities (the effect is positive but not statistically significant). This result is consistent with a Beckerian classic model of time use, under which the lack of a male earner encourages an increase in the time devoted to paid work by separated women, and substitution of paid for unpaid work takes place.

To dig into how this substitution is carried out, we studied potential channels: school and childcare attendance, father's involvement in childcare, receiving help from relatives or friends, and hiring domestic workers. The estimates presented in Table A3 suggest that the first channel holds and school attendance among separated women's children increases relative to the control group. Although these estimates might entail an omitted variables concern, we also tested whether contact with non-coresident fathers is associated with differences in the domestic workload. Alternatively considering having contact with non-coresident fathers at least five days or three days a week, we find suggestive evidence that higher paternal engagement is associated with a significant reduction in women's domestic workload. Thus, we may infer that mothers' workloads diminish because of reduced time with their children. Meanwhile, the remaining hypotheses linked to others doing domestic work are ruled out. Thus, an alternative explanation can also be raised: separation entails a relaxation of compliance with gender norms that translates into a reduction of the domestic workload of women.

In spite of the limitations of the subsample of women who worked in both waves, the results are consistent with this hypothesis. The reduction in domestic work is higher than for the whole sample and time spent in the labour market does not change. Therefore, the total paid and unpaid workload decreases. Thus, for these women, the substitution hypothesis would not hold. In addition, the analysis of the channels previously mentioned provide similar results: increased childcare or school attendance seem to be the main ways in which women obtain additional time.

Regarding maternal childcare, the estimated effects suggest an increase of around 2 hours per week, but this coefficient is not statistically significant (Table 5). This finding is in sharp contrast with the negative effect on domestic work.

Table 5. Estimated effects of separation on women's time allocation (robust standard errors in parentheses)

Variables	All women		Working in both waves	
	PSM-DiD	DiD	PSM-DiD	DiD
Work in labour market (Yes=1; No=0)	0.0898 (0.0426)**	0.0765 (0.0534)		
N	1282	2560		
Time in labour market (weekly hours)	3.052 (1.712)*	2.764 (2.317)	-0.475 (1.985)	-0.395 (2.386)
N	1263	2546	674	1349
Time in domestic work (weekly hours)	-2.679 (1.593)*	-3.044 (1.651)*	-3.770 (2.019)*	-3.767 (2.045)*
N	1268	2546	646	1296
Time in labour market and domestic work (weekly hours)	0.762 (2.219)	0.119 (2.537)	-3.475 (2.769)	-3.486 (3.189)
N	1250	2528	662	1345
Time devoted to childcare (weekly hours)	2.102 (3.354)	2.434 (3.473)	0.121 (4.581)	-0.0828 (4.557)
N	1240	2519	656	1339
Total workload (weekly hours)	1.902 (4.078)	1.945 (4.212)	-3.648 (5.566)	-3.872 (5.354)
N	1219	2498	646	1329

Source: author's elaboration based on ENDIS

IV.4 Autonomy, gender role attitudes and subjective well-being

Regarding autonomy and gender role attitudes, Table 6 depicts the main results, suggesting that, in line with the findings of Symoens et al. (2014) for the European Union, these outcomes were left almost unchanged. The results for self-perceptions of power in society and at work indicate that separation by itself does not trigger an empowerment process. Power in society exhibits a slight erosion that represents an approximately 10% decrease. Conversely, the composite summative index of gender role attitudes exhibits an imprecise decrease in disagreement with traditional roles of a substantial magnitude (50%), mainly led by the Girls should be taught that their place is at home statement, with which disagreement increases by 100%. The findings presented in subsection IV.3 of a substantial increase in labour force participation, coupled with a decrease in unpaid work at home, match this change in attitudes towards the place of girls. These results must be deepened in further research using a broader set of questions to reflect gender role attitudes.

It is also relevant to point out that in section III.1, the statement Boys should be raised to look out for themselves and girls should be cared for was found to be one of the main predictors of couple separation. This indicates that women with more egalitarian gender

role attitudes are the ones who separate, whereas separation itself might be reinforcing and deepening these attitudes.

