Time use within the household:
Household production, work-life balance and racial discrimination

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THESIS
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TESIS
Uso del Tiempo en la Familia:
Producción Doméstica, Equilibirio Laboral-Familiar
y Discriminación Racial

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A mi familia, Pilar y mis amigos

RESUMEN

Esta tesis doctoral utiliza análisis microeconómico para examinar la conducta de los miembros de los hogares, desarrollando 3 líneas de investigación que se centran en las decisiones de asignación de tiempo. En la primera línea de investigación, se aborda el tema de cómo las normas de la sociedad pueden influir en la distribución del tiempo de los individuos, lo que a su vez puede influir en decisiones tales como la formación de parejas, sobre todo en países con normas sociales de género más tradicionales en la distribución de las tareas domesticas. La segunda línea de investigación analiza cómo, en la medida en que las mujeres trabajadoras tienen que hacer frente a sus responsabilidades laborales y familiares, estas pueden elegir el trabajo por cuenta propia para tener una mayor flexibilidad de horarios y así conciliar mejor su vida laboral y familiar. Finalmente, la tercera línea de investigación analiza los diferentes factores que influyen en el tiempo dedicado a la producción doméstica, centrándose en la raza - color de piel - de los individuos y la discriminación racial en los mercados matrimoniales. Esta tesis constituye un estudio completo de 3 temas que se engloban dentro de la economía de la familia, y complementa a otros estudios anteriores sobre el uso del tiempo y comportamiento de la familia.

ABSTRACT

This doctoral dissertation uses microeconomic analysis to examine the behaviour of the members of the household, developing 3 lines of investigation that focus on time-allocation decisions. The first line of research analyzes how social norms can influence the time allocation decisions of individuals, which in turn may influence life decisions such as partnership formation, especially in countries with more traditional gender norms regarding the distribution of household chores. The second line of investigation analyzes how, to the extent that female workers want to balance their work and family responsibilities, female workers may choose to be self-employed in order to have greater flexibility in their schedules and, thus, to improve the balance between work and family life. Finally, the third line of investigation analyzes the different factors that influence the time devoted to household production, focusing on the effects of the race (skin colour) of the individual, and of racial discrimination in marriage markets. This thesis constitutes a complete study of 3 subjects, integrated within the literature of economics of the family, and complements previous studies on time-allocation decisions and household behaviour.

Contents

Preface

Economics Conference (Chicago, USA, 2007) and the Symposium of Economic Analysis (Oviedo, Spain, 2006).

The third chapter is an extensive revision of a chapter presented in the Encuentro de Economía Aplicada (Salamanca, Spain), the Congress of the European Economic Association (Milan, Italy, 2008), the European Association of Labour Economics (Amsterdam, the Netherlands, 2008) and the Symposium of Economic Analysis (Zaragoza, Spain, 2008).

The fourth chapter is an extensive revision of a chapter presented at the III Workshop on Family Economics (University of Zaragoza, Spain, 2008) with the title "Compensating Differentials within US Couples: Education, Race and Marital Status", with constructive comments by Costas Tatsiramos and Almudena Sevilla-Sanz gratefully acknowledged. This chapter was also presented in several economics meetings, including the XI Summer School in Labour Economics (Buch, Germany, 2008) and the Congress of the European Economic Association (Barcelona, Spain, 2009).

Neither the original collectors of the data nor the persons cited above bear any responsibility for the analysis or interpretations presented here.

Introducción en Español

Esta tesis doctoral utiliza análisis microeconómico para examinar la conducta de los miembros del hogar, centrándose en las decisiones de asignación de tiempo. En ella se desarrollan tres líneas de investigación integradas en la literatura de la economía familiar, desarrollada por Gary Becker [1965,1973,1991], y estudios más recientes sobre el uso del tiempo (Juster y Stafford [1991], Kalenkoski, Ribar y Stratton [2005], Aguiar y Hurst [2007], Hyytinen y Ruskanen [2007], Burda, Hamermesh y Weil [2008]).

Presenta evidencia teórica y empírica del proceso de toma de decisiones relacionado con la asignación de tiempo dentro de la familia, así como evidencia de existencia de discriminación racial y normas sociales que influyen sobre estas decisiones de asignación. Para las aplicaciones empíricas, utilizamos datos del Panel de Hogares de la Unión Europea – ECHP (1994-2001) en el Capítulo 1, y encuestas de uso del tiempo en los Capítulos 2 y 3.

En el capítulo 2 utilizamos como punto de partida el hecho de que la mayoría de los países desarrollados tienen tasas de fecundidad que están por debajo del nivel de reemplazamiento poblacional. Para explicar este fenómeno de baja fecundidad - que ha llamado la atención de investigadores en una gran variedad de disciplinas de las ciencias sociales - se ha prestado especial atención a los llamados "países con menor fecundidad baja", es decir, los países con unos niveles persistentes de fecundidad muy por debajo de los niveles de reemplazamiento poblacional (véase Kohler, Billari y Ortega [2002]), si bien la mayoría de los trabajos previos se han centrado únicamente en el número de hijos en parejas casadas.[1] Sin embargo, estos países de menor fecundidad no han experimentado el aumento tanto de la

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[1] Entre estos países, España Italia y Japón son los claros ejemplos, con tasas totales de fecundidad de 1.2 hijos por mujer.

fecundidad fuera del matrimonio como de la cohabitación característicos de otros países desarrollados, que pone en tela de juicio estudios anteriores sobre fecundidad basados exclusivamente en la fecundidad dentro del matrimonio. Esto hace que haya un nuevo interés en las decisiones de formación de los hogares como factor que contribuye al fenómeno de la fecundidad en los países. Así, deferencias en las tasas de formación de parejas pueden llevar a diferencias en las tasas de fecundidad entre países.

Así, en el Capítulo 2 se presenta una interpretación basada en normas sociales para explicar las diferencias en las tasas de formación de uniones (parejas) entre países, con el siguiente argumento: en países con normas sociales más tradicionales relativas a la división del trabajo doméstico dentro del hogar, las mujeres obtienen menos beneficios al formar una pareja, afectando negativamente a la probabilidad de una mujer de formar una pareja, lo que explicaría por qué países con normas sociales más tradicionales también tienen tasas más bajas de formación de parejas (Sevilla-Sanz [2010]). Contribuimos a la literatura ofreciendo una aproximación teórica acerca del proceso de formación de parejas, en comparación con la mayor parte de la literatura previa que analiza las decisiones de fecundidad de los individuos sólo después de que las parejas se hayan formado (Manser y Brown [1980], McElroy y Horney [1981]). Además, estas teorías dejan la explicación del proceso de formación de hogares para teorías complementarias - por ejemplo, "positive assortative mating" por educación, Lam [1988], Blosfeld y Timm [2003]. Por lo tanto, aunque reconocemos que la negociación es específica dentro de la pareja, trabajo teórico y empírico adicional sobre el proceso de formación de las parejas es necesario.

Además, en las últimas décadas se ha producido un cambio notable en el papel de la mujer en el mercado de trabajo, ya que muchos países desarrollados han experimentado un aumento general en las tasas de participación laboral de la mujer (Jaumotte [2004]). Como resultado, la división tradicional del trabajo ha desaparecido - los maridos ganaban el dinero y

las esposas se ocupaban del hogar y la familia - y muchas esposas han pasado a ser trabajadoras y amas de casa a la vez (Layard [2005]). Sin embargo, la mayoría de las mujeres sigue haciendo la mayor parte de las tareas domésticas y de cuidado de hijos, lo que crea una presión adicional para las mujeres que trabajan - lo que se ha denominado "doble carga" o "segundo turno", Hochschild y Machung [1989], Schor [1991] - y el término "conciliación de la vida laboral y familiar" ha aparecido en la literatura económica y psicológica.

Así, el término "conciliación de la vida laboral y familiar" se puede definir como el equilibrio entre la cantidad de tiempo y esfuerzo a alguien dedica al trabajo y la cantidad que concede a otros aspectos de la vida, en el sentido de permitir a los trabajadores más control sobre sus modalidades de trabajo, para así acomodar mejor otros aspectos de sus vidas, incluyendo sus responsabilidades de cuidado de hijos. La creciente popularidad de los programas de flexibilidad del lugar de trabajo y políticas de apoyo al trabajo/vida familiar refleja la intensificación del conflicto entre las responsabilidades domésticas y laborales, generalmente asociadas con consecuencias negativas para la salud y para el rendimiento de los trabajadores en sus puestos de trabajo (Netemeyer, Boles y McMurrian [1996], Kossek y Ozeki [1999], Allen, Herst, Bruck, y Sutton [2000], Byron [2005], Mesmer-Margnus y Viswesvaran [2005a,2005b]).

El hecho de que las mujeres sigan especializándose en el trabajo doméstico, a pesar del aumento en la participación de las mujeres en el mercado de trabajo, genera dificultades importantes en las mujeres a la hora de conciliar sus trabajo y las responsabilidades familiares y, en este contexto, una visión comúnmente aceptada sobre los motivos de la mujer para elegir el empleo por cuenta propia es un deseo para un mejor equilibrio entre su trabajo y su vida privada.[2] Así, en el Capítulo 3 analizamos en qué medida el empleo por cuenta propia

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[2] La noción de que el deseo entre las mujeres por trabajar por cuenta propia está relacionado con sus responsabilidades domésticas, incluyendo el cuidado de sus hijos, está bien establecido en la literatura (Presser [1989], Connelly [1992], Hundley [2000]).

permite a las mujeres mejorar su "equilibrio entre el trabajo y la familia", analizando si las madres trabajadoras por cuenta propia en España dedican más tiempo a cuidar a sus hijos y tienen una mayor flexibilidad en sus horas de trabajo, en comparación con las madres trabajadoras por cuenta ajena.

Sin embargo, aunque las normas sociales se muestran como un factor importante que influye en el tiempo que hombres y mujeres dedican a las tareas del hogar, y dado que las mujeres pueden optar por trabajar por cuenta propia como una forma de mejorar el "equilibrio entre la vida laboral y familiar", la negociación dentro de la familia sobre quién hace las tareas domésticas es todavía necesario. Así, la negociación basada en las características de los cónyuges determina en gran medida el tiempo que los individuos dedican a las tareas domésticas y al cuidado de niños. En el Capítulo 4 tomamos un enfoque alternativo, y utilizamos una teoría de mercado matrimonial - no basado en negociación dentro de la pareja - para explicar las decisiones de asignación de tiempo de los miembros del hogar. En concreto, tomamos el marco teórico que se centra en el concepto de compensación de diferenciales en los mercados matrimoniales, donde los mercados matrimoniales se definen como mercados de trabajo de los cónyuges en las tareas domésticas.

Así, en el Capítulo 4 utilizamos la encuesta de uso de tiempo americano (American Time Use Survey) para los años 2003-2008 para analizar el tiempo que los hombres y las mujeres que viven en parejas heterosexuales dedican a las tareas del hogar en función la raza de los encuestados y de sus parejas, e interpretamos nuestras conclusiones como pruebas adicionales de discriminación contra las personas de color en los mercados matrimoniales de Estados Unidos - resultados similares pueden encontrarse en Hamilton, Goldsmith y Darity [2009]. Una de las ventajas de utilizar el tipo de análisis de mercado como núcleo de nuestro marco teórico es que incluye dos mecanismos para explicar nuestros resultados: negociación sobre el que realiza tareas después de que se forma la pareja, y la creación de una pareja

interracial frente a una pareja de individuos de la misma raza - color de piel.

En síntesis, el objetivo de esta tesis es presentar un estudio a fondo de la relación entre las decisiones de distribución del tiempo propias y del cónyuge y diferentes eventos de la vida, especialmente para las mujeres. En primer lugar, explicamos las diferencias en el comportamiento de fecundidad de las mujeres europeas, en base a las diferencias en las tasas de formación de parejas entre los países, mostrando que en los países con normas sociales más tradicionales en la distribución por género del trabajo doméstico, las mujeres tienen menos incentivos para formar una pareja. En segundo lugar, y dado que las normas sociales en la distribución familiar del trabajo doméstico contribuyen a un desigual distribución por género de ese trabajo, analizamos si las mujeres pueden utilizar el empleo por cuenta propia como una forma de tener una mayor flexibilidad en su asignación de tiempo, mejorando la "conciliación de la vida laboral y familiar", dado que se deben enfrentan a un "segundo turno". Tercero, y aunque mostramos que las normas sociales son un importante factor en las decisiones de asignación de tiempo - resultados similares pueden encontrarse en Alvarez y Miles [2003], Bittman, England, Folbre, Sayer y Matheson [2003], Sevilla-Sanz, Fernandez y Gimenez-Nadal [2010] - también mostramos que características personales y de los cónyuges, tales como la raza, son factores importantes a la hora de determinar el tiempo dedicado al trabajo doméstico, y encontramos que la discriminación racial es un factor importante del tiempo que los individuos dedican a las tareas domésticas.

I. Introduction

This doctoral dissertation applies microeconomic analysis to the examination of household behaviour, focusing on time allocation decisions of household members. It develops three research lines integrated within the family economics literature, developed by Gary Becker [1965,1973,1991], and more recent studies on time use (Juster and Stafford [1991], Kalenkoski, Ribar and Stratton [2005], Aguiar and Hurst [2007], Hyytinen and Ruskanen [2007], Burda, Hamermesh and Weil [2008]).

The dissertation presents theoretical and empirical evidence of the decision-making process regarding time allocation within the family, as well as evidence of racial discrimination, and the social norms that influence time allocation decisions. For the empirical applications, we use data from the European Community Household Panel – ECHP (1994-2001) in Chapter 1, and time use surveys for Chapters 2 and 3.

In Chapter 2, we focus on below-replacement fertility rates that are found in most developed countries. To explain such phenomena, that have drawn the attention of researchers in a variety of social science disciplines, special focus has been given to the so-called "lowest-low fertility countries" - i.e., those countries with fertility persisting well below replacement levels, Kohler, Billari and Ortega [2002] - and most of this research has focused on the number of children in married households.[1] However, "lowest-low fertility countries" have not experienced the increase in out-of-wedlock fertility and cohabitation characteristic of other developed countries, which calls into question previous fertility studies based solely on marital fertility, and focuses new attention on household formation decisions as a contributory

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[1] Among these countries, Spain, Italy and Japan are the leading examples, with average total fertility rates of 1.2.

factor in fertility phenomena.

Thus, Chapter 2 presents a social norms interpretation to explain differences in partnership formation rates across countries. We argue that, in countries with more traditional social norms regarding the gender division of household labour, women obtain fewer benefits from the partnership, which negatively affect a woman's probability of forming a partnership, and which may explain why countries with more traditional social norms also have lower partnership formation rates (Sevilla-Sanz [2010]). We contribute to the literature by offering a theoretical construct of the partnership formation process, in contrast to the bulk of the literature that considers the household only after partnerships are formed (Manser and Brown [1980], McElroy and Horney [1981]). Moreover, these studies leave the explanation of the household formation process to matching theories - e.g., assortative mating by education, Lam [1988], Blosfeld and Timm [2003]. Thus, although we acknowledge that bargaining is couple-specific, additional theoretical work on the couple formation process is needed.

Furthermore, recent decades have brought about a noticeable change in the role of women in the labour market, since many developed countries have experienced a general increase in labour participation rates of women (Jaumotte [2004]). As a result, the traditional division of labour is disappearing - husbands earned the money and wives took care of the home and family - and many wives have now become paid workers as well as homemakers (Layard [2005]). However, most women continue to do more of the housework and parenting, with this creating an extra strain - what has been called a "double burden" or "second shift", Hochschild and Machung [1989], Schor [1991] - and the term "work-life balance" has appeared in the literature of economics and psychology.

The "work-life balance" is generally defined as the equilibrium between the amount of time and effort devoted to work, and that given to other aspects of life, in the sense of allowing working individuals more control over their working arrangements, in order to better

accommodate other aspects of their lives, including caring responsibilities. The increased popularity of workplace flexibility programs and supportive work-family policies reflects the intensification of the conflict between working and household responsibilities, usually associated with negative consequences for workers' health and workplace performance (Netemeyer, Boles and McMurrian [1996], Kossek and Ozeki [1999], Allen, Herst, Bruck, and Sutton [2000], Byron [2005], Mesmer-Margnus and Viswesvaran [2005a,2005b]).

The fact that women continue to specialize in non-market work, despite increases in female labour force participation, generates significant difficulties for women in balancing their work and family responsibilities and, against this background, one commonly-held view of women's motives for choosing self-employment is a desire for a better work-life balance.[2] In Chapter 3 we analyze to what extent self-employment for mothers allows them to improve their "work-life balance", analyzing whether self-employed Spanish mothers spend more time caring for their children, and have greater flexibility in their working hours, compared to Spanish employee mothers.

However, although social norms are an important factor determining the time that men and women devote to household chores, and given that women may choose self-employment as a way to improve their "work-life balance", bargaining over who does the household chores, and who is responsible for child care, is still needed at the couple level. Thus, bargaining based on partners' characteristics determines the time that partners devote to household chores and childcare. In Chapter 4, we take an alternative approach, using marriage market theory to explain the time allocation decisions of the members of the household. More specifically, we take a theoretical framework that focuses on the concept of compensating differentials in marriage markets, where marriage markets are defined as markets for partners'

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[2] The notion that the desire for self-employment among women is related to their household responsibilities, including caring for children, is well established in the literature (Presser [1989], Connelly [1992], Hundley [2000]).

work in household chores.

Using the American Time Use Survey (ATUS) for the years 2003-2008, we examine the minutes that heterosexually partnered male and female respondents devote to chores as a function of respondent's and partner's race, and we interpret our findings as further evidence of discrimination against *Blacks* (skin colour) in the U.S. marriage markets. Similar results can be found in Hamilton, Goldsmith and Darity [2009]. One of the advantages of using the kind of market analysis at the core of our theoretical framework is that it includes two mechanisms for explaining our results: bargaining over who performs chores after a couple is formed, and selection into a *Black/White* relationship as opposed to all-*Black* or all-*White*.

To sum up, the aim of this dissertation is to present an in-depth study of the relationship between own and partner's time-allocation decisions, and life events, especially for women. We first explain differences in the fertility behaviour of European women, according to differences in partnership formation rates across countries, showing that in countries with more traditional social norms in the gender distribution of household labour, women have fewer incentives to form a partnership. Second, and given that social norms in the distribution of household labour contribute to an unequal gender distribution of such labour, we analyze whether women may choose self-employment as a way of having greater flexibility in their time-allocation decisions, improving their "work-life balance", given that they must face a "second shift". Third, and although we show that social norms are an important factor in determining time allocation decisions (similar results can be found in Alvarez and Miles [2003], Bittman, England, Folbre, Sayer and Matheson [2003], Sevilla-Sanz, Fernandez and Gimenez-Nadal [2010]) we also show that own and partner's characteristics, such as race, are important factors in determining the time devoted to household labour, and we find that racial discrimination (skin colour) appears to be a significant determinant of the time devoted to household chores.

I.1   Datasets

I.1.1 The European Community Household Panel

Data employed in the second Chapter of this doctoral dissertation come from seven waves of the European Community Household Panel – ECHP (1995-2001).[3] The ECHP is a survey designed and coordinated by the European Community Statistical Office (EUROSTAT) with the contribution of the Institute of Statistics of the European Union (EU-15).[4] It is designed to be comparable between countries, as well as longitudinally, allowing the comparison of different countries, or the same country at different times. The data contain information regarding demographic variables, labour situation, income, health, education and training, household conditions, as well as data on migrations, of private households (Perachi [2002]). The same household is interviewed every year in a household questionnaire, and individuals over 16 years old answer an individual questionnaire. Thus, we have available an unbalanced panel - i.e., the same individuals do not appear in the same number of years in the dataset - which allows us to control for personal unobserved heterogeneity of respondents. The ECHP gathers information about the amount of time that individuals devote to childcare activities. More specifically, respondents report the time that they devote to child care activities, measured in hours per week, information that we use in Chapter 2 to compute our *Traditionality Index*. Examples of studies using the ECHP are Davies and Gäelle [2005], Bassanini and Brunello [2008], and Mendola, Busseta and Aasve [2009].

Although information included in time use surveys is more complete, in the sense that they offer more exact information on the time devoted to household production activities,

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[3] We omit the first wave of the ECHP - 1994 - since there is no available information on the time that individuals devote to childcare activities during the week, information that we need to compute the *Traditionality Index* in Chapter 2.

[4] Except in Austria, Belgium, Denmark, Ireland, Luxembourg and the UK, where other public and private organizations are responsible for data collection.

including child care, there are specific reasons for us to use the ECHP.

First, since we analyze partnership formation decisions in Chapter 2, a dynamic approach is necessary, and therefore panel data is needed. In this sense, the panel data structure of the ECHP allows us to observe the same women over a period of several years. Additionally, we are able to control for personal unobserved heterogeneity of individuals, given that personal non-observable characteristics are important determinants of economic outcomes - e.g., effects on subjective well-being reported by Kahneman, Diener and Schwarz [1999], Diener and Lucas [1999], Clark, Etilé, Postel-Vinay, Senik and Van der Straeten [2005].

Second, although time use surveys allow us to obtain more robust estimates of the time devoted to different activities (Juster and Stafford [1991], Robinson and Godbey [1997]), we are not able to have a complete accounting of the time devoted to household production activities, by both members of the couple, for several European countries at the same point in time. Time use surveys have been developed in recent years, but such surveys are still relatively scarce, and since they normally cover only one year, we cannot use them to develop a panel data analysis.

I.1.2 Time Use Surveys

In Chapter 3 we use the Spanish Time Use Survey (2002-2003) to analyze to what extent, in a country characterized by a large gender gap in the distribution of household labour favouring men, working mothers may use self-employment as a way to improve their "work-life balance". In Chapter 4, we analyze how partners' characteristics influence the time devoted to household labour, focusing on racial (skin colour) discrimination, using the American Time Use Survey 2003-2008.

I.1.2.1 General Use of Time Use Surveys

There is a wide range of potential uses of time use surveys, which includes understanding the effects of public policies on individual behaviour. For example, low-income workers are sometimes eligible to receive subsidized childcare. Time-use data can help researchers and politicians to understand how these policies affect the amount of time that parents spend working at home, or outside the home, and how much time they spend with their children. Also, time-use data can improve our understanding of individual and household behaviour, especially in relation to time allocation decisions, and in improving our knowledge of the well-being of the nation (see Aguiar and Hurst [2007] for an analysis of how leisure time has increased over the last 4 decades in the US).

In this sense, researchers identify five ways in which time-use data can be used for public policy: 1) to expand the national economic accounts; 2) to understand the transition from work to unemployment (and vice versa), and from work to retirement; 3) to document time spent in market, non-market, and leisure activities; 4) to document and understand decisions that individuals make about how much time they spend caring for children and for other family members, and 5) to understand the effects of recent major changes in social welfare programs.

Augmented National Economic Accounts

A primary public policy use of time-use data is to enhance the coverage of National Income and Product Accounts (NIPA). The NIPA reports measure economic activity for the nation, and are the principal means of measuring growth in the nation's economy over time, and in comparing income and production across countries. The NIPA almost exclusively measure only market production and, hence, do not take into account goods and services that a

household produces, nor do they include any household production that is not traded in the formal market. The exclusion of non-market production has often been noted, although the reason for this exclusion, conceptual and practical issues in measuring these activities, is well understood. These issues include classifying a non-market activity as a productive activity, valuing the output produced, valuing the time inputs needed to produce it, and the lack of consistently and regularly produced data on how much time is spent in non-market activities.

Significant efforts to include non-remunerated work in national income accounts are under way in certain countries. Estimates of household production output, and the inputs used for the outputs, have been carried out in Australia, Canada, and three Scandinavian countries -Finland, Sweden and Norway, see Ironmonger [1997] - but these estimates are not currently used in "core" GDP figures.[5] Rather, they are used in satellite accounts, which measure production that is not included in the standard set of national accounts. As more and more countries develop the data for measuring non-market production, methods for dealing with some of the conceptual issues in measuring such production will evolve. In addition, the value of the data for making cross-country comparisons will be enhanced.

Time Use at Work

Time-use data can be used to improve measures of how time is spent at work, and to understand the effects of public policy on labour market and job outcomes. Technological gains are allowing more work to be done away from the office, and time spent at the "workplace" may not entirely consist of time spent in market work; it may also include time spent in non-market work, or leisure. Thus, conventional measures of time spent working are

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[5] Other studies related to the inclusion of non-market work in national income accounts are Chadeau [1992], Blades [1998], Chamie and Me [1998], Goldschmidt-Clermont [1998], and Goldschmidt-Clermont and Pagnossin-Aligisakis [1999], among others.

unlikely to provide full details of what "work" is being done. Time-use information is important, since it can help improve productivity measures, and can contribute to understanding how technological innovation affects productivity.

Child and Family Care

For many people, a primary component of non-market work is time spent caring for others. This is especially true for parents with young children, and for many elderly couples, one partner often needs assistance or care that is often provided by the other. Similarly, the children of elderly parents often provide care for their parents. Among the policy considerations that could be informed by data on time spent in care-taking or care-receiving activities, the issues of whether individuals substitute their own time caring for relatives with the time of market-provided caregivers, and what factors determine how much time is spent caring for a relative or partner, are of special relevance. A related issue is whether the health and general well-being outcomes of those who are receiving the care are better when the care is provided by a relative, as opposed to when care is given by a market provider.

Time-Use Data and Well-Being

It is important to understand how people in a given country use their time, in order to fully understand the well-being of the nation, including the extent to which people feel time-crunched, or experience stress, due to having too little time to do the things they want to do.

For instance, as the population ages, it would be interesting to track changes in time use. If people are spending fewer years in the labour force, is it because they retire earlier, or because more and more young adults are going to college, delaying full-time entry into the paid labour force for several years, or because many middle-aged people are going back to

college or receiving additional training, which takes them out of the full-time labour force? Time-use data will also help researchers and policy makers understand what retirees do when they leave the labour force, how time use varies over business cycles as the unemployment rate rises and falls and, most broadly, what people do when they are not at work.

Some time-use studies have asked respondents to describe their satisfaction levels from different activities, and their emotional states during those activities (Juster and Stafford [1985], Kahneman, Krueger, Schkade, Schwarz and Stone [2004], Kahneman and Krueger [2006], Krueger [2007]). These subjective measures of intrinsic satisfaction, associated with time spent in different activities, can be used to better understand well-being. Thus, the Experienced Sampling Method - ESM - and the Day Reconstruction Method – DRM - have both been used to better understand subjective satisfaction from work, leisure, and other activities.

Furthermore, the growing disparity in income and earnings across the population has received a great deal of attention in policy and research communities. One aspect of well-being that is not usually a part of these discussions is whether there is a large disparity in the amount and timing of leisure (for an exception, see Aguiar and Hurst, 2007). One person may be "money rich, but time poor," while another may be "time rich, but money poor," and while standard economic measures of well-being would classify the first individual as being better off, if differences in leisure time are counted, the first individual may not look so rich.

However, there are limitations of time-use data for these purposes. For example, time has shortcomings as a metric, as it is not easy to establish its objective value. Individual skills, ambition, and intelligence determine how productive a person is in different activities. Measuring time spent in such activities is subject to these differences in productivity - i.e., some people are more productive than others in a given period for a given activity. Furthermore, classifying activities in which people spend their time can be difficult, and it is

16

often hard to classify, measure, and value the outputs of these activities. These limitations present conceptual and measurement challenges for time use researchers.

I.1.2.2 Spanish Time Use Survey - STUS 2002/2003

The Spanish Time Use Survey (STUS) is an annual survey developed by the Spanish Statistical Office covering a period from October 2002 to September 2003. In this survey, time use data is collected by means of time diaries - time sheets - and all members of the household aged 10 or older record the activities they did the precious day in their own words. Respondents must fill in one time diary that covers 24 hours - from 6:00 on the designated day to 6:00 on the next day - and all members of the household write in their diaries on the same day. The time sheet consists of ten-minute intervals, in each of which the respondent is asked to note his/her main activity, secondary activity done simultaneously, if any, location, and whether at the time he/she is in the company of people known to him/her. As a result, the data consists of a sequence of episodes or events, each characterized by these four recording domains, following the Harmonized European Time Use Survey (HETUS) guidelines. Figure I.I shows an example of a time sheet in the survey. Examples of papers using the STUS are Sevilla-Sanz, Fernandez and Gimenez-Nadal [2010], and Gimenez-Nadal and Ortega-Lapiedra [forthcoming].

I.1.2.2 American Time Use Survey- ATUS 2003/2008

The American Time Use Survey (ATUS) is the first federally administered, continuous survey on time use in the United States. The goal of the survey is to measure how people divide their time among life activities. Individuals are randomly selected from a subset of households that have completed their eighth and final month of interviews for the Current

Population Survey (CPS). Only one respondent per household is chosen, and ATUS respondents are interviewed only one time about how they spent their time on the previous day, where they were, and whom they were with.

The major purpose of ATUS is to develop nationally representative estimates of how people spend their time, such as the amount of time Americans spend doing unpaid, non-market work, which could include unpaid childcare and adult care, housework, and volunteering. In addition to collecting data about what people did on the day before the interview, ATUS collects information about where and with whom each activity occurred, and whether the activities were done for one's job or business, or not. Demographic information - including sex, race, age, educational attainment, occupation, income, marital status, and the presence of children in the household - is also available for each respondent.

Figure I.1 – Example of a time sheet of the Spanish Time Use Survey, 2002-2003 [1]

Notes: [1] Spanish Statistical Office (INE)

I.2   Main Results

Previous research has shown that most developed countries have experienced a general increase in women's human capital in recent decades, resulting in a general increase in women's participation rates in the labour market. However, numerous studies of the division of domestic labour confirm that, despite the increase in women's participation rates in the labour market, women still perform the bulk of housework and child care.[6] Thus, the fact that women continue to specialize in non-market work, despite increases in female labour force participation, has given rise to the so-called "second shift" argument. This term is used to refer to the workload of women who work to earn money, but who also have responsibility for domestic labour (Hochschild and Machung [1989], Schor [1991]).

This "double burden" suggests that women have added employment to their previously existing domestic responsibilities, resulting in women reporting more feelings of "time pressure" now than 40 years ago   (Robinson and Godbey [1997], Bittman and Wajcman [2000], Mattingly and Bianchi [2003], Sayer [2005], Mattingly and Sayer [2006]). At the same time, we observe a fact that can be related to this "second shift" argument: developed countries have experienced a dramatic fall in total fertility rates, to previously unseen levels. This decline in fertility has captured the attention of policymakers (Lee [2003]), especially given that, within the general downward trend, fertility has varied significantly across countries.[7]

Economic models of the household cannot successfully explain the unequal

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[6] Bittman, England, Sayer, Folbre and Matheson [2003] show for a sample of Australian couples that, while husbands devote 11.04 hours per week to housework, wives devote 23 hours per week to these activities. Data from the US shows husbands doing 13 hours per week in housework, while wives do 18 hours per week (e.g., Bianchi, Milkie, Sayer and Robinson [2000]). Gauthier, Smeeding and Furstenberg [2004] show that, by the end of the 1990's, men devoted 3.29 hours per day to household production - housework plus childcare - in some OECD countries, whereas women devoted 6.04 hours per day to housework and child care.

[7] In Southern Europe, Germany and Austria, the fertility rate has plummeted to 1.3 or below - to what some refer as the lowest-low fertility levels, Kohler, Billari and Ortega [2002]. By contrast, the highest fertility rates (from around 2 to 1.75) are found in France, Ireland and Scandinavia.

distribution of household labour. Intra-household bargaining models take the view that the family is a place of conflict and cooperation. Bargaining models are based on the concept of threat points, and focus on the interaction between heterogeneous preferences of household members, and the distribution of power between them. Cooperative Nash-bargaining household models assume that the threat point is determined by the cost of the break-up of the marriage (Manser and Brown [1980], McElroy and Horney [1981]), and non-cooperative bargaining models assume that the threat point is not divorce, but internal to the marriage and determined by a non-cooperative equilibrium, defined in terms of socially recognized and sanctioned gender roles (Lundberg and Pollak [1996]).

Furthermore, the study of the fall in total fertility rates in industrialized countries has generally overlooked household formation processes. However, cross-country differences in household formation rates are significant, and both declines in marriage rates and increases in cohabitation rates have followed very different trends across the developed world. In particular, the so-called "lowest-low fertility" countries, such as Italy, Japan, and Spain, have experienced a decline in marriage rates that has not been accompanied by the increases in cohabitation rates characteristic of other developed countries. Against this background, some authors have shown that the unequal division of home labour can also help explain the patterns of low fertility and low female labour force participation (Feyrer, Sacerdote and Stern [2008]), and low rates of household formation (Sevilla-Sanz [2010]), observed in Southern European countries.

The second Chapter complements conventional economic analysis, based on matching theory - e.g., positive assortative mating on education, Lam [1988], Blosfeld and Timm [2003] - and couple-specific bargaining, and presents a social norms interpretation to explain cross-country differences in partnership formation rates. We argue that increases in female human capital have had a differential impact on partnership formation rates in Northern and

Southern Europe, due to the different social norms regarding the household division of labour.

We model social norms as a constraint on the allocation of household labour by women, which may diminish the gains from entering a partnership for women. Thus, a woman living in a country with a more traditional division of household labour has, ceteris paribus, a lower probability of forming a partnership, given that she will "have" to devote more time to household production activities, and the social constraint is more likely to be binding for highly educated women. To the extent that female education has increased over the years, and that Southern European countries have more traditional social norms, this may partly explain the dramatic decrease in partnership formation rates in Southern Europe. After controlling for the time and country variations in the data, as well as for personal unobserved heterogeneity and other aggregate variables at the country level, the empirical findings support the predictions of the model. Thus, given the salience of household formation as a proximate determinant of fertility, our results shed light on the process of below-replacement fertility. However, it is beyond the scope of Chapter 2 to examine how social norms are formed and maintained over time.

Once we have analyzed the household formation decision, we go to the household level, where most working women face a "double burden", in the sense that they must balance their work and household responsibilities.[8] Given the unequal division of household labour, partly explained by the existence of social norms (Chapter 2) women may choose self-employment as a way to improve their "work-life balance". In this sense, one commonly-held view of women's motives to choose self-employment is a desire for flexible hours, and

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[8] This is especially true in the Southern European countries, where the labour market remains highly regulated, with strict rules concerning the hiring and firing of workers, and the types of employment arrangements permitted. This contributes to the emergence of obstacles to leaving and re-entering the labour market, while becoming a parent and raising children, and results in women in Southern Europe participating less in the labour market and having fewer children (Del Boca [2002]).

for the ability to spend more time caring for children, that is to say, a better work-life balance.

The hypothesized relationship between self-employment and child care stems from several sources. First, the self-employed are perceived as having greater control over the timing of work - flexible hours - so they may be able to work during school hours, or after the children have gone to bed, or they may more easily work odd shifts, when a partner or other family member is available to care for the children. Second, the self-employed may be able to work at home. Third, self-employment is perceived as offering greater flexibility in the quantity of hours worked, so they can work part-time in self-employment. Finally, the self-employed may have greater control over the effort expended at work, allowing them to conserve the energy required for childcare. However, direct evidence of the relationship between self-employment and the work-life balance is weak, especially in the European context.

Hence, in Chapter 3 we analyze whether self-employed mothers have a different "work-life balance" than employee mothers. To that end, we use time diary data from the Spanish Time Use Survey 2002-2003 (STUS). Our results provide little support for the hypothesis that self-employed mothers spend more time caring for children than do employee mothers. However, since one commonly-held view of women's motives to choose self-employment is a desire for flexible hours - flexible schedules - we analyze the timing of activities during a working day. We first find that, during a working day, self-employed mothers devote more time to childcare and less time to market work during the morning and afternoon, and less time to childcare and more time to market work during the evening, compared to employee mothers. We also find complementarities between the time devoted to childcare and market work by the members of the couple.

Such results are consistent with the hypothesis that self-employed mothers are able to have greater flexibility in their working hours - flexible hours - which allows them to spend

more time with the children during the morning, and to shift part of their market work responsibilities to the evening, when the partner is available to care for the children. Chapter 3 deals with an important subject for policy decision making, that is, how working conditions and work status interact with childcare, especially with time spent in child care by self-employed mothers.

Finally, time-use surveys have drawn the attention of researchers, since they offer the possibility of studying exactly how individuals distribute their time – e.g., the extent to which leisure is equally distributed by gender, Aguiar and Hurst [2007], Burda, Hamermesh and Weil [2008]. Furthermore, the development of such surveys has allowed for the study of the determinants of the distribution of household labour within the household, including the race of individuals, although previous studies have used race only as a control variable (Kalenkoski, Ribar and Stratton [2005,2007], Hersch [2009]). We go a step further, and we examine the effects of partners being either *Black* or *White* on the time devoted to household production activities, which can be considered as evidence of racial (skin colour) discrimination.

Using the American Time Use Survey 2003-2008, we find that *White* men and women work less time in "chores" when in couple with *Black* mates, than when in couple with *White* mates, and their *Black* partners work more time in "chores". We interpret these findings as evidence of racial (skin colour) discrimination against *Blacks* in the U.S. marriage markets, which can be explained in light of Grossbard-Shechtman's [1984] theory on "Compensating Differentials in Marriage". We also find that *Black* men and women appear to pay a price for being *Black* since they obtain less "chores" from their *White* partners than when in couple with *Black* partners.

We use the theory on "Compensating Differentials in Marriage" (Grossbard-Shechtman [1984]) as the underlying theory that defines marriage markets as markets for

"chores work" – "work" in household production. Within this framework, and in light of our results, it is possible that these markets establish compensations for "chores work" done by *housewive*s and *househusbands* – chores workers - and that *Whites* obtain compensating differentials in marriage even if they do not personally discriminate against *Black* individuals.

However, these results can be also explained using bargaining theories - both partners may realize that the remarriage prospects of the *Black* partner are worse than those of the *White* partner, if other people discriminate, and non-racist individuals take advantage of their minority partners' lower threat points. One advantage of a market analysis is that the same theoretical framework also integrates explanations based on selection. Even if individuals do not personally discriminate, the price mechanism establishes that "chores work" performed by *Black* individuals is cheaper given racial (skin colour) discrimination in marriage markets, which could be a factor in some interracial matches.

II. Social Norms, Partnerships and Children

During the past decade, below replacement fertility in most developed countries has drawn the attention of researchers in a variety of social science disciplines. Special focus has been given to the so-called "lowest-low fertility countries" - those countries with fertility persisting well below replacement levels, Kohler, Billari and Ortega [2002]. Among these countries, Spain, Italy and Japan are the leading examples with average total fertility rates of 1.2. Below replacement fertility presents new economic challenges for a society, as it changes the age structure of the population and may require structural adaptations with important implications for welfare (Weil [1999]). These factors have become of special concern for lowest-low fertility countries, in which the sharp decline in fertility, together with a slow increase in female labour force participation, has raised questions about the viability of pay-as-you-go pension systems (Rindfuss, Guzzo and Morgan [2003]).

Most of the research on lowest-low fertility has focused on the number of children in married households. This approach may be partly justified by the rarity of out-of-wedlock fertility, and high marriage rates, in the past (Bettio and Villa [1998]). However, while the decline in marriage has been followed by an increase in cohabitation and out-of-wedlock fertility in most European countries, this has not occurred in lowest-low fertility countries.[1] Substantial declines in marriage in lowest-low fertility countries, together with the fact that these countries have not experienced the increase in out-of-wedlock fertility and cohabitation characteristic of other developed countries, call into question previous fertility studies based solely on marital fertility, and draw new attention to household formation decisions as a

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[1]See Retherford, Ogawa and Matsakura [2001] for a detailed description of the Japanese case, and Rosina and Fabroni [2004] for the Italian case.

contributor to fertility phenomena.

Panel A of Table II.1 shows evidence from the ECHP that partnership formation rates - either marriage or cohabitation - have changed in different ways in different European countries. [2] Although partnership formation rates are lower for younger cohorts of women in all countries, differences in partnership formation rates across countries begin to emerge for cohorts born after 1950. In particular, lowest-low fertility countries such as Italy and Spain have the lowest partnership formation rates for cohorts born after 1950, with 85 and 84 percent of women ever having been in a partnership for the cohort of women born between 1960 and 1970, respectively, as opposed to higher fertility countries such as Denmark and Belgium, with partnership formation rates of 93 and 91 percent for the same cohort, respectively.[3] Panel B in Table II.1 shows completed cohort fertility rates. As with partnerships, completed cohort fertility has declined for all countries, but more so for Southern European countries.[4] Finally, Panel C in Table II.1 shows a positive relationship between completed cohort fertility and partnership rates across European countries. We find a positive relationship between partnership formation rates and fertility rates, which is in line with our hypothesis – i.e., differences in partnership formation rates lead to differences in fertility rates across countries.

