

NATIONAL TRANSFER ACCOUNTS FOR AUSTRALIA:

2003-04 and 2009-10 Detailed Results

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1.0 Background

Similar to other OECD countries, the Australian population is projected to age significantly to 2050 and beyond. In this context, the role of mature age Australians as producers of goods and services and consumers of public resources in particular, has become a key issue in academic and policy discussions. Indeed, many policy changes have occurred over previous decades on the production and consumption side to offset potential costs of population ageing. For example, policies to encourage or support mature age labour force participation (e.g., through the Experience+ training package) and to reduce public expenditure on this growing demographic (for example, through lifting the eligibility age for the Age Pension).

Many policy changes aimed at adjusting Australia's economy (and budget) to population ageing have been made in a period of economic prosperity in Australia – driven by significant increases in population, productivity and labour force participation. Indeed, over the past 30 years, Australia's labour supply has grown considerably and its economy was geared to a rapid increase in labour supply. The key drivers of this growth, the full entry of the baby boom generation into the labour force (today's mature age workers) and a very large increase in female labour force participation rates, will not be sources of future labour supply growth as they have been in the past. Even with very high levels of migration by historical standards, in the next 30 years, the rate of growth of the labour supply is projected to decline in Australia. This constraint comes at a time when both labour demand and the speed of population ageing is projected to increase significantly (McDonald and Temple, 2010)

With these demographic and economic changes on the horizon, an understanding of the production and consumption behavior of all Australians, but mature age Australians in particular, is indispensable. This project seeks to enhance our understanding of the economic lifecycle by developing National Transfer Accounts (NTA) for Australia. The formal definition of the NTA is *“a system of macroeconomic accounts that measures current economic flows by age in a manner consistent with the United Nations System of National Accounts. NTA measures age-specific labour income, asset income, consumption, transfers and saving, accounting for flows within households, between households, through the public sector and with the rest of the world”* (UN, 2013). With

multiple cross-sections of the NTA complete, the NTA offers the ability to study the evolution of intergenerational transfer systems and the consequences of alternative approaches to age reallocations embodied in public policy with respect to pensions, health care, education and social institutions.

Moreover, the NTA provides the opportunity for cross-country insights into the macro and micro economic implications of population ageing. This Australian study forms part of a large international effort led by Andrew Mason (East-West Center) and Ron Lee (Center for the Economics and Demography of Aging, University of California at Berkley). The international research team on NTAs now consists of over 40 countries, covering the Asia-Pacific, Americas, Europe and Africa as shown in Table 1.

Table 1: Country Membership of the NTA Project, 2014.

Asia-Pacific	The Americas	Europe	Africa
Australia	Argentina	Austria	Benin
Cambodia	Brazil	Finland	Ghana
China	Canada	France	Kenya
India	Chile	Germany	Mozambique
Indonesia	Colombia	Hungary	Nigeria
Japan	Costa Rica	Italy	Senegal
Philippines	El Salvador	Luxembourg	South Africa
South Korea	Jamaica	Poland	
Taiwan	Mexico	Russia	
Thailand	Peru	Slovenia	
Vietnam	United States	Spain	
	Uruguay	Sweden	
		Turkey	
		United Kingdom	

Source: www.ntaaccounts.org

2.0 Purpose

This report provides a detailed overview of the NTA inputs and results for Australia for the financial years, 2003-2004 and 2009-2010. The purpose of the broader Australian NTA project is to document the economic life cycle through the NTA system: that is, the age-related patterns of consumption and labour income that are associated with the life cycle of education, work, and retirement. Specifically, the Australian NTA provides estimates of economic flows across age groups that arise due to differential age-specific consumption and production profiles.

The remainder of this report is structured as follows. First, we briefly describe the overarching conceptual framework, methodology and techniques employed in the Australian NTA. Following, we discuss the key variables from the Australian NTA – including consumption and labour income, the lifecycle deficit and reallocations to fund the lifecycle deficit. For each of these broad concepts, there are numerous NTA account items, or inputs. In the section following, for each NTA account item, we present (i) a graphical display of the results, (ii) define the variable in question, (iii) define the aggregate benchmark, (iv) define the method for imputing the age profile and any smoothing included, and (v) briefly describe the results. All figures are in 2009-10 dollars to enable comparability.

3.0 Conceptual Framework and Methodology

3.1 Conceptual Framework

At its simplest level, the full NTA specification can be defined by the following identity:

$$y^l + r(K + M) + \tau_g^+ + \tau_f^+ = C + I_K + I_M + \tau_g^- + \tau_f^-.$$

Given inflows of:

labour income (y^l),

the returns to capital (rK)

the returns to land and credit (rM)

and transfer inflows from the public sector (τ_g^+) and the private sector (τ_f^+).

Conversely, outflows consist of:

consumption (C)

investment in capital (I_K)

investment in credit and land (I_M),

and transfer outflows to the public sector (τ_g^-) and the private sector (τ_f^-).

Designating asset income by y^A , assets by $A = K + M$ and saving by $S = I_K + I_M$, and rearranging terms yields the key elements of the NTA. The difference between consumption and production, termed the *lifecycle deficit*, must be matched by *age reallocations* consisting of *asset reallocations* and *net transfers*:

$$\begin{array}{ccccccc}
\underbrace{C - y^l}_{\text{Lifecycle deficit}} & = & \underbrace{y^A - S}_{\text{Asset reallocations}} & + & \underbrace{\tau_g^+ - \tau_g^-}_{\text{Net public transfers}} & + & \underbrace{\tau_f^+ - \tau_f^-}_{\text{Net private transfers}} \\
& & & & \underbrace{\hspace{10em}}_{\text{Net transfers}} & & \\
& & & & \underbrace{\hspace{10em}}_{\text{Age reallocations}} & &
\end{array}$$

For further detail on the theoretical underpinnings, the reader is directed to (Bommier and Lee, 2003; Lee, 1994a; Lee, 1994b; Lee and Mason, 2011; Lee, Mason et al, 2003; Mason, Lee et al, 2009).

3.2 Methodology

Within the general framework outlined above, the NTA methodology has been developed to maximize comparability between different countries. This has led to a flexible modelling approach where numerous data sources and methods are employed to estimate the underlying account items. Although individual items may bear differences in their calculation, each follows a general procedure as follows:

- Step 1: Calculate the macro benchmark: i.e., aggregate amounts for the total economy (of consumption, labour income, public age reallocations and private age reallocations) derived from National Accounts or equivalent data sources.
- Step 2: Calculate an age pattern against which the macro benchmark is distributed. This is calculated using a combination of sample survey and administrative data. When data are available for households rather than for individuals, allocations must be made from the household data to individual members to generate the age profile. Following the NTA methodology, we utilise several approaches, classified as follows:
 - (1) Regression approach: regression coefficients are used as weights to allocate from the household level to the individual.
 - (2) Iterative method: A series of weights are used within an iterative algorithm to allocate from the household to the individual level.
 - (3) Equivalence method: An NTA derived equivalence scale is used to allocate from the household to the individual level.
 - (4) Equal benefit method: All individuals share the same allocation regardless of characteristics.
- Step 3: Adjust the age patterns for missing populations. This is primarily an issue for residents of aged care facilities in the Australian NTA.

- Step 4: Smooth the age profiles. Using a non-parametric smoother, we adjust the age profiles for sampling variation. Smoothing is not conducted for education and childcare.
- Step 5: Adjust the age profiles to the macro benchmark. This ensures that the estimated age profile accords with the macro benchmark from the national accounts. A simple linear approach is adopted.

Slightly different procedures are adopted for each of the NTA account items. Section 4.2 details the procedure and data source for each item. In addition to ABS demographic data, this project draws heavily upon ABS sample surveys including the Household Expenditure Survey, the National Health Survey, the Income and Housing Costs Survey and also published administrative data on programmatic expenditure (see Appendix 1). Each data source is detailed in the results section following (4.2). As the procedures are extremely detailed, the interested reader is directed to the National Transfer Accounts Manual (UN, 2013).

4.0 Results

In this section, we detail each of the inputs of the Australian NTA. For each item, we illustrate the result on both a per capita (i.e., per person) and aggregate basis (i.e., population total). Firstly, we describe the results for the following key concepts from the NTA (Section 4.1):

- *Consumption*: Consumption refers to the goods and services that satisfy the needs and wants of residents (UN, 2013). In the NTA framework, consumption is comprised of public and private consumption on items such as housing, education and health (see Table 2).
- *Labour Income*: The value of the work effort of employees, the self-employed and unpaid family workers (UN, 2013). In the NTA framework, labour income is comprised of labour earnings inclusive of fringe benefits, and self-employed labour income (see Table 2).
- *Life cycle deficit*: The difference between consumption and labour income.
- *Funding the life cycle deficit*: In the NTA framework, lifecycle deficits are funded by reallocations. Reallocation of resources among age groups can occur through a variety of mechanisms: private transfers (for example, parents purchasing goods and services for their children), public transfers (for example, public age pensions and publicly provided education and health services), asset income, and savings (see Tables 3 and 4).

For each of these broader concepts, there are a range of detailed NTA account items. Tables 2-4 display the detailed account items for the economic lifecycle, public age reallocations and private

age reallocations respectively. Following the discussion of these key NTA concepts, we discuss results from the detailed NTA account items (Section 4.2).

Table 2: Economic Lifecycle Input Parameters for the National Transfer Accounts.

<p>Consumption</p> <p><i>Public consumption</i></p> <ul style="list-style-type: none"> Public consumption, education Public consumption, health Public consumption, housing Public consumption, child care Public consumption, residential aged care, high care Public consumption, residential aged care, low care Public consumption, other <p><i>Private consumption</i></p> <ul style="list-style-type: none"> Private consumption, education Private consumption, health Private consumption, housing Private consumption, child care Private consumption, residential aged care, high care Private consumption, residential aged care, low care Private consumption, other <p>Labour income</p> <ul style="list-style-type: none"> Labour earnings, including fringe benefits Self-employment labour income

Table 3: Public Age Reallocations Input Parameters for the National Transfer Accounts.

<p>Public transfers</p> <p><i>Public transfers, inflow</i></p> <ul style="list-style-type: none"> Public transfers, education, inflow Public transfers, health, inflow Public transfers, housing, inflow Public transfers, child care, inflow Public transfers, residential aged care, high care, inflow Public transfers, residential aged care, low care, inflow Public transfers, social protection targeted at the elderly, inflow Public transfers, social protection targeted at the prime-aged, inflow Public transfers, social protection targeted at the young, inflow Public transfers, social protection, other, inflow Public transfers, other in-kind, inflow Public transfers, other cash, inflow <p><i>Public transfers, outflow</i></p> <ul style="list-style-type: none"> Income taxes levied on individuals Income taxes levied on enterprises Employers' payroll taxes Taxes on property, corporations Taxes on property, households Taxes on property, unincorporated businesses Goods and services tax (GST) Other taxes on the provision of goods and services

<ul style="list-style-type: none"> Taxes on the use of goods and performance of activities Other transfers from private to public Public transfers, deficit, outflow Net public transfers from the rest of the world Public asset-based reallocations Public asset income <ul style="list-style-type: none"> Public property income <ul style="list-style-type: none"> Public property income, inflow Public property income, outflow Public capital income Public saving
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Table 4: Private Age Reallocations Input Parameters for the National Transfer Accounts.

<ul style="list-style-type: none"> Private transfers Private inter-household transfers <ul style="list-style-type: none"> Private inter-household transfers, inflow Private inter-household transfers, outflow Private intra-household transfers <ul style="list-style-type: none"> Private intra-household transfers, inflow Private intra-household transfers, outflow Net private transfers from the rest of the world Private asset-based reallocations Private asset income <ul style="list-style-type: none"> Private property income <ul style="list-style-type: none"> Private property income, inflow <ul style="list-style-type: none"> Private property income, corporations, inflow Private property income, households, imputed interest, inflow Private property income, households, other, inflow Private property income, outflow <ul style="list-style-type: none"> Private property income, corporations, outflow Private property income, households, consumer credit, outflow Private property income, households, other, outflow Private capital income <ul style="list-style-type: none"> Private capital income, corporations (but not NPISHs) Private capital income, owner-occupied housing Private capital income, share of mixed income Private saving

4.1 Key NTA Concepts

4.1.1 Per Capita and Aggregate Consumption and Labour Income

Figure 1 presents estimates of average per capita and aggregate consumption and labour income in Australia during 2003-04 and 2009-10 for people of different ages.

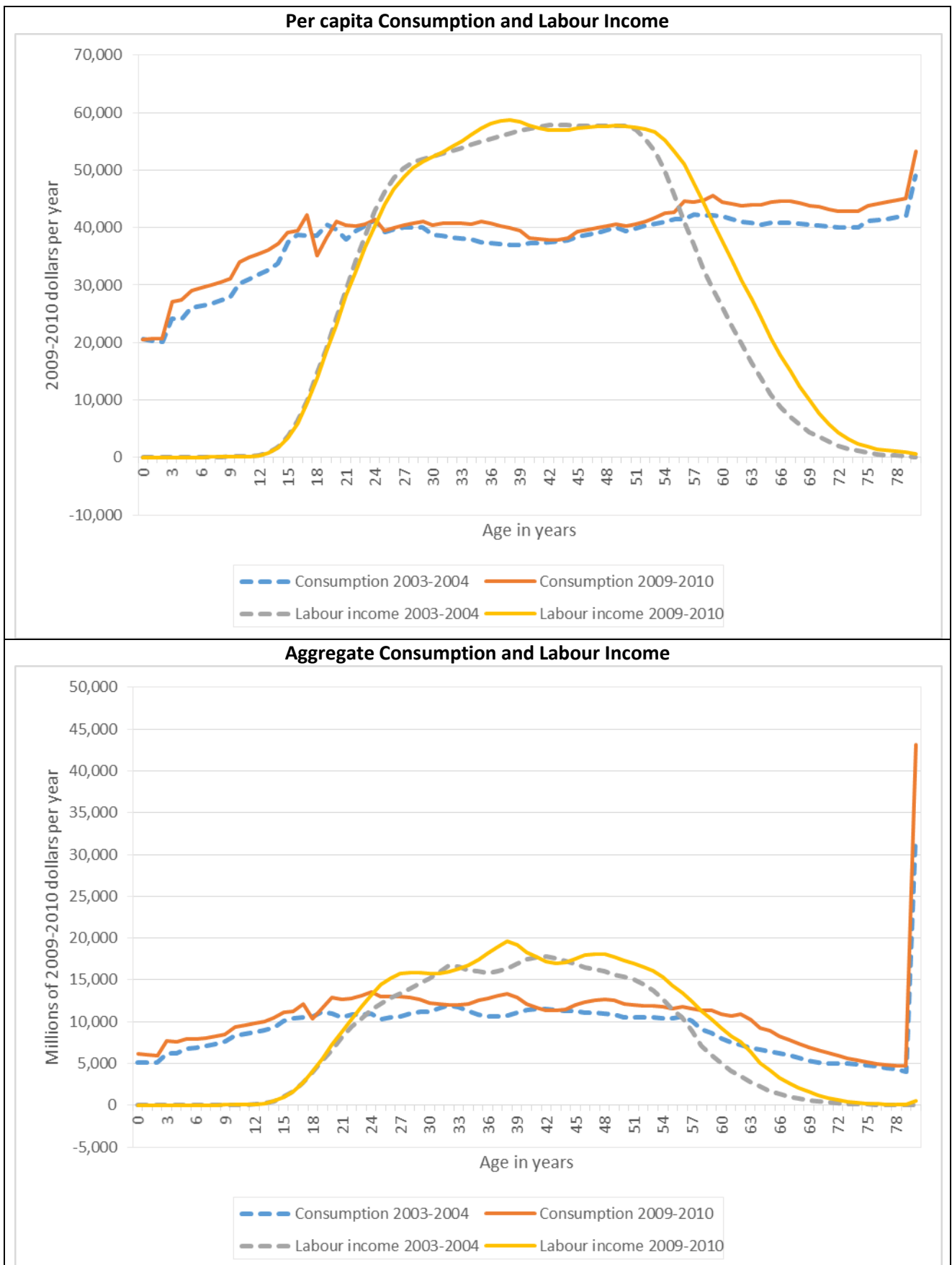
Total consumption rises steeply to a first peak at around 25 years of age, falls gradually to a trough at around 35 years of age before rising gradually to a second peak at around 58 years of age, and

then falls slightly in later life. Total consumption is comprised of a range of both public and private consumption items, as discussed later in Section 4.2. Briefly, to contextualize this aggregate consumption result, the more detailed account items show that private education consumption, as well as public education consumption (that is, consumption of publicly provided education services), are concentrated among younger Australians. In contrast, private health consumption and public health consumption (that is, consumption of publicly provided health services) are concentrated among older Australians. Other private consumption, which includes all private consumption apart from education and health (for example, food, clothing, rent, and so on), rises from birth to a first peak in the late 20s. It then falls but rises to a second peak in the late 50s, and then falls in later life. Other public consumption, which includes all public consumption apart from education and health (for example, consumption of such publicly provided services such as defence and policing), has in these estimates simply been assigned equally to all ages.

Figure 1 also presents estimates of average per capita labour income for people of different ages. In the figure, per capita age profiles for the two components of total labour income – earnings and labour income for the self-employed (that is, that share of self-employment income that can be attributed to labour rather than capital) – are included. Total labour income, which is predominantly composed of earnings, begins to rise very steeply at around 15 years of age. It begins to plateau at around 30 years of age, although there is a dip at around 33 years of age. Total labour income begins to fall very steeply at around 50 years of age.

Combining the graphs, it is clear that consumption is greater than labour income for younger and older Australians, while labour income is greater than consumption for prime-aged Australians. Furthermore, between the two years of data, it is apparent that (1) there has been a shift in the labour income profile of mature age Australians, and (2) consumption has increased for all age groups, especially children and older Australians.

Figure 1: Average Per Capita and Aggregate Consumption and Labour Income, Australia, 2003-04 and 2009-10.



Note: The spikes at age 80 in these and subsequent graphs are due to the fact that all persons aged 80+ are included together at age 80.

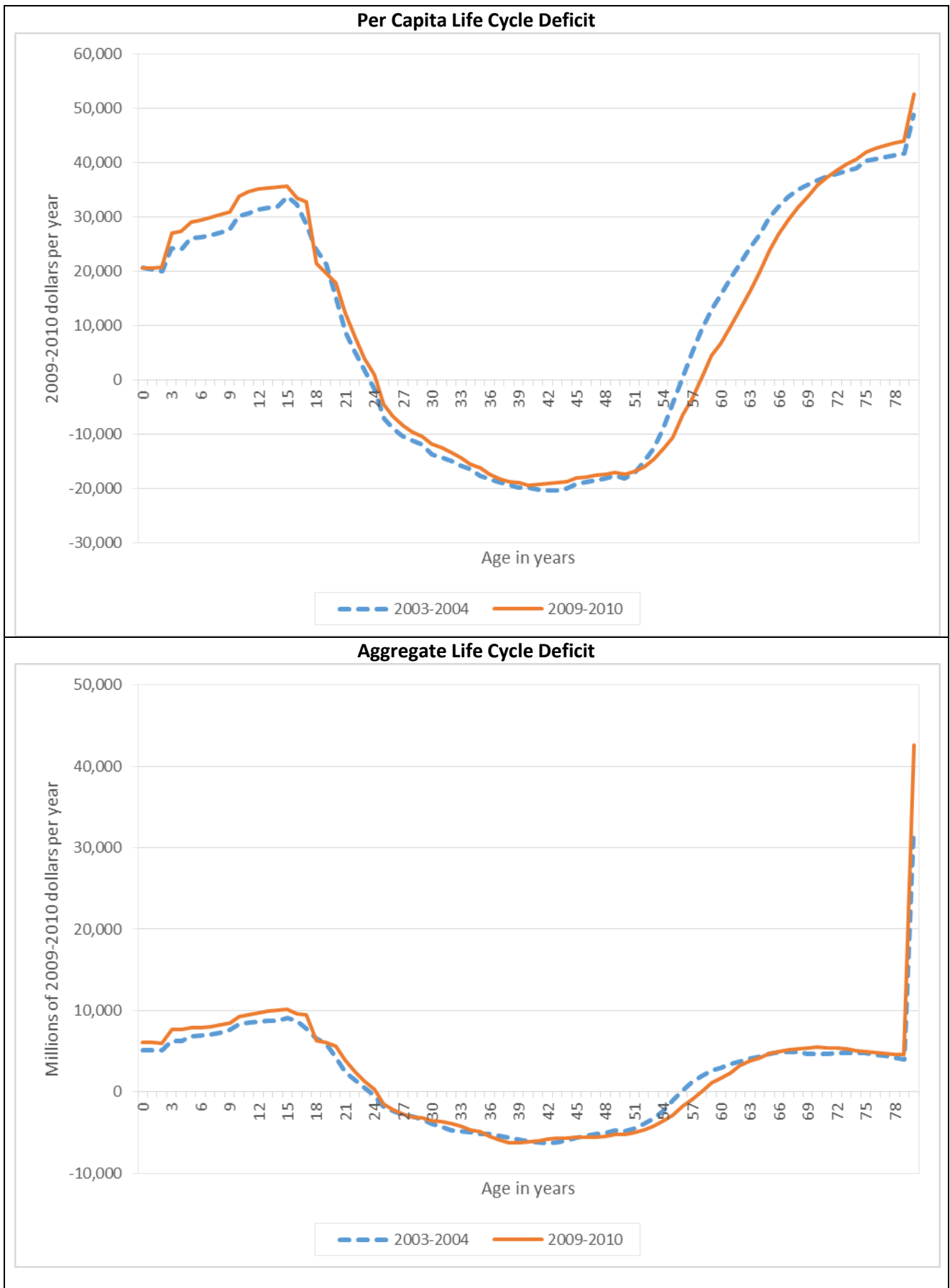
4.1.2 Per capita and Aggregate Life Cycle Deficit

As Figure 1 shows, younger Australians consume while earning negligible amounts of labour income. A similar situation is found among older Australians who have significant levels of consumption while earning only small amounts of labour income. Both younger and older Australians consume more than they earn in labour income. In contrast, Australians of prime working age earn more in labour income than they consume. This is described in more precise terms in Figure 2, which presents an average per capita age profile for the life cycle deficit, which is simply the difference between consumption and labour income.

The life cycle deficit reaches an initial peak at around 14-15 years of age (as consumption rises steeply) before dropping (as labour income begins to rise very steeply). The life cycle deficit bottoms out between 30 and 50 years of age (as labour income plateaus), after which it begins to increase (as labour income begins to fall very steeply). At around 67 years of age the life cycle deficit returns to the deficit level of its initial peak at around 14 years of age. In general, the life cycle deficit increases in later life. As Figure 2 suggests, in 2003-04 under the age of 24 years consumption tends to be greater than labour income and the life cycle deficit is positive. A similar situation is found over the age of 54 years. Between the ages of 24 and 54 years, labour income tends to be greater than consumption and the life cycle deficit is negative (or, there is a life cycle surplus).

Interestingly, there are also some changes at which individuals are consuming more than they are producing. Specifically, The ages at which the life cycle deficit moves from positive to negative territory and vice versa have gradually increased over time. In 2003-04, the age at which the lifecycle deficit crosses into surplus territory is between 23 and 24 compared with between 24 and 25 in 2009-10. Similarly, the age at which the life cycle surplus turns to deficit moved from between age 54-55 in 2003-04 to between 57 and 58 in 2009-10.

Figure 2: Lifecycle Deficit, Australia, 2003-04 and 2009-10.



4.1.3 Funding the Per capita and Aggregate Life Cycle Deficits

The existence of life cycle deficits among younger and older Australians raises the question: among these age groups, when labour income is less than consumption, how is this consumption funded? The answer to this question lies in the reallocation of resources among age groups, in which the life cycle surplus among Australians of prime working age is a resource that is used to fund the life cycles deficits among younger and older Australians. Reallocation of resources among age groups can occur through a variety of mechanisms: private transfers (for example, parents purchasing goods and services for their children), public transfers (for example, public age pensions and publicly provided education and health services), asset income, and saving.

Figures 3 and 4 display the funding components of the lifecycle deficit on a per capita and aggregate basis respectively. Between the two years, there is relative consistency in the sources of funding for the life cycle deficit by age. For younger Australians, to about age 10, public transfers are roughly equal to private intra-household transfers. In the teenage years, private intra-household transfers are larger than public transfers but the gap has reduced from 2003-04 to 2009-10.

Not surprisingly, mature age Australians also receive large public transfers, but also significant amounts from private asset income. In the 2003-04 period, older Australians (over mid 60s) also did some dissaving – although in 2009-10 this was not the case. For those in the prime working ages, there is a strong surplus of private asset income, with an offsetting deficit of public transfers, private intra-household transfers, and private saving.

Figure 3: Funding the per capita life cycle deficit, 2003-04 and 2009-10.

