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Time allocation of disabled individuals

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ABSTRACT

Although some studies have analysed the disability phenomenon and its effect on, for example, labour force participation, wages, job satisfaction, or the use of disability pension, the empirical evidence on how disability steals time (e.g. hours of work) from individuals is very scarce. This article examines how disabled individuals allocate their time to daily activities as compared to their non-disabled counterparts. Using time diary information from the Spanish Time Use Survey (last quarter of 2002 and the first three quarters of 2003), we estimate the determinants of time (minutes per day) spent on four aggregate categories (market work, household production, tertiary activities and leisure) for a sample of 27,687 non-disabled and 5250 disabled individuals and decompose the observed time differential by using the Oaxaca–Blinder methodology. The results show that disabled individuals devote less time to market work (especially females), and more time to household production (e.g. cooking, cleaning, child care), tertiary activities (e.g. sleeping, personal care, medical treatment) and leisure activities. We also find a significant effect of age on the time spent on daily activities and important differences by gender and disability status. The results are consistent with the hypothesis that disability steals time, and reiterate the fact that more public policies are needed to balance working life and health concerns among disabled individuals.

Introduction

Interest in economic analysis of time use has increased in recent years within a context wherein sociologists and psychologists have been responsible for almost all the research based on time-budget data (Hamermesh & Pfann, 2005). The lack of attention among economists is surprising since such data allow us to analyse the determinants of how individuals allocate time to market work and outside the labour market. In addition, unpaid non-market activities are also equally important for human welfare as they contribute significantly to the well being of individuals. The availability of better data on time allocation makes it possible to examine activity patterns of some subgroups within the population (such as people with disabilities) as compared to those of the population as a whole. According to the World Health Organization (WHO), disability affects hundreds of millions of families all over the world. Currently, around 10% of the total world's population, or roughly 650 million people, live with a disability. Furthermore, this number is expected to increase in the coming years, mainly as a result of the growing proportion of older citizens in the population. In the European Union (EU), there are approximately 80 million people who suffer some kind of disability (ranging from mild to severe), who are often prevented from fully taking part in society and the economy because of environmental and attitudinal barriers (European Commission, 2010).

Despite the recognition of the rights of disabled people in all life aspects (e.g. employment, education, health, and transport), the fight against any type of discrimination towards this collective and the establishment of new rules and regulations to support equal opportunities (e.g. American with Disabilities Act of 1990 and the European Disability Strategy 2010–2020 adopted on 15 November 2010), very little is know about how these individuals spend their time. Much of the previous literature on disability has focused on paid work. For example, some studies have analysed the disability phenomenon and its effect on, for example, labour force participation (e.g. Livermore, Stapleton, Nowak, Wittenburg, & Eiseman, 2000; Parsons, 1980), wages (e.g. Baldwin & Johnson, 1994, 2005; Kidd, Sloane, & Ferko, 2000), job satisfaction (e.g. Renaud, 2002; Uppal, 2005), part-time work (e.g. Schur, 2002, 2003), the (dis)incentives to work associated with different social benefits programs (e.g. Bound & Burkhauser, 1999), or the use of disability pensions as an instrument for leaving the labour market definitively (e.g. Kreider & Riphahn, 2000). In contrast, we find only a very few studies on how disability impacts individuals' time allocation (e.g.

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Leufstadius, Reg, & Mona Eklund, 2008; Lomax, Brown, & Howard, 2004; Oi, 1991; Pentland, Harvey, Smith, & Walker, 1999; Pentland & McColl, 2002; Shimitras, Fossey, & Harvey, 2003; Winkler, Unsworth, & Sloan, 2005). However, many of these studies are based on small samples or on analysing the effects of specific injuries or traumatisms (e.g. brain and spinal cord injuries, schizophrenia, neurodegenerative diseases) on individuals' time allocation (e.g. Leufstadius et al., 2008; Lomax et al., 2004; Pentland et al., 1999; Shimitras et al., 2003; Winkler et al., 2005).

Within this literature, it is worthwhile mentioning the work of Oi (1991). This author pointed out that disability has been characterized as a condition that "*steals*" time, because persons with disabilities need more leisure time to rest, obtain medical care, and accomplish everyday activities. Furthermore, time consumed by transportation to and from work may be longer. For example, the disabled make nearly three times as many physician visits a year and purchase more than four times as many prescriptions as individuals with no activity limitations. These findings lead us to conclude that time allocation of people with disabilities will be different from that of people without disabilities precisely because disability steals time. However, Oi (1991) does not carry out any quantitative analysis of the effects of disability on individuals' time allocation. In other words, he does not quantify, for example, how much time spent on paid work by disabled individuals is replaced by household activities or leisure. Additionally, we can find some studies examining the relationship between time allocation and health status that are based on the general population (e.g. Podor & Halliday, 2011; Rust & Phelan, 1997; Wu, 2003).

