Productivity in Old Age

Research on Aging
33(2) 205–226

DOI: 10.1177/0164027510395398
http://roa.sagepub.com

Rocío Fernández-Ballesteros[1], María Dolores Zamarrón[1], Juan Díez-Nicolás[2], María Dolores López-Bravo[3], María Ángeles Molina[1], and Rocío Schettini[1]

Abstract

It is commonly assumed that older adults are "unproductive" as soon as they retire and begin receiving a pension from the social security system, as occurs in most European countries. This article deals with the concept of unpaid work and social productivity, on the basis of data collected in the base line of the Estudio Longitudinal sobre Envejecimiento Activo (ELEA; Longitudinal Study of Active Aging), exploring the extent to which Spanish older adults (aged 55 to 75) report being involved in productive activities. First, the data are examined by age, gender, and working status; and second, under moderate-cost assumptions, the unpaid contribution to society of older people is calculated, in terms of Euros. The results are discussed in the context of other general studies about unpaid productive activities in old age; it is concluded that our sample is characterized by a focus on productive activity related to care for other adults and children and their estimated contribution in unpaid activities expresses the importance of older persons as social capital.

Keywords

aging, unpaid productivity, retirement, active and productive aging

[1]Autonomous University of Madrid, Madrid, SPAIN
[2]Complutense University, Madrid, SPAIN
[3]La Salle University Center, Madrid, SPAIN

Corresponding Author:
Rocío Fernández-Ballesteros, Department of Psychobiology and Health, Autonomous University of Madrid, 28049-Madrid SPAIN
Email: r.fballesteros@uam.es

Introduction

Older adults continue to make valuable contributions to society after they withdraw from the labor force. They not only take care of themselves and enjoy life, but also perform caring tasks in their own home and that of their relatives and friends, caring for and assisting their family members, friends, and relatives; often, indeed, the help they provide allows their children to continue working (IMSERSO 2004). Moreover, about 10% of European older adults (from 17.7% in Sweden down to 2.4% in Spain) are involved in formal volunteer activities (Siegrist, Von dem Knesebeck, and Pollak 2004). Nevertheless, a common stereotype is that older adults are unproductive, constituting a "passive class"[1] of citizens supported by people who work (for pay), and are a burden on society (e.g., Becker and Schroots 2008; Butrica and Schaner, 2005; Chawla 1991; Fernández-Ballesteros 1992, 2006; Fernández-Ballesteros and Díez-Nicolás 2008) and/or that their main daily life activities are related to self-care and leisure (Altergott 1988).

During recent decades, dozens of articles reporting research on productivity in old age have been published. The literature deals with a broad range of topics that can be classified in three main categories: (1) articles referring to the theoretical definition of productivity or productive activities in old age that discuss their nature and/or their positive social or individual consequences for health or emotional well-being (e.g., Hoffman 2008; Martinson and Minkler 2006; Morrow-Howell, Hinterlog, and Scherraden 2001), (2) articles reporting empirical research about individual differences (age, sex, rural-urban, pre- and postretirement) in productive activities in old age (e.g., Herzog et al. 1989; Van der Meer 2006), and finally, (3) articles that attempt to quantify the value of unpaid productive activities in old age (e.g., Arno, Levine, and Memmott 1999; Herzog & Morgan 1992; Johnson and Schaner 2006). We shall now describe some examples of these three categories of research on productive activity in old age.

From an economic point of view, productive activity is normally defined as that which add/s to the stock and flow of valued goods and services in the market place, usually expressed as an assessment of its contribution to the gross domestic product (GDP). Nevertheless, not all activities that produce social benefit are paid and have repercussions in GDP, for the simple reason that they may be unpaid[2] or on a voluntary basis, despite producing benefit for the individual, group, or society.

In the field of productive aging, Hinterlog, Morrow-Howell, and Scherradem (2001) reviewed several definitions of productive activity, finding that Morgan (1986) had provided the simplest definition of productivity,

confining its conceptualization to "the production of goods and services." On the other hand, Herzog et al. (1989:S129) offered the broadest, considering as productive "any activity that produces goods and services whether paid or not, including activities such as housework, childcare, volunteer work, and help to family and friends" (S130). Bass, Caro, and Chen (1993) argued that the concept should include any activity that produces goods or services, whether paid or not, or that can develop the capacity to produce goods and services.

In sum, although the production of goods or services is at the core of any definition of productive activity in the field of aging, as Holstein (1992) claims, perhaps the most widely discussed characteristic is whether the activity is paid or unpaid. Thus, considering that the inclusion of paid work could marginalize disadvantaged segments of the older adults who cannot be paid for their productive activity (for a variety of reasons, not least of which because it is illegal in many pension systems), even if goods and services for others are provided, several authors consider only unpaid activities to constitute the core of productivity in old age. Although there is no consensus about whether productive activity in retired older adults should be paid or unpaid activities that produce goods and services, it is accepted that the most appropriate measure for both types is time spent on a set of activities that usually includes household work, administrative management, caregiving, and volunteer work (Wolfson and Rowe 1999).