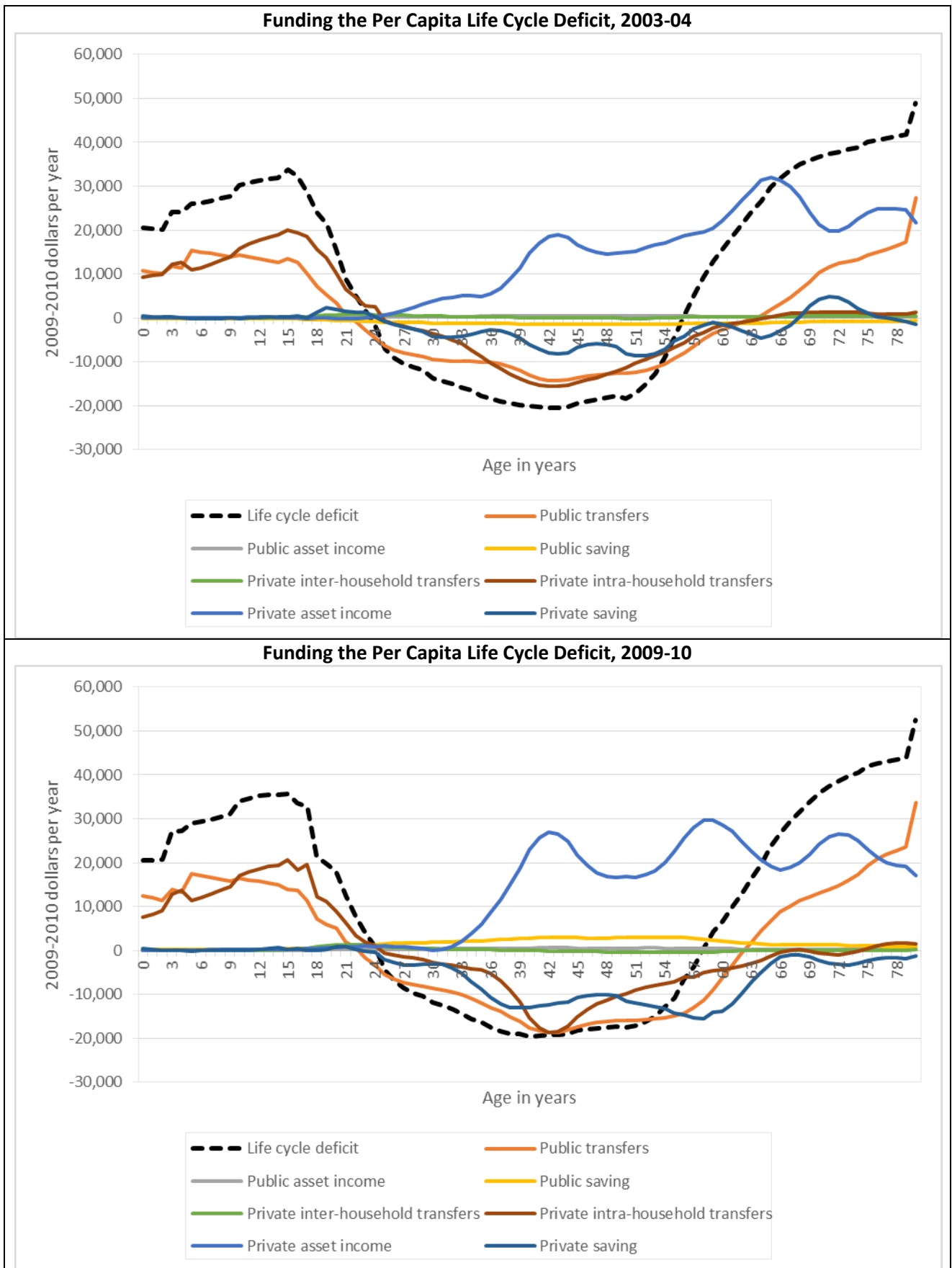
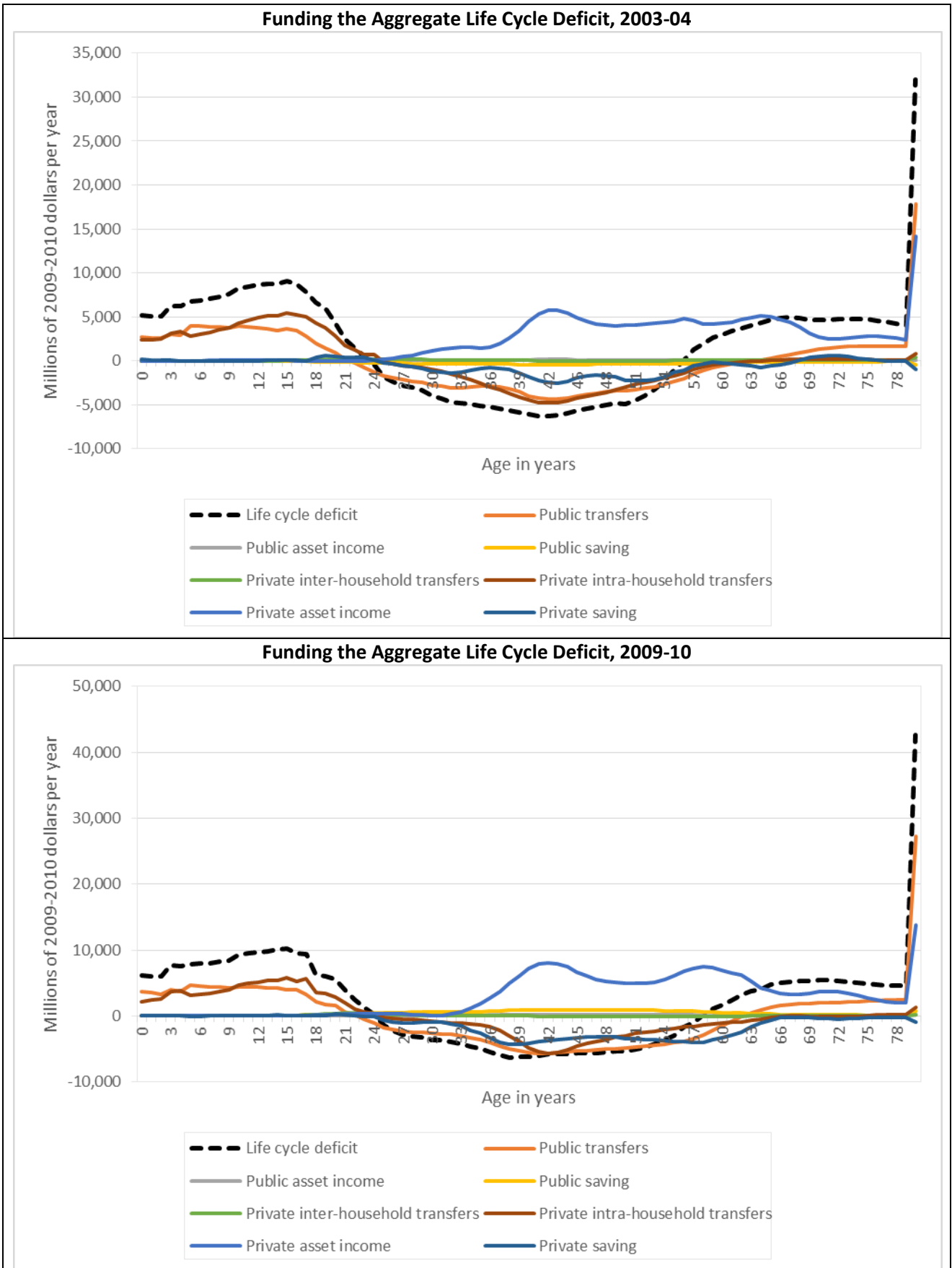


Figure 4: Funding the Aggregate Life Cycle Deficit, 2003-04 and 2009-10.



4.1.4 Futures of the Per Capita and Aggregate Life Cycle Deficits

Results presented in this report are from two cross-sections, 2003-04 and 2009-10. An important question in the context of Australia's future population is how we may expect the lifecycle deficit, labour income and private and public consumption to differ? An ageing population places these reallocation mechanisms under stress. As the proportion of older Australians in the population rises and the proportion of prime working age Australians falls, the life cycle deficit in need of funding increases in relative terms just as the life cycle surplus used to fund this deficit decreases in relative terms, although the fall in the proportion of younger Australians in the population will offset this to an extent.

We illustrate the implications of changes in population composition and size on the lifecycle deficit by applying the per capita NTA profiles to ABS population projections. As shown in Table 5, variations in the underlying assumptions of future fertility, migration and life expectancy all create quite different population levels and rates of population ageing. Series A, with the highest level of Net Overseas Migration (NOM), fertility and life expectancy, leads to a population of over 48 million by 2060, with about 18 per cent of the population aged 65 or over. In contrast, series C, with the lowest level of NOM and fertility, reaches a population of just under 37 million by 2060, with 22.4 per cent of the population aged 65 and over.

Table 5: Population Projection Assumptions.

	ABS Projection Series		
	A 'High Population'	B 'Medium Population'	C 'Low Population'
TFR	Increasing to 2.0 by 2026 and constant thereafter.	Decreasing to 1.8 by 2026 and constant thereafter.	Decreasing to 1.6 by 2026 and constant thereafter.
NOM	Increased to 280,000 by 2021 and constant thereafter.	Constant at 240,000	Reaching 200,000 by 2021 and constant thereafter
Life Expectancy	92.1 for males and 93.6 for females by 2061	85.2 for males and 88.3 for females by 2061	85.2 for males and 88.3 for females by 2061
Population 2061	48.3 million	41.5 million	36.8 million
% 65+ 2061	18.3%	19.4%	22.4%

Notes: TFR = Total Fertility Rate. NOM = Net Overseas Migration. Life Expectancy = Life Expectancy at Birth. %65+ = Percentage of the Australian population aged 65 and over by 2061.

Table 6 presents estimates of aggregate consumption, labour income, and the life cycle deficit in Australia during 2009-10 and in 2050 for each of the ABS population projection series. Table 7 simply presents the growth rates and numerical change for each of the series (A, B, C) from 2008-09 to 2050 with respect to population, consumption, labour income and the lifecycle deficit.

Table 6: Aggregate consumption, labour income, and life cycle deficit, 2009-10, and 2050 (ABS Population Projection Series A, B, and C).

	Population†	Consumption‡	Labour Income‡	Life Cycle Deficit‡
2009-10				
0 to 24	7.2	244.9	67.3	177.6
25 to 57	10	404.2	550.4	-146.2
58 and over	4.6	211.4	76.4	135
Total	21.9	860.5	694.1	166.4
2050 (Projection Series A)				
0 to 24	12.8	429.8	111.5	318.3
25 to 57	17.1	692.5	941.2	-248.7
58 and over	12	561.7	153.8	407.9
Total	41.9	1,684.00	1,206.50	477.5
2050 (Projection Series B)				
0 to 24	10.8	365.6	96.4	269.2
25 to 57	15.9	640.6	871.5	-230.9
58 and over	10.9	506.6	146.1	360.5
Total	37.6	1,512.70	1,114.00	398.8
2050 (Projection Series C)				
0 to 24	9	306.3	82.1	224.2
25 to 57	14.6	591.4	805.5	-214.1
58 and over	10.7	496.1	141	355.1
Total	34.3	1,393.80	1,028.60	365.2

Notes: †Population is measured in millions of persons. ‡Aggregate consumption, labour income, and the life cycle deficit are measured in billions of 2009-10 dollars per year.

These aggregate estimates were derived by multiplying the per capita age profiles for consumption, labour income, and the life cycle deficit presented earlier by the numbers of people at each age and then calculating sum totals for three different age groups: 0 to 24 years, 25 to 57 years, and 58 years and over. These three age groups were chosen to correspond to those ages during which the life cycle deficit was, respectively, positive, negative, and positive again. Importantly, unlike conventional divisions that group together those aged 15 to 64 years – the age groups isolated here recognise that those aged 15 to 24 years and those aged 58 to 64 years consume more than they earn in labour income, like their counterparts aged under 15 or over 64.

Table 7: Aggregate consumption, labour income, and life cycle deficit, Growth Rates and Numerical Change, 2009-10, and 2050 (ABS Population Projection Series A, B, and C).

	Population [†]	Consumption [‡]	Labour Income [‡]	Life Cycle Deficit [‡]
Numerical Change (2009-10 base)				
2050 (Projection Series A)				
0 to 24	5.6	184.9	44.2	140.7
25 to 57	7.1	288.3	390.8	-102.5
58 and over	7.4	350.3	77.4	272.9
Total	20	823.5	512.4	311.1
2050 (Projection Series B)				
0 to 24	3.6	120.7	29.1	91.6
25 to 57	5.9	236.4	321.1	-84.7
58 and over	6.3	295.2	69.7	225.5
Total	15.7	652.2	419.9	232.4
2050 (Projection Series C)				
0 to 24	1.8	61.4	14.8	46.6
25 to 57	4.6	187.2	255.1	-67.9
58 and over	6.1	284.7	64.6	220.1
Total	12.4	533.3	334.5	198.8
Growth Rate (2009-10 base) %				
2050 (Projection Series A)				
0 to 24	77.8	75.5	65.7	79.2
25 to 57	71	71.3	71	70.1
58 and over	160.9	165.7	101.3	202.1
Total	91.3	95.7	73.8	187
2050 (Projection Series B)				
0 to 24	50	49.3	43.2	51.6
25 to 57	59	58.5	58.3	57.9
58 and over	137	139.6	91.2	167
Total	71.7	75.8	60.5	139.7
2050 (Projection Series C)				
0 to 24	25	25.1	22	26.2
25 to 57	46	46.3	46.3	46.4
58 and over	132.6	134.7	84.6	163
Total	56.6	62	48.2	119.5

Notes: [†]For numerical difference, difference in populations is in millions of persons. [‡]For numerical difference, aggregate consumption, labour income, and the life cycle deficit are measured in billions of 2009-10 dollars per year.

Under ABS Series B population projections, between 2008-2009 and 2050, the numbers of people aged 0 to 24 years, 25 to 57 years, and 58 years and over are projected to increase by, respectively, 3.6 million (50 per cent), 5.9 million (59.0 per cent), and 6.3 million (137 per cent). If the age distribution of the population changed in this way, but the per capita age profiles for consumption, labour income, and the life cycle deficit remained at their 2009-10 levels, total aggregate consumption would increase by \$652.2 billion (or 75.8 per cent). In contrast, however, total

aggregate labour income would only increase by \$419.9 billion (or 60.5 per cent). In this way, the increase in total consumption would not be matched by an equivalent increase in total labour income. As a result, the total aggregate life cycle deficit would increase by \$232.4 billion (or 139.7 per cent). Using series A, the deficit is much higher because both fertility and expectation of life are assumed to be higher meaning relatively more children and more older people, particularly more expensive older people (aged 80+). Series C has lower fertility than Series B and, as a result, has a slightly lower life cycle deficit.

If this projected deficit is not to be addressed by a fall in consumption, other solutions must be found. One option clearly is to strive to raise labour income through policies designed to increase employment rates, hours worked, and/or labour productivity. More generally, as can be seen from Table 6, these estimates suggest that the total aggregate life cycle deficit is positive. This reflects the fact that total aggregate consumption is greater than total aggregate labour income. If the economy had been on a golden rule steady-state growth path, the total aggregate life cycle deficit would have been zero (Mason, Lee et al, 2009).

4.2 Detailed NTA Account Items

Underlying these key NTA concepts, are numerous NTA account items. In this section, we detail these results following the structure set out in Tables 2-4. For each NTA account item, we present (i) a graphical display of the results, (ii) define the variable in question, (iii) define the aggregate benchmark, (iv) define the method for imputing the age profile and any smoothing included, and (v) briefly describe the result. All figures are in 2009-10 dollars to enable comparability.

4.2.1 Public Consumption

4.2.1.1 Public Consumption (Education)

Figure 5: Per capita age profile, Public Consumption (Education).

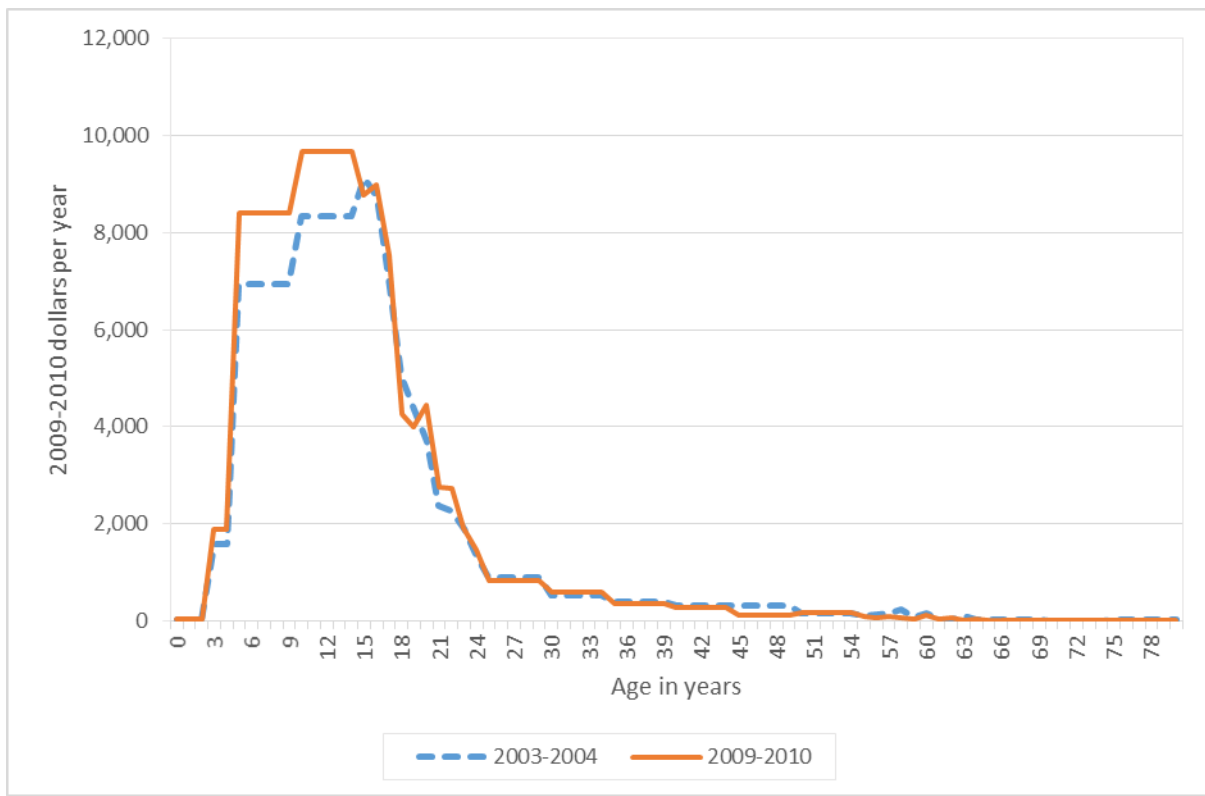
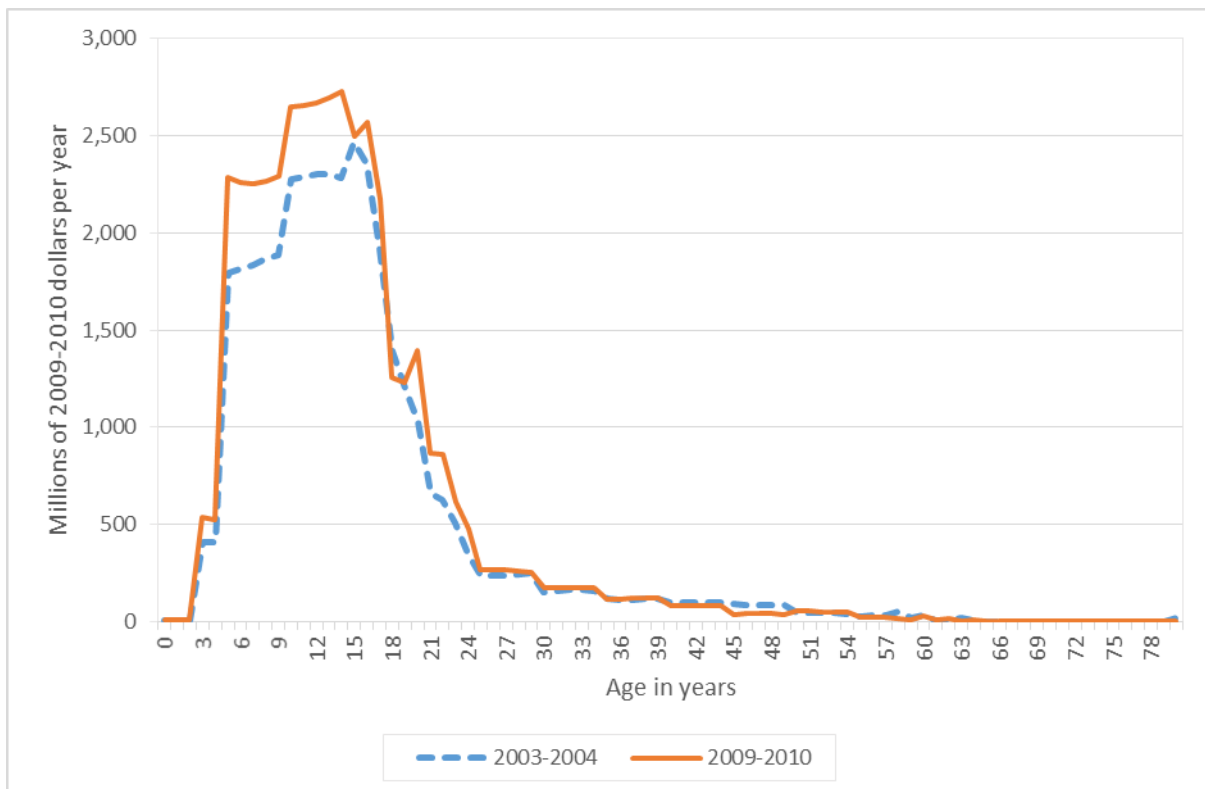


Figure 6: Aggregate age profile, Public Consumption (Education).



Definition: Consumption of educational services funded by the public sector. Educational services include preschool education, primary education, secondary education, and tertiary and other post-school education. Payments made to higher education institutions under the Higher Education Contribution Scheme (HECS) and the Higher Education Loan Program (HELP) are included in private rather than public education consumption. This is the case irrespective of whether these payments are paid up-front by higher education students themselves or paid by the HECS/HELP trust fund on behalf of higher education students who have deferred their payments. In the latter case, the deferring students incur a HECS/HELP debt and thus pay for their higher education through dissaving. Payments made to the HECS/HELP trust fund to repay a HECS/HELP debt are included in private saving. This is the case for both voluntary repayments and compulsory repayments through the tax system.

Aggregate benchmark: Government final consumption expenditure on education as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: In conjunction with the 2003-04 and 2009-10 Household Expenditure Surveys, the ABS has conducted studies into the effects of government benefits and taxes on household income in Australia during these years (Australian Bureau of Statistics 2007, 2012a). As part of these studies the ABS constructed estimates of the value of the social transfers in kind that households receive as a result of government funding of education, including funding of pre-school education, primary education, secondary education, university education, technical and further education, student transportation, and special education. These estimates are included in the 2003-04 and 2009-10 Household Expenditure Surveys. As with private consumption of education, estimates for households are allocated to individuals within households using a regression-based method. Ordinary-least-squares, linear regression models are estimated in homogeneous form (that is, without an intercept), with estimates for households being regressed on the numbers of household members of different ages who are students and the numbers of household members of different ages who are not students. The regression coefficients that result from these regression models are then used as weights to allocate estimates for households to individuals within households.

Smoothing: Not smoothed.

Description of results: Not surprisingly, public expenditure is highest around the mid-teens, reducing considerably by age 30. The profiles for public education receipts appear very stable between the two years, with one exception. In the later year, expenditure on primary school children is higher, but is similar for other age groups.

4.2.1.2 Public Consumption (Health)

Figure 7: Per capita age profile, Public Consumption (Health).

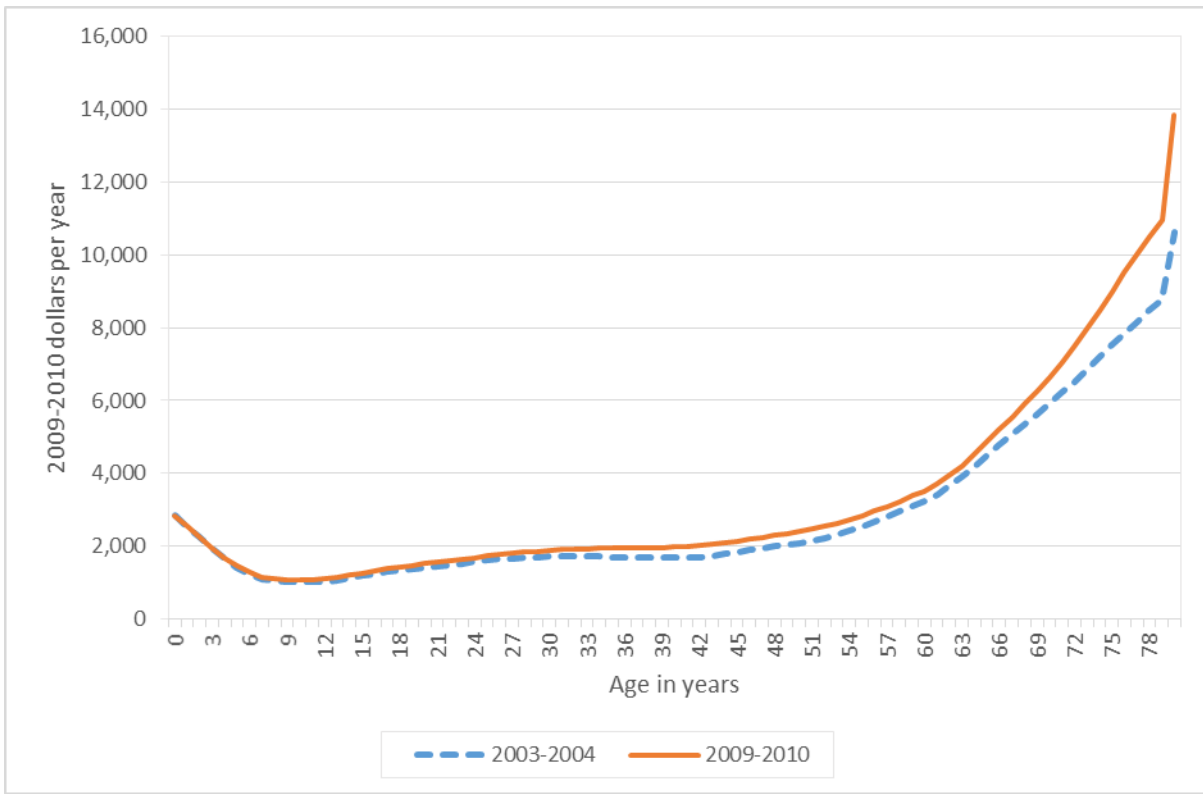
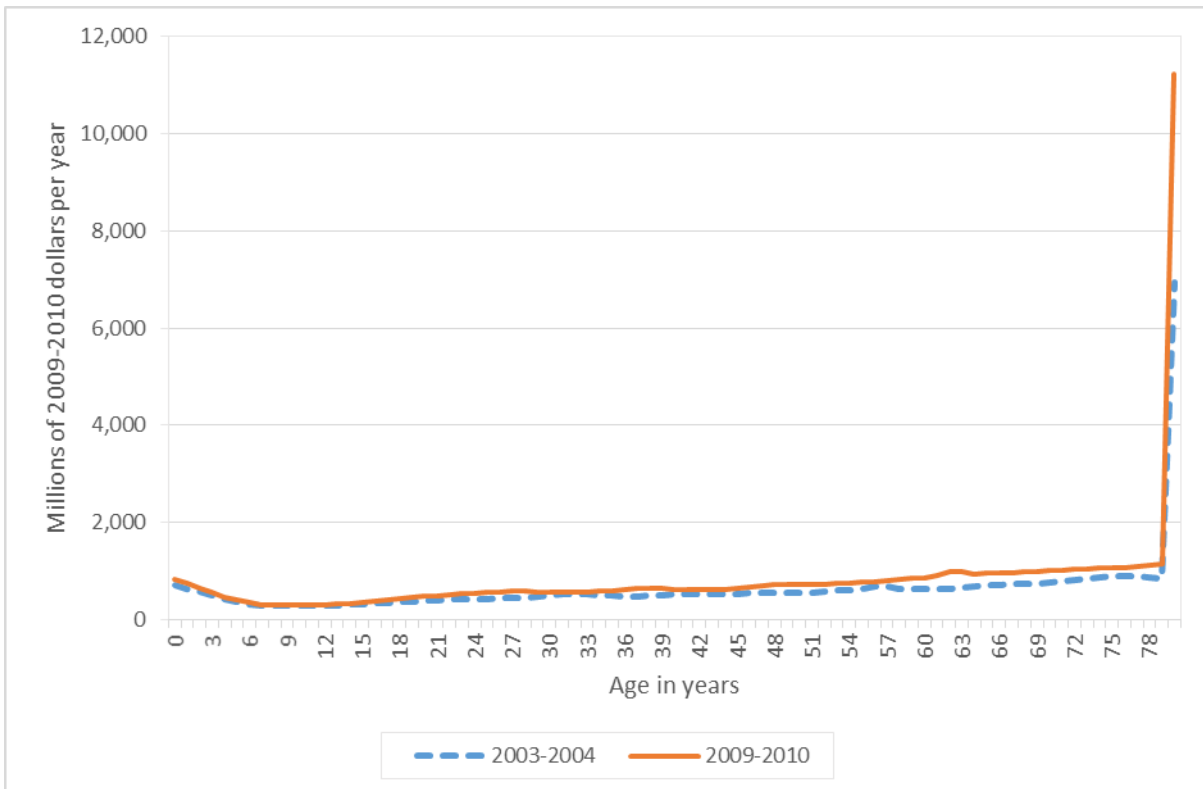


Figure 8: Aggregate age profile, Public Consumption (Health).