Table 6. Estimated effects of separation on autonomy and gender norm attitudes (robust standard errors in parentheses)

Variables	All women	
	PSM-DiD	DiD
Power in society	-0.382* (0.209)	-0.395* (0.210)
Power at work	0.384 (0.368)	0.376 (0.373)
Gender norm att. (sum)	-0.127** (0.0585)	-0.114* (0.0628)
Gender norm att. (at least one)	-0.0570 (0.0424)	-0.0537 (0.0505)
Boys should be raised to master at home (Disagree=0; Agree=1)	-0.0120 (0.0230)	-0.00858 (0.0288)
Boys should be raised to look out for themselves and girls should be cared for (Disagree=0; Agree=1)	-0.0356* (0.0204)	-0.0288 (0.0233)
Girls should be taught that their place is at home (Disagree=0; Agree=1)	-0.0793* (0.0421)	-0.0768 (0.0479)
N	2888 1444	2888 1444

Source: author's elaboration based on ENDIS

Finally, Table 7 depicts the results related to satisfaction in several domains. Separation entails a decrease in subjective well-being, which is particularly pronounced for family life. Notice that in III.1, we have shown that family satisfaction was not a significant predictor of the likelihood of divorce, which reinforces the idea that this considerable erosion of approximately 50% relative to the baseline average is related to post-separation outcomes. These worsened outcomes might be related not only to the emotional consequences of separation but also to adverse post-separation situations, such as a conflictive relationship with the non-coresident father, unfair distribution of childcare, and non-compliance with child support payments. This result needs to be deepened in further research in order to assess whether it holds in the medium run and to determine its causes. As previously shown, the life satisfaction coefficients exhibit very low magnitudes, reinforcing the idea that, in the short-run, subjective well-being is affected in the very specific domain of family life.

Table 7. Estimated effects of separation on satisfaction in several domains (robust standard errors in parentheses)

Variables		
	PSM-DiD	DiD
Health satisfaction	0.172 (0.162)	0.129 (0.192)
Family satisfaction	-3.625*** (0.192)	-3.588*** (0.380)
Neighbourhood satisfaction	-0.162 (0.253)	-0.195 (0.279)
N	2888 1444	2888 1444

Source: author's elaboration based on ENDIS

Note: The significance levels reported in this table include the Romano Wolf adjusted p-values correction to account for multiple hypothesis testing for the full set of satisfaction variables.

V. Final remarks

Based on the Uruguayan longitudinal study ENDIS, in this paper we assess the effects of couple separation on a broad set of women's outcomes that have scarcely been studied in the related literature, contributing to this literature in the context of the developing world.

We confirm that union dissolution is not a random event. Women with lower income levels, less satisfaction with the distribution of household chores, and more disagreement with traditional gender role attitudes are more likely to experience couple separation. Conversely, those that are married (versus cohabiting with their partners) or religious are less likely to separate. Meanwhile, region of residence and education are not associated with union dissolution.

We analyse the effects of separation on the command of economic resources, time use, autonomy, gender norm attitudes and hedonic well-being. Our findings show that up to three years after separation, women with small children experience a loss of household income of 27 to 29%. These results are in line with the previous international literature and with Uruguayan evidence. Meanwhile, the signs of the effect on self-reported position and life satisfaction are negative. Unexpectedly, we do not find a significant effect on satisfaction in the economic domain. We speculate that this result may be due to increased control by separated women over the households' resources. The introduction of heterogeneity indicates that income loss is lower for highly educated women, though they seem to report a higher negative effect on subjective outcomes.

Regarding time use, our study adds interesting inputs to be deepened in further studies. As in the previous literature, we identify an increased in the labour force participation effort of women to overcome their households' income loss. Our estimations also show that the number of hours worked at home decreases, raising the question of whether women are able to cope with the full bulk of household work, or, as the feminist perspective suggests, they feel released from obligations associated with social norms regarding wives' behaviour. It is also important to note that the time devoted to childcare remains unaffected by separation. Further studies are needed to assess these results in greater depth.

The group of outcomes related to autonomy, gender norm attitudes, and satisfaction in several domains also yield interesting results. First, in line with the findings of Symoens et al (2014) for a cross-sectional sample of European countries, we do not find substantial effects of couple separation on empowerment. Second, in the case of gender norm attitudes, we find that agreement with more equalizing statements is a strong predictor of couple separation, whereas separation does not substantially affect disagreement with traditional norms. Increased disagreement with traditional gender norms is particularly observed regarding the place of girls. This is in line with the changing roles experienced by mothers. However, the latter results are imprecise, although the magnitudes of the effects are large, and need to be deepened in further studies that include a larger and broader battery of questions about gender norm attitudes. Third, satisfaction is substantially worsened in the family domain, whereas life satisfaction and other dimensions experience only slight variations.

It is worth pointing out that we are presenting short-run results for women that were mothers of children age 0 to 3 in the baseline year. More work is needed to understand how our findings might vary as time passes, children grow, and the potential conflict between ex-partners is resolved. A deeper understanding of the causes of dissatisfaction with family responses can provide important inputs for policy design that, as argued by Symoens et al (2014), might contribute to affecting concrete life conditions.