Another important issue in the empirical definition of productive activities refers to the type of activities included as "productive." Some empirical research has attempted to examine individual differences in participation in productive activities among the elderly. For example, Dosman et al. (2006) looked at differences in how people allocate time among productive and other activities pre- and postretirement. In this research, four broad categories were examined: self-care, leisure activities, paid work, and *unpaid productive work*. In unpaid productive work they included three sorts of activities: domestic work, caregiving, and volunteer work. *Domestic work* was considered as standard household activities, such as meal preparation, washing up, indoor and outdoor cleaning, administrative management, shopping, gardening, and so on; *caregiving* was defined as care of *children* or *adults*, personal or medical care, teaching, helping, babysitting, housework, cooking, transport, and so on; finally, *volunteer work* was defined as participation in activities related to professional, union, political, civil, or religious organizations. The data from this study were collected through phone interviews from Statistic Canada's 1998 General Social Survey on time use. Analyses made comparisons between employed and retired men and women (mean age in both groups = 66). The main results showed that not all time spent on paid employment prior to

retirement was relocated purely to leisure activities after retirement and that time spent on the other two activity categories, unpaid work and self-care, increased after retirement. The authors concluded that:

> retirement is a significant predictor of time spent on other forms of productive activity: retirement predicts time spent on unpaid work overall and domestic work specially for both men and women, and involvement in volunteer work for women . . . the end of paid work does not mean the end of productive life. (p. 414)

Other studies attempt to examine individual differences in productivity due to age, gender, and the rural-urban context. For example, Van der Meer (2006) addressed three particular questions related to sex and spatial context. The data were collected within the European Study of Adult Well-being in 2003 through face-to-face interviews with people aged 50 to 89 living in three regions of the Netherlands. Productive activities were assessed through the Life Activity Assessment instrument (Hawkins et al. 1996) assessing paid work, voluntary work, giving support, home maintenance, and housekeeping. *Voluntary work* includes participation in hospitals, nursing homes, schools and churches, and recreational, cultural, and political actions carried out within social organizations; *giving support* includes all forms of instrumental and social support; finally, *home maintenance* and *housekeeping* include any support for any household members or others outside the household. The results revealed age, gender, and context differences in participation. In short, participation rates were higher in the youngest age group than in older groups, while men reported that they were employed more than women and had more paid work than women after retirement. With regard to productive activities, giving support to others was more common than volunteering at all ages and greater in women than in men. Women reported greater participation in caregiving than men in the younger groups and significantly more home maintenance and housekeeping than men at any age. Finally, variation in the socio-spatial context had no influence on caregiving or volunteering but mediated in their participation in domestic work and their probability of obtaining paid work (higher probability in rural areas than in urban ones).

An important issue emerging from the long lists of activities found in productivity studies concerns the classification system used and the lack of empirical research; that is, few studies are interested in the empirical internal structure of productive activities. For example, Burr, Mutchler, and Caro (2007) carried out a cluster analysis on a set of productive activities showing that the latent structure of productive activities among middle-aged and older

adults fits well into four clusters: helpers, home maintainers, volunteers, and super-helpers.

A final set of publications on productive activities is constituted by those that examine the value of unpaid productive activities; thus, Johnson and Schaner (2006), with North American elders, and De Vaus, Gray, and Staton (2003), with elder Australians, calculated the value of unpaid activities depending on the number of hours devoted to each activity and its value under a moderate-cost assumption. For example, Johnson and Schaner (2006) report that Americans age 55 and upwards contributed between $97.6 and $201.0 billion to society in 2002 through volunteer activities and time spent caring for family members. These authors concluded that "based on moderate-cost assumption, the best estimate values unpaid activities at $161.7 billion, or $2,698 per person" (p. 1). Among just those who volunteered or provided care, the average value of contributions amounted to $3,662. Also, the authors reported that the value of this care provided by older adults approached $100 billion, about two-fifths accounted for by spousal care, another two-fifths by grandchild care, and the remaining fifth by parent care. This amount is relatively close to the national expenditure of $135 billion on formal long-term care services for the aged in 2004. Taking into consideration gender differences, older women contribute more time with unpaid activities, which under moderate-cost assumptions contribute $2,968, compared to $2,263 for men. In this same line, De Vaus et al. (2003) estimated that Australians aged older than 65 contribute almost $39 billion per year in unpaid and voluntary work, and if those aged 55 to 64 are included, this contribution increases to $74.5 billion.

It is interesting how they calculated the value in dollars of unpaid work, assigning a value to each hour, setting the value of each hour of formal volunteering as equal to the average nationwide wage paid to office and administrative support workers (because it requires clerical work: low cost = 13.41, moderate = 13.41, high = 16.65) and the value of informal volunteering equal to the federal minimum wage (since informal volunteering requires minimum skills: low = 5.15, moderate = 5.25, high = 13.41). Caring for children, parents, and spouses is calculated on the basis of the average wage paid to community and social services workers (low cost = 5.15, moderate = 8.07, high = 8.32).

Taking into account the state of the art in the issue of productivity in old age, our objective in this study is to describe the productive activity of older adults (aged 55-75), examining individual differences by age, gender, and working role, and estimating the value of unpaid activities, using a broad definition of "productivity" as activities that produce valuable goods and services (Herzog and Morgan 1992), excluding activities related to self-care and

leisure time. Our definition of productive activity introduces unpaid work done for one's own household or for another individual's household, caring for family members or relatives, and unpaid work done in the community or for any other person or group (Dosman et al. 2006).

Method

Participants

The data in this study are from the baseline of the Estudio Longitudinal sobre Envejecimiento Activo (ELEA; Longitudinal Study of Active Aging; Fernández-Ballesteros et al. 2007). In this study, 458 independent Spanish citizens (170 men and 288 women) participated. Our sample can be considered incidental; although we started with a probabilistic sample by gender and age (from 55 to 75) from the Madrid region, only 95 individuals accept to participate.[3] Additionally, in an effort to use the most heterogeneous sample, participants were selected from three settings: volunteers from senior citizens clubs in rural ($N = 49$) and urban areas ($N = 289$) and volunteers from university programs for the elderly ($N = 25$) (see Fernández-Ballesteros et al. 2007). The including criteria were to be in the age range 55 to 75 and to be independent, that is, to have all basic activities of daily living (ADLs) and more than 24 in the Mini-mental State Examination (MMSE; Folstein, Folstein, and McHugh 1975).