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[2] Completed fertility is defined as an index of the average completed family size for cohorts of women. For younger women who have not yet finished their child-bearing cycle, it imputes the last observed rate at a given age. When childbearing postponement is occurring - as in most European countries - this simple approach can understate completed fertility for cohorts that are observed only to their mid-30s. Thus, the correlations between actual fertility and partnership rates could be higher than indicated.

[3] One could argue that the partnership figures for the older cohorts are based on women's experience through middle age, and in contrast, the figures for the youngest cohort are based only on the women's experience through their current age. Thus, we may only say that the differences across countries reflect variations in the timing of marriage, rather than marriage rates per se. However the youngest women in Table II.1 are already 36 years old in 2001, which suggest that, even if these figures only represent delays in marriage, these delays are likely to have an effect on fertility - especially in Mediterranean countries where out-of-wedlock fertility is very rare.

[4] It is precisely this evidence from completed cohort fertility levels that has led demographers to agree that the current lowest-low fertility levels in Southern Europe are not merely a product of a *tempo effect* or postponement in births. See Frejka and Calot [2001] for a complete study of cohort reproductive patterns in low-fertility countries.

Table II.1 - Partnership and Completed Cohort Fertility Rates across Europe [1,2,3]

Cohort	1930-1940		1940-1950		1950-1960		1960-1965	
Age of Women in 2001	71-62		61-52		51-42		41-36	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Panel A: Partnership Formation Rates								
Belgium	0.95	(0.23)	0.97	(0.18)	0.95	(0.22)	0.91	(0.29)
Denmark	0.98	(0.14)	0.96	(0.20)	0.96	(0.21)	0.93	(0.26)
Finland	0.92	(0.27)	0.92	(0.26)	0.93	(0.26)	0.84	(0.37)
France	0.95	(0.22)	0.95	(0.21)	0.92	(0.28)	0.86	(0.34)
Germany	0.95	(0.22)	0.96	(0.20)	0.93	(0.25)	0.85	(0.36)
Greece	0.96	(0.20)	0.96	(0.19)	0.96	(0.20)	0.91	(0.29)
Ireland	0.92	(0.27)	0.93	(0.25)	0.9	(0.31)	0.84	(0.36)
Italy	0.94	(0.23)	0.93	(0.25)	0.94	(0.24)	0.84	(0.37)
Netherlands	0.95	(0.22)	0.97	(0.16)	0.93	(0.26)	0.89	(0.32)
Portugal	0.93	(0.25)	0.96	(0.18)	0.93	(0.25)	0.89	(0.32)
Spain	0.95	(0.22)	0.94	(0.23)	0.91	(0.29)	0.85	(0.36)
United Kingdom	0.95	(0.22)	0.96	(0.19)	0.93	(0.25)	0.88	(0.32)
Average (European Countries)	0.96	(0.22)	0.95	(0.22)	0.93	(0.26)	0.87	(0.34)
Panel B: Completed Cohort Fertility Rates								
Austria	2.3		1.98		1.75		1.64	
Belgium	2.24		1.97		1.84		1.82	
Denmark	2.33		2.08		1.88		1.92	
Finland	2.26		1.92		1.92		1.92	
France	2.54		2.25		2.12		2.06	
Germany	2.1		1.83		1.67		1.56	
Greece	2.1		2.04		1.96		1.8	
Ireland	3.38		3.18		2.61		2.29	
Italy	2.24		2.03		1.75		1.58	
Netherlands	2.46		2.03		1.87		1.8	
Portugal	2.83		2.39		1.98		1.82	
Spain	2.61		2.37		1.88		1.67	
United King-dom	-		-		1.99		1.91	
Average (European Countries)	2.45		2.17		1.94		1.83	
Panel C: Correlation Coefficients	0.32		0.27		0.17		0.05	

Notes: [1] Standard Deviations in brackets [2] Partnership Formation Rates are calculated by the author from the 1994-2001 waves of the ECHP as the proportion of women who report being currently in a partnership or ever having been in a partnership. Results do not significantly change when only the proportion of women who report currently being in a partnership - although partnership rates are significantly lower for older cohorts [3] Completed Fertility Rates are taken from the Council of Europe (2001) and are defined as the average number of children born to a cohort of women up to the end of their childbearing age, where age-specific fertility rates are summed from the cohort's beginning of exposure to risk (at age 15) until the age when all members of the cohort have reached the end of the reproductive period (at age 49).

This Chapter presents a social norms interpretation to explain differences in partnership formation rates across countries, and particularly the dramatic decrease in partnership formation rates in Southern Europe. We argue that more traditional social norms regarding the household division of labour negatively affect a woman's probability of forming a partnership, which may explain why countries with more traditional social norms also have lower partnership formation rates. In this context, increases in female human capital - by raising the opportunity cost of entering a partnership - had a more negative impact on partnership formation rates in Southern Europe, due to the more traditional social norms regarding the household division of labour. Our focus is motivated by time-use studies showing that a substantial amount of non-market work is devoted to home production (Hersch and Stratton [2002]) and the growing evidence that fathers are increasingly involved in childcare (Goldscheider and Kaufman [1996]). In fact, a comparison of high-fertility with low-fertility industrialized countries indicates that men's involvement in household tasks is considerably higher in high-fertility countries. For example, weekly hours devoted to housework by men in Japan are 3.5 versus 13.8 hours by men in the United States (Juster and Stafford [1991]). Similarly, more recent time use studies in Europe reveal that Spanish women devote one more hour to domestic work per day than Swedish women, and that only 70 percent of Spanish and Italian men versus 92 percent of Swedish men ever engage in household activities (Eurostat [2006]).

Incorporating social norms into an economic model of household formation contributes to the recent literature that looks at how social norms - or culture - shape an individual's economic behaviour, such as savings decisions (Carroll and Rhee [1994]), fertility and female labour force participation (Fernandez, Fogli and Olivetti [2006]), and living arrangements (Giuliano [2007]). Social norms are to a large extent enforced through non-market interactions and thus difficult to isolate empirically. This literature attempts to

identify the effects of social norms by looking at the behaviour of immigrants in the United States and finds that, in most cases, immigrants replicate the behaviour of the individuals in their country of origin. This replication of behaviour in a neutral environment with the same institutions, policies, and macroeconomic conditions, suggests that social norms in the country of origin play a role in determining an individual's economic behaviour.[5]

In the absence of experimental data, this Chapter provides two different identification strategies of the effect of social norms on an individual's household formation probability. The first identification strategy comes from the time and cross-country variation of the data. In a similar approach to a difference-in-difference approach, where the treatment is a continuous rather than a discrete variable - the degree of social norms in a given country - we are able to identify the effect of social norms net of other country-specific and time-varying factors. A second identification strategy relies on the panel structure of the data, which allows for the identification of the effect of social norms net of personal unobserved heterogeneity in preferences (Manski [2000]).

We first present a simple partnership formation model to illustrate how social norms on the division of household labour may influence a woman's decision to form a household. Social norms are modelled as a constraint on how potential partners divide the household surplus generated through household production, once the partnership has been formed.[6] The model has two predictions. First, social norms regarding the gender division of labour diminish a woman's gains from entering a household. Thus, a woman living in a country with

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[5] Also related to this literature is the study of social or group effects. In the case of household formation models, Loughram [2002] analyzes the effect of male wage inequality on female's marriage probabilities, and Drewianka [2003] exploits variations in a two-sided mate matching market to identify the externalities associated with spousal search.

[6] It is beyond the scope of this Chapter to look at how social norms are formed and maintained over time. Some authors have argued that the inability of potential partners to credibly commit, before the household is formed, to make transfers of time rather than transfers of private consumption, constrain potential partners to rely on gender roles when making a decision on how to divide the household surplus. At the root of this argument is the non-observability by third parties of partner's time devoted to household production, and the absence of credible threats for certain household production activities (Folbre and Bittman [2004]).

more traditional social norms has, ceteris paribus, a lower probability of forming a partnership. Second, women with the highest opportunity cost are more constrained by a traditional gender division of labour, so that the negative effect of social norms on a woman's probability of entering a partnership is higher for highly educated women.

The empirical analysis uses seven waves and 13 countries from the European Community Household Panel data (1995-2001). The ECHP data is a cross-country dataset containing individual - and household - level information on demographic and economic variables. For each country and year, we construct the average of the female to male ratio of childcare time as a measure of social norms regarding the household division of labour. The empirical findings support the predictions of the model. After controlling for the time and country variations in the data, as well as for permanent individual heterogeneity and other aggregate variables, the results suggest that more traditional social norms regarding the household division of labour negatively affect a woman's probability of forming a partnership. Furthermore, as predicted by the model, social norms have a greater negative effect for highly educated women. To the extent that female education has increased over the years, and that Southern European countries have more traditional social norms, this latter finding may partly explain the dramatic decrease in partnership formation rates in Southern Europe, and, in turn, declining rates of fertility.

The Chapter is organized as follows. Section II.1 presents a stylized model of partnership formation. Section II.2 describes the ECHP data, and presents basic summary statistics. Section II.3 describes our empirical strategy. Section II.4 presents the results. Section II.5 presents some robustness checks, and Section II.6 concludes.

II.1 A Model of Partnership Formation and Social Norms

This Section presents a stylized equilibrium model of partnership formation that focuses on how the allocation of household labour by potential partners may influence a woman's probability of entering a partnership. Although a partial equilibrium analysis may seem unsatisfactory from a theoretical perspective, it does not invalidate the empirical results, which can be understood as the general equilibrium outcome of changes in social norms and union formation probabilities.

We focus on two specific aspects of the gains of forming a partnership: efficiency gains from specialization in household production and the consumption of market public goods.[7] Individual utilities once a partnership – union - has been formed $V^{u,i}$ are given by the sum of the utilities obtained from the consumption of a market public good c^u and a household produced public good z^u, and the disutility from the time spent in the production of the household public good $f(h_i^u)$. The composite consumption good includes market consumption goods that are jointly consumed by the household c^u - such as groceries, housing, child care, etc. - and that can be acquired in the market at a normalized price p=1. Similar to Becker's original marriage market model, a woman's decision to form a household takes place when her individual utility within a partnership $V^{u,i}$ is equal to or greater than her utility if single, $V^{s,i}$.

The household produced good z^u can be understood without loss of generality as a lower bound for the amount of household production that needs to be done in the household. These are the "commodities" in a Beckerian sense, such as a clean house or home-made meals - see Becker [1965]. The household produced good z^u is consumed jointly by both partners

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[7] Other dimensions of forming a partnership, such as risk pooling or consumption smoothing, are left out of the analysis for exposition purposes.

but differs from c^u in that it cannot be purchased in the market. Instead, it is produced using both partners' time in household production such that $z^u = h_m^u + h_f^u$, for $0 \leq h_i^u \leq 1$ and i=m,f.[8]

Each partner derives disutility $f(h_i^u)$ from the time devoted to household production h_i^u, where f(.) is an increasing and convex cost function. We can write an individual's utility within the household as $V_i^u = U(z^u) - f(h_i^u) + c^u$, for i=m,w. Appendix II describes one possible household maximization problem that rationalizes the individual utilities presented here. We can write each partner's time devoted to household production h_i^u as a fraction of the produced output such that $h_m^u = (1-\alpha)z^u$ and $h_f^u = \alpha z^u$ for $0 \leq \alpha \leq 1$, where α is the share of total household labour done by the woman.

Social norms regarding the division of household labour are modelled as a lower bound $\underline{h_f^u}$ that constrain a woman's housework time to be greater or equal to the value dictated by the existing gender roles in the country she lives in, so that $h_f^u \geq \underline{h_f^u}$. More traditional social norms regarding the household division of labour are captured in the model by a higher $\underline{h_f^u}$. In other words, the constraint - if binding - effectively prevents potential partners perfectly contracting for the desired division of household labour once the partnership is formed. The model specification, where the only private goods are the disutility from time devoted to household production, implies that it is not possible to compensate a woman for having a socially constrained partner.

The predictions of the model are twofold. First, a straightforward application of the envelope theorem implies that household utility is decreasing in $\underline{h_f^u}$. It is thus easy to show

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[8] The assumption of perfect substitutability between partners' time in household labour is made for expositional purposes only. The results are robust to more general specifications of the production function, which may include market goods as inputs in the production of the household-produced public good, as well as other forms of substitutability between partners' time.

that a woman's individual utility within the partnership is decreasing in h_f^u as well. Thus, a woman living in a country with more traditional social norms regarding the household division of labour extracts a lower utility from a partnership and has a lower probability of forming a partnership, everything else being constant, than another woman living in a country with a less traditional division of household labour. This prediction may explain the current cross-country differences in partnership rates, arising from the different social norms regarding the household division of labour across countries.

The second prediction of the model is that, given the social constraint imposed by social norms, the utility loss when a partnership is formed is lower, the higher the female wage. That is, those women with the highest opportunity cost have the most to lose when constrained to a traditional division of labour within the household, and are the ones less likely to enter a partnership.[9] To the extent that female education has increased over the years, and that Southern European countries have more traditional social norms, this prediction may partly explain the dramatic decrease in partnership formation rates in Southern Europe.

II.2 The European Community Household Panel (1994-2001)

The data comes from the European Community Household Panel (ECHP). This survey is a standardized multi-purpose annual panel data survey covering the years 1994 to 2001, over 15 countries. The ECHP collects information on basic demographic and socio-economic variables such as labour force participation behaviour, income, health, education and training, housing, poverty and social exclusion, and some other social indicators of life conditions of

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[9] It is easy to show that the constraint is more likely to be binding, the higher the female wage, i.e., there is a wage w_f^u such that if $w_f^u \geq w_f^u$ the constraint becomes binding. Also, given a binding constraint h_f^u, it is easy to see that the utility a woman gets within the household is lower, the higher the woman's wage.

households and individuals.[10] The cross-country nature of the data, its panel structure, and the wealth of information collected in the ECHP make it a perfect candidate for cross-country comparisons within Europe. Particularly important for our analysis is the information regarding the time devoted to childcare within the household.

II.2.1 Sample and Variables

We use a sample of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP. We restrict the sample within this age range because we are interested in the fertility implications of partnership decisions. Our main results follow when we expand the sample to younger and older women - see Section II.5. We drop observations for 1994, as this year does not contain information on the household allocation of childcare time. As is common when using the ECHP, we also exclude from the main analysis observations from Sweden (which is not a panel dataset) and Luxembourg - because of the small sample size. Thus, we restrict the analysis to women living in the following countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Portugal, Spain, the Netherlands and the United Kingdom.

Social norms regarding the household division of labour are captured by the country's $TI_{t,k}$, for each year t and country k. This index is constructed as:

$$TI_{t,k} = \left[\sum_{t,k} \frac{(hw_{i,t,k} - hm_{i,t,k})}{(hw_{i,t,k} + hm_{i,t,k})} \right] * 100 \qquad (II.1)$$

where $hm_{i,t,k}$ denotes the weekly hours devoted to childcare by the man, and $hw_{i,t,k}$ denotes the

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[10] See Peracchi [2002] for a detailed description of the ECHP.

weekly hours devoted to childcare by the woman, in partnership i, year t and country k.[11] Thus, higher values of this index indicate more traditional social norms regarding the household division of labour. Column (1) in Table II.2 shows the average value of the *Traditionality Index* in each country for the relevant sample. Countries are ranked from less to more traditional, with a higher value of the index meaning that, on average, individuals in that particular country hold a more traditional division of labour. Among the most egalitarian countries are Denmark and the Netherlands, whereas Spain and Italy are among the countries with a more traditional division of labour.

The dependent variable is whether a woman has ever been in a partnership. A woman is considered to have been in a partnership if she is either currently married or has ever been married, or if the respondent is currently living with a partner in a cohabiting union. The cross-country relationship between the *Traditionality Index* and partnership rates is negative - with a value of -0.0036. More egalitarian countries such as Denmark and the Netherlands also seem to have a higher proportion of women in partnerships than do other less egalitarian countries, such as Spain or Italy.

Female education has generally been used in the literature as a measure of market human capital and thus as potential female outside opportunity to marriage. We define a dummy for each of the three levels of education in the ECHP.[12] Columns (3), (4), and (5) in Table II.2 show the proportion of women who have low, medium and Univ. Education levels, respectively.

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[11] To construct this index, we use information on childcare time from those couples where at least one member reports devoting time to childcare activities.

[12] These dummies are constructed using the answers to the question "Highest level of general or higher education completed". The answers to these questions take three values that we code as University education level [*Recognized third level education* (ISCED 5-7)], Secondary education level [*Second stage of secondary level education* (ISCED 3)], and Primary education level [*Less than second stage of secondary education* (ISCED 0-2)].

Table II.2 – Summary Statistics [1,2,3]

	Traditionality Index	Partnership Rate	Primary Education	Secondary Education	University Education	Age
Denmark	29.90	94.49	19.53	32.59	47.88	37.47
	(0.06)	(0.36)	(0.40)	(0.47)	(0.50)	(0.08)
Finland	41.20	88.11	14.67	37.08	48.25	37.72
	(0.08)	(0.62)	(0.35)	(0.48)	(0.50)	(0.07)
The Netherlands	51.64	90.96	21.61	59.47	18.92	37.20
	(0.03)	(0.32)	(0.41)	(0.49)	(0.39)	(0.05)
The United Kingdom	55.54	89.55	21.16	60.96	17.98	37.27
	(0.17)	(0.37)	(0.40)	(0.49)	(0.37)	(0.05)
Germany	58.27	87.82	15.33	63.32	21.35	37.53
	(0.14)	(0.57)	(0.36)	(0.48)	(0.41)	(0.06)
Belgium	59.70	92.07	27.56	38.14	34.30	37.24
	(0.02)	(0.39)	(0.45)	(0.46)	(0.48)	(0.07)
France	61.88	88.44	31.03	42.68	26.29	37.49
	(0.02)	(0.32)	(0.46)	(0.49)	(0.43)	(0.05)
Austria	64.52	86.85	27.74	62.91	9.35	36.92
	(0.13)	(0.60)	(0.45)	(0.48)	(0.29)	(0.07)
Italy	65.65	86.57	48.67	41.55	9.78	37.15
	(0.02)	(0.34)	(0.50)	(0.49)	(0.30)	(0.04)
Ireland	69.93	84.58	42.85	43.76	13.39	37.25
	(0.11)	(0.71)	(0.50)	(0.50)	(0.34)	(0.08)
Spain	73.66	85.06	58.84	18.65	22.51	37.21
	(0.01)	(0.50)	(0.49)	(0.39)	(0.42)	(0.05)
Portugal	78.26	90.00	78.95	12.13	8.92	37.27
	(0.04)	(0.46)	(0.41)	(0.33)	(0.28)	(0.07)
Greece	79.01	92.63	44.55	28.75	26.70	37.42
	(0.02)	(0.32)	(0.50)	(0.45)	(0.44)	(0.05)
European Countries	64.00	88.61	41.83	34.79	22.97	37.31
	(0.05)	(0.13)	(0.18)	(0.17)	(0.15)	(0.02)

Notes: [1] Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] Countries are ordered from less to more traditional social norms regarding the household division of labour.

These summary statistics show important cross-country differences in female educational attainment. The countries with highest proportion of low educated women in the sample are Portugal (78.95) and Spain (58.84) while the lowest proportion of low educated women corresponds to Finland (14.67) and Germany (15.33). The highest proportion of high educated women corresponds to Finland (48.25) and Denmark (47.88) while the lowest rates correspond to Portugal (8.92) and Austria (9.35). The cross-country relationship between the *Traditionality Index* and each of the female education levels is 0.18 for the low educated, 0.06 for the medium educated, and -0.15 for the university level of education. These results show

that controlling for education level in our analysis is important, as more egalitarian countries such as Denmark and Finland also seem to have a lower proportion of low educated women than do other less egalitarian countries such as Spain or Italy.

Although informative, it is difficult to make any causal inferences on the relationship between social norms toward the household division of labour and household formation probabilities from these raw cross-country averages. Section II.5 takes into account country, year, and individual heterogeneity to shed some light on the effect of these variables on a woman's household formation probability.

II.3 Empirical Strategy

In order to explain the current cross-country differences in partnership formation rates, related to the different social norms across countries, we begin by estimating a baseline linear probability model of a woman's probability of forming a household as a function of observable individual characteristics and a country's social norms regarding the household division of labour.[13] The dependent variable in Equation (II.2) is the probability that a woman has ever been in a partnership and takes value "1" if a woman has ever formed a household, and zero otherwise:

$$p(y = 1 | x)_{i,t,k} = X_{i,t,k} \beta_1 + TI_{t,k} \beta_2 + \varepsilon_{i,k} \qquad (II.2)$$

where $X_{i,t,k}$ is a vector of individual observable characteristics - education, age, and gender. Social norms regarding the household division of labour in year t and country k are captured by the *Traditionality Index $TI_{t,k}$*, where higher values of $TI_{t,k}$ represent more traditional social

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[13] The fact that the data allows the use of individual fixed effects makes the linear probability model particularly attractive with respect to other models such as the conditional logit model. Although the linear probability model may not provide a very good estimate of the partial effects at extreme values of the independent variables, it still produces a consistent and even unbiased estimator of the partial effects on the response probability averaged across the distribution of the independent variable.

norms regarding the household division of labour. The error term captures, among other things, the unobserved tendency to form a household and is assumed to follow a normal distribution with variance σ_k, which is independently distributed across countries but correlated within countries k=1...13.[14] The coefficient of interest is β_2. A negative β_2 means that more traditional social norms regarding the household division of labour are correlated with a lower probability of forming a household, which would explain why countries that have on average a more traditional division of labour, may also have lower partnership formation rates.[15]

One of the potential identification problems of the effect of social norms on a woman's partnership formation probability, is that any permanent differences across countries over the sample period, or any changes over time, may lead to a biased coefficient on social norms if these changes are correlated with a woman's partnership formation probability, as well as with social norms regarding the household division of labour. In the absence of experimental data, this Chapter provides two different identification strategies of the effect of social norms on an individual's household formation probability. The first identification strategy comes from the time and cross-country variations of the data. In a similar approach to a difference in difference approach, where the treatment is a continuous rather than a discrete variable - the degree of social norms in a given country - we are able to identify the effect of social norms net of other time and country fixed effects. Equation (II.3) thus estimates the same specification as in Equation (II.2) controlling for country and year fixed effects, where I_t and I_k are the country and year dummies, respectively:

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[14] See Moulton [1990] for the need to consider correlated disturbances when estimating the effects of aggregate variables on micro units.

[15] Choosing a relatively large cell size – i.e., the respondent's country - minimizes measurement error in the estimates of partnership-market specific social norms. Given that mobility across countries is relatively small, choosing a large cell size also avoids the self-selection problem that is present in most group studies.

$$p(y = 1 \| x)_{i,t,k} = X_{i,t,k}\beta_1 + TI_{t,k}\beta_2 + I_t\beta_3 + I_k\beta_4 + \varepsilon_{i,k} \qquad \text{(II.3)}$$

A second identification strategy relies on the panel structure of the data, which allows for the identification of the effect of social norms net of unobserved individual heterogeneity in preferences (Manski [2000]). This is particularly important in this context, since there is a reason to believe that social norms and individual preferences regarding the household division of labour may be positively correlated. If this is the case, the *Traditionality Index* coefficient would be capturing the effect of individual preferences regarding the household division of labour on a woman's partnership formation probability, rather than the effect of social norms as a constraint, which is the way that it has been characterized here. We thus estimate Equation (II.2) with individual fixed effects.[16] Unfortunately, the ECHP does not contain information on individual preferences regarding the household division of labour. Thus, although using individual fixed effects allows us to control for individual permanent unobserved heterogeneity, which may be correlated to social norms, limitations in the data do not allow us to control for changing individual heterogeneity, such as changing individual preferences toward the household division of labour, which may be correlated to social norms regarding the household allocation of labour.[17]

We test the second prediction of the model, i.e. that the higher the level of education a woman has, the more negative the effect of social norms regarding the household division of labour on a woman's partnership formation probability, by estimating Equation (II.4), where the *Traditionality Index* is interacted with a woman's education level, $Edu_{i,t,k}$:

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[16] One could argue that individual's preferences are to some extent the result of social norms. In this case, the *Traditionality Index* coefficient reported in the fixed effects specification would be a lower bound of the total effect of social norms.

[17] Hamermesh [2004] offers an interesting discussion of what economists can learn from the use of subjective outcomes as inputs, to explain economic behaviour. See Sevilla-Sanz [2010] for an example of how to use individual reported attitudes to isolate the effect of social norms on an individual's partnership formation probability.

$$p(y=1|x)_{i,t,k} = X_{i,t,k}\beta_1 + TI_{t,k}\beta_2 + I_t\beta_3 + I_k\beta_4 + TI_{t,k}*Edu_{i,t,k}\beta_5 + \varepsilon_{i,k} \qquad \text{(II.4)}$$

If the way we have modelled social norms is correct, we would expect the coefficient on the interaction β_5 to be negative. Thus, to the extent that female education has increased over the years, and that Southern European countries have more traditional social norms, this result may partly explain the dramatic decrease in partnership formation rates in Southern Europe.

II.4 Results

Column (1) in Table II.3 shows the results from estimating a pooled Ordinary Least Squares regression as specified in Equation (II.2) of a woman's probability of entering a partnership. The coefficient on the *Traditionality Index* is negative and significant, which suggests that the relationship observed at the cross-country level in Table II.2 also exists at the individual level. Its size is 7.4, meaning that an increase of 100 in the *Traditionality Index* is associated with a 7.4 percentage points lower probability of forming a household. Thus, a woman living in Denmark, with the lowest *Traditionality Index* of 29.90, has a probability 3.7 percentage points higher of entering a partnership, than a woman living in Greece, with the highest *Traditionality Index* of 79.01.

As mentioned in Section II., the *Traditionality Index* coefficient presented in Column (1) in Table II.3 cannot be interpreted causally. The specifications in Columns (2) and (3) control separately for survey-year and country fixed effects that may be correlated with a country's *Traditionality Index* by adding year I_t and country dummies I_k in the right hand side of Equation (II.2). Introducing a survey-year fixed effect in Equation (II.2) does not significantly change the *Traditionality Index* coefficient. Column (3) in Table II.3 shows however that the coefficient on the *Traditionality Index* becomes positive and significant

when adding country dummies to the baseline regression specification in Equation (II.2). This specification, however, does not have a time variation in it. For a complete picture, we need to look at Column (4).

Table II.3 - Social Norms and the Probability of being in a Partnership [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	−7.445***	−8.465***	8.376***	−0.708	−0.195
	(0.964)	(0.983)	(3.178)	(3.504)	(0.753)
Age	0.065***	0.065***	0.066***	0.066***	0.069***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.013)
Age Squared	−0.076***	−0.073***	−0.076***	−0.073***	−0.022***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.003)
Secondary Education	−0.011***	−0.014***	−0.011***	−0.012***	0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.001)
University Education	−0.056***	−0.057***	−0.061***	−0.061***	0.003
	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)
Constant	−0.527***	−0.553***	−0.606***	−0.595***	−1.543***
	(0.101)	(0.101)	(0.101)	(0.101)	(0.531)
Cohort dummies	Yes	Yes	Yes	Yes	No
Country dummies	No	No	Yes	Yes	No
Year dummies	No	Yes	No	Yes	No
Observations	120,947	120,947	120,947	120,947	121,084
R-squared	0.031	0.033	0.038	0.039	0.007

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

Column (4) in Table II.3 is the preferred specification so far and presents the results from estimating Equation (II.3), which includes both year and country dummies, to account for both other permanent differences across countries over the survey period, and changing factors over time in all countries. The size of the *Traditionality Index* coefficient is much smaller than in the previous specifications, and its magnitude is reduced by a factor of 10 with respect to Specification (II.2). The coefficient is also no longer statistically significant. This decrease in the size of the coefficient suggests that omitting year and country fixed effects results in an overestimation of the effect of social norms regarding the household division of labour on an individual's household formation probability. In particular, a 100 increase in the *Traditionality Index* leads to a 0.7 percentage points decrease in the probability of entering a

household or a 0.37 percentage point difference between a woman living in Denmark and a woman living in Greece.

Finally, Column (5) in Table II.3 estimates Equation (II.2) using a fixed effects estimator that controls for individual permanent unobserved heterogeneity. The coefficient on the *Traditionality Index* is 0.19 and is not statistically significant. Thus, not controlling for individual unobserved heterogeneity leads to an overestimation of the effect of social norms regarding the household division of labour on a woman's probability of forming a household and that, in fact, individual preferences and social norms regarding the household division of labour are positively correlated.

The insignificant coefficient on social norms regarding the household division of labour on a woman's probability of forming a partnership is not all that surprising. First, modelling social norms as applying to entire countries does avert the selection problem mentioned in Section II.2, but it may also introduce measurement error if the actual circle of influence is much smaller and varies meaningfully within countries. In the presence of such measurement error the coefficient on the *Traditionality Index* would be biased toward zero, so it is - in that respect - still relevant that the estimates are statistically significant. Second, the inclusion of country - or especially individual - fixed effects in a difference-in-differences framework basically compares year-to-year changes in ever-married rates within a country with changes at the same time in that country's *Traditionality Index*. Identification thus comes from relatively high-frequency changes in those variables. However, social norms - and in particular social norms regarding the gender division of labour - are sticky over time and hard to change, so that including country and individual fixed effects may actually strip away exactly the portion of the behaviour that we want to explain.

Another explanation as to why the coefficient on the *Traditionality Index* may be differential effects of social norms on a woman's probability to form a partnership. One

implication of the model presented in Section II.1 is that social norms differentially affect a woman's probability of forming a household depending on her level of education. In particular, social norms regarding the division of household labour are more likely to reduce a woman's probability of entering a partnership, the higher the woman's education level. To the extent that there is indeed a differential effect of social norms on a woman's probability of forming a partnership, by education levels, the estimates presented in Table II.3 may hide the true relationship between social norms and a woman's household formation probability, since they are averages across education levels.

We explore whether social norms have a different effect on a woman's probability of entering a partnership by education level in Table II.4, which presents the same specifications as in Table II.3, where we interact the *Traditionality Index* with a woman's level of education to see whether there is a differential effect of social norms by education levels. The prediction in the model is strongly confirmed. Column (5) in Table II.4 shows that, for women with university level of education, the coefficient is negative and highly statistically significant. Its magnitude increases to 2.5 with respect to the specification presented in Column (5) in Table II.3. The coefficient on the *Traditionality Index* is very similar for women with low and medium levels of education. Although positive and significant, this coefficient is much lower than for women with university level of education - 0.4 percentage points.

The coefficients on the rest of the variables are as expected. The relationship between age and the probability of having ever been in a partnership is an inverted U-shape and does not significantly change across specifications. One additional year of age increases the probability to have ever been in a partnership by 6.92 percentage points, with a peak at 33 years of age, when the probability of having ever been in a partnership begins to decrease with each year of age. The level of education is negatively associated with the probability of having ever been in a partnership in most specifications, although the coefficients are small

and become positive in the fixed effects specifications - Column (5). These results suggest that part of the observed association between level of education and the probability of having ever been in a partnership comes from individual unobserved heterogeneity, and highlights the need to account for these unobserved factors.

Table II.4 – Social Norms and the Probability of being in a Partnership, Education Interactions [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	−16.171***	−17.255***	−1.542	−10.838***	−2.550***
	(1.410)	(1.424)	(3.326)	(3.658)	(0.884)
Traditionality Index x Primary Education	11.877***	12.030***	12.333***	12.402***	2.992***
	(1.264)	(1.263)	(1.285)	(1.285)	(0.601)
Traditionality Index x Secondary Education	11.511***	11.516***	12.371***	12.524***	2.953***
	(1.555)	(1.555)	(1.546)	(1.547)	(0.548)
Age	0.065***	0.065***	0.065***	0.065***	0.069***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.013)
Age Squared	−0.075***	−0.072***	−0.076***	−0.073***	−0.022***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.003)
Sec. Education	−0.009	−0.010	−0.011	−0.012	0.001
	(0.009)	(0.009)	(0.009)	(0.009)	(0.003)
Univ. Education	0.009	0.008	0.005	0.006	0.016***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.004)
Constant	−0.532***	−0.559***	−0.611***	−0.598***	−1.539***
	(0.101)	(0.1001)	(0.102)	(0.101)	(0.530)
Cohort dummies	No	No	No	No	No
Country dummies	No	No	No	No	No
Year dummies	No	No	No	No	No
Observations	120,947	120,947	120,947	120,947	121,084
R-Squared	0.033	0.035	0.040	0.041	0.008

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

II.5 Robustness Checks

The estimates presented in Table II.4 yield an unbiased estimate of the social norms coefficient β_2 so long as the country fixed effects do not vary over the survey period and the year fixed effect does not vary across countries. There may be, however, changing factors at the country level that are correlated with both an individual's probability of entering a household, and a country's social norms toward the household division of labour. These

country-year effects are thus not controlled for by either the year or the country fixed effects, and omitting them may bias the Traditionality Index coefficient β_2. Among these country-specific variables are family policies, and labour market and marriage market conditions. Introducing these country-year variables in the analysis may allow us to differentiate whether the *Traditionality Index* coefficient captures the effect of social norms toward the division of household labour on an individual's household formation probability, or whether this coefficient is simply capturing the effect of these country-specific variables.

As is common in the marriage market literature, we control for the Sex Ratio in each country and year, defined as the number of women per 100 men, to capture any effect of the conditions of the household market on an individual's household formation probability.[18] The underlying idea is that if the Sex Ratio is lower, women are more highly valued in the marriage market and they do not need to compensate their partners for their undesired characteristics, so that they do not need to devote so much time to *Work-In-Marriage* - Grossbard-Shechtman [1984]. As a result, the Sex Ratio would have a positive correlation with a woman's probability of forming a household. To the extent that the Sex Ratio in a country is correlated with social norms regarding the household division of labour, we expect the *Traditionality Index* coefficient to be biased and the direction of this bias will depend on the sign of this correlation.

We also include the Female Activity Rate, and the percentage spent on family policies out of total public expenditure. These variables should control for female labour market and public support conditions that may affect the costs and benefits a woman faces when forming a household. For example, there is some evidence that welfare benefits have a positive effect on the prevalence of single motherhood and thus a negative effect on a woman's probability

of forming a household (Gonzalez [2007]). As before, to the extent that these variables are correlated with social norms regarding the household division of labour, we expect the *Traditionality Index* coefficient to be biased.

Table II.5 - Summary Statistics of Country Varying Factors [1,2,3]

	Sex Ratio	Percentage Spent on Family Policies	Female Activity Rate
Denmark	102.47	12.80	84.28
Finland	105.12	12.56	84.64
The Netherlands	102.20	4.49	73.22
The United Kingdom	105.49	8.13	75.95
Germany	105.21	9.76	76.28
Belgium	104.53	8.90	74.59
France	105.84	9.84	79.19
Austria	107.08	10.47	77.33
Italy	106.39	3.61	59.13
Ireland	101.33	13.19	62.83
Spain	104.21	2.39	62.50
Portugal	107.41	5.26	78.40
Greece	101.96	7.98	62.26
European Countries	104.79	7.50	71.62

Notes: [1] The Sex Ratio is defined as the number of women per 100 men, Percentage spent in Family Policies refer to the percentage spent on family policies out of total public expenditure [2] Source for these variables is Eurostat [2007] [3] Countries are ordered from less to more traditional social norms regarding the household division of labour.

Table II.5 shows the summary statistics of these aggregate variables by country. As in Table II.2, countries in Table II.5 are ordered from least to most traditional, according to the *Traditionality Index* constructed in Section II.2. Column (1) shows the Sex Ratio, which varies from 101.33 in Ireland to 107.41 in Portugal, and has a positive correlation with the egalitarian index of 0.1481, meaning that more egalitarian countries have a lower Sex Ratio than less egalitarian countries. Column (2) in Table II.5 shows the percentage of public expenditure spent on family policies, which varies from 13.19 and 12.80 in Ireland and Denmark to 2.39 and 3.61 in Spain and Italy. The cross-country correlation between the percentage spent on family policies out of total public expenditure and the Traditionality Index is -0.4072. Column (3) in Table II.5 shows the Female Activity Rate, varying from

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[18] Grossbard and Amuedo-Dorantes [2007] analyze the effect of sex ratios on married women's labour force participation. In their model, more favourable sex ratios for women increase the gains from marriage and thus

84.64 in Finland to 59.13 in Italy. The correlation between the egalitarian index and the Female Activity Rate is -0.5207. These last two negative correlations indicate that countries with less traditional social norms regarding the household division of labour also have a higher percentage of public expenditure on family policies, as well as a higher Female Activity Rate.

To explore the potential bias in the *Traditionality Index* coefficient arising from the omission of these country-year variables, Columns (2) to (4) in Table II.6 present the results from estimating Equation (II.4) by first introducing these variables one by one. Results are compared to those in Column (1), which presents the results from estimating the effect of the *Traditionality Index* by education levels, controlling for year and country dummies, and permanent unobserved heterogeneity as in Column (5) in Table II.4. The coefficient on a country's Sex Ratio is 0.005, which indicates that a one standard deviation increase, which corresponds to an increase of 1.87 in the Sex Ratio, is associated with a 0.93 percentage points increase in a woman's probability of forming a household. The coefficient on the Female Labour Force Participation is negative and significant, although the size of this coefficient is very small. This negative coefficient suggests that women living in countries where Female Labour Force Participation is high have a lower probability of forming a household. This result is somewhat contradictory to the positive cross-country correlation between fertility and female participation found since the mid nineteen-eighties (Adsera [2004]) and some evidence that women living in countries with a higher female participation experience, have on average, faster transitions to a first birth (Adsera [2005]). The coefficient on the percentage spent on family policies is positive, although its magnitude is very small and is not significant.

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make it less likely for any woman to participate in the labour force.

Table II.6 - Social Norms and the Probability of being in a Partnership, Education Interactions Controlling for Country Varying Factors [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	–2.550***	–2.085**	–2.862***	–2.555***	–2.403**
	(0.884)	(0.925)	(0.916)	(0.885)	(0.950)
Traditionality Index x Primary Education	2.992***	2.964***	3.006***	2.991***	2.978***
	(0.601)	(0.601)	(0.601)	(0.601)	(0.601)
Traditionality Index x Secondary Education	2.953***	2.991***	2.939***	2.954***	2.977***
	(0.548)	(0.549)	(0.548)	(0.548)	(0.549)
Age	0.069***	0.069***	0.069***	0.069***	0.069***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Age Squared	–0.022***	–0.022***	–0.022***	–0.022***	–0.022***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Sec. Education	0.001	0.001	0.002	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Univ. Education	0.017***	0.015***	0.016***	0.016***	0.015***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Activity rate	-	–0.001**	-	-	–0.001**
	-	(0.001)	-	-	(0.001)
Sex ratio	-	-	0.004	-	0.005*
	-	-	(0.003)	-	(0.003)
Porc. Help	-	-	-	0.001	-
	-	-	-	(0.001)	-
Constant	–1.539***	–1.490***	–1.998***	–1.540***	–2.006***
	(0.530)	(0.531)	(0.609)	(0.530)	(0.609)
Cohort dummies	No	No	No	No	No
Country dummies	No	No	No	No	No
Year dummies	No	No	No	No	No
Observations	121,084	121,084	121,084	121,084	121,084
R-Squared	0.008	0.008	0.008	0.008	0.008

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

All in all, including these variables as controls does not seem to change the size or significance of the egalitarian index coefficient, which remains at values very similar to the baseline specification presented in Column (1) in Table II.6. For completeness, Column (5) in Table II.6 presents the results from estimating Equation (II.4) controlling for the two country-level variables whose coefficients are significant, the Sex Ratio and the Female Labour Force Participation in a country. As expected from the previous results, the *Traditionality Index* coefficient remains unchanged.

II.5.1 Other Robustness Checks

Table II.7 shows some robustness checks of the effect of social norms on a woman's probability of forming a household.[19] The columns in Table II.7 show the *Traditionality Index* coefficient from estimating the same specifications as in Table II.4. Panel A in Table II.7 uses time trend rather than year dummies as regressors. Second, the previous results include all adult women in the ECHP, even those who married decades earlier. Panels B and C in Table II.7 show results for a sample of women between 30 and 50, and between 25 and 50 years of age, respectively. Restricting the sample to younger women provides reassurance that respondents' marital status has some relationship to current marriage market conditions. Panel D in table II.7 uses a *Traditionality Index* computed using a random sample of couples, rather than all couples with children, for each year and country, to avoid endogeneity problems. In particular, because of the way the *Traditionality Index* is constructed it may be correlated with unobserved factors that might affect marriage rates. For instance, it is not implausible that fathers might provide relatively more childcare in households with more children. Even apart from whatever concerns they may have about social norms, it could happen because multiple children may require separate attention at the same time. If so, the proposed *Traditionality Index* would be negatively correlated with fertility, and presumably marriage, for reasons that do not necessarily have anything to do with social norms. To account for this, we randomly select seventy percent of all the couples where at least one of the members reports devoting time to childcare to calculate the *Traditionality Index*. Finally, Panel E in table II.7 introduces self-reported health and labour status as controls. Results in all the above specifications are very similar to the estimates shown in the main specification presented in Table II.4.

