Redefining ‘old age’ and ‘dependency’ in the East Asian social policy narrative

Abstract

East Asian societies are currently some of the most rapidly ageing in the world. Projections of the traditional old age dependency ratios (OADR) present a daunting future of the size of the aged population both in absolute terms and, in the context of low fertility, relative to the future workforce. Recently scholars, especially Sanderson and Scherbov, have argued that OADR is inadequate as a guide to future levels of dependency based, as it is, on past scenarios of ‘old age’ and ‘dependency’ rather than current and future notions. Indeed, in the context of rapidly ageing settings in East with developmental welfare states, the OADR has probably never been truly relevant, is profoundly helpful and could lead to policy paralysis. As such, Sanderson and Scherbov suggest a new method to measure ageing prospectively to take into account both improved life expectancy and health across the life-course. We introduce these new measurements as a possible new, more radical and optimistic way to think about ageing in East Asia. These measurements more accurately demonstrate the ‘boundaries’ to ‘dependency’ and, hence, demonstrate the potential room for social policy interventions to maximise ‘active ageing’ for the population currently, perhaps incorrectly, defined as ‘old’ and ‘dependent.’
Redefining ‘old age’ and ‘dependency’ in East Asia: is ‘prospective ageing’ a more helpful concept?

Introduction: rapidly ageing populations in East Asia

Many industrial East Asian settings have experienced rapid fertility declines over the past thirty years (Straughan, Chan, & Jones, 2008); so much so that most of the lowest fertility rates in the world can currently be found in the region. As a consequence during this period, many territories such as Republic of Korea, Taiwan, Singapore, Hong Kong SAR, Macao SAR and Japan have been able to take advantage of the so-called ‘demographic dividend’ where the relative size of the working-age population has been disproportionately large compared to the dependent population of children and older people (Bloom, Canning, & Sevilla, 2003). Other countries in south- and south-east Asia for whom fertility decline has occurred more recently are themselves now feeling the benefit of this first step in population ageing (e.g. James, 2008; Wongboonsin, Guest, & Prachuabmoh, 2005).

However, this ‘demographic dividend’ is but a window of opportunity before the population as a whole becomes ever older – particularly in the context of longer-term trends in low fertility (Ogawa, Kondo, & Matsukura, 2005). Indeed, these very same territories in East Asia are famously among the most rapidly ageing settings in the world (Eggleston & Tuljapurkar, 2010). This has clear implications for both the future demand for social and public services among a growing elderly population and the ability of a potentially shrinking labour force to fund it. This, in turn, clearly impacts upon issues relating to labour productivity, intergenerational justice, and the changing provision of health and social welfare (National Research Council, 2012).

The mood among academics regarding the future pace of ageing in East Asia is generally pessimistic. Both demographers and local statistical offices generally assume that fertility rates – the main driver of population ageing – will stay low for a wide reasons of cultural, social and economic reasons (Basten, 2013; Frejka, Jones, & Sardon, 2010; Lutz, Skirbekk, & Testa, 2006). Furthermore,

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1 A significant difference between these Asian settings and, say, European countries who are also experiencing ageing is the speed with which the transition has occurred – namely over a century in most European settings but only a few decades in East Asia.
life expectancy in many of these countries is extremely high and is projected to increase further (UNDESA, 2012; Yang, Khang, & Harper, 2010). Finally, replacement migration is unfeasible in many settings for both cultural and demographic reasons (Coleman, 2002; Douglass & Roberts, 2003).

This demographic pessimism is often translated into a gloomy appraisal of future prospects in both the social policy literature and among policymakers themselves – not least elucidated in this very journal (e.g. Choi, 2009; Lin, 2010). This pessimism is expressed in terms of future pension provision, labour force size, healthcare costs and numerous other factors (e.g. Ikegami 2010).

**The dependency ratio**

The *old-age dependency ratio* [OADR] is a simple measurement developed by demographers to demonstrate the relationship between the size of the working age population (usually defined as aged 15-64 or, more appropriately for industrialised Asian settings, 20-64) and those aged above working age who are taken to be dependent upon the labour force. The OADR is by far, the most widely used measurement of the degree to which a society is considered to be aged. Indeed, it is used as the standard reference measurement in both academic and policy literature regarding ageing across the world not least because of its ease of interpretation (e.g. Horioka 2010; Holzmann, MacArthur, and Sin 2000). As Figure 1 demonstrates, the projected OADRs for these six low fertility East Asian settings rise rapidly to the end of the century. (Indeed, even these OADRs are somewhat optimistic as they are based upon a constant increase in fertility to 2100, something disputed by numerous scholars and statistical offices (Basten, 2013)). These rising OADRs clearly represent a daunting prospect for policymakers and, one might suggest, go some way towards explaining much of the prevailing pessimism regarding future responses to ageing.