As far as educational status is concerned, 21% had no formal education (but were literate), 41% had primary education, 14% secondary education, 11.6% high school education, and 12.3% college or university education. As for marital status, 5.3% were single, 70.5% were married, 7.2% were divorced, and 17.1% were widowed. Finally, as regards employment status, 53.3% were retired, 10% were not retired, and 33.3% were housewives.

Measures

Productive activities were measured in one of the sections of the protocol for assessing active aging (Protocol for the Longitudinal Study of Active Aging, PELEA,). This protocol is administered through a face-to-face interview, it has been adapted from the European Survey on Aging Protocol (EXCELSA-Pilot), and tested through a previous study in which psychometric data are provided (Fernández-Ballesteros et al. 2004).

Productive activities included in the PELEA are grouped into the following sections: *adult and child caregiving* (care for adult family members, relatives,

and/or children, including personal and medical care, assistance in daily life, traveling, etc.); *shopping, purchasing* (activities regarding home and personal maintenance); *personal/household administrative management and messages* (including any activity for helping family members or relatives, e.g., managing bank or insurance accounts or solving clerical problems); *household work* (meal preparation, cleaning, gardening, etc.); *DIY and handwork* (handicrafts, home repairs, etc.); and *formal volunteering* (volunteer work for civic, political, religious, social support, etc. organizations).

For each activity the question asked was: "How many hours did you spend in doing . . . in the last year?" Response categories for each question were the following: daily, weekly, monthly, or yearly, depending on the regularity of the activity. So, we obtain an occurrence score and a frequency score. In order to obtain a basic time period, hours invested were transformed into "yearly" for all activities for the total sample (multiplying by 365 hours invested per day, by 48 per week, and by 12 per month). The percentage of people involved was calculated from reported occurrence and the number of hours per day based only on the people involved.

There are several methods for calculating unpaid activities (for a review see Durán 2006; EUROSTAT 2003). In this article we have followed a procedure similar to that used by Johnson and Schaner (2006) under moderate-cost assumptions. First, equivalences were drawn up between unpaid productive activities and occupations listed in the Spanish National Classification of Occupations (CNO-94) (INE 1995). Second, the value of unpaid activities was calculated on the basis of the Spanish Wage Structure Survey (EES) (INE 2006b). Finally, since the EES is formulated in terms of yearly wages, wages were transformed into hourly value of each type of productive activity. Table 1 shows the hourly value in Euros of unpaid productive activities based on the Spanish Wage Structure Survey.

Analyses

In an attempt to test the internal structure of productive activities included in our protocol, exploratory factor analysis, principal components with varimax rotation, was carried out. Descriptive analyses by age, gender, and employment status were made. Also, to explore the relative influence of several potential independent variables on productive activities, we performed ANOVAs.

Table 1. Assumed Hourly Value of Unpaid Productive Activities Following the National Classification of Occupations (CNO-94) (INE, 2006b) and the Spanish Wage Structure Survey (EES), in Euros

Productive activity	CNO-94	Hourly Value in €
Adult care	Other employees in the care of people and similar (H5129)	6.37
Child care	Employees for child care (H5121)	6.37
Shopping	Stewards, treasurers, and assimilated (H515)	6.37
Management and messages	Employees of administrative (G)	8.29
Household work	Domestic employees and other staff in cleaning building interiors (S91)	5.50
DIY, handwork	Workers who treat timber, carpenters, workers in the textile, leather clothing, leather, footwear, and similar (P79)	7.39
Formal volunteering	Employees administrative (G)	8.38

Results

The exploratory factor analysis yielded interesting results. All factor analyses performed with the total sample, taking into consideration age groups and gender, gave very similar results, with a four-factor solution explaining around 55% of the variance: *in-home* activities (household work, DIY/handwork), *out-of-home* activities (management, messages, shopping), *caregiving* (caring for family members, other adults, children), and *volunteer* activities (activities in formal volunteer organizations).

Table 2 shows the total sample distribution of productive activities by *age group*. In total, our sample yielded 2,396.89 hours a year of productive activities. No significant differences between age groups were found: The younger group (55-65) invested 2,438.89 hours a year in productive activities, while the older group (66-75) invested 2,379.42. Nevertheless, the younger group performed more management and messages activities ($t = 2.63$, $p < .009$) and the older group more volunteer activities ($t = –2.73$, $p < .007$).