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[19] Results of regressions can be found in Appendix II

Table II.7 – Probability of being in a Partnership: Other Robustness Checks [1,2,3,4,5]

	(1)	(2)	(3)	(4)	(5)
Panel A: Time trend instead of time dummies					
Traditionality Index	−16.171***	−17.216***	−1.542	−10.992***	−2.343***
	(1.410)	(1.422)	(3.326)	(3.518)	(0.855)
Traditionality Index x Primary Education	11.877***	11.999***	12.333***	12.366***	2.900***
	(1.264)	(1.262)	(1.285)	(1.284)	(0.598)
Traditionality Index x Secondary Education	11.511***	11.491***	12.371***	12.489***	2.885***
	(1.555)	(1.554)	(1.546)	(1.546)	(0.546)
Panel B: Sample of women between 30 and 50 years of age					
Traditionality Index	−14.746***	−15.514***	−3.462	−9.319***	−1.674**
	(1.185)	(1.197)	(2.875)	(3.132)	(0.712)
Traditionality Index x Primary Education	11.030***	11.213***	11.305***	11.421***	2.097***
	(1.054)	(1.054)	(1.071)	(1.071)	(0.475)
Traditionality Index x Secondary Education	10.536***	10.556***	11.419***	11.539***	2.153***
	(1.322)	(1.323)	(1.317)	(1.318)	(0.444)
Panel C: Sample of women between 25 and 50 years of age					
Traditionality Index	−28.178***	−29.223***	−4.327	−11.859***	−1.513*
	(1.138)	(1.145)	(2.900)	(3.128)	(0.823)
Traditionality Index x Primary Education	16.536***	16.773***	18.167***	18.320***	2.469***
	(1.025)	(1.025)	(1.040)	(1.041)	(0.563)
Traditionality Index x Secondary Education	9.819***	9.837***	10.770***	10.916***	1.779***
	(1.280)	(1.281)	(1.282)	(1.283)	(0.520)
Panel D: Traditionality Index using a random sample					
Traditionality Index	−15.818***	−16.907***	−4.479	−12.707***	−2.823***
	(1.394)	(1.408)	(3.077)	(3.354)	(0.799)
Traditionality Index x Primary Education	11.901***	12.035***	12.471***	12.521***	2.922***
	(1.254)	(1.253)	(1.277)	(1.277)	(0.593)
Traditionality Index x Secondary Education	11.436***	11.484***	12.326***	12.514***	2.943***
	(1.542)	(1.541)	(1.532)	(1.533)	(0.543)
Panel E: Self-reported health and labour status					
Traditionality Index	−17.155***	−17.997***	−2.686	−10.366***	−2.711***
	(1.476)	(1.494)	(3.399)	(3.732)	(0.940)
Traditionality Index x Primary Education	11.835***	11.825***	13.056***	13.174***	3.083***
	(1.632)	(1.632)	(1.613)	(1.616)	(0.617)
Traditionality Index x Secondary Education	13.360***	13.436***	11.482***	11.514***	3.246***
	(1.356)	(1.35)	(1.380)	(1.380)	(0.683)

Notes: Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] Self-reported health status is valued with the question "how is your health in general", with the following responses: Very good (1), Good (2), Fair (3), Poor (4), Very poor (5). Labour status variables indicate if the woman is working (1) or not (0), is working full-time (1) or not (0), and is self-employed (1) or not (0) [5] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

II.6 Conclusion

The study of below-replacement fertility that is characteristic of industrialized countries has traditionally overlooked household formation processes. However, cross-country differences in household formation rates are significant. Both declines in marriage rates and increases in cohabitation rates have followed very different trends across the developed world. In particular, the so-called lowest-low fertility countries, like Italy, Japan, and Spain, have experienced a decline in marriage rates that has not been accompanied by increases in cohabitation - and out-of-wedlock fertility - rates characteristic of other developed countries. It thus becomes increasingly important to look at household formation processes for the study of fertility.

This Chapter complements conventional economic analysis and presents a social norms interpretation to explain cross-country differences in partnership formation rates, and particularly the dramatic decrease in partnership formation rates in Southern Europe. We argue that increases in female human capital - by raising the opportunity cost of entering a partnership - have had a differential impact on partnership formation rates in Northern and Southern Europe, due to the different social norms regarding the household division of labour.

Social norms are modelled as a constraint on the allocation of household labour, which may diminish the gains to enter a partnership. Thus, a woman living in a country with a more traditional division of household labour has, ceteris paribus, a lower probability of forming a partnership. Furthermore, the social constraint is more likely to bind for highly educated women. To the extent that female education has increased over the years, and that Southern European countries have more traditional social norms, this latter prediction may partly explain the dramatic decrease in partnership formation rates in Southern Europe.

The empirical findings support the predictions of the model. After controlling for the time and country variations in the data, as well as for permanent individual heterogeneity and other aggregate variables at the country level, the results suggest that more traditional social norms regarding the household division of labour negatively affect a woman's probability of forming a partnership and that the effect social norms have is especially negative for highly educated women.

It is beyond the scope of this Chapter to look at how social norms are formed and maintained over time. Understanding these processes, however, could provide the theoretical and empirical foundations for designing work and family policies - for example, policies geared toward solving imperfect commitment mechanisms within the household, that may constrain the allocation of household time to what is prescribed by social norms. We leave this issue for further research.

II.7 Appendix

AP II.A The Household Maximization Problem

The household's utility is defined as the sum of individual utilities within the household, such that $V^u = U(z^u) - \gamma_m f(h_m^u) - \gamma_f f(h_f^u) + c^u$. The household's maximization problem is given by:

$$\underset{c_i, h_i}{Max}\, U(z^u) - \gamma_m f(h_m^u) - \gamma_f f(h_f^u) + c^u \tag{II.5}$$

s.t.

$$z^u \geq h_m^u + h_f^u \tag{II.6}$$

$$c^u = \sum (1 - h_i^u) w_i \tag{II.7}$$

$$0 \le h_i^u \le 1 \text{ for i=f,m} \tag{II.8}$$

$$c^u \ge 0 \text{ for i=f,m} \tag{II.9}$$

where w_m and w_f are a man's and woman's wages respectively. It is easy to see that at the optimum the household consumes all the joint disposable income, and produces the needed amount of household production. The amount of time that each partner devotes to household production h_i^u is given by the first order conditions $h_i^u : -w_i + U'(z^u) - f'(h_i^u) = 0$, for i=m,f. As usual, if w_m is greater or equal than w_f, the male partner will devote less time to household production for a sufficiently low γ_m. Under the assumption of interior solution, the second order conditions $h_i^u : 2U''(c^u)w_i^2 + 2U''(z^u) - f''(h_i^u) \le 0$ are satisfied for i=m,f.

For expositional purposes, we assume that the only private goods are essentially the disutility of time devoted to household production, and subtract from examining the internal distribution of consumption within the household. We are thus implicitly assuming a unitary model of household decision-making. The literature has largely recognized that households behave in a much more complex way (e.g., Lundberg and Pollak [1996]). However, if we take the traditional assumption that the household maximizes in a two-step process, where hours of household labour and the amount of the commodities to be produced are determined independent of the sharing rule, then the basic predictions of the model do not change under a more complex household decision-making process.

The decision for a single individual is straightforward. He/she maximizes his/her utility $V_i^s = U(z^s) - f(h_i^s) + c_i^s$ for i=m,f with respect to the market good c_i^s, the produced good z^s, and the amount of time spent in household production h_i^s. Without loss of generality, we assume that the amount of household work that needs to be done in the single household is less

than that in the married household, so that $z^s < z^u$. The solution to this problem is straight-forward and given by $h_i^{*s} = z^{*s}$ and $c_i^{*s} = (1 - z^{*s} w_i)$.

AP II.B Full Results for Regressions in Table II.7

Table II A1 – Social Norms and the Probability of being in a Partnership, Time Trend [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	-16.1707***	-17.2156***	1.5418	-10.9916***	-2.3431***
	(1.4096)	(1.4221)	(3.3255)	(3.5181)	(0.8553)
Traditionality Index x Primary Education	11.8774***	11.9991***	12.3330***	12.3658***	2.8996***
	(1.2635)	(1.2620)	(1.2854)	(1.2844)	(0.5981)
Traditionality Index x Secondary Education	11.5110***	11.4912***	12.3713***	12.4887***	2.8847***
	(1.5549)	(1.5540)	(1.5460)	(1.5462)	(0.5459)
Age	0.0647***	0.0647***	0.0650***	0.0649***	0.0694***
	(0.0054)	(0.0053)	(0.0053)	(0.0053)	(0.0132)
Age Squared	-0.0754***	-0.0722***	-0.0755***	-0.0728***	-0.0218***
	(0.0070)	(0.0069)	(0.0069)	(0.0069)	(0.0025)
Secondary Education	0.0086	0.0098	0.0107	0.0122	0.0013
	(0.0091)	(0.0091)	(0.0093)	(0.0093)	(0.0031)
University Education	0.0086	0.0083	0.0054	0.0054	0.0153***
	(0.0071)	(0.0071)	(0.0073)	(0.0073)	(0.0038)
Constant	-0.5322***	-0.5060***	-0.6110***	-0.5460***	-1.1916***
	(0.1008)	(0.1005)	(0.1016)	(0.1013)	(0.4395)
Cohort dummies	Yes	Yes	Yes	Yes	No
Country dummies	No	No	Yes	Yes	No
Time Trend	No	Yes	No	Yes	Yes
Observations	120,947	120,947	120,947	120,947	121,084
R-Squared	0.033	0.035	0.04	0.041	0.008

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

Table II A2 – Social Norms and the Probability of being in a Partnership, Women 30-50 [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	-14.7460***	-15.5136***	3.462	-9.3194***	-1.6743**
	(1.1851)	(1.1970)	(2.8745)	(3.1315)	(0.7118)
Traditionality Index x Primary Education	11.0295***	11.2125***	11.3047***	11.4206***	2.0967***
	(1.0538)	(1.0544)	(1.0706)	(1.0714)	(0.4750)
Traditionality Index x Secondary Education	10.5358***	10.5564***	11.4192***	11.5393***	2.1529***
	(1.3224)	(1.3225)	(1.3171)	(1.3183)	(0.4442)
Age	0.0533***	0.0539***	0.0535***	0.0540***	0.0712***
	(0.0034)	(0.0034)	(0.0034)	(0.0034)	(0.0124)
Age Squared	-0.0596***	-0.0583***	-0.0596***	-0.0586***	-0.0152***
	(0.0041)	(0.0041)	(0.0041)	(0.0041)	(0.0014)
Secondary Education	0.0085	0.0089	0.0115	0.0122	0.0007
	(0.0074)	(0.0074)	(0.0076)	(0.0076)	(0.0024)
University Education	0.0072	0.0075	0.0042	0.0047	0.0112***
	(0.0059)	(0.0059)	(0.0060)	(0.0060)	(0.0031)
Constant	-0.3381***	-0.3674***	-0.4007***	-0.4059***	-1.8573***
	(0.0690)	(0.0692)	(0.0695)	(0.0695)	(0.5324)
Cohort dummies	Yes	Yes	Yes	Yes	No
Country dummies	No	No	Yes	Yes	No
Year Dummies	No	Yes	No	Yes	No
Observations	157032	157032	157032	157032	157209
R-Squared	0.035	0.036	0.041	0.042	0.008

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 50 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

Table II A3 – Social Norms and the Probability of being in a Partnership, Women 25-50 [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	-28.1775***	-29.2232***	4.3268	-11.8587***	-1.5128*
	(1.1382)	(1.1448)	(2.9001)	(3.1279)	(0.8234)
Traditionality Index x Primary Education	16.5362***	16.7734***	18.1673***	18.3198***	2.4693***
	(1.0249)	(1.0254)	(1.0395)	(1.0407)	(0.5625)
Traditionality Index x Secondary Education	9.8193***	9.8367***	10.7694***	10.9164***	1.7787***
	(1.2803)	(1.2811)	(1.2822)	(1.2834)	(0.5195)
Age	0.0761***	0.0795***	0.0772***	0.0798***	0.0544***
	(0.0025)	(0.0025)	(0.0025)	(0.0025)	(0.0088)
Age Squared	-0.0876***	-0.0887***	-0.0886***	-0.0894***	-0.0315***
	(0.0031)	(0.0031)	(0.0030)	(0.0030)	(0.0014)
Secondary Education	0.0088	0.0082	0.0128*	0.0121	0.0050*
	(0.0074)	(0.0074)	(0.0075)	(0.0076)	(0.0030)
University Education	0.0154***	0.0160***	0.0184***	0.0193***	0.0137***
	(0.0059)	(0.0059)	(0.0061)	(0.0061)	(0.0036)
Constant	-0.7401***	-0.8348***	-0.8853***	-0.9329***	-0.7971**
	(0.0457)	(0.0462)	(0.0471)	(0.0474)	(0.3557)
Cohort dummies	Yes	Yes	Yes	Yes	No
Country dummies	No	No	Yes	Yes	No
Year Dummies	No	Yes	No	Yes	No
Observations	191530	191530	191530	191530	191794
R-Squared	0.132	0.134	0.142	0.142	0.013

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 25 and 50 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

Table II A4 – Social Norms and the Probability of being in a Partnership, Alternative Index [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	-15.8182***	-16.9068***	4.4786	-12.7065***	-2.8226***
	(1.3940)	(1.4083)	(3.0766)	(3.3539)	(0.7990)
Traditionality Index x Primary Education	11.9013***	12.0346***	12.4705***	12.5209***	2.9224***
	(1.2538)	(1.2531)	(1.2769)	(1.2765)	(0.5933)
Traditionality Index x Secondary Education	11.4356***	11.4843***	12.3256***	12.5140***	2.9432***
	(1.5418)	(1.5412)	(1.5323)	(1.5332)	(0.5434)
Age	0.0647***	0.0646***	0.0649***	0.0648***	0.0692***
	(0.0054)	(0.0053)	(0.0053)	(0.0053)	(0.0132)
Age Squared	-0.0754***	-0.0720***	-0.0755***	-0.0726***	-0.0216***
	(0.0070)	(0.0069)	(0.0069)	(0.0069)	(0.0025)
Sec. Education	0.008	0.0096	0.0094	0.0114	0.0009
	(0.0090)	(0.0090)	(0.0092)	(0.0092)	(0.0030)
Univ. Education	0.009	0.0087	0.0065	0.0065	0.0153***
	(0.0071)	(0.0071)	(0.0073)	(0.0073)	(0.0038)
Constant	-0.4087***	-0.4831***	-0.4780***	-0.5135***	-1.5366***
	(0.1033)	(0.1041)	(0.1040)	(0.1043)	(0.5304)
Cohort dummies	Yes	Yes	Yes	Yes	No
Country dummies	No	No	Yes	Yes	No
Year Dummies	No	Yes	No	Yes	No
Observations	120947	120947	120947	120947	121084
R-Squared	0.033	0.035	0.04	0.041	0.008

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

Table II A5 – Social Norms and the Probability of being in a Partnership, with Health and Labour Status [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)
Traditionality Index	-19.5699***	-20.4921***	0.8878	-9.1773**	-2.6959***
	(1.4572)	(1.4727)	(3.4031)	(3.7246)	(0.9395)
Traditionality Index x Primary Education	11.3430***	11.3366***	12.4258***	12.5593***	3.0770***
	(1.6225)	(1.6229)	(1.6069)	(1.6086)	(0.6175)
Traditionality Index x Secondary Education	12.3060***	12.4001***	11.3701***	11.4119***	3.2399***
	(1.3494)	(1.3490)	(1.3697)	(1.3697)	(0.6824)
Age	0.0618***	0.0619***	0.0620***	0.0619***	0.0684***
	(0.0054)	(0.0054)	(0.0054)	(0.0054)	(0.0137)
Age Squared	-0.0713***	-0.0686***	-0.0716***	-0.0690***	-0.0203***
	(0.0071)	(0.0070)	(0.0070)	(0.0070)	(0.0026)
Secondary Education	0.0035	0.0021	0.0043	0.006	0.0016
	(0.0096)	(0.0096)	(0.0098)	(0.0098)	(0.0035)
University Education	0.0329***	0.0321***	0.0254***	0.0251***	0.0177***
	(0.0078)	(0.0078)	(0.0080)	(0.0080)	(0.0044)
Health status	0.0100*	0.0108**	(0.0045)	(0.0044)	-0.0027
	(0.0053)	(0.0053)	(0.0058)	(0.0058)	(0.0018)
Working Full-time	0.0218***	0.0212***	0.0169***	0.0177***	-0.0037**
	(0.0040)	(0.0040)	(0.0041)	(0.0041)	(0.0016)
Inactive	0.1129***	0.1113***	0.1190***	0.1186***	0.0007
	(0.0040)	(0.0040)	(0.0042)	(0.0042)	(0.0016)
Unemployed	(0.0033)	(0.0058)	(0.0083)	(0.0093)	-0.0026
	(0.0065)	(0.0066)	(0.0067)	(0.0067)	(0.0022)
Constant	-0.5279***	-0.5561***	-0.5978***	-0.5891***	-1.5295***
	(0.1022)	(0.1023)	(0.1026)	(0.1025)	(0.5540)
Cohort dummies	Yes	Yes	Yes	Yes	No
Country dummies	No	No	Yes	Yes	No
Year dummies	No	Yes	No	Yes	No
Observations	115311	115311	115311	115311	115394
R-Squared	0.053	0.054	0.063	0.064	0.008

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of women between 30 and 45 years of age from 7 of the 8 available waves of the ECHP [3] The reported coefficients come from estimating a linear probability model on the probability of ever having been in a partnership [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1 % level.

III. Self-Employment and the Work-Life Balance

Recent decades have brought about a noticeable change in the role of women in the labour market. The participation rate in the United States, as in Northern European countries, is approximately 70%, this figure being significantly higher than in Southern European countries, such as Spain, which has a participation rate of around 58% (OECD [2005]). Moreover, female workers in Spain have mostly full-time jobs, and part-time jobs only account for 15% of employment, which is very low compared to Central European countries such as the Netherlands, at 54%, and Switzerland, at 47% (Jaumotte [2004]). These figures point to changes in social and gender roles (Layard [2005]), and indicate that roles taken by women who are married or co-habiting have changed, with many such women having now become paid workers as well as homemakers.[1]

However, most women continue to do more of the housework and parenting (Robinson and Godbey [1997], Bianchi, Milkie, Sayer, and Robinson [2000], Aliaga [2006]), with this creating an extra strain, what has been called a "double burden" or "second shift" (Hochschild and Machung [1989], Schor [1991], Hochschild [1997]). This is especially true in the Southern European countries, where the labour market remains highly regulated, with strict rules concerning the hiring and firing of workers, and the types of employment arrangements permitted. This contributes to the emergence of obstacles to leaving and re-entering the labour market at the same time as becoming a parent and raising children, and results in women in Southern Europe participating less in the labour market and having fewer children (Del Boca [2002]).

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[1] There is a long tradition in Spain, of the primacy of the "male breadwinner", and only in recent decades has it become socially acceptable for women to work outside the home. Whether or not the mother has a paying job,

Given these realities, one commonly-held view of women's motives to choose self-employment is a desire for flexible hours, and the ability to spend more time caring for children, that is to say, a better work-life balance.[2] The notion that the desire for self-employment among women is related to their household responsibilities, including caring for their children, is well established in the literature (Presser [1989], Connelly [1992], Caputo and Dolinsky [1998], Boden [1999], Hundley [2000]). Within this framework, the objective of this Chapter is to examine how self-employed and employee mothers of children under 18 distribute their market and non-market time, in order to see whether the former have fewer problems in balancing work and family responsibilities.

Additionally, we analyze whether there are complementarities between the time devoted to market work activities by mothers of children under 18, and the time devoted to child care by the partners of such mothers. To that end, we use data from Spain, given that the relationship between self-employment and work-life balance is of special concern in that country. As Carrasco and Rodriguez [2000] point out, the Spanish labour market pays little or no attention to the problems or concerns of working mothers. These authors state that, rather than recognizing the need for greater equality, in the home and in the workplace, men in general, and the public sector in particular, have tended to ignore issues of gender inequality.

Furthermore, child care services in Spain are typically inadequate and characterized by extreme rigidity in the number of weekly hours available. Women do not relinquish responsibilities for the care of others when they go to work and, as a result, women are forced

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she must still bear the brunt of the burden of household tasks and child care (Carrasco and Rodriguez [2000]).

[2] The work-life balance is defined as the equilibrium between the amount of time and effort devoted to work, and that given to other aspects of life, allowing working individuals to have more control over their working arrangements in order to better accommodate other aspects of their lives, including caring responsibilities. The increased popularity of workplace flexibility programs and supportive work-family policies reflects the intensification of the conflict between working and household responsibilities, usually associated with negative consequences for workers' health and workplace performance (Netemeyer, Boles and McMurrian [1996], Kossek and Ozeki [1999], Allen, Herst, Bruck and Sutton [2000], Byron [2005], Mesmer-Margnus and Viswesvaran [2005a,2005b]).

to work a "double shift". Only 2% of child care slots for children up to age 3 are publicly funded, the lowest percentage in Europe. The expansion of child care services has been aimed primarily at improving education rather than allowing parents to harmonize their professional and family responsibilities. Parental leave in Spain is granted to families rather than to individuals, for a maximum of 36 weeks, unpaid, and offers no flexibility at work.[3]

This Chapter makes three distinct contributions to the literature on the relationship between self-employment and the work-life balance. First, we extend the evidence regarding self-employment and household responsibilities in Europe, using Spanish data, finding evidence of a better work-life balance of self-employed mothers compared to employee mothers. Although studies focusing on self-employment have indicated that self-employed women find it easier to combine work and family responsibilities than employee women (Goffee and Scase [1983], Scott [1986], Kaplan [1988], Buttner [1993], DeMartino and Barbato [2003]), little actual empirical work has been carried out in this area in the European context.

Second, a special advantage of our study is that we use a time use survey, which provides time diary information on the full range of daily activities. Specifically, we use the Spanish Time Use Survey-STUS (2002-2003) to test whether self-employed mothers spend less time in the labour market and more time caring for their children than do employee mothers, and we find no such differences in the time devoted to childcare activities. Third, we compare the timing of work and childcare for employee and self-employed mothers, focusing on whether self-employed mothers have greater flexibility in their working hours, allowing

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[3] The Spanish institutional context has improved somewhat in recent years, with the implementation of certain family-friendly policies and, although the portion of GDP devoted by the government to gender equality policies has increased from 0.5 % in 1998 to 1.1 % in 2005, this is still the lowest in the European Union (EUROSTAT). Such policies include the "baby-check" (€2,500), and the Spanish law "Ley para la igualdad efectiva de hombres y mujeres 2007/3". However, the "baby-check" has been extensively criticized, since a direct transfer to mothers has not the same effect on gender equality as would have improving the number and the public investment in 0-3 years old centres. The gender equity law of 2007 established a parental leave that only fathers could take, but it is an improvement on previous legislation, and 80% of Spanish fathers have taken it since the law passed.

them to shift part of their working responsibilities to unusual hours, and to devote more time to childcare activities during the mornings, finding positive evidence favouring self-employed mothers.

We do find statistically significant differences between employee and self-employed mothers in the amount of time devoted to *Market Work* and *Leisure*, with self-employed mothers devoting less time to *Market Work* and more time to *Leisure* activities than employee mothers during a working day, although we find no statistically significant differences in the amount of time devoted to *Child Care* and *Housework* by both groups of mothers. Additionally, we find complementarities between the time devoted to *Child Care* by fathers and *Market Work* by mothers. Our results are consistent with the hypothesis that self-employment helps mothers to balance their work and life responsibilities, since they spend more time with the children during the morning, and they are able to shift part of their work responsibilities to the evening, when the partner is available to care for the children.

The Chapter is organized as follows. Section III.1 reviews the literature on self-employment. Section III.2 presents the data and variables. Section III.3 describes the empirical strategy. Sections III.4 and III.5 present the main results for aggregated uses of time, and timing, respectively. Finally, Section III.6 presents our conclusions.

III.1 Literature Review

The growth of self-employment among women in the 1970s and ´80s gave rise to a large body of economic literature examining the determinants of entrepreneurial behaviour, focusing mainly on the US context. For instance, self-employment can be seen as a way to escape from a discrimination context for women in labour markets - Blau, Ferber and Winkler [2001] for the US. Other studies have indicated that male business owners are more successful than

female business owners - Cuba, Decenzo and Anish [1983] for the US, Aldrich [1989] for developing countries - and that profit and growth may not be the main goal of female-owned businesses - Goffee and Scase [1983] for OECD countries, Scott [1986], Kaplan [1988], Brush [1992], Carter and Cannon [1992], Fasci and Valdez [1998] and DeMartino and Barbato [2003] for the US.[4]

Arun, Arun and Borooah [2004] examine the effect of career breaks on the working lives of women in Australia and find that, as women increasingly combine motherhood and employment, they face penalties, particularly if they have taken a career break in order to care for their children. Against this background, self-employment can be seen as an alternative to a career break, since one commonly-held view of women's motives to choose self-employment is a desire for flexible hours, and the ability to spend more time caring for their children. The notion that the desire for self-employment among women is related to their household responsibilities, including caring for their children, is well established in the literature - Presser [1989], Connelly [1992], Caputo and Dolinsky [1998], Boden [1999] and Hundley [2000] for the US.

The hypothesized relationship between self-employment and childcare stems from several sources. First, a self-employed individual is perceived as having greater control over the timing of work - flexible hours - and may therefore be able to work during school hours, or after the children have gone to bed. Second, the self-employed individual may more easily work odd shifts or part-time, when a partner or other family member is available to care for the children. Third, the self-employed individual may be able to work at home, allowing for even greater flexibility. Fourth, self-employment is perceived as offering greater flexibility in

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[4] In Folbre and Bittman [2004], the author considers that "the time we have to care for one another, especially for our children and our elderly, is more precious to us than anything else in the world". In Folbre [2001], the author discusses the "invisible heart of caring labour". This concept relates to Adam Smith's notion of the invisible hand with regard to supply and demand, and the pursuit of self-interest. With more women working

the quantity of hours worked. That is, the individual can work part-time in self-employment, where he or she could be required to work full-time in the wage-employment sector. Finally, the self-employed individual may have greater control over the effort expended at work, allowing conservation of the resources required for child care.

Evidence exists to support the hypothesis that the self-employed are more likely to work part-time than are the employees - Devine [1994] and Williams [2000] for the US. Furthermore, entrepreneurship affords the greater flexibility necessary for managing domestic and employment responsibilities, especially for mothers - Darian [1975], Scott [1986], Birley [1989] and Brush [1992] for the US. Wellington [2006] finds that married women with greater family responsibilities are more likely to be self-employed in the United States. Also, the number of children in the home is positively related to the probability of self-employment, at least among women, as is the number of young children - Connelly [1992], Caputo and Dolinsky [1998] and Boden [1999] for the US. Similarly, the number of children at home is correlated with home-based work in the United States (Edwards and Field-Hendrey [1996]). From this evidence, authors have inferred that self-employment is chosen in order to spend more time with the children. None of the above works answer directly, however, the question of whether self-employed individuals do indeed spend more time caring for their children.

To the best of our knowledge, only Hildebrand and Williams [2003] directly analyze the relationship between self-employment and time devoted to childcare. Although they find that the number of children in the household is positively related to female self-employment in European countries, they provide little support for the hypothesis that the self-employed spend more time caring for children. Furthermore, Aidis and Wetzels [2007] find that self-employed mothers do not work fewer hours than employee mothers in Spain, Italy and the

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outside the home, what used to be a priority for them is now in the hands of institutions have not obtained the funding priorities other endeavours have in the economy.

Netherlands. Finally, Hyytinen and Ruskanen [2007] analyze the differences in daily work patterns between the self-employed and the employee in Finland, and find that the self-employed work longer effective hours than those employed by an organization, and a non-negligible part of this extra time is in the evenings. They also document that the self-employed have less pure leisure, and with small children are more likely to work after 5 p.m., when the communal day-care centres close. The authors' empirical analysis delivers surprisingly little evidence for the hypothesis that greater flexibility in time use makes the self-employed independent or autonomous, although they find two signs of greater autonomy by the self-employed: the self-employed interrupt their spells of work more frequently, and they spend a smaller fraction of their effective work time at the workplace than do those employed by an organization. However, they do not break down this data by gender.

III.2 The Spanish Time Use Survey (2002)

We use the Spanish Time Use Survey-STUS (2002-2003), which collects time use information on all household members over 9 years old.[5] First, this dataset allows us to accurately compute the total effective hours devoted to different activities. Second, we can analyze the timing of these activities to identify changes in the underlying "time-profiles" of activities throughout the day - Hamermesh [1998,1999] and Fisher, Egerton, Gershuny and Robinson [2007] for the US, Bonke, Datta-Gupta and Smith [2005] for Denmark, Hyytinen and Ruskanen [2007] for Finland.

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[5] On the one hand, Robinson and Godbey [1997] contend that time diary information is more reliable than time-estimates, and Bittman and Wajcman [2000] find that time diaries provide information for a more robust estimate. On the other hand, this dataset has been extensively criticized from a feminist point of view (Carrasco and Mayordomo [2005]). Two aspects are important in this dataset, that is to say, non-market work is not named as work, but comes within the definition of "household and family", and care time is underestimated, which may bias the results. However, given that we only analyze women's time, the problems (especially the second) that

III.2.1 Sample and Variables

The sample is restricted to include working mothers of children under 18 living in heterosexual couples, employee or self-employed.[6] We impose no other restriction concerning the presence of any other family member, health status, rural or urban status, or marital status - married vs. divorced or separated. Additionally, we look at working days, defined as days where people devote at least 60 minutes to market work activities, excluding commuting. Free time or leisure is more valuable the less time an individual has to spare. Thus, time stress would be more important when total spare time is scarcer, and the work-life balance may be more affected, since the time constraint is more likely to become binding during a working day.

III.2.1.1 Dependent Variables

The first thing to be considered when studying time use categories is that the number of activities one might include is large. We need to devise some way to aggregate these activities into useful economic categories but, since aggregation methods are necessarily arbitrary, we choose the 4 main categories used by Burda, Hamermesh and Weil [2008]: Market Work, Household Production, Tertiary Activities and Leisure.

The first type of activity is that for which people are paid - *Market Work*. However, certain activities in which we engage at home, using our own time and some purchased goods, are those for which we could purchase substitutes from the market, instead of performing them ourselves - *Household Production*. Such activities have the common characteristic that

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affect the sample of women wage-earners would also affect self-employed women, so we do not focus on these two concerns.

[6] Despite the inherent diversity of the term "self-employed", we use the generally accepted meaning, which refers to those individuals who are either entrepreneurs with no employees, or independent workers, although our data set does not allow us to distinguish between these two categories. Self-employed women can also define themselves as working part-time - 0.3% of self-employed women are working part-time in our sample.

we could pay someone to perform them for us, while we are not paid for performing them. Other activities are things that we cannot pay other people to do for us, but that we must do for ourselves, at least to some extent, with these forming the third general aggregate - *Tertiary Activities*, i.e., sleeping, eating, dressing. The fourth aggregate is *Leisure*, which includes all activities that we cannot pay someone else to do for us, and that we do not really have to do at all if we do not wish to. What distinguishes *Leisure* from other types of home activities is that one can function perfectly well, albeit not necessarily happily, with no leisure whatsoever, in other words, Leisure is not necessary for survival.[7]

Additionally, *Child Care* poses a conceptual challenge (Aguiar and Hurst [2007]). It has been argued that *Child Care* differs from *Housework* in terms of the utility generated. For example, when asked to assess the satisfaction they receive from various activities, individuals consistently rank time spent playing with and reading to their children as being among the most enjoyable (Robinson and Godbey [1997]). Furthermore, individuals consistently report that general *Child Care* is more enjoyable than activities such as housework, grocery shopping, yard work, cleaning, doing dishes and laundry. Such survey evidence suggests that it may be appropriate to examine *Child Care* separately from other categories of time use.

For the specific analysis of *Child Care*, it is also crucial to sort *Child Care* time into its various categories - Gutierrez-Domenech [2007] for Spain - since the degree of human capital enrichment in each activity will have different effects on child outcomes. Such division not only has human capital and behavioural implications for children, but it also divides labour

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[7] All these activities are measured as primary activities. Thus, *Leisure* does not include secondary child care or time spent with children. Väisänen [2006] shows that the amount of time reported as secondary activity in the STUS is 82 minutes (out of 1440 minutes per day), the lowest among the UK, Finland, France, Germany, Italy, Norway and Sweden, which makes the amount of time devoted to leisure combined with childcare (as secondary activities) not relevant.

into several opposing categories.[8] Zick, Bryant and Österbacka [2001] show, for example, that more parental involvement in reading/homework activities decreases behavioural problems and improves the grades of children in the United States. As a result, *Child Care* is divided into *Basic* - e.g., feeding - and *Quality* childcare - e.g., reading, playing.

III.2.1.2 Explanatory Variables

We control for *Age* and *Age Squared* - divided by 100 - to control for the allocation of time over the life-cycle (Apps and Rees [2005], Kalenkoski, Ribar and Stratton [2005], Aguiar and Hurst [2007]). Women have their children in their mid-20s and their 30s, which requires them to increase the time devoted to child care activities during these years.[9] Furthermore, the time required for child care activities decreases as children grow older. For this reason, we should expect an inverted U-shaped effect of *Age* on *Child Care*, given that we are analyzing mothers of young children.

We also consider the effects of family structure (Kalenkoski, Ribar and Stratton [2005]). First, we control for the number of children in the household, breaking down children's age according to school cycles, with childcare services not being readily available for children under age 3 in Spain - *Number of Children 0-2*, *Number of Children 3-5*, *Number of Children 6-12*, *Number of Children 13-17*. The higher the dependence level of children, the more time devoted to caring for children is required and, given that all the uses of time are related, we should expect significant correlations between the number of children and the time devoted to household production, with this correlation being greater, the younger the children.

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[8] Our gender analysis shows that, while there is a large gap in the time devoted to *Basic Child Care* by women and men - 67.59 m/d vs. 20.49 m/d - the gender gap is smaller in the time devoted to *Quality Child Care* - 21.74 m/d vs. 16.58 m/d - which are predictable given the implications of both types of childcare, such as required/non-required work, or the dirty and relentless versus clean and enjoyable tasks.

[9] According to EUROSTAT, the mean age of women at first birth in 2002 was 30.77 years in Spain.

Second, we control for the number of members in the family - *Number of Family Members* - since it could be the case that the presence of grandparents reduces the time devoted to *Household Production* and *Child Care* - they may help mothers with their daily tasks.

We control for whether mothers live in an urban or rural area - *Urban or Rural Household*, see Kalenkoski, Ribar and Stratton [2005]. The availability of child care services, which may be more limited in rural areas, may condition the time allocation of mothers, and they may find more difficulty combining work and family responsibilities, making self-employment a good way to escape this conflict. Additionally, Kalenkoski, Ribar and Stratton [2005] find that, if women have any health limitations, they devote less time to Market Work. For this reason, we control for the self-reported *Health Status* of the mothers (5= very poor… 1=very good).

As in Kalenkoski, Ribar and Stratton [2007], and Aguiar and Hurst [2007], we control for the educational level of the mothers. Aguiar and Hurst [2007] define highly-educated people as having more than a high school diploma, and show a dispersion of leisure favouring the less-educated in the period 1985-2003, and a larger increase in leisure for less-educated adults in the same period. Kalenkoski, Ribar and Stratton [2007] find that highly-educated women devote more time to market work and child care activites. We use two dummy variables to control for the university and secondary levels of education - *University Education, Secondary Education*, the reference category is primary education. We also control for the civil status - the reference category is cohabiting - as in Kalenkoski, Ribar and Stratton [2007], who find no significant effect of cohabiting women versus married women.

Finally, we control for work characteristics of the mother. In this sense, we control for the part-time - *Part-Time*, self-reported - and self-employment - *Self-Empl*, self-reported - status, occupation – Occup - and (log) own hourly wage (*Log Wage Rate*), to control for income and substitution effects. We are concerned about the nature of the part-time (1=yes,

0=no) and self-employment (1=yes, 0=no) variables, since these are choice variables. We are not analyzing the decision of whether to work part-time and/or to be self-employed, given that there are many personal and economic factors determining this choice, but we are interested in whether these choices, especially self-employment, affect the mothers' allocation of time and, for this reason, we consider them to be exogenous variables.

With respect to the possible bias of self-employment, while employee mothers may consider time spent with co-workers, colleagues, and clients, other than while working, as Leisure, self-employed mothers may consider such time as part of the job, since the success of their economic activities or business depends on their ability to win clients (*Networking*). This may result in the self-employed considering some activities as *Market Work*, while the employee considers the same activities as *Leisure*. Thus, the potential difference in the time devoted to *Market Work* by both groups may be upwardly biased. We also find a downward bias in commuting time. Travel to/from work may make a difference in the time devoted to *Market Work* between employee and self-employed mothers, since the self-employed can be working at home and, as a result, we do not include commuting time in *Market Work*.

Controlling for the occupation of the individual (type of work) is important, since it could be that the number of hours devoted to *Market Work*, and the timing of these activities, is really a function of the type of work, rather than of an individual choice. In this way, a comparison between the self-employed and the employee, without controlling for the type of job, may not be useful. For instance, if the self-employed woman is opening a new restaurant, she would be more likely to be much less flexible than a regular employee. Furthermore, the type of commitment required by so-called 'high-powered' jobs, such as law, medicine..., may require a significant amount of up-front time in order to become established, so being self-employed may also predict working longer hours, less time spent with children, and less

flexibility. For occupation - *Occup* - we have considered the 11 categories used in Hersch [2009].[10]

Finally, we include the logarithm of own wage rate (*Log Wage Rate*). Regarding the income-leisure choice, whether labour supply increases or decreases as a consequence of a change in real wages, depends on whether or not the substitution effect outweighs the income effect (Altman [2001]). But such a prediction is analytically suspect, since we do not know, a priori, the reasonable circumstances under which one effect should outweigh the other, nor the circumstances under which the elasticities of price and income effects can be expected to be large or small. To compute (log) own wage rate, since income in the STUS is defined in intervals, we first assume an underlying normal distribution of the earnings variable, and apply interval regression techniques to compute the expected value (mean) of earnings in each of the earnings intervals. Once we obtain the expected value of earnings, we divide earnings by the hours per week devoted to market work activities, information which is available in the STUS, obtaining the own hourly wage (Sevilla-Sanz, Fernandez and Gimenez-Nadal [2010]). To allow for non-linear effects, we use the logarithm of wage rate.[11]

III.2.2 Descriptive Evidence

Table III.1 shows means and standard deviations of variables for self-employed and employee mothers of children under 18 in a working day.

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[10] We control for the following occupations: Management, business, financial; Professional and related; Healthcare support; Protective service; Food Preparation and serving related; Building and grounds cleaning and maintenance; Personal care and service; Sales and related; Office and administrative support; Natural resources, construction and maintenance; and Production, transportation and material moving.

