Productive Activity Clusters Among Middle-Aged and Older Adults: Intersecting Forms and Time Commitments

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Objectives. This study investigated the latent structure of productive activity among middle-aged and older adults. Whereas most researchers have examined forms of productive activity as discrete behaviors, our approach captured the reality that many persons engage in more than one activity and commit varying degrees of time to these activities.

Methods. We took the data for this study from the Americans’ Changing Lives survey. The activities examined include formal volunteer work, informal help to others, unpaid domestic work, caregiving, and paid work. We describe the complex clusters of activities and time commitment to those activities using latent class cluster analysis.

Results. Our results demonstrated that a four-cluster model fit the data well. Specifically, the findings showed that middle-aged and older adults fell into four clusters: helpers, home maintainers, worker/volunteers, and super helpers. We also show how individual characteristics (e.g., age, gender, race) are associated with the likelihood of being in one of these four groups.

Discussion. This measurement strategy provides a foundation for future research into how experts can employ productive activity clusters to understand better well-being across the life course. This is important because our results show that many activities do not occur independently but rather are linked in patterned ways.

INTEREST in the study of productive activity in later life has grown substantially over the past two decades. Butler and Gleason (1985) are credited with putting this issue on the agenda of scholars and policy makers; however, scholarly interest in activity in later life has had a long history (e.g., Cutler, 1977; Havighurst, 1961; Maddox, 1963, 1979). Some of the recent interest in productive activity in later life has stemmed from the sheer economic value of these activities, much of which does not result from activity in the paid labor market. For example, for adults of all ages, estimates indicate that, for volunteering and caregiving combined, the total economic value is more than $400 billion annually (Arno, Levine, & Memmott, 1999; Independent Sector, 2001).

Scholars tend to treat productive activities as discrete phenomena; less commonly, they have examined how one activity is related to another. Given that many persons are engaged in more than one activity at specific stages in the life course, it is plausible that some activities may group together in patterned ways. Other activities may be less likely to be engaged in at the same time. If some activities are complementary and others are in competition with one another, it is reasonable to anticipate that different types of activities may cluster together. We are not aware of any attempt to understand if and how multiple productive activities may be related to one another, especially with the goal of determining whether there is a latent structure that captures the complex way that forms of activity and time committed to these activities may be related. If these clusters exist, they will have conceptual interest, help researchers to understand better these socially valuable behaviors, and ultimately, allow scholars to show how this behavior is related to older persons’ well-being. Furthermore, if meaningful clusters exist, scholars may be able to increase their understanding of the discretionary and obligatory nature of productive activity (e.g., Van Willigen, 2000) and whether certain activities are competing or complementary (e.g., Scharlach, 1994).

The purpose of this study was to investigate whether productive activity clusters exist for a nationally representative sample of middle-aged and older persons. The central question in this study was the following: Do specific types of productive activity in later life cluster together in meaningful ways? We assumed that some activities would be linked to one another such that participation in one type of activity may be positively associated with participation in another. We saw other activities as being in competition with one another and thus less likely to cluster together. We examined data from the Americans’ Changing Lives (ACL) survey and employed latent class cluster analysis (LCA) to determine whether latent classes of productive activity existed. We also used logistic regression techniques to investigate how these clusters were associated with individual characteristics.

Research has shown that older Americans remain productive deep into the later stages of their lives. Caro and colleagues (e.g., Caro & Bass, 1997) were among the first scholars to demonstrate that a considerable amount of productivity occurs in the postretirement years, albeit largely unpaid in nature. Caro and Bass (1995), using the Commonwealth Foundation Survey of Productive Aging, found that between ages 55 and 74 older persons remain remarkably active in a number of dimensions of productive aging (defined as volunteering, child care, informal help to friends, relatives and neighbors, caregiving, paid work,
and education). Even after age 75, nearly 20% of their sample reported volunteering, helping children and grandchildren, or providing care to sick and disabled persons.