Definition: Consumption of health products and services funded by the public sector. Health products and services include medicines, medical aids, therapeutic appliances, ambulatory health care (provided by, for example, medical practitioners, dentists, opticians, physiotherapists, podiatrists, acupuncturists, clinical psychologists, and similar paramedical practitioners), hospital services, and ambulance services. Health payments initially made by households, but for which refunds are subsequently obtained from Medicare, are included in public rather than private health consumption.

Aggregate benchmark: Government final consumption expenditure on health as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmark for public consumption of high care residential aged care.

Per capita age profile: In conjunction with the 2003-04 and 2009-10 Household Expenditure Surveys the ABS has conducted studies into the effects of government benefits and taxes on household income in Australia during these years (Australian Bureau of Statistics 2007, 2012a). As part of these studies the ABS constructed estimates of the value of the social transfers in kind that households receive as a result of government funding of health, including funding of acute care institutions (such as hospitals), community health services (such as doctor visits), pharmaceuticals, medical aids, medical appliances, public health services, health research, and health administration. These estimates are included in the 2003-04 and 2009-10 Household Expenditure Surveys. Household estimates related to acute care institutions, community health services, pharmaceuticals, medical aids, and medical appliances are allocated to individuals within households using the iterative method described in the section below on the per capita age profile for private consumption of health. Household estimates related to public health services, health research, and health administration are allocated equally to all individuals within households.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The age profile for public expenditure on health is relatively high for children aged under 5, with a slight rise in the main child bearing years, followed by a strong increase on expenditures for mature age Australians. The profiles for public education receipts appear very stable between the two years, with one exception. In the later year, expenditure on health appears higher in the older age groups.

4.2.1.3 Public Consumption (Housing)

Figure 9: Per capita age profile, Public Consumption (Housing).

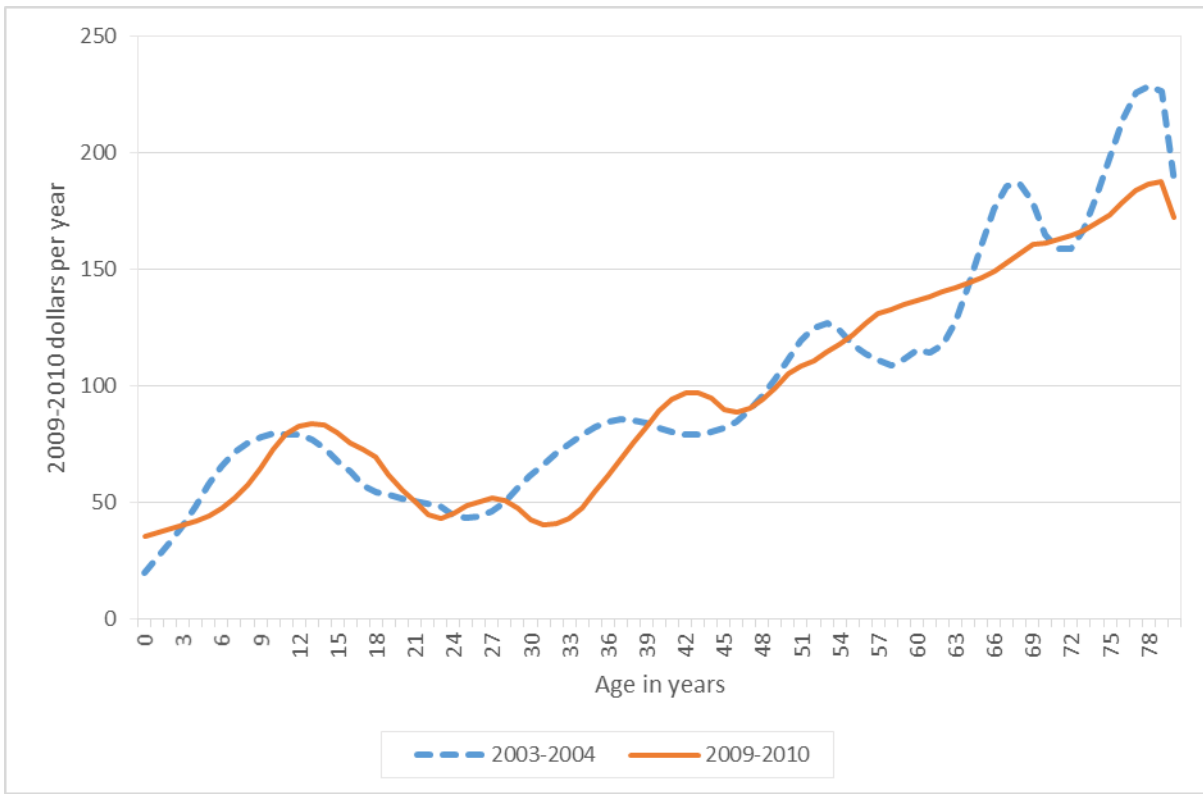
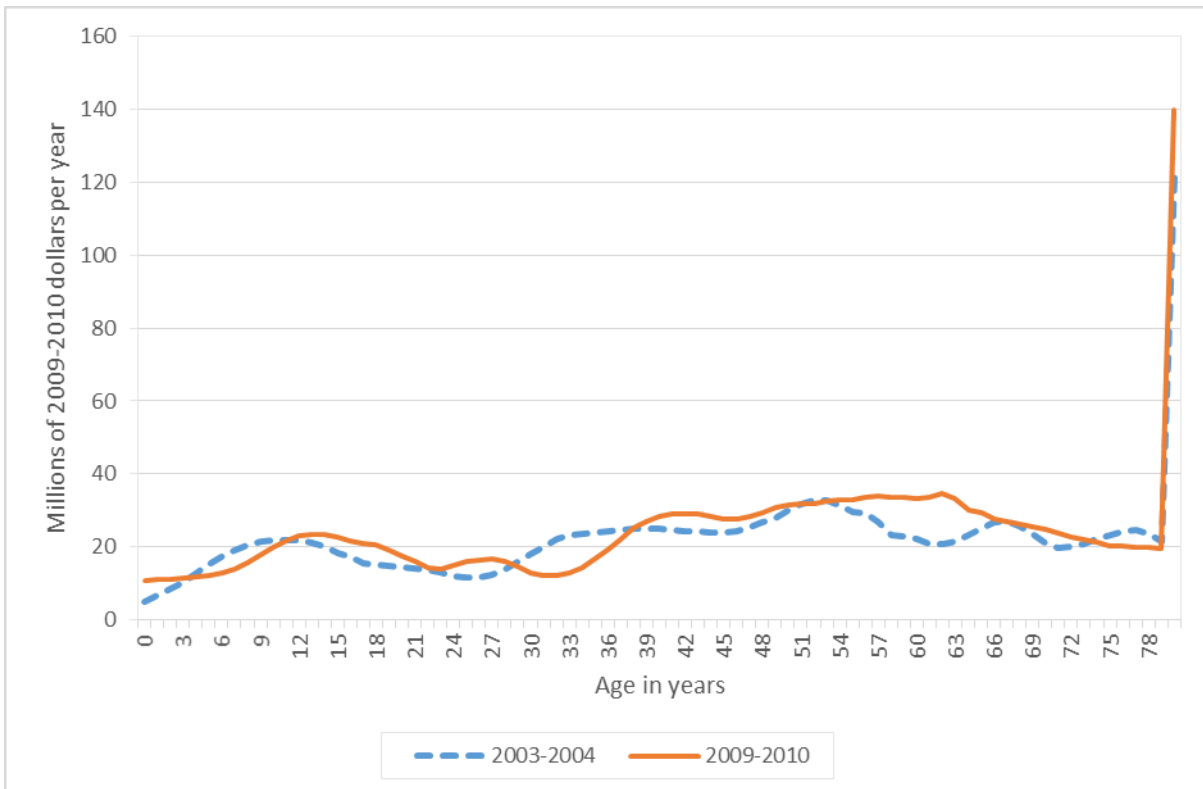


Figure 10: Aggregate age profile, Public Consumption (Housing).



Definition: The in-kind rental subsidy received by households living in public housing.

Aggregate benchmark: The ABS has constructed estimates of “net imputed rent” for public housing. In relation to public housing, net imputed rent is equal to the rent that would be paid for public housing were public housing rented, unsubsidised, on the private market, less the actual housing costs paid by households living in public housing (for example, actual rent). Net imputed rent for public housing is considered to be an in-kind rental subsidy received by public housing tenants. (For further details, see the section below on the per capita age profile for private consumption of housing.) The aggregate benchmark for public consumption of housing is total net imputed rent for public housing as estimated by the ABS (Australian Bureau of Statistics 2007: 72; 2012a: 85).

Per capita age profile: The estimates of net imputed rent for public housing constructed by the ABS are included in the 2003-04 and 2009-10 Household Expenditure Surveys. Estimates for households are allocated to individuals within households using weights derived from an “equivalence scale” suggested in the NTA manual (United Nations 2013: 100-101). According to this equivalence scale, individuals aged 4 or under are given a weight of 0.4, individuals aged 20 or over are given a weight of 1, and weights are linearly interpolated between the ages of 4 and 20.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: The age profile for public expenditure on housing is relatively flat until age 30, increasing thereafter. The profiles for public housing receipts appear very stable between the two years.

4.2.1.4 Public Consumption (Child Care)

Figure 11: Per capita age profile, Public Consumption (Child Care).

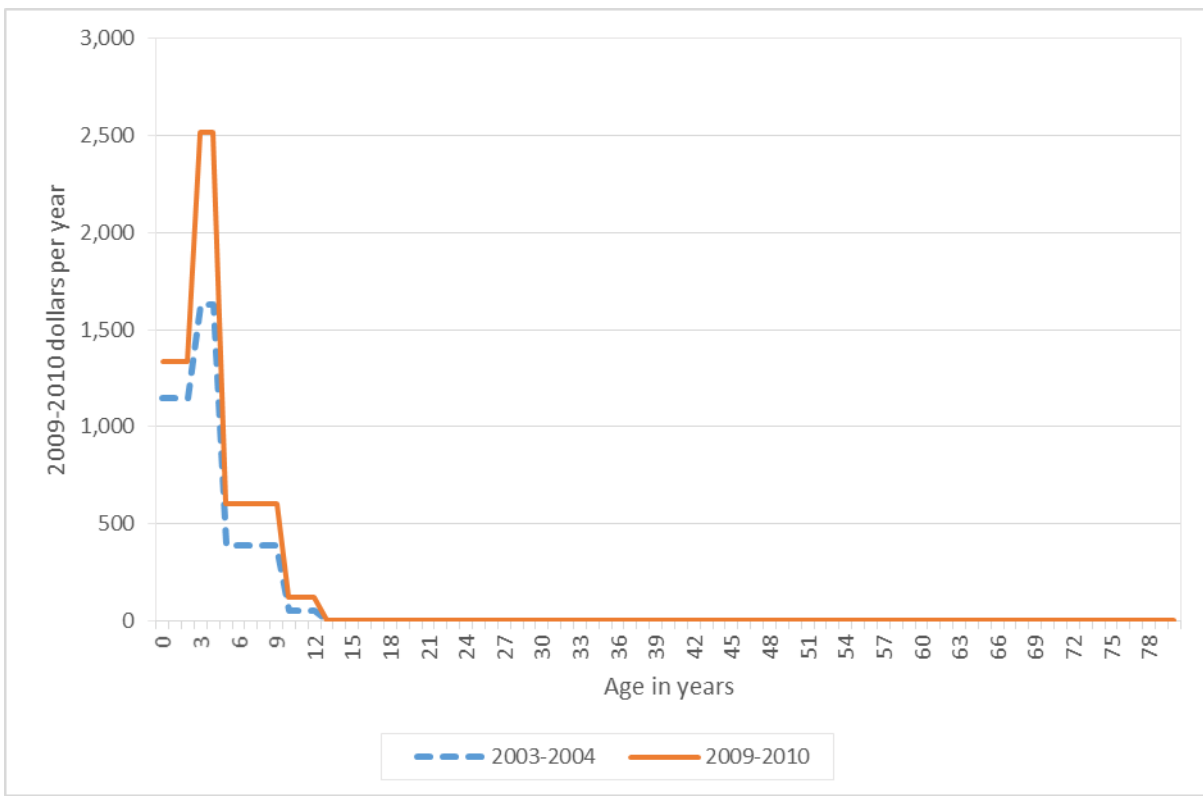
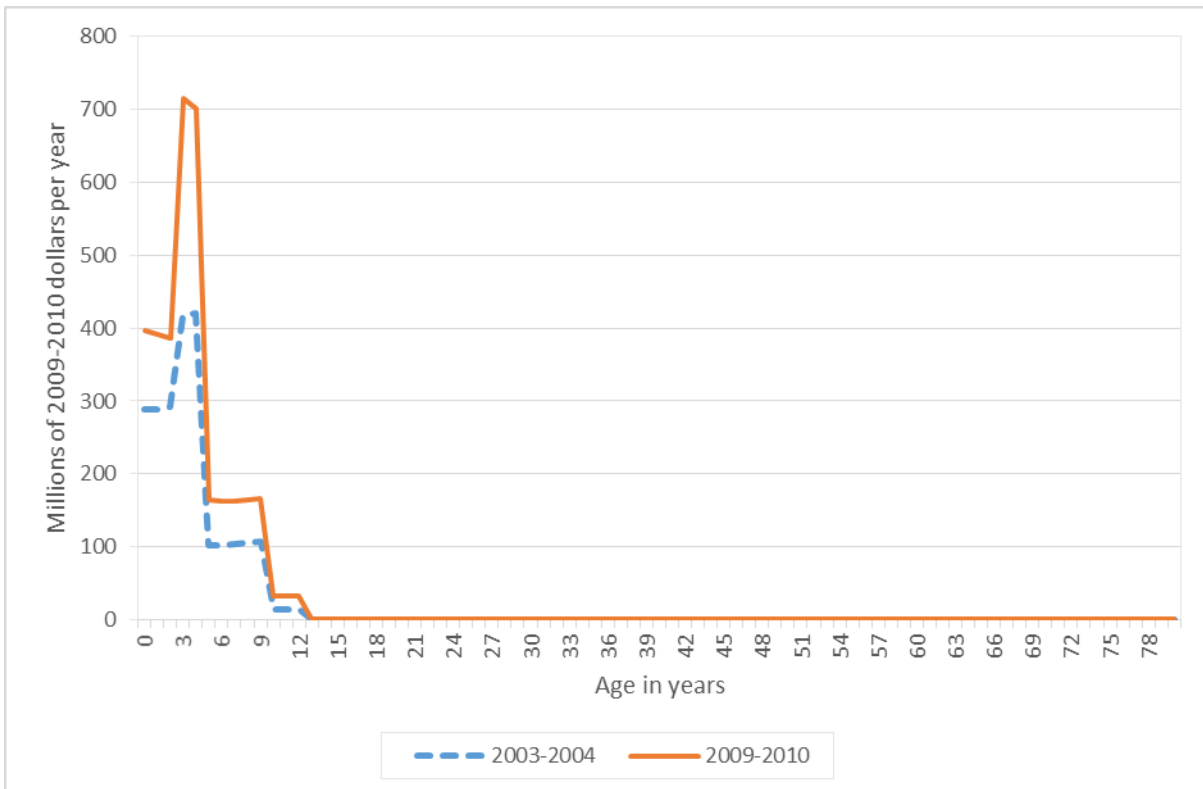


Figure 12: Aggregate age profile, Public Consumption (Child Care).



Definition: Consumption of child care services funded by the public sector. This consumption includes child care services funded by Child Care Benefit and Child Care Rebate.

Aggregate benchmark: Total government expenditure on Child Care Benefit and Child Care Rebate, including both direct payments and administrative costs (Australian Bureau of Statistics 2007: 74; 2012a: 85).

Per capita age profile: In conjunction with the 2003-04 and 2009-10 Household Expenditure Surveys the ABS has conducted studies into the effects of government benefits and taxes on household income in Australia during these years (Australian Bureau of Statistics 2007, 2012a). As part of these studies the ABS constructed estimates of the value of the social transfers in kind that households receive as a result of government expenditure on Child Care Benefit and Child Care Rebate, including both direct payments and administrative costs. These estimates are included in the 2003-04 and 2009-10 Household Expenditure Surveys. Estimates for households are allocated to individuals within households using a regression-based method. Ordinary-least-squares, linear regression models are estimated in homogeneous form (that is, without an intercept), with estimates for households being regressed on the numbers of household members who are of different ages, with these ages being restricted to those 12 years and under. The regression coefficients that result from these regression models are then used as weights to allocate estimates for households to individuals within households.

Smoothing: Not smoothed.

Description of results: For both years, public expenditure on child care is highest for 3-4 year old children, decreasing considerably thereafter, coinciding with the commencement of primary school. Interestingly, there is a significant increase in public consumption on childcare for all ages, but particularly for 3-4 year olds. During the intervening years, there were a number of important policy changes to child care in Australia, in particular, the introduction and subsequent increase of the Child Care Rebate.

4.2.1.5 Public Consumption (Residential Aged Care, High Care)

Figure 13: Per capita age profile, Public Consumption (Residential Aged Care, High Care).

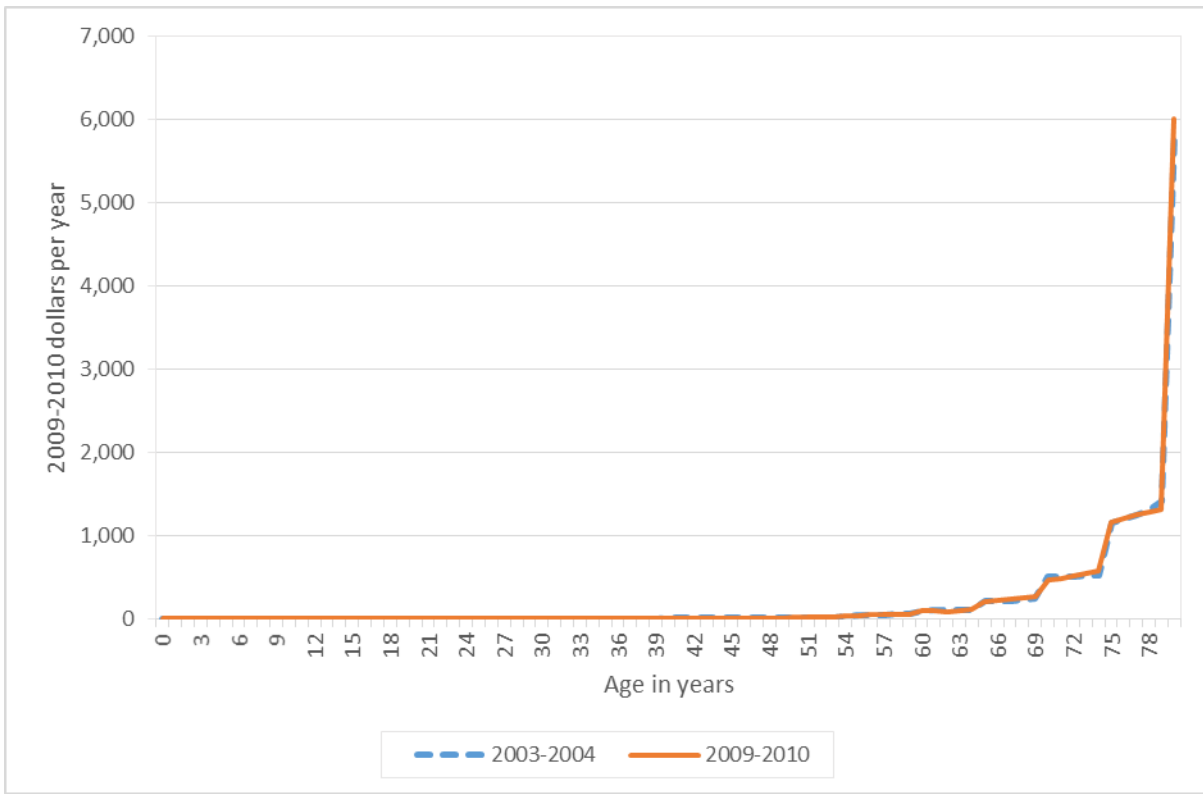
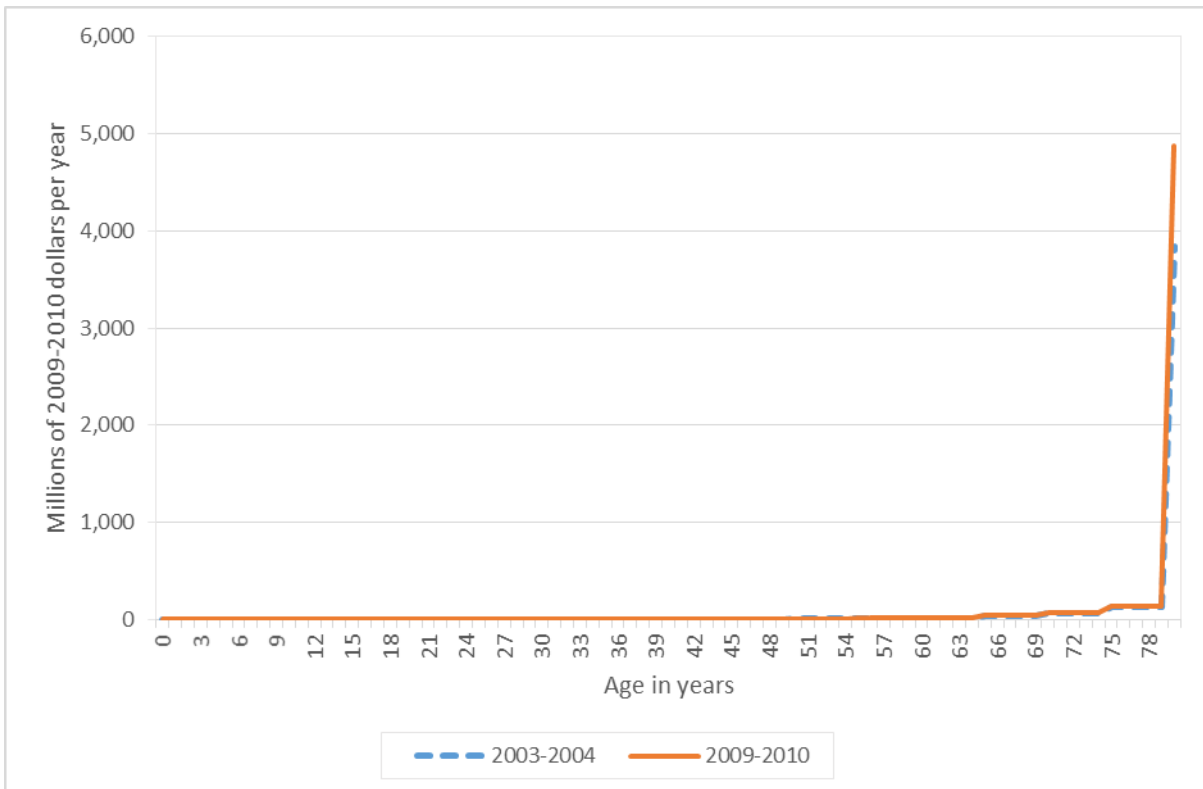


Figure 14: Aggregate age profile, Public Consumption (Residential Aged Care, High Care).



Definition: Consumption of high care residential aged care services funded by the public sector.

Aggregate benchmark: Total expenditure on high care residential aged care by Commonwealth, state, and territory governments. This expenditure was estimated on the basis of a wide array of information sources (Australian Bureau of Statistics 2008c: 332; 2012c: 383; Australian Government Department of Health and Ageing 2008: 12; Australian Government Department of Social Services 2013: 65; Australian Institute of Health and Welfare 2007: 44; 2011: 122; Commonwealth of Australia 2008: 37).

Per capita age profile: The per capita age profile for public consumption of high care residential aged care is derived from the proportions of people of different ages who live in residential aged care, as derived from information contained in the 2003 and 2009 Surveys of Disability, Ageing, and Carers, as well as a range of other sources (Australian Bureau of Statistics 2012c: 383; 2014; Australian Institute of Health and Welfare 2012: 64).