[11] We first define the upper and lower bounds of the income variable, according to the STUS intervals (0-500, 500-1000, 1000-1500 … 3000+). Second, we run, by gender, an interval regression on the upper and lower income bounds, obtaining a value of 1286.17 and 897.76 € per month for men and women, respectively. Third, we obtain a prediction of the monthly income by normalizing with the variance of the interval regression, and dividing this predicted monthly income by the hours worked per month. We obtain the number of hours worked

Table III.1 - Unconditional Means for Employed and Self-Employed Mothers [1,2,3]

	(1)		(2)		(3)	(4)
Time Use Variables	**Self-employed**		**Employed**		**Difference Self-Empl. Minus Employed**	**p-value Difference**
	Mean	S.D.	Mean	S.D.		
Market Work	398.274	(14.396)	394.345	(3.935)	3.930	0.790
Child Care	55.767	(6.745)	66.626	(2.281)	-10.860	0.130
Household Production	208.482	(9.997)	205.884	(3.168)	2.600	0.800
Tertiary Activities	599.273	(7.515)	582.344	(2.473)	16.930	0.030
Leisure	142.298	(8.224)	139.126	(2.730)	3.170	0.710
Child Care Basic	38.807	(4.874)	47.506	(1.853)	-8.700	0.100
Child Care Quality	16.959	(4.402)	19.120	(1.024)	-2.160	0.630

					Difference Self-Empl. Minus Employed	**p-value Difference**
Explanatory Variables	**Self-employed**		**Employed**			
Age	39.105	(0.501)	38.237	(0.182)	0.870	0.100
Number of Family Members	3.959	(0.065)	3.856	(0.023)	0.100	0.140
Urban Household	34.574	(3.744)	46.959	(1.429)	-12.390	0.000
Health Status	1.897	(0.057)	1.850	(0.019)	0.050	0.430
Married (vs. Cohabiting)	97.007	(1.353)	96.214	(0.565)	0.790	0.590
University Education	24.343	(3.407)	38.380	(1.397)	-14.040	0.000
Secondary Education	62.243	(3.819)	50.208	(1.433)	12.040	0.000
Log wage rate	2.051	(0.072)	2.848	(0.026)	-0.800	0.000
Number of Children	1.550	(0.058)	1.566	(0.019)	-0.020	0.800
Number Children 0-2	0.220	(0.034)	0.222	(0.013)	0.000	0.950
Number Children 3-5	0.217	(0.036)	0.275	(0.014)	-0.060	0.140
Number Children 6-12	0.584	(0.057)	0.631	(0.020)	-0.050	0.430
Number Children 13-17	0.531	(0.050)	0.438	(0.017)	0.090	0.080
Working part-time	0.032	(0.015)	0.121	(0.009)	-0.090	0.000
Management, business, financial	30.980	(3.645)	4.291	(0.565)	26.690	0.000
Professional and related	17.966	(3.016)	27.734	(1.279)	-9.770	0.000
Healthcare support	4.198	(1.595)	9.635	(0.826)	-5.440	0.000
Protective service	0.000	(0.000)	0.597	(0.232)	-0.600	0.010
Food preparation and serving related	5.519	(1.829)	5.921	(0.682)	-0.400	0.840
Building and grounds cleaning and maintenance	3.277	(1.469)	14.048	(0.995)	-10.770	0.000
Personal care and service	5.432	(1.780)	2.961	(0.483)	2.470	0.180
Sales and related	10.871	(2.461)	8.354	(0.810)	2.520	0.330
Office and administrative support	3.228	(1.429)	13.609	(0.998)	-10.380	0.000
Natural resources, construction, maintenance	11.402	(2.385)	3.569	(0.515)	7.830	0.000
Production, transportation, material moving	7.127	(2.086)	9.144	(0.836)	-2.020	0.370

Notes: [1] Standard Deviations in brackets [2] Sample consists of non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] Time use variables are measured in minutes per day.

per week from the question "How many hours do you usually work per week", where available, or from the "work grid". We follow the methodology of Sevilla-Sanz, Fernandez and Gimenez-Nadal [2010].

Regarding the time use variables, Panel A in Table III.1 shows that self-employed mothers devote less time to *Child Care* than employee mothers in a working day, and more time to *Market Work*, *Household Production*, *Tertiary Activities* and *Leisure*, although only the difference in *Tertiary Activities* is statistically significant at the 5% level. Employed and self-employed mothers of children under 18 devote similar amounts of time to *Basic Child Care* and *Quality Child Care*. Therefore, we only find a significant difference between employee and self-employed mothers in the amount of time devoted to *Tertiary Activities*. This result is consistent with Hyytinen and Ruskanen [2007], since they find that Finnish self-employed individuals get more sleep. However, we do not find any evidence that self-employed mothers devote more time to care for their children (Hildebrand and Williams [2003]), nor less time in Market Work activities (Aidis and Wetzels [2007]).

Panel B in Table III.1 shows means and standard deviations of the explanatory variables for employee and self-employed mothers of children under 18. We find no statistically significant differences at the 5% level among employee and self-employed mothers in *Age*, *Number of Family Members*, *Health Status*, *Civic Status*, *Number of Children 0-2, Number of Children 3-5*, Number of Children 6-12, and *Number of Children 13-17*. Thus, we find no evidence that Spanish self-employed mothers have more children, which goes against previous evidence showing positive relationships among being self-employed and the number of children (Connelly [1992], Caputo and Dolinsky [1998], Boden [1999]).

However, we do find statistically significant differences at the 5% level for other demographic characteristics. Spanish self-employed mothers are less likely to live in urban areas than Spanish employee mothers (34.58% and 46.95%, respectively), are less likely to have university education (24.34% and 38.38% for self-employed and employee mothers, respectively), have a lower (log) wage rate (2.05 and 2.85 for self-employed and employee mothers, respectively), and are less likely to work part-time (3.20% and 12.10% for self-

employed and employee mothers, respectively), which goes against previous evidence showing that the self-employed are more likely to work part-time than are employees (Devine [1994], Williams [2000]).

Regarding differences in occupations, compared to employee mothers, self-employed mothers are more likely to work in "Management, business, financial" and "Natural resources, construction, maintenance", while those same mothers are less likely to work in "Professional and related", "Healthcare support", "Protective services", "Building and grounds cleaning and maintenance" and "Office and administrative support". This evidence is consistent, since many self-employed mothers have their own business, and many of them are included in "Management, business, financial" (30.98%) and "Professional and related" (17.97%), and none of them are included in "Protective services".

III.3 Empirical Strategy

First, we condition the time allocation decisions (aggregates uses of time) on demographics. Thus, we estimate the following equation for each time use category (*Market Work, Household Production, Child Care, Tertiary Activities, Leisure, Basic Child Care* and *Quality Child Care*):

$$Y_i = \alpha + \gamma_{Personal} Personal_i + \gamma_{family} Family_i + \beta_1 Part\text{-}Time_i + \beta_2 Self\text{-}Empl_i + \beta_3 Occup_i +$$
$$+ \beta_4 Child * Part\text{-}Time_i + \beta_5 Child * Self\text{-}Empl + \beta_6 Part\text{-}Time * Self\text{-}Empl_i + \gamma_{day} Day_i + \xi_i \qquad \text{(III.1)}$$

where Y_i is the time use variable for individual "i"; $Personal_i$ is a vector of personal characteristics (*Age, Age squared, Urban, Health* and *Civic* status); $Family_i$ is a vector of family characteristics (*Number of Children 0-2, Number of Children 3-5, Number of Children 6-12, Number of Children 13-17,* and *Number of Family Members*); $Self - Empl_i$ is a

"dummy" variable to control for the self-employment status; $Part-Time_i$ is a "dummy" variable to control for the part-time status; and $Occup_i$ is a vector of coefficients that controls for the occupation (type of work).[12] Given previous evidence that self-employed women are more likely to have multiple children (Connelly [1992], Caputo and Dolinsky [1998], Boden [1999]), we include the interaction terms between the number and age of the children and being self-employed - and working part-time. Finally, to avoid conflating part-time and self-employment status, we include an interaction term between "self-employment" and "working part-time".[13]

Second, for the timing analysis, we follow Hamermesh [1999] and we construct the series T_{it}, where "i" corresponds to the individual and "t" corresponds to the time band of the day. We divide the 24 hours of the day into 24 time bands (t= 1, 2, 3 … 24) and we compute the amount of time devoted to the reference activity (*Market Work, Child Care…*) in each time band "t". We estimate OLS models with robust standard errors for each time band:

$$T_{it} = \alpha + \gamma_{age} Age_i + \gamma_{educ} Educ_i + \gamma_{family} Family_i + \beta_1 T_i + \beta_2 Self\text{-}Empl_i + \\ + \beta_3 Occup_i + \beta_4 Partner_i + \gamma_{day} Day_i + \xi_{it}$$
(III.2)

where Age_i controls for the age of the individual 'i' (and its square), $Educ_i$ controls for the educational level of the individual 'i' (ref.: primary education), $Family_i$ is a vector variable that controls for family characteristics (*Number of children 0-2, Number of children 3-5, Number of children 6-12, Number of Children 13-17* and *Number of Family Members, Civic status*), T_i is the total amount of time devoted to the reference activity for the individual "i", $Self-Empl_i$ indicates whether the person is self-employed or not, $Occup_i$ controls for the

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[12] We do not include interaction terms between the number of children and the part-time self-employed, since the lower percentage of part-time self-employed mothers leads to multicolinearity problems.

occupation of the individual measured by type of work (Management, Finance and legal professionals, Education and social sciences professionals…), $Partner_i$ is a vector of variables controlling for partner's work characteristics (partner is in a working day, and partner is self-employed), and Day_i is a variable scaling the day of the week when the survey took place (ref.: Monday).

Controlling for whether the husband/partner is in a working day or not is crucial, since the fact that the husband/partner is in a working day may require the mother to devote more time to *Child Care*, and less time to *Market Work* during the morning, than when the husband/partner does not have to work, and he can devote time to care for the children.

III.4 Results on Aggregate Uses of Time

Table III.2 shows the results for each dependent variable. We observe that age has a positive relationship with the time devoted to *Child Care*, with this relationship being statistically significant at the 99% level. Thus, an additional year of age increases the amount of time mothers devote to *Child Care* during a working day by 8.37 minutes. However, this effect is not permanent, since we find a statistically significant negative relationship of age squared with *Child Care*. As a result, age has an inverted u-shape effect on *Child Care*, with the maximum being reached at the age of 37. Additionally, the effect of age is mainly concentrated on *Basic Child Care*, since an additional year of age increases the time devoted to this activity by 6.32 minutes per working day, and age has an inverted u-shaped effect, with the maximum being reached at the age of 36. This result is consistent with the life cycle of the family, in that, when children are young, the parents spend more time caring for them.

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[13] We estimate OLS regressions for each time use category and indicator, and we obtain robust estimates using the population weights included in the survey. *Dayit* is a variable scaling the day of the week when the survey took place (ref.: Monday), and the omitted occupation is "Medical professionals".

University education has a statistically significant negative relationship with the time devoted to *Household Production* for the 95% level, with highly educated women devoting 24.95 fewer minutes to *Household Production* per working day than women with primary education. Furthermore, education has a statistically significant positive relationship with the time devoted to *Market Work*, with highly and medium educated women devoting 24.96 - statistically significant at the 90% level - and 35.75 -statistically significant at the 95% level - more minutes to *Market Work* activities per working day, respectively.

The number of family members has a statistically significant negative relationship with the time devoted to *Child Care*, evidence that additional adult members in the household may help at home with child care tasks, with this relationship being statistically significant at the 99% level. In this sense, an additional adult member in the household reduces the time devoted to *Child Care* by the mother by 10.06 minutes in a working day. This effect is shared for both *Basic Child Care* and *Quality Child Care*, since an additional adult member reduces the time devoted to these activities by 5.04 and 5.01 minutes per working day, respectively. Additionally, living in urban areas, and being married - vs. cohabiting - have statistically significant positive associations with the time devoted to *Quality Child Care* at the 95% level. Mothers living in urban areas devote 4.01 more minutes per working day to these activities than mothers living in rural areas, and married mothers devote 8.34 more minutes per working day than cohabiting mothers.

Children have important effects on the allocation of time in a working day. In the case of full-time employee mothers, children under 13 have statistically significant positive relationships with the time devoted to *Child Care*, and also with *Basic Child Care* and *Quality Child Care*.

Table III.2 - Time Use Regressions for Working Mothers in Working Days [1,2,3,4]

	(1) Market Work	(2) Hhld. Production	(3) Tertiary Activities	(4) Leisure	(5) Chidcare	(6) Basic Child Care	(7) Quality Child Care
Age	-6.419	3.200	-5.625	0.049	8.366***	6.318***	2.047*
	(6.052)	(4.727)	(4.268)	(3.732)	(1.970)	(1.654)	(1.163)
Age Squared	7.559	-1.583	5.953	0.062	-11.297***	-8.698***	-2.599*
	(7.823)	(6.323)	(5.334)	(4.803)	(2.419)	(2.009)	(1.434)
Number of Family Members	7.896	-1.135	5.176	-2.147	-10.057***	-5.044***	-5.013***
	(6.746)	(5.866)	(4.531)	(4.455)	(1.863)	(1.342)	(1.245)
Urban or Rural Household	-2.066	-10.447*	0.814	-3.522	6.060*	2.051	4.009**
	(7.499)	(6.084)	(4.829)	(5.099)	(3.542)	(2.929)	(1.940)
Health Status	-8.222	5.046	2.019	-1.817	0.320	0.662	-0.343
	(5.546)	(4.655)	(3.611)	(3.983)	(2.375)	(1.928)	(1.248)
Civic Status (ref: cohabiting)	-7.448	-5.236	-6.689	0.820	12.857	4.520	8.337**
	(20.414)	(16.870)	(11.429)	(11.703)	(8.896)	(7.333)	(4.196)
University Education	24.956*	-25.978**	-1.536	5.750	7.501	3.548	3.953
	(15.093)	(12.710)	(9.386)	(10.576)	(6.235)	(5.061)	(3.079)
Secondary Education	35.752***	-11.206	-13.659*	-6.014	0.463	-1.322	1.785
	(12.441)	(11.125)	(8.003)	(8.955)	(4.771)	(3.960)	(2.289)
Log Wage Rate	(3.310)	(4.784)	(1.989)	(0.601)	(2.261)	(1.105)	(1.156)
	(5.279)	(3.974)	(3.111)	(3.523)	(2.061)	(1.563)	(1.131)
Number of Children 0-2	-42.483***	2.251	-16.516*	-22.115**	87.396***	75.276***	12.120***
	(12.584)	(10.939)	(8.766)	(8.708)	(7.140)	(6.114)	(3.278)
Number of Children 3-5	-21.232*	2.462	-11.442	-11.663	42.215***	34.408***	7.807**
	(11.140)	(9.360)	(7.538)	(7.527)	(5.682)	(4.740)	(3.037)
Number of Children 6-12	-31.073***	24.922***	-4.061	3.179	12.626***	6.320**	6.306***
	(8.380)	(7.300)	(5.569)	(6.121)	(3.657)	(2.864)	(1.798)
Number of Children 13-17	-25.212**	29.473***	-1.702	12.175	-7.831**	-6.284**	-1.548
	(10.350)	(8.552)	(6.849)	(7.765)	(3.595)	(2.560)	(2.245)
Number of Children 0-2* Part-Time	38.975	-52.947**	-5.878	1.436	-7.838	-3.158	-4.681
	(29.251)	(22.371)	(18.974)	(22.567)	(15.430)	(13.196)	(8.474)
Number of Children 3-5* Part-Time	29.359	-45.360*	-10.247	-0.607	15.318	5.323	9.995
	(28.130)	(23.276)	(14.429)	(20.773)	(13.771)	(11.640)	(9.438)
Number of Children 6-12* Part-Time	-0.011	-24.305	9.050	-12.047	7.771	-4.392	12.163
	(22.057)	(18.348)	(10.493)	(16.143)	(8.320)	(6.796)	(7.689)
Number of Children 13-17* Part-Time	18.568	-35.143	-10.509	19.654	-10.039	-6.671	-3.368
	(21.018)	(23.683)	(11.349)	(25.478)	(9.038)	(7.245)	(5.527)
Number of Children 0-2* Self-Empl	38.304	-7.256	-36.071*	-29.589	29.254	-1.835	31.089*
	(34.718)	(24.099)	(21.082)	(19.287)	(22.062)	(14.933)	(18.154)
Number of Children 3-5* Self-Empl	39.281	-3.445	-20.682	-8.655	-8.526	-8.604	0.078
	(32.301)	(23.766)	(16.315)	(18.204)	(13.483)	(12.328)	(7.034)
Number of Children 6-12* Self-Empl	43.088**	-4.559	-16.655	-19.777*	-5.500	-9.718*	4.218
	(20.594)	(15.314)	(12.932)	(12.008)	(6.800)	(5.430)	(5.115)
Number of Children 13-17* Self-Empl	73.321***	-25.133	-15.296	-37.838**	2.629	-0.455	3.084
	(24.274)	(18.602)	(12.373)	(15.222)	(7.449)	(6.157)	(3.882)
Part-Time	-150.523***	113.214***	21.205	38.088	12.915	15.211	-2.296
	(31.425)	(27.417)	(16.105)	(24.403)	(13.592)	(11.193)	(9.347)
Self-Empl	-97.339***	26.362	43.174**	47.316**	-0.616	8.923	-9.539
	(31.272)	(22.635)	(17.872)	(21.356)	(10.013)	(8.314)	(5.851)
Self-Empl*Part-Time	-68.887	30.385	58.225**	-41.848	16.331	14.022	2.309
	(58.027)	(69.703)	(29.160)	(29.914)	(22.054)	(25.971)	(17.264)
Constant	522.751***	49.013	748.116***	215.882***	-125.244***	-92.067***	-33.176
	(120.861)	(93.006)	(84.432)	(76.773)	(42.747)	(35.209)	(24.279)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433
R-squared	0.139	0.121	0.069	0.101	0.436	0.444	0.122

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] Time use variables are measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

In this sense, the highest effect is found for children under age 3, where an additional child increases the time devoted to *Child Care* by 87.40 minutes per day, and the lowest effect is found for children between 6 and 12 years, where an additional child increases the time devoted to *Child Care* by 12.63 minutes per day. The number of children under 17 has statistically significant negative associations with the time devoted to *Market Work*, with the greater effect being found for children under 3, while the number of children between 6 and 17 has statistically significant positive correlations with the time devoted to *Household Production*, with the greater effect being found for children between 13 and 17 years old.

Regarding the effects of children for part-time employee mothers, effects are similar to the case of full-time employee mothers, the only difference being that children under 2 have a statistically significant association with the time devoted to *Household Production*, decreasing the time devoted to these activities by 52.95 minutes per working day. In the case of full-time self-employed mothers, children have similar effects to the case of full-time employee mothers, with the difference being that the number of children between 6 and 12, and between 13 and 17, has statistically significant associations with the time devoted to *Market Work*; and the number of children between 13 and 17 has a statistically significant association with the time devoted to *Leisure*, with these associations being statistically significant at the 95% level.

Regarding the variables controlling for work status, compared to full-time employee mothers, working employed part-time has a statistically significant negative relationship with the time devoted to *Market Work* - 150.52 fewer minutes per working day - while it has a statistically significant positive relationship with the time devoted to *Household Production* at the 99% level - 113.21 more minutes per working day. As a result, the decrease in the time devoted to *Market Work* in a working day, with part-time employment, is shown in the increase in the time devoted to Household Production.

Being self-employed has a statistically significant negative relationship with the time devoted to *Market Work*, and statistically significant positive relationships with the time devoted to *Tertiary Activities* and *Leisure*, with these associations being statistically significant at the 95% level. Specifically, being full-time self-employed decreases the time mothers devote to *Market Work* by 97.34 minutes per working day, while it increases the time mothers devote to *Tertiary Activities* and *Leisure* by 43.17 and 47.32 minutes per working day, respectively. Additionally, compared to full-time employee mothers, being part-time self-employed has a statistically significant positive association with the time devoted to *Tertiary Activities* at the 99% level, with part-time self-employed mothers devoting 101.39 more minutes per day to *Tertiary Activities* than full-time employee mothers.

The analysis of aggregates of time use reveals that full-time self-employed mothers devote less time to *Market Work* and more time to *Tertiary Activities* and *Leisure* than full-time employee mothers in a working day. Although these results are consistent with Hyytinen and Ruskanen [2007], who find that self-employed people get more sleep - and also with Biddle and Hamermesh [1990], who find that sleep is very much a choice variable - we do not find evidence of the previously hypothesized relationship between childcare and self-employment. Although full-time self-employed mothers devote less time to *Market Work* activities than full-time employee mothers, we find no statistically significant association between self-employment and *Child Care*, which is in line with the findings of Hildebrand and Williams [2003]. As a result, and looking at the previous evidence, self-employment does not help to improve the work-life balance, in the sense of giving mothers greater flexibility in their working hours so that they are able to spend more time caring for their children.

III.5 Results on Timing of Activities

One of the sources for our hypothesized relationship between self-employment and childcare is that an individual in self-employment is perceived as having greater control over the timing of work - flexible hours. An individual may therefore be able to work during school hours, or after the children have gone to bed. Alternatively, the self-employed individual may more easily work odd shifts or part-time, when a partner or other family member is available to care for the children.

In this section, we first analyze the timing of activities throughout a working day, comparing employee and self-employed mothers. According to our hypothesis, if mothers choose self-employment as a way of improving the work-life balance, we should observe a different timing in *Market Work*, *Child Care* and *Household Production*, given that self-employed mothers with children are able to devote time to *Child Care* and *Household Production* at times that they otherwise could not do if they were working for a firm. Thus, self-employed mothers would be able to devote more time to *Aggregate Housework* - *Household Production* plus *Child Care* - during the morning, and then devote more time to *Market Work* during the evening, while their partners are at home caring for the children, or doing the household chores.

Figure III.1 shows the differences between the timing of employee and self-employed mothers for *Market Work*, *Household Production*, *Child Care* and *Aggregate Housework*.[14] First, we observe that there is a negative association between the timing of *Market Work* and being self-employed from 6 a.m. to 11 a.m., with self-employed mothers devoting less time to *Market Work* in these time bands than employee mothers, and with these differences being statistically significant at the 95% level. We also find a statistically significant negative

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[14] Coefficients of regressions can be found in Appendix III.

association between being self-employed and devoting time to *Household Production* from 6 a.m. to 7 a.m., and with Child Care from 6 a.m. to 8 a.m.[15]

At the same time, we find statistically significant positive associations between being self-employed and *Household Production* from 7 a.m. to 11 a.m., and between being self-employed and *Child Care* from 9 a.m. to 12 a.m., results that are consistent with self-employed mothers with preschool children devoting more time to *Child Care* between 9 a.m. and 12 a.m. than employee mothers with preschool children.

Figure III.1 - Timing of Mothers [1,2,3]
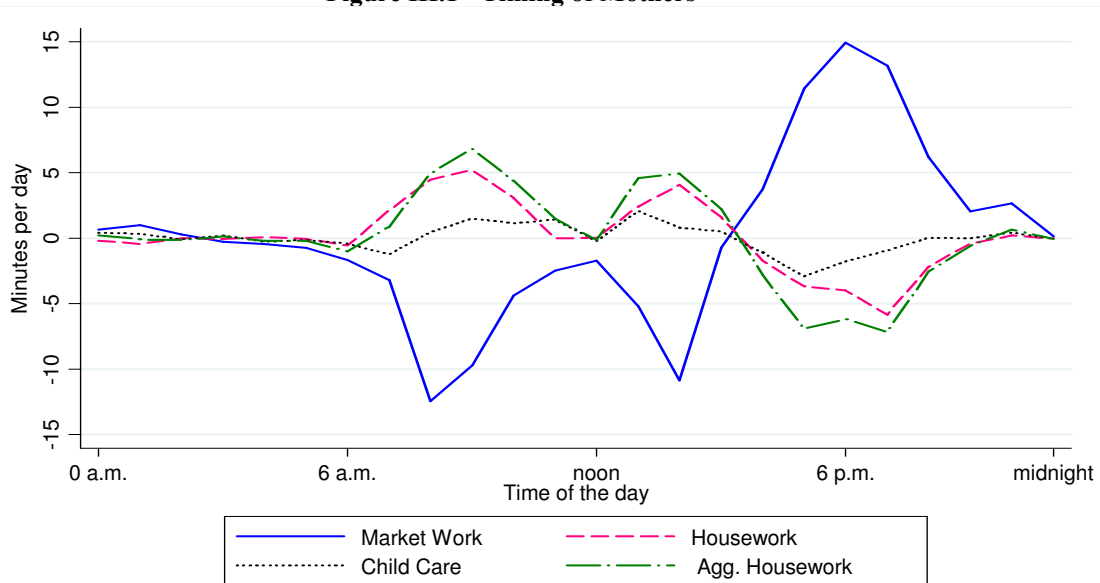
Notes: [1] This figure plots the coefficients on self-employment dummy from regressions of timing of activities on age, day-of-week, family composition, mother's occupation and partner's working controls [2] Spanish Time Use Survey, 2002-2003 [3] Each value represents timing-deviations from the employed, conditional on demographics.

Second, we find that being self-employed has statistically significant negative associations with *Market Work* from 1 p.m. to 3 p.m., while it has significant positive associations with *Household Production* and *Child Care* from 1 p.m. to 3 p.m. This is consistent with Spanish self-employed mothers with school-age children being able to stop

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[15] Hyytinen and Ruskanen [2007] find that the self-employed get more sleep, and we find a statistically significant positive association between being self-employed and the time devoted to *Tertiary Activities* -

working from 1 p.m. to 3 p.m., and to pick up their children from school and/or go home to cook lunch.

Third, being self-employed has statistically significant positive associations with *Market Work* from 5 p.m. to 9 p.m., while it has statistically significant negative associations with *Household Production* and with *Child Care* from 5 p.m. to 7 p.m. This result is also consistent with the hypothesis that a self-employed mother is perceived as having greater control over the timing of work - flexible hours - so the self-employed mother may more easily work odd shifts, when a partner or other family member is available to care for the children, and devote more time to the children in the mornings - Hyytinen and Ruskanen [2007] also find that the self-employed with small children are more likely to work after 5 p.m., when the majority of communal day-care centres close.

In summary, we first find that self-employed mothers devote more time to *Household Production* and *Child Care* in the mornings and afternoons than do employee mothers. Compared to employee mothers, we find that self-employed mothers devote 11.03 and 9.26 percentage points more of their time to *Child Care* - 6.15 more minutes out of 55.767 minutes, see Table III.1 - and *Household Production* - 19.30 more minutes out of 208.48 minutes, see Table III.1 - respectively, in the mornings and afternoons, which makes that self-employed mothers devoted 9.68 percentage points more of their time to *Aggregate Housework* - 25.68 more minutes out of 261.67 minutes. Additionally, we find that self-employed mothers devote less time to *Market Work* in the morning and afternoon compared to employee mothers, since they devote 11.44 percentage points less to these activities - 45.59 fewer minutes out of 398.274 minutes.

Second, self-employed mothers devote less time to *Household Production* and *Child Care* in the evenings - from 5 p.m. to 9 p.m. Compared to employee mothers, we find that

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including sleeping - from 6 a.m. to 8 a.m., with this indicating that the self-employed are able to sleep longer.

self-employed mothers devote 8.39 and 6.46 percentage points less of their time to *Child Care* and *Household Production* in the evenings, respectively, which makes that self-employed mothers devoted 7.69 percentage points less of their time to *Aggregate Housewor*k. Additionally, we find that self-employed mothers devote more time to *Market Work* in the evening compared to employee mothers, since they devote 11.47 percentage points more to these activities.

In the United States, Stewart and Allard [2008] find that full-time employee parents shift childcare activities into the evening hours. In contrast, part-time employment has a much smaller effect on when mothers spend time with their children, and part-time employment allows mothers to spend more time with their children, compared to full-time employment. In our case, although we do not find significant differences in the total time devoted to child care activities between employee and self-employed mothers, differences in the timing of activities between both groups suggest that self-employed mothers have a greater flexibility in their working hours, thus improving their work-life balance, since they spend more time with their children during the mornings.

The above results are consistent with the hypothesis that self-employed mothers may more easily work odd shifts, when a partner or other family member is available to care for the children, especially during the evening, since schools are normally closed and children have free time. For this reason, we now analyze the timing of *Child Care* for men, conditioned on the timing of *Market Work* of their partners, estimating 24 OLS models for men where we consider the partner's timing of *Market Work*. For instance, considering the first time band of the day - 12 p.m. to 1 a.m. - we estimate the probability (in percentage points) of devoting time to *Child Care* by men, conditioned on own demographics, family characteristics, total own time devoted to *Child Care*, own self-employment status, and whether the partner is devoting any time to *Market Work* (1) or not (0) in the same time band.

Thus, a positive sign will be interpreted as a positive relationship between the timing of *Child Care* for fathers and the timing of *Market Work* for mothers.

Figure III.2 shows the effects of the time devoted to *Market Work* by mothers on the timing of *Child Care* by their partners. We find statistically significant positive associations from 7 a.m. to 10 a.m., from 1 p.m. to 3 p.m., and from 5 p.m. to 7 p.m., with these being statistically significant at the 95% level. Thus, we find that if the mother is devoting time to *Market Work* activities, the partners of working mothers are 4.71, 7.30, 2.27, 2.84, 3.37, 4.38 and 3.25 percentage points more likely to be devoting time to *Child Care* from 7 to 8 a.m., 8 to 9 a.m., 9 to 10 a.m., 1 to 2 p.m., 2 to 3 p.m., 5 to 6 p.m. and 6 to 7 p.m., respectively.

Figure III.2 – Correlations in the timing of *Child Care* and *Market Work*, Partners [1,2,3]
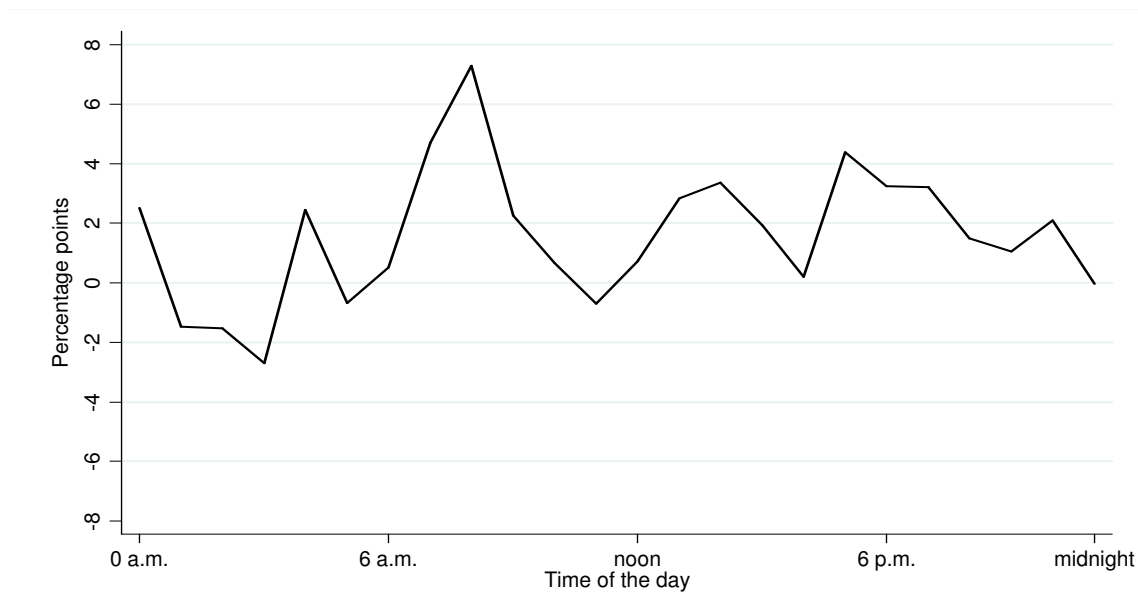
Notes: [1] This figure plots the coefficients on women's timing of Market Work from regressions of men's timing of Child care activities on age, day-of-week, family composition, father's occupation and women's working controls [2] Spanish Time Use Survey, 2002-2003 [3] Each value represents timing-deviations from no time devoted to Market Work activities by the wife, conditional on demographics.

Given these results, we show that men devote more time to *Child Care* if their partners are working than if their partners are not. More specifically, since we find that self-employed mothers devote more time to *Market Work* activities from 5 p.m. to 9 p.m. than employee

mothers, these results may be interpreted as that the partners of self-employed mothers will be more likely to devote time to *Child Care* than the partners of employee mothers, from 5 p.m. to 9 p.m. Additionally, and given that self-employed mothers devote less time to *Market Work* from 8 a.m. to 11 a.m., and from 1 p.m. to 3 p.m., the partners of self-employed mothers will be less likely to devote time to *Child Care* than the partners of employee mothers in those same time bands.

Summarizing our results on timing, we find complementarities between the time devoted to *Child Care* and *Market Work* by the members of the couple. As a result, mothers may choose to be self-employed because self-employment gives them greater flexibility in their working hours, improving their work-life balance, and since they spend more time with the children during the mornings, they are able to work odd shifts when the partner is available to care for the children. Our findings are in line with two of the hypothesized relationships between self-employment and care of children: a) a self-employed individual is perceived as having greater control over the timing of work - flexible hours - and may therefore be able to work odd shifts, b) the self-employed individual may more easily work when a partner or other family member is available to care for the children.

III.6 Conclusions

This Chapter deals with an important subject for policy decision making, and for feminist economics, that is, how working conditions and work status interact with child care, especially, with time spent in child care by self-employed mothers. To that end, we use time diary data from the Spanish Time Use Survey 2002-2003. Our results provide little support for the hypothesis that self-employed mothers spend more time caring for children than do employee mothers, since we find no statistically significant differences in the time devoted to Child Care between both groups.

However, since one commonly-held view of women's motives to choose self-employment is a desire for flexible hours (flexible schedules), we analyze the timing of activities during a working day. We first find that self-employed mothers devote more time to *Child Care* and less time to *Market Work* during the morning and afternoon, and less time to *Child Care* and more time to *Market Work* during the evening, compared to employee mothers. We also find complementarities between the time devoted to *Child Care* and *Market Work* by the members of the couple. This result is consistent with the hypothesis that self-employed mothers are able to have greater flexibility in their working hours - flexible hours - thus improving their work-life balance, since they spend more time with the children during the morning, and they are able to shift part of their market work responsibilities to the evening - from 5 p.m. to 9 p.m., when communal day care centres and schools close and children have spare time - when the partner or other family member is available to care for the children.

On the one hand, these findings are in accordance with the European Union employment agenda for 2010, established in Lisbon in 2000, for increasing female labour participation rates, with a special emphasis on entrepreneurship/self-employment. Since working women with children face a "double burden", given that they continue to specialize in non-market work, despite increases in female labour participation rates, and because of the scarcity of childcare services, they may choose self-employment as a way to improve the balance between their work and life responsibilities. Furthermore, public policies aimed at a more egalitarian distribution of non-market work would help women to reduce levels of stress, and to have more time to devote to other activities, such as leisure and personal care.

III.7 Appendix

For the timing regressions, we regress the time devoted to the reference activity on a set of personal and household characteristics, and a dummy variable to indicate whether a woman is

self-employed or not – timing analysis for working mothers – or whether the female working

partner is working in the reference time band or not – timing analysis for fathers.

Table III.A1 – Timing of *Market Work* for mothers [1,2,3,4]

Market Work	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Self-Empl	0.612	0.862	0.196	-0.349	-0.532	-0.812	-1.691***	-2.943**
	(0.829)	(0.834)	(0.686)	(0.516)	(0.483)	(0.497)	(0.625)	(1.188)
Age	-0.670	-0.636	-0.202	-0.119	-0.144	-0.086	0.090	-0.291
	(0.452)	(0.410)	(0.328)	(0.314)	(0.310)	(0.317)	(0.583)	(0.839)
Age Squared	0.910	0.834	0.292	0.185	0.216	0.151	-0.094	0.428
	(0.583)	(0.510)	(0.410)	(0.389)	(0.382)	(0.394)	(0.730)	(1.061)
Number of Family Members	-1.357***	-1.243***	-0.863**	-0.706**	-0.689**	-0.935***	-1.067	0.641
	(0.496)	(0.467)	(0.353)	(0.324)	(0.310)	(0.313)	(1.324)	(2.374)
Married (Ref.: Divorced)	-1.608	-1.663	-3.686	-1.997	-1.979	-3.193	-0.058	-1.400
	(3.067)	(3.117)	(3.057)	(3.065)	(3.057)	(3.068)	(3.784)	(5.925)
Separated (Ref.: Divorced)	-3.836	-3.568	-3.512	-3.480	-3.391	-3.378	-3.135	-11.780**
	(3.368)	(3.422)	(3.361)	(3.321)	(3.309)	(3.310)	(3.723)	(5.668)
Universitary Education	-0.003	-0.008	0.003	0.004	0.005	0.005	0.019**	-0.021
	(0.009)	(0.010)	(0.008)	(0.006)	(0.006)	(0.005)	(0.009)	(0.018)
Secondary Education	-0.007	-0.008	-0.002	0.003	0.003	0.007*	0.027***	-0.013
	(0.007)	(0.008)	(0.006)	(0.004)	(0.004)	(0.004)	(0.008)	(0.017)
Number of Children 0-2	1.435*	1.816**	1.206*	0.807	0.815	0.990	0.367	-0.534
	(0.817)	(0.864)	(0.673)	(0.616)	(0.613)	(0.664)	(0.848)	(1.276)
Number of Children 3-5	-0.140	0.379	-0.239	-0.263	-0.177	0.247	0.059	-1.049
	(0.731)	(0.782)	(0.526)	(0.479)	(0.488)	(0.534)	(0.858)	(1.179)
Number of Children 6-12	-0.253	0.103	-0.153	-0.175	-0.107	-0.035	-0.339	0.217
	(0.366)	(0.437)	(0.370)	(0.353)	(0.352)	(0.361)	(0.554)	(0.821)
Number of Children 13-17	-0.938**	-0.740*	-0.831**	-0.805**	-0.776**	-0.706**	0.121	-0.176
	(0.417)	(0.415)	(0.355)	(0.336)	(0.329)	(0.348)	(0.615)	(1.047)
Total Market Work	0.019***	0.017***	0.013***	0.013***	0.012***	0.012***	0.006**	0.023***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Day of the week	0.136	0.083	0.218	0.184	0.156	0.191	0.162	0.271
	(0.171)	(0.168)	(0.142)	(0.129)	(0.128)	(0.123)	(0.182)	(0.263)
Partner is in a working day	1.279	1.167	0.702	0.482	0.415	0.580	-0.862	-0.191
	(0.793)	(0.790)	(0.761)	(0.748)	(0.747)	(0.749)	(1.534)	(2.047)
Partner is Self-Empl.	0.917	0.596	0.043	0.079	-0.103	0.007	-0.645	-1.099
	(0.705)	(0.641)	(0.527)	(0.492)	(0.464)	(0.529)	(0.721)	(1.162)
Occupation	-0.122	-0.136	-0.045	-0.017	0.012	0.065	0.611***	1.179***
	(0.082)	(0.087)	(0.082)	(0.083)	(0.083)	(0.082)	(0.131)	(0.167)
Constant	7.512	8.238	0.454	-1.127	-0.329	-2.719	-6.456	-0.842
	(8.949)	(8.310)	(6.848)	(6.694)	(6.624)	(6.826)	(11.932)	(16.876)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Market Work* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A1 (Cont. I)– Timing of *Market Work* for mothers [1,2,3,4]

Market Work	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Self-Empl	-11.929***	-9.940***	-4.498**	-2.801	-1.251	-4.694**	-10.907***	-0.597
	(1.686)	(2.119)	(2.038)	(1.956)	(1.957)	(2.033)	(1.829)	(1.921)
Age	2.298**	2.005*	1.083	0.202	-0.906	0.038	2.898***	0.892
	(1.077)	(1.076)	(1.060)	(0.953)	(0.939)	(1.041)	(1.110)	(1.034)
Age Squared	-2.446*	-2.299*	-1.188	-0.113	1.353	0.497	-3.150**	-1.105
	(1.377)	(1.356)	(1.330)	(1.204)	(1.189)	(1.314)	(1.413)	(1.319)
Number of Family Members	3.652	-4.753	-3.377	-8.152**	-5.090	1.211	1.096	1.677
	(3.441)	(3.343)	(3.490)	(3.628)	(3.650)	(3.616)	(3.373)	(3.302)
Married (Ref.: Divorced)	14.694**	4.757	5.901	7.425	3.861	-1.896	2.154	-6.108
	(4.564)	(6.079)	(6.166)	(6.957)	(5.951)	(7.131)	(7.172)	(7.771)
Separated (Ref.: Divorced)	-17.997***	-7.730	17.969***	18.353***	14.387**	6.438	10.532	33.838***
	(5.310)	(6.214)	(6.284)	(6.340)	(6.093)	(11.641)	(24.854)	(7.453)
Universitary Education	0.006	0.038	0.033	0.026	0.057**	0.060**	0.025	-0.055**
	(0.024)	(0.025)	(0.024)	(0.024)	(0.024)	(0.026)	(0.024)	(0.022)
Secondary Education	-0.016	0.016	0.029	0.014	0.037*	0.027	-0.018	-0.043**
	(0.021)	(0.022)	(0.021)	(0.021)	(0.022)	(0.024)	(0.021)	(0.020)
Number of Children 0-2	-0.492	-2.615	-1.035	0.089	1.265	0.817	2.117	0.416
	(1.816)	(1.880)	(1.828)	(1.740)	(1.756)	(1.959)	(1.876)	(1.752)
Number of Children 3-5	-4.035**	-1.027	1.701	2.723*	2.266	1.188	-0.575	-1.716
	(1.743)	(1.647)	(1.481)	(1.427)	(1.587)	(1.786)	(1.665)	(1.481)
Number of Children 6-12	-1.232	-1.834	-0.302	0.478	1.742*	0.712	1.644	0.948
	(1.137)	(1.128)	(1.044)	(1.019)	(1.055)	(1.166)	(1.156)	(1.062)
Number of Children 13-17	-0.916	-0.928	0.203	1.098	0.801	-0.306	-0.727	0.352
	(1.425)	(1.382)	(1.256)	(1.174)	(1.240)	(1.407)	(1.388)	(1.297)
Total Market Work	0.061***	0.067***	0.058***	0.055***	0.062***	0.069***	0.054***	0.059***
	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)
Day of the week	0.053	-0.452	-0.521	-0.505	-0.594	-0.671*	-0.345	0.231
	(0.375)	(0.395)	(0.380)	(0.367)	(0.367)	(0.390)	(0.381)	(0.347)
Partner is in a working day	-0.638	-3.472	-3.147	-0.923	2.331	3.039	5.151**	-0.968
	(2.683)	(2.585)	(2.233)	(2.249)	(2.476)	(2.624)	(2.530)	(2.858)
Partner is Self-Empl.	-2.515	-2.178	-1.782	-1.054	-1.108	-4.048**	-0.511	-0.890
	(1.790)	(1.941)	(1.911)	(1.851)	(1.857)	(1.912)	(1.930)	(1.688)
Occupation	1.298***	0.664***	0.164	0.104	-0.087	-0.459**	0.010	-0.089
	(0.218)	(0.211)	(0.201)	(0.197)	(0.204)	(0.226)	(0.223)	(0.201)
Constant	-66.243***	-31.639	-4.318	12.417	29.314	0.739	-69.238***	-14.900
	(21.063)	(22.106)	(22.356)	(20.427)	(20.104)	(21.670)	(22.543)	(21.026)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Market Work* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A1 (Cont. II)– Timing of *Market Work* for mothers [1,2,3,4]