Klumb and Baltes (1999), employing data from the Berlin Aging Study, defined productive activity as specific activities in which the respondents had engaged the day before the interview; these included domestic activity (home maintenance and housework), errands, gardening, paid work, and helping others (including caregiving and formal volunteering). Based on this list of activities, they found that more than 90% of persons aged 70 to 84 and nearly 80% of those 85 and older participated in productive activities. Glass, Seeman, Herzog, Kahn, and Berkman (1995), using panel data from the MacArthur Research Network Study and defining productive activities as housework, paid work, yard work, child care, and volunteering, discovered a substantial amount of stability in productive behavior over a 3-year period for a cohort of persons aged 70 to 79. Herzog and colleagues, using data from the ACL study, also reported that productive activity is maintained throughout the adult life course (e.g., Herzog, Kahn, Morgan, Jackson, & Antonucci, 1989). These authors defined productive activity as volunteer work, informal help, home maintenance, and housework.

Our definition of productive activity is any socially valued activity that produces goods and services, whether paid or not (Bass & Caro, 2001). Another way to think about unpaid productive activities (e.g., volunteering) is that if someone does not perform an important activity, someone else would have to be paid to do it (Morgan, 1986). For this study, we focused on volunteering; informal help in the form of provision of goods and services to relatives, friends, and neighbors; informal caregiving; unpaid work necessary for home maintenance; and paid work. We excluded child care provided to children living within the respondent's home because a very small percentage of persons in the age group evaluated here were involved in this activity. However, we did include child care provided for children who did not live in the respondent's home when we defined it as being part of informal help given to relatives, friends, and neighbors.

Paid work.—An extensive literature has documented patterns of participation in the paid workforce, especially among age and gender groups, demonstrating both gender differentiation in work behavior and a distinctive age curve in participation. Herzog and colleagues (1989) reported a typical finding: Participation over the age range resembles an inverted U—men and women increase their paid work activities as they approach midlife, then reduce or eliminate paid work as they enter late life (see also Szafran, 2002). Paid work is less common beyond the age of 70 or 75 but does occur among a significant minority of the population (Szafran, 2002).

Caregiving.—Among the specific types of productive activity, gerontologists have addressed the caregiving issue extensively. Research has demonstrated that many individuals during their lifetimes provide some caregiving to a family member or friend, and that a sizable minority is extensively absorbed in caregiving (Doty, Jackson, & Crown, 1998). Herzog and colleagues (1989) showed that caregiving most commonly occurs among middle-aged individuals, who likely provide care to their parents, and among older individuals, many of whom provide care for a spouse. Women are somewhat more likely than men to provide direct care, with men's participation often occurring at the level of coordinating care for others (e.g., Johnson & LoSasso, 2000).

Informal help.—Providing informal help to neighbors, friends, and family members, usually on a sporadic basis and including such activities as running errands, providing transportation, and helping with chores or child care, is common among American adults. Researchers normally measure assistance of this type with reference to help provided to others outside of the household (Hogan, Eggebeen, & Clogg, 1993). These activities are very common forms of productive behavior for all age groups, but some research has shown a decline over the adult age range (Herzog et al., 1989).

Formal volunteering.—Persons typically do volunteer work, defined as “unpaid work on the part of an individual or a group of individuals with the intent of benefiting others... with whom one has no contractual, familial, or friendship obligation” (Van Willigen, 2000, p. S308), within the context of a formal organizational structure. Formal volunteer activity of this kind is considerably less common in the population than informal help provided to friends and neighbors, but it occurs among one quarter to one half of the population among adult age groups (Wilson, 2000). Participation is most common among persons at midlife stages of the life course (Hendricks & Cutler, 2004), but the amount of time committed to volunteering among the oldest volunteers is often extensive (Hendricks & Cutler, 2004).

Home maintenance and housework.—Domestic activity, work done around and inside the home, is another form of unpaid productive activity. Many dimensions of domestic activity are not optional. For example, if a person does not perform some forms of routine maintenance on the structure of the housing unit, safety and security may be at risk and the economic value of the house may depreciate. Both men and women participate in unpaid work around the home, but the kinds of work they do are often quite different (see Shelton & John, 1996). In general, women tend to specialize in activities that must be done routinely inside the home, such as laundry, food preparation, and cleaning. Men are more likely to specialize in activities that are done outside of the home, such as yard maintenance and home and auto repairs. Nevertheless, Herzog and colleagues (1989) provided evidence showing that most men and women across all age groups participate at some level in household maintenance or improvement activities.