Smoothing: Not smoothed.

Description of results: As expected, public expenditure on high level residential care is very low, until the mid to late 60s. Thereafter, expenditure increases very rapidly, particularly among those aged over 80. The age profiles between the two years are almost identical.

4.2.1.6 Public Consumption (Residential Aged Care, Low Care)

Figure 15: Per capita age profile, Public Consumption (Residential Aged Care, Low Care).

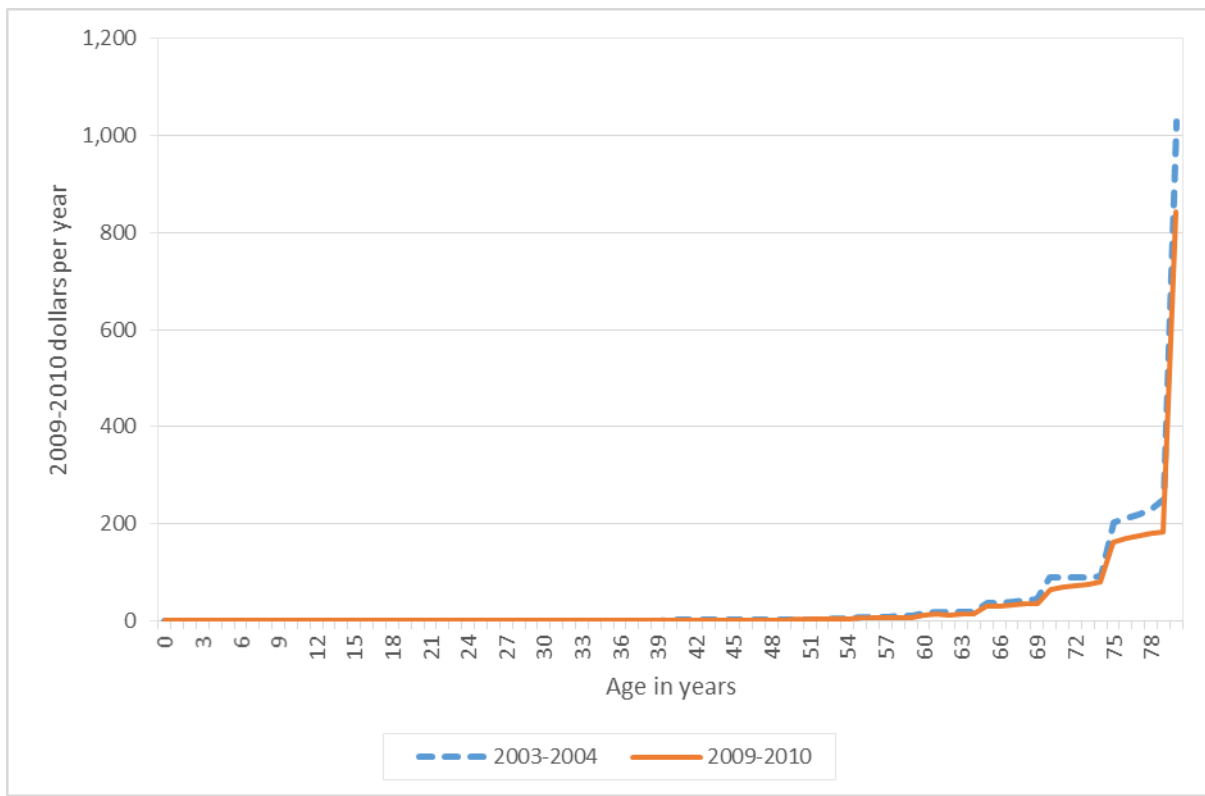
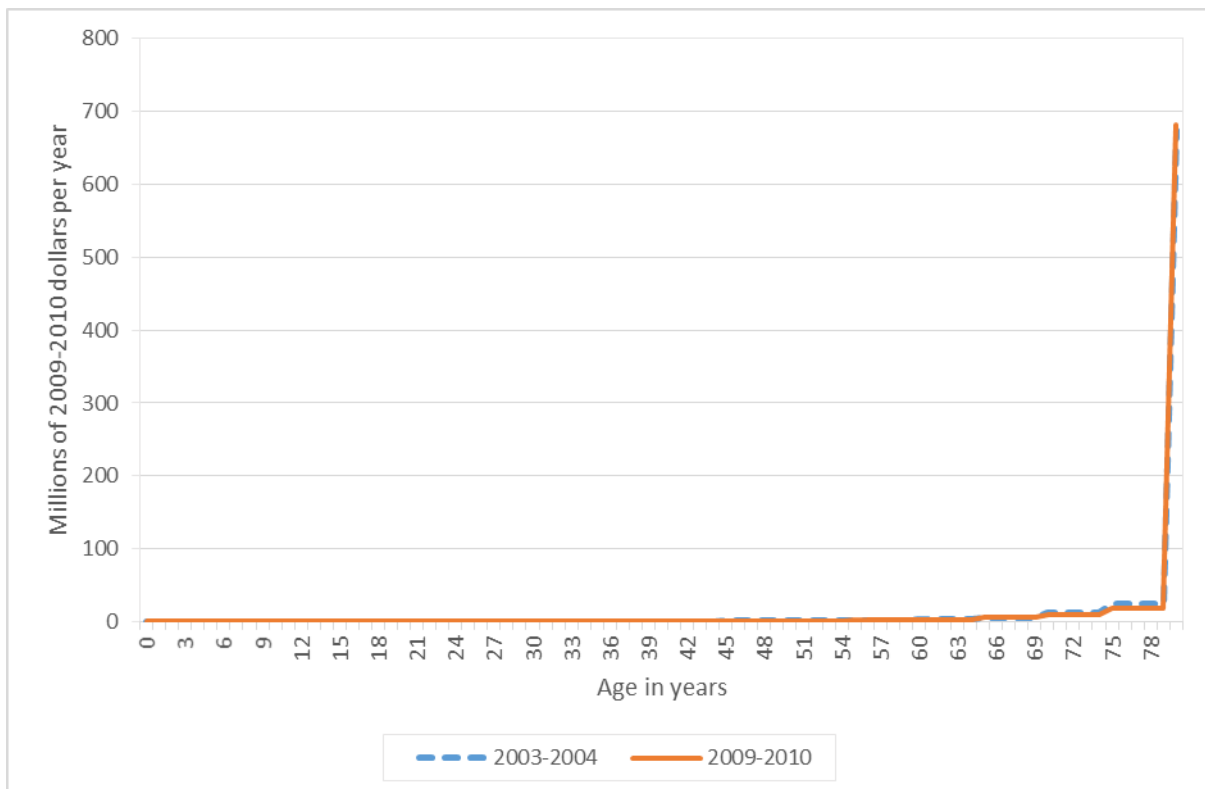


Figure 16: Aggregate age profile, Public Consumption (Residential Aged Care, Low Care).



Definition: Consumption of low care residential aged care services funded by the public sector.

Aggregate benchmark: Total expenditure on low care residential aged care by Commonwealth, state, and territory governments. This expenditure was estimated on the basis of a wide array of information sources (Australian Bureau of Statistics 2008c: 332; 2012c: 383; Australian Government Department of Health and Ageing 2008: 12; Australian Government Department of Social Services 2013: 65; Australian Institute of Health and Welfare 2007: 44; 2011: 122; Commonwealth of Australia 2008: 37).

Per capita age profile: The per capita age profile for public consumption of low care residential aged care is derived from the proportions of people of different ages who live in residential aged care, as derived from information contained in the 2003 and 2009 Surveys of Disability, Ageing, and Carers, as well as a range of other sources (Australian Bureau of Statistics 2012c: 383; 2014; Australian Institute of Health and Welfare 2012: 64).

Smoothing: Not smoothed.

Description of results: As expected, public expenditure on low care residential care is very low, until the mid to late 60s. Thereafter, expenditure increases very rapidly, particularly among those aged over 80. The age profiles between the two years are similar, however there is a slight decrease in expenditure from ages 70 onwards between the two years. A potential reason for this difference is the increased emphasis on community care, and ageing in place more generally between these two periods.

4.2.1.7 Public Consumption (Other)

Figure 17: Per capita age profile, Public Consumption (Other).

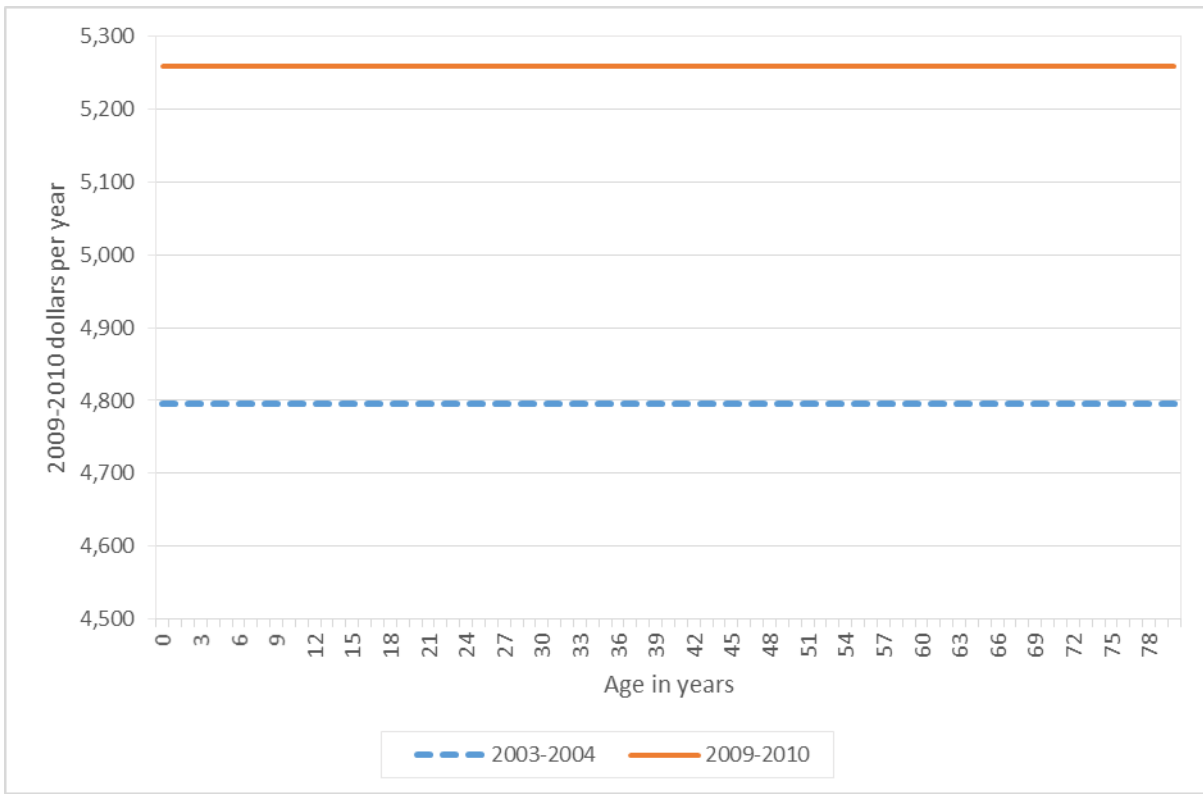
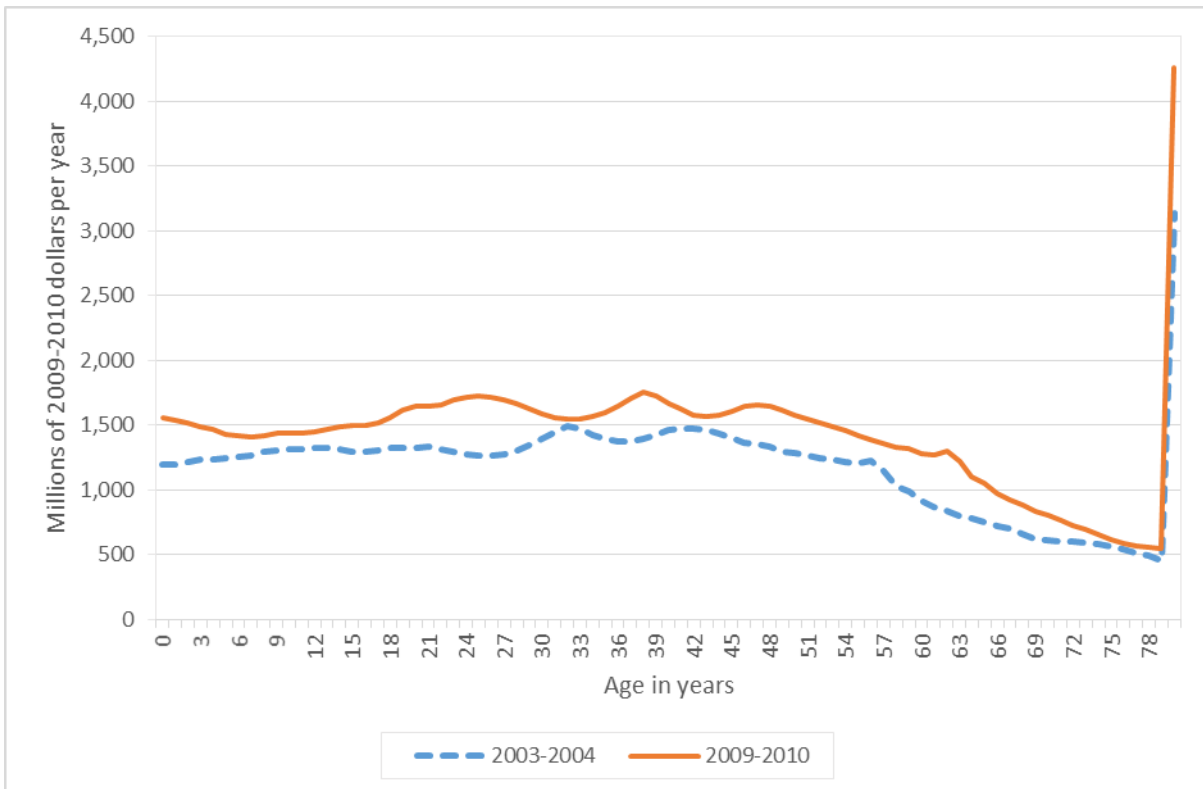


Figure 18: Aggregate age profile, Public Consumption (Other).



Definition: Consumption of goods and services funded by the public sector which have not been included in other public consumption categories. These include goods and services in areas such as defence, public order and safety, recreation, fuel and energy, agriculture, forestry, fishing, hunting, transport, and communications.

Aggregate benchmark: Government final consumption expenditure as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmarks for public consumption of education, health, housing, high care residential aged care, and low care residential aged care. (The aggregate benchmark for public consumption of child care is included in household rather than government final consumption expenditure.)

Per capita age profile: As suggested in the NTA manual (United Nations 2013: 103), other public consumption is allocated equally to all individuals.

Smoothing: Not smoothed.

Description of results: As dictated by the methodology, the age profile for consumption of 'other; public expenses is flat. Between the two years there was about a 10 per cent increase in total government consumption on this category.

4.2.2 Private Consumption

4.2.2.1 Private Consumption (Education)

Figure 19: Per capita age profile, Private Consumption (Education).

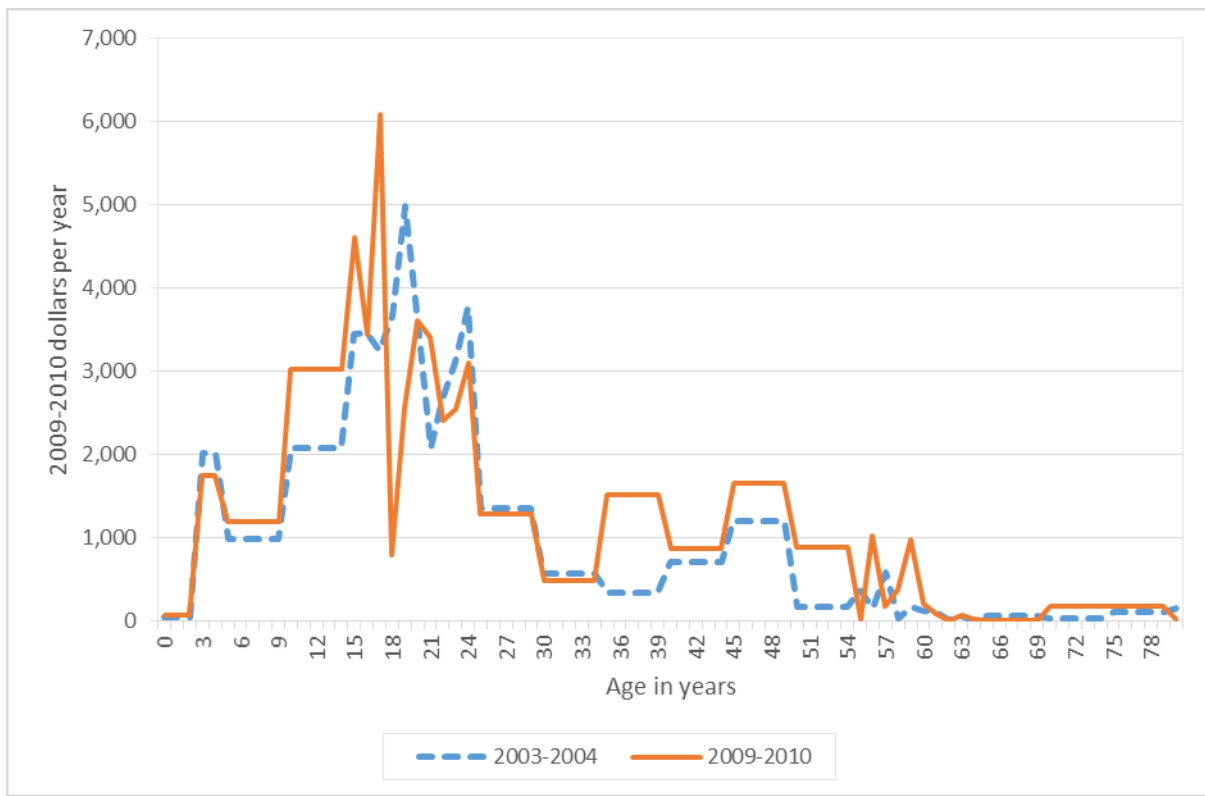
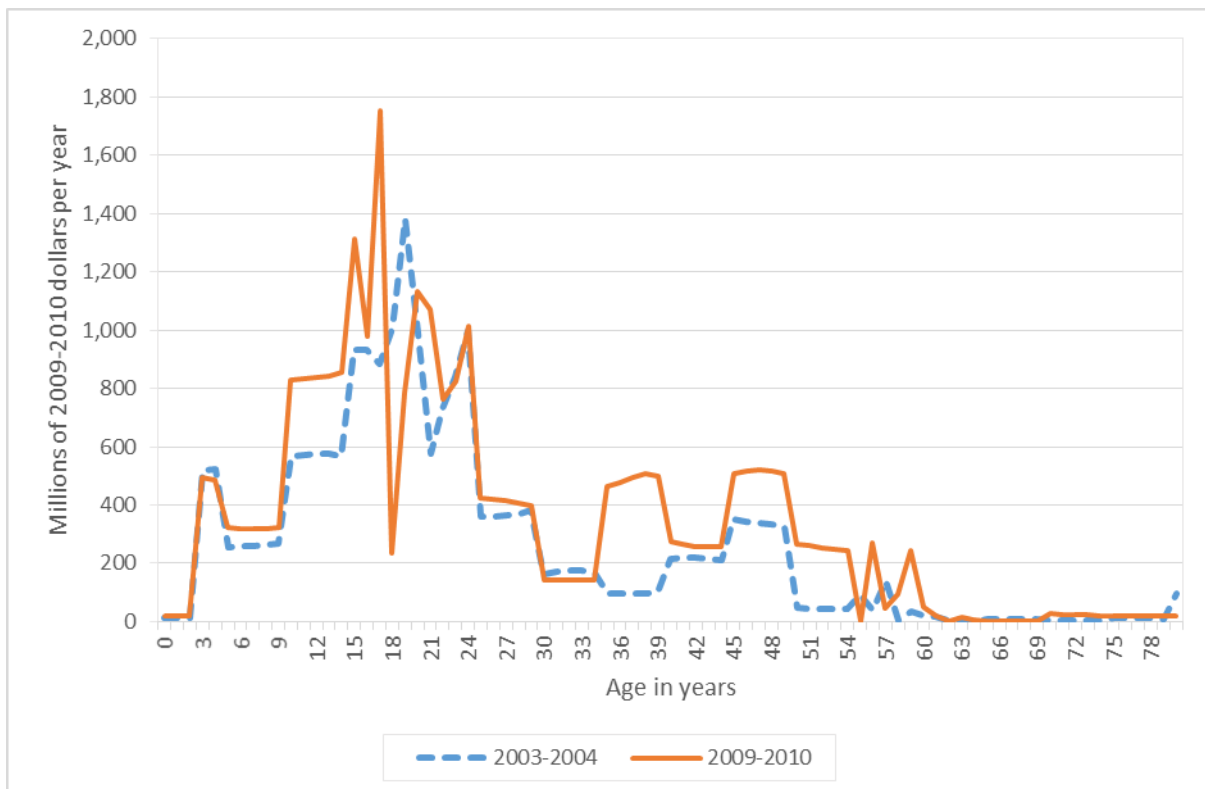


Figure 20: Aggregate age profile, Private Consumption (Education).



Definition: Consumption of educational services funded by the private sector. Educational services include preschool education, primary education, secondary education, and tertiary and other post-school education. Payments made to higher education institutions under the Higher Education Contribution Scheme (HECS) and the Higher Education Loan Program (HELP) are included in private rather than public education consumption. This is the case irrespective of whether these payments are paid up-front by higher education students themselves or paid by the HECS/HELP trust fund on behalf of higher education students who have deferred their payments. In the latter case, the deferring students incur a HECS/HELP debt and thus pay for their higher education through dissaving. Payments made to the HECS/HELP trust fund to repay a HECS/HELP debt are included in private saving. This is the case for both voluntary repayments and compulsory repayments through the tax system.

Aggregate benchmark: Household final consumption expenditure on education services as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Household expenditure on education is included in the 2003-04 and 2009-10 Household Expenditure Surveys. This household expenditure includes some HECS/HELP payments made to higher education institutions, but not others. In particular, up-front payments, voluntary repayments, and compulsory repayments through the tax system are included in the same HECS/HELP expenditure category, while payments by the HECS/HELP trust fund on behalf of students who have deferred their payments are not included at all. Two strategies are adopted to deal with this situation. Firstly, household expenditure included the HECS/HELP expenditure category is distributed into two separate categories: up-front HECS/HELP payments, on the one hand, and voluntary and compulsory HECS/HELP repayments, on the other hand. This distribution is based on whether there is a higher education student in the household, as well as the total amounts of up-front payments and voluntary and compulsory repayments paid across Australia during 2003-04 and 2009-10, as reported in Australian Government Department of Education (2012: 39, 41). Secondly, payments by the HECS/HELP trust fund on behalf of students who have deferred their payments are imputed. Average deferred HECS/HELP payments are estimated on the basis of the total amounts of payments deferred across Australia during 2003-04 and 2009-10, as reported in Australian Government Department of Education (2012: 41), and full-time and part-time enrolments in higher education institutions during these years, as reported in Australian Government Department of Education (2014). Part-time students are assumed to defer half the payments of full-time students. Deferred HECS/HELP payments are then imputed to households on the basis of the numbers of full-time and part-time higher education students in the household. Private consumption of education by households is then estimated as the sum of three components: (1) household expenditure on education, excluding household expenditure included in the

HECS/HELP expenditure category; (2) household expenditure on up-front HECS/HELP payments; and (3) deferred HECS/HELP payments imputed to households. Private consumption of education by households is allocated to individuals within households using a regression-based method suggested by the NTA manual (United Nations 2013: 98). Ordinary-least-squares, linear regression models are estimated in homogeneous form (that is, without an intercept), with private consumption of education by households being regressed on the numbers of household members of different ages who are students and the numbers of household members of different ages who are not students. The regression coefficients that result from these regression models are then used as weights to allocate private consumption of education by households to individuals within households.

Smoothing: Not smoothed.

Description of results: As expected, private consumption of education is concentrated especially among those under the age of 25 years. There appears to have been some increase in private education consumption between 2003-04 and 2009-10.

4.2.2.2 Private Consumption (Health)

Figure 21: Per capita age profile, Private Consumption (Health).