Market Work	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Self-Empl	3.626	11.215***	14.720***	12.919***	5.889***	1.689	2.770**	0.147
	(2.207)	(2.099)	(2.201)	(2.230)	(1.783)	(1.366)	(1.286)	(0.107)
Age	0.731	0.334	-0.825	-1.479	-1.127	0.179	-1.009	-0.131*
	(1.112)	(1.185)	(1.213)	(1.130)	(0.877)	(0.703)	(0.708)	(0.070)
Age Squared	-1.172	-0.824	0.611	1.499	1.045	-0.375	1.171	0.163*
	(1.411)	(1.511)	(1.541)	(1.427)	(1.095)	(0.895)	(0.889)	(0.087)
Number of Family Members	2.488	-1.879	-2.074	2.978	6.397**	5.476*	2.717	0.202
	(3.465)	(3.312)	(3.753)	(3.733)	(3.118)	(2.846)	(2.161)	(0.201)
Married (Ref.: Divorced)	-13.176*	-3.011	-5.660	-3.912	1.216	3.629*	-4.409	-0.376
	(5.701)	(5.735)	(7.533)	(7.188)	(6.877)	(1.997)	(3.293)	(0.343)
Separated (Ref.: Divorced)	-3.359	1.870	0.672	-15.331**	-10.041	-3.448	-3.644	-0.356
	(19.015)	(20.569)	(19.967)	(6.501)	(6.334)	(2.886)	(3.721)	(0.357)
Universitary Education	-0.008	0.009	-0.010	-0.047*	-0.091***	-0.048***	-0.022	-0.001
	(0.024)	(0.024)	(0.025)	(0.024)	(0.021)	(0.016)	(0.013)	(0.001)
Secondary Education	-0.009	0.030	0.019	-0.003	-0.042**	-0.021	-0.016	-0.001
	(0.021)	(0.021)	(0.022)	(0.021)	(0.020)	(0.015)	(0.012)	(0.001)
Number of Children 0-2	-2.039	-2.953	-1.156	-1.794	-0.112	0.986	1.689*	0.158*
	(1.951)	(1.989)	(1.968)	(1.830)	(1.517)	(1.081)	(1.016)	(0.094)
Number of Children 3-5	0.109	0.153	-0.058	0.885	0.045	-0.367	0.202	0.109
	(1.687)	(1.699)	(1.675)	(1.563)	(1.299)	(1.059)	(0.907)	(0.089)
Number of Children 6-12	-0.675	-1.753	-0.233	0.120	-0.191	0.271	0.226	0.012
	(1.152)	(1.147)	(1.140)	(1.099)	(0.904)	(0.741)	(0.537)	(0.052)
Number of Children 13-17	-0.080	0.231	0.820	0.012	0.580	0.631	0.152	0.016
	(1.431)	(1.380)	(1.420)	(1.346)	(1.104)	(0.877)	(0.698)	(0.057)
Total Market Work	0.070***	0.075***	0.069***	0.060***	0.043***	0.032***	0.031***	0.002***
	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.004)	(0.000)
Day of the week	0.174	0.272	0.263	0.217	0.296	0.127	-0.104	0.018
	(0.373)	(0.376)	(0.380)	(0.364)	(0.301)	(0.250)	(0.211)	(0.018)
Partner is in a working day	-1.356	-5.907**	-4.023	-2.933	-0.028	0.861	1.754	0.304***
	(3.085)	(2.956)	(2.904)	(2.739)	(2.406)	(1.826)	(1.341)	(0.070)
Partner is Self-Empl.	1.348	-0.330	0.914	2.457	1.715	0.344	1.001	0.182**
	(1.965)	(1.909)	(1.938)	(1.883)	(1.441)	(1.136)	(0.909)	(0.091)
Occupation	-0.303	-0.181	-0.166	-0.461**	-0.590***	-0.353***	-0.318***	-0.029***
	(0.225)	(0.232)	(0.234)	(0.216)	(0.168)	(0.130)	(0.111)	(0.010)
Constant	-6.974	-1.746	22.192	30.126	25.189	-9.723	13.328	1.719
	(22.546)	(23.981)	(24.721)	(23.091)	(18.823)	(13.777)	(14.690)	(1.422)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Market Work* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A2 – Timing of *Housework* for mothers [1,2,3,4]

Housework	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Self-Empl	-0.247	-0.429*	-0.007	-0.034	0.077	-0.039	-0.552**	1.946*
	(0.422)	(0.225)	(0.007)	(0.030)	(0.081)	(0.062)	(0.250)	(1.099)
Age	0.013	-0.105	0.012	0.004	0.012	0.021	0.046	0.170
	(0.179)	(0.224)	(0.012)	(0.014)	(0.009)	(0.024)	(0.174)	(0.434)
Age Squared	-0.037	0.127	-0.017	-0.007	-0.016	-0.021	-0.008	0.021
	(0.233)	(0.311)	(0.017)	(0.018)	(0.012)	(0.036)	(0.224)	(0.569)
Number of Family Members	1.593	0.478	-0.011	0.010	-0.029	-0.104**	-0.632	-2.123
	(1.484)	(0.819)	(0.012)	(0.014)	(0.023)	(0.041)	(0.412)	(1.295)
Married (Ref.: Divorced)	0.108	-0.178	0.011	0.765	0.001	0.469	-0.149	-4.984
	(0.566)	(1.337)	(0.013)	(0.014)	(0.016)	(0.332)	(1.196)	(3.936)
Separated (Ref.: Divorced)	-0.719	-1.463	-0.007	0.005	0.016	-0.057	-1.909**	4.324
	(0.835)	(1.338)	(0.016)	(0.030)	(0.019)	(0.101)	(0.920)	(14.425)
Universitary Education	0.763**	-0.334	-0.056	-0.015	0.050	-0.037	-0.706	-0.309
	(0.328)	(0.404)	(0.056)	(0.022)	(0.043)	(0.204)	(0.516)	(1.258)
Secondary Education	1.142***	-0.094	-0.057	0.031	0.017	-0.082	-0.829*	-2.198*
	(0.306)	(0.404)	(0.057)	(0.041)	(0.016)	(0.193)	(0.474)	(1.130)
Number of Children 0-2	0.280	0.260	-0.001	-0.002	-0.044	0.055	-0.186	0.676
	(0.292)	(0.222)	(0.002)	(0.028)	(0.032)	(0.103)	(0.287)	(0.742)
Number of Children 3-5	0.123	0.046	-0.005	0.027	0.007	0.111	-0.058	0.140
	(0.412)	(0.186)	(0.006)	(0.054)	(0.023)	(0.105)	(0.277)	(0.644)
Number of Children 6-12	-0.080	0.055	-0.006	0.005	-0.029	0.024	-0.066	-0.144
	(0.279)	(0.221)	(0.006)	(0.025)	(0.021)	(0.066)	(0.191)	(0.461)
Number of Children 13-17	0.564*	0.285	0.030	-0.006	-0.007	-0.037	-0.406**	0.279
	(0.338)	(0.270)	(0.030)	(0.015)	(0.015)	(0.047)	(0.197)	(0.719)
Total Housework	0.005***	0.001*	0.000	0.000	0.000	0.001*	0.001	0.016***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.002)
Day of the week	0.090	-0.015	0.000	-0.015	0.003	0.002	0.019	0.030
	(0.074)	(0.044)	(0.000)	(0.010)	(0.003)	(0.029)	(0.061)	(0.152)
Partner is in a working day	-0.385	0.157	0.019	0.020	0.025	0.092*	0.681**	2.020*
	(0.673)	(0.243)	(0.020)	(0.021)	(0.020)	(0.050)	(0.272)	(1.061)
Partner is Self-Empl.	0.019	0.440	-0.008	-0.026	-0.033	-0.022	-0.074	-1.026
	(0.452)	(0.404)	(0.009)	(0.021)	(0.026)	(0.075)	(0.343)	(0.860)
Occupation	-0.072	-0.021	-0.001	-0.009	0.010	0.014	-0.008	0.053
	(0.045)	(0.025)	(0.001)	(0.007)	(0.007)	(0.015)	(0.044)	(0.095)
Constant	-1.004	3.190	-0.153	0.016	-0.285	-0.729	-0.190	-0.704
	(3.511)	(4.007)	(0.154)	(0.242)	(0.213)	(0.518)	(3.345)	(9.055)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Housework* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A2 (Cont. I)– Timing of *Housework* for mothers [1,2,3,4]

Housework	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Self-Empl	4.522***	5.472***	2.988**	0.599	-0.031	2.311*	4.006***	1.257
	(1.313)	(1.421)	(1.522)	(1.329)	(1.285)	(1.364)	(1.312)	(1.553)
Age	0.292	0.627	-0.183	0.134	0.495	0.856	-0.185	-0.512
	(0.583)	(0.516)	(0.796)	(0.636)	(0.680)	(0.579)	(0.637)	(0.727)
Age Squared	-0.288	-0.903	0.085	-0.325	-0.733	-1.447**	-0.038	0.355
	(0.795)	(0.656)	(1.007)	(0.805)	(0.868)	(0.734)	(0.814)	(0.928)
Number of Family Members	-1.765	-0.797	1.493	3.659	4.709*	1.913	-0.371	-1.902
	(1.701)	(1.708)	(2.291)	(2.521)	(2.646)	(2.625)	(1.980)	(2.345)
Married (Ref.: Divorced)	-5.519	-3.935	-4.012	0.742	0.498	2.902	-2.312	0.197
	(3.127)	(4.978)	(4.040)	(4.028)	(3.095)	(3.509)	(3.590)	(4.779)
Separated (Ref.: Divorced)	27.715**	-8.335	-9.814***	-6.943*	-6.399**	3.985	10.860	-12.910***
	(12.202)	(5.627)	(3.387)	(3.631)	(2.515)	(9.775)	(21.225)	(3.464)
Universitary Education	-0.451	-0.460	0.374	0.038	-2.195	-3.901**	-1.648	-1.735
	(1.254)	(1.340)	(1.582)	(1.446)	(1.603)	(1.670)	(1.443)	(1.731)
Secondary Education	0.925	-0.052	-0.139	0.573	-1.203	-3.227**	0.238	0.265
	(1.174)	(1.210)	(1.374)	(1.282)	(1.514)	(1.566)	(1.355)	(1.632)
Number of Children 0-2	0.431	0.625	0.277	-0.542	-0.828	-0.464	-0.594	2.102
	(0.898)	(1.041)	(1.137)	(1.085)	(0.942)	(1.053)	(1.131)	(1.387)
Number of Children 3-5	-0.482	-1.131	-0.694	-0.740	-1.607*	-1.336	-0.686	0.611
	(0.776)	(0.892)	(0.896)	(0.883)	(0.935)	(0.911)	(1.013)	(1.169)
Number of Children 6-12	0.263	-0.287	-0.421	0.051	-0.191	-0.259	-0.198	0.531
	(0.621)	(0.642)	(0.684)	(0.697)	(0.700)	(0.717)	(0.746)	(0.806)
Number of Children 13-17	1.853**	-0.518	-0.904	-0.854	-0.458	1.364	0.943	0.566
	(0.896)	(0.879)	(0.778)	(0.768)	(0.895)	(0.931)	(0.885)	(0.995)
Total Housework	0.035***	0.044***	0.048***	0.041***	0.050***	0.051***	0.045***	0.050***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)
Day of the week	0.045	-0.117	-0.030	0.292	0.341	0.253	0.460**	-0.352
	(0.190)	(0.212)	(0.234)	(0.237)	(0.234)	(0.240)	(0.228)	(0.255)
Partner is in a working day	1.681	0.809	0.774	-0.924	-3.625*	0.011	-1.582	-1.870
	(1.277)	(1.399)	(1.461)	(1.638)	(1.862)	(1.786)	(1.634)	(1.926)
Partner is Self-Empl.	1.307	1.352	0.598	0.766	1.051	1.509	0.115	1.002
	(1.181)	(1.159)	(1.259)	(1.204)	(1.230)	(1.184)	(1.141)	(1.385)
Occupation	-0.184	-0.189	-0.085	-0.047	-0.013	0.119	-0.200	-0.042
	(0.114)	(0.125)	(0.142)	(0.127)	(0.126)	(0.128)	(0.124)	(0.148)
Constant	-4.432	-8.021	3.688	-4.115	-11.691	-15.313	11.242	17.433
	(11.079)	(11.042)	(16.070)	(12.919)	(13.260)	(11.652)	(12.849)	(14.480)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Housework* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A2 (Cont. II)– Timing of *Housework* for mothers [1,2,3,4]

Housework	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Self-Empl	-1.473	-3.165**	-3.684***	-5.639***	-2.522	-0.450	-0.223	-0.016
	(1.510)	(1.428)	(1.263)	(1.386)	(1.663)	(1.541)	(1.320)	(0.097)
Age	0.582	-0.099	-0.574	-0.297	-0.887	0.296	-1.156	-0.021
	(0.657)	(0.873)	(0.776)	(0.779)	(0.846)	(0.707)	(0.711)	(0.044)
Age Squared	-0.806	0.072	0.921	0.707	1.683	-0.370	1.330	0.036
	(0.830)	(1.106)	(1.024)	(1.004)	(1.111)	(0.903)	(0.894)	(0.058)
Number of Family Members	0.395	3.630	1.663	0.024	-2.638	-3.044	-1.510	0.318*
	(2.129)	(2.816)	(2.454)	(2.637)	(2.659)	(2.390)	(1.990)	(0.188)
Married (Ref.: Divorced)	6.527***	1.398	-5.812	5.628	0.424	5.269	6.207*	-0.393
	(4.072)	(4.600)	(6.030)	(3.961)	(4.794)	(4.840)	(3.617)	(0.439)
Separated (Ref.: Divorced)	-7.410***	-14.802***	-18.855***	10.147	-11.691**	3.330	-0.072	-0.905**
	(2.543)	(3.433)	(5.534)	(18.819)	(4.864)	(9.651)	(3.100)	(0.457)
Universitary Education	2.027	-1.216	0.088	-1.139	1.677	1.733	0.976	0.152
	(1.649)	(1.775)	(1.720)	(1.916)	(1.980)	(1.641)	(1.465)	(0.100)
Secondary Education	1.807	-1.695	1.404	0.381	0.660	2.997**	2.478*	0.181**
	(1.488)	(1.617)	(1.603)	(1.764)	(1.854)	(1.473)	(1.335)	(0.088)
Number of Children 0-2	-0.890	-0.513	2.103	0.611	-1.201	-1.487	0.551	0.033
	(1.273)	(1.189)	(1.454)	(1.498)	(1.322)	(1.345)	(1.130)	(0.076)
Number of Children 3-5	0.361	-0.909	1.102	1.805	-0.744	0.068	1.325	0.051
	(1.183)	(1.038)	(1.165)	(1.192)	(1.209)	(1.127)	(1.069)	(0.069)
Number of Children 6-12	-0.776	0.641	1.434	0.821	-0.103	0.350	0.859	0.031
	(0.779)	(0.825)	(0.917)	(0.900)	(0.941)	(0.824)	(0.700)	(0.051)
Number of Children 13-17	-0.202	2.090**	2.503**	0.809	0.150	0.972	1.032	0.040
	(1.010)	(1.047)	(1.086)	(1.095)	(1.189)	(1.023)	(0.841)	(0.062)
Total Housework	0.055***	0.048***	0.044***	0.045***	0.049***	0.041***	0.039***	0.002***
	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)	(0.000)
Day of the week	-0.388	-0.150	-0.257	-0.102	-0.648**	-0.175	-0.555**	0.006
	(0.256)	(0.252)	(0.262)	(0.282)	(0.289)	(0.258)	(0.226)	(0.017)
Partner is in a working day	1.775	0.064	-0.398	0.364	-0.487	-1.063	0.676	-0.029
	(1.715)	(1.900)	(1.981)	(1.946)	(2.237)	(2.066)	(1.634)	(0.116)
Partner is Self-Empl.	-0.836	-1.442	-0.679	0.760	1.636	0.864	-0.466	0.006
	(1.330)	(1.288)	(1.339)	(1.478)	(1.493)	(1.352)	(1.203)	(0.088)
Occupation	0.293*	-0.100	0.080	0.420**	0.440**	0.089	-0.025	-0.012
	(0.159)	(0.153)	(0.160)	(0.183)	(0.173)	(0.156)	(0.139)	(0.009)
Constant	-19.662	4.820	11.617	-5.686	14.929	-4.560	19.198	0.507
	(13.224)	(17.534)	(15.751)	(15.543)	(16.391)	(14.190)	(13.986)	(1.023)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Housework* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A3 – Timing of *Child Care* for mothers [1,2,3,4]

Child Care	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Self-Empl	0.293	0.279	-0.073	0.185	-0.109	-0.145	-0.400***	-1.287***
	(0.434)	(0.357)	(0.162)	(0.243)	(0.165)	(0.106)	(0.123)	(0.479)
Age	-0.030	0.068	-0.113	0.098	-0.111	-0.011	0.040	-0.279
	(0.108)	(0.077)	(0.123)	(0.067)	(0.105)	(0.083)	(0.089)	(0.341)
Age Squared	0.013	-0.085	0.137	-0.109	0.148	0.034	-0.046	0.357
	(0.132)	(0.092)	(0.143)	(0.079)	(0.126)	(0.098)	(0.105)	(0.417)
Number of Family Members	-0.351***	-0.134*	-0.074	-0.028	-0.095	0.515	-0.168	-1.002*
	(0.119)	(0.080)	(0.111)	(0.078)	(0.085)	(0.570)	(0.111)	(0.538)
Married (Ref.: Divorced)	0.332*	0.865	1.274	-0.034	-1.007**	-0.893*	-2.038	1.433*
	(0.182)	(1.158)	(0.231)	(0.148)	(0.498)	(0.518)	(1.765)	(1.176)
Separated (Ref.: Divorced)	0.286	0.212	0.314	0.064	-0.358	-0.665	-2.081	0.374
	(0.219)	(0.147)	(0.248)	(0.162)	(0.492)	(0.553)	(1.713)	(0.831)
Universitary Education	-0.321	0.109	-0.053	-0.098	-0.136	-0.495	0.047	0.965*
	(0.265)	(0.123)	(0.125)	(0.160)	(0.112)	(0.420)	(0.196)	(0.547)
Secondary Education	-0.032	0.003	0.097	0.002	-0.052	-0.435	0.012	0.901**
	(0.234)	(0.100)	(0.157)	(0.083)	(0.126)	(0.365)	(0.121)	(0.434)
Number of Children 0-2	0.202	0.502	-0.193	0.092	-0.080	0.149	0.491	0.140
	(0.321)	(0.383)	(0.487)	(0.258)	(0.397)	(0.417)	(0.352)	(0.702)
Number of Children 3-5	-0.296	0.188	-0.548	-0.217	-0.279	-0.382	-0.298	0.845
	(0.242)	(0.337)	(0.395)	(0.280)	(0.439)	(0.374)	(0.309)	(0.590)
Number of Children 6-12	0.197	0.021	-0.125	-0.164	-0.194	-0.064	-0.035	0.437
	(0.173)	(0.084)	(0.144)	(0.111)	(0.141)	(0.131)	(0.153)	(0.340)
Number of Children 13-17	0.437*	0.063	0.131	0.046	0.037	-0.034	0.205*	0.517
	(0.249)	(0.075)	(0.103)	(0.076)	(0.078)	(0.152)	(0.108)	(0.360)
Total Child Care	0.006**	0.003**	0.012**	0.007**	0.010*	0.008	0.010***	0.029***
	(0.003)	(0.002)	(0.006)	(0.003)	(0.006)	(0.005)	(0.003)	(0.005)
Day of the week	0.043	0.032	0.121*	0.064	0.028	0.037	0.065	0.142
	(0.068)	(0.036)	(0.063)	(0.040)	(0.043)	(0.046)	(0.047)	(0.111)
Partner is in a working day	-0.311	0.201**	0.087	0.098	-0.010	0.132	-0.150	-0.297
	(0.423)	(0.090)	(0.116)	(0.081)	(0.090)	(0.095)	(0.236)	(0.674)
Partner is Self-Empl.	0.165	-0.253*	-0.290**	-0.260**	0.278	-0.218*	-0.136	-0.303
	(0.320)	(0.148)	(0.125)	(0.114)	(0.240)	(0.127)	(0.183)	(0.502)
Occupation	-0.042*	-0.026	0.003	-0.028	-0.015	-0.011	-0.018	0.024
	(0.026)	(0.018)	(0.028)	(0.021)	(0.015)	(0.018)	(0.032)	(0.065)
Constant	0.728	-1.794	1.287	-2.356	2.493	0.578	1.097	3.263
	(2.076)	(1.590)	(2.365)	(1.502)	(2.119)	(1.743)	(2.474)	(6.597)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Child Care* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A3 (Cont. I)– Timing of *Child Care* for mothers [1,2,3,4]

Child Care	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Self-Empl	0.330	1.772***	1.113*	1.572*	-0.315	1.904**	0.905	0.568
	(0.905)	(0.623)	(0.653)	(0.802)	(0.442)	(0.918)	(0.612)	(0.605)
Age	0.377	-0.289	0.082	-0.154	-0.064	-0.286	-0.734**	-0.515
	(0.458)	(0.248)	(0.178)	(0.243)	(0.159)	(0.257)	(0.327)	(0.335)
Age Squared	-0.508	0.296	-0.112	0.147	0.042	0.277	0.856**	0.642
	(0.559)	(0.297)	(0.210)	(0.286)	(0.190)	(0.302)	(0.397)	(0.395)
Number of Family Members	-0.559	-0.394	1.168	0.780	-0.141	-0.430	-0.021	1.135
	(1.353)	(0.493)	(0.929)	(0.767)	(0.439)	(0.752)	(0.718)	(1.013)
Married (Ref.: Divorced)	-0.706	1.164	0.376	0.183	0.641	1.145	-1.569	-3.074
	(3.101)	(0.516)	(0.493)	(0.652)	(0.746)	(0.791)	(1.530)	(3.242)
Separated (Ref.: Divorced)	-1.124	0.988	0.961	0.924	0.938	2.043**	0.239	-2.444
	(2.612)	(0.638)	(0.592)	(0.677)	(0.594)	(0.837)	(1.359)	(3.140)
Universitary Education	-0.602	-1.484**	-0.069	-0.009	-0.766	-1.119	-0.020	-0.206
	(0.853)	(0.589)	(0.303)	(0.314)	(0.525)	(0.781)	(0.584)	(0.477)
Secondary Education	-0.188	-0.885*	0.344*	0.128	-0.295	-0.869	0.560	-0.370
	(0.714)	(0.506)	(0.200)	(0.251)	(0.431)	(0.659)	(0.436)	(0.394)
Number of Children 0-2	0.631	0.968	1.273*	-0.418	0.018	0.719	0.076	0.422
	(1.160)	(0.734)	(0.757)	(0.496)	(0.685)	(0.857)	(0.881)	(0.623)
Number of Children 3-5	2.431***	0.045	-0.248	-0.898**	-1.260**	-0.609	-0.215	0.046
	(0.853)	(0.484)	(0.467)	(0.451)	(0.635)	(0.756)	(0.648)	(0.526)
Number of Children 6-12	0.969**	0.110	-0.145	-0.449**	-0.467*	-0.601*	-0.164	0.127
	(0.492)	(0.251)	(0.247)	(0.189)	(0.252)	(0.351)	(0.313)	(0.284)
Number of Children 13-17	-1.133**	0.275	-0.049	0.039	0.177	0.113	0.174	0.165
	(0.457)	(0.257)	(0.217)	(0.210)	(0.245)	(0.337)	(0.332)	(0.251)
Total Child Care	0.042***	0.020***	0.015***	0.017***	0.027***	0.038***	0.038***	0.028***
	(0.006)	(0.005)	(0.006)	(0.006)	(0.007)	(0.007)	(0.007)	(0.005)
Day of the week	-0.103	-0.027	-0.040	-0.102	0.136	-0.080	0.071	0.039
	(0.146)	(0.088)	(0.094)	(0.086)	(0.105)	(0.118)	(0.126)	(0.100)
Partner is in a working day	-0.792	0.780*	-0.227	-0.343	-0.558	-0.479	-0.292	-0.109
	(1.035)	(0.451)	(0.464)	(0.732)	(0.745)	(0.681)	(0.657)	(0.439)
Partner is Self-Empl.	0.545	-0.047	0.725	0.120	0.108	-0.061	0.050	0.687
	(0.789)	(0.438)	(0.513)	(0.473)	(0.390)	(0.558)	(0.513)	(0.542)
Occupation	-0.065	-0.021	-0.086**	-0.053	-0.049	0.021	0.020	-0.086
	(0.087)	(0.051)	(0.042)	(0.048)	(0.053)	(0.066)	(0.070)	(0.059)
Constant	-4.017	5.714	-1.517	4.388	1.736	6.846	14.937**	13.018*
	(9.441)	(5.099)	(3.729)	(5.402)	(3.327)	(5.467)	(6.744)	(7.531)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Child Care* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A3 (Cont. II)– Timing of *Child Care* for mothers [1,2,3,4]

Child Care	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Self-Empl	-1.226*	-2.957***	-1.926*	-0.970	0.186	-0.037	0.485	-0.015
	(0.708)	(0.854)	(1.036)	(1.128)	(1.193)	(0.994)	(0.701)	(0.042)
Age	-0.041	0.337	-0.012	0.331	1.024*	0.564	-0.239	-0.004
	(0.388)	(0.451)	(0.582)	(0.478)	(0.534)	(0.435)	(0.382)	(0.024)
Age Squared	0.100	-0.303	0.150	-0.256	-1.093	-0.803	0.144	-0.003
	(0.466)	(0.546)	(0.707)	(0.585)	(0.666)	(0.528)	(0.456)	(0.028)
Number of Family Members	-1.240**	0.871	2.090	-1.002	-0.363	-0.031	0.200	-0.072**
	(0.577)	(1.713)	(1.729)	(1.192)	(1.619)	(1.488)	(0.963)	(0.030)
Married (Ref.: Divorced)	2.044	-3.680	0.677	-2.416	7.913**	-3.184	3.577***	0.082
	(1.245)	(2.525)	(3.214)	(3.810)	(1.778)	(4.902)	(2.031)	(0.103)
Separated (Ref.: Divorced)	1.865	-1.033	0.689	-2.491	3.145	-5.875	2.584*	0.045
	(1.255)	(1.728)	(1.653)	(2.983)	(2.038)	(4.065)	(1.505)	(0.110)
Universitary Education	-1.654*	0.336	0.335	1.209	1.968*	2.190**	0.019	-0.015
	(0.927)	(0.985)	(1.123)	(0.989)	(1.174)	(1.003)	(0.848)	(0.046)
Secondary Education	-0.639	0.070	-0.194	1.365*	1.144	-0.292	-0.375	0.000
	(0.768)	(0.843)	(0.913)	(0.773)	(0.921)	(0.755)	(0.701)	(0.039)
Number of Children 0-2	0.385	-3.209**	-3.854***	-3.228**	1.848	2.678**	0.215	0.017
	(1.319)	(1.327)	(1.462)	(1.556)	(1.624)	(1.333)	(1.015)	(0.065)
Number of Children 3-5	-0.602	-0.719	0.019	-0.064	2.842**	0.809	-0.168	-0.042
	(0.765)	(1.044)	(1.221)	(1.191)	(1.141)	(1.018)	(0.726)	(0.067)
Number of Children 6-12	-0.596	-0.629	0.248	0.527	0.537	-0.112	0.522	0.005
	(0.437)	(0.551)	(0.671)	(0.668)	(0.674)	(0.574)	(0.433)	(0.033)
Number of Children 13-17	-0.633*	-0.100	-0.359	-0.934*	0.581	-0.542	0.242	0.058*
	(0.342)	(0.596)	(0.612)	(0.566)	(0.753)	(0.661)	(0.468)	(0.031)
Total Child Care	0.057***	0.126***	0.124***	0.125***	0.120***	0.075***	0.039***	0.002***
	(0.008)	(0.008)	(0.010)	(0.012)	(0.011)	(0.009)	(0.006)	(0.001)
Day of the week	0.126	0.199	-0.119	-0.346*	-0.473**	-0.405**	0.360***	0.023**
	(0.142)	(0.188)	(0.200)	(0.195)	(0.196)	(0.181)	(0.135)	(0.010)
Partner is in a working day	-0.364	1.103	1.404	-0.256	1.462	-0.029	-0.247	-0.081
	(0.744)	(0.866)	(0.875)	(1.229)	(1.191)	(0.900)	(0.849)	(0.083)
Partner is Self-Empl.	1.025	0.163	1.223	-0.219	-2.031**	-0.187	-0.946	-0.014
	(0.799)	(0.881)	(1.059)	(1.035)	(1.034)	(0.846)	(0.591)	(0.046)
Occupation	-0.108	0.228**	0.082	0.107	0.207	-0.071	0.061	-0.007
	(0.087)	(0.104)	(0.122)	(0.115)	(0.127)	(0.106)	(0.085)	(0.005)
Constant	-0.371	-10.725	-4.312	-6.519	-28.831***	-0.370	2.956	0.177
	(8.039)	(9.139)	(11.521)	(9.893)	(10.412)	(9.827)	(7.888)	(0.494)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Child Care* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A4 – Timing of *Aggregate Housework* for mothers [1,2,3,4]

Ag. Housework	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Self-Empl	0.049	-0.157	-0.148	0.121	-0.081	-0.220*	-1.001***	0.632
	(0.649)	(0.427)	(0.159)	(0.251)	(0.189)	(0.128)	(0.284)	(1.251)
Age	-0.024	-0.029	-0.009	0.139*	-0.035	0.055	0.149	-0.093
	(0.216)	(0.241)	(0.119)	(0.082)	(0.115)	(0.064)	(0.195)	(0.607)
Age Squared	-0.018	0.029	-0.012	-0.173*	0.039	-0.054	-0.146	0.338
	(0.277)	(0.330)	(0.138)	(0.102)	(0.141)	(0.075)	(0.246)	(0.771)
Number of Family Members	1.239	0.335	-0.143	-0.047	-0.168*	0.379	-0.842**	-3.169**
	(1.494)	(0.827)	(0.108)	(0.084)	(0.092)	(0.572)	(0.396)	(1.364)
Married (Ref.: Divorced)	0.421	0.664	0.210	0.006	-0.556	-0.463	-2.341	-3.583
	(0.632)	(1.376)	(1.543)	(0.148)	(0.573)	(0.686)	(2.344)	(3.891)
Separated (Ref.: Divorced)	-0.512	-1.322	0.029	-0.126	-0.583	-0.918	-4.222**	4.196
	(0.860)	(1.381)	(0.179)	(0.194)	(0.584)	(0.649)	(2.095)	(14.622)
Universitary Education	0.484	-0.182	0.078	0.009	0.072	-0.406	-0.508	0.944
	(0.434)	(0.426)	(0.146)	(0.145)	(0.138)	(0.444)	(0.555)	(1.414)
Secondary Education	1.126***	-0.076	0.099	0.074	0.017	-0.475	-0.768	-1.193
	(0.391)	(0.425)	(0.157)	(0.106)	(0.108)	(0.405)	(0.488)	(1.263)
Number of Children 0-2	0.507	0.875*	0.625*	0.494**	0.491**	0.661**	0.902*	1.356
	(0.476)	(0.463)	(0.351)	(0.205)	(0.229)	(0.272)	(0.462)	(1.102)
Number of Children 3-5	-0.165	0.282	-0.192	-0.014	-0.002	-0.070	-0.094	1.214
	(0.496)	(0.395)	(0.276)	(0.227)	(0.327)	(0.281)	(0.382)	(0.876)
Number of Children 6-12	0.091	0.063	-0.137	-0.182	-0.240	-0.059	-0.117	0.173
	(0.362)	(0.241)	(0.153)	(0.127)	(0.152)	(0.160)	(0.252)	(0.615)
Number of Children 13-17	0.970**	0.303	-0.086	-0.103	-0.168	-0.223	-0.391*	0.521
	(0.412)	(0.274)	(0.101)	(0.113)	(0.109)	(0.183)	(0.226)	(0.862)
Total Ag. Housework	0.006***	0.002**	0.002*	0.002**	0.002*	0.003*	0.003**	0.023***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.003)
Day of the week	0.129	0.013	0.096*	0.035	0.011	0.023	0.064	0.141
	(0.102)	(0.059)	(0.057)	(0.041)	(0.037)	(0.051)	(0.078)	(0.196)
Partner is in a working day	-0.730	0.354	0.199*	0.133	0.067	0.254***	0.583	1.613
	(0.878)	(0.256)	(0.105)	(0.083)	(0.075)	(0.095)	(0.361)	(1.330)
Partner is Self-Empl.	0.166	0.181	-0.270**	-0.288**	0.258	-0.235	-0.198	-1.399
	(0.569)	(0.434)	(0.108)	(0.122)	(0.247)	(0.152)	(0.397)	(1.030)
Occupation	-0.116**	-0.051	-0.013	-0.046*	-0.017	-0.006	-0.038	0.058
	(0.057)	(0.034)	(0.030)	(0.027)	(0.022)	(0.025)	(0.057)	(0.121)
Constant	-0.286	1.190	-0.512	-3.120*	0.991	-1.047	-0.274	1.653
	(4.191)	(4.390)	(2.290)	(1.738)	(2.286)	(1.462)	(4.145)	(12.291)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Ag. Housework* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A4 (Cont. I)– Timing of *Aggregate Housework* for mothers [1,2,3,4]

Ag. Housework	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Self-Empl	4.875***	7.375***	4.260***	2.283	-0.252	4.290***	4.952***	1.962
	(1.553)	(1.561)	(1.637)	(1.505)	(1.373)	(1.601)	(1.435)	(1.641)
Age	0.613	0.162	-0.302	-0.162	0.315	0.468	-0.974	-1.215
	(0.762)	(0.592)	(0.821)	(0.680)	(0.705)	(0.635)	(0.684)	(0.804)
Age Squared	-0.737	-0.358	0.269	0.033	-0.516	-1.027	0.896	1.262
	(0.998)	(0.740)	(1.033)	(0.853)	(0.895)	(0.798)	(0.865)	(1.013)
Number of Family Members	-2.332	-1.081	2.806	4.542*	4.662*	1.546	-0.358	-0.658
	(2.078)	(1.782)	(2.569)	(2.703)	(2.742)	(2.728)	(2.216)	(2.416)
Married (Ref.: Divorced)	-6.467	-3.695	-3.457	-1.817	4.146*	3.934	-8.721**	-4.216
	(4.653)	(5.402)	(4.433)	(4.149)	(3.165)	(3.668)	(3.747)	(5.544)
Separated (Ref.: Divorced)	26.162**	-6.805	-7.979**	-5.390	-4.811*	6.322	11.271	-14.920***
	(11.461)	(5.711)	(3.743)	(3.694)	(2.503)	(10.005)	(21.552)	(4.098)
Universitary Education	-0.830	-2.307	-0.253	-0.372	-3.364**	-5.219***	-1.784	-2.249
	(1.544)	(1.465)	(1.602)	(1.473)	(1.650)	(1.839)	(1.530)	(1.823)
Secondary Education	0.824	-1.052	0.021	0.569	-1.634	-4.158**	0.762	-0.198
	(1.397)	(1.311)	(1.383)	(1.308)	(1.545)	(1.696)	(1.393)	(1.707)
Number of Children 0-2	1.081	0.024	-0.473	-2.400*	-2.097*	-0.636	-1.010	0.960
	(1.437)	(1.333)	(1.452)	(1.236)	(1.239)	(1.377)	(1.360)	(1.510)
Number of Children 3-5	1.945	-1.778*	-1.828*	-2.268**	-3.428***	-2.339*	-1.117	-0.036
	(1.182)	(1.048)	(1.045)	(0.998)	(1.105)	(1.228)	(1.136)	(1.274)
Number of Children 6-12	1.078	-0.160	-0.481	-0.335	-0.570	-0.856	-0.356	0.637
	(0.824)	(0.711)	(0.764)	(0.736)	(0.752)	(0.815)	(0.790)	(0.869)
Number of Children 13-17	0.566	0.236	-0.274	-0.329	0.183	1.744*	1.268	1.172
	(1.030)	(0.912)	(0.821)	(0.805)	(0.937)	(1.014)	(0.926)	(1.024)
Total Ag. Housework	0.043***	0.039***	0.039***	0.035***	0.042***	0.049***	0.044***	0.047***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)
Day of the week	-0.077	-0.095	0.001	0.241	0.526**	0.200	0.546**	-0.269
	(0.250)	(0.236)	(0.261)	(0.258)	(0.262)	(0.272)	(0.254)	(0.268)
Partner is in a working day	0.665	1.418	0.419	-1.355	-4.214**	-0.572	-1.927	-2.206
	(1.743)	(1.490)	(1.554)	(1.792)	(2.015)	(1.872)	(1.783)	(2.007)
Partner is Self-Empl.	1.736	1.252	1.305	0.875	1.173	1.414	0.149	1.607
	(1.409)	(1.246)	(1.399)	(1.313)	(1.330)	(1.324)	(1.235)	(1.454)
Occupation	-0.260*	-0.181	-0.128	-0.069	-0.032	0.157	-0.170	-0.101
	(0.146)	(0.139)	(0.154)	(0.139)	(0.142)	(0.147)	(0.141)	(0.156)
Constant	-8.247	0.841	6.129	3.086	-7.490	-6.671	27.165*	33.648**
	(14.905)	(12.654)	(16.698)	(13.976)	(13.737)	(12.853)	(13.986)	(16.197)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Ag. Housework* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A4 (Cont. II)– Timing of *Aggregate Housework* for mothers [1,2,3,4]

Ag. Housework	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Self-Empl	-2.683	-6.502***	-6.090***	-7.087***	-2.803	-0.684	0.270	-0.032
	(1.632)	(1.520)	(1.563)	(1.750)	(1.918)	(1.597)	(1.456)	(0.105)
Age	0.509	0.729	0.074	0.691	0.792	1.129	-1.410*	-0.023
	(0.767)	(0.978)	(0.927)	(0.914)	(0.933)	(0.836)	(0.820)	(0.049)
Age Squared	-0.669	-0.947	0.144	-0.473	-0.318	-1.554	1.492	0.030
	(0.962)	(1.228)	(1.198)	(1.163)	(1.206)	(1.049)	(1.019)	(0.063)
Number of Family Members	-0.843	4.158	3.365	-1.364	-3.362	-3.237	-1.307	0.245
	(2.182)	(3.254)	(2.846)	(2.870)	(2.813)	(2.513)	(2.167)	(0.189)
Married (Ref.: Divorced)	8.508***	-1.400	-4.380	5.708	4.890	2.902	10.014***	-0.346
	(2.177)	(5.198)	(5.081)	(5.078)	(3.888)	(6.498)	(2.771)	(0.597)
Separated (Ref.: Divorced)	-5.700**	-17.822***	-19.840***	5.988	-9.883*	-3.276	2.472	-0.868
	(2.899)	(3.996)	(5.302)	(19.131)	(5.202)	(10.569)	(4.035)	(0.541)
Universitary Education	0.449	0.400	1.583	1.226	4.614**	4.423**	1.013	0.143
	(1.823)	(1.997)	(1.971)	(2.148)	(2.215)	(1.764)	(1.573)	(0.113)
Secondary Education	1.198	-1.207	1.568	2.103	2.094	2.861*	2.111	0.183*
	(1.621)	(1.768)	(1.775)	(1.937)	(2.031)	(1.562)	(1.396)	(0.099)
Number of Children 0-2	-0.575	1.077	3.834**	2.946	5.906***	3.518**	0.710	0.069
	(1.638)	(1.684)	(1.833)	(1.938)	(1.860)	(1.636)	(1.401)	(0.096)
Number of Children 3-5	-0.276	0.478	3.590**	4.201***	4.431***	1.905	1.132	0.017
	(1.321)	(1.383)	(1.508)	(1.570)	(1.538)	(1.377)	(1.239)	(0.093)
Number of Children 6-12	-1.437*	-0.158	1.716	1.380	0.551	0.240	1.360*	0.036
	(0.855)	(0.960)	(1.056)	(1.066)	(1.102)	(0.973)	(0.779)	(0.062)
Number of Children 13-17	-0.877	0.411	0.527	-1.735	-0.707	-0.255	1.270	0.092
	(1.046)	(1.176)	(1.189)	(1.212)	(1.288)	(1.115)	(0.906)	(0.070)
Total Ag. Housework	0.058***	0.068***	0.056***	0.057***	0.056***	0.047***	0.040***	0.002***
	(0.004)	(0.004)	(0.004)	(0.005)	(0.004)	(0.004)	(0.004)	(0.000)
Day of the week	-0.268	-0.117	-0.540*	-0.610*	-1.265***	-0.650**	-0.196	0.028
	(0.285)	(0.305)	(0.315)	(0.333)	(0.332)	(0.295)	(0.257)	(0.019)
Partner is in a working day	1.307	1.517	1.754	0.853	1.806	-0.798	0.391	-0.108
	(1.962)	(2.058)	(2.126)	(2.369)	(2.453)	(2.149)	(1.853)	(0.142)
Partner is Self-Empl.	0.137	-1.209	0.802	0.797	-0.086	0.775	-1.431	-0.007
	(1.506)	(1.517)	(1.691)	(1.756)	(1.672)	(1.462)	(1.311)	(0.100)
Occupation	0.181	0.028	0.064	0.429**	0.562***	-0.023	0.036	-0.020*
	(0.173)	(0.182)	(0.192)	(0.208)	(0.200)	(0.175)	(0.154)	(0.011)
Constant	-19.792	-15.347	-4.045	-23.509	-24.722	-9.639	22.299	0.647
	(15.468)	(19.591)	(18.482)	(18.314)	(18.030)	(17.360)	(16.324)	(1.183)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Ag. Housework* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A5 – Timing of *Child Care* for fathers [1,2,3,4]