Clustering of productive activities.—The clustering of productive activities in later life is conditioned in complex ways by two characteristics: whether the activities are complementary or in competition with one another with respect to time commitments and opportunities and, to a lesser degree, whether the participant views the activities as discretionary or obligatory. From a time-use standpoint, all productive activities are potentially in competition with one another. Given the constraints of a 24-hr day, more time spent on any one activity implies less time spent on others (multitasking notwithstanding). However, time-use studies have also suggested a great
deal of variation across the life course in how people use their time and in the extent to which discretionary time is available (Krantz-Kent, 2005). In the United States, as in other industrialized countries, most people have a considerable amount of discretionary time available during the typical week that they may commit to leisure, self-improvement, social, or productive activities. When considering the question of competing versus complementary activities, the joint issues of type of activity and time contributed are especially salient.

Discretionary activities are optional, determined in part on the basis of preferences and lifestyle. Formal volunteering and informal help given to persons in the community are examples of activity that most people consider discretionary. Volunteering for a religious organization or local hospital is not required, although some persons may respond to normative pressures to do so (Wilson & Musick, 1997a). Religious persons may feel compelled to volunteer at their church or synagogue, blurring the distinction between obligatory and discretionary. Individuals see obligatory activities as compulsory, leaving them with little choice about whether to participate, based in part on societal norms about whether the activity should be taken on. Caregivers and others often characterize caregiving, especially for a close relative, as a form of obligatory activity. Society expects spouses, for example, to provide care directly, or to orchestrate care provided by others, to a husband or wife when necessary.

One way to frame the understanding of which activities cluster together based on whether they compete with or complement each other and whether they are discretionary versus obligatory is to consider the social roles in which persons engage following from the master statuses they occupy during the adult life course. A common set of social roles for predicting types and levels of productive activity is linked to one's family status. Being part of a family implies a set of behaviors linked to engagement in productive activity. For instance, marriage implies obligations for husbands and wives to engage in tasks that are supportive of their family. When a person becomes a parent, he or she is expected to provide care for the child or arrange to have someone else provide care. Similarly, being a middle-aged child of an ailing parent implies a commitment to provide help when needed, at least on a nominal level. Most of the extant research has shown that caregiving (obligatory) behavior is in competition with work, especially full-time work, and other activities, like volunteering (discretionary). Yet, recent evidence has shown that under some circumstances, engaging in caregiving and volunteering is not unusual and in fact may be considered complementary to one another (Burr, Choi, Muchter, & Caro, 2005).

Another master status with implications for how social roles condition participation in unpaid productive activities is a person’s relationship with the paid labor market. Through economic necessity and social policy, most adults are encouraged (obliged) to participate in the labor market to generate income to meet basic and higher order needs, or they depend on someone who does. Because paid work, especially full-time work, often represents a heavy time commitment, it is considered to be in competition with many other activities, especially caregiving (e.g., Doty et al., 1998). Individuals engaged in heavy caregiving activities—those taking primary responsibility for a severely disabled parent or spouse, for instance—engage in many trade-offs with respect to time allocation. Thus, providing extensive care to others is often "incompatible with full-time, paid employment at midlife" (Johnson & LoSasso, 2000, p. 5). Paid work and caregiving are examples of two activities considered to be obligatory and in competition with one another, especially when both require heavy time commitments.

However, engagement in the paid labor market may be complementary with discretionary activities, such as volunteering for formal organizations. This is possible when such behaviors are an extension of employment-related social networks (Muchter, Burr, & Caro 2003; Wilson & Musick, 1997b). Persons engaging in paid work may enjoy broader and more diverse networks that provide the potential to learn about many different types of volunteer or informal helping opportunities. Gauthier and Smeeding (2000) found that individuals who were employed full time spent more time on unpaid work (including activities such as volunteering but not housework) on their off-days than did nonworkers during their typical day, suggesting that paid work and volunteering in the community complement one another. This is a case where one may combine the obligatory nature of work in complementary ways with the discretionary behavior of formal volunteering.

The goal of this study was to assess whether specific activities are likely to cluster together and, if so, whether these clusters have conceptual meaning, especially with respect to whether the activities are complementary or in competition with one another and whether the activities are considered to be discretionary or obligatory. We also explored how personal characteristics, such as age, gender, race, functional status, and economic status, are associated with the likelihood of being in specific clusters of productive activity.