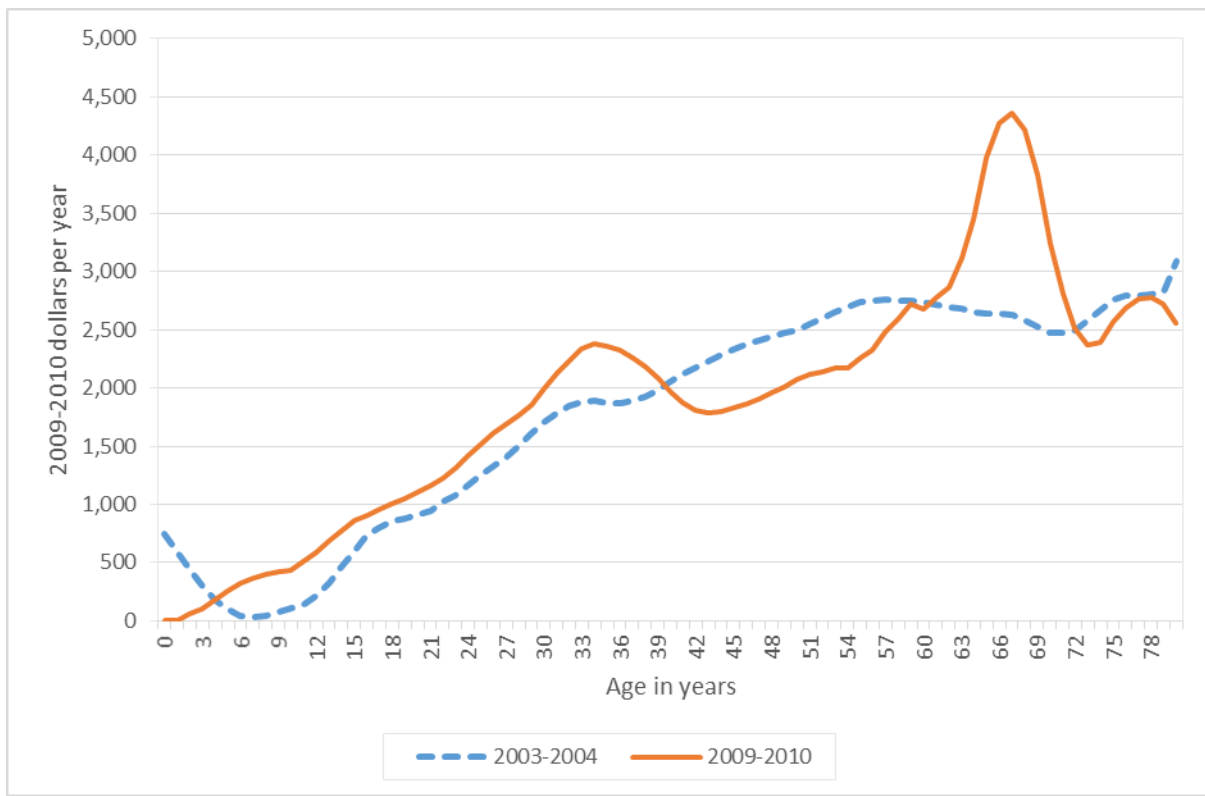
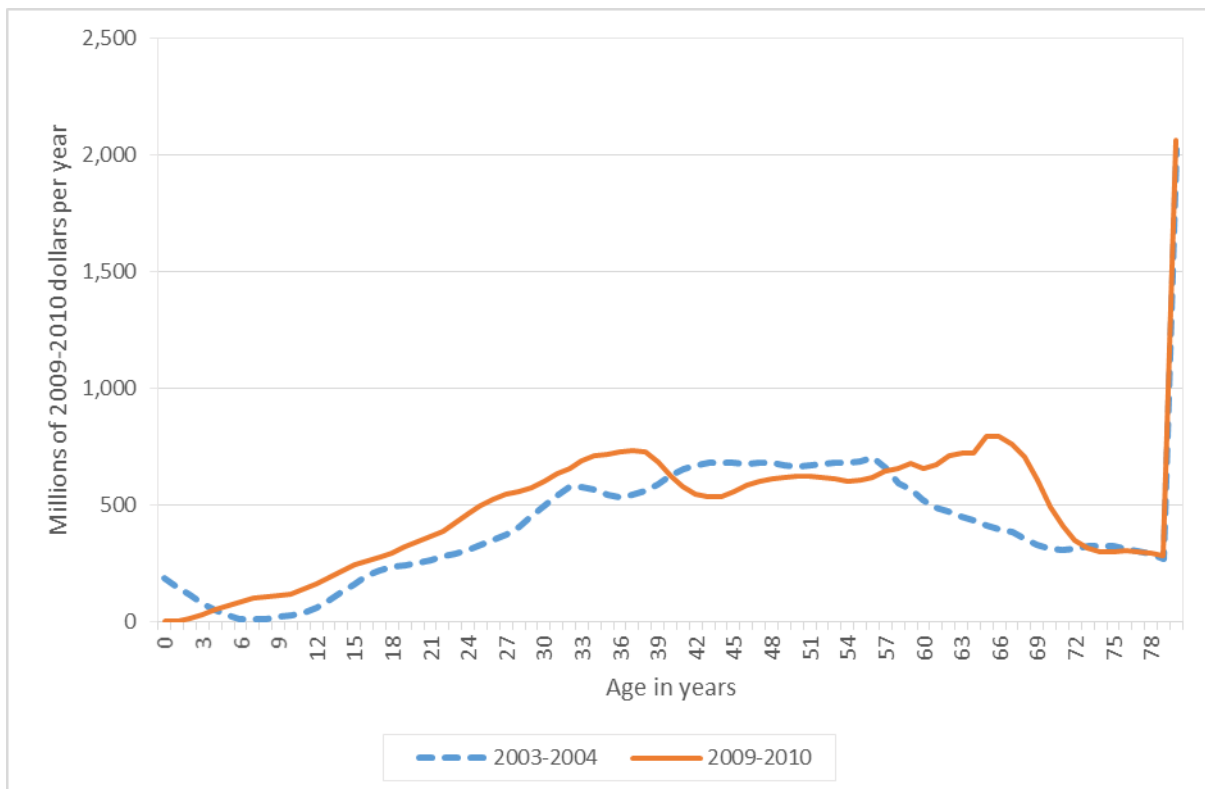


Figure 22: Aggregate age profile, Private Consumption (Health).



Definition: Consumption of health products and services funded by the private sector. Health products and services include medicines, medical aids, therapeutic appliances, ambulatory health care (provided by, for example, medical practitioners, dentists, opticians, physiotherapists, podiatrists, acupuncturists, clinical psychologists, and similar paramedical practitioners), hospital services, and ambulance services. Health payments initially made by households, but for which refunds are subsequently obtained from Medicare, are included in public rather than private health consumption.

Aggregate benchmark: Household final consumption expenditure on health as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmark for private consumption of high care residential aged care.

Per capita age profile: Household expenditure on health is included in the 2003-04 and 2009-10 Household Expenditure Surveys. This household expenditure is allocated to individuals within households using an iterative method suggested in the NTA manual (United Nations 2013: 100). Initially, each individual in each household is given an equal weight and household estimates are allocated to individuals in each household accordingly. Means for the individual estimates that result are then calculated for different ages across the entire sample. The resulting means for the different ages are then used as new weights for individuals of different ages, with these new weights being used to reallocate the household estimates to the individuals in the households. New means are then calculated and these new means are then used as new weights, and so on in an iterative process. Under some conditions, as this process is repeated the resulting weights for individuals of different ages and the resulting means for different ages converge at values that reflect the actual underlying values. Once these weights and means have converged, the values at which they have converged are chosen as the weights used when allocating household estimates to individuals within households.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: As expected, private consumption of health increases with age. Private consumption of health can be very unevenly distributed, with some individuals consuming little and other consuming large amounts. This can lead to unstable patterns in estimates based on sample surveys such as the estimates presented here.

4.2.2.3 Private Consumption (Housing)

Figure 23: Per capita age profile, Private Consumption (Housing).

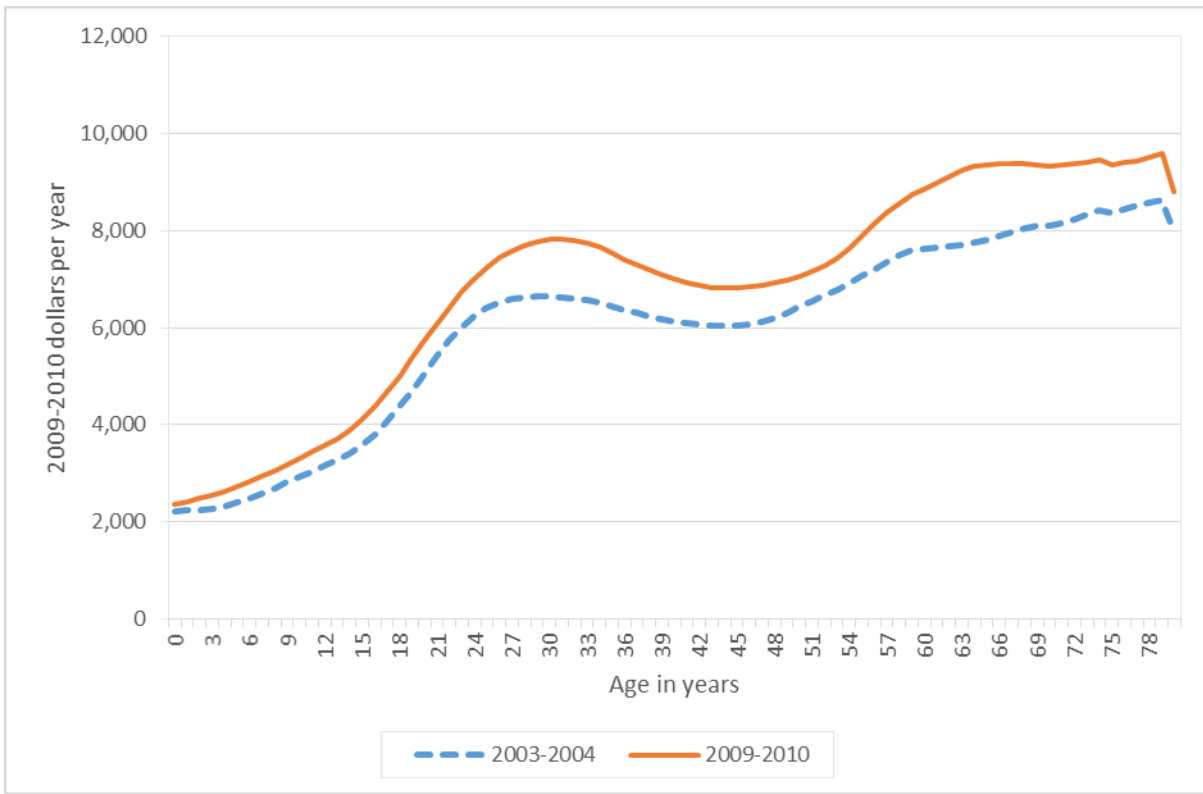
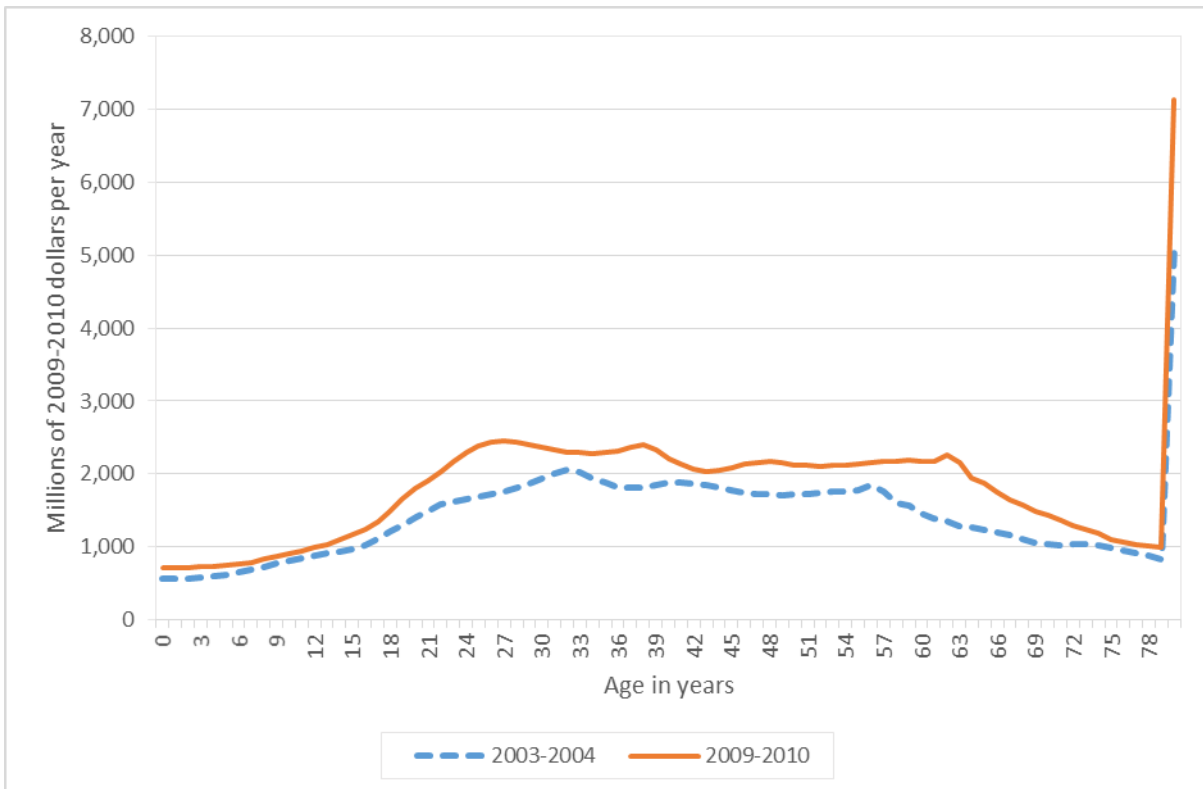


Figure 24: Aggregate age profile, Private Consumption (Housing).



Definition: Consumption of housing and related services funded by the private sector. Housing services funded by the private sector include those consumed by households living in owner-occupied housing as well as those consumed by households living in private rental housing. Services related to housing include water supply, sewerage services, and refuse collection.

Aggregate benchmark: Household final consumption expenditure on rent and other dwelling services as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: In conjunction with the 2003-04 and 2009-10 Household Expenditure Surveys the ABS has conducted studies into the effects of government benefits, government taxes, and imputed rent on household income in Australia during these years (Australian Bureau of Statistics 2006, 2007, 2008a, 2008b, 2012a, 2012b). As part of these studies the ABS constructed estimates of “gross imputed rent” for the following types of housing: owner-occupied housing, private rental housing subsidised by the private sector (for example, housing leased from employers or parents or other relatives), and public housing. Gross imputed rent is the rent that would be paid for these housing types were these housing types rented, unsubsidised, on the private market. The ABS also constructed estimates of “net imputed rent” for these housing types. Net imputed rent is equal to gross imputed rent, less the actual housing costs paid by the households living in these housing types (including, for example, interest on mortgages and actual rent). In relation to owner-occupied housing, owner-occupiers are conceptualised as operating rental businesses whereby they rent the housing they own to themselves, pay and receive rent from themselves, and pay associated housing costs. The income that accrues to owner-occupiers from the operation of these rental businesses is considered to be equal to net imputed rent. In relation to private rental housing subsidised by the private sector, net imputed rent is considered to be an in-kind rental subsidy received by households living in this type of housing (an in-kind rental subsidy received from, for example, employers or parents or other relatives). In relation to public housing, net imputed rent is considered to be an in-kind rental subsidy received by public housing tenants. These estimates of gross imputed rent and net imputed rent are included in the 2003-04 and 2009-10 Household Expenditure Surveys. These surveys also include information on employee income salary sacrificed for housing, benefit received from employer-provided (non-salary-sacrifice) housing, actual rent payments, interest payments on mortgages, body corporate payments, and water and sewerage rates payments. All of this information is gathered together and marshalled in order to construct estimates of private consumption of housing by households living in the types of housing mentioned above – as well as to construct estimates of private consumption of housing by households living in other types of housing, including private, unsubsidised, rental housing. Private consumption of housing by households is allocated to individuals within households using weights derived from an

“equivalence scale” suggested in the NTA manual (United Nations 2013: 100-101). According to this equivalence scale, individuals aged 4 or under are given a weight of 0.4, individuals aged 20 or over are given a weight of 1, and weights are linearly interpolated between the ages of 4 and 20.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: Private consumption of housing increases gradually with age, with the exception of a downturn during the childrearing years. A portion of the age profile of private consumption of housing reflects changing household sizes, with the downturn in the childrearing years reflecting increasing household sizes and the subsequent upturn reflecting decreasing household sizes. Interestingly, the downturn begins at a later age in 2009 compared to 2003, perhaps reflecting changes in patterns of family formation.

4.2.2.4 Private Consumption (Child Care)

Figure 25: Per capita age profile, Private Consumption (Child Care).

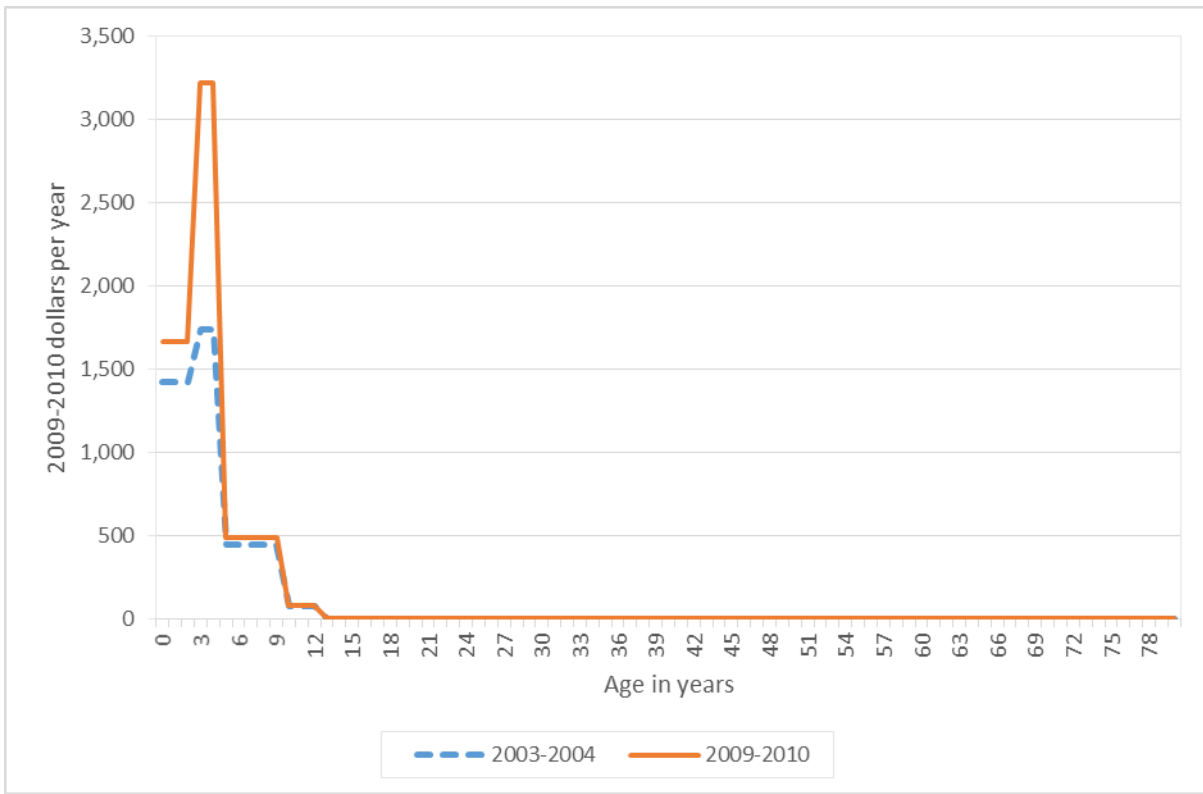
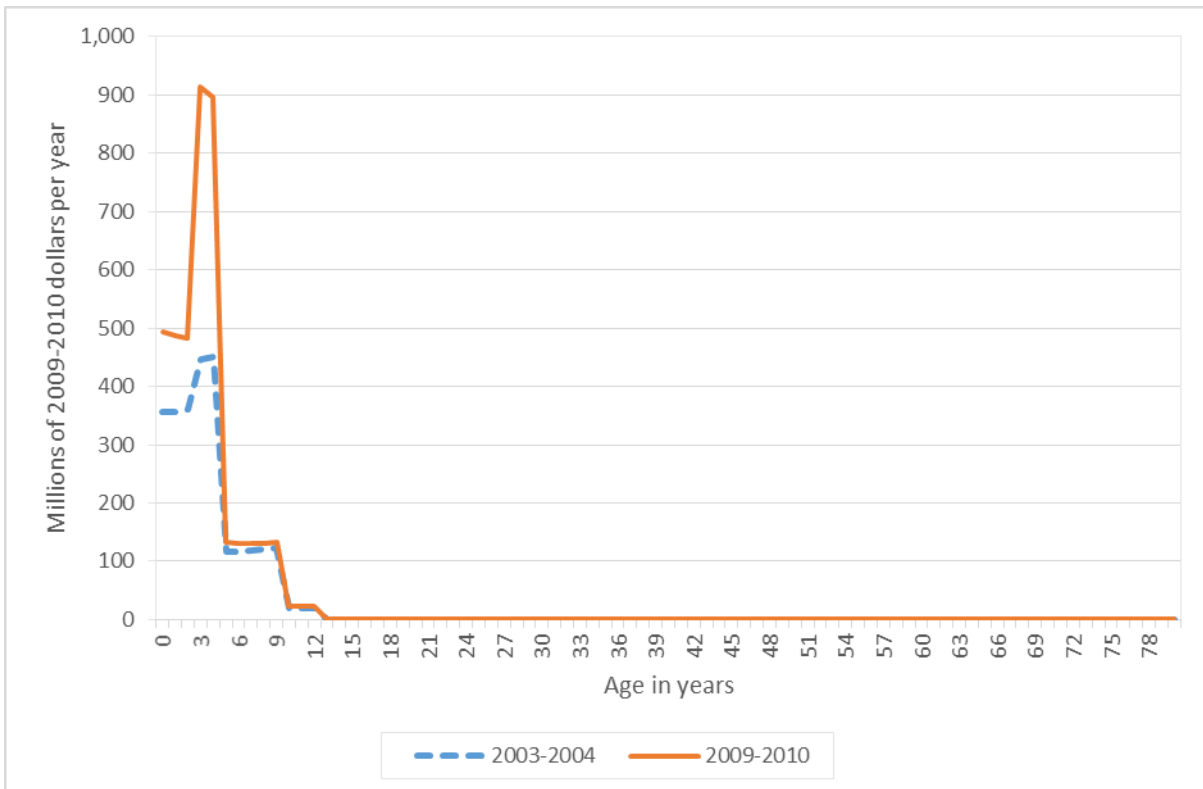


Figure 26: Aggregate age profile, Private Consumption (Child Care).



Definition: Consumption of child care services funded by the private sector. This consumption does not include child care services funded by Child Care Benefit and Child Care Rebate, which are included in public consumption of child care.

Aggregate benchmark: The basis for the aggregate benchmark for private consumption of child care is household final consumption expenditure as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmarks for private consumption of education, health, housing, high care residential aged care, and low care residential aged care and less the aggregate benchmark for public consumption of child care. (The aggregate benchmark for public consumption of child care is included in household rather than government final consumption expenditure.) This amount of expenditure is then allocated to private consumption of child care and other private consumption on the basis of relative household expenditures in these domains as estimated from the 2003-04 and 2009-10 Household Expenditure Surveys. The amount allocated to private consumption of child care is the aggregate benchmark for private consumption of child care.

Per capita age profile: The 2003-04 and 2009-10 Household Expenditure Surveys include information on household expenditure on child care, employee income salary sacrificed for child care, and benefit received from employer-provided (non-salary-sacrifice) child care. This information is used to estimate private consumption of child care by households. As with private consumption of education, private consumption of child care by households is allocated to individuals within households using a regression-based method. Ordinary-least-squares, linear regression models are estimated in homogeneous form (that is, without an intercept), with private consumption of child care by households being regressed on the numbers of household members who are of different ages, with these ages being restricted to those 12 years and under. The regression coefficients that result from these regression models are then used as weights to allocate private consumption of child care by households to individuals within households.

Smoothing: Not smoothed.

Description of results: Private consumption of child care is concentrated among children aged 3-4, with private consumption of child care increasing between 2003-04 and 2009-10.

4.2.2.5 Private Consumption (Residential Aged Care, High Care)

Figure 27: Per capita age profile, Private Consumption (Residential Aged Care, High Care).

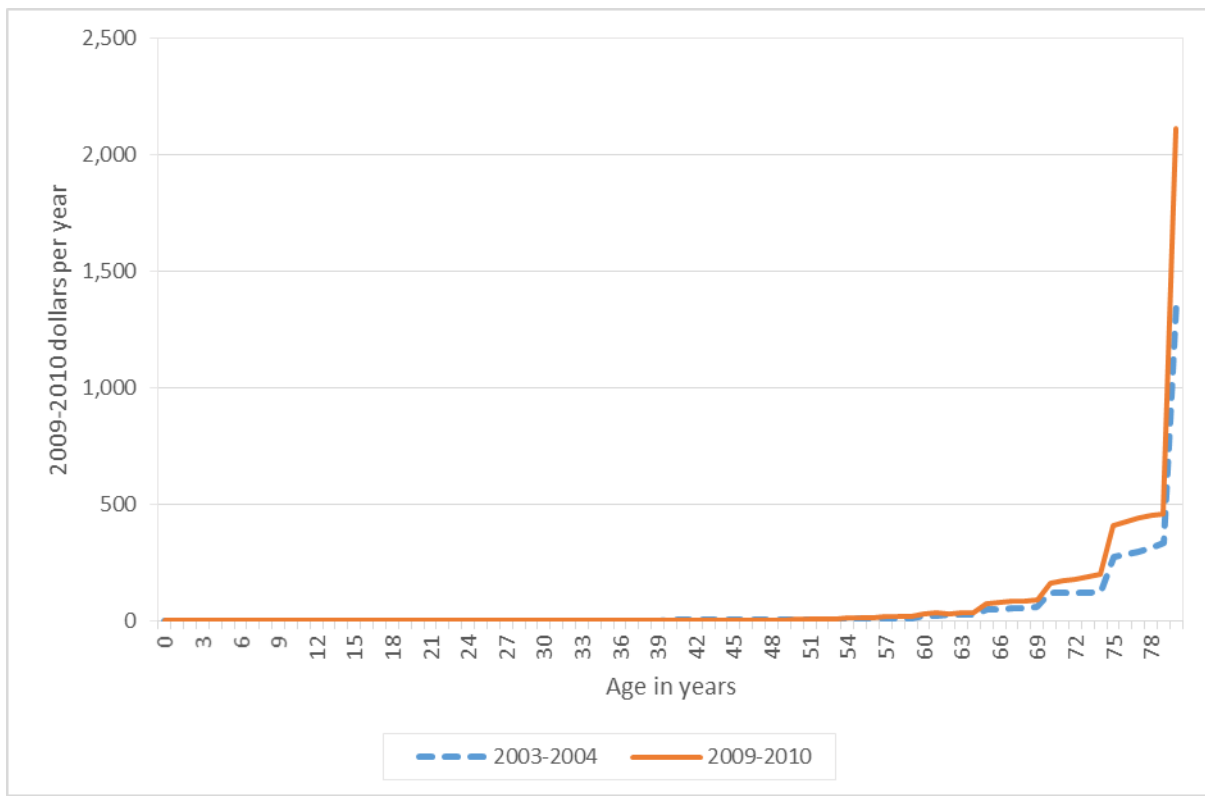
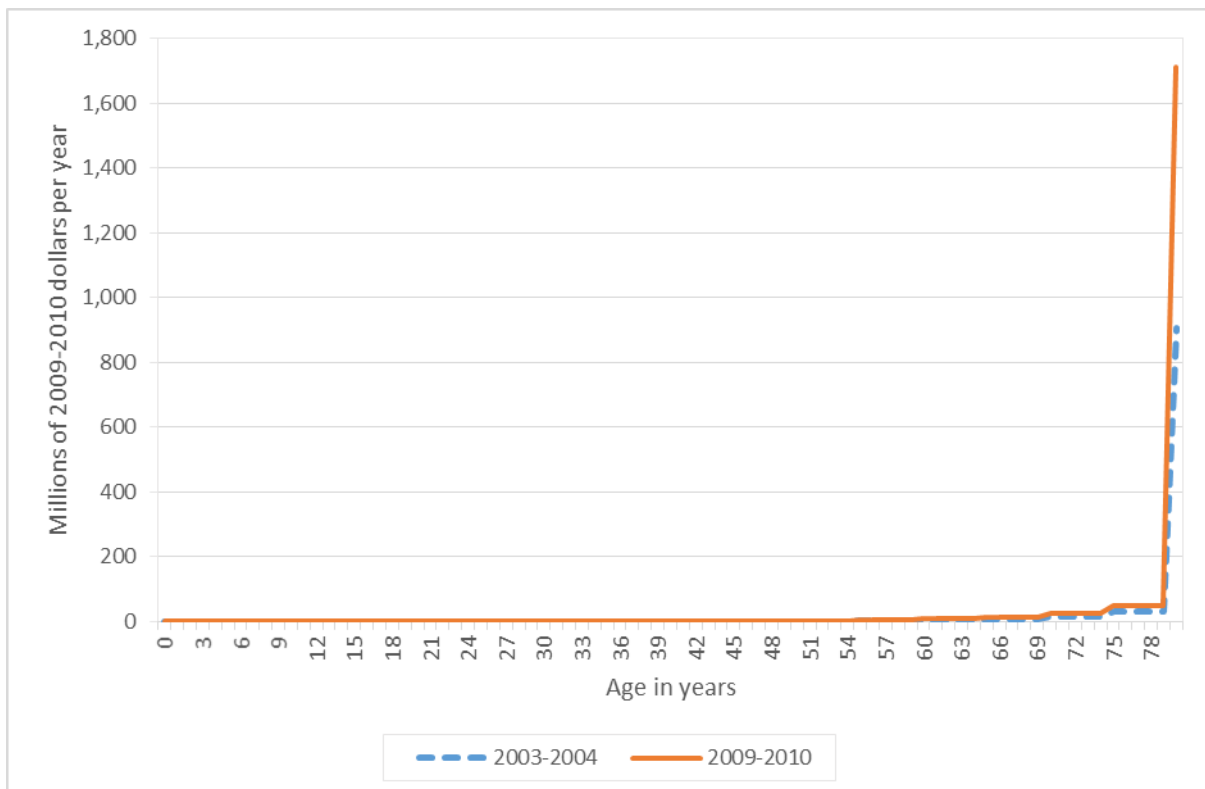


Figure 28: Aggregate age profile, Private Consumption (Residential Aged Care, High Care).