Table 2 also shows participation rates on a normal weekday and the average time spent by those who participated in productive activities on that day. It is important to stress that only one participant in our sample, from the older group, reported no activities. Household work; shopping, purchasing; and

Table 2. Total Sample Mean, *N*, and *SD* of Yearly Hours in Productive Activities; Percentage and Daily Hours of People Involved; and Probability of Significant Differences, by Age

	55-64					65-75					
	Total sample mean yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Total sample mean yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Yearly hours *p*[a] values
Adult care	509.1	134	1,721.1	21.64	6.44	378.5	322	1,488.1	16.77	6.18	—
Child care	334.3	134	694.2	42.54	2.15	271.7	322	755.4	40.06	1.86	—
Shopping	189.2	134	228.4	91.79	0.56	202.9	322	246.3	92.55	0.60	—
Management and messages	260.8	134	457.1	85.07	0.84	163.1	322	342.5	80.75	0.55	$p < .023$
Household work	805.7	134	657.6	89.55	2.46	830.3	322	935.3	90.68	2.51	—
DIY and handwork	312.8	134	460.5	66.42	1.29	326.2	322	510.5	59.63	1.50	—
Formal volunteering	27.1	134	70.9	17.91	0.41	206.7	322	760.3	27.33	2.07	$p < .000$
Total hours	2,438.9	134	2,301.8	100.00	6.68	2,379.4	322	2,322.3	99.80	6.54	—

a. Significant differences from ANOVAs for yearly hours of the total sample.

management, messages were reported by more than 80% of participants. With regard to caregiving, about 40% of our sample in both groups are involved in child care, investing approximately 2 hours per day, and as far as adult caregiving is concerned, about 21% of the younger group and 17% of the older group reported being involved in adult caregiving, investing about 6 hours per day. Finally, 17% of the younger group and 27% of the older group reported involvement in formal volunteering.

Table 3 shows productive activities by gender. Taking into consideration the yearly hours for the total sample, significant differences are found between men and women in productive activities ($t = –5.15$, $p < .000$), women performing significantly more activities (2,803.22) than men (1,706.87). Taking into consideration hours/day only from those involved, while women invest 7.68 hours, men invest 4.7. Considering type of productivity, while indoor activities are performed more by women (household work: –10.09, $p < .000$; handwork and DIY: $t = –5.93$, $p < .009$), outdoor activities are carried out more by men (management: $t = 3.87$, $p < .000$; messages: $t = 3.32$, $p < .001$).

Regarding the percentage of individuals involved in productive activities and hours devoted to those activities, according to the total yearly hours, a different profile for men and women also emerges in Table 3; 98.6% of women devoted about 3 hours a day to household work, compared to 76% of men who devote around 1.2 hours to it, while 92.31% of men report management activities of less than 1 hour, compared to around 75% of women investing half an hour to this type of activity. About 13% of men and 20% of women are involved in adult caregiving activities, but while women invest about 7 hours, men invest about 4 hours. In all, 40% of both groups report taking care of children, investing around 2 hours in this activity. More than 20% of men and women are involved in volunteer work, investing more than 1 hour per day in it.

Table 4 shows men's productive activities by working status. Retired men performed significantly more productive activities (1,772.2 hours) than nonretired men (1,261.6 hours); these significant differences arise mainly from caregiving and volunteer work.

Table 5 shows women's productive activities by working status, classified as retired and nonretired women and housewife. Working women performed fewer productive activities per year (1,929.2 hours) than those who were retired (2,298.7 hours) and those who reported as housewives (3,303.4 hours), mainly due to caregiving, household work, and shopping, purchasing. Although there are no significant differences between groups in volunteering, post hoc analysis yielded significant differences between working women and the other two groups.

Table 3. Total Sample Mean, *N*, and *SD* of Yearly Hours in Productive Activities; Percentage of People and Daily Hours of People Involved; and Probability of Significant Differences in Yearly Hours in the Total Sample, by Gender

	Men					Women					
	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Significant difference[a] *p*
Adult care	217.9	169	1,196.1	13.61	4.39	534.1	287	1,729.4	20.91	7.00	—
Child care	295.2	169	694.2	42.01	1.92	287.1	287	763.5	40.07	1.96	—
Shopping	206.4	169	223.3	89.94	0.63	194.4	287	251.1	93.73	0.57	—
Management and messages	295.2	169	482.3	92.31	0.88	130.8	287	292.1	75.96	0.47	$p < .001$
Household work	342.6	169	347.2	76.33	1.23	1106	287	946.4	98.61	3.07	$p < .000$
DIY, handwork	148.9	169	359.8	43.79	0.93	424.3	287	535.6	72.13	1.61	$p < .000$
Formal volunteering	200.6	169	590.8	28.40	1.94	126.4	287	674.4	22.30	1.55	—
Total hours	1,706.9	169	1,677.4	99.80	4.70	2,803.2	287	2,533.4	100.00	7.68	$p < .000$

a. Significant differences from ANOVAs for yearly hours of the total sample.

Table 4. Total Sample Mean, *N*, and *SD*; Probability of Significant Differences of Yearly Hours in Productive Activities; and Percentage and Daily Hours of People Involved, by Working Status in Men

	Men									
	Retired					Nonretired				
	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Significant difference $p <$[a]
Adult care	233.5	138	1,298.4	13.77	4.65	120.5	23	532.6	8.70	3.80	$p < .001$
Child care	313.5	138	719.2	42.03	2.04	214.0	23	636.5	34.78	1.69	—
Shopping, purchasing	196.4	138	199.5	92.03	0.58	191.4	23	293.8	73.91	0.71	—
Management, messages	272.2	138	488.1	92.75	0.80	291.2	23	378.2	91.30	0.87	—
Household work	351.8	138	338.3	78.99	1.22	320.2	23	427.7	60.87	1.44	—
DIY, handwork	161.4	138	385.6	42.75	1.03	118.0	23	231.3	60.87	0.53	—
Formal volunteering	243.6	138	646.3	31.88	2.09	6.3	23	30.0	8.70	0.20	$p < .000$
Total hours	1,772.3	138	1,689.2	99.80	4.89	1,261.6	23	1,581.9	100.00	3.46	—

a. Significant differences from ANOVAs for yearly hours of the total sample.