**Methods**

**Data**

We took the data for this study from the ACL survey, a nationally representative panel survey with a multistage area probability sample design. This survey collected information from 3,617 respondents aged 25 and older in 1986 (Wave 1), oversampling for Blacks and individuals older than 60. For the LCA, the data were not weighted. However, for the multinominal logistic regression analysis, the data were weighted. For this study, we used data from Wave 1 (1986). We focused on middle-aged and older adults aged 55 and older. Throughout the survey, there were very few missing values (except for income, for which 11.4% of cases contained missing information). In cases where missing data were present, the survey staff at the Institute for Social Research (University of Michigan) employed a variety of techniques to impute values. Our study used the cleaned and imputed variables as recommended by the survey staff (House, 2003). The final study sample size was 1,896, which included all individuals in the sample aged 55 and older.

The ACL survey was appropriate for this analysis because (a) it includes information on a wide range of productive activities (including amount of time given to the activities), (b) we may compare our results to the existing large number of studies that have also used these data, and (c) the database includes a useful set of controls. Thus the ACL data are among the best available
for a study like this one. We based our assessment of the underlying structure of productive activity on reports of participation in these activities, as well as hours spent engaging in each activity annually. We evaluated both dimensions of these activities because each tells us something different about these behaviors. Participation in productive activities, such as volunteering for an organization or helping a neighbor, even if only sporadically, has important social and individual benefits. We assert that amount of time engaged in each activity implies a level of commitment to the activity. Competition among activities is more likely to occur when multiple activities involve heavy time demands.

**Measures**

We included five measures of productive activity to investigate the latent structure underlying these observed (manifest) behaviors: paid work, volunteering, caregiving, informal helping, and home maintenance. Table 1 contains the relevant verbatim survey items. We defined paid work as employment in the labor market for pay. Based on reported hours worked, we grouped paid work into three categories: 0 = none; 1 = 1 to 1,999 hr (low, considered part-time work where respondent worked, on average, less than 40 hr per week for 50 weeks); 2 = 2,000 hr or more (high, considered full-time work where respondent worked, on average, 40 hr per week or more for 50 weeks). In preliminary analyses, we examined other strategies for categorizing work hours (e.g., 35 hr per week representing full-time work). The coefficients from the LCA changed very little, and the substantive interpretation of the relationships among the productive activity variables remained the same (results available upon request).

Volunteering included committing time to schools, religious groups, political entities, senior centers, and other organizations such as hospitals. Caregiving included helping or arranging for help for someone with a physical or mental illness, disability, or some other health issue. Informal helping included providing occasional assistance to friends, neighbors, and relatives with such activities as transportation and running errands. Home maintenance included doing home and auto repairs, as well as gardening and yard work. These types of home maintenance activities were sometimes more concentrated among men than women (86.5% and 71.3%, respectively, in our study sample). We considered using housework as an indicator of productive activity. More than 93% of our study sample engaged in this activity, and preliminary analysis demonstrated that including this activity in the LCA did not help to discriminate among respondents with respect to clustering of activities. Thus, we did not include this activity in our analyses. ACL respondents reported hours spent over the previous 12 months in volunteering, caregiving, informal helping, and home maintenance in five categories. Because of the presence of some small sample sizes for some categories, we reduced the categories to three: 0 = no hours (none); 1 = 10, 30, 60, or 120 hr (low); 2 = 200 hr or more (high). The ACL data include only broad categories of time commitment to these activities, which limited our measurement options.

After estimating the latent class cluster model (see below), which resulted in a classification of individuals into one of several types of activity patterns, we investigated whether specific demographic, social, economic, and health characteristics were related to the likelihood of being in one of the productive activity types. We included age in these models, collapsed into three groups: 55 to 64 (reference group in regression analysis), 65 to 74, and 75 years old and older. We measured gender as female (1) and male (0). Race was White (1) and non-White (0). We categorized marital status as married (1) or not married (0). We dichotomized education into high school education or more (1) and less than a high school education (0). Family income was $25,000 or more annually (1) and less than $25,000 (0). We based functional status on a dichotomous variable indicating whether the respondent reported having difficulty with one or
Table 2 presents descriptive statistics for the study sample based on the observed indicators of productive activity and the other variables. The most common productive activity reported in our sample of middle-aged and older persons was doing it-yourself home maintenance (77.8%), followed by informal helping (68.3%). The least common activity was volunteering or arranging care for persons with chronic mental or physical health problems (18.7%). Approximately one third of individuals aged 55 and older engaged in paid work or volunteering. The mean age of the sample was 67.3 years, with a majority of respondents being female, White, and married, and reporting at least a high school education. Only one third reported an annual family income greater than $25,000, and more than 4 of every 10 persons reported at least one limitation with activities of daily living.