Definition: Consumption of high care residential aged care services funded by the private sector.

Aggregate benchmark: Total expenditure on high care residential aged care by the private sector. This expenditure was estimated on the basis of a wide array of information sources (Australian Bureau of Statistics 2008c: 332; 2012c: 383; Australian Government Department of Health and Ageing 2008: 12; Australian Government Department of Social Services 2013: 65; Australian Institute of Health and Welfare 2007: 44; 2011: 122; Commonwealth of Australia 2008: 37).

Per capita age profile: The per capita age profile for private consumption of high care residential aged care is derived from the proportions of people of different ages who live in residential aged care, as derived from information contained in the 2003 and 2009 Surveys of Disability, Ageing, and Carers, as well as a range of other sources (Australian Bureau of Statistics 2012c: 383; 2014; Australian Institute of Health and Welfare 2012: 64).

Smoothing: Not smoothed.

Description of results: Private consumption of high care residential aged care begins to increase when people reach their late 60s and increases dramatically once people reach their 80s. Private consumption of high care residential aged care has increased over time, on a per capita and an aggregate basis.

4.2.2.6 Private Consumption (Residential Aged Care, Low Care)

Figure 29: Per capita age profile, Private Consumption (Residential Aged Care, Low Care).

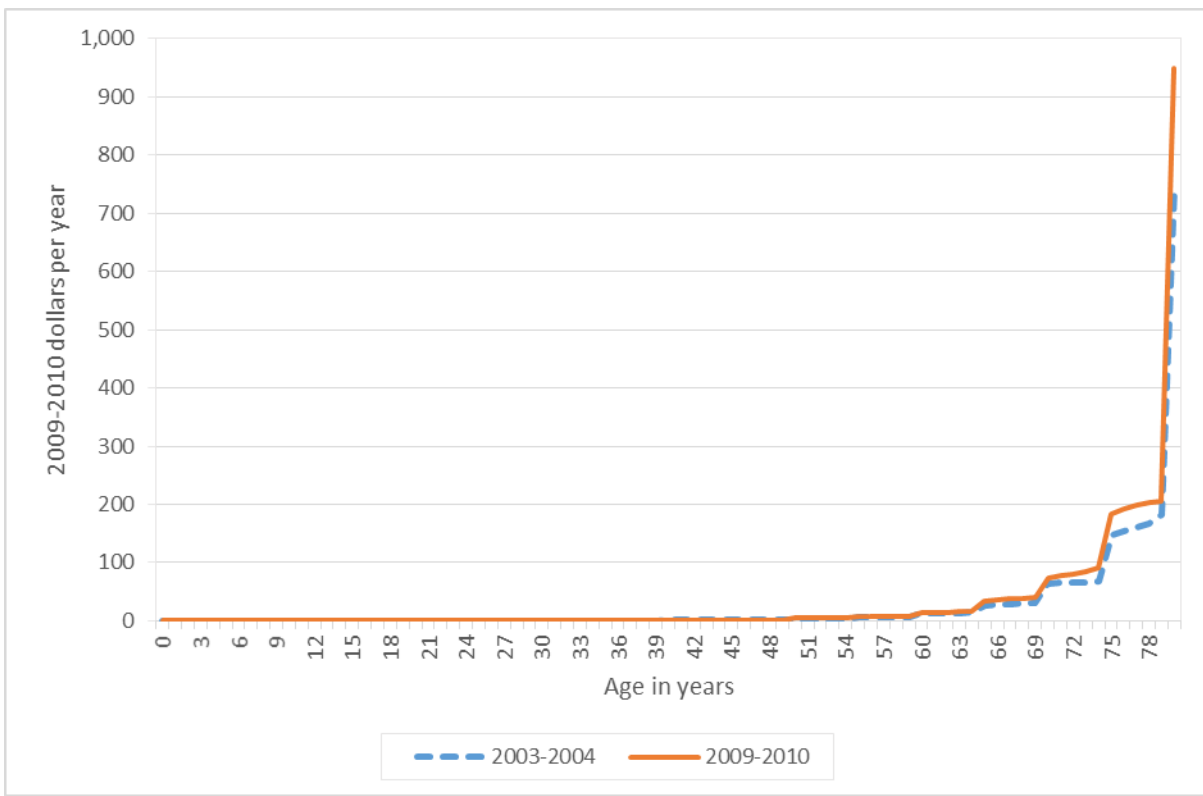
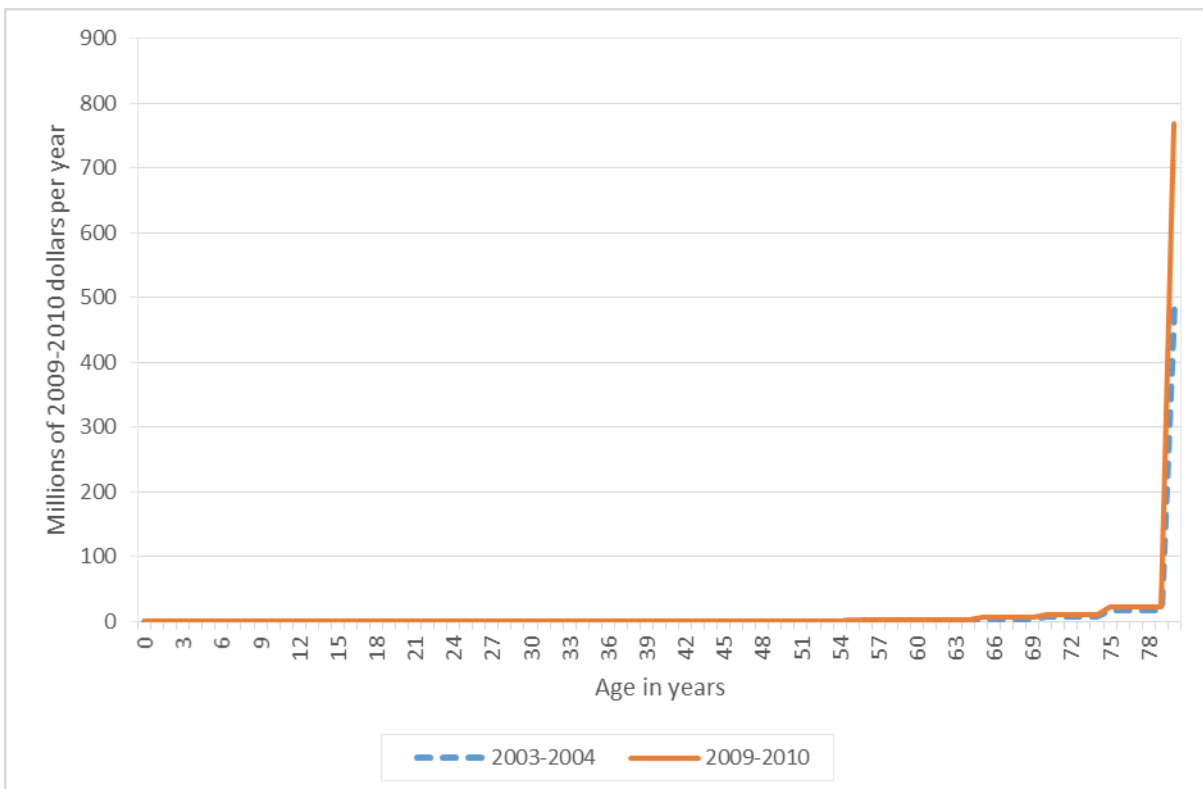


Figure 30: Aggregate age profile, Private Consumption (Residential Aged Care, Low Care).



Definition: Consumption of low care residential aged care services funded by the private sector.

Aggregate benchmark: Total expenditure on low care residential aged care by the private sector. This expenditure was estimated on the basis of a wide array of information sources (Australian Bureau of Statistics 2008c: 332; 2012c: 383; Australian Government Department of Health and Ageing 2008: 12; Australian Government Department of Social Services 2013: 65; Australian Institute of Health and Welfare 2007: 44; 2011: 122; Commonwealth of Australia 2008: 37).

Per capita age profile: The per capita age profile for private consumption of low care residential aged care is derived from the proportions of people of different ages who live in residential aged care, as derived from information contained in the 2003 and 2009 Surveys of Disability, Ageing, and Carers, as well as a range of other sources (Australian Bureau of Statistics 2012c: 383; 2014; Australian Institute of Health and Welfare 2012: 64).

Smoothing: Not smoothed.

Description of results: Private consumption of low care residential aged care begins to increase when people reach their late 60s and increases dramatically once people reach their 80s. Private consumption of low care residential aged care has increased over time, on a per capita and an aggregate basis.

4.2.2.7 Private Consumption (Other)

Figure 31: Per capita age profile, Private Consumption (Other).

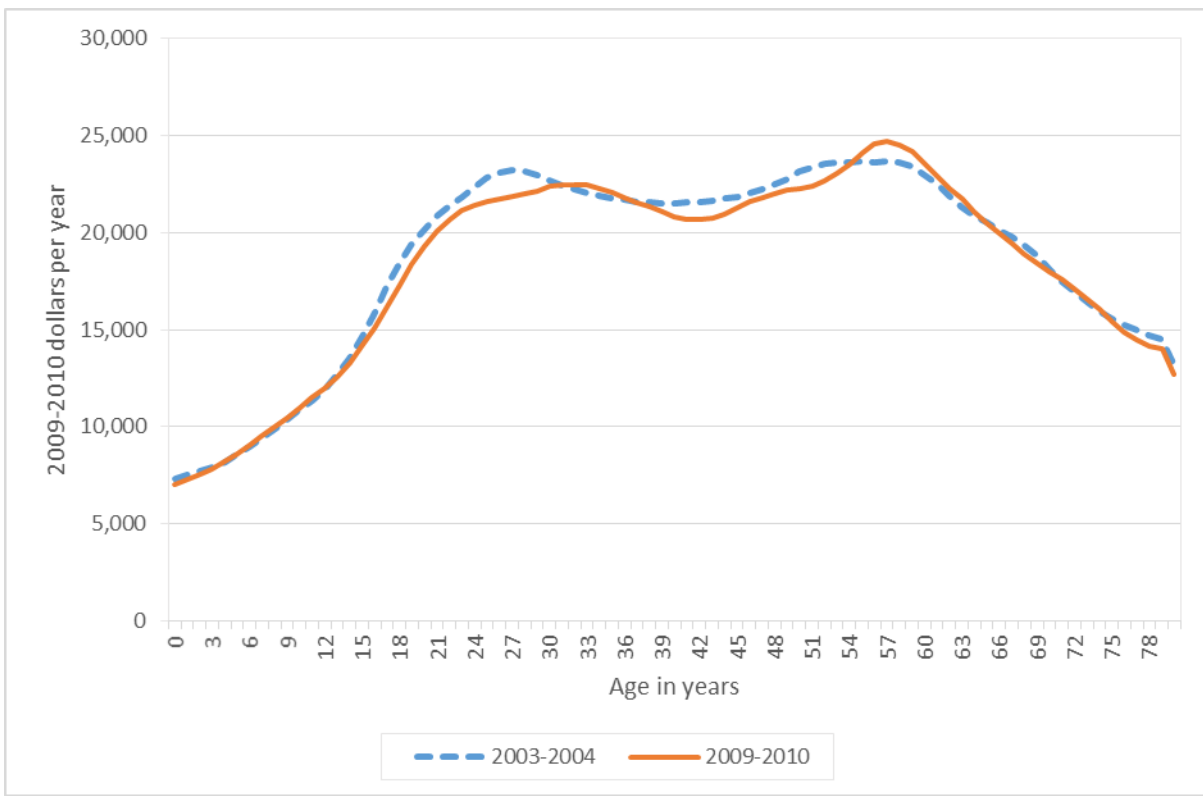
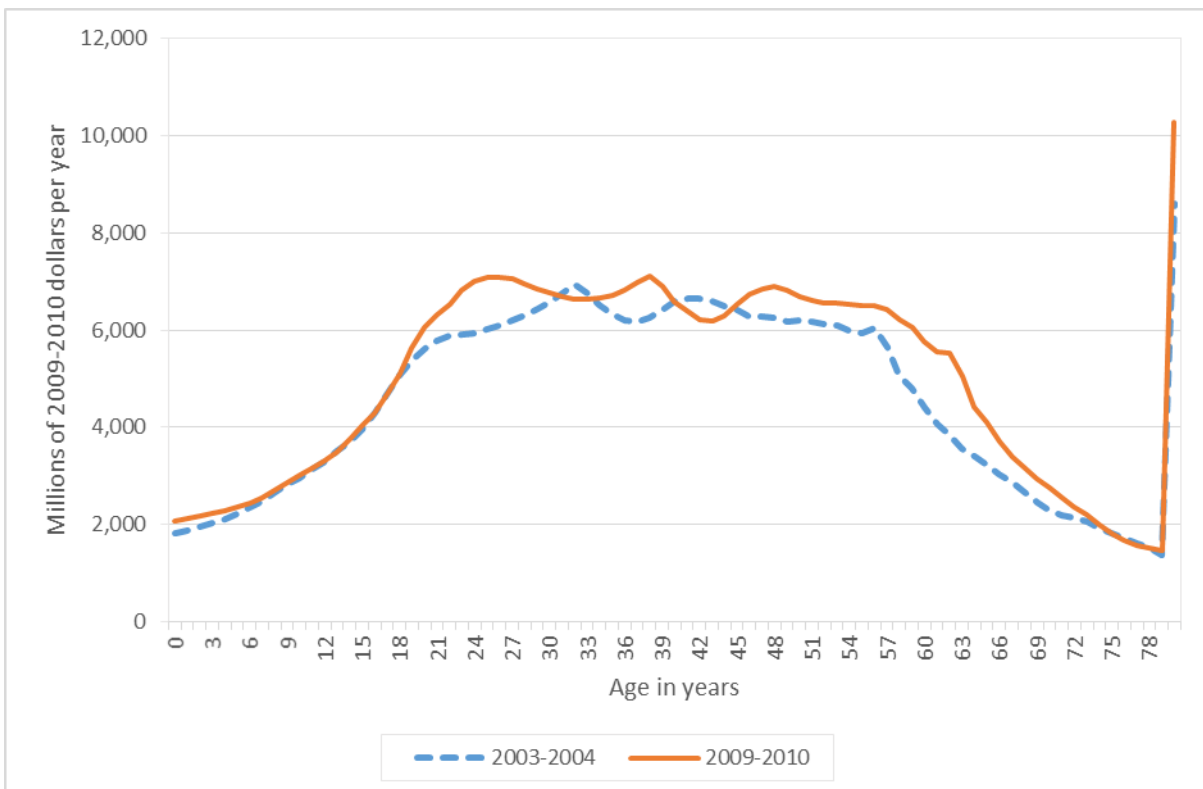


Figure 32: Aggregate age profile, Private Consumption (Other).



Definition: Consumption of goods and services funded by the private sector which have not been included in other private consumption categories. These include such goods and services as food, beverages, tobacco, clothing, footwear, electricity, gas, furnishings, household equipment, transport, communications, and recreation. Consumption of these goods and services is defined as pre-tax, that is, prior to the payment of any taxes associated with this consumption (such as the GST).

Aggregate benchmark: The basis for the aggregate benchmark for other private consumption is household final consumption expenditure as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmarks for private consumption of education, health, housing, high care residential aged care, and low care residential aged care and less the aggregate benchmark for public consumption of child care. (The aggregate benchmark for public consumption of child care is included in household rather than government final consumption expenditure.) This amount of expenditure is then allocated to private consumption of child care and other private consumption on the basis of relative household expenditures in these domains as estimated from the 2003-04 and 2009-10 Household Expenditure Surveys. The amount of expenditure allocated to other private consumption is then converted from a post-tax to a pre-tax basis through the subtraction of the aggregate benchmarks for the GST and other taxes on the provision of goods and services. The result is the aggregate benchmark for other private consumption.

Per capita age profile: The 2003-04 and 2009-10 Household Expenditure Surveys include information on household expenditure on a virtually exhaustive range of goods and services, as well as information on employee income salary sacrificed for a range of goods and services (for example, computers, telephone charges, and vehicles), benefits from a range of employer-provided (non-salary-sacrifice) goods and services (for example, computers, telephones, vehicles, and car parks), and goods received from individuals' own unincorporated businesses. This information is used to estimate other private consumption by households. Other private consumption by households is allocated to individuals within households using weights derived from an "equivalence scale" suggested in the NTA manual (United Nations 2013: 100-101). According to this equivalence scale, individuals aged 4 or under are given a weight of 0.4, individuals aged 20 or over are given a weight of 1, and weights are linearly interpolated between the ages of 4 and 20.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Other private consumption increases until around the age of 30, declines and then rises to another peak in the late 50s, before falling during later life.

4.2.3 Labour Earnings

4.2.3.1 Labour Earnings, including Fringe Benefits

Figure 33: Per capita age profile, Labour Earnings (Inc Fringe Benefits).

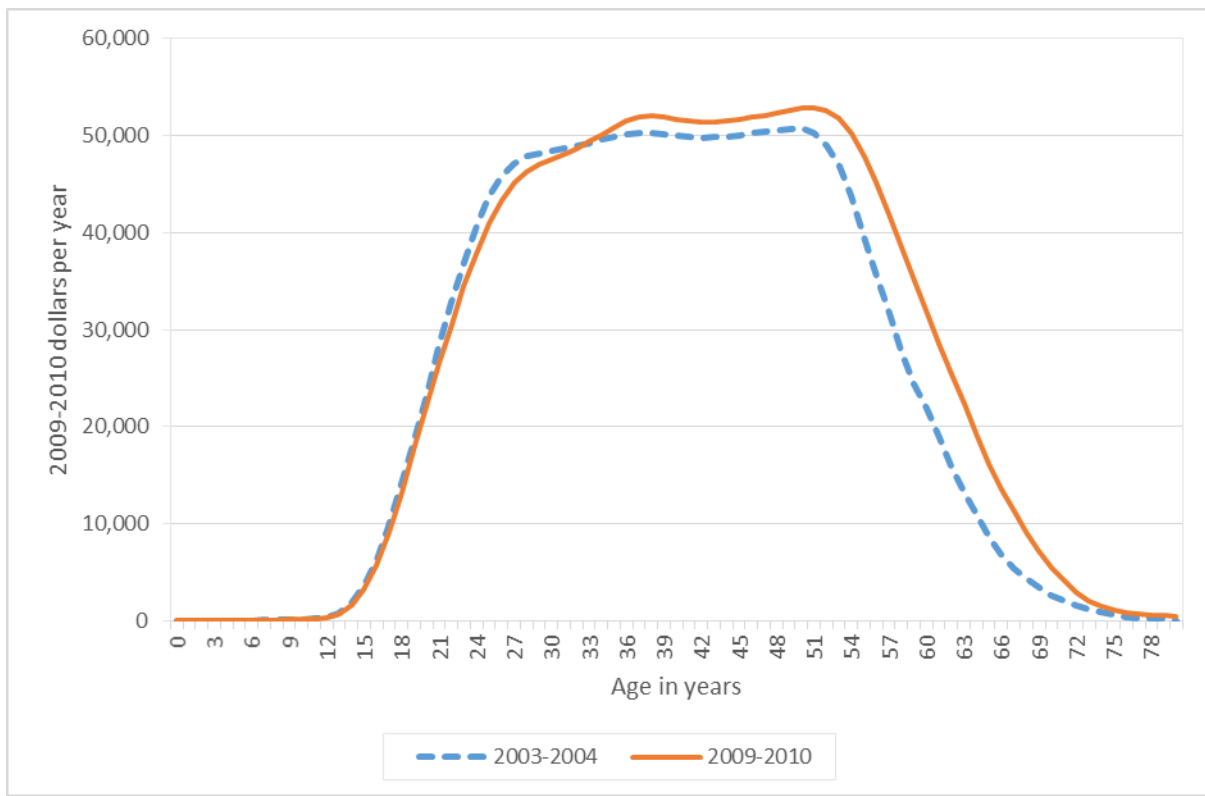
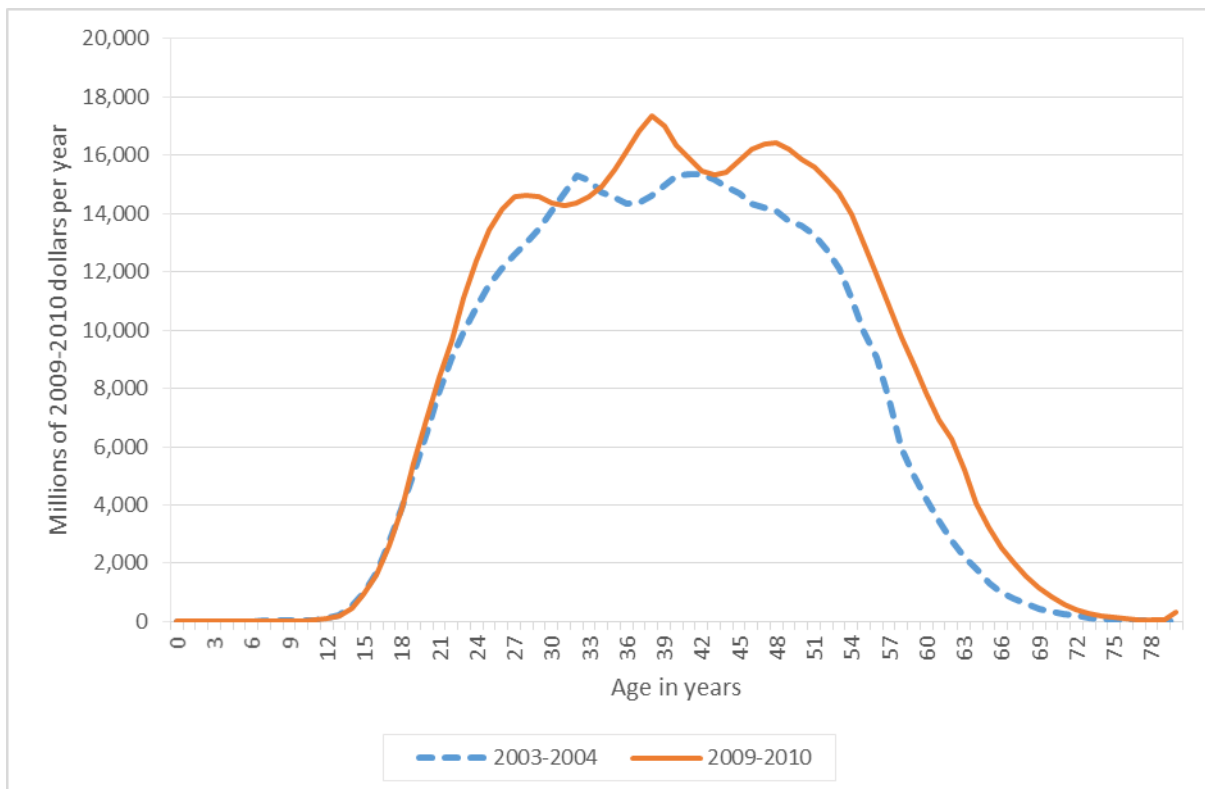


Figure 34: Aggregate age profile, Labour Earnings (Inc Fringe Benefits).



Definition: The income received by employees from their employers in return for their labour. This income includes wages and salaries paid in cash and fringe benefits received in kind. This income is defined as pre-tax, that is, prior to the payment of any taxes associated with this income (such as payroll taxes).

