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Salas, J.M. Ian S.; Racelis, Rachel H.

Working Paper

A Note on Defining the Dependent Population Based on Age

PIDS Discussion Paper Series, No. 2008-03

Provided in Cooperation with:
Philippine Institute for Development Studies (PIDS), Philippines

Suggested Citation: Salas, J.M. Ian S.; Racelis, Rachel H. (2008) : A Note on Defining the Dependent Population Based on Age, PIDS Discussion Paper Series, No. 2008-03, Philippine Institute for Development Studies (PIDS), Makati City

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Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

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Rachel H. Racelis and J.M. Ian S. Salas

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January 2008

For comments, suggestions or further inquiries please contact:
The Research Information Staff, Philippine Institute for Development Studies
5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: publications@pids.gov.ph
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A Note on Defining the Dependent Population Based on Age[1]

Rachel H. Racelis and J.M. Ian S. Salas
University of the Philippines

November 6, 2007

Abstract

Dependent population is defined as that part of the population that does not work and relies on others for the goods and services they consume. In practice, specific population age groups have in their entirety been categorized as dependent population, even while the definition may not necessarily apply to every individual in the population with the indicated ages. In general those categorized as dependents include the children and the elderly. The rest of the population constitutes the working age population.

The delineation of any boundary for children and for working ages varies across countries and studies, has tended to be discretionary, and thus appears arbitrary. In the Philippines the delineation is based on the legal definition for working ages set at 15 to 64 years (with provision for early retirement at age 60 years.). The implied dependent ages in the Philippines are then 0-14 years and 60 or 65 years and older. The dependent ages used in the OECD definition for dependency ratio are under 20 and over 64. In other studies, children include those in the population up to age 18 or 20 and those in the working ages limited to 59 years or younger.

This paper shows that the dependent population(s) defined based on a given set of age cut-offs are generally heterogeneous in terms of personal attributes, particularly in terms of indicators of dependency or non-dependency. Thus, the population defined by any given age boundaries may satisfy some indicators of dependency but not others. That is, the age boundary delineated using one dependency indicator, as reference, could be found unsatisfactory when assessed based on a different indicator. Those considering the use of any defined set of age boundaries to identify the dependent populations, whether for research or for the implementation of support programs, should first assess the appropriateness of the boundaries for the intended use. Identifying the dependency indicators relevant to the intended use would facilitate the assessment.

Keywords: population dependency, labor force participation, household headship, National Transfer Accounts, lifecycle deficit, financing consumption

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[1] This is a revised version of the paper presented at the conference "Asia's Dependency Transition: Intergenerational Transfers, Economic Growth, and Public Policy" conducted by the Nihon University Population Research Institute (NUPRI) at the Hotel Grand Palace, Tokyo from November 1 to 3, 2007. This paper is an output of the Asia's Dependency Transition Project. The Philippine Institute for Development Studies and NUPRI implemented the Philippines component of said Project with support from the United Nations Population Fund (UNFPA.) The Project is part of an international collaboration to develop and apply the National Transfer Accounts (see www.ntaccounts.org.)

A Note on Defining the Dependent Population Based on Age

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I. Introduction

A dependent is defined as a person supported, especially financially, by another (Oxford Dictionary, 1996.) Dependent population is defined as that part of the population that does not work and relies on others for the goods and services they consume (Encarta Dictionary, n. d.) In practice, specific population age groups have in their entirety been categorized as dependent population, even while the definitions above may not necessarily apply to every individual in the population with the indicated ages. More specifically, those categorized as dependent populations include the children and the elderly. The rest of the population constitutes the working age population.

Distinguishing between dependents and working age groups in a population is important for research as well as for policy purposes. It is important in the study of population age structure changes and demographic transition, and in the study of the economic implications of these changes, e.g. demographic dividends (Lee, 2005; Mason, 2005.) Identification of dependent age groups is important to properly design support programs of the government.

The delineation of any boundary for children and for working ages has been arbitrary (Lee, 2005) as indicated by the variation observed across countries and studies. For example, dependent ages have usually been set for research purposes at under 15 years, and 65 years and over (Mason, 2005.) The dependent ages used in the OECD definition for dependency ratio are under 20 and over 64 (OECD, n. d.) In other studies, children include those in the population up to age 18 or 20 and those in the working ages limited to 59 years or younger.