**Analytic Strategy**

We investigated the underlying structure of productive activity with an exploratory model based on LCA to determine empirically whether a typology existed regarding the clustering of home-based and community-based activities (Vermunt & Magidson, 2002). LCA is related to more common forms of cluster analysis (e.g., K-means) but has the added advantages of assigning individuals to classes based on probabilities estimated from the model and providing model fit statistics for choosing among models. LCA is less restrictive than other forms of cluster analysis in that it does not assume linearity, normally distributed data, or homogeneity of variances. A key assumption is that the classes estimated from the models have local independence; that is, within each class, the indicators are assumed to be independent of each other. This is another way of saying that the latent variable explains why the observed indicators are related to one another. (For a more detailed discussion of the statistical underpinnings of latent class cluster models, see Vermunt & Magidson, 2002.) The basic model is

$$ f(y_i) = \sum_k p(x = k)f(y_i | x = k), \quad (1) $$

where $y_i$ is a vector of dependent or endogenous indicators for case $i$, $x$ is a nominal latent variable, and $k$ denotes a class ($k = 1, 2, \ldots, K$). We identified the best fitting model and interpreted the specific clusters from this model through an examination of the conditional probabilities (similar to factor loadings in factor analysis). We employed Latent Gold 3.0 software to estimate the LCA models (Vermunt & Magidson, 2003).

To describe further the structure of productive activity, we estimated multinomial logistic regression models using the covariates described earlier. This allowed us to demonstrate how a set of common personal characteristics was associated with the probability of location in one of the latent classes of productive activity. We do not argue here that this is an exhaustive model; we include this analysis for descriptive purposes. We adjusted standard errors of the regression coefficients to account for the complex sample design of the ACL by employing the SVYMLOGIT routine in STATA 8.1.

**Table 2. Descriptive Characteristics of the Sample of Middle-Aged and Older Persons**

<table>
<thead>
<tr>
<th>Variable</th>
<th>% (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Productive activity</strong></td>
<td></td>
</tr>
<tr>
<td>Paid work</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>68.8 (1,305)</td>
</tr>
<tr>
<td>Low (1–199 hr)</td>
<td>15.8 (299)</td>
</tr>
<tr>
<td>High (2,000+ hr)</td>
<td>15.4 (291)</td>
</tr>
<tr>
<td>Volunteering</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>64.3 (1,220)</td>
</tr>
<tr>
<td>Low (1–199 hr)</td>
<td>29.1 (551)</td>
</tr>
<tr>
<td>High (200+ hr)</td>
<td>6.6 (125)</td>
</tr>
<tr>
<td>Caregiving</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>81.3 (1,542)</td>
</tr>
<tr>
<td>Low (1–199 hr)</td>
<td>10.9 (206)</td>
</tr>
<tr>
<td>High (200+ hr)</td>
<td>7.8 (148)</td>
</tr>
<tr>
<td>Informal helping</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>31.7 (601)</td>
</tr>
<tr>
<td>Low (1–199 hr)</td>
<td>56.6 (1,073)</td>
</tr>
<tr>
<td>High (200+ hr)</td>
<td>11.7 (222)</td>
</tr>
<tr>
<td>Home maintenance</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>22.2 (421)</td>
</tr>
<tr>
<td>Low (1–199 hr)</td>
<td>54.6 (1,035)</td>
</tr>
<tr>
<td>High (200+ hr)</td>
<td>23.2 (440)</td>
</tr>
<tr>
<td>Age, M (SD)</td>
<td>67.3 (8.6)</td>
</tr>
<tr>
<td>Female</td>
<td>57.1</td>
</tr>
<tr>
<td>White</td>
<td>88.8</td>
</tr>
<tr>
<td>Married</td>
<td>65.1</td>
</tr>
<tr>
<td>12+ years of education</td>
<td>55.5</td>
</tr>
<tr>
<td>Income ($25,000+)</td>
<td>30.4</td>
</tr>
<tr>
<td>One or more activity of daily living limitation</td>
<td>43.2</td>
</tr>
<tr>
<td>N</td>
<td>1,896</td>
</tr>
</tbody>
</table>