Aggregate benchmark: The basis for the aggregate benchmark for labour earnings, including fringe benefits, is compensation of employees as reported in the household income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of compensation is converted from a post-tax to a pre-tax basis through the addition of the aggregate benchmark for employers' payroll taxes. The result is the aggregate benchmark for labour earnings, including fringe benefits.

Per capita age profile: The 2003-04 and 2009-10 Household Expenditure Surveys collected information on employee income received by individuals, including information on employee income salary sacrificed for a range of goods and services (for example, housing, child care, computers, telephone charges, vehicles, and superannuation), benefits from a range of employer-provided (non-salary-sacrifice) goods and services (for example, housing, child care, computers, telephones, vehicles, car parks, above-minimum superannuation, shares, and low interest loans), employee cash income from bonuses, paid overtime, paid-out unused leave, and redundancy pay. All of this information is combined in order to construct estimates of labour earnings, including fringe benefits, received by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Labour earnings, including fringe benefits, increases sharply until the late 20s, at which point, the pace of increase slows, although labour earnings continue to rise until the mid 50s. Labour earnings begin to fall off after then. Notably, labour earnings peak and begin to fall at significantly later ages in 2009-10, compared to 2003-04. As a result, labour earnings at later ages are much greater in 2009-10 than they are in 2003-04.

4.2.3.2 Self-Employment Labour Income

Figure 35: Per capita age profile, Self-Employment Labour Income.

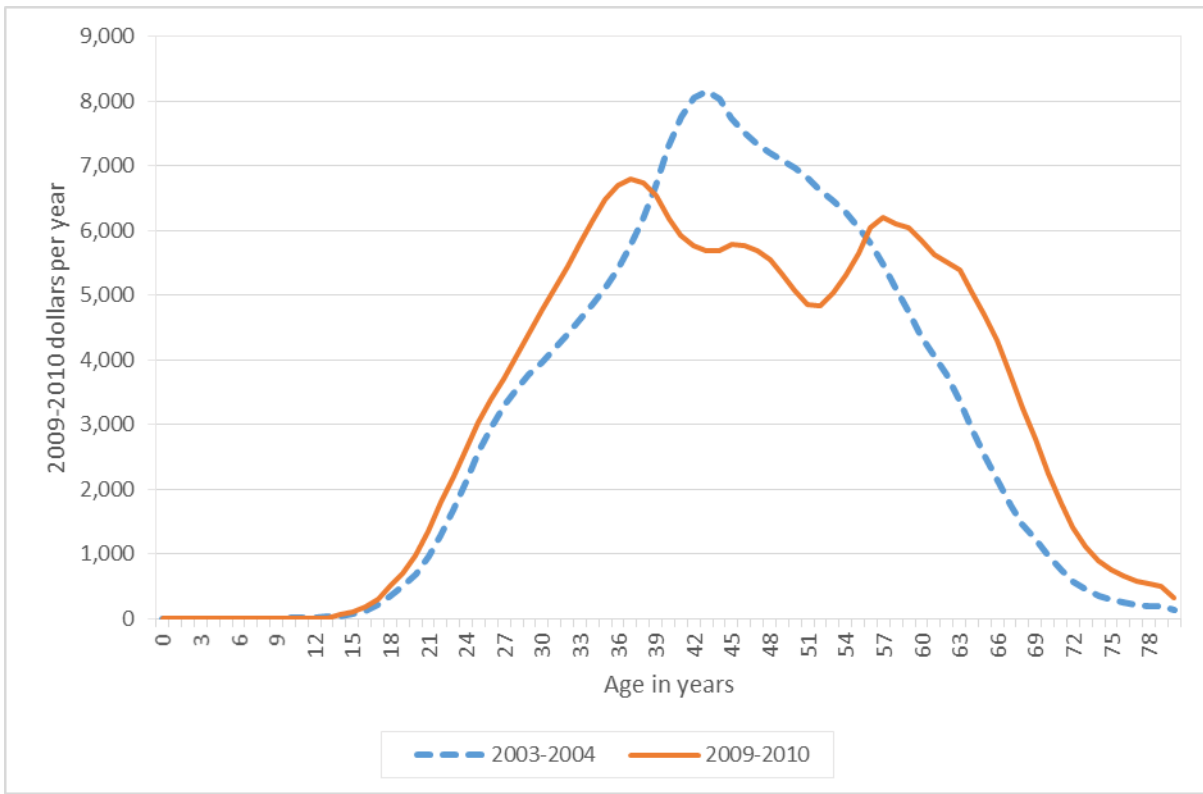
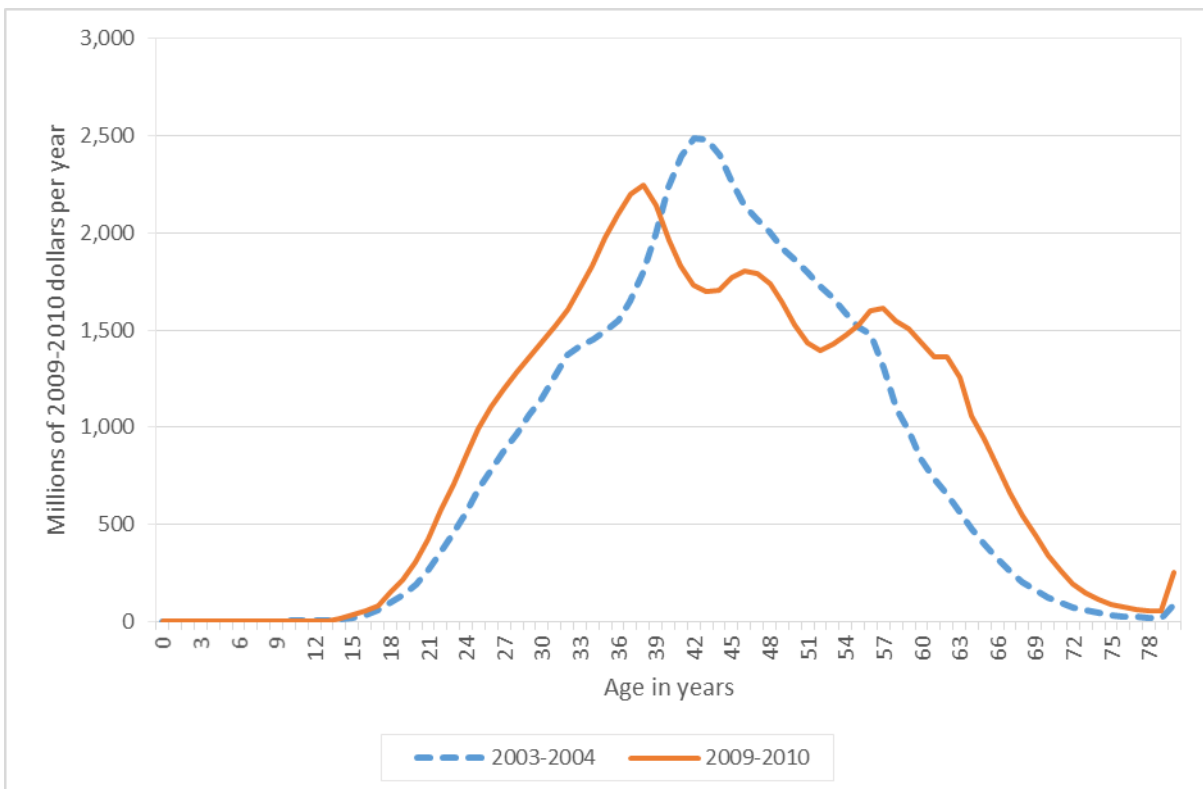


Figure 36: Aggregate age profile, Self-Employment Labour Income.



Definition: The particular share of income received by the self-employed from the operation of unincorporated businesses that is a return to labour.

Aggregate benchmark: The aggregate benchmark for self-employment labour income is two thirds of gross mixed income. Figures for gross mixed income are taken from the Australian System of National Accounts (Australian Bureau of Statistics 2013b). Two thirds of gross mixed income is used because the NTA manual (United Nations 2013) suggests that gross mixed income should be allocated between labour and capital in the following proportions: two thirds to labour and one third to capital.

Per capita age profile: The NTA manual (United Nations 2013: 104) recommends that self-employment labour income received by individuals should not be estimated directly. Rather, self-employment labour income received by households should be estimated first and then these estimates for households should be allocated to individuals within households who are self-employed or unpaid family workers. The NTA manual recommends that the weights used in this allocation should be based on the per capita age profile for earnings among employees. One of the appeals of this indirect approach is that it might help correct for any underreporting of the labour incomes of unpaid family workers. The 2003-04 and 2009-10 Household Expenditure Surveys include information on cash income from individuals' own unincorporated businesses and goods received from individuals' own unincorporated businesses. This information is used to construct estimates of the incomes that households receive from their own unincorporated businesses. Multiplying these estimates by two thirds yields estimates of the self-employment labour income received by households. These estimates for households are then allocated to individuals within households using the approach just described.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Self-employment labour income rises until the late 30s and early 40s and declines after then. As with labour earnings, self-employment labour income at older ages is much greater in 2009-10 than in 2003-04.

4.2.4 Public Age Reallocations, Inflow

The following NTA variables are part of the age reallocation accounts, but are identical to the respective variables in the economic lifecycle account. Descriptions below are included for completeness.

Public Transfers, Education, Inflow

See: Public consumption, education (economic lifecycle account)

Public Transfers, Health, Inflow

See: Public consumption, health (economic lifecycle account)

Public Transfers, Housing, Inflow

See: Public consumption, housing (economic lifecycle account)

Public Transfers, Child Care, Inflow

See: Public consumption, child care (economic lifecycle account)

Public Transfers, Residential Aged Care, High Care, Inflow

See: Public consumption, residential aged care, high care (economic lifecycle account)

Public Transfers, Residential Aged Care, Low Care, Inflow

See: Public consumption, residential aged care, low care (economic lifecycle account)

Public Transfers, Other In-Kind, Inflow

See: Public consumption, other (economic lifecycle account)

4.2.4.1 Public Transfers, Social Protection Targeted at the Elderly, Inflow

Figure 39: Per capita age profile, Social Protection Targeted at the Elderly, Inflow.

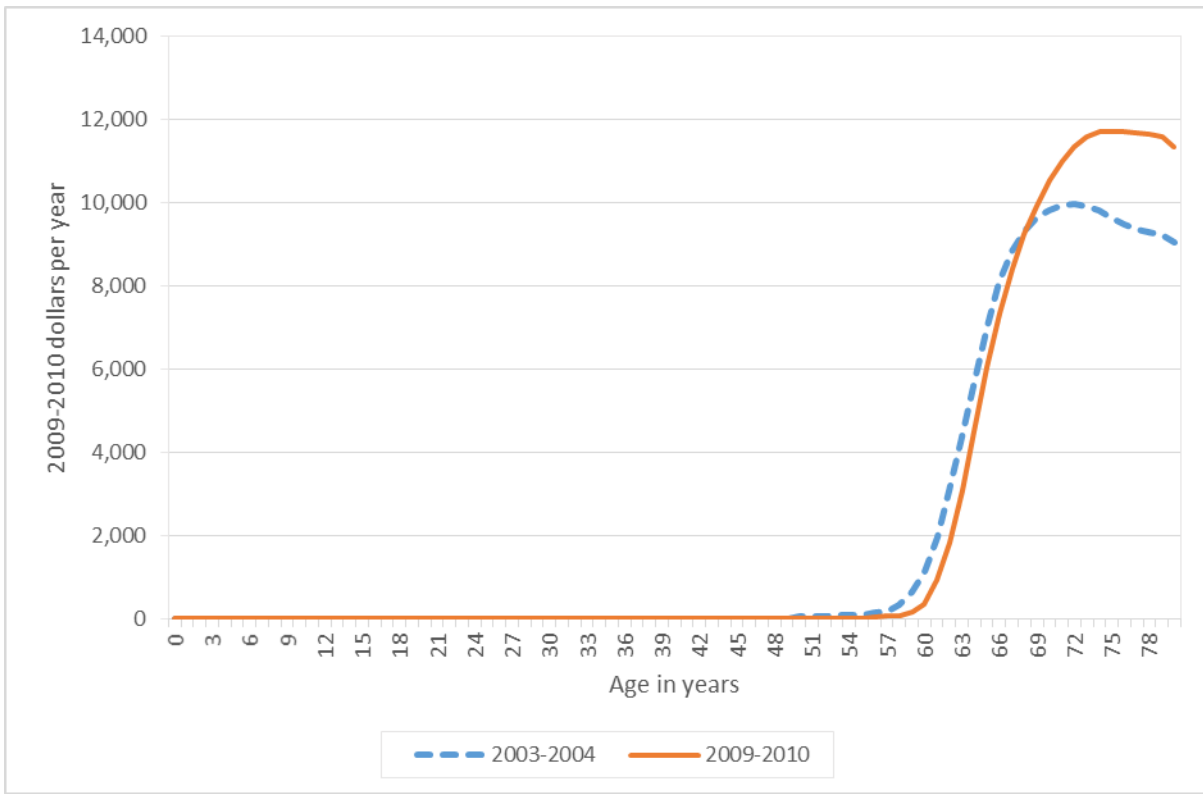
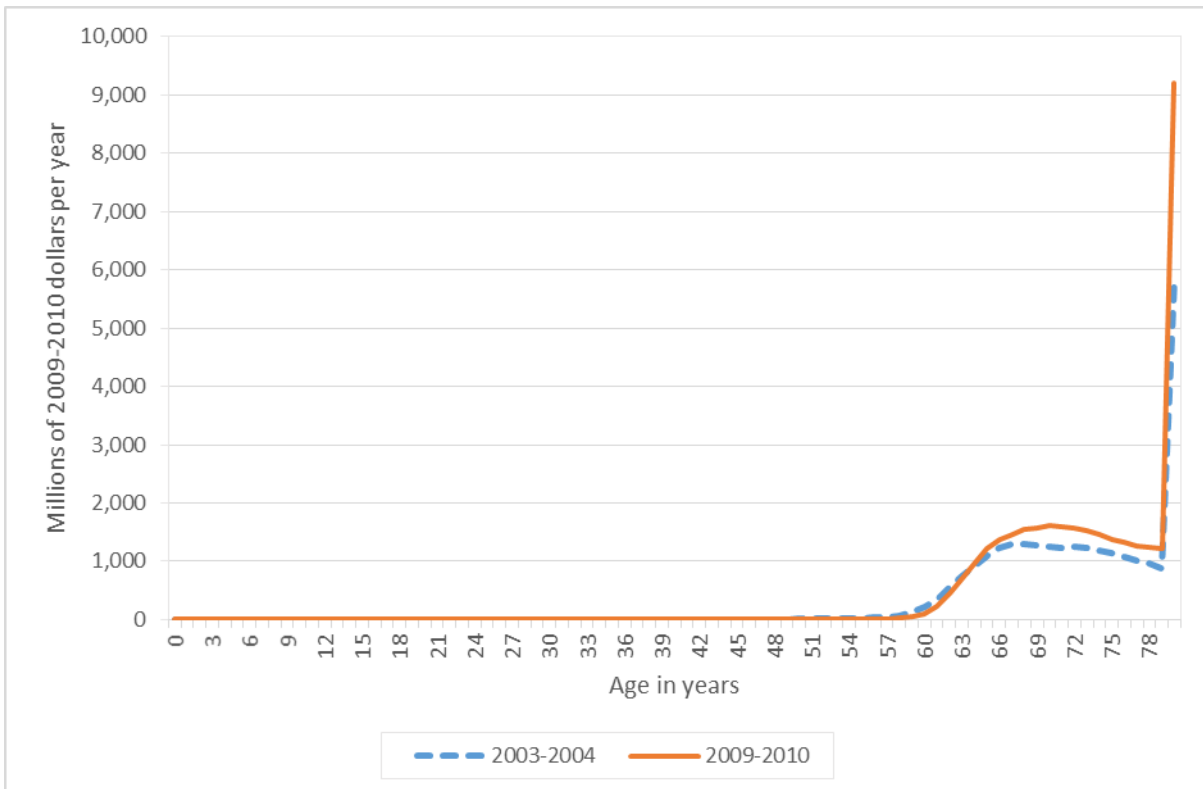


Figure 40: Aggregate age profile, Social Protection Targeted at the Elderly, Inflow.



Definition: Social assistance benefits in cash which are funded by the public sector and targeted at the elderly. Specifically, these benefits consist of the Age Pension and Widow Allowance and, for the 2009-10 accounts, the Senior Supplement (which was introduced after 2003-04).

Aggregate benchmark: The basis for the aggregate benchmark for inflows of social protection targeted at the elderly is social assistance benefits payable in cash to residents as reported in the general government income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmark for public consumption of child care. The resulting amount is then allocated to inflows of social protection targeted at the elderly, social protection targeted at the prime-aged, social protection targeted at the young, and other social protection on the basis of relative government expenditures on the benefits that constitute these social protection inflow categories. These relative expenditures are taken from (Australian Bureau of Statistics 2008c: 284-285, 287; 2012c: 332-333, 339). The amount allocated to inflows of social protection targeted at the elderly constitutes the aggregate benchmark for inflows of social protection targeted at the elderly.

Per capita age profile: Inflows of social protection targeted at the elderly are calculated from information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from the Age Pension, Widow Allowance, and the Senior Supplement.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Consistent with the age requirement for the age pension, the age profile for public transfers (social protection targeted at the elderly, inflow) picks up rapidly from the mid 60s. Payments prior to this age reflect the Widow Allowance. On a per capita basis, in 2009-10, payments are higher, particularly for those over pension age. This likely reflects two effects: (1) the introduction of the Senior Supplement, and (2) indexing of the Age Pension.

4.2.4.2 Public Transfers, Social Protection Targeted at the Prime-Aged, Inflow

Figure 41: Per capita age profile, Social Protection Targeted at the Prime-Aged, Inflow.

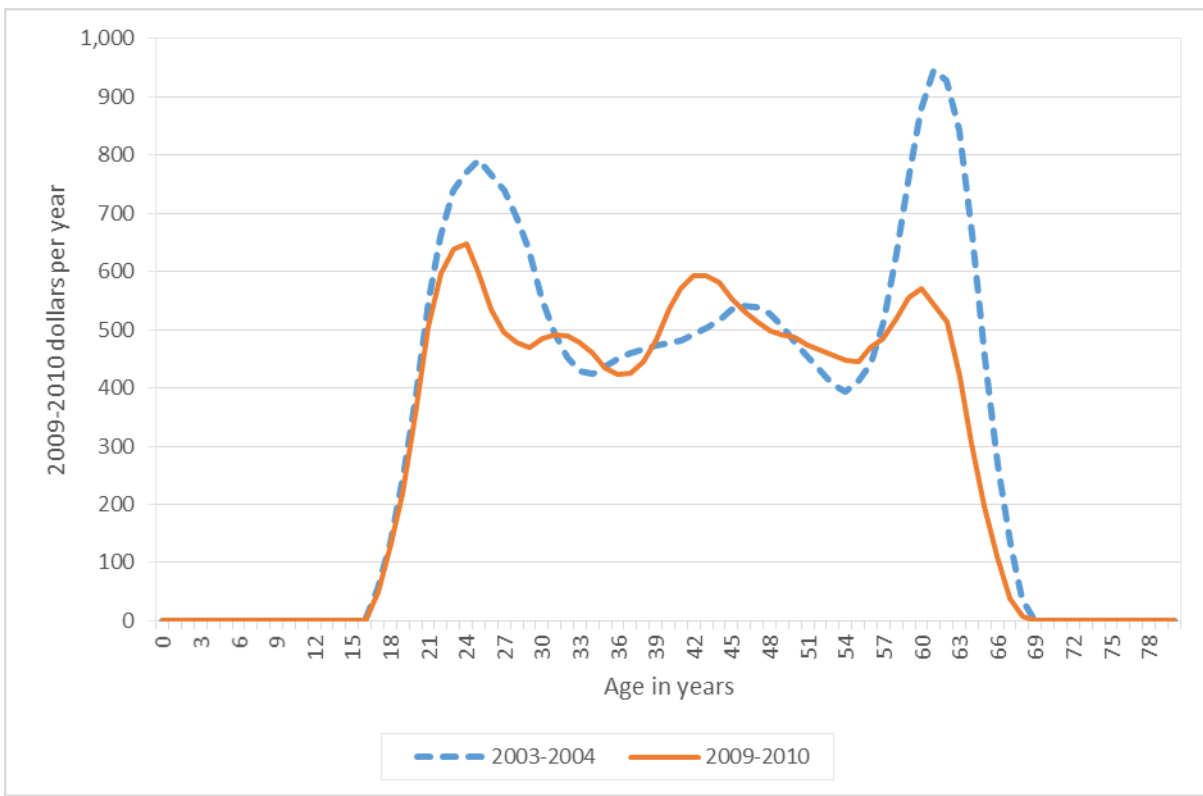
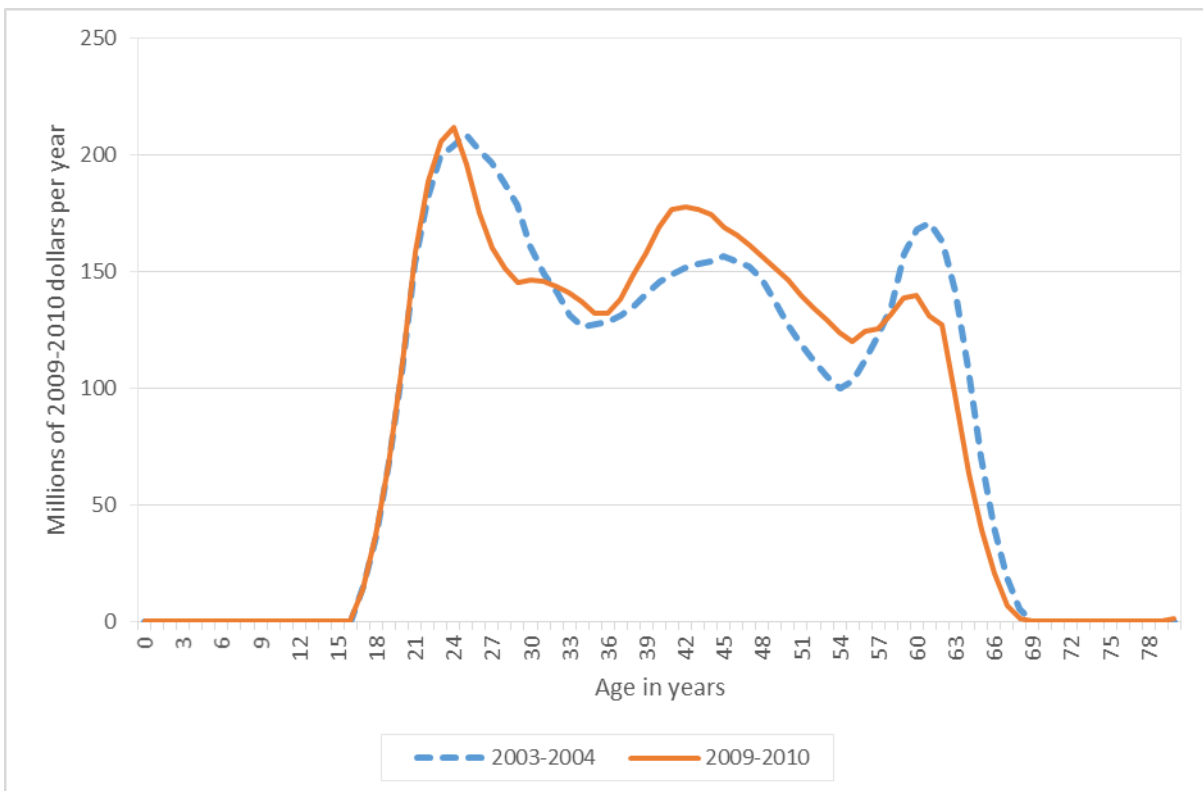


Figure 42: Aggregate age profile, Social Protection Targeted at the Prime-Aged, Inflow.



Definition: Social assistance benefits in cash which are funded by the public sector and targeted at the prime-aged. Specifically, these benefits consist of the Newstart Allowance and Sickness Allowance and, for the 2003-04 accounts, the Mature Age Allowance (which was withdrawn before 2009-10).

Aggregate benchmark: The basis for the aggregate benchmark for inflows of social protection targeted at the prime-aged is social assistance benefits payable in cash to residents as reported in the general government income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmark for public consumption of child care. The resulting amount is then allocated to inflows of social protection targeted at the elderly, social protection targeted at the prime-aged, social protection targeted at the young, and other social protection on the basis of relative government expenditures on the benefits that constitute these social protection inflow categories. These relative expenditures are taken from (Australian Bureau of Statistics 2008c: 284-285, 287; 2012c: 332-333, 339). The amount allocated to inflows of social protection targeted at the prime-aged constitutes the aggregate benchmark for inflows of social protection targeted at the prime-aged.

Per capita age profile: Inflows of social protection targeted at the prime-aged are calculated from information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from the Newstart Allowance, Sickness Allowance, and Mature Age Allowance.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: For 2009-10, the age profile for public transfers (social protection targeted at the prime-aged) is nil for children, rising rapidly at labour market entry age. Until the early 60's when labour force participation rates flatten, and some become eligible for other social protection payments, the payment varies within a band of about \$200 between ages 19 and 65. For 2003-04, the results are more variable at the older ages due to the inclusion of the Mature Age Allowance which was withdrawn prior to 2009-10.

4.2.4.3 Public Transfers, Social Protection Targeted at the Young, Inflow

Figure 43: Per capita age profile, Social Protection Targeted at the Young, Inflow.