Using the Philippines as an illustrative case, this paper shows that the dependent population(s) defined based on a given set of age cut-offs are generally heterogeneous in terms of personal attributes, particularly in terms of indicators of dependency or non-dependency. The population defined by a given set of age boundaries would satisfy some indicators of dependency but not others. That is, the age boundary delineated using one dependency indicator, as reference, could be found unsatisfactory when assessed based on a different indicator – hence, the wide variation in the age boundaries observed across different studies and contexts. Different age boundaries are used depending on the purpose and the criteria (if any) applied to make the delineation. Thus, for those considering the use of any defined set of age boundaries for identifying the dependent populations, whether for research purposes or for the implementation of support programs, these should first be assessed for appropriateness in the intended use.

The dictionary definitions of a dependent and dependent population quoted above point to dependent characteristics that are economic in nature. This paper focuses only on a few economic indicators of dependency for illustrative purposes. Of course, the set of indicators could be expanded to include not only those on the economic aspects of dependency but also those on the functional and other aspects of dependency. For example, the functional aspects including capacities for activities of daily living or ADLs (e.g. walking, eating, putting on clothes and personal hygiene), and for instrumental activities for daily living or IADLs (e.g. meal preparation, housework, use of transportation and managing basic finance) (Ogena, 2006) are important aspects of dependency, but which are not covered in this paper.

This paper consists of several parts. First, the reference used in this paper to define the dependent population for the Philippines is described. The relevant provisions in the 1994 Philippine Labor Code are cited. Then the "identified" dependent population is assessed in terms of some economic aspects of dependency. Results from the National Transfer Accounts (NTA)/Flow Accounts estimates are used to show life-cycle deficits and financing means of consumption for the dependent age groups. Dependents are expected to consume more than they earn (i.e., lifecycle deficits) and to rely mainly on others to fill their consumption needs. In addition, the labor force participation and household membership status of the dependent population are examined. It is expected that dependents are not in the labor force and that dependents are not heads of households (i.e., do not control household resources.) The assessment of the "identified" dependent population characteristics is intended to show that, first, the identified age groups are heterogeneous and that, second, the identified age groups do not all conform to the expectations described above about dependents. For purposes of this paper, some cut-offs are arbitrarily set for what are considered low for the few indicators examined. The levels are considered low when labor force participation is under 40 percent, the proportion of consumption financed by transfers from others is 40 percent or less, and the headship/spouseship rate is less than 40 percent.

The various data used in the estimation of the Philippines NTA Flow Accounts for 1999 and the sources of information on living arrangements and labor force participation are described briefly in Section 2.Section 3 discusses the age cut-offs for dependent populations implied by the 1994 Philippine Labor Code. In the next three sections, Section 4 to 6, the age groups identified as dependents are each assessed in terms of lifecycle deficits, financing of consumption, labor force participation and household headship.

II. Data Sources

The 1999 Annual Poverty Indicator Survey (APIS) was the primary household survey data used in the estimation of the pilot year NTA for the Philippines. Thus, the labor force participation rates and the household headship/spouseship and other membership rates by age were also estimated from the same survey data.

The Flow Accounts (also Lifecycle Accounts) components of the Philippines NTA for the year 1999 were estimated using not only the 1999 APIS but also data from a number of other sources. National Income Accounts data were used to construct aggregate controls on public and private consumption, labor income components (domestic salaries and wages, OFW earnings and self-employment income), asset income components (private asset income and interest payment on public debt) and government taxes (direct and indirect.)

Breakdowns of some control totals were also constructed. Public education expenditures by level of schooling were estimated using the National Education Expenditure Accounts. Public health expenditures by type of health care service were estimated using the National Health Accounts. Control totals for components of public asset income were constructed using national government financial reports from the Commission on Audit.

The aggregate controls were then allocated to the age groups based on data from the nationally representative 1999 APIS. For more detail on the components, definitions and the methods applied in the estimation of the Philippines NT Flow Accounts for 1999, please see Paper No. 2007-12 by Racelis and Salas (2007) in the PIDS Discussion Paper Series at the website http://www.pids.gov.ph.

III. A Definition of Dependent Population for the Philippines

The "official" delineation for the working ages in the Philippines, 15 to 64 years, is based on provisions in the Philippine Labor Code of 1974. This law set the minimum age of employment at 15 years and prohibited the employment of persons below 18 years of age in hazardous work (DOLE, 1974.) Another law, the Child and Youth Act of 1974, however allows the employment of younger children for as long as they perform light work, which is not harmful to their safety, health and normal development, and which is not prejudicial to their studies (DOLE, 1974.) But employment permits need to be secured from DOLE to employ persons under 15 years old.