**Figure 1: Old-age dependency ratios for six low fertility, East Asian territories. Population aged 65+ per 100 working age population (20-64).**

Data source: (UNDESA, 2012)

Notes: * Taiwan is technically categorised in the UN projections as ‘Other non-specified areas’ within East Asia
The dependency ratio has, however, been increasingly critiqued in recent years – particularly in the context of countries with pay-as-you-go pensions. Bongaarts (2004), for example, rightly observes that both the number of pensioners usually exceed the population aged 65 and older, and the number of productive workers is substantially smaller than the total population aged 15, or 20, to 64. For current figures, this means that the OADR is, in fact, over-optimistic. For Japan in 2000, for example, Bongaarts (2004) calculates that while the OADR is 25/100, the pensioner per worker ratio is, in fact 0.39. Despite this, using a measure such as Bongaarts’ does allow for the future reconceptualising of labour force participation, age of retirement and pension entitlement.

**Prospective ageing: a more radical approach to measuring ageing**

A more radical approach to critique the OADR is to tackle the assumption that the population aged over 64 are both ‘old’ and ‘dependent.’ In order to do so properly, we need to understand where this figure of 65 as a boundary between ‘young’ and ‘old’ come from? The simple answer is that it is derived from Western ideas of social welfare reforms developed in the nineteenth- and twentieth centuries (Atchley, 1982). However, the demographic context in which Bismarck was setting out his retirement legislation in the late-nineteenth century is entirely different from today in at least three ways: the size of the population surviving until 65; the length of time the average person would survive after 65; and the health of the population both before and after age 65. In Sweden, for example, of 100,000 children born in 1850, less than half would be expected to survive to their 65th birthday. Compare this to more than 90% in 2010. (University of California Berkeley (USA) & Max Planck Institute for Demographic Research (Germany), 2013).

Central to Sanderson and Scherbov’s reconceptualization of ‘ageing’, however, is a recognition that in terms of planning for old age both individually and at a macro social policy level, it is far more important to examine how much longer we expect to live for, or to calculate a ‘prospective age’. Rising life expectancy means that a 50 year old in 2050 might well behave in many ways like a 40 year old in 2000, because the 45 year old could have the same remaining life expectancy [RLE] as a 40 year old person in 2000. Using the excellent historical records in Sweden, for example, we can compare the ages at which the average person at four different time points had a RLE of 35 years: in
1851 at age 30, 1901 at age 36, 1951 at age 46, and in 2001 at age 54. To give a more contemporary example, a man born in Sweden in 1916 who survived to his 30th birthday would expect to live for another 44 years, i.e. to age 74. His grandson (or even son), born in 1970, however, would expect to live for another 44 years at his 40th birthday, i.e. to age 84. In other words, ‘40 is the new 30’.

Sanderson and Scherbov identify two methods to ‘remeasure’ age using these reconceptualisations of ageing in order to calculate prospective old age dependency ratios. The first involves taking an initial age of ‘retirement’ – perhaps 65 – and observing the RLE for year $t_1$. As improvements in life expectancy occur over time, that RLE is subtracted from the new life expectancy to create an equivalent $t_2$. For example, in country $a$ in year $t_1$ the average life expectancy at age 65 is 20 years; therefore we ‘fix’ this period of 20 years as the period of ‘old age.’ For 2050 we examine the projected life table to find the age at which RLE is 20 years. This then becomes the new ‘old’ age. Dependency ratios calculated on this bases can be termed $POADR_{t}$.

In Japan, for example, the age at the onset of ‘Old Age Dependency’ in 2050 – or the equivalent age of a 65-year-old in 2000 – is 72.8. This translates into a $POADR_{t}$ of 0.51 compared to a traditional $OADR$ of 0.866 (Sanderson & Scherbov, 2007). Similarly for Hong Kong, the $POADR_{t}$ for 2041 is 0.426 compared to an $OADR$ of 0.531 (Basten, Yip, & Chui, 2013).