Child Care	0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8
Market Work of Partner (0,1)	0.039	-0.013*	-0.014*	-0.024**	0.023	-0.006	0.005	0.049**
	(0.028)	(0.007)	(0.008)	(0.011)	(0.030)	(0.004)	(0.012)	(0.021)
Age	-0.007	-0.004	0.002	0.004**	0.003**	-0.006	0.002	0.004
	(0.005)	(0.004)	(0.002)	(0.002)	(0.002)	(0.004)	(0.002)	(0.009)
Age Squared	0.009	0.004	-0.002	-0.005**	-0.003*	0.006	-0.002	-0.005
	(0.006)	(0.004)	(0.002)	(0.002)	(0.002)	(0.005)	(0.003)	(0.010)
Number of Family Members	-0.008**	-0.004	-0.003	-0.005	-0.002	-0.002	-0.005*	-0.041**
	(0.003)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)	(0.003)	(0.019)
Married (Ref.: Divorced)	0.004	0.029	0.001	0.000	-0.100	-0.004	-0.002	-0.049
	(0.004)	(0.004)	(0.003)	(0.037)	(0.093)	(0.004)	(0.003)	(0.097)
Separated (Ref.: Divorced)	0.007	0.008	0.003	0.002	-0.099	0.004	0.006	-0.061
	(0.007)	(0.007)	(0.003)	(0.006)	(0.093)	(0.003)	(0.005)	(0.096)
Universitary Education	0.015**	0.001	-0.004	-0.005	-0.001	-0.001	-0.004	0.007
	(0.008)	(0.004)	(0.005)	(0.007)	(0.003)	(0.001)	(0.007)	(0.026)
Secondary Education	0.005	0.000	-0.001	0.000	0.000	0.001	-0.007	-0.035
	(0.004)	(0.003)	(0.001)	(0.001)	(0.002)	(0.003)	(0.006)	(0.022)
Number of Children 0-2	0.016	0.006	0.003	0.006	0.002	0.009	0.003	0.047**
	(0.011)	(0.009)	(0.007)	(0.010)	(0.006)	(0.008)	(0.005)	(0.023)
Number of Children 3-5	0.003	-0.003	-0.004	-0.006	-0.001	-0.006*	0.005	0.032
	(0.007)	(0.006)	(0.004)	(0.006)	(0.004)	(0.004)	(0.008)	(0.022)
Number of Children 6-12	0.005	0.003	-0.001	-0.001	0.002	-0.001	-0.001	-0.005
	(0.005)	(0.003)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)	(0.011)
Number of Children 13-17	0.002	0.004*	0.000	0.000	0.000	0.002	-0.005	-0.013
	(0.004)	(0.003)	(0.001)	(0.002)	(0.002)	(0.002)	(0.004)	(0.011)
Total Child Care	0.000	0.000*	0.000*	0.000**	0.000*	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Day of the week	0.002	0.002*	0.001	0.001	0.000	0.001	0.002	0.005
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)
Partner is in a working day	0.008	-0.001	-0.002	-0.003*	0.004	-0.002	0.000	0.011
	(0.008)	(0.002)	(0.001)	(0.002)	(0.005)	(0.001)	(0.004)	(0.018)
Partner is Self-Empl.	0.000	-0.005	0.000	-0.002	0.004	0.007	0.004	0.041**
	(0.008)	(0.010)	(0.007)	(0.009)	(0.005)	(0.004)	(0.007)	(0.019)
Occupation	0.000	0.000	-0.001*	0.000	0.000	0.000	-0.001*	-0.002
	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.002)
Constant	0.117	0.076	-0.043	-0.105**	0.028	0.114	-0.044	-0.015
	(0.102)	(0.079)	(0.036)	(0.050)	(0.093)	(0.094)	(0.052)	(0.224)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Child Care* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A5 (Cont. I)– Timing of *Child Care* for fathers [1,2,3,4]

Child Care	8-9	9-10	10-11	11-12	12-13	13-14	14-15	15-16
Market Work of Partner (0,1)	0.073***	0.020*	0.006	-0.008	0.009	0.017	0.031***	0.016
	(0.017)	(0.011)	(0.011)	(0.012)	(0.010)	(0.012)	(0.011)	(0.012)
Age	0.027***	0.018***	0.011**	0.004	0.006	0.000	-0.005	0.007
	(0.009)	(0.005)	(0.005)	(0.004)	(0.005)	(0.008)	(0.010)	(0.007)
Age Squared	-0.030***	-0.022***	-0.012**	-0.005	-0.007	-0.002	0.004	-0.008
	(0.011)	(0.006)	(0.006)	(0.005)	(0.006)	(0.009)	(0.011)	(0.008)
Number of Family Members	0.021	0.039	-0.018	-0.031***	0.001	-0.020	-0.004	-0.023
	(0.045)	(0.032)	(0.014)	(0.010)	(0.019)	(0.020)	(0.024)	(0.019)
Married (Ref.: Divorced)	-0.202*	-0.074	0.128**	0.049	0.068	-0.116	-0.081	-0.019
	(0.110)	(0.077)	(0.057)	(0.022)	(0.044)	(0.077)	(0.081)	(0.021)
Separated (Ref.: Divorced)	-0.158	-0.076	0.038	0.027	0.025	-0.064	-0.044	0.028
	(0.111)	(0.077)	(0.030)	(0.024)	(0.025)	(0.075)	(0.080)	(0.022)
Universitary Education	0.016	-0.003	-0.003	-0.007	-0.003	-0.031	-0.019	0.011
	(0.025)	(0.015)	(0.012)	(0.011)	(0.013)	(0.022)	(0.020)	(0.012)
Secondary Education	0.004	0.000	0.007	0.003	0.000	-0.020	-0.021	0.014*
	(0.019)	(0.014)	(0.009)	(0.009)	(0.010)	(0.020)	(0.017)	(0.007)
Number of Children 0-2	0.133***	0.020	0.011	-0.007	0.003	0.000	-0.013	0.015
	(0.031)	(0.018)	(0.016)	(0.015)	(0.016)	(0.020)	(0.021)	(0.022)
Number of Children 3-5	0.075***	0.008	0.007	-0.011	-0.008	-0.004	-0.015	0.019
	(0.025)	(0.015)	(0.012)	(0.011)	(0.013)	(0.016)	(0.015)	(0.017)
Number of Children 6-12	0.024*	-0.004	-0.001	-0.007	0.001	-0.006	-0.007	-0.012
	(0.013)	(0.009)	(0.007)	(0.006)	(0.007)	(0.009)	(0.009)	(0.008)
Number of Children 13-17	-0.020	-0.009	0.003	-0.003	-0.003	-0.005	0.010	-0.008
	(0.014)	(0.008)	(0.007)	(0.007)	(0.007)	(0.011)	(0.011)	(0.007)
Total Child Care	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Day of the week	0.000	0.000	0.002	-0.002	0.007**	0.004	-0.004	0.005*
	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Partner is in a working day	0.061***	0.037**	0.008	-0.009	0.006	0.012	0.003	-0.022***
	(0.023)	(0.016)	(0.010)	(0.006)	(0.010)	(0.015)	(0.013)	(0.007)
Partner is Self-Empl.	-0.005	-0.107***	-0.138***	-0.103***	-0.086***	-0.096***	-0.012	-0.005
	(0.028)	(0.028)	(0.028)	(0.026)	(0.025)	(0.029)	(0.022)	(0.022)
Occupation	-0.001	0.001	0.001	0.000	-0.001	0.001	0.000	-0.002
	(0.002)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Constant	-0.498**	-0.221	-0.175	0.020	-0.105	0.169	0.232	-0.178
	(0.227)	(0.136)	(0.114)	(0.095)	(0.115)	(0.181)	(0.221)	(0.151)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Child Care* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

Table III.A5 (Cont. II)– Timing of *Child Care* for fathers [1,2,3,4]

Child Care	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
Market Work of Partner (0,1)	0.001	0.043***	0.032**	0.037**	0.018	0.008	0.022	-0.040
	(0.012)	(0.015)	(0.015)	(0.019)	(0.023)	(0.030)	(0.033)	(0.059)
Age	-0.006	0.012	0.018*	-0.014	-0.010	0.015	0.006	-0.051
	(0.012)	(0.010)	(0.010)	(0.012)	(0.013)	(0.013)	(0.012)	(0.035)
Age Squared	0.007	-0.012	-0.018	0.014	0.011	-0.019	-0.008	0.055
	(0.013)	(0.011)	(0.011)	(0.014)	(0.015)	(0.015)	(0.013)	(0.038)
Number of Family Members	0.022	-0.005	0.029	0.007	0.020	-0.062*	0.085*	0.034
	(0.036)	(0.032)	(0.036)	(0.039)	(0.041)	(0.034)	(0.048)	(0.038)
Married (Ref.: Divorced)	0.039	0.072*	0.068*	0.002	0.025	0.025	-0.024	0.051**
	(0.037)	(0.038)	(0.050)	(0.084)	(0.099)	(0.097)	(0.105)	(0.127)
Separated (Ref.: Divorced)	0.057**	0.009	0.015	-0.051	-0.014	-0.049	-0.087	0.086*
	(0.028)	(0.041)	(0.044)	(0.085)	(0.083)	(0.078)	(0.106)	(0.052)
Universitary Education	-0.022	0.000	0.030	0.006	-0.004	0.068**	0.011	-0.039
	(0.020)	(0.021)	(0.020)	(0.030)	(0.031)	(0.027)	(0.021)	(0.045)
Secondary Education	-0.017	0.018	0.011	-0.027	-0.035	0.026	0.028*	-0.026
	(0.017)	(0.016)	(0.014)	(0.024)	(0.025)	(0.019)	(0.016)	(0.037)
Number of Children 0-2	-0.013	-0.023	-0.033	-0.034	0.032	0.078**	0.005	-0.033
	(0.023)	(0.025)	(0.024)	(0.030)	(0.030)	(0.034)	(0.026)	(0.046)
Number of Children 3-5	0.012	0.001	-0.029	0.021	0.047*	0.035	0.032	0.006
	(0.017)	(0.019)	(0.019)	(0.023)	(0.026)	(0.026)	(0.022)	(0.037)
Number of Children 6-12	-0.005	0.012	0.005	0.028**	-0.005	-0.002	0.011	-0.014
	(0.010)	(0.012)	(0.012)	(0.014)	(0.014)	(0.016)	(0.014)	(0.018)
Number of Children 13-17	0.008	0.004	-0.010	0.001	-0.037**	-0.055***	-0.035***	0.002
	(0.010)	(0.012)	(0.012)	(0.014)	(0.015)	(0.016)	(0.013)	(0.015)
Total Child Care	0.002***	0.003***	0.003***	0.003***	0.003***	0.002***	0.001***	0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Day of the week	0.003	-0.001	-0.007*	-0.002	0.000	-0.010**	-0.001	0.026***
	(0.003)	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.004)	(0.007)
Partner is in a working day	0.010	-0.025*	-0.006	-0.034*	-0.043**	0.007	-0.015	-0.033**
	(0.015)	(0.014)	(0.017)	(0.019)	(0.019)	(0.021)	(0.018)	(0.015)
Partner is Self-Empl.	0.034	0.035	0.025	0.109***	0.115***	0.091***	0.013	-0.001
	(0.023)	(0.028)	(0.027)	(0.028)	(0.031)	(0.032)	(0.029)	(0.055)
Occupation	0.000	0.002	0.000	0.001	-0.004	-0.004	-0.006***	-0.008**
	(0.001)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)	(0.003)
Constant	0.059	-0.410*	-0.484**	0.228	0.197	-0.301	-0.022	1.102
	(0.254)	(0.225)	(0.229)	(0.276)	(0.298)	(0.297)	(0.274)	(0.772)
Observations	1,433	1,433	1,433	1,433	1,433	1,433	1,433	1,433

Notes: [1] Robust standard errors in brackets [2] Sample consists on non-retired/non-student partnered working mothers of children under 18 in the STUS (2002-2003) [3] *Child Care* is measured in minutes per day [4] * Significant at 10% level ** Significant at 5% level *** Significant at 1% level.

IV. Racial Discrimination and Household Chores

Despite increases in female labour force participation rates in most developed countries during the last 40 years (OECD [2005]), such increases have not been fully compensated by similar decreases in the time women devote to household labour (Gershuny [2000], Sayer [2005], Bianchi, Robinson and Milkie [2006]). Gershuny [2000] shows that, between 1960 and 1990, women spent on average 17 minutes more per day on work than men. This gender gap increases to 57 minutes per day when we compare full-time working women with men (pp. 165-169). Although these figures can hardly count as a "double burden," one could still argue that it is a significant gap. After all, 57 minutes a day is almost seven hours a week or 347 hours a year, equivalent to more than eight and a half normal working weeks. Thus, many wives have become paid workers as well as homemakers, and continue to do more of the housework and parenting, which creates a "double burden" or "second shift" for many working women (Hochschild and Machung [1989], Schor [1991], Robinson and Godbey [1997]).

Traditional models of the household cannot successfully explain the fact that, despite the general increase in female labour force participation rates and human capital, specialization within the household has remained relatively constant. Unitary household models predict that the partner with the lowest human capital - or the highest home productivity - contributes the most to household production (Becker, Murphy, and Tamura [1990]). In contrast, intra-household bargaining models take the view that the family is a place of conflict and cooperation (Manser and Brown [1980], McElroy and Horney [1981] and Lundberg and Pollak [1996]) and, according to such models, an increase in women's

economic opportunities outside the home improves their bargaining position within the household, resulting in a decrease of their contribution to household production.

An alternative approach to traditional models of the household is based on competitive marriage market models, such as Becker [1973,1991], Grossbard-Shechtman [1984], and Choo and Siow [2006]. Within this approach, Grossbard-Shechtman's [1984] theory focuses on the concept of compensating differentials in marriage markets, where marriage markets are defined as markets for partners' work in household chores, and where individuals with undesirable characteristics need to work harder within the couple in order to compensate for their partners' desirable characteristics. Furthermore, considering the U.S. marriage markets, we find that dark skin colour is associated with a lower status, and thus can be considered an undesirable characteristic, as shown by Hamilton, Goldsmith and Darity [2009]. The authors argue that "the preference for whiteness (*colorism*) can be explained in societies such as the United States, where the racialization process was achieved via colonialism and the enslavement of African peoples (Williams [1942])… *colorism* functions as a specific type of racism associated with the stigmatization of persons with darker skin and the privileging of those with lighter skin".[1]

Within this framework, we analyze the factors that influence the time devoted to household labour, focusing on the association between the time allocated to household labour and skin colour as a test for racial discrimination (*colorism*) against blacks in U.S. marriage markets. To that end, we use the American Time Use Survey (ATUS) for the years 2003-2008 to analyze the time devoted to household labour by partnered male and female respondents of the ATUS, controlling for individual's and partner's race (skin colour). We find that *White*

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[1] Previous studies have shown skin colour to be a factor in racial discrimination. For instance, Goldsmith, Hamilton and Darity [2007] have shown that there are significant earnings penalties associated with being a darker skinned male in U.S. labour markets, while Hersch [2010] has also shown that recent immigrants who are darker-skinned suffer a wage penalty in those same labour markets. However, recent studies on time allocation

men and women devote less time to household chores when in couple with *Black* partners, than when in couple with *White* partners, and their *Black* partners work more time in chores than their *White* partners. We also find that *Black* men and women obtain fewer hours of household chores from *White* partners than from their *Black* partners. *Black* housewives also appear to perform more minutes of chores work when in couple with *White* men than when their partners are *Black*. We interpret these findings as further evidence of discrimination against Blacks in U.S. marriage markets.

We contribute to the recent literature on time allocation decisions (e.g., Bittman, England, Folbre, Sayer, and Matheson [2003], Kalenkoski, Ribar and Stratton [2005], Aguiar and Hurst [2007], Connelly and Kimmel [2007], and Bloemen and Stancanelli [2008]), with a special focus on household production activities and the racial discrimination affecting such household labour. Although our findings can also be explained with the help of bargaining theories - *Blacks* and *Whites* have different threat points - one of the advantages of using a competitive marriage market model as the underlying theoretical framework is that it includes two mechanisms for explaining our results: 1) bargaining over who performs the household labour after a couple is formed, and 2) selection into a *Black/White* relationship.

The remainder of the Chapter is organized as follows. The following section reviews the theoretical framework. We then present the data and variables. Next, we describe the empirical strategy and the results, and finally, we present our conclusions.

IV.1 Theoretical Framework

The economic models of the household that help to explain how marriage market conditions influence individual allocation of time are the bargaining models of Manser and Brown

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decisions have used race only as a control variable, and no previous studies have analyzed the association

[1980], McElroy and Horney [1981] and Lundberg and Pollak [1996]; the models of Chiappori [1988] and Apps and Rees [1988, 1997]; and the competitive marriage market models of Becker [1973,1991], Grossbard-Shechtman [1984], and Choo and Siow [2006]. In this paper we focus on Grossbard-Shechtman's [1984] theory, where marriage markets are considered as markets for 'work' in household production ("chores work"), and marriage markets establish quasi-wage "prices" that compensate the individuals who produce such household "chores" (e.g. cleaning, food preparation). According to this theory, "Compensating Differentials in Marriage" (CDM) are paid when a husband with traits that are relatively undesirable in comparison with his wife's traits compensates her materially by letting her have a larger proportion of his income, or of their joint income. When such compensating differentials in marriage occur, wives' material needs are more likely to be satisfied in marriage, and married women are less likely to enter the labour force.

The testing of this theory has suffered from the limitations of the available data, and from the fact that quasi-wages cannot be measured directly. Consequently, this theory has been tested using information on women's labour force participation.[2] Grossbard-Shechtman and Neuman [1988] test whether wives' traits valued in the marriage market are associated with lower labour force participation, and whether valuable husbands' traits are associated with wives' higher participation rates. They find that "women with qualities valued in the marriage market are less likely to work outside the home." Grossbard-Shechtman and Fu [2002] find that relative racial and ethnic group status is associated with women's labour force participation in the directions predicted from quasi-wage analysis. This is consistent with ethnicity playing an important role in marriage markets.

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between skin colour and time devoted to household labour.

[2] Grossbard-Shechtman [2003] develops a theoretical model relating quasi-wages and compensating quasi-wage differentials to demand for commercial goods and household production, but this particular work does not include empirical tests.

However, time-use surveys have recently become available. allowing researchers to analyze how much time individuals devote to market and non-market work activities, such as cleaning, shopping and cooking. Thus, these data offer new ways to test the implications of Grossbard-Shechtman's theory about "quasi-wages" and "Compensating Differentials in marriage."

The basic concept of Grossbard-Shechtman's theory, "(household) chores" or "chores work", includes activities generating opportunity costs - individuals performing the activity voluntarily reduce their time devoted to leisure - that benefit partners not performing such activities. In this framework, principal "household chores" producers ("chores workers") are viewed as having an additional resource: their partner's potential dependency on what they produce in the household, which gives such household "chores workers" the power to threaten that they may stop producing what their partners consume. In such circumstance, partners who benefit from "chores work" being performed on their behalf may offer "compensations" ("quasi-wages") to those performing the "chores work".[3]

The theory predicts that individuals belonging to a low status group, and willing to work in household production, will be paid lower quasi-wages, and they are more likely to engage in household 'chores'. It also implies that individuals belonging to a low status category may have to pay higher quasi-wages to their partners, relative to those paid by individuals of higher status in couples with comparable partners. More specifically, Grossbard-Shechtman's theory predicts that (1) "chores workers" belonging to a low status group will work more hours in household production; and (2) "chores workers" whose partner belongs to a lower status group will work fewer hours in household production.

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[3] Grossbard-Shechtman [1993] calls them "quasi-wages" to reflect the fact that they are generally not observable.

Such predictions may be applied to the racial status of individuals, and more specifically to discrimination against dark skin colour in the U.S. For example, Goldsmith, Hamilton and Darity [2007] have shown that there are significant earnings penalties associated with being a darker skinned male in U.S. labour markets. Also, Hersch [2010] has shown that recent immigrants who are darker skinned suffer a wage penalty in those same labour markets. In the case of the U.S. marriage markets, Hamilton, Goldsmith and Darity [2009] find that light skin colour is associated with about a 15 percent greater probability of marriage for young black women, and with the presence of better educated and higher earning partners for married black females Thus, *colorism* is a process that advantages light skinned individuals over dark skinned individuals in areas such as income, level of confidence, education, housing and the marriage market.[4]

In light of Grossbard-Shechtman's theory, *colorism* suggests that darker skinned individuals belong to a lower status group compared to light skinned individuals, and darker skinned individuals have to compensate for their undesirable characteristic (valued in the marriage market) to their lighter skinned partners. Thus, Grossbard-Shechtman's theory predicts that (1) darker skinned "chores workers" will work more hours in household production when in couple with lighter skinned individuals, than when in couple with darker skinned individuals, and it also follows that lighter skinned partners will obtain more hours of household production when in couple with darker skinned "chores workers" than when in couple with lighter skinned "chores workers"; (2) lighter skinned "chores workers" will work fewer hours in household "chores" when in couple with darker skinned partners, than when in couple with lighter skinned partners, and it also follows that darker skinned partners will obtain less household production when in couple with lighter skinned "chores workers" than

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[4] Hamilton, Goldsmith and Darity [2009] argue that "the preference for whiteness (*colorism*) can be explained in societies such as the United States, where the racialization process was achieved via colonialism and the

when in couple with dark-skinned "chores workers".

These predictions of the model apply to even those individuals who do not personally discriminate. Individuals willing to offer their time devoted to "household chores" ("chores workers") and individuals willing to pay for such "household chores" come together in the marriage market,. Thus, "chores workers" act as suppliers in the marriage market, and their potential partners act as demanders, and marriage markets establish equilibrium prices for different personal characteristics. Thus, even those individuals who do not personally discriminate, will be paid "compensating differentials (in marriage)" by darker skinned individuals, to compensate for the latter's undesirable characteristic in the marriage market.

IV.2 The American Time Use Survey (2003-2008)

The data come from the American Time Use Survey, 2003-2008 (ATUS), the first federally administered, continuous survey on time use in the United States. Respondents are randomly selected from a subset of households that have completed their eighth and final month of interviews for the Current Population Survey (CPS), and such respondents are interviewed (only once) about how they spent their time on the previous day.[5] Examples of studies using the American Time Use Survey include Kalenkoski, Ribar and Stratton [2005,2007], Hamermesh [2007], Connolly [2008], Hamermesh [2008] and Connelly and Kimmel [2009].

On the one hand, the ATUS contains more than 200 activity codes, which allows us to aggregate broader groups of economic activities (i.e., market work, leisure, sleep, personal care...) to account for the total time of the day. In this sense, the advantage of using a time use

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enslavement of African peoples (Williams [1942])… *colorism* functions as a specific type of racism associated with the stigmatization of persons with darker skin and the privileging of those with lighter skin".

survey is that it allows for more robust estimates of the time devoted to, for instance, market work, home production and childcare activities, since we are able to account for the 1440 minutes of the day (Robinson and Godbey [1997]). Thus, we obtain more robust estimates than those obtained from time-estimates questions, where people must "estimate" how much time they spend on a given activity, such as the question on the time devoted per week to childcare in the European Community Household Panel, or to housework activities in the British Household Panel Survey.

On the other hand, the ATUS survey design contains a significant limitation: the time diary information is collected for only one person per household and, although we have a great deal of demographic information about partners, we lack the detailed time use information for the same day for that partner. Connelly and Kimmel [2009] use two imputation techniques (out-of-sample prediction and Propensity Score Matching) to obtain information on the time devoted to the analyzed time use categories of the respondent's partner, showing robust results. We rely on estimates where we do not control for partner's allocation of time, although such estimates obtained with Propensity Score Matching yield similar results (results of the Propensity Score Matching and estimates are shown in Appendix IV.C).

IV.2.1 Sample and Variables

For the sake of comparison with previous studies, and to minimize the role of time allocation decisions that have a strong inter-temporal component over the life cycle, such as education and retirement, we restrict the samples to non-retired/non-student married or cohabiting individuals between the ages of 21 and 65. Our results can thus be interpreted as

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[5] See Hamermesh, Frazis and Stewart [2005] for a detailed description of the ATUS.

being "per working-age adult" (e.g., Aguiar and Hurst [2007]).

In this paper, we analyze the effects of skin colour on the time devoted to household production, with Grossbard-Shechtman's [1984] theory as the underlying theoretical framework. Two issues emerge: the skin colour and the definition of "chores worker". First, *colorism* is a process that advantages light skinned individuals over darker skinned individuals in areas such as income, education, housing and the marriage market. Thus, we need some way to account for differences in skin colour without creating too many categories, as this would reduce the significance of our results. To this end, we selected respondents who are either *Black* or *White,* excluding other racial groups (i.e., Asian only, American Indian-Alaskan Native only, Asian-Hawaiian…).

The ATUS classifies race into 21 categories, and we classify the following categories as *White* or *Black*. Categories 1 (White only), 7 (White-American Indian), 8 (White-Asian), 9 (White-Hawaiian), 17 (White-American Indian-Asian), and 18 (White-Asian-Hawaiian) are all defined, for our purposes, as *White* (this includes all categories starting with *White*, except for those starting with *White–Black*). Similarly, categories 2 (Black only), 10 (Black-American Indian), 11(Black-Asian) and 12 (Black-Hawaiian), are all defined, for our purposes, as *Black*.

Second, we need to consider the concepts of "chores work" and "chores worker". According to Grossbard-Shechtman [1984], marriage markets are considered as markets for "work" in household production ("chores work"), and they establish "quasi-wage transfers" paid by partners benefiting from such "chores work" to compensate the individuals who produce such "chores work" (i.e., "chores workers"). Thus, we must distinguish between "chores workers" and their partners who derive benefits from them. Since "chores workers" receive "quasi-wage transfers" from their partners, we focus on individuals who specialize in

performing "chores" in their households, and who depend economically on their partners. Therefore, we assume that *housewives* and *househusbands* are more likely to be "chores workers".

In this way, *housewives* and *househusbands* are defined as individuals who live in couple, specialize in household production activities, and depend economically on their partners. Such economic dependency must be reflected in a low participation in the labour market, and hence we consider individuals as *housewives* and *househusbands* if they work ten hours a week or less in the labour force (i.e., Limited Labour Force Participation, *LLFP*), based on information on hours of work available from the CPS (Current Population Survey).

Additionally, in our analysis we must distinguish between weekdays, on the one hand, and weekends/holidays, on the other hand, since the same routine household activities may be considered more pleasant if *housewives* or *househusbands* perform them with their spouses or partners on weekends/holidays, rather than alone on weekdays. There is evidence from instant enjoyment data suggesting that individuals report higher levels of instant satisfaction from activities done in the company of others than by themselves (e.g., Kahneman, Krueger, Schkade, Schwarz and Stone [2004], Helliwell and Putnam [2005], Kahneman and Krueger [2006]). Similarly, the positive externalities of synchronicity, not only in leisure, but also in market work and household labour, have often been pointed out in the economics literature (e.g., Sullivan [1996a,1996b], Weiss [1996]).[6] For instance, Sullivan [1996a] shows that partners report higher levels of satisfaction when they synchronize their working schedules, while Hamermesh [1999], Hallberg [2003], and Jenkins and Osberg [2005] find that synchronization of leisure activities between partners is indeed greater than random male-

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[6] For example, public holidays have been found to be welfare enhancing, not only by increasing the amount of leisure to each individual, but also increasing the coordination of leisure activities among individuals (e.g., Mers and Osberg [2006]). Similarly, Hamermesh, Myers and Pocock [2008] find that an exogenous shock to time in

female pairing would predict.

Consequently, we expect individuals who perform "chores work" on weekdays to be closer to the definition of 'chores workers' than those who perform the same activities on weekends/holidays, since the enjoyment they get from "chores work" on weekdays is likely to be lower than the enjoyment they get on weekends/holidays, given the hypothesized lower level of synchronization with their partners on weekdays. Thus, in Section IV.5 we estimate our regressions for (1) *housewives* and *househusbands* on weekdays, and (2) *housewives* and *househusbands* on weekends or holidays.[7] We also estimate regressions for entire samples, which is especially relevant when total sample size is small. For comparison purposes, we also estimate our regressions for respondents who are in the labour force for 11 hours per week or more, although we do not expect to find evidence of compensations or compensation differentials in this case.

Measuring Chores

We focus on household production activities that are most fittingly categorized as "chores work", and are most likely to be compensated for by partners. This implies that (1) the person performing the activity ("chore worker") is likely to experience an opportunity cost (i.e., disutility for performing the activity), and (2) the activity also benefits the partner. Thus, the person performing the activity is likely to ask for compensation – *"quasi-wage transfer"* - from their partner, who may also be willing to "pay" for the *Work*.

We need some way to identify those household production activities that can be considered as "chores work" from other household activities that cannot be included in that

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one area, due to daylight-saving time, leads its residents to change their work schedule to be able to coordinate their other (leisure) activities with those in adjacent areas.

category (i.e., they generate a lower opportunity cost or disutility, and they are not likely to be compensated for by the breadwinner partners). Thus, we do not include all the activities categorized as "household production" in other studies (e.g., Friedberg and Webb [2006], Aguiar and Hurst [2007], Burda, Hamermesh and Weil [2008]). Our definition is more restrictive, as not all household production that can be outsourced (e.g., Burda, Hamermesh and Weil [2008]) generates disutility to the respondent, or benefits the partner.

Although the ATUS does not tell us if an activity is a hobby, or it can be considered "chores work", we can indirectly capture an activity's degree of unpleasantness by examining the income elasticity of various activities. An examination of correlations between income and education and various household production activities led us to select the following activities for our measure of "chores": *interior cleaning, laundry, grocery shopping, kitchen and food clean-up, travel related to housework, travel to/from the grocery store, and food and drink preparation*. We define "chores" as activities that are negatively correlated with both years of schooling and earnings at a level below -0.01.

Table IV.1 - Correlations for the Definition of "Chores" [1,2,3]

	Schooling		Earnings
Travel related to housework	**-0.086**	**Food and drink preparation**	**-0.0352**
Travel related to civic obligations & participation	-0.0752	**Interior cleaning**	**-0.0316**
Food and drink preparation	**-0.0719**	**Travel to/from the grocery store**	**-0.0315**
Interior cleaning	**-0.0716**	**Grocery shopping**	**-0.0312**
Using social services	-0.0703	Household & personal e-mail and messages	-0.0188
Travel to/from the grocery store	**-0.0607**	**Travel related to housework**	**-0.0164**
Waiting associated w/civic oblig. & participation	-0.0454	Travel to/from other store	-0.0134
Vehicle repair and maintenance (by self)	-0.0448	**Laundry**	**-0.0133**
Laundry	**-0.0397**	Travel related to using home main./repair/décor. svcs	-0.013
Grocery shopping	**-0.0287**	Picking up/dropping off household adult	-0.0122
Helping household adults	-0.0283	**Kitchen and food clean-up**	**-0.0117**
Socializing and communicating, n.e.c.	-0.0237	Waiting associated with caring for household adults	-0.0112
Providing medical care to household adult	-0.0221	Physical care for household adults	-0.0108
Kitchen and food clean-up	**-0.0205**	Using home maint/repair/décor/construction svcs	-0.01

Notes: [1] Sample consists of married or cohabiting respondents age 21-65 [2] Sample consists of respondents between 21 and 65 years old [3] Selected activities in bold.

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[7] Friedberg and Webb [2006] only consider respondents in the labour force. Most other studies include respondents who are either in the labour force or not, but they do not provide separate estimates by labour force status.

Friedberg and Webb [2006] also use the ATUS, and they estimate time devoted to "chores", including the following activities: *Household activities, Professional services, Caring for/helping household/non-household members, Household services, Government services, Consumer purchases,* and *Associated travel*. Although our definition of "chores" does not include activities such as helping other members of the household, or government services, it still accounts for more than 60 percent of the time devoted to household production defined in the broad sense (i.e., activities in which individuals engage at home, using their own time and some purchased goods, and for which individuals could purchase substitutes from the market, Burda, Hamermesh and Weil [2008]).

Although many of the tasks constituting childcare can also be purchased in the market, we exclude the time devoted to childcare activities, since while parents report that spending time with their children is among their more enjoyable activities, housework activities are ranked among the less enjoyable activities, only exceeding commuting time and working time (e.g., Juster and Stafford [1985], Robinson and Godbey [1997], Kahneman, Krueger, Schkade, Schwarz and Stone [2004], Kahneman and Krueger [2006]). Thus, childcare is far from being categorized as "chores work", and we exclude childcare activities from our analysis.

Hersch [2009] analyzes the relationship between the time devoted to housework and wages and, in her analysis, the author relies on a six-category classification: "daily housework", "maintenance and repair", "lawn and garden", "pet care", "household management", and "grocery and gas shopping". "Daily housework" includes cleaning, laundry, food preparation, among others, and the author shows that women spend a disproportionate amount of their total home production time on daily housework, evidence of gender patterns of household production (i.e., female vs. male tasks). Also, Sevilla-Sanz,

Fernandez and Gimenez-Nadal [2010] show that, consistent with other studies, women concentrate on routine and more time-intensive housework, such as cooking and cleaning, whereas men are more active in sporadic and less time-intensive tasks such as gardening, and repairs (see also Hersch and Stratton [2000]).

Table IV.2 shows the time devoted to "chores" by men and women. Comparing men and women, independently of their skin colour, we find that while women in the sample devote 129.24 minutes per day to "chores", men devote 40.18 minutes per day to such activities. These figures are consistent with previous studies showing that, in all countries and all time periods, women spend considerably more time than men on home production (Juster and Stafford [1991], Gershuny [2000], Gauthier, Smeeding and Furnstenberg [2004], Aliaga [2006], Aguiar and Hurst [2007]). Hence, although we analyze the time devoted to "chores" by both men and women, we expect to find more significant effects for women, since the variation in the time devoted to "chores" is greater for this group.

Furthermore, in the case of individuals who participate in the labour market, the gender disparity is broader on days without market work, when the difference in the time devoted to "chores" is 97.89 minutes per working day favouring men, while the difference in the time devoted to "chores" is 47.04 minutes per non-working day favouring men. In the case of individuals with LLFP, while the difference in the time devoted to "chores" is 127.45 minutes per weekday favouring men, the difference in the time devoted to "chores" is 85.46 minutes per weekend/holiday favouring men. Furthermore comparing *White* and *Black* individuals, on all days, and in both labour force categories, relative to *White* women, *Black* women spend fewer minutes on "chores" (14.10 fewer minutes per day, with such difference being statistically significant at the 95 percent level). In contrast, on average, *Black* male respondents spent more time doing "chores" than *White* men (15.71 more minutes per day).

Table IV.2 - Time Devoted to "Chores", by Respondent's Gender, Race, and Labour Force Status [1,2,3]

Panel A: Women	(1)	(2)	(3)	(4)	(5)
	All Women (*White* and *Black*)				
	All Days	**Workday in LF**	**Nonworkday in LF**	**Weekday LLFP**	**Weekend Holiday LLFP**
Chores	129.24	73.09	166.92	164.15	143.26
	(120.92)	(76.01)	(136.89)	(126.82)	(121.66)
Observations	7,005	2,004	2,059	1,442	1,500
	White Women				
	All Days	***Workday in LF***	**Nonworkday in LF**	**Weekday LLFP**	**Weekend Holiday LLFP**
Chores	130.63	73.33	168.80	163.90	145.62
	(121.07)	(75.72)	(137.91)	(125.28)	(122.71)
Observations	6,556	1,841	1,920	1,369	1,426
	Black Women				
	All Days	**Workday or Weekday**	**Nonworkday or Weekend/Holiday**	-	-
				-	-
Chores	116.53	102.82	142.06	-	-
	(118.88)	(114.40)	(123.14)	-	-
Observations	449	236	213	-	-

Panel B: Men	(1)	(2)	(3)	(4)	(5)
	All Men (*White* and *Black*)				
	All Days	**Workday in LF**	**Nonworkday in LF**	**Weekday LLFP**	**Weekend Holiday LLFP**
Chores	40.18	26.05	69.03	36.70	57.80
	(72.17)	(44.43)	(102.60)	(66.00)	(95.17)
Observations	6,254	2,658	2,002	786	808
	White Men				
	All Days	**Workday in LF**	**Nonworkday in LF**	**Weekday LLFP**	**Weekend Holiday LLFP**
Chores	38.41	25.23	65.93	36.45	53.64
	(66.81)	(42.96)	(92.05)	(64.46)	(89.06)
Observations	5,795	2,483	1,854	723	735
	Black Men				
	All Days	**Workday or Weekday**	**Nonworkday or Weekend/Holiday**	-	-
				-	-
Chores	54.12	35.27	87.83	-	-
	(104.30)	(63.11)	(146.61)	-	-
Observations	459	238	221	-	-

Notes: [1] Standard Deviations in brackets [2] Sample consists of married/cohabiting women and men age 21-65 [3] Time devoted to *Chores* is measured in minutes per day.

Other Controls

According to Becker's [1965] theory of allocation of time, hourly wages reflect opportunity costs of time in household production, but most of the empirical literature on time use emphasizes the impact of wages and income on time allocation decisions (for some examples, see Kalenkoski, Ribar and Stratton [2005,2007], Friedberg and Webb [2006], Connelly and Kimmel [2009], Bloemen, Pasqua and Stancanelli [2010], Bloemen and Stancanelli [2010]), since most time use surveys do not collect information on wages and income. However, the ATUS thus collects information on wages of both respondent's and their partners, since the ATUS-CPS module includes information on demographic characteristics for all the members of the household. For this reason, we control for hourly wages of respondents and their partners, as measures of opportunity costs of time in household production.

There are several choices of wage values from the ATUS. We use hourly wages if hourly wages are provided. If hourly wages are not provided, then we use weekly earnings divided by total hours normally worked per week (Hersch [2009]). We predict hourly wages using a two-step Heckman selection model to allow us to predict log hourly wages for individuals with LLFP.[8] In this model, we predict hourly wages of respondents and their partners, where the participation equation includes the following identification variables: partner's race, partner's education (and its square), partner's age (and its square), and the age and number of children (number of children 0-4, 5-12 and 13-17). We compute the log of hourly wages to allow for non-linear effects.

We also control for *Age* and *Age Squared*, a factor that has been shown to affect allocation of time over the life-cycle (Grossbard-Shechtman and Neuman [1988], Apps and Rees [2005], Kalenkoski, Ribar and Stratton [2005,2007]), as well as the age of the partner.

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[8] Results of Heckman's models can be found in Appendix IV.A

Furthermore, we control for whether the husband is substantially older than his partner, since being older can be seen as an "undesirable" characteristic in the marriage, given that it increases, *ceteris paribus*, the probability of becoming a widow or widower (Grossbard-Shechtman and Neuman [1988]). Thus, a husband substantially older than his partner will have to compensate his partner, by giving a higher "quasi-wage" per unit of "chores" (i.e., the trophy wife factor). This would influence the amount of time devoted to "chores" by the "chores worker" and thus we include the dummy *Older Husband* that takes value "1" if the husband is at least five years older than the wife, and value "0" otherwise.[9]

We include the education level of respondents and their partners, measured as years of schooling, in order to control for differences in preferences over household production, or differences in household productivity (Grossbard-Shechtman [1993]). After controlling for other variables, Bloemen, Pasqua and Stancanelli [2010] found that, for a sample of Italian couples, wives with higher education devoted significantly less time to domestic work than comparable wives with less education.