The Labor Code also declared that employees who have reached the age of 60 years or more, but not beyond 65 years which is the declared compulsary retirement age, may retire from work and be entitled to retirement benefits upon satisfying certain conditions.

Based on the legal delineation for working ages, the implied dependent ages are 0-14 years and 65 years and older.

IV. Lifecycle Deficits and Finance of Consumption

In the NTA Flow or Lifecycle Accounts, consumption (public and private) and labor income are estimated for single-year age groups for a cross-section of population in per capita and in aggregate terms. Consumption and labor income age profiles for the Philippines are shown in Figure 1 (per capita values) and Figure 2 (aggregate values).

In these profiles children and the elderly are observed to consume more than they produce and the shortfall is referred to as lifecycle deficit. The youth begin to produce as much as they consume at age 24 and adults no longer produce as much as they consume at age 61. The span of years during which there is lifecycle surplus, with labor income exceeding total consumption, is 38 years.

Figure 1. Per Capita Consumption, Labor Income and Lifecycle Deficit by Age: Philippines, 1999

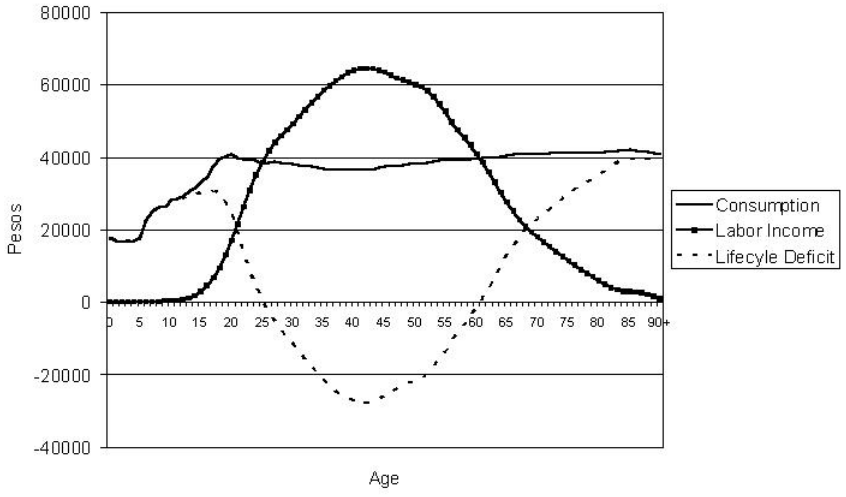
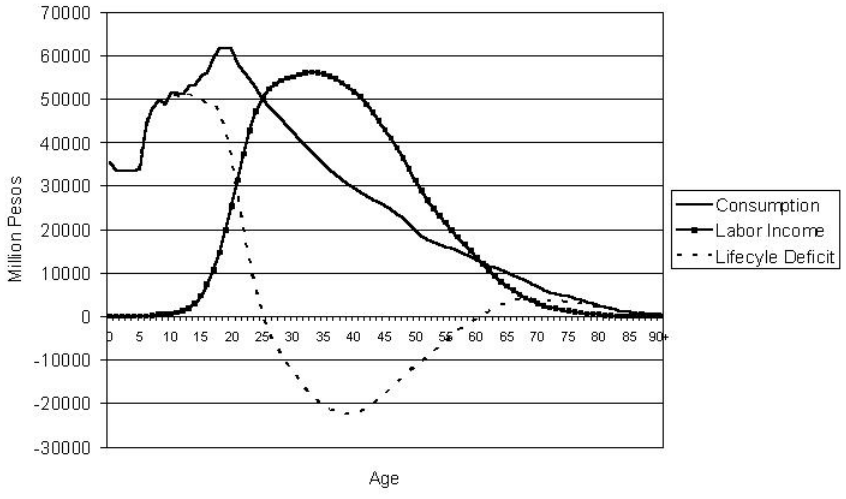


Figure 2. Aggregate Consumption, Labor Income and Lifecycle Deficit by Age: Philippines, 1999



These results indicate that the legally defined dependent population 0-14 and 65 or older for the Philippines clearly belongs to the "deficit" age groups. The results further

show that the age groups 15-24 and 61-64, in addition to those legally defined, are in fact also showing lifecycle deficits.

The data on finance of consumption by age are also taken from the NTA Flow Account estimates for the Philippines.

The first form of financing of consumption is labor income or own earnings from work. But as explained above, the labor income of some age groups is not sufficient to cover their consumption and these age groups incur lifecycle deficits. Resources need to be reallocated across age groups, more specifically from surplus to deficit ages, in order to finance the "deficit" portions of consumption.