However, the calculation of $POADR_{t}$ has a number of issues, especially when applied to developmental welfare states in East Asia. For example, it is still based upon the current notion of 65 as being a boundary of old age. This is especially important when examining territories in East Asia (and other areas without ‘pay-as-you-go’ pensions) where the notion of 65 as a ‘retirement’ age for the bulk of the population is somewhat meaningless.

A further measure of old age dependency, therefore, has been proposed in Sanderson and Scherbov (2010). Rather than being based upon current (vague) assumptions concerning the onset of ‘old age’ and ‘dependency’, this is entirely based upon fixing a set period of RLE. Such a method was first proposed by Ryder who suggested the age of ‘old age’ onset was when a period of 10 years of

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2 2041 is the furthest projected year for which projected life tables are available for Hong Kong. See (HKCSD, 2012)
RLE was reached (Sanderson & Scherbov, 2008). This concept was further developed by Fuchs (1984) and Siegel (1993).

Sanderson and Scherbov (2008, 2010) suggest an RLE of fifteen years as a suitable boundary to mark the onset of ‘old’ age. This is based on the implicit assumption of disability, and ‘dependency’ being disproportionately confined to the last fifteen years of life (see, for example, Sanderson and Scherbov 2007; Lafortune 2007). Indeed, the growing literature on the compression of morbidity in this period suggests that such a ‘boundary’ of dependency may, indeed, be reasonable (CODI, 1991; Liu, 2009).

Using POADR\textsubscript{2} rather than the traditional OADR measurement can dramatically alter our view of dependency in Asia. Sanderson and Scherbov (2008) calculate this POADR\textsubscript{2} for each of the UN’s Asia regions for 2045. For the East Asia region, the age at which RLE was 15 years rises from 66.4 in 2000 to 70.3 in 2045. This translates into a POADR\textsubscript{2} for the region of 0.292 in 2045 compared to an OADR of 0.435. We can gain a greater insight, however, by examining the differences between OADR and POADR\textsubscript{2} at the territorial level. In Japan, for example, the OADR in 2045 is 0.75, or 0.75 people aged over 65 per person aged 20 to 64. The POADR\textsubscript{2}, however, is just 0.269 (Sanderson & Scherbov, 2008). Again for Hong Kong, the OADR for 2041 is 0.531 while the POADR\textsubscript{2} is just 0.218 (Basten et al., 2013). In other words, in such rapidly ageing societies as Hong Kong and Japan by simply applying a different measurement of ageing, and it is suggested a measurement which more accurately reflects both the present and future demographic, economic and health context of East Asian societies, then ageing can become a more manageable prospect. For an extended analysis of the implications for one Asian setting, namely Hong Kong SAR, see Basten 2013.

**Conclusion: better identifying the boundaries of ‘old’**

In this short piece we have sought to highlight a new current in the demographic literature, namely the reconceptualising of ageing and ‘dependency’ to better account for changes in life expectancy and the compression of morbidity in older ages. This can allow policymakers to recognise the increasing obsolescence of the traditional OADR and look at new ways to define ‘old’ and ‘dependent.’
The POADR figures presented above could be said to represent something of an optimistic ‘upper-bound’ of the potential release of human capital by optimising the experiences of the population aged above 65 with a remaining life expectancy of greater than 15 years which is currently, incorrectly described as ‘old’ and ‘dependent.’ In this context, East Asian economies currently faced with a daunting, even unassailable future of ageing predicted by the OADR can design a suite of proactive policies designed to realign society’s relationship to work and other activities at different stages across the life-cycle. Although this clearly feeds into the literature on and work (e.g. Kendig 2004; Peel, Bartlett, and McClure 2004), it also emphasises the need to realign work-life balance across the life-cycle which can lead to burnout and increased periods of inactivity in later life (Kitaoka-Higashiguchi & Morikawa, 2009).

Rethinking ageing, therefore, can serve to provide both policymakers and the general public with a more realistic view of dependency over the life-course. Indeed, it is an optimistic story of increased life expectancy and health. As such, if we redraw the parameters of the ‘demographic dividend’ to emphasise those who are more accurately ‘dependent’ in East Asia, we find that more time actually exists to define a holistic approach to ageing across societies.

Finally, given that popular misconceptions regarding life expectancy and fixed entry points to old age have been a key factor in holding back pension reform in the West, the sooner East Asian economies jettison the OADR as the default measurement of ageing, the less likely the age of 65 will be entrenched as a boundary which could affect future attempts at reform.


HKCSD. (2012). *Hong Kong life tables: 2006-2041*. Hong Kong SAR.