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Appendix

Table A1. Balancing of the variables in the probit model estimations.

Variable	Unmatched Matched	Mean		Standardised percentage bias	Standardised percentage reduction in bias	t-test		V(T)/ V(C)
		Treated	Control			t	p>t	
Age	U	27.376	30.738	-52.1		-6.07	0	1.04
	M	27.376	28.517	-17.7	66.1	-1.59	0.114	1.22
Education	U	0.5906	0.72435	-28.4		-3.42	0.001	.
	M	0.5906	0.61074	-4.3	84.9	-0.35	0.724	.
Afro-descendance	U	0.06711	0.05403	5.5		0.66	0.509	.
	M	0.06711	0.11409	-19.7	-259.1	-1.41	0.159	.
Religion	U	0.6443	0.49099	31.3		3.56	0	.
	M	0.6443	0.63758	1.4	95.6	0.12	0.904	.
Married	U	0.22148	0.43148	-45.9		-4.97	0	.
	M	0.22148	0.20134	4.4	90.4	0.42	0.672	.
Children	U	1.2215	1.2193	0.4		0.05	0.958	1.37
	M	1.2215	1.2215	0	100	0	1	1.21
Income	U	8.6814	8.9072	-30.6		-3.45	0.001	0.87
	M	8.6814	8.6827	-0.2	99.4	-0.01	0.988	0.95
Work	U	0.59732	0.63978	-8.7		-1.02	0.308	.
	M	0.59732	0.57718	4.1	52.6	0.35	0.725	.
Working hours	U	19.215	19.432	-1.1		-0.13	0.894	1.13
	M	19.215	18.772	2.3	-103.7	0.19	0.852	0.92
Satisfaction with the family	U	7.5541	8.1277	-28.1		-3.53	0	1.49*
	M	7.5541	7.7852	-11.3	59.7	-0.93	0.354	1.18
Satisfaction with the neighbourhood	U	6.6913	7.4362	-29.3		-3.48	0.001	1.14
	M	6.6913	6.3624	13	55.9	1.04	0.301	0.84
Satisfaction with task sharing	U	7.5973	8.1715	-25.4		-3.1	0.002	1.3
	M	7.5973	7.2349	16	36.9	1.21	0.225	0.77
Raigins gender norms	U	0.04027	0.06891	-12.6		-1.33	0.183	.
	M	0.04027	0.02013	8.9	29.7	1.01	0.312	.
Parent's separation	U	0.56376	0.42756	27.4		3.18	0.002	.
	M	0.56376	0.57718	-2.7	90.1	-0.23	0.816	.
Residence	U	0.37584	0.37666	-0.2		-0.02	0.984	.
	M	0.37584	0.4094	-6.9	-3966.9	-0.59	0.555	.

* if variance ratio outside (0.73; 1.38) for U and (0.73; 1.38) for M

Table A2. Robustness checks. Unobservables to observables ratios.

Variable	delta, R2=1	delta, R2=1.5R2
Household income	-0.20226	-1.5874
Log household income	-0.06326	-1.664
Labour force participation	0.00955	1.693
Self-perceived location in the income scale	-0.04960	-25.822
Life satisfaction	0.00593	1.248
Family satisfaction	0.43785	1.584
Power in society	-0.04683	-0.78425
Gender norms (sum)	-0.00694	-1.643
Boys should be raised to master at home	0.00055	0.116
Girls should be taught that their place is at	-0.00478	-3.732
Weekly hours in labour market	0.01024	1.47
Weekly hours in domestic work	0.01471	1.23055

Source: elaboration based on ENDIS author's

Table A3. Additional estimations. Potential channels explaining reduced hours in household work among separated women

Variable	All women		Working in both waves	
	PSM-DiD	DiD	PSM-DiD	DiD
Children attend preschool or school	0.0899 (0.0451)**	0.0851 (0.0486)*	0.110 (0.0591)*	0.102 (0.0628)
Contact with father at least 5 days per week	0.0574 (0.0344)*	0.0443 (0.0341)	0.0588 (0.0460)	0.0533 (0.0444)
Women receive help from relatives/Friends to raise children	0.0495 (0.0408)	0.0493 (0.0430)	0.0611 (0.0541)	0.0424 (0.0558)
The household hires a domestic worker	-0.0253 (0.0238)	-0.0239 (0.0205)	-0.0287 (0.0377)	-0.0283 (0.0335)
N	1488	1488	937	937

Source: author's elaboration based on ENDIS