In NTA the two economic forms of resource reallocation across age groups (for covering lifecycle deficits) are asset reallocations and net transfers (Mason, et. al, 2005.) Assets are not allocated among members of the household, but rather are assumed held by a single individual, the household head. In general individuals accumulate assets (including contributions to pension schemes) during lifecycle surplus years and in their retirement years rely on asset income, pension benefits and dis-accumulation of capital to cover the lifecycle deficit. Asset functions as a reallocation tool for a single individual to allow him or her to smoothen consumption over the lifecycle or to reallocate resources across time for some other purpose. Thus, for any year's cross-section of age groups, the asset income and dis-accumulation of capital observed for older ages is not tied to the asset accumulation of the current younger age groups, but rather to the accumulation of the elderly during their working years.

Transfers, on the other hand, are transactions that transfer good, service or cash from individuals belonging to one age group to individuals belonging to another age group with no expectation of *quid pro quo* in any form. Public transfers are mediated by governments which collects taxes from some age groups and then makes transfers to all or specific age groups. Private transfers are mediated by the family and by non-profit institutions serving households. Intra-household familial transfers are transfers made from household members with lifecycle surpluses to household members with lifecycle deficits.

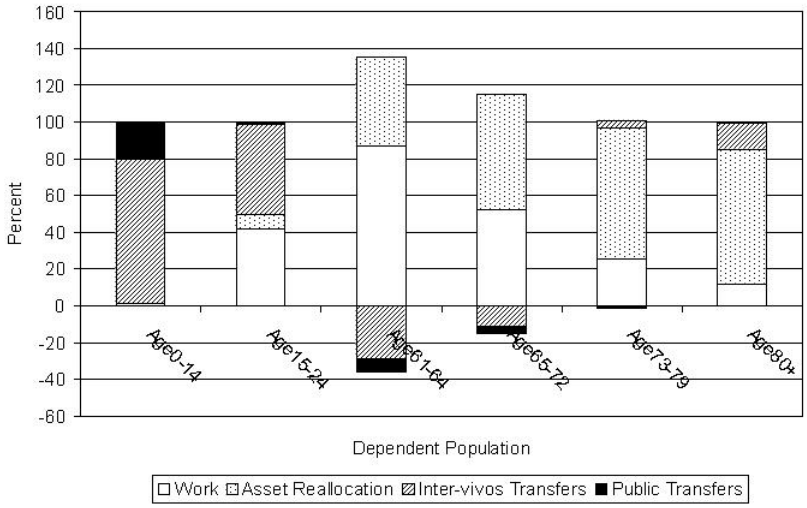
The financing of consumption of the young and the elderly dependent populations in the Philippines are shown in Figure 3. The additional ages identified as deficit age groups in the NTA results (ages 15-24 and 61-64) are represented as well to discern differences in financing patterns from those for the "officially"-defined dependent populations (0-14 and 65 and older). The elderly populations represented are further split into separate age groups at ages where public and private transfers switch from being negative to positive. Private transfers become positive at age 73 while public transfers become positive at age 80.

The financing of consumption of children up to age 14 is primarily by transfers, with private transfers 79 percent, public transfers 20 percent and a very small 1 percent from own earnings. For the age group 15-24, private transfers still heavily support

consumption at 48 percent, but financing from own earnings is already very significant at 42 percent of this group's consumption.

Consumption of the elderly, on the other hand, are financed from own earnings, asset reallocation, private transfers (starting age 73) and to a very small extent from public transfers (starting age 80.) As expected, the share of elderly consumption financed by own earnings declines while the share of asset reallocations increase in the older ages. Interestingly, the young-olds continue to transfer funds, by both private and public means, to other age groups.

Figure 3. Finance of Consumption, Young and Elderly Dependent Populations: Philippines, 1999



Unlike the young dependents, the elderly are financing lifecycle deficits from their own resources (i.e., asset earnings) and, thus, the term dependent does not seem to be applicable to the Filipino elderly, particularly dependence on others in a financial sense.

Lending support to some of the above results, Domingo and Asis (1992) find that in many cases the elderly maintain control of resources or assets. The proportion of elderly owning their homes is quite high, particularly among the rural elderly. Farm land is another key resource owned by the elderly. Domingo et. al. (1994) find that about 65 percent of the elderly in rural areas reported deriving income from farm or agricultural production.