Notes: Statistics were based on weighted data, SD = standard deviation.
The four clusters (or classes) of the model required both a label and interpretation on the basis of the dominant activity components contained within each, identified by the strength of the conditional probabilities (see Table 4). As with naming factors in a factor analysis, labeling clusters in a LCA represents a certain level of subjectivity. For naming these clusters, we relied on an inspection of the conditional probabilities to show which of the activity types and amounts of time given to the activities dominated in the specific cluster. The first productive activity cluster, which we labeled helpers, contained 46.1% (unweighted latent class probability) of the cases. An inspection of the conditional probabilities indicated that persons in this cluster were likely to commit a moderate amount of time to volunteering and informal helping activities, as well as to participate in home maintenance activity with a very low likelihood of participation in caregiving or paid work. The second productive activity cluster, home maintainers, contained 35.4% of the respondents. Persons in this cluster showed a modest likelihood of participation in home maintenance/do-it-yourself activities (e.g., yard work, auto maintenance, gardening) and a very low likelihood of participation in the other forms of activity. In fact, the probability that persons in this latent class cluster participated in do-it-yourself home maintenance was lower than the probability for persons in the other clusters, and a subset of these persons did not report participation in any of the five activities considered here.

We labeled the third cluster worker/volunteers; it contained 14.9% of the middle-aged and older respondents in our study sample. These persons demonstrated a moderate likelihood of participation in paid work, a high likelihood of participation in informal helping with a relatively high amount of time committed, a moderate likelihood of participation in volunteering (formal helping) with a low amount of time committed, and a high likelihood of participation in do-it-yourself activities around the home with a low amount of time committed. These persons showed a low likelihood of participating in caregiving activities. We labeled the fourth cluster of productive activity super helpers; this cluster contained 3.6% of the respondents. Inspection of the conditional probabilities indicated that persons in this class demonstrated a high likelihood of participation in informal helping with a high level of time commitment, a moderate likelihood of participation in caregiving at a high level, a moderate likelihood of volunteering, and a high probability of participation in do-it-yourself home maintenance activities. These persons also showed a low probability of engagement in paid work.

To further investigate the latent structure of productive activity, we report the results of a multinomial logistic regression model (see Table 5), demonstrating which individual characteristics were associated with the likelihood of being in a particular cluster (home maintainers served as the reference group). We discuss only statistically significant effects. Net of the other variables in the model, increasing age was related to a lower likelihood of being in the helpers, worker/volunteers, or super helpers clusters as compared to the home maintainers cluster. Women were more likely than men to be in the home maintainers versus the worker/volunteers cluster. Whites were more likely than non-Whites to be in the helpers or super helpers clusters as compared to in the home maintainers cluster. Married persons and persons with higher education were more likely than nonmarried persons and persons with lower education, respectively, to be in the helpers cluster as compared to the home maintainers cluster. Compared to persons in the home maintainers cluster, persons with access to higher family income were more likely than persons with lower family income to be in the helpers, worker/volunteers, or super helpers clusters. Finally, having at least one limitation with activities of daily living increased the likelihood of being in the home maintainers cluster as compared to being in either the helpers or worker/volunteers clusters.

In Figure 1, we present predicted probabilities for each of the four clusters of productive activity for three age groups,
providing a visual depiction of the relationship between these variables. This approach demonstrates how the likelihood of being in one of the four productive activity types is age graded. The predicted probabilities were based on results from the multinomial logistic regression model reported in Table 5. The reference person was a White woman with at least a high school education who was married with an income less than $25,000 and no reported limitations in functional status.