The aim of this study is to investigate how people with disabilities allocate their time to daily activities as compared to their non-disabled counterparts. Particular attention is paid to what extent patterns of time vary by gender and disability status. Using the time-use diaries completed by respondents in the Spanish Time Use Survey 2002/2003, we estimate the factors affecting the time spent on paid work, housework, tertiary activities and leisure, using breakdowns by gender and disability status. According to Hamermesh and Pfann (2005), time use data are the best suited for analysing issues of time use in the labour market and at home. We then use the estimates obtained to conduct the well-known Oaxaca–Blinder method (1973) to decompose the observed differential in each daily activity between non-disabled and disabled individuals into "*characteristics*" and "*returns*".

The remainder of the paper proceeds as follows. Section two introduces the dataset, the measure of disability and the classification of the daily activities included in the time-use diary as well as the method and econometric model used in this study. Section three includes the results obtained, and the last section presents the main conclusions and offers some recommendations regarding public policy.

Data and method

Sample

We use micro-data taken from the Spanish Time Use Survey (STUS), carried out throughout the last quarter of 2002 and the first three quarters of 2003. The STUS has been designed to follow the guidelines released in 2000 by the Statistical Office of the European Communities (EUROSTAT), which were created by a panel of experts set up to develop the Harmonised European Time Use Surveys Project (a full description of this project is available at: https://www.h2.scb.se/tus/tus/default.ht). This survey contains a sample of 20,603 households (i.e. around 86% of the theoretical initial sample, 23,880), which obtains information on people's daily activities by means of the completion of a personal diary, and household and individual questionnaires (Ethical approval for use of these data was not needed because the person's identity were not available in this anonymous dataset). To attain the survey goals of examining the population's use of time, the sample was evenly distributed over the year in order to represent all days on a strata and Autonomous Community scale. Accordingly, this uniform distribution of the sample reduces the possible overrepresentation of holiday periods in our final sample. The individual questionnaire contains data on 46,774 individuals aged 10 or over. The activities diary constitutes the main source for carrying out our analysis of the allocation of time among disabled individuals as compared to their non-disabled counterparts. In this sense, all members of the household 10 years old and over must complete this diary on a selected day, which covers the 24 h of a day (i.e. 1440 min), from 6 a.m. to 6 a.m. the following day, and is divided into 10 min intervals. The main advantage of using this information included in the personal diary is that it allows us to compute the total effective minutes allocated to each daily activity.

Our sample consists of individuals aged 16–64 (i.e. working-age population). After dropping those individuals with missing information, the final samples used in the estimation process for individuals without and with disabilities are 27,687 (13,138 males and 14,549 females) and 5250 (2469 males and 2781 females), respectively. In the descriptive section we use the sample weight available in the STUS in order to reflect population characteristics and correct for the possible lack of representativeness of the sample.

Measures

The STUS contains a large number of different activities (around 150) and we need to find a way to aggregate all these activities into some useful and manageable economic categories in order to measure and analyse them. The classic model of time allocation (Becker, 1965) considered only two types of activities: work and non-work. In our case, we expand the number of activities and choose the classification used by Burda, Hamermesh, and Weil (2008), who distinguish four different groups: 1) Market work; 2) Household production; 3) Tertiary activities; and 4) Leisure. In any case, the choice of how to aggregate all these activities is inherently arbitrary (Hamermesh & Donald, 2007). There is no single correct way of classifying these commodities and the time inputs into them (Burda et al., 2008). "*Market work*" refers to activities for which individuals are paid. Following Burda et al. (2008), we assume that people would not be working the marginal hour in the market if they were not paid, so that at the margin market work is not enjoyable (or at least is less enjoyable than any non-work activity at the margin). "*Household production*" is related to those activities in which we engage at home, using our own time and some purchased goods and have the common characteristic that we might have purchased substitutes from the market instead of performing them ourselves. For example, we can hire nannies to care for our children instead of spending the time ourselves, or we can hire a painter rather than paint the house ourselves. "*Tertiary activities*" refers to those things that we cannot pay other people to do for us but that we must do at least some of (e.g. sleeping, eating). Finally, "*Leisure*" includes all activities that we cannot pay somebody else to do for us and that we do not really have to do at all if we do not wish to (e.g. television-watching, attending religious services, reading a newspaper, chatting with friends, etc). What distinguishes leisure from the other types of home activities is that one can function perfectly well (albeit not happily) with no leisure whatsoever: None is necessary for survival (Burda et al., 2008). In addition, we have included in our descriptive analysis an additional activity or category called "*others*" which consists of a few miscellaneous activities and unspecified time use codes in order to total up to 1440 minutes per day.

We identify people with disabilities by using two questions which were included in the STUS questionnaire and have been used in other