V. Labor Force Participation

While the Labor Code of the Philippines has set the minimum age at 15 years by which youth can legally be employed, this has not stopped the employment of those below the minimum age. Of course, hiring could be done with permits based on the Child and Youth Act, but most likely permits were not obtained especially in the case of unpaid workers in households and rural economic activities like farming.

Figure 4. Labor Force Participation Rate by Age: Philippines, 1999

Figure 4 shows that labor force participation by youth starts to rise rapidly after age 13 years. By age 12 elementary schooling is completed and the percentage of the children that go on to attend high school drops to about 70 percent. Most of those who leave school are apparently joining the labor force. By age 15 years (the lower limit for working ages as defined by law) about 25 percent have joined the labor force. Overall, young dependents aged 0-14 are mostly not in the labor force.

The Labor Code has set the compulsary age of retirement at 65 years for formal sector work, with leeway for early retirement from age 60-64 years. Data show (Figure 2) that the proportion who stay in the labor force in fact start to drop at age 55 years, an age much younger than the retirement age set by law. On the other hand, significant proportions of the elderly remain active in the labor force even past age 65 years. About 40 percent are still in the labor force at age 70, 30 percent at age 75 and about 10-15 percent at age 80 or older. The notion that dependents are not working does not apply to the elderly in the Philippines.

The age profile of labor force participation in the Philippines is explained by the composition of employment in the country. Significant numbers, about 60 percent (NSCB, 2003), are employed in agricultural/fishery sectors and self-employment entrepreneurial activities. These are activities where labor law provisions on minimum hiring age and compulsary retirement age are generally not followed. Young children are drawn as unpaid labor into these activities and the elderly can continue to be active in these same activities for as long as their health condition permits.

Findings of Domingo and Asis (1992) and Domingo et. al. (1994) in studies done on Filipino elderly provide some perspective on the labor force participation patterns of the elderly. Domingo, et. al. (1994) calculated labor force participation rates for the Filipino elderly grouped according to selected characteristics and using data from the 1984 ASEAN (Elderly) Survey for the Philippines. The authors found higher

participation rates for rural elderly (50 percent) compared to the urban elderly (28 percent). The explanation for the difference between urban and rural labor participation rates is that most rural workers are in the agricultural or non-formal sector, activities where the mandatory retirement age is not observed, and where physical capacity largely determined the length of labor participation.

Domingo, et. al. (1994) further found that the participation rate was about 48 percent for those whose self-assessment of their health was Good, 37 percent for those whose health self rating was Fair and 16 percent for those whose health self rating was Poor. These findings explain why labor force participation rates continue to be high for the young olds who are of relatively better health. The labor participation rate was about 55 percent for those not receiving support from their children and 35 percent for those who were receiving support. Labor participation rate was about 53 percent for those who were giving support to their children, and 26 percent for those who were not supporting anyone. These last two sets of findings indicate motivations behind the high labor force participation of elderly Filipinos – that many need to provide for their own needs and/or need to provide support to their children.

The study by Domingo and Asis (1992) used results of a series of focused group discussions or FGDs done in 1990, with the elderly and their children as respondents. The motives explaining the high labor participation rates by the elderly were derived directly from statements made by the respondents. A common theme expressed by the elderly in the FGDs was the chronic lack of prospects for improving their children's economic situation and the need to extend their role as provider. Even among the well-off, the desire to contribute to their children's upliftment is not uncommon. Furthermore, many of the elderly participants expressed that as long as their health would allow them, they would like to continue working because in addition to being income-generating, work was also viewed as exercise or as recreation.

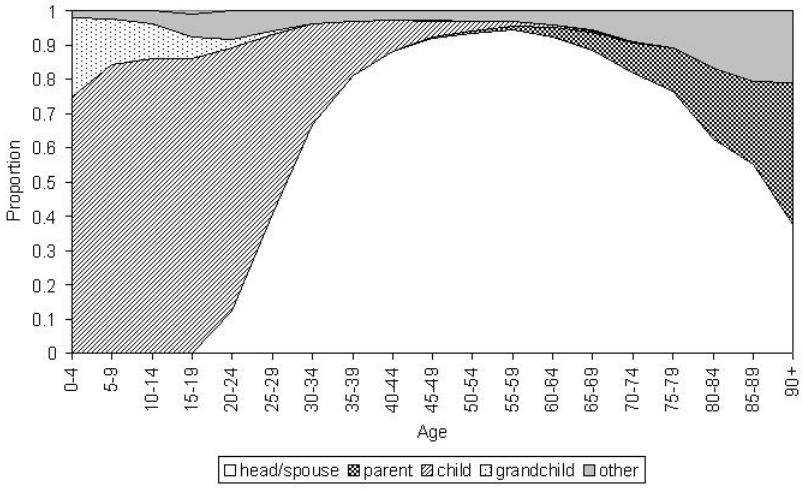
VI. Household Membership Status

Control of household resources, including financial and physical assets, is generally held by the household head (together with the spouse, if the head is married), as Domingo and Asis (1992) had noted among elderly heads. Thus, headship/spouseship status is an important variable that should be included in an examination of “dependency” in age groups.