We also control for the family income. Higher levels of family income are expected to reduce time devoted to "chores", since a higher proportion of this household production can be outsourced. It has been found that the higher the family income, the more domestic services are purchased (Bittman, Matheson and Meagher [1999]), and a negative income gradient emerges in relation to the amount of time allocated to home production (e.g., Robinson and Godbey [1997], Aguiar and Hurst [2007]). The ATUS contains information on *Family Income*, defined as the income of all family members during the last 12 months, including money from jobs, net income from business, farm or rent, pensions, dividends, interest, Social Security payments, and any other money income received by family members

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[9] The mean age difference in the ATUS sample is 2.33 years.

who are 15 years of age or older. This variable is defined in intervals, from less than $5,000 to $150,000 and over per year (16 intervals).[10]

We also control for the civic status of the individuals, including a dummy variable for married vs. cohabiting (*Married*). Following Grossbard-Shechtman [1982], we expect that "an apparently purely symbolic act, undertaken voluntarily by two people, does have tangible consequences in terms of the material benefits a woman can obtain through marriage and matching of potential partners." If marital status is associated with higher quasi-wages, we expect that married wives obtain higher *quasi-wage* transfers from their *husbands* than cohabiting women, and will therefore be willing to perform more "chores" than cohabiting women.

We control for the number of children in the household aged 0-4, 5-12, and 13-17. The younger the children, the more time devoted to childcare is required, and given that childcare and household production activities are often positively related, we expect a positive correlation between number of children and time devoted to household "chores", with this correlation being higher for younger children. Apps and Rees [2005] show that before there are children, the adult members of the household have high labour supplies and plenty of leisure. The presence of pre-school children, in combination with the tax treatment of the second earner's income and the cost of bought-in child care, dramatically change the pattern of time use, leading to significant falls in female labour supply.

Differences in the region of residence may reflect differences in the price of commodities, or in structural demands on time: Southern dwellers may have more yard work, Northern dwellers may spend more time commuting to work and travelling related to

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[10] For those cases where the total family income exceeds the sum of the income of both members of the couple (obtained from the weekly wage, transposed to the year), we compute the difference between the media of the interval and the sum of the incomes of both members of the couple.

shopping. Thus, we control for the region of residence of the household, including the following dummies: Northeast, West, South and Midwest (reference). We also include year dummies (Ref.: 2008).

IV.2.2 Descriptive Evidence

Table IV.3 shows means and standard deviations of the variables for the whole sample. It can be seen that 6.4% of female respondents (449 of 7,005 obs.), and 7.4% of male respondents (459 of 6,254 obs.) are *Black*, and a vast majority of our respondents are in couple with partners of the same race: 89.5% are *White* women with *White* partners, 9.5% are *Black* women with *Black* partners, 88.5% are *White* men with *White* partners, and 10.2% are *Black* men with *Black* partner.

Turning to the economic variables, we first find that, on average, the families of *Black* respondents have substantially lower non-labour income ($21,881 and $20,652 per year for *White* male and female respondents, $14,523 and $13,515 per year for *Black* male and female respondents, respectively), and the family non-labour income of female respondents exceeds that of male respondents by a small amount ($21,253 and $19,848 per year for female and male respondents, respectively). Such figures are consistent since ATUS includes relatively large numbers of *housewives* and *househusbands,* and the families including *housewives* are likely to have higher wealth than the families including *househusbands*. Furthermore, respondents have, on average, 14.45 years of schooling, *Black* respondents are slightly less well educated (14.51 vs. 13.92 years of schooling for *White* and *Black* women, respectively, 14.45 vs. 13.54 years of schooling for *White* and *Black* men, respectively), and women are slightly more well educated (14.35 vs. 14.45 years of schooling for men and women, respectively).

Table IV.3 - Summary Statistics for Male and Female Samples, by Race of Respondent [1,2,3,4,5]

	(1)		(2)		(3)	
Panel A: Women	*Black & White* **Women**		*White* **Women**		*Black* **Women**	
Chores	129.237	(120.919)	130.631	(121.073)	116.525	(118.882)
White-White	0.895	(0.306)	0.993	(0.081)	-	-
White-Black	0.004	(0.063)	-	-	0.040	(0.196)
Black-White	0.006	(0.076)	0.007	(0.081)	-	-
Black-Black	0.095	(0.293)	-	-	0.960	(0.196)
Respondent's Age	38.856	(8.223)	38.768	(8.100)	39.655	(9.243)
Partner`s Age	41.034	(8.878)	40.901	(8.683)	42.249	(10.422)
Older Husband	0.230	(0.421)	0.221	(0.415)	0.311	(0.464)
Resp's Pred. Log Wage	2.728	(0.297)	2.740	(0.291)	2.619	(0.350)
Resp's Education	14.452	(2.437)	14.511	(2.437)	13.917	(2.378)
Partner's Pred. Log Wage	3.005	(0.281)	3.036	(0.266)	2.661	(0.323)
Partner's Education	14.347	(2.617)	14.445	(2.610)	13.455	(2.515)
Non-Labour Income	21.153	(32.025)	21.881	(32.754)	14.523	(23.405)
Number of Children 0-4	0.516	(0.726)	0.512	(0.713)	0.553	(0.837)
Number of Children 5-12	0.751	(0.849)	0.751	(0.846)	0.749	(0.875)
Number of Children 13-17	0.601	(0.755)	0.602	(0.762)	0.592	(0.684)
Married	0.954	(0.210)	0.958	(0.201)	0.919	(0.274)
Weekend-Holiday	0.300	(0.458)	0.303	(0.459)	0.271	(0.445)
Workday	0.471	(0.499)	0.465	(0.499)	0.530	(0.500)
Respondent LLFP[5]	0.414	(0.493)	0.426	(0.495)	0.307	(0.462)
Partner LLFP	0.283	(0.451)	0.279	(0.449)	0.320	(0.467)
Observations	7,005		6,556		449	

	(1)		(2)		(3)	
Panel B: Men	*Black & White* **Men**		*White* **Men**		*Black* **Men**	
Chores	40.175	(72.165)	38.406	(66.810)	54.122	(104.295)
White-White	0.885	(0.319)	0.997	(0.054)	-	-
White-Black	0.003	(0.051)	0.003	(0.054)	-	-
Black-White	0.011	(0.103)	-	-	0.095	(0.294)
Black-Black	0.102	(0.302)	-	-	0.905	(0.294)
Respondent`s Age	40.609	(8.673)	40.580	(8.520)	40.839	(9.801)
Partner's Age	38.450	(8.230)	38.512	(8.058)	37.966	(9.472)
Older Husband	0.218	(0.413)	0.209	(0.407)	0.289	(0.454)
Resp's Pred. Log Wage	3.001	(0.283)	3.030	(0.255)	2.653	(0.295)
Resp's Education	14.347	(2.596)	14.449	(2.607)	13.537	(2.358)
Partner's Pred. Log Wage	2.736	(0.304)	2.751	(0.299)	2.598	(0.381)
Partner's Education	14.550	(2.511)	14.641	(2.506)	13.835	(2.438)
Non-Labour Income	19.848	(31.307)	20.652	(32.127)	13.515	(22.931)
Number of Children 0-4	0.544	(0.734)	0.546	(0.733)	0.529	(0.745)
Number of Children 5-12	0.736	(0.859)	0.728	(0.857)	0.795	(0.873)
Number of Children 13-17	0.610	(0.772)	0.609	(0.776)	0.613	(0.738)
Married	0.954	(0.210)	0.961	(0.193)	0.893	(0.310)
Weekend-Holiday	0.304	(0.460)	0.301	(0.459)	0.325	(0.469)
Workday	0.673	(0.469)	0.686	(0.464)	0.568	(0.496)
Respondent LLFP	0.263	(0.440)	0.257	(0.437)	0.309	(0.463)
Partner LLFP	0.414	(0.493)	0.421	(0.494)	0.354	(0.479)
Observations	6,254		5,795		459	

Notes: [1] Standard Deviations in brackets [2] Sample of women are married or cohabiting women age 21-65 and their partners; sample of men also age 21-65 and their partners [3] Time devoted to "chores" is measured in minutes per day [4] The race of the husband is mentioned first, then the race of the wife [5] Limited Labour Force Participation (10 hours a week or less).

Moreover, we show that the predicted log wage of the husbands of female respondents is very slightly lower than the predicted log wage of the male respondents (3.005 vs. 3.001, respectively), and the predicted log wage of the wives of male respondents is very slightly higher than the predicted log wage of the female respondents (2.736 vs. 2.728, respectively). Also, a majority of the respondents - both male and female - were in the labour force for more than 10 hours per week, and the proportion of *househusbands* in the male sample was lower than the proportion of 'housewives' in the female sample (26.3 and 41.4% of male and female respondents, respectively).

Considering the household characteristics, we find that a vast majority of respondents are married (vs. cohabiting). It can be seen from Table IV.3 that male and female respondents have similar numbers of children in their households (1.86 and 1.89 children for male and female respondents, respectively), and that racial differences in numbers of children are insignificant.

IV.3 Empirical Strategy

We use Ordinary Least Squares regression analysis to investigate time spent in "chores" by respondents who are either *Black* or *White*. In particular, we estimate the following specification:

$$H_i = \alpha + \beta_1 X + \beta_2 X_{fi} + \beta_3 X_{mi} + \beta_4 Z_i + \gamma_j Year_j + \alpha_i R + \varepsilon_i \tag{IV.1}$$

where H_i is the time devoted to "chores" by the respondent, β_1 is a parameter associated with whether the husband belongs to a different racial group, *Black* or *White*, depending on the respondent's group (X), β_2 is a vector of parameters associated with wives' characteristics X_f, β_3 is a vector of parameters associated with other husbands' characteristics X_f, β_4 is a

vector of parameters associated with other household characteristics Z, γ_i are parameters associated with year dummy variables, and α_i is a vector of regional parameters. This basic model is estimated three times for *White* and *Black* female respondents: for *housewives* on weekdays, *housewives* on weekends and holidays, and for all days.[11] We then estimate the same three models for all female respondents with *Black* husbands, and for all female respondents with *White* husbands, including a dummy for whether the respondent is *Black* or *White*. Similar models are also estimated for male respondents.

IV.4 Results

Table IV.4 shows results for the three regressions of the time devoted to "chores" for a sample of *White* female respondents. The table presents results for *White housewives* on weekdays (Column (1)), *White housewives* on weekends/holidays (Column (2)), and all *White* women on all days (Column (3)). The reference category is a *White* woman cohabiting with a *White* man, with no children, living in the Midwest in 2008.[12]

Column (1) in Table IV.4 shows that, relative to *White housewives* in couple with *White* men, *White housewives* in couple with *Black* men devote 45.68 fewer minutes to "chores" during the weekdays – the effect is statistically significant at the 99 percent level. This finding only holds in the case of weekdays, and not on weekends - the dummy for *Black* male partner in Column (2) is not statistically significant at the 95 percent level.[13]

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[11] We control for whether the spouse is in the labour force, using the same definition of labour force participation: at least 10 hours per week. The reason is that recent studies have found that partners' time allocation decisions have influence on the time allocation decisions of the individuals (e.g., Sullivan [1996a], Hamermesh [2002], Jenkins and Osberg [2005], Connelly and Kimmel [2007], Connelly and Kimmel [2009]). If the partner of any respondent does not participate in the labour market – or has limited labour force participation - it will likely influence the time the respondent devotes to "chores".

[12] In the case of all *White* women, we control for whether the female respondent has limited labour force participation or not.

[13] When women in the labour force are also included (e.g., Column (3) in Table IV.4), the spouse's racial group makes no significant difference. These findings are highlighted in panel A of Table IV.5.

Table IV.4 - Estimates of *White* Women's Time Devoted to "Chores" [1,2,3,4]

	(1)	(2)	(3)
	Housewives Weekday	**Housewives Week-end/Holiday**	**All days**
Black Partner	-45.681***	-11.670	6.583
	(15.155)	(44.018)	(16.365)
Female's Age	2.919**	2.545**	3.022***
	(1.222)	(1.264)	(0.628)
Male´s Age	-1.386	-1.106	-1.103*
	(1.208)	(1.225)	(0.590)
Older Partner	36.243***	18.803	16.435***
	(12.857)	(13.575)	(5.892)
Log Resp's Pred. Wage	42.210	49.852	-46.356
	(64.531)	(57.487)	(33.102)
Female's Education	-9.052	-8.186	1.223
	(6.851)	(6.168)	(3.402)
Log Male's Pred. Wage	-36.264	10.860	22.692
	(57.412)	(51.271)	(28.379)
Male's Education	-0.006	-3.899	-2.600
	(4.824)	(4.366)	(2.373)
Non-Labour Income	0.063	-0.113	-0.087
	(0.133)	(0.112)	(0.070)
Number of Children 0-4	30.675***	13.117**	19.251***
	(6.088)	(6.353)	(3.128)
Number of Children 5-12	20.928***	13.728***	17.452***
	(4.316)	(4.479)	(2.264)
Number of Children 13-17	19.912***	8.971	16.221***
	(6.341)	(5.941)	(2.944)
Married	39.924***	-36.737	15.607**
	(15.224)	(31.055)	(7.768)
Northeast	20.379*	-18.189*	10.128**
	(11.590)	(10.219)	(4.978)
West	-11.829	-9.777	-9.842**
	(10.518)	(10.187)	(4.986)
South	8.027	-5.507	-4.606
	(9.802)	(9.372)	(4.342)
Weekend/Holiday	-	-	27.354***
	-	-	(3.280)
Resp. <11 h in LF	-	-	46.278***
	-	-	(3.716)
Male < 11 h in LF	-11.955	-6.210	-4.325
	(9.569)	(10.221)	(4.442)
2003	19.311	18.477	1.770
	(15.436)	(13.973)	(6.724)
2004	7.949	15.151	3.281
	(14.312)	(12.710)	(6.484)
2005	11.466	24.943*	6.298
	(13.479)	(13.016)	(6.158)
2006	17.631	-0.482	-0.805
	(13.407)	(12.990)	(5.993)
2007	17.669	2.365	6.919
	(14.188)	(13.991)	(6.274)
Constant	125.651**	107.948	58.357*
	(61.973)	(66.562)	(30.173)
Observations	1,368	1,426	6,550
R-squared	0.06	0.05	0.09

Notes: [1]Robust Standard Errors in brackets [2] Sample consists of married/cohabiting *White* women aged 21-65 [3]The time devoted to "chores" is measured in minutes per day [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

These results indicate that on weekdays it is more likely that *housewives* devote time to "chores", and they are compensated for that work by their male partners, consistent with the fact that *housewives* devote more time to "chores" on weekdays than on weekends/holiday (e.g. see Table IV.2, panel A of Columns (4) and (5)). Likewise, compensating differentials are more likely to be observed on weekdays than on weekends/holiday, when joint household production is less likely to be done by both members of the couple. This result also indicates that *White* female respondents devote lees time to "chores" if they are in couple with *Black* male partners than if they are in couple with *White* male partners.

Regarding other controls, both wife's *Age* and *Older Husband* have significantly positive associations with the time devoted to "chores" in the regressions for *White housewives* on weekdays, and for all *White* women on all days, with these associations being statistically significant at the 95 percent level. Column (1) shows that an additional year of age increases the time devoted to "chores" by *housewives* on a weekday by 2.92 minutes, and an older husband increases the time devoted to "chores" by housewives on a weekday by 36.24 minutes. Thus, the effect of an older husband may be due to the association between age and a more traditional lifestyle, offsetting the effect of increasing the probability of becoming a widow.

Respondent's (female) predicted wage has non-statistically significant associations with the time devoted to "chores" by *housewives* (Columns (1) and (2)) and all female respondents in general (Column (3)). Although these results are not consistent with previous literature on time use (e.g., Hersch [2009]), previous measures of housework differ from our measure of "chores". Furthermore, Column (3) shows that women not participating in the labour force, or working 10 hours or less per week (with LLFP), are substantially more likely to work in "chores": *White housewives* work 46.28 minutes more than women in the LF. This is consistent with the fact that *housewives* are more likely to behave as "chore workers"

within the couple, and thus they are more likely to receive "quasi-wage" transfers from their partners.

As for household characteristics, the presence of children in the household is positively associated with time devoted to "chores" by *White housewive*s on weekdays (Column (1)), and by *White* female respondents in general (Column (3)), with such associations being statistically significant at the 99 percent level. The strongest association is found for the number of children under 4 years old.

Regarding the civic status of female respondents, *White* married women devote more time to "chores" than cohabiting women, if they are *housewives* and report on weekdays (Column (1)), and the same association applies to all female respondents on all days (Column (3)). Table IV.4 shows that married *housewives* devote more time to "chores" on weekdays than when they cohabit (39.92 more minutes per day), and that married female respondents devote more time to "chores" in general (15.61 more minutes per day).

Table IV.5 shows, for regressions on the time devoted to "chores", the estimated coefficients on the racial dummies (i.e., whether the partner belongs to another racial group). Panel A shows previous results for *White* female respondents. Panel B reports the coefficients for men in three similar regressions, with these regressions estimating the time devoted to "chores" by all male respondents with *White* female partners. Panel C reports the coefficients for *White* male respondents. Panel D shows the results for regressions for all female respondents with *White* male partners.[14]

Panel B in Table IV.5 reports the coefficients for men on the time devoted to "chores" by all male respondents with *White* female partners. It is found that *Black* husbands of *White* wives work significantly more on *Chores* if we consider all days (see Column (3), 36.99 more

minutes per day). This result indicates that, if male respondents are in couple with *White* female partners, *Black* male respondents devote more time to "chores" if they are compared with *White* male respondents.

Table IV.5 - Evidence of Compensating Differentials [1,2,3,4]

	(1)	(2)	(3)
Panel A	**Sample of *White* Female Respondents**		
	Weekday House-wives	**Weekend/Holiday Housewives**	**All days**
Black Partner	-45.681***	-11.670	6.583
	(15.155)	(44.018)	(16.365)
Observations	1,368	1,426	6,550
N. Interracial Marriages	4	6	40
R-squared	0.06	0.05	0.09
Panel B	**All Male Respondents with *White* Partners**		
	Weekday Househus-bands	**Weekend/Holiday Househusbands**	**All days**
Black Respondent	-18.237	75.933	36.993**
	(14.699)	(54.145)	(18.542)
Observations	728	737	5,805
N. Interracial Marriages	7	5	44
R-squared	0.05	0.06	0.06
Panel C	**Sample of *White* Male Respondents**		
	Weekday Househus-bands	**Weekend/Holiday Househusbands**	**All days**
Black Partner	1.795	-64.062***	-13.359
	(7.536)	(16.635)	(8.281)
Observations	723	735	5,795
N. Interracial Marriages	2	2	17
R-squared	0.06	0.04	0.05
Panel D	**All Female Respondents with *White* Partner**		
	Weekday House-wives	**Weekend/Holiday Housewives**	**All days**
Black Respondent	199.161**	-	25.371
	(78.238)	-	(40.221)
Observations	1,366	1,420	6,527
N. Interracial Marriages	2	0	17
R-squared	0.07	0.05	0.09

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting respondents aged 21-65 [3] "Chores" are measured in minutes per day [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

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[14] Results of full regression are reported in Appendix IV.

Thus, combining the findings of panel A and panel B in Table IV.5 we conclude: *White* wives obtain compensating differentials in two ways: when in couple with *Black* men, they perform fewer "chores" than when in couple with *White* men (see Panel A in Table IV.5), and their *Black* partners devote more time to "chores" than their *White* partnerss (see Panel B in Table IV.5).

Moreover, Panel C and Panel D in Table IV.5 show evidence that *White* men also earn compensating differentials: as *househusbands*, they work less if their partner is *Black* than if their partner is *White* (Panel C); and considering all female respondents, *White* men obtain more household "chores" from their *housewives* on weekdays if they are in couple with *Black housewives* than if they are in couple with *White housewives* (Panel D). Thus, according to Panel C, *White househusbands* in couple with *Black* women devote less time to "chores" (64.06 fewer minutes per weekend/holiday) than *White* househusbands in couple with *White* women. Looking at panel D, it is found that on weekdays, *Black housewives* coupled with *White* men devote more time to "chores" (almost 200 more minutes) than *White housewives* of *White men*.

In all four possible cases: *White* men and women devote less time to *Chores* when in couple with *Black* mates, than when in couple with *White* mates, and their *Black* partners devote more time to such activities. These results can be explained in light of both "*colorism*" and Grossbard-Shechtman's theory on compensating differentials. *Colorism* is a process that advantages light skinned people over dark in areas such as income, education and the marriage market. Therefore, darker skin colour is likely to be an undesirable characteristic in the marriage market, and individuals with darker skin colour are likely to pay a higher price for entering into a partnership with lighter skinned individuals.[15]

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[15] *Colorism* can help to explain Goldsmith, Hamilton and Darity's [2009] finding that light skin shade is associated with about a 15 percent greater probability of marriage for young black women.

Thus, on the one hand, darker skinned "chore workers" will receive, *ceteris paribus*, a lower "quasi-wage" transfer from their lighter skinned partners, and they will devote more time to "chores work" in order to have their material needs fulfilled. On the other hand, darker skinned individuals who benefit from the time devoted to "chores" by their partners will have to pay higher "quasi-wage" transfers, receiving less "chores work" from their lighter skinned partners, since their partners will have their materials needs fulfilled with less time devoted to "chores work".[16]

Next, we look at results for *Black* men and women. Table IV.6 shows, for regressions on the time devoted to "chores", the estimated coefficients on the racial dummies (i.e., whether the partner belongs to another racial group). Panel A shows results for *Black* female respondents, Panel B shows results for all male respondents with *Black* female partners. Panel C reports the coefficients for *Black* male respondents. Panel D shows the results for regressions for all female respondents with *Black* male partners.[17] Panels A and B indicate that *Black* women seem to "pay" for being in couple with *White* men (lighter skinned individuals), while Panel D also indicates that *Black* men seem to "pay" for being in couple with *White* women (lighter skinned individuals).

It can be seen from panel A of Table IV.6 that for a sample of *Black* female respondents, if the partner is *White*, *Black housewives* devote more time to "chores" on weekdays (Column (1)), since we find a statistically significant negative association between the time devoted to "chores" and the skin colour dummy at the 99 percent level, indicating that *Black* female respondents devote more time to "chores" if they are in couple with *White* male partners than if they are in couple with *Black* male partners. Compared to results of

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[16] One of the assumptions of Grossbard-Shechtman's model is that the level of material needs for "chore workers" is constant. Thus, if "chore workers" receive a higher "quasi-wage" transfer per unit of "chore work", "chore workers" will devote less time to such activities in order to satisfy their level of material needs.

[17] Results of full regressions are reported in Appendix IV.

Column (1) in Table IV.4, this finding only holds in the case of weekdays, and not on weekends, which also indicates that on weekdays it is more likely that *housewives* devote time to "chores", and they are compensated for that work by their male partners. Panel B shows that if *Black* women have *White househusbands*, they obtain significantly less "chores work" from their *househusbands* than if their partner is *Black*, as shown by the statistically significant negative association between the skin colour dummy and the time devoted to "chores" at the 99 percent level (176.18 fewer minutes per weekend/holiday).

Table IV.6 - Evidence of Discrimination against *Blacks* in Marriage Markets [1,2,3,4]

	(1)	(2)	(3)
Panel A	**Sample of *Black* Female Respondents**		
	Weekday House-wives	**Weekend/Holiday Housewives**	**All days**
White Partner	329.554***	-	28.835
	(74.590)	-	(42.381)
Observations	73	74	448
N. Interracial Marriages	2	0	17
R-squared	0.47	0.26	0.11
Panel B	**All Male respondents with *Black* Partners**		
	Weekday House-husbands	**Weekend/Holiday Househusbands**	**All days**
White Respondent	-128.537	-176.175***	-9.428
	(150.903)	(52.511)	(23.147)
Observations	59	71	432
N. Interracial Marriages	2	2	17
R-squared	0.42	0.6	0.1
Panel C	**Sample of Black *Male* Respondents**		
	Weekday House-husbands	**Weekend/Holiday Househusbands**	**All days**
White Partner	-35.203	-18.646	24.136
	(29.237)	(45.340)	(19.273)
Observations	63	73	459
N. Interracial Marriages	7	5	45
R-squared	0.48	0.64	0.11
Panel D	**All Female respondents with *Black* Partners**		
	Weekday House-wives	**Weekend/Holiday Housewives**	**All days**
White Respondent	-131.768*	52.751	2.181
	(67.881)	(70.699)	(22.673)
Observations	75	80	471
N. Interracial Marriages	4	6	40
R-squared	0.44	0.22	0.12

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting respondents aged 21-65 [3] *Chores* are measured in minutes per day [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Thus, Panels A and B indicate that *Black* women seem to "pay" for being in couple with *White* men (lighter skinned individuals): they work harder and devote more time to "chores" than if in couple with *Black* men *(Panel A),* and they obtain fewer household *Chores* from their househusbands if in couple with White male partners than if in couple with *Black* male partners. This is consistent with the existence of a premium on light skin colour in marriage markets. As in the case of *White* respondents (see Table IV.5), these results are also limited to the case of *housewives* on weekdays, and to the case of *househusbands* on weekends.

Panels C and D of Table IV.6 examine the time devoted to *"chores"* from the perspective of *Black* men. In panel C we look at *Black* male respondents as a function of whether their female partner is *Black* or *White*. This is the only case with no significant results. Finally, in panel D we examine all female respondents with *Black* partners and find that, on weekdays, *White housewives* with *Black* mates devote significantly less time to *Chores* than *Black housewives* (Column (1)). We find a statistically significant negative association between the skin colour dummy and the time devoted to "chores" (131.77 minutes per weekday), with this association being statistically significant at the 90 percent level. Similarly, *Black* men pay a price for being in couple with a *White* woman rather than a *Black* woman: they are likely to obtain fewer minutes of *Chores* work on weekdays from their *househusbands*.

The conclusion from Table IV.6 is that darker skinned (*Black*) men and women appear to pay a price if they are in couple with lighter skinned (*White*) individuals: they obtain less "chores" from their *White* partners (*housewives* and *househusbands*) than from their *Black* partners. *Black housewives* devote more time to "chores" if in couple with *White* men than when their partners are *Black*. Therefore, darker skin colour is shown as being an undesirable characteristic in the marriage market, and individuals with darker skin colour pay a higher

price for entering into a partnership with lighter skinned individuals in terms of the time they devote to "chores", or the amount of "chore work" they obtain from their lighter skinned partners.

IV.5 Conclusions

The development of time use surveys in recent years has allowed researchers to study the time allocation decisions of individuals within the couple. These previous studies have been based on bargaining theories or unitary models, focusing on the effects of wages on own and partner's time allocation decisions. However, such models cannot successfully explain several facts shown by the data, such as the fact that despite the general increase in female labour force participation rates and human capital, specialization within the household has remained relatively constant, and many working women have to bear a "second burden" or "second shift" (Hochschild and Machung [1989], Schor [1991]).

In an effort to explain the disconnection between fact and theory, sociologists have challenged these traditional views in favour of other theories and explanations, like the *doing gender* hypothesis, where individuals internalize gender-role expectations held by others (e.g., see Coltrane [2000], Sevilla-Sanz, Fernandez and Gimenez-Nadal [2010]). In economics, the alternatives to traditional theories of the household are the theories based on competitive marriage market models, such as Becker [1973,1991], Grossbard-Shechtman [1984], and Choo and Siow [2006]. Grossbard-Shechtman's [1984] theory conceptualizes marriage markets as markets for partners' work in household chores, and where individuals with undesirable characteristics need to work harder within the couple in order to compensate for their partners' desirable characteristics. However, due to data limitations, this theory has only been tested using information on women's labour force participation.

Considering Grossbard-Shechtman's theory as our underlying theoretical framework, we study racial discrimination in the U.S. marriage markets, reinforcing previous studies such as Hamilton, Goldsmith and Darity [2009], who document the disadvantages of dark skin in the probability of marriage. According to them, preference for whiteness (*colorism*) functions as a specific type of racism associated with the stigmatization of persons with darker skin, giving advantage to those with lighter skin. Thus, while previous studies on time allocation decisions within the couple have included race (White vs. Non-white, White vs. Black) as control variables, we examine the effects of partners being either *Black* or *White* in the time devoted to "chores work"

Using the American Time Use Survey 2003-2008, we find evidence of racial discrimination against *Blacks* in marriage markets, defined as markets for "chore work", especially in markets for *housewives* and *househusbands*, which can be explained in light of Grossbard-Shechtman's theory. We find that *White* men and women devote less time to household "chore work" when in couple with *Black* mates than when in couple with *White* mates, and their *Black* partners devote more time to household "chore work". We interpret these findings as indicating compensating differentials that *Black* partners pay to *Whites* in marriage markets characterized by discrimination against *Blacks*. We also find that *Black* men and women appear to pay a price for being *Black* when it comes to the household *Chores* they obtain from their *White* partners. *Black housewives* also perform more minutes per day of "chore work" if in couple with *White* men than when their partners are *Black*.

These results can also be explained using bargaining theories: both partners may realize that the remarriage prospects of the *Black* partner are worse than those of the *White* partner, if other people discriminate, and non-racist individuals take advantage of their minority partners' lower threat points. One advantage of a market analysis is that the same theoretical framework also integrates explanations based on selection. Even if individuals do

not personally discriminate, "chore work" performed by *Blacks* is cheaper given discrimination by others, which could be a factor in some interracial matches.

Our findings will interest scholars studying racial discrimination in the U.S. marriage markets. Further studies are needed in the international context to see whether there is evidence for similar patterns in other countries.

IV.6 Appendix

AP IV.A Heckman Estimates of Wages

We predict male and female wages using a two-step Heckman selection model, including two regressions: one regression for the selection into the labour force (first step) and a second to estimate for factors of wage (wage equation). We then predict wages for male and female respondents, and their partners.

In the equation of selection into the labour force we include the following variables: respondent's education, respondent's age, respondent's age x respondent's education, respondent's education squared, respondent's age squared, partner's education, partner's age , partner's age x partner's education, partner's education squared, partner's age squared, respondent is *Black*, partner is *Black*, number of children 0-4, number of children 5-12, number of children 13-17, minimum wage ($ per month in each state of residence), regional participation rates, regional unemployment rates, holiday, year dummies (ref.: 2008) , and regional dummies (ref.: North).

The equation for predicting wages includes: respondent's education, respondent's age, respondent's age x respondent's education, respondent's education squared, respondent's age squared, respondent is *White*, a dummy for urban status, minimum wage ($ per month in each

state of residence), regional participation rates, regional unemployment rates, holiday, year dummies (ref.: 2008), and regional dummies (ref.: North). We include predicted wages for respondents and their partners in all regressions on the time devoted to "chores".

We estimate one model for each group of respondents and their partners. For example, in Table IV B1, we consider all female respondents and their partners. In Table IV B2 we consider *White* female characteristics and their partners.

Table IV A1 - Heckman's Regressions, Female Characteristics [1,2,3,4]

Female Characteristics	(1)	(2)	(3)	(4)
	Female		Male	
	Hourly Wage	Female LF	Hourly Wage	Female LF
Female White	0.039	-	-0.252***	-
	(0.030)	-	(0.049)	-
Female Black	-	0.013	-	-0.167
	-	(0.165)	-	(0.184)
Male Black	-	0.316**	-	0.135
	-	(0.160)	-	(0.180)
Female's Age	0.067***	0.105***	-	0.129***
	(0.010)	(0.023)	-	(0.027)
Female's Age Squared	-0.069***	-0.118***	-	-0.130***
	(0.011)	(0.025)	-	(0.030)
Male´s Age	-	-0.021	0.074***	0.018
	-	(0.021)	(0.010)	(0.025)
Male´s Age Squared	-	-0.013	-0.074***	-0.082***
	-	(0.021)	(0.013)	(0.026)
Female's Education	0.063	0.294***		0.293***
	(0.048)	(0.095)	-	(0.094)
Female's Education Squared	0.145	-0.663**	-	-0.380
	(0.164)	(0.302)		(0.298)
Male's Education	-	0.022	0.004	0.216**
	-	(0.071)	(0.049)	(0.090)
Male's Education Squared	-	-0.489**	0.256	-1.246***
	-	(0.208)	(0.164)	(0.285)
Female's Age x Education	0.000	-0.001	-	-0.003***
	(0.000)	(0.001)	-	(0.001)
Male's Age x Education	-	0.002**	0.000	0.003***
	-	(0.001)	(0.000)	(0.001)
Urban	0.118***		0.122***	-
	(0.017)		(0.017)	-
Number of Children 0-4	-	-0.380***	-	-0.476***
	-	(0.029)	-	(0.034)
Number of Children 5-12	-	-0.274***	-	-0.267***
	-	(0.022)	-	(0.024)
Number of Children 13-17	-	-0.102***	-	-0.113***
	-	(0.031)	-	(0.030)
South	-0.006	-0.081**	-0.027	-0.058
	(0.022)	(0.041)	(0.024)	(0.046)
Minimum Wage	0.020***	-0.009	0.019***	-0.010
	(0.005)	(0.009)	(0.005)	(0.010)
Region Participation Rate	0.001	0.010*	-0.007**	0.010
	(0.003)	(0.006)	(0.003)	(0.007)
Region Unemployment Rate	0.013	-0.038**	0.001	-0.008
	(0.010)	(0.019)	(0.010)	(0.021)
Weekend/Holiday	-0.013	0.085	-0.091	0.048
	(0.058)	(0.115)	(0.064)	(0.119)
Constant	-0.201	-3.362***	1.095**	-6.007***
	(0.484)	(0.927)	(0.472)	(1.027)
Observations	7,065	7,065	5,513	5,513

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting women aged 21-65 and their partners [3] Specification also includes year dummies [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV A2 - Heckman's Regressions, White Female Characteristics [1,2,3,4]

White Female Characteristics	(1) Female	(2)	(3) Male	(4)
	Hourly Wage	Female LF	Hourly Wage	Female LF
Male Black	-	0.673***	-	0.107
	-	(0.217)	-	(0.220)
Female's Age	0.069***	0.103***	-	0.126***
	(0.010)	(0.025)	-	(0.028)
Female's Age Squared	-0.072***	-0.100***	-	-0.124***
	(0.011)	(0.027)	-	(0.032)
Male´s Age	-	-0.019	0.078***	0.011
	-	(0.023)	(0.010)	(0.026)
Male´s Age Squared	-	-0.019	-0.082***	-0.073***
	-	(0.023)	(0.013)	(0.027)
Female's Education	0.063	0.304***	-	0.287***
	(0.049)	(0.098)	-	(0.105)
Female's Education Squared	0.149	-0.595*	-	-0.379
	(0.170)	(0.311)	-	(0.336)
Male's Education	-	-0.015	0.007	0.196**
	-	(0.075)	(0.049)	(0.093)
Male's Education Squared	-	-0.380*	0.235	-1.145***
	-	(0.223)	(0.161)	(0.296)
Female's Age x Education	0.000	-0.002*	-	-0.003**
	(0.000)	(0.001)	-	(0.001)
Male's Age x Education	-	0.002**	0.000	0.003***
	-	(0.001)	(0.000)	(0.001)
Urban	0.112***	-	0.121***	-
	(0.017)	-	(0.018)	-
Number of Children 0-4	-	-0.418***	-	-0.483***
	-	(0.030)	-	(0.035)
Number of Children 5-12	-	-0.299***	-	-0.262***
	-	(0.023)	-	(0.024)
Number of Children 13-17	-	-0.119***	-	-0.111***
	-	(0.031)	-	(0.031)
South	-0.005	-0.114***	-0.029	-0.051
	(0.023)	(0.042)	(0.024)	(0.048)
Minimum Wage	0.018***	-0.016*	0.019***	-0.008
	(0.005)	(0.009)	(0.006)	(0.011)
Region Participation Rate	0.001	0.010	-0.007**	0.011*
	(0.003)	(0.006)	(0.003)	(0.007)
Region Unemployment Rate	0.020**	-0.038**	0.002	-0.007
	(0.010)	(0.019)	(0.010)	(0.022)
Weekend/Holiday	-0.022	0.091	-0.077	0.094
	(0.062)	(0.120)	(0.065)	(0.121)
Constant	-0.184	-3.036***	0.998**	-5.863***
	(0.493)	(0.959)	(0.494)	(1.058)
Observations	6,601	6,601	5,146	5,146

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting *White* women aged 21-65 and their partners [3] Specification also includes year dummies [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV A3 - Heckman's Regressions, Black Female Characteristics [1,2,3,4]

Black Female Characteristics	(1)	(2)	(3)	(4)
	Female		Male	
	Hourly Wage	Female LF	Hourly Wage	Female LF
Male Black	-	-0.555	-	-0.201
	-	(0.441)	-	(0.372)
Female's Age	0.035	0.111	-	-0.035
	(0.037)	(0.079)	-	(0.078)
Female's Age Squared	-0.043	-0.272***	-	-0.032
	(0.050)	(0.080)	-	(0.076)
Male´s Age	-	-0.024	0.062	0.180**
	-	(0.061)	(0.041)	(0.083)
Male´s Age Squared	-	0.063	-0.036	-0.110*
	-	(0.055)	(0.034)	(0.066)
Female's Education	0.004	0.428	-	-0.474**
	(0.199)	(0.421)	-	(0.205)
Female's Education Squared	0.247	-1.990	-	1.385***
	(0.678)	(1.322)	-	(0.533)
Male's Education	-	0.393	0.140	0.955***
	-	(0.255)	(0.275)	(0.342)
Male's Education Squared	-	-1.227	0.037	-2.089**
	-	(0.754)	(0.739)	(0.932)
Female's Age x Education	0.001	0.006*	-	0.003
	(0.002)	(0.003)	-	(0.003)
Male's Age x Education	-	-0.001	-0.001	-0.006**
	-	(0.003)	(0.002)	(0.003)
Urban	0.133*	-	0.048	-
	(0.070)	-	(0.069)	-
Number of Children 0-4	-	-0.017	-	-0.047
	-	(0.119)	-	(0.126)
Number of Children 5-12	-	0.086	-	-0.079
	-	(0.090)	-	(0.087)
Number of Children 13-17	-	0.130	-	0.004
	-	(0.117)	-	(0.112)
South	-0.055	0.305*	-0.080	0.142
	(0.076)	(0.158)	(0.113)	(0.163)
Minimum Wage	0.026	0.042	0.000	0.015
	(0.016)	(0.035)	(0.022)	(0.035)
Region Participation Rate	0.013	0.014	0.006	0.031
	(0.012)	(0.030)	(0.012)	(0.032)
Region Unemployment Rate	-0.054	-0.042	0.012	0.033
	(0.035)	(0.081)	(0.043)	(0.077)
Weekend/Holiday	0.041	-0.096	-0.159	-0.927**
	(0.126)	(0.441)	(0.229)	(0.420)
Constant	0.318	-7.542*	-1.079	-8.213**
	(2.053)	(4.257)	(2.914)	(4.035)
Observations	464	464	439	439

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting *Black* women aged 21-65 and their partners [3] Specification also includes year dummies [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV A4 - Heckman's Regressions, Male Characteristics [1,2,3,4]

Male Characteristics	Female		Male	
	(1)	(2)	(3)	(4)
	Hourly Wage	Male LF	Hourly Wage	Male LF
Female White	0.019	-	-	-0.009
	(0.041)	-	-	(0.180)
Female Black	-	-0.086	-	-
	-	(0.147)	-	-
Male Black	-	0.196	-0.307***	-0.050
	-	(0.138)	(0.048)	(0.175)
Female's Age	0.042***	0.074***	-	0.037
	(0.013)	(0.025)	-	(0.025)
Female's Age Squared	-0.037**	-0.074***	-	-0.032
	(0.015)	(0.026)	-	(0.025)
Male´s Age	-	0.048**	0.078***	0.051**
	-	(0.021)	(0.008)	(0.023)
Male´s Age Squared	-	-0.076***	-0.086***	-0.071***
	-	(0.021)	(0.008)	(0.023)
Female's Education	-0.011	0.244**	-	0.168**
	(0.060)	(0.112)	-	(0.082)
Female's Education Squared	0.336*	-0.623*	-	-0.491**
	(0.196)	(0.364)	-	(0.250)
Male's Education	-	0.113	0.105***	0.275***
	-	(0.076)	(0.036)	(0.083)
Male's Education Squared	-	-0.315	-0.112	-0.541**
	-	(0.234)	(0.118)	(0.259)
Female's Age x Education	0.000	-0.001	-	-0.001
	(0.001)	(0.001)	-	(0.001)
Male's Age x Education	-	0.000	0.000	-0.001
	-	(0.001)	(0.000)	(0.001)
Urban	0.131***	-	0.117***	-
	(0.018)	-	(0.014)	-
Number of Children 0-4	-	-0.128***	-	-0.089***
	-	(0.036)	-	(0.032)
Number of Children 5-12	-	-0.155***	-	-0.020
	-	(0.024)	-	(0.022)
Number of Children 13-17	-	-0.161***	-	-0.001
	-	(0.027)	-	(0.030)
South	0.010	-0.119**	0.002	0.040
	(0.028)	(0.046)	(0.021)	(0.046)
Minimum Wage	0.018***	-0.005	0.021***	0.017*
	(0.006)	(0.010)	(0.005)	(0.010)
Region Participation Rate	-0.001	0.001	-0.003	0.000
	(0.004)	(0.007)	(0.003)	(0.007)
Region Unemployment Rate	0.008	-0.014	-0.003	0.020
	(0.012)	(0.021)	(0.010)	(0.021)
Weekend/Holiday	-0.006	0.037	-0.055	0.078
	(0.073)	(0.131)	(0.049)	(0.122)
Constant	1.321**	-4.420***	0.000	-4.300***
	(0.605)	(1.061)	(0.374)	(0.961)
Observations	5,200	5,200	6,296	6,296