Table 5. Total Sample Mean, *N*, and *SD*; Probability of Significant Differences of Yearly Hours in Productive Activities; and Percentage and Daily Hours of People Involved, by Working Status in Women

	Women														
	Retired					Housewife					Nonretired				
	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Mean total sample yearly hours	*N*	*SD*	% People involved	Daily hours people involved	Significant difference $p <$[a]
Adult care	262.8	106	977.0	16.98	4.24	755.7	151	2,133.4	22.52	9.20	148.3	27	512.5	25.93	1.57	$p < .021$
Child care	185.4	106	411.3	35.85	1.42	368.5	151	958.3	42.38	2.38	263.4	27	582.4	48.15	1.50	—
Shopping, purchasing	211.6	106	329.8	94.34	0.61	203.0	151	200.5	93.38	0.60	86.7	27	69.0	96.30	0.25	$p < .045$
Management, messages	145.1	106	279.4	84.91	0.47	99.3	151	211.1	70.20	0.39	222.2	27	576.8	74.07	0.82	—
Household work	927.2	106	588.1	98.11	2.59	1290.2	151	1138.5	98.68	3.58	866.3	27	711.4	100.00	2.37	$p < .003$
DIY, handwork	387.2	106	503.3	72.64	1.46	477.3	151	554.7	74.83	1.75	313.8	27	554.8	55.56	1.55	—
Formal volunteering	179.3	106	925.4	22.64	2.17	109.4	151	512.4	23.84	1.26	28.4	27	74.4	14.81	0.53	—
Total hours	2,298.7	106	1,772.5	100.00	6.30	3,303.4	151	2,959.5	100.00	9.05	1,929.2	27	1,518.9	100.00	5.29	$p < .001$

a. Significant differences from ANOVAs for yearly hours of the total sample.

To test the potential determinants of productive activities, a stepwise regression analysis was carried out, introducing as dependent variable the total productive activities performed and as independent variables age, gender, and working status. The results show that only gender has a significant fit as independent variable of productive activity (Beta = 1,102, $t = 4.98$, $p < .000$).

Finally, in order to estimate the value of productive activities of our sample, we first took into account that the ELEA sample had no dependent individuals, therefore, our inferences were made in relation to nondependent Spanish population aged 55 to 75 years old and in line with the procedures established by Johnson and Schaner (2006) (see Table 1). Table 6 shows our estimation of the value in Euros of unpaid activities (Column 1), the estimated value of ELEA sample productive activities (Columns 2 and 4), and the estimation given for the total population without disability aged between 55 and 75 (Columns 3, 5, and 6). It should be stressed that the total population aged 55 to 75 in the year 2006 has been calculated taking into consideration disability prevalence by gender and age[4] (IMSERSO 2005a). Based on the total productive hours of unpaid activities in our sample, and considering the assumed cost per hour (Table 1), the per capita they are contributing is a total of €12,612.60. When we consider only caregiving (adults and children) and formal volunteering, they are contributing to society per capita close to €5,000 a year.

The conclusion is that the nondependent Spanish population segment aged 55 to 75 is contributing to society with its productive unpaid activities about 106 billion Euros. If only caregiving and volunteering are considered, the contribution of this population segment still amounts to some €40 billion.

Discussion

Although social stereotypes assume that older adults, once retired, relocate their time to leisure and "unproductive" activities (e.g., Fernández-Ballesteros 1992, 2006; Fernández-Ballesteros & Díez-Nicolás 2008), our results suggest that, on the contrary, most older adults are busy looking after their lives, business, and homes, as well as caring for their family members and relatives and being involved in formal volunteering.

With regard to the latent structure of productive activity, the four categories yielded by our factor analysis (in-home activities, out-of-home activities, caring, and volunteering) are consistent with three of those yielded by Burr et al. (2007), who found that their data from middle-aged and older adults fit well into a four-cluster model: helpers (caring), home maintainers (in-home activities), volunteers (volunteering), and super-helpers (all types of activities); it is

Table 6. Estimated Value of Productive Activities Performed by Our Sample by Gender and Estimated Value in the (Non-dependent) Spanish Population Aged 55 to 75

	Men		Women		Total
	Value unpaid productive activities €/year/person	Total value in € of unpaid productive activities in nondependent population (billions) (N = 3,478,165)	Value unpaid productive activities €/year/person	Total value in € of unpaid productive activities in nondependent population (billions) (N = 3,606,500)	Total value in € of unpaid productive activities in nondependent population (billions) (N = 7,084,665)
Unpaid activities assuming hourly values in Euros					
Adult care (€6.45)	1,405.46	4.9	3,444.94	12.4	17.3
Child care (€6.45)	1,904.04	6.6	1,851.79	6.7	13.3
Shopping (€6.45)	1,331.28	4.6	1,253.88	4.5	9.2
Management and messages (€8.38)	2,473.78	8.6	1,096.10	3.9	12.6
Household work (€5.56)	1,904.86	6.6	6,149.36	22.2	28.8
DIY, handwork (€7.48)	1,113.77	3.9	3,173.76	11.5	15.3
Formal volunteering (€8.38)	1,681.03	5.9	1,059.23	3.8	9.6
Total	12,612.60	41.1	18,532.15	65.0	106.1

important to stress that activities do not occur in isolation, but have a certain pattern or structure. Also, our internal structure is related to gender and working status; in fact, although women, in total, perform more unpaid productive activities than men, they are more involved than men in in-home activities, while men are performing more out-of-home activities. Significant differences were also found due to working status: Those men and women who were working performed significantly fewer unpaid activities. However, in our case, we can use the Burr et al. (2007) fourth category for housewives, who can be considered, among older adults, as unpaid "super-active" persons, as they are performing more in-home, out-of-home, and caregiving activities than both working and retired men and women.