The figure reinforces the findings from Table 4: The most common cluster of productive activity was helpers, and the least common was super helpers. The figure also shows that the probability of being in the helpers cluster was highest for a “typical” respondent who was 65 to 74 years old, whereas the probability of being in the home maintainers cluster was highest for those who were 75 years old and older. The probability of being in the worker/volunteers cluster or in the super helpers cluster was highest for a person who was 55 to 64 years old. There was a clear pattern of linear age grading (decreasing with age) in terms of the likelihood of being in the worker/volunteers or super helpers clusters, whereas age grading was also present for home maintainers but in the opposite direction (increasing with age). For the helpers cluster, the effect was curvilinear, with the greatest likelihood of being in this group among those in the middle age group (65–74).

Table 5. Multinomial Logistic Regression Results for Latent Structure of Productive Activity

<table>
<thead>
<tr>
<th>Productive Activity Cluster/Class Contrast</th>
<th>Covariate</th>
<th>Helpers vs Home Maintainers b (SE)</th>
<th>Worker/Volunteers vs Home Maintainers b (SE)</th>
<th>Super Helpers vs Home Maintainers b (SE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (ref = 55–64)</td>
<td>65–74</td>
<td>-0.470* (.197)</td>
<td>-1.585*** (.273)</td>
<td>-0.961 (.481)</td>
</tr>
<tr>
<td></td>
<td>75+</td>
<td>-1.330*** (.180)</td>
<td>-2.403*** (.503)</td>
<td>-2.394** (.782)</td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td>-0.229 (.167)</td>
<td>-0.976*** (.231)</td>
<td>0.192 (.417)</td>
</tr>
<tr>
<td>White</td>
<td></td>
<td>0.407* (.191)</td>
<td>0.219 (.335)</td>
<td>1.329*** (.486)</td>
</tr>
<tr>
<td>Married</td>
<td></td>
<td>0.563*** (.165)</td>
<td>0.308 (.265)</td>
<td>0.223 (.391)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td>0.600*** (.160)</td>
<td>0.130 (.290)</td>
<td>0.485 (.492)</td>
</tr>
<tr>
<td>Income ($25,000 or more)</td>
<td></td>
<td>0.647*** (.194)</td>
<td>1.600*** (.281)</td>
<td>1.102* (.522)</td>
</tr>
<tr>
<td>Functional status</td>
<td></td>
<td>-0.566** (.126)</td>
<td>-0.866** (.289)</td>
<td>-0.213 (.382)</td>
</tr>
<tr>
<td>Constant</td>
<td></td>
<td>.522</td>
<td>-.122</td>
<td>-3.388</td>
</tr>
</tbody>
</table>

Notes: Analysis was based on weighted data. Data are log likelihood coefficients (standard errors of estimates). SE = standard error.
*p ≤ .05; **p ≤ .01; ***p ≤ .001, two-tailed.
**DISCUSSION**

This study demonstrates for these data with these indicators that a latent structure of productive activity exists. LCA showed that a four-cluster model captured the underlying relationships among the productive activity indicators; the clusters included helpers, home maintainers, worker/volunteers, and super helpers. The model indicated that activities like work and volunteering are complementary, at least for some persons (worker/volunteers); this finding is consistent with the current literature (e.g., Wilson & Musick, 1997b). Persons in this cluster combine obligatory and discretionary activities, implying to a degree that these are nonetheless complementary activities. Also, engaging in formal volunteering and informal volunteering (helpers), two discretionary activities, was common. Interestingly, a small group of persons appeared to be heavily engaged in assisting others in productive ways (super helpers). These persons seemed to mix obligatory and discretionary activities and did so with a fairly high level of time commitment. Further study of persons in this group may find that they have unusually high motivation to help others combined with the resources necessary to act on this motivation (e.g., economic well-being).

Our results show evidence of age grading related to location in specific productive activity classes. On the one hand, the results demonstrate a compression, or reduction, of participation in three types of activity clusters (helpers, worker/volunteers, and super helpers) as persons move from middle age to later life. On the other hand, the results for the home maintainers cluster show that the likelihood of being in this group increases with age. To elaborate, we turn to the selective optimization with compensation theory of successful aging introduced by Paul and Margaret Baltes (Baltes & Baltes, 1990). This theory posits that as people age, they experience reductions in biological, mental, and social reserves (with the levels of reduction being variable across individuals). Older persons adapt to this reality by reducing the number of domains in which they function. Our findings showed that participation in clusters of activities composed of activities outside the home decreases as people get older and that participation in the cluster defined by activity around the home increases as people age. We believe this pattern provides some partial support for the adaptive strategies predicted by the Baltes’s selective optimization with compensation theory framework. Further research should determine if a similar latent variable of productive activity varies in the number of activity classes across the life course (e.g., analyses may yield evidence of different productive activity clusters by major life course stage).