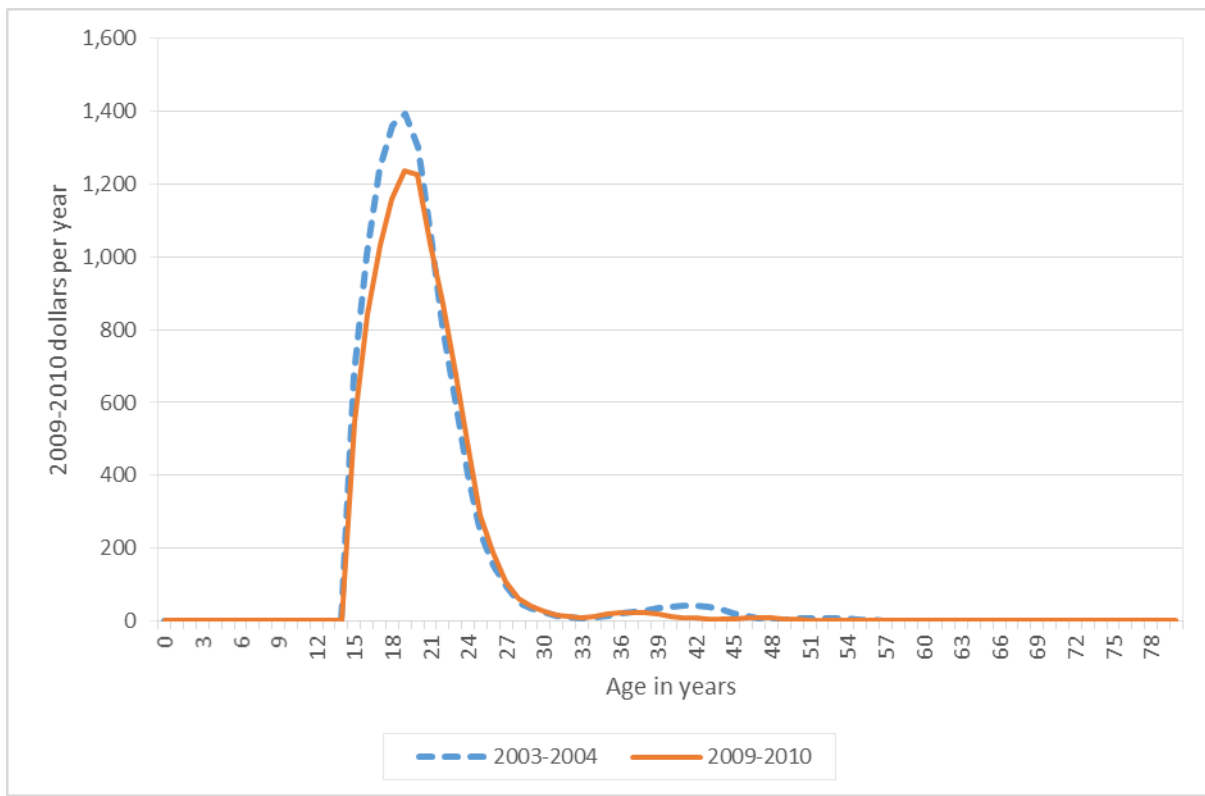
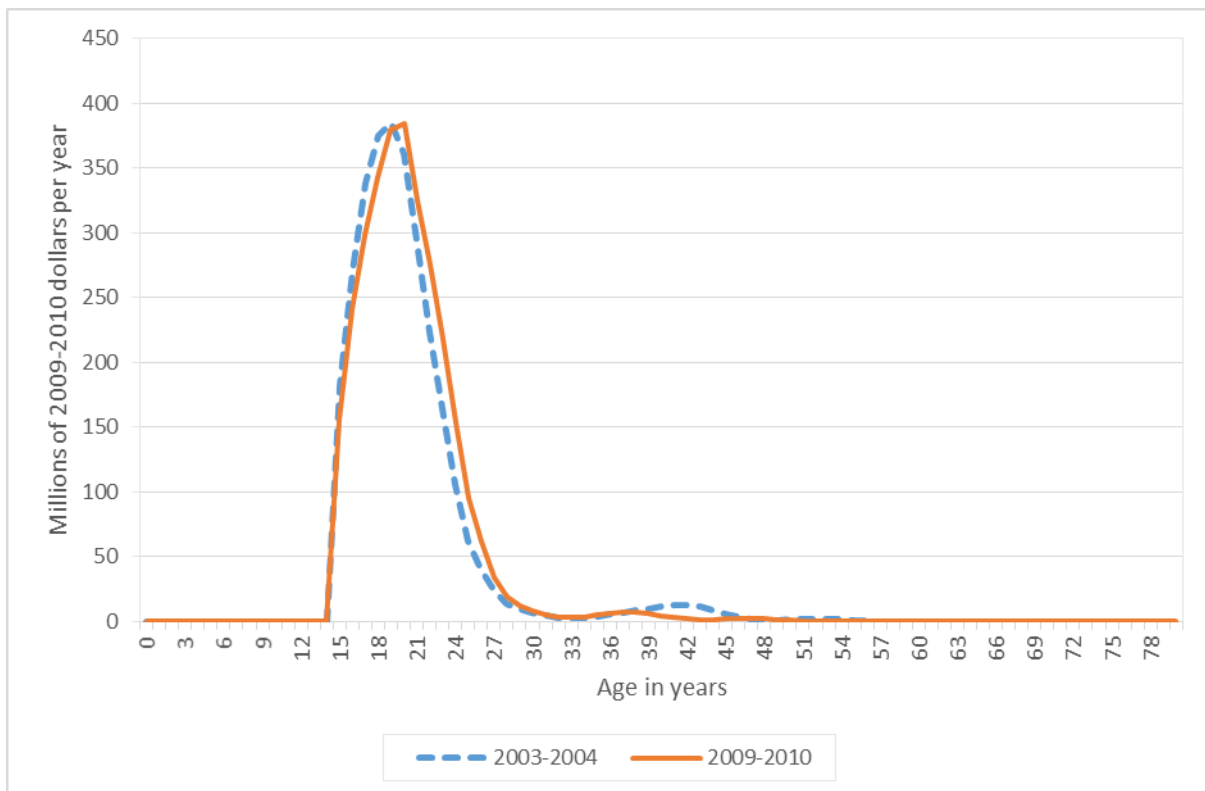


Figure 44: Aggregate age profile, Social Protection Targeted at the Young, Inflow.



Definition: Social assistance benefits in cash which are funded by the public sector and targeted at the young. Specifically, these benefits consist entirely of Youth Allowance.

Aggregate benchmark: The basis for the aggregate benchmark for inflows of social protection targeted at the young is social assistance benefits payable in cash to residents as reported in the general government income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmark for public consumption of child care. The resulting amount is then allocated to inflows of social protection targeted at the elderly, social protection targeted at the prime-aged, social protection targeted at the young, and other social protection on the basis of relative government expenditures on the benefits that constitute these social protection inflow categories. These relative expenditures are taken from (Australian Bureau of Statistics 2008c: 284-285, 287; 2012c: 332-333, 339). The amount allocated to inflows of social protection targeted at the young constitutes the aggregate benchmark for inflows of social protection targeted at the young.

Per capita age profile: Inflows of social protection targeted at the young are calculated from information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from Youth Allowance.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Unsurprisingly, the age profiles for public transfers (Social Protection Targeted at the Young) are highly consistent between the two years. The profiles are flat prior to the eligibility age for Youth Allowance (age 16), peak rapidly in the university and post-school training years, falling back to low levels by the late 20s. The per capita averages are a little lower in 2009-10 than in 2003-04.

4.2.4.4 Public Transfers, Social Protection, Other, Inflow

Figure 45: Per capita age profile, Social Protection, Other, Inflow.

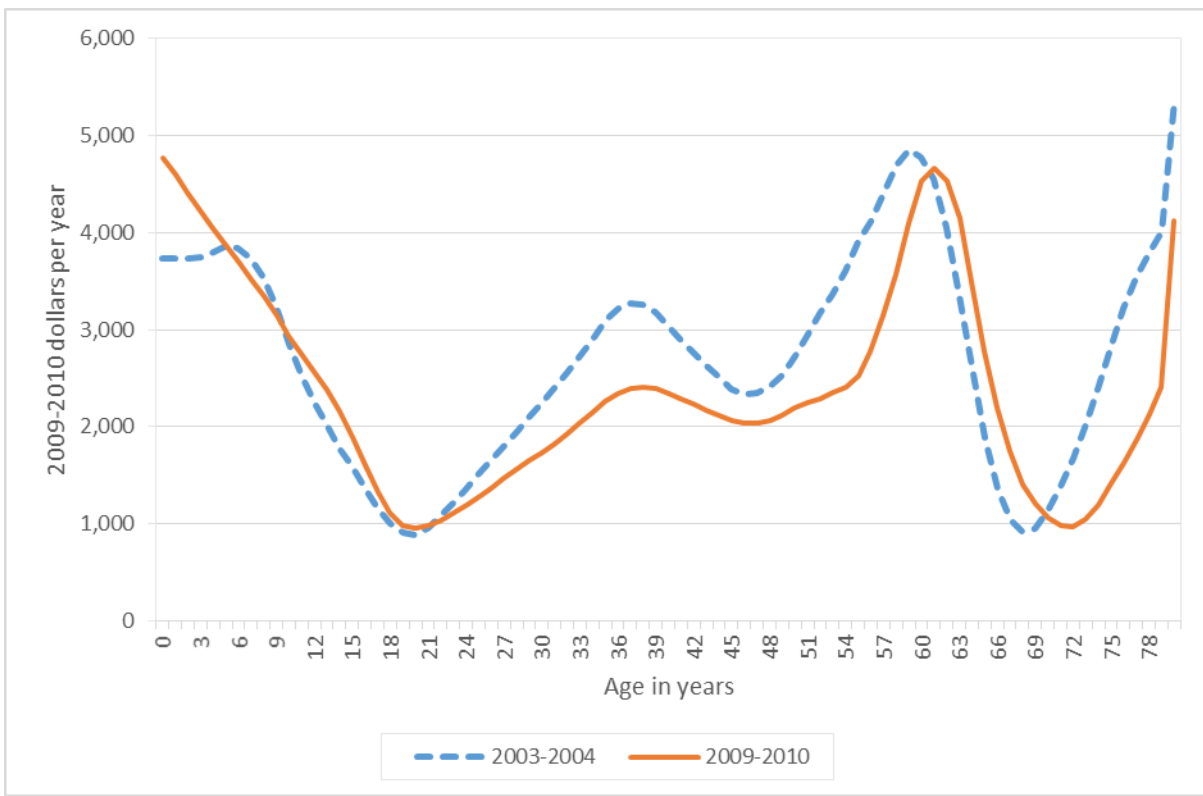
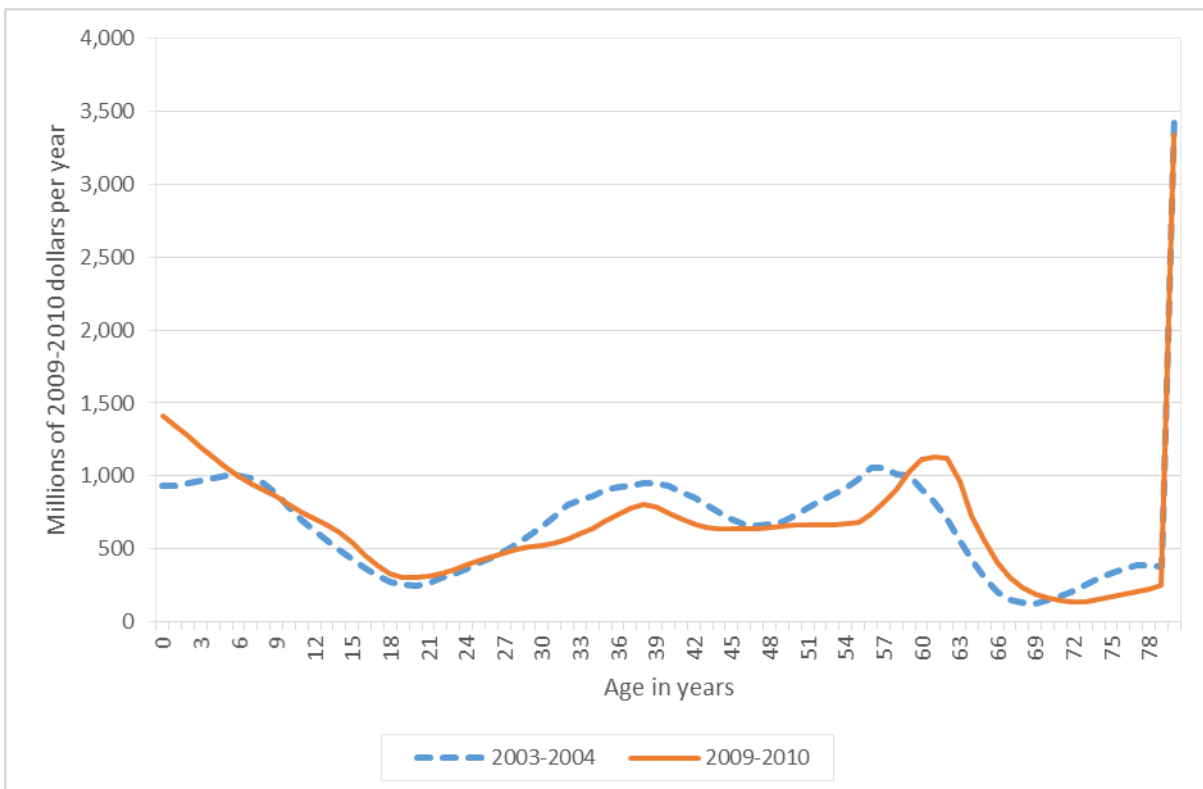


Figure 46: Aggregate age profile, Social Protection Other, Inflow.



Definition: Social assistance benefits in cash which are funded by the public sector other than those targeted at the elderly, the prime-aged, or the young. These benefits include Austudy, Abstudy, Carer Allowance, Carer Payment, Disability Support Pension, Family Tax Benefits, Parenting Payment, Partner Allowance, Special Benefit, and Wife Pension, as well as the Disability Pension, Service Pension, and War Widows Pension funded by the Department of Veterans' Affairs. For the 2003-04 accounts, these benefits also include the One-Off Carer Bonus and One-Off Payment to Families. For the 2009-10 accounts, these benefits also include the Baby Bonus and Utilities Allowance. These benefits do not include Child Care Benefit and Child Care Rebate, which are included in public consumption of child care.

Aggregate benchmark: The basis for the aggregate benchmark for inflows of other social protection is social assistance benefits payable in cash to residents as reported in the general government income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b), less the aggregate benchmark for public consumption of child care. The resulting amount is then allocated to inflows of social protection targeted at the elderly, social protection targeted at the prime-aged, social protection targeted at the young, and other social protection on the basis of relative government expenditures on the benefits that constitute these social protection inflow categories. These relative expenditures are taken from (Australian Bureau of Statistics 2008c: 284-285, 287; 2012c: 332-333, 339). The amount allocated to inflows of other social protection constitutes the aggregate benchmark for inflows of other social protection.

Per capita age profile: Inflows of other social protection are calculated from information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from the benefits that constitute this particular social protection inflow category. According to the NTA manual (United Nations 2013: 122), social assistance benefits in cash should be allocated to the intended beneficiaries of the benefits. For many benefits, the intended beneficiaries are the formal recipients of the benefits. For some benefits, however, the intended beneficiaries extend beyond the formal recipients. Benefits that are intended to assist children, for example, are often formally paid to adults. When a benefit is intended to assist more than one person, the benefit should be divided between these people. Most of the benefits that constitute inflows of other social protection are allocated in a straightforward manner to the formal recipients of the benefits. However, benefits such as Family Tax Benefits, Parenting Payment, and the Baby Bonus, which are designed to help with the cost of raising children, are divided equally between the adult who formally receives the benefit and the children on whom the adult's eligibility for the benefit depends. Similarly, benefits such as Carer Allowance, Carer Payment, and the One-Off Carer Bonus, that support carers who provide care for people with disabilities, medical conditions,

or who are frail aged, are divided equally between the carer who receives the benefit and the person cared for, when it proved possible to identify the latter.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: Given the broad range of payments included in public transfers (social protection, other), it is not unexpected that the age profiles exhibit a greater range of variability when compared to other transfers. For both years, however, the profile is relatively similar. Payments are elevated at age 0 (reflecting the Baby Bonus in 2009-10), before declining to a trough in early adulthood – around ages 18-21. The profile thereafter increases to reach an eventual peak in the mid 60’s before once more falling by the early 70s and rebounding among the oldest group of Australians.

4.2.4.5 Public Transfers, Social Protection, Other Cash, Inflow

Figure 47: Per capita age profile, Social Protection, Other Cash, Inflow.

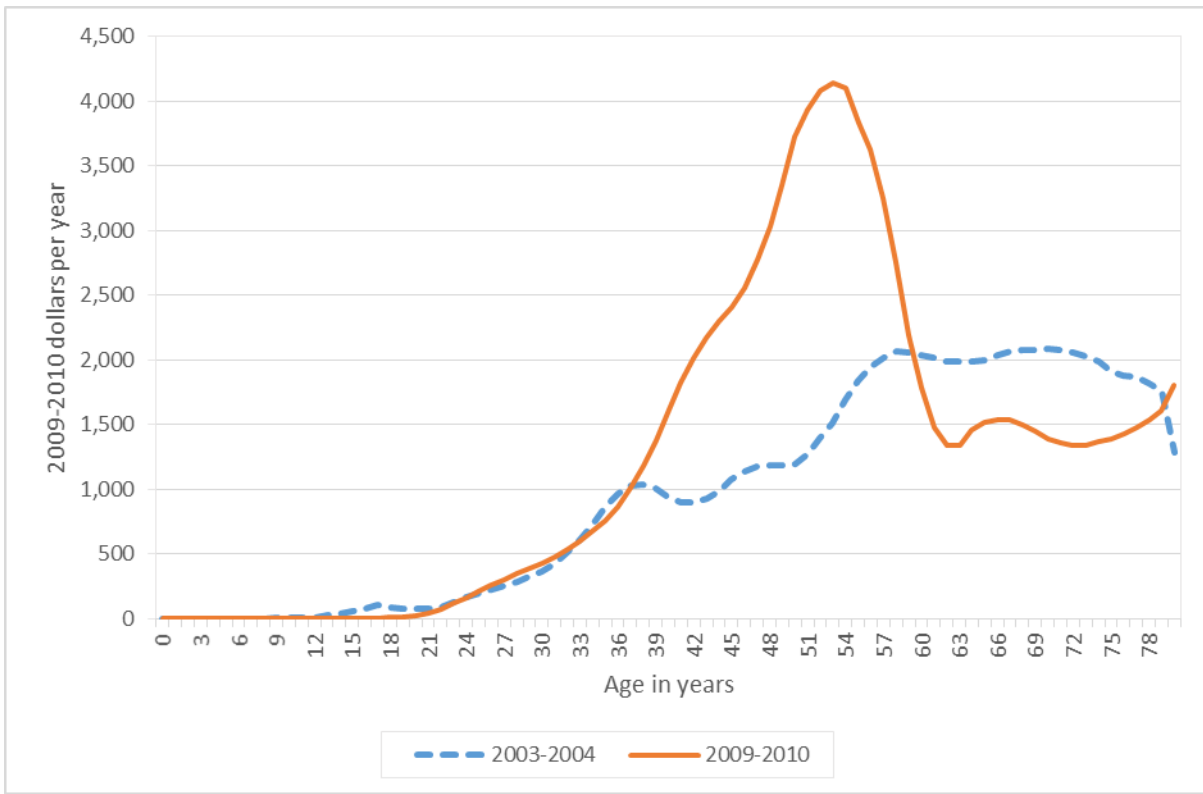
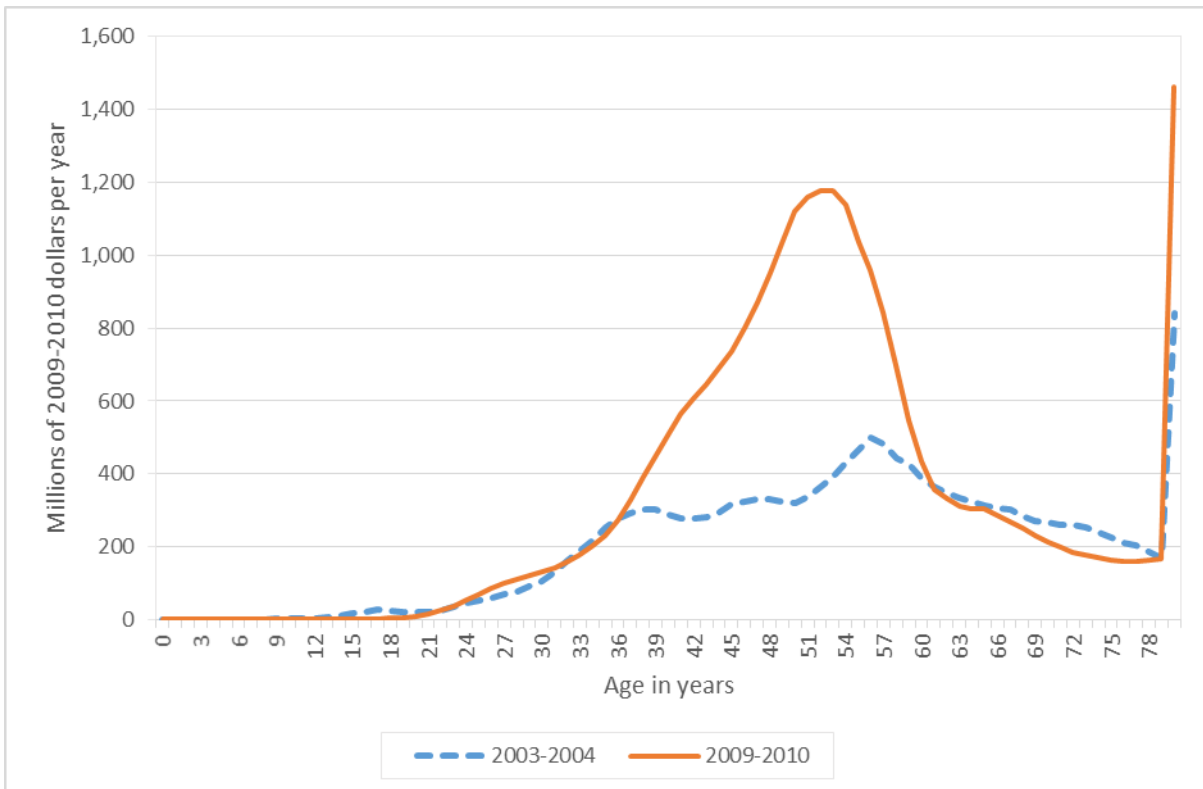


Figure 48: Aggregate age profile, Social Protection Other Cash, Inflow.



Definition: Cash transfers from the public sector to the private sector, other than social protection. A large portion of these transfers consists of non-life insurance transfers from the public sector to the private sector.

Aggregate benchmark: Derived from information on transfers reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: A large portion of inflows of other cash public transfers consists of non-life insurance transfers from the public sector to the private sector. Given this, it is assumed that a large portion of these inflows consists of transfers from the public sector to private corporations. Transfers from the public sector to private corporations are allocated to the owners of private corporations and, correspondingly, the per capita age profile for these transfers will have the same age pattern as the per capita age profile for ownership of private corporations. The per capita age profile for inflows of other cash public transfers, then, is likely to be similar to the per capita age profile for ownership of private corporations. In line with this, inflows of other cash public transfers are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of shares and incorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Reflective of the age profile of business owners, the age profile of Public Transfers (Other cash) rises from the mid 20s to a peak in the mid to late 50s for 2009-10. The pattern is different for 2003-04 perhaps reflecting a flatter age profile of business owners in 2003-04.

4.2.5 Public Age Reallocations, Outflow

4.2.5.1 Income Taxes Levied on Individuals

Figure 49: Per capita age profile, Income Taxes Levied on Individuals.

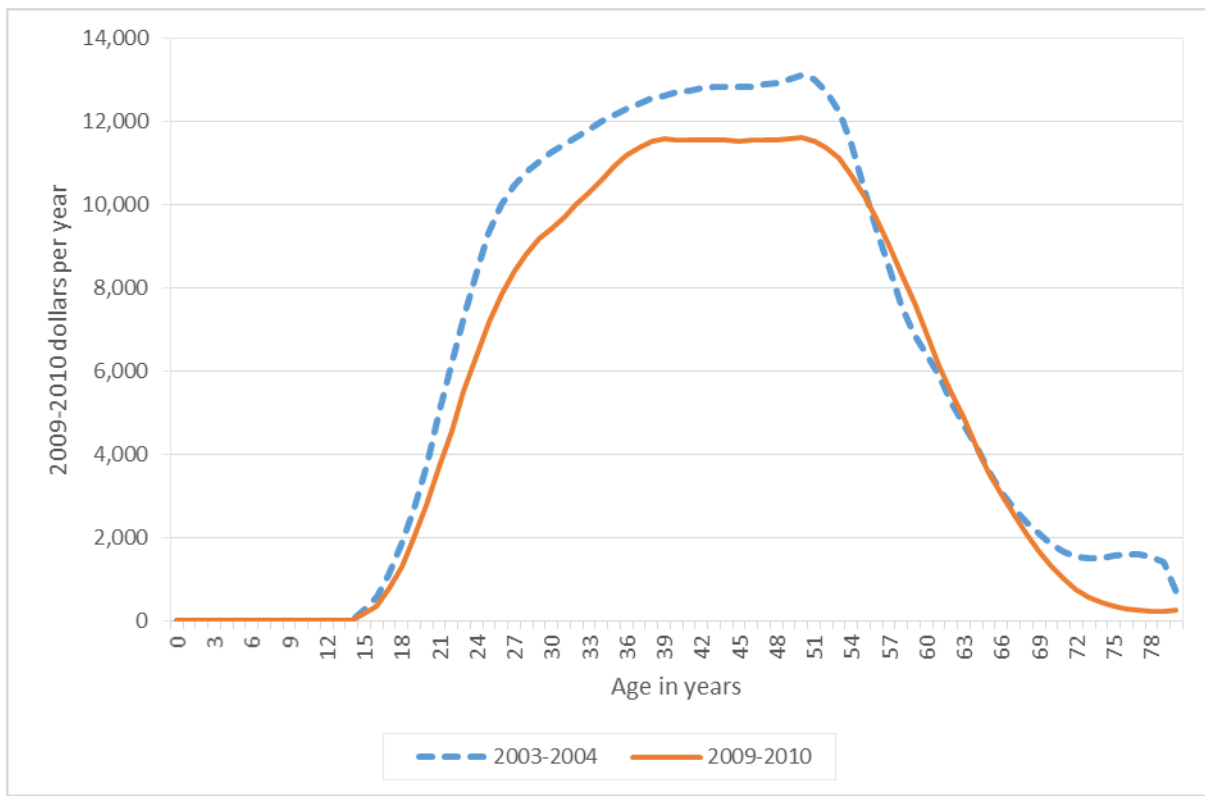