It is extremely difficult to make comparisons between our data and other time-use surveys conducted in Spain, because neither the classification system used nor the sample (total Spanish sample vs. older adults sample) are comparable (see CIRES 1991; CSIC-ASEP 2000; INE 2006a,c). With a view to making comparisons with the most similar studies, we can consider that reported by Durán (2002), who on the basis of several use of time surveys referring to the Spanish population aged older than 18, calculated 0.36 hours/person (men, 0.15; women, 0.56) for adult care and 1.22 hours/person (men, 044; women, 1.93) for child care. In another study referring to Madrid (CSIC-ASEP 2000), Durán (2002) calculated 0.82 hours person (men, 0.67; women, 0.57) for shopping and purchasing, 2.31 hours/person (men, 1.31; women 3.10) for housework, and 1.25 hours/person for caregiving (men, 0.87; women, 1.53).

Also, making comparisons between the results from general surveys on the use of time in Spain, it can be concluded that although there are very similar results regarding shopping/purchasing by the general population and by older adults, there are considerable differences between the time older adults invest in caregiving compared to the Spanish population older than 18. Taking into consideration differences in methodology in the calculation of daily hours per person, it can be assumed that, approximately, older adults invest more than four times as much in adult care as does the general population. These data are also in agreement with results from studies on the use of time: Almost 40% of those older than 65 invest more than 60 hours per week in adult care and about 20 hours per week in child care (IMSERSO 2006). Furthermore, our data are in accordance with other studies (IMSERSO 2008) that stress the importance of gender in dependent older adult care and that show that some 60% to 70% of informal caregiving is provided by middle-aged (50 to 59) and older (older than 60) adults.

Also, our results are partially in agreement with other international studies carried out with the same objectives. Thus, in a Canadian study, Dosman et al.

(2006) obtained similar results with regard to time invested in household work by men (1.86 hours vs. 1.23 hours) and women (2.76 hours vs. 3.07 hours), but our study yields higher figures for volunteer work performed by men (0.24 hours vs. 1.94 hours.) and women (0.23 hours vs. 1.55 hours), as well as for total unpaid productive activities performed by men (3.22 hours vs. 4.7 hours) and by women (4.32 hours vs. 7.68 hours). Post hoc explanations may be that our sample has more individuals residing in the household (men: 2.2 vs. 2.59; women: 1.9 vs. 2.15), that the proportion of retired people is also higher in our sample (42 vs. 53), and that we have a higher proportion of housewives (33.3%). Furthermore, our results are coincident with those of Johnson and Schaner (2006) from the United States, estimated on the basis of the Health and Retirement Survey (HRS) sample.

With regard to formal volunteering, in total, 18% of our younger group reported being involved in formal volunteering, devoting 0.41 hours per day, while 27% of our older group invested 2.07 hours in this unpaid productive activity. These figures are higher than those yielded by other studies in the Spanish context; thus, the Institute for the Elderly and Social Services found that about 10% to 11% of those older than 65 reported being involved in formal volunteering (IMSERSO, 2005b, 2006). Nevertheless, we should bear in mind two important issues related to the consideration of formal volunteering in Spain and the heterogeneous nature of our sample. As regards the former issue, and as García Delgado (2002) stresses, in Spain there is no empirical definition of formal volunteering as an unpaid activity, so that it is extremely difficult to be confident about either participation data or assumed cost. Moreover, we must take into account the characteristics of our sample: (a) All individuals are independent and mentally nonimpaired; (b) they agree to participate in a study with longitudinal scope that requires 90 minutes of interviewing in each wave; and finally (c) two-thirds of our sample are recruited from senior citizens clubs, where formal volunteering is very common and is highly reinforced. Nevertheless, our figures on volunteering are coincident with or even lower than those from other studies carried out in other countries (e.g., Dosman et al. 2006; Johnson & Schaner 2005; Van der Meer 2006).

Finally, it is also difficult to make local comparisons between our estimations on the value of unpaid activities in old age in Spain, since official assumptions of this target population have not yet been made. Taking into consideration that in 2006 (at the time of the study) the GDP per capita was €22,335 (INE 2006a) and the public (universal) pension average was €646.76 a month (yearly €9,054.64) (INE 2006c), the estimated contribution of €12,612.60 in unpaid activities is more than a half of the GDP per capita and

one third more than the average pension. These comparisons express the importance of older persons as *social capital* in Spain (Gray 2009).

When we make comparisons with other international results we also find difficulties. In the United States, using a sample from the HRS, Johnson and Schaner (2006) yielded $3,662 per capita value for older adults engaged in unpaid activities related to caregiving and volunteering, while our sample yielded per capita value of about €5,000. In other words, our sample yielded a higher contribution than that from the HRS. But once again, we must bear in mind the specificity of our sample as described earlier and cultural differences related to both the family-oriented perspective of the Spanish population (which also applies to other Latin and Mediterranean countries) and the cohort we are examining (and their fertility rates).

This study has two main source of limitations and weaknesses; first of all, although we try to conduct this study with a representative probabilistic sample of Madrid population, the very low participation rate (in part because our study on active aging requires an in-home interview of one hour and a half and in part because response rate in Spain is lower than in other countries, as Diez-Nicolás 1996 pointed out) determined our decision to select other settings for recruiting independent elders from 55 to 75; therefore, our sample is incidental recruited from four different settings. Second, as Durán (2002) and other authors pointed out, the accountability of unpaid activity could be considered to be in a scientific premature state and more research is required to standardize procedures for calculating time devoted to unpaid activities as well as the accountability of those activities.