The young dependent population under 15 years of age are mostly children and very few are heads of households. Figure 5 shows that the proportions that are children or grandchildren of household heads together total to about 90 percent at age 14 and even higher at younger ages. .

After age 15, the proportion who are heads (plus spouses of heads) of households starts to rise, and rising most sharply after age 24 as children start to form separate households. The proportion who are heads or spouses of heads remains at over 90 percent from age 45 to 60 years old and begins to gradually decline after age 60 years.

Figure 5. Relationship to Head By Age; Philippines, 1999



For the elderly population, headship/spouseship remains high at over 80 percent at 65 and close to 40 percent at 90 years old or older. A significant proportion of the elderly start to live with their children as parents of the head or with other family members as other relatives only after age 75.

Results from the study by Domingo and Casterline (1992) provide additional profile on households where the Filipino elderly live. The majority of elderly, about 70 percent, were found to co-reside with their children, with over 30 percent living with two or more children. Only about 4 percent of the elderly live alone. About 60 percent of elderly live in households with children under 15 years old (presumably the grandchildren), 50 percent in households with other elderly members present, and 85 percent in households with working adults. The average size of households where the elderly live, about 5, is not very different from the national average. The authors point out that a critical factor that determines the living arrangement of the elderly is their health situation.

VII. Concluding Remarks

The dependent population implied by provisions of the Philippine Labor Code, which defines officially the working ages to be 15-64 years, would include those aged 0-14 and 65 and older. This paper finds that the young age 0-14 are relatively homogeneous in terms of consumption finance, labor force participation, and relationship to household head. On the contrary, the elderly age group 65 and older is heterogeneous as indicated by the wide range of values for these same variables within these age groups.

The population aged 0-14 is found to be mostly children of household heads, not working and whose consumption is financed mainly by household and public transfers.

The elderly population 65 years or older are mostly heads of households (or spouses of heads), with headship/spouseship rate at more than 50 percent at age 80 years. Significant proportions of the elderly are also economically active, especially among the young olds, aged 65-70 years, with labor force participation rates of 40 to 60 percent. Mainly earnings from current work and asset reallocations finance elderly consumption, with minimal transfers from other age groups. These findings indicate that the elderly are on the whole not financially dependent on others.

Even based on an assessment limited to three indicators of dependency, only the age group 0-14 was found to satisfy all indicators. For this young age group, only 3 percent are in the labor force, about 99 percent of their consumption is financed by transfers from others, and they are not households heads. The elderly dependent age groups 65 or older satisfied at most only one indicator of dependency or none at all. All elderly age groups were identified to be deficit age groups but financing of their consumption still came their own resources. The age group over 72 year olds had less than 30 percent are in the labor force. The age group 65-72 satisfied none of the indicators of dependency, with household headship at around 90 percent, labor force participation at about 55 percent and giving rather than receiving transfers (negative transfers.).

It should be noted that the level at which an indicator of dependency is considered low, for purposes of this paper, was set arbitrarily and could in itself be a source of arbitrariness for assessing the dependency age boundaries. As set out earlier in this paper, under 40 percent is considered “low” for percent of consumption financing from transfers, labor force participation rate and headship/spouseship rate. But what level or value should be considered low, medium or high for each indicator of dependency? For example, is a labor force participation rate of 30 percent considered low?

To summarize, a given set of age boundaries for delineating the dependent population could be found satisfactory in terms of some dependency indicators or criteria but unsatisfactory when assessed based on others. This is the reason why variations in the age boundaries are observed in different studies and contexts. Different age boundaries are used which depend on the context (particularly country situation), the purpose and the criteria (if any) applied to make the delineation. Thus, for those considering the use of any set of age boundaries to identify dependent populations, particularly if these boundaries were defined elsewhere or by some other entity, should first be assessed for appropriateness in the intended use – whether for research purposes or for the implementation of support programs.

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