More generally, the field needs a better understanding of how older people use their time and what factors drive these choices. Improved understanding of the time use of older individuals may also help to shed light on their roles in the community. A preference among some older people to operate at a slower pace, for example, may substantially narrow the range of activities that they carry out. If older persons prefer to devote more time to basic living tasks (such as home maintenance), they have less time available for other activities, such as volunteering. Furthermore, a preference for flexibility in use of time may account for a reluctance to take on structured activities that involve a regular commitment of time over an extended period. Preferences for certain types of activity, based in part on the meaning of the activity to the older person, likely influence the decision to participate in a given set of activities. This is related to socioemotional selectivity theory, which hypothesizes that as persons age they make conscious choices to focus on activity that provides maximum emotional gratification (see Carstensen, 1992; Hendricks & Cutler, 2004). More research is needed on the preferences of elders in responding to competing opportunities and the influence of their sense of obligatory versus discretionary behaviors.

Earlier we alluded to the fact that people often engage in multitasking, allowing them to participate in more than one activity in an almost simultaneous manner. It is possible, for example, for a person to pick up a medical prescription for an infirm neighbor on the way to taking a grandchild to a medical appointment and then on the return from the doctor’s office to pick up political pamphlets at a politician’s headquarters to be distributed upon return within the person’s neighborhood. One errand combines three forms of productive activity. This may be one way in which some productive activities are functionally complementary to one another. Furthermore, engagement in multitasking behavior is increasing over time, and the introduction of new technology (e.g., cell phones, handheld computer devices) makes this form of activity even more likely now (and in the future) than may have been possible at the time of the ACL survey. It may be informative to determine if productive activities cluster in the same way over historical periods of time.

It is important to replicate this study with different data sources, along different points in the adult life course, and for a different range of productive activity indicators to determine if these yield a similar typology. LCA is a powerful technique for this type of research, but the results may vary in important ways under varying research design strategies. Given the presence of an underlying latent structure of productive activity, it would be informative to determine in future research efforts if a latent variable of productive activity predicts variability in the many domains of well-being in later life. Researchers could make use of our findings to generate simple indexes of productive activity by combining information about type of activity and amount of time commitment. Scholars could then use these indexes to evaluate a range of outcomes related to general well-being among the middle-aged and older populations.

Both personal resources and cultural background may guide experts’ understanding of the productive activities in which older persons choose to engage. Researchers are beginning to study the ways in which productive activity may be related to various dimensions of well-being (e.g., Chou & Chi, 2002; Glass, Mendes de Leon, Marottoli, & Berkman, 1999; McIntosh & Danielpuis, 1995; Menec 2003), much in the same way that others have shown how physical and social activity influence positive outcomes in the later stages of the life course (e.g., Bassuk, Glass, & Berkman, 1999). A brief list of research questions that need to be addressed includes the following: To what degree are clusters of productive activity associated with better (or worse) mental and physical health? For example, are super helpers more or less likely than home maintainers or worker/volunteers to report high levels of self-rated health or life satisfaction? Are the benefits (or detriments) of being in one productive aging cluster versus another the same for different race and ethnic groups, different birth cohorts, or different social classes? To what degree...
are clusters of productive activity associated with differential opportunities that result from community characteristics? In addressing these questions, researchers will need to account for the endogeneity and reciprocal causation that may exist between clusters of activity and health. Researchers may also need to take into account the interrelationship between socioeconomic status and residential location.

The data used for this study, although substantively appropriate, were 20 years old. It is possible, even likely, that a similar analysis of more recent data would yield different results given changes over time in technology (e.g., cell phones) and lifestyles (e.g., telecommuting). With the increase in the pace of everyday life, persons of all ages are likely to be engaged in a broader array of productive activities. Thus, the age of the ACL data may limit generalization of our findings to today’s middle-aged and later life populations.

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