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting men aged 21-65 and their partners [3] Specification also includes year dummies [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV A5 - Heckman's Regressions, White Male Characteristics [1,2,3,4]

White Male Characteristics	(1) Female		(3) Male	
	Hourly Wage	Male LF	Hourly Wage	Male LF
Female Black	-	-0.086	-	-0.015
	-	(0.147)	-	(0.170)
Female's Age	0.048***	0.046*	-	0.044*
	(0.013)	(0.026)	-	(0.024)
Female's Age Squared	-0.043***	-0.036	-	-0.030
	(0.015)	(0.027)	-	(0.026)
Male´s Age	-	0.066***	0.082***	0.033
	-	(0.021)	(0.009)	(0.023)
Male´s Age Squared	-	-0.101***	-0.093***	-0.067***
	-	(0.022)	(0.009)	(0.023)
Female's Education	-0.021	0.331***	-	0.250***
	(0.061)	(0.109)	-	(0.083)
Female's Education Squared	0.389*	-0.913***	-	-0.697***
	(0.200)	(0.353)	-	(0.260)
Male's Education	-	0.065	0.106***	0.213**
	-	(0.076)	(0.035)	(0.083)
Male's Education Squared	-	-0.176	-0.139	-0.456*
	-	(0.237)	(0.113)	(0.268)
Female's Age x Education	0.000	-0.001	-	-0.002*
	(0.001)	(0.001)	-	(0.001)
Male's Age x Education	-	0.000	0.000	0.000
	-	(0.001)	(0.000)	(0.001)
Urban	0.123***	-	0.119***	-
	(0.018)	-	(0.014)	-
Number of Children 0-4	-	-0.120***	-	-0.084***
	-	(0.037)	-	(0.032)
Number of Children 5-12	-	-0.164***	-	-0.019
	-	(0.023)	-	(0.022)
Number of Children 13-17	-	-0.157***	-	-0.003
	-	(0.027)	-	(0.029)
South	0.020	-0.133***	0.007	0.019
	(0.030)	(0.047)	(0.020)	(0.046)
Minimum Wage	0.019***	-0.011	0.022***	0.016
	(0.006)	(0.010)	(0.005)	(0.010)
Region Participation Rate	-0.001	0.001	-0.003	-0.001
	(0.004)	(0.007)	(0.003)	(0.006)
Region Unemployment Rate	0.008	-0.002	-0.004	0.012
	(0.013)	(0.022)	(0.010)	(0.020)
Weekend/Holiday	-0.050	0.085	-0.048	0.120
	(0.078)	(0.134)	(0.048)	(0.123)
Constant	1.350**	-4.572***	-0.056	-4.017***
	(0.620)	(1.056)	(0.377)	(0.937)
Observations	5,022	5,022	6,487	6,487

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting *White* men aged 21-65 and their partners [3] Specification also includes year dummies [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV A6 - Heckman's Regressions, Black Male Characteristics [1,2,3,4]

Black Male Characteristics	(1) Female		(3) Male	
	Hourly Wage	Male LF	Hourly Wage	Male LF
Female Black	-	-0.065	-	-0.010
	-	(0.123)	-	(0.123)
Female's Age	0.082*	0.221**	-	-0.031
	(0.047)	(0.088)	-	(0.070)
Female's Age Squared	-0.119**	-0.277***	-	-0.015
	(0.054)	(0.081)	-	(0.068)
Male´s Age	-	0.058	0.058	0.189***
	-	(0.073)	(0.035)	(0.069)
Male´s Age Squared	-	-0.014	-0.035	-0.121**
	-	(0.068)	(0.028)	(0.057)
Female's Education	-0.048	-0.637	-	-0.334*
	(0.196)	(0.527)	-	(0.189)
Female's Education Squared	0.345	2.437	-	1.045**
	(0.607)	(1.783)	-	(0.492)
Male's Education	-	0.863***	0.064	0.932***
	-	(0.318)	(0.217)	(0.312)
Male's Education Squared	-	-2.138**	0.304	-2.030**
	-	(1.012)	(0.591)	(0.876)
Female's Age x Education	0.002	-0.001	-	0.001
	(0.002)	(0.004)	-	(0.003)
Male's Age x Education	-	-0.004	-0.001	-0.006**
	-	(0.003)	(0.002)	(0.003)
Urban	0.183**	-	0.046	-
	(0.086)	-	(0.060)	-
Number Children 0-4	-	-0.098	-	-0.089
	-	(0.114)	-	(0.106)
Number of Children 5-12	-	-0.156*	-	-0.094
	-	(0.087)	-	(0.079)
Number of Children 13-17	-	-0.040	-	-0.054
	-	(0.126)	-	(0.098)
South	-0.042	0.090	-0.113	0.133
	(0.076)	(0.170)	(0.094)	(0.146)
Minimum Wage	0.041**	0.036	-0.005	0.026
	(0.019)	(0.039)	(0.020)	(0.032)
Region Participation Rate	-0.003	0.025	0.007	0.002
	(0.013)	(0.032)	(0.011)	(0.028)
Region Unemployment Rate	-0.075*	-0.158*	0.009	0.024
	(0.039)	(0.090)	(0.041)	(0.069)
Weekend/Holiday	-0.075	-0.145	-0.194	-0.589
	(0.154)	(0.443)	(0.149)	(0.401)
Constant	0.808	-7.434	-0.407	-7.483**
	(2.100)	(4.761)	(2.469)	(3.591)
Observations	403	403	537	537

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting *Black* men aged 21-65 and their partners [3] Specification also includes year dummies [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level

AP IV.B Full Results for Main Regressions

Table IV B1. Evidence of Compensating Differentials [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Male respondents with White Partners			White Male Respondents			Female respondents with White Partners		
	Weekday Househusbands	Weekend Househusbands	All days	Weekday Househusbands	Weekend Househusbands	All days	Weekday Housewives	Weekend Housewives	All days
Black Respondent	-18.237	75.933	36.993**	-	-	-	199.161**	-	25.371
	(14.699)	(54.145)	(18.542)	-	-	-	(78.238)	-	(40.221)
Black Partner	-	-	-	1.795	-64.062***	-13.359	-	-	-
	-	-	-	(7.536)	(16.635)	(8.281)	-	-	-
Female's Age	-1.155	0.606	-0.267	-1.53	0.177	-0.138	2.983**	2.503**	3.077***
	(0.820)	(1.155)	(0.373)	(0.931)	(1.360)	(0.434)	(1.230)	(1.270)	(0.636)
Male's Age	0.869	0.2	0.281	1.554*	0.321	0.213	-1.366	-1.015	-1.207**
	(0.698)	(1.068)	(0.355)	(0.864)	(1.329)	(0.416)	(1.231)	(1.251)	(0.610)
Older Husband	4.013	3.238	1.04	3.203	6.122	0.922	36.477***	18.13	17.073***
	(8.549)	(12.565)	(3.299)	(8.623)	(12.759)	(3.286)	(12.870)	(13.644)	(5.927)
Female's Pred. Wage	36.472	-21.856	2.384	63.424	23.526	-12.033	26.586	52.138	-45.571
	(40.665)	(61.476)	(19.491)	(49.698)	(83.285)	(23.854)	(66.521)	(57.557)	(33.875)
Female's Education	-0.952	3.342	0.288	-3.038	-0.707	1.542	-7.492	-8.478	1.381
	(3.986)	(6.580)	(2.011)	(4.600)	(8.102)	(2.207)	(7.107)	(6.258)	(3.525)
Hsbnd's Pred. Wage	-14.651	9.478	7.969	-63.489	-32.235	12.608	-30.282	7.427	20.845
	(31.366)	(54.416)	(17.056)	(43.849)	(77.018)	(20.987)	(62.595)	(54.557)	(30.794)
Male's Education	0.321	-0.938	-0.34	3.33	2.259	-0.534	-0.446	-3.708	-2.457
	(2.427)	(4.519)	(1.359)	(3.190)	(5.565)	(1.452)	(5.144)	(4.556)	(2.522)
Non-labour Income	-0.176***	-0.049	-0.105***	-0.176***	-0.035	-0.095***	0.066	-0.103	-0.09
	(0.056)	(0.082)	(0.034)	(0.057)	(0.081)	(0.034)	(0.133)	(0.112)	(0.070)
Number Children 0-4	1.699	5.772	2.853	4.642	5.917	2.639	30.460***	13.703**	19.061***
	(5.810)	(6.764)	(1.824)	(6.383)	(7.591)	(2.006)	(6.129)	(6.415)	(3.184)
Number Children 5-12	1.48	16.185***	3.830***	5.27	15.206**	2.765*	21.081***	13.656***	17.467***
	(3.083)	(5.671)	(1.361)	(3.868)	(6.396)	(1.656)	(4.336)	(4.480)	(2.292)
Number Children 13-17	-2.952	-4.233	-0.335	0.863	-2.255	-0.633	20.167***	8.819	16.689***
	(3.705)	(6.028)	(1.722)	(4.499)	(7.606)	(2.071)	(6.349)	(5.947)	(2.961)
Married	-13.915	-9.582	-1.915	-12.862	7.694	2.266	40.437***	-36.555	16.162**
	(16.771)	(19.245)	(5.994)	(17.532)	(17.379)	(5.127)	(15.375)	(31.490)	(7.790)
Northeast	7.075	-9.34	2.74	8.562	-5.665	3.069	20.068*	-17.840*	10.478**
	(8.111)	(10.527)	(2.848)	(7.916)	(10.168)	(2.794)	(11.644)	(10.230)	(5.001)
West	2.39	2.997	3.635	2.852	4.898	3.552	-11.892	-9.327	-9.454*
	(7.705)	(11.287)	(2.894)	(7.707)	(10.969)	(2.855)	(10.534)	(10.205)	(5.031)
South	-2.609	-8.018	-1.269	-1.58	-5.011	-1.936	7.382	-5.544	-4.381
	(6.497)	(9.101)	(2.393)	(6.742)	(8.958)	(2.399)	(9.896)	(9.427)	(4.403)
Weekend/Holiday	-	-	28.558***	-	-	28.595***	-	-	27.507***
	-	-	(2.152)	-	-	(2.128)	-	-	(3.295)
Works <11h	-	-	9.752***	-	-	9.424***	-	-	46.909***
	-	-	(2.959)	-	-	(2.934)	-	-	(3.748)
Partner works <11h	-8.695	-16.813**	-10.069***	-9.455	-15.142*	-9.781***	-12.157	-7.118	-3.635
	(5.864)	(8.094)	(2.049)	(5.966)	(7.936)	(1.985)	(9.559)	(10.255)	(4.470)
Constant	14.661	31.54	-2.196	56.469	38.139	2.969	130.402**	110.679	58.153*
	(53.587)	(60.489)	(17.499)	(53.968)	(61.731)	(16.602)	(65.335)	(69.248)	(31.785)
Observations	728	737	5,805	723	735	5,795	1,366	1,420	6,527
R-squared	0.05	0.06	0.06	0.06	0.04	0.05	0.07	0.05	0.09

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting women aged 21-65 [3] *Chores* are measured in minutes per day. Specification also includes year dummies. *Househusbands* and *Housewives* are defined as those people devoting less than 10 hours per week to market work activities [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV B2. Evidence of Discrimination against *Blacks* in Marriage Markets [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)	(6)
	Black Female Respondents			Male respondents with Black Partners		
	Weekday Housewives	Weekend Housewives	All days	Weekday Househusbands	Weekend Househusbands	All days
White Respondent	-	-	-	-128.537	-176.175***	-9.428
	-	-	-	(150.903)	(52.511)	(23.147)
White Partner	329.554***	-	28.835	-	-	-
	(74.590)	-	(42.381)	-	-	-
Female's Age	5.268	0.377	0.033	-5.118	3.386	-1.044
	(5.414)	(3.900)	(1.447)	(3.689)	(4.296)	(1.704)
Male's Age	-4.070	0.998	0.570	4.471	-1.777	1.813
	(5.761)	(4.007)	(1.333)	(3.344)	(3.739)	(1.748)
Older Husband	73.147	7.224	3.587	-29.794	53.168	29.131
	(53.565)	(41.785)	(19.136)	(35.717)	(59.049)	(22.109)
Female's Pred. Wage	-329.907	-130.402	-129.588*	2.728	117.894	85.192
	(233.764)	(171.702)	(71.345)	(111.772)	(146.832)	(72.118)
Female's Education	18.386	16.534	10.786	-4.814	-11.991	-7.343
	(24.535)	(18.682)	(7.183)	(12.176)	(15.096)	(7.138)
Male's Pred. Wage	284.240	-65.679	28.331	89.104	-68.966	-45.082
	(229.877)	(141.006)	(59.173)	(126.468)	(152.050)	(68.748)
Male's Education	-32.712	2.481	-5.341	-2.610	1.721	6.338
	(20.325)	(10.906)	(5.218)	(8.429)	(10.940)	(4.834)
Non-labour Income	0.267	0.795	-0.368	-0.102	-0.021	-0.326
	(0.669)	(0.510)	(0.271)	(0.430)	(0.436)	(0.229)
Number Children 0-4	87.720**	27.867*	18.716	-21.802	72.108***	17.794*
	(38.166)	(14.954)	(13.543)	(22.965)	(23.214)	(9.306)
Number Children 5-12	46.766**	-10.716	14.891*	14.443	-24.119*	12.118**
	(21.431)	(21.250)	(8.111)	(15.178)	(14.209)	(5.572)
Number Children 13-17	30.344	20.408	0.838	-20.959	-35.733*	6.930
	(33.038)	(26.125)	(9.092)	(15.244)	(19.109)	(8.787)
Married	22.586	66.239	28.216	26.945	-113.408*	-14.237
	(128.904)	(49.628)	(25.559)	(28.777)	(58.196)	(16.896)
Northeast	55.257	-128.757**	22.531	-32.122	26.987	5.089
	(49.052)	(54.968)	(22.122)	(51.174)	(49.500)	(17.056)
West	3.667	-20.696	22.965	230.023*	-42.120	9.010
	(72.446)	(51.122)	(26.882)	(128.937)	(54.729)	(21.266)
South	-17.656	-93.771**	-5.675	-5.383	-38.444	3.335
	(48.757)	(42.796)	(17.185)	(26.377)	(45.066)	(15.067)
Weekend/Holiday	-	-	11.062	-	-	14.384
	-	-	(13.318)	-	-	(10.003)
Works < 11h	-	-	47.463***	-	-	11.085
	-	-	(16.590)	-	-	(11.341)
Partner works <11h	-29.243	-39.192	2.948	-1.991	-70.668**	-18.462*
	(40.098)	(31.512)	(16.041)	(35.659)	(26.675)	(10.816)
Constant	103.431	336.643	206.973**	-109.378	116.987	-99.006
	(312.549)	(202.648)	(96.002)	(161.589)	(216.684)	(135.364)
Observations	73	74	448	59	71	432
R-squared	0.47	0.26	0.11	0.42	0.6	0.1

Notes: [1] Robust Standard Errors in brackets [2] *Chores* are measured in minutes per day [3] Specification also includes year dummies [4] *Househusbands* and *Housewives* are defined as those people devoting less than 10 hours per week to market work activities.

Table IV B2 (cont.). Evidence of Discrimination against *Blacks* in Marriage Markets [1,2,3,4]

	(1)	(2)	(3)	(4)	(5)	(6)
	Black Male Respondents			**Female respondents with Black Partners**		
	Weekday Househusbands	**Weekend Househusbands**	**All days**	**Weekday Housewives**	**Weekend Housewives**	**All days**
White Respondent	-	-	-	-131.768*	52.751	2.181
	-	-	-	(67.881)	(70.699)	(22.673)
White Partner	-35.203	-18.646	24.136	-	-	-
	(29.237)	(45.340)	(19.273)	-	-	-
Female's Age	-5.815	1.087	-2.787	5.341	0.131	0.081
	(4.115)	(3.781)	(1.954)	(5.312)	(3.760)	(1.392)
Male's Age	5.617	1.022	3.459*	-4.645	0.973	0.988
	(3.791)	(3.619)	(1.981)	(5.969)	(3.973)	(1.285)
Older Husband	-23.035	42.940	21.705	71.074	-0.326	-2.888
	(36.963)	(51.643)	(20.382)	(54.055)	(42.323)	(18.238)
Female's Pred. Wage	154.255	291.512	230.361**	-382.569	-191.475	-178.557**
	(279.674)	(239.062)	(109.164)	(236.485)	(172.633)	(73.882)
Female's Education	-18.687	-27.938	-19.819**	23.863	20.534	14.279*
	(25.672)	(20.016)	(9.655)	(24.762)	(19.244)	(7.378)
Male's Pred. Wage	-34.625	-192.392	-156.208	319.966	-11.472	55.763
	(234.240)	(226.602)	(95.004)	(245.216)	(147.870)	(62.886)
Male's Education	1.903	8.898	10.885*	-33.228	0.984	-6.775
	(15.153)	(16.555)	(6.578)	(21.003)	(10.848)	(5.154)
Non-labour Income	-0.182	0.088	-0.442**	0.217	0.587	-0.347
	(0.337)	(0.388)	(0.210)	(0.647)	(0.526)	(0.266)
Number Children 0-4	-15.924	84.567***	23.766**	81.686**	19.014	16.440
	(24.899)	(29.737)	(10.781)	(38.082)	(15.580)	(12.822)
Number Children 5-12	25.518	-3.996	24.857***	41.815*	-3.564	14.266*
	(20.179)	(17.616)	(7.984)	(21.308)	(19.666)	(7.595)
Number Children 13-17	-22.376	-26.168	11.865	30.129	25.183	-3.077
	(17.108)	(19.400)	(9.525)	(32.880)	(25.613)	(8.641)
Married	26.027	-152.052***	-25.058	79.121	43.633	24.139
	(23.370)	(49.195)	(17.879)	(114.287)	(48.730)	(25.363)
Northeast	-29.032	8.997	5.435	37.276	-118.210**	24.694
	(45.298)	(40.942)	(16.856)	(47.220)	(51.754)	(21.200)
West	330.154***	-51.672	18.734	0.794	-28.894	20.568
	(59.267)	(49.206)	(20.675)	(67.132)	(48.661)	(22.980)
South	6.995	-47.366	6.516	-20.465	-79.493*	-11.483
	(22.435)	(38.307)	(14.378)	(46.552)	(39.846)	(15.929)
Weekend/Holiday	-	-	15.394	-	-	11.094
	-	-	(10.151)	-	-	(12.381)
LNLF	-	-	10.607	-	-	37.160**
	-	-	(10.625)	-	-	(15.861)
Spouse LNLF	11.947	-84.635***	-17.334	-26.747	-28.038	-4.481
	(34.545)	(29.823)	(11.132)	(38.738)	(31.747)	(15.779)
Constant	-81.773	143.844	-33.330	119.678	332.322*	235.316***
	(128.319)	(241.166)	(120.381)	(279.772)	(182.213)	(82.724)
Observations	63	73	459	75	80	471
R-squared	0.48	0.64	0.11	0.44	0.22	0.12

Notes: [1] Robust Standard Errors in brackets [2] *Chores* are measured in minutes per day. Specification also includes year dummies. *Househusbands* and *Housewives* are defined as those people devoting less than 10 hours per week to market work activities.

AP IV.C Propensity Score Matching

The idea of any matching strategy is to replace the missing data with actual data from another respondent. The missing data respondent is matched on observable characteristics with a similar respondent who has the missing variable(s). To create the propensity score, which serves to summarize in a single number all the information we have on all the observables, the father and mother time diary samples are combined, and we run a probit model to predict whether the data comes from the male or female sample. In this sense, we run a linear specification of age, education and race of both partner (*Black* is the reference category), the number of children under 18, the presence of other adults in the household, whether the diary was collected on a weekday or weekend day, whether the individual was on holiday, the region of residence (*Northeast, South, Midwest, West* (reference)), and year dummies (2008 as reference category). This process holds the balancing property. We generate 4 blocks, and the mean value of the propensity score for both samples is 0.4958 for female respondents, and 0.4961 for female respondents, respectively, with these means being equally statistically significant at the 10% level.

The matching was done using the nearest neighbour criterion with sample replacement, which links each time diary respondent to the time diary respondent of the opposite sex having the closest propensity score. We used a one-to-one match with replacement, such that one male partner's record might be linked to more than one female partner's record, if his propensity score is closer to each female partner's score than to any other potential male partner's score. Once the checking was complete, the variable supplied by the matched partner was the time devoted to household "chores" by the partner.

Table IV D1. Treatment in Propensity Score [1]

	(1)	(2)
Samples for Propensity Score Matching		
	Number of Obs.	**Frequency**
Female (0)	9,759	53.28%
Male (1)	8,559	46.72%

Notes: [1] Sample consists of respondents in couples between 21 and 65.

Table IV D2. Estimation of the Propensity Score [1,2,3]

Sample Propensity 0-1	(1)	(2)
Male's Age	0.000	(0.002)
Female's Education	-0.001	(0.003)
White	0.013	(0.032)
Black	0.140***	(0.056)
Male's Education	-0.013***	(0.005)
Female's Education	0.009*	(0.005)
Number of Children 0-17	0.005	(0.013)
Family Non-Labour Income	0.006	(0.057)
Holiday	0.074	(0.082)
Weekend	-0.013	(0.021)
Northeast	-0.030	(0.036)
South	-0.050	(0.032)
Midwest	0.009	(0.033)
2003	-0.014	(0.037)
2004	0.017	(0.041)
2005	0.004	(0.040)
2006	0.025	(0.040)
2007	0.054	(0.041)
Constant	0.096	(0.091)
Nº Obs.	18318	

Notes: [1] Standard errors in brackets [2] Sample consists of respondents in couples between 21 and 65 [3] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level.

Table IV D3. Description of the Estimated Propensity Score [1]

	(1)	(2)		(3)
	Percentiles	**Smallest**		**Propensity Score**
1%	0.4514665	0.4207658		
5%	0.4643764	0.4219628		
10%	0.4709237	0.4299135	Obs.	18,318
25%	0.4825162	0.4347187		
50%	0.4964242		Mean	0.4978094
		Largest	Std. Dev.	0.0224075
75%	0.5107092	0.5971482		
90%	0.5258799	0.6032079	Variance	0.0005021
95%	0.5374997	0.6033872	Skewness	0.5416405
99%	0.5620706	0.6049654	Kurtosis	3.796592

Notes: [1] Sample consists of respondents in couples between 21 and 65.

Table IV D4. Inferior bound, the number of treated and the number of controls for each block [1]

	(1)	(2)	(3)
Propensity Score	**Female**	**Male**	**Total**
0.33	5,622	4,786	10,408
0.50	4,137	3,773	7,910
Total	9,759	8,559	18,318

Notes: [1] Sample consists of respondents in couples between 21 and 65.

Table IV D5 - Evidence of Compensating Differentials [1,2,3,4]

	(1)	(2)	(3)
Panel A	**Sample of White Female Respondents**		
	Weekday House-wives	**Weekend/Holiday Housewives**	**All days**
Black Partner	-47.606***	-11.67	7.064
	(15.821)	(44.018)	(16.437)
Observations	1,368	1,426	6,550
N. Interracial Marriages	4	6	40
R-squared	0.07	0.05	0.09
Panel B	**All Male respondents with White Partners**		
	Weekday House-husbands	**Weekend/Holiday Househusbands**	**All days**
Black Respondent	-15.972	69.363	37.112**
	(15.070)	(49.116)	(18.580)
Observations	728	737	5,805
N. Interracial Marriages	7	5	44
R-squared	0.05	0.06	0.06
Panel C	**Sample of White Male Respondents**		
	Weekday House-husbands	**Weekend/Holiday Househusbands**	**All days**
Black Partner	2.037	-63.172***	-13.337
	(7.422)	(17.272)	(8.261)
Observations	723	735	5,795
N. Interracial Marriages	2	2	17
R-squared	0.06	0.04	0.05
Panel D	***All Female respondents with White Husbands***		
	Weekday House-wives	**Weekend/Holiday Housewives**	**All days**
Black Respondent	196.258**	-	25.18
	(77.917)	-	(39.940)
Observations	1,366	1,420	6,527
N. Interracial Marriages	2	0	17
R-squared	0.07	0.05	0.09

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting respondents aged 21-65 [3] *Chores* are measured in minutes per day [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level [5] We include the time devoted to "chores" by the partner computed by Propensity Score Matching.

Table IV D6 - Evidence of Discrimination against *Blacks* in Marriage Markets [1,2,3,4]

	(1)	(2)	(3)
Panel A	**Sample of Black Female Respondents**		
	Weekday Housewives	**Weekend/Holiday Housewives**	**All days**
White Partner [5]	328.217***	-	28.638
	(75.033)	-	(42.036)
Observations	73	74	448
N. Interracial Marriages	2	0	17
R-squared	0.47	0.26	0.11
Panel B	**All Male respondents with Black Partners**		
	Weekday Househusbands	**Weekend/Holiday Househusbands**	**All days**
White Respondent	-125.428	-167.064***	-10.441
	(148.236)	(59.699)	(23.641)
Observations	59	71	432
N. Interracial Marriages	2	2	17
R-squared	0.43	0.64	0.1
Panel C	**Sample of Black Male Respondents**		
	Weekday Househusbands	**Weekend/Holiday Househusbands**	**All days**
White Partner	-35.203	-18.646	24.136
	(29.237)	(45.340)	(19.273)
Observations	63	73	459
N. Interracial Marriages	7	5	45
R-squared	0.48	0.64	0.11
Panel D	**All Female respondents with Black Partners**		
	Weekday Housewives	**Weekend/Holiday Housewives**	**All days**
White Respondent	-135.808*	51.456	2.304
	(74.813)	(72.314)	(22.697)
Observations	75	80	471
N. Interracial Marriages	4	6	40
R-squared	0.44	0.22	0.12

Notes: [1] Robust Standard Errors in brackets [2] Sample consists of married/cohabiting respondents aged 21-65 [3] *Chores* are measured in minutes per day [4] * Significant at the 10% level ** Significant at the 5% level *** Significant at the 1% level [5] We include the time devoted to "chores" by the partner computed by Propensity Score Matching.

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Conclusiones en Español

Investigaciones previas han mostrado que la mayoría los países desarrollados han experimentado un incremento general en el capital humano de la mujer en las últimas décadas, llevando a un incremento general de las tasas de participación de la mujer en el mercado de trabajo. Sin embargo, numerosos estudios sobre la división del trabajo doméstico confirman que, a pesar del aumento en las tasas de participación de la mujer en el mercado de trabajo, las mujeres todavía realizan la mayor parte de las tareas domésticas y de cuidado de niños.[1] Por lo tanto, el hecho de que las mujeres se especialicen en la producción doméstica, a pesar del aumento en la participación de la mujer en el mercado laboral, ha dado lugar al argumento del "segundo turno" o de la "doble carga". Este término se utilizó por primera vez en estudios sociológicos, y se refiere a la carga de trabajo de las mujeres que participan en el mercado laboral pero que también se encargan el trabajo doméstico (Hochschild y Machung [1989], Schor [1991]).

Este argumento de la "doble carga" sugiere que las mujeres han añadido el empleo a sus responsabilidades domésticas previamente existentes, lo que hace que las mujeres tengan una mayor sensación de "pobreza de tiempo" ahora que hace 40 años (Robinson y Godbey [1997], Bittman y Wajcman [2000], Mattingly y Bianchi [2003], [2005], Sayer [2005], Mattingly y Sayer [2006]). Al mismo tiempo, observamos un hecho que puede estar relacionada con este argumento del "segundo turno": los países desarrollados han experimentado una caída dramática de tasas de fecundidad total, a niveles no vistos

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[1] Bittman, England, Sayer, Folbre y Matheson [2003] encuentran para una muestra de parejas Australianas que, mientras los hombres dedican 11 horas a la semana a las actividades del hogar, las mujeres dedican 23 horas a la semana a dichas actividades. Según datos para Estados Unidos, los maridos dedican 13 horas a la semana a las actividades del hogar, mientras que sus esposas dedican 18 horas a la semana a estas actividades (Bianchi, Milkie, Sayer y Robinson [2000]). Gauthier, Smeeding y Furnstenberg [2004] muestran que, en algunos países desarrollados a finales de los años 90, los hombres dedican 3,29 horas al día a las producción doméstica (tareas del hogar más cuidado de niños), mientras que las mujeres dedican 6.04 horas al día a tales actividades.

anteriormente – Feyrer, Sacerdote y Stern [2008] relacionan la desigualdad en el reparto de las tareas del hogar con las bajas tasas de fecundidad. Esta caída en la fecundidad ha centrado la atención de los responsables políticos (Lee [2003]), especialmente dado que, dentro de la tendencia general a la baja, la fecundidad ha variado significativamente entre los países.

Los modelos tradicionales de la familia no pueden explicar de manera coherente la distribución desigual del trabajo doméstico por género. Así, los modelos de negociación intra-familiar toman la visión de que la familia es un lugar de conflicto y cooperación. Los modelos de negociación se basan en el concepto de puntos de amenaza, y centran su atención en la interacción entre preferencias heterogéneas de los miembros de la familia, y la distribución del poder entre ellos. Los modelos cooperativos de negociación de Nash suponen que el punto de amenaza está determinado por el coste de la disolución de la pareja (Manser y Brown [1980], McElroy y Horney [1981]) y los modelos de negociación no-cooperativos suponen que el punto de amenaza no es la separación, sino que es interno al matrimonio y determinado por un equilibrio no-cooperativ0, definido en términos de roles de género socialmente reconocidos y sancionados (Lundberg y Pollak [1996]).

Además, el estudio de la caída de las tasas totales de fecundidad en los países industrializados, por lo general, ha pasado por alto los procesos de formación de los hogares. Sin embargo, las diferencias entre países en las tasas de formación de hogar son significativas, y tanto el descenso en las tasas de matrimonio y el aumento en las tasas de cohabitación han seguido tendencias muy diferentes entre los países del mundo desarrollados. En particular, los países llamados "de menor fecundidad baja", tales como Italia, Japón y España, han experimentado una disminución de las tasas de matrimonio que no ha venido acompañada del aumento en las tasas de cohabitación característica de otros países desarrollados. En este contexto, algunos autores han demostrado que el reparto desigual del trabajo doméstico entre

hombres y mujeres también puede ayudar a explicar los patrones de baja tasa de fecundidad y de participación laboral femenina (Feyrer Sacerdote y Stern [2008]), y bajas tasas de formación de parejas (Sevilla-Sanz [2010]), observadas en los países del Sur de Europa.

Así, el segundo capítulo complementa al análisis económicos convencionales, basado en la teoría de emparejamiento (por ejemplo, "assortative mating" por educación, Lam [1988], Blosfeld y Timm [2003]) y negociación específica de la pareja, y presenta una interpretación basada en normas sociales para explicar las diferencias entre países en las tasas de formación de parejas. Consideramos que el aumento en el capital humano de las mujeres ha tenido un impacto diferente sobre las tasas de formación de uniones en el Norte y Sur de Europa, debido a las diferencias en las normas sociales referidas a la división del trabajo en el hogar.

Modelizamos las normas sociales como una restricción establecida sobre el tiempo dedicado al trabajo doméstico por las mujeres, y que disminuye los beneficios de formar parejas para las mujeres. Así, una mujer que vive en un país con una división más tradicional del trabajo doméstico tiene, ceteris paribus, una menor probabilidad de formar pareja, dado que tendrá que dedicar más tiempo a la producción doméstica, siendo esta norma social más restrictiva para mujeres de alto nivel educativo. En la medida en que la educación de la mujer ha aumentado en los últimos años, y que los países del Sur de Europa tienen normas sociales más tradicionales, esto puede explicar en parte la dramática disminución en las tasas de formación de parejas en el Sur de Europa. Después de controlar las variaciones temporales y las características del país, así como la heterogeneidad no observada de los individuos y otras variables agregadas de los países, la evidencia empírica apoya las predicciones del modelo. Como consecuencia, dada la importancia de la formación de las familias como factor determinante de la fecundidad, nuestro estudio arrojar nueva luz para el estudio de las bajas tasas de fecundidad. Sin embargo, está más allá del alcance de este capítulo examinar cómo se

forman las normas sociales y cómo se mantienen en el tiempo.

Una vez que nos hemos analizado la decisión de formación de la pareja, vamos al nivel de los hogares, donde la mayoría de las mujeres trabajadoras deben enfrentarse a una "doble carga", en el sentido de que deben conciliar sus responsabilidades laborales y familiares.[2] Dada el reparto desigual del trabajo doméstico para hombres y mujeres, explicada en parte por la existencia de normas in la sociedad (capítulo 2), las mujeres pueden optar por trabajar por cuenta propia para tratar de mejorar su "equilibrio entre la vida laboral y familiar". En este sentido, una visión comúnmente aceptada sobre los motivos de la mujer a elegir un empleo por cuenta propia es su deseo de horarios flexibles, y la posibilidad de poder pasar más tiempo con sus hijos, es decir, un mejor equilibrio entre el trabajo y la vida privada.

La hipotética relación entre el empleo por cuenta propia y cuidado de los niños se deriva de varias fuentes. En primer lugar, es posible que los trabajadores por cuenta propia tengan un mayor control sobre el tiempo de trabajo (horario flexible), por lo que pueden ser capaces de trabajar durante el horario de los colegios, o después de que los niños se han ido a la cama, o pueden trabajar en horarios en los que el otro cónyuge u otro miembro de la familia están disponibles para atender a los niños. En segundo lugar, los trabajadores por cuenta propia pueden ser capaces de trabajar desde casa. En tercer lugar, el empleo por cuenta propia es posible que ofrezca una mayor flexibilidad en la cantidad de horas de trabajo, de tal manera que los trabajadores por cuenta propia puedan trabajar a tiempo parcial. Por último, los trabajadores por cuenta propia pueden tener un mayor control sobre el esfuerzo realizado en el trabajo, lo que permita conservar la energía necesaria para el cuidado de los niños. Sin embargo, evidencia directa de la relación entre el empleo por cuenta propia y el equilibrio

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[2] Esto es especialmente cierto en los países del Sur de Europa, donde el mercado laboral continua estando altamente regulado, con reglas estrictas en lo relativo a la contratación y despido de trabajadores, y el tipo de acuerdos laborales permitidos. Esta situación contribuye a la creación de obstáculos a la salida y reentrada en el

entre el trabajo y la vida privada es débil, especialmente en lo que respecta a los países europeos y cuidado de niños.

Así, en el capítulo 3 analizamos si las madres trabajadores por cuenta propia tienen una "conciliación de la vida laboral y familiar" diferente al de las madres empleadas por cuenta ajena. Para ello, utilizamos datos procedentes de la encuesta de uso del tiempo en España 2002-2003 (STUS). Nuestros resultados no avalan la hipótesis de que las madres por cuenta propia pasan más tiempo cuidando de sus hijos que las madres trabajadoras por cuenta ajena. Sin embargo, como uno de los motivos de la mujer para elegir empleo por cuenta propia es un deseo de flexibilidad horaria (horarios flexibles), analizamos el perfil de las actividades que se realizan a lo largo del día (timing). En primer lugar encontramos que, durante los días de trabajo, las madres por cuenta propia dedican más tiempo al cuidado de los niños y menos tiempo al trabajo durante la mañana y mediodía, y menos tiempo al cuidado de los niños y más tiempo al trabajo durante la tarde-noche, en comparación con las madres trabajadoras por cuenta ajena. También encontramos complementariedades entre el tiempo dedicado al cuidado de los niños y al trabajo por los miembros de la pareja.

Estos resultados son coherentes con la hipótesis de que las madres trabajadoras por cuenta propia pueden tener una mayor flexibilidad en sus horas de trabajo (horarios flexibles), mejorando así el equilibrio entre su vida laboral y familiar, ya que pasan más tiempo con los niños durante la mañana, y son capaces de trasladar parte de sus responsabilidades laborales a la tarde, cuando el cónyuge está disponible para cuidar a los niños. Así, el capítulo 3 se ocupa de un tema importante para la toma de decisiones políticas, es decir, cómo las condiciones laborales interactúan con el cuidado de los niños y, especialmente, el tiempo que las madres trabajadoras por cuenta propia pasan al cuidado de los niños.

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mercado laboral, durante la paternidad/maternidad y el cuidado de los hijos, lo que resulta en que las mujeres en

Por último, las encuestas de uso del tiempo han llamado la atención de los investigadores en los últimos años, ya que ofrecen la posibilidad de estudiar cómo los individuos distribuyen su tiempo a lo largo del día (por ejemplo, en qué medida el ocio está igualmente distribuido por género - (Aguiar y Hurst [2007], Burda, Hamermesh y Weil [2008]). Además, el reciente desarrollo de estas encuestas ha permitido estudiar qué factores determinan la distribución del trabajo doméstico dentro de la hogar, incluyendo la raza de los individuos, si bien han utilizando la raza sólo como una variable de control (Kalenkoski, Ribar y Stratton [2005,2007], Hersch [2009]). Nosotros damos un paso más, y examinamos los efectos de la raza del individuo y del cónyuge (blanco o de color) sobre el tiempo que los individuos dedican a la producción doméstica, como evidencia de discriminación racial.

Utilizando datos de la encuesta de uso del tiempo en América 2003-2008, encontramos que los hombres y mujeres "blancos" dedican menos tiempo a las labores del hogar si tienen un cónyuge "negro", que en el caso de que tengan un cónyuge que también es blanco, mientras que sus cónyuges negros dedican más tiempo a las labores del hogar. Interpretamos estos resultados como evidencia de discriminación racial (color de piel) en contra de la gente de color en los mercados matrimoniales de los Estados Unidos de América, resultados que pueden explicarse a la luz de la teoría de "Compensación de Diferenciales en el matrimonio" de Grossbard-Shechtman [1984]. También encontramos que los individuos "negros" parecen pagar un precio por ser de color, ya que obtienen una menor producción doméstica cuando sus cónyuges son blancos que cuando son negros.

Utilizamos la teoría de "Compensación de Diferenciales en el matrimonio" de Grossbard-Shechtman [1984] como la teoría subyacente, la cual establece que los mercados matrimoniales son, en realidad, mercados para las labores del hogar – "trabajo" en la

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los países del Sur de Europa participan menos en el mercado de trabajo y tienen menos hijos (Del Boca [2002]).

producción doméstica. En este marco de trabajo, y a la luz de los resultados obtenidos, es posible que los mercados matrimoniales establezcan compensaciones por las labores del hogar hechas por los individuos que se encargan del trabajo dentro del hogar – trabajadores en las labores del hogar - y que las personas blancas obtengan compensaciones de los diferenciales incluso en el caso general de que estos individuos no discriminan a los individuos de color.

Sin embargo, estos resultados pueden explicarse también usando teorías de negociación - ambos cónyuges pueden darse cuenta de que las perspectivas de poder formar una nueva pareja por parte del cónyuge de color son peores que las perspectivas del cónyuge blanco, en el caso de que otras personas discriminen en contra de los individuos de color, y los individuos no-racistas aprovechan el menor poder de amenaza por parte de los cónyuges de color. Así, se obtienen similares conclusiones utilizando un análisis de negociación y un análisis de mercado en lo referido en los efectos sobre el uso del tiempo de la riqueza relativa, salarios relativos, o nivel educativo relativo, ya que ambos análisis reconocen que los cónyuges negocian entre ellos en función de las condiciones del mercado que les rodea. Sin embargo, una ventaja de usar el análisis de mercado es que el mismo análisis integra explicaciones basadas en selección de las parejas. Así, incluso si los individuos no discriminan, el mecanismo del precio de mercado establece que, dado que algunos individuos discriminan a la gente de color en el mercado matrimonial, el precio del tiempo dedicado a las labores del hogar por parte de la gente de color es más barato que el precio para la gente de color, lo que podría explicar que se formen parejas interraciales (algunos individuos blancos quieren obtener una mayor cantidad de producción doméstica por parte de sus cónyuges).