In spite of those limitations, our results are coincident with other studies conducted in Spain—like those from other western countries; therefore, by no means can the elderly be considered a "passive class" of society, simply receiving a pension, devoted to leisure and free-time activities; on the contrary, most of them are involved in productive activities, spending time on housework, management activities for their relatives, caring for adult family members and children, and formal volunteering. Without doubt they are contributing to society, and it is high time society acknowledged their contribution.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article:

The Estudio Longitudinal sobre Envejecimiento Activo (ELEA; Longitudinal Study of Active Aging) was supported by the Spanish Institute for the Elderly and Social Services (2005/0036).

Notes

1. *Clases pasivas* is a Spanish term denoting retired civil servants.
2. We do not take into account here that there are also paid activities without repercussions for the gross domestic product (GDP) that belong to the "black" or "hidden" economy.
3. We started from a probabilistic sample (gender and ages 55-75) of 3,700; 2,590 (70%) individuals were reached but only 95 participated (3.68%).
4. Disability prevalence: men 55-59 = 10%; women 55-59 = 11%; men 60-64 = 15%; women 60-64 = 16.6; men 65-69 = 17%; women 65-69 = 20%; men 70-75 = 22%; women 70-75 = 29% (IMSERSO 2005a, 2005b).

References

Altergott, K., ed. 1988. *Daily Life in Later Life: Comparative Perspectives*. Newbury Park, CA: Sage.

Arno, P. S., C. Levine, and M. M. Memmott. 1999. "The Economic Value of Informal Caregiving." *Health Affairs* 18:182-88.

Bass, S. A., Caro, F. G., and Chan, Y.-P. 1993. Theoretical perspectives on productive aging. Pp 262-275 in *Handbook on employment and the elderly*, edited by W. H. Crown. Westport, CT: Greenwood Press.

Becker, H. A. and J. F. Schroots, eds. 2008. *Realising the Potentials of Senior Scholars and Scientists. Emerging Productivity in a New Era*. Amsterdam: ERGO.

Burr, J. A., J. E. Mutchler, and F. G. Caro. 2007. "Productive Activity Clusters Among Middle-aged and Older Adults: Intersecting Forms and Time Commitments." *The Journals of Gerontology, Series B, Psychological Sciences and Social Sciences* 62:267-75.

Butrica, B. A. and S. G. Schaner. 2005. *Satisfaction and Engagement in Retirement. Perspective on Productive Ageing, 2*. Washington, DC: Urban Institute.

Chawla, R. 1991. "Dependency Ratios." *Canadian Social Trends* 20:3-5.

CIRES. 1991. *El Uso del Tiempo* (The Use of Time). Retrieved March 20, 2009, from http://www.jdsurvey.net/jds/jdsurvey.jsp

CSIC-ASEP. 2000. *La Contabilidad del Tiempo* (The Accountability of Time). Madrid: CSIC.

De Vaus, D., M. Gray, and D. Staton. 2003. "Measuring the Value of Unpaid Household, Caring and Voluntary Work of Older Australians." *Australian Institute of Family Studies* 34(October).

Diez-Nicolás, J. 1996. *Los mayores en la comunidad de Madrid* (The Elderly in the Region of Madrid). Madrid: CAM.

Dosman, D., J. Fast, S. A. Chapman, and N. Keating. 2006. "Retirement and Productive Activity in Later Life." *Journal of Family and Economic Issues* 27:401-19.

Durán, M. A. 2002. "La contabilidad del tiempo" (Time accountability). In *Universidad Castilla La Mancha* (Dir.) Praxis Sociológica. Toledo: Editorial Azacanes.

Durán, M. A. 2006. *La cuenta satélite del trabajo no remunerado en la Comunidad de Madrid* (The Satellite Account of the Unpaid Work in the Region of Madrid). Madrid: Ministry of Employment and Women.

EUROSTAT. 2003. *Household Production and Consumption. Proposal for a Methodology of Household Satellite Accounts*. Luxembourg: European Commission.

Fernández-Ballesteros, R., ed. 1992. *Mitos y realidades en torno a la vejez y la salud* (Myth and Reality about Aging and Health). Barcelona: SG Editores.

Fernández-Ballesteros, R. 2006. "Geropsychology. An Applied Field for the 21st Century." *European Psychologist* 11:312-23.

Fernández-Ballesteros, R. and J. Díez-Nicolás. 2008. "Active Ageing: Mandatory Retirement as a Barrier." In *Realising the Potentials of Senior Scholars and Scientists. Emerging Productivity in a New Era*, edited by H. A. Becker and J. F. Schroots. Amsterdam: ERGO.

Fernández-Ballesteros, R., M. D. Zamarrón, J. Díez-Nicolás, M. de Juan, M. D. López-Bravo, P. Montero, V. Mañanes, and J. M. Hernández. 2007. *Estudio Longitudinal sobre Envejecimiento Activo (ELEA). Final Report*. Madrid: UAM.

Fernández-Ballesteros, R., M. D. Zamarrón, G. Rudinger, J. F. F. Schroots, E. Heikinnen, A. Drusini, C. Paul, J. Charzewska, and L. Rosenmayr. (2004): "Assessing Competence: The European Survey on Aging Protocol (ESAP)." *Gerontology* 50:330-47.

Folstein, M. F., F. E. Folstein, and P. R. McHugh. 1975. "Mini-mental State. A Practical Method for Grading the Cognitive State of Patients for the Clinician." *Journal of Psychiatric Research* 12:189-98.

García Delgado, J. L. 2002. *Las cuentas de la economía social. El tercer sector en España* (The Accountability of Social Economy. The Third Sector in Spain). Madrid: Civitas ediciones.

Gray, A. 2009. "The Social Capital of Older People." *Ageing and Society* 29:5-31.

Hawkins, B. A., S. J. Eklund, J. Yang, A. L. Binkley, S. Weixing, C. Hseihl, and X. Li. 1996. *Lifestyle Factors and Health Outcomes of Older Adults in China, Australia and United States; Final Project Report in English and Chinese*. Bloomington, IN: School of Health, Physical Education and Recreation, Indiana University.

Herzog, A. R., R. L. Kahn, J. N. Morgan, J. S. Jackson, and T. C. Antonucci. 1989. "Age Differences in Productive Activities." *Journal of Gerontology: Social Sciences* 44:S129-38.

Herzog, A. R. and J. N. Morgan. 1992. "Age and Gender Differences in the Value of Productive Activities." *Research on Aging* 14:169-98.

Hinterlog, J., Morrow-Howell, N. and Sherraden, M. (2001). "Productivity Aging: Principles and Perspectives." Pp. 3-19 in *Productive Aging: Concepts and Challenges*, edited by J. Hinterlog, N. Morrow-Howell, and M. Sherraden. Baltimore: Johns Hopkins University Press.

Hoffman, L. 2008. *Increasing Volunteerism Among Older Adults: Benefits and Strategies for States*. Washington, DC: NGA Center for Best Practices.

Holstein, M. 1992. "Productive Aging." *J. Aging and Social Policy* 4:17-33.

IMSERSO. 2004. *Las Personas Mayores en España. Informe 2004* (The Elderly in Spain. Report 2004). Madrid: Instituto the Mayores y Servicios Sociales.

IMSERSO. 2005a. *Condiciones de vida de las personas mayores en España* (Life Conditions of the Elderly in Spain). Madrid: Instituto de Mayores y Servicios Sociales.

IMSERSO. 2005b. *Libro blanco de la dependencia* (White Book of the Dependency). Madrid: Instituto de Mayores y Servicios Sociales.

IMSERSO. 2006. *Las personas mayores en España. Informe 2006*. Madrid: Instituto de Mayores y Servicios Sociales.

IMSERSO. 2008. *Cuidadoras y cuidadores: El efecto del género en el cuidado no profesional de los mayores* (Women and Men Caring. Gender Effect in the Elderly Nonprofessional Care). Madrid: Observatorio de Personas Mayores.

INE. 1995. "Clasificación Nacional de Ocupaciones 1994" (Classification of National Occupations). Retrieved January 14, 2010 (http://www.ine.es/clasifi/cno94.xls).

INE. 2006a. "Contabilidad Regional de España–Base 2000" (Regional Accountability in Spain-Base 2000). Retrieved January 14, 2010 (http://www.ine.es/daco/daco42/cre00/c09d_cre.xls).

INE. 2006b. *Encuesta sobre Hogares en España* (Household Survey in Spain). Madrid: Instituto Nacional de Estadística.

INE. 2006c. "Pensiones del Sistema de la Seguridad Social" (Social Security Pension System). Retrieved January 14, 2010 (http://www.ine.es/jaxi/tabla.do?type=pcaxis&path=/t38/bme2/t25/a072/l0/&file=1700006.px).

Johnson, R.W. and Schamer, S.S. 2006. "Value of Unpaid Activities by Older Americans Tops $160 Billion Per Year." Washington, DC, AARP Public Policy Institute.

Martinson, M. and M. Minkler. 2006. "Civic Engagement and Older Adults: A Critical Perspective." *The Gerontologist* 46:318-24.

Morgan, J.N. 1986. "Unpaid Productive Activity Over the Life Course." Pp. 250-280 in *Productive Roles in an Older Society*, edited by the Committee on Aging Society. Washington, DC: National Academy Press.

Morrow-Howell, N., J. Hinterlog, and M. Scherraden, eds. 2001. *Productive Aging. A Conceptual Framework*. Baltimore, MD: Johns Hopkins University Press.

Siegrist, J., O. Von dem Knesebeck, and C. E. Pollak. 2004. "Social Productivity and Well-being of Older People: A Sociological Exploration." *Social Theory and Health* 2:1-17.

Van der Meer, M. 2006. "Productivity Among Older People in the Netherlands: Variations by Gender and the Socio-spatial Context in 2002-03." *Aging & Society* 26:901-23.

Wolfson, M., and G. Rowe. 1999. *Good Life Time (GLT). Health, Income, and Time to Enjoy Them. Indicators Based on a New Integrated Microanalytic Framework for Socio-economic Statistics*. Ottawa: Statistic Canada.

Bios

Rocío Fernández-Ballesteros is an emeritus professor in the Department of Psychobiology and Health and director of the EVEN Research Group at the Autonomous University of Madrid.

María Dolores Zamarrón is an associate professor in the Department of Psychobiology and Health at the Autonomous University of Madrid.

Juan Díez-Nicolás is an emeritus professor in the Department of Sociology II at the Complutense University of Madrid.

María Dolores López-Bravo is an associate professor in the Department of Occupational Therapy at La Salle University Center.

María Ángeles Molina is an academic tutor of the University Program for the Elderly (PUMA) at the Autonomous University of Madrid.

Rocío Schettini is an academic tutor of the University Program for the Elderly (PUMA) at the Autonomous University of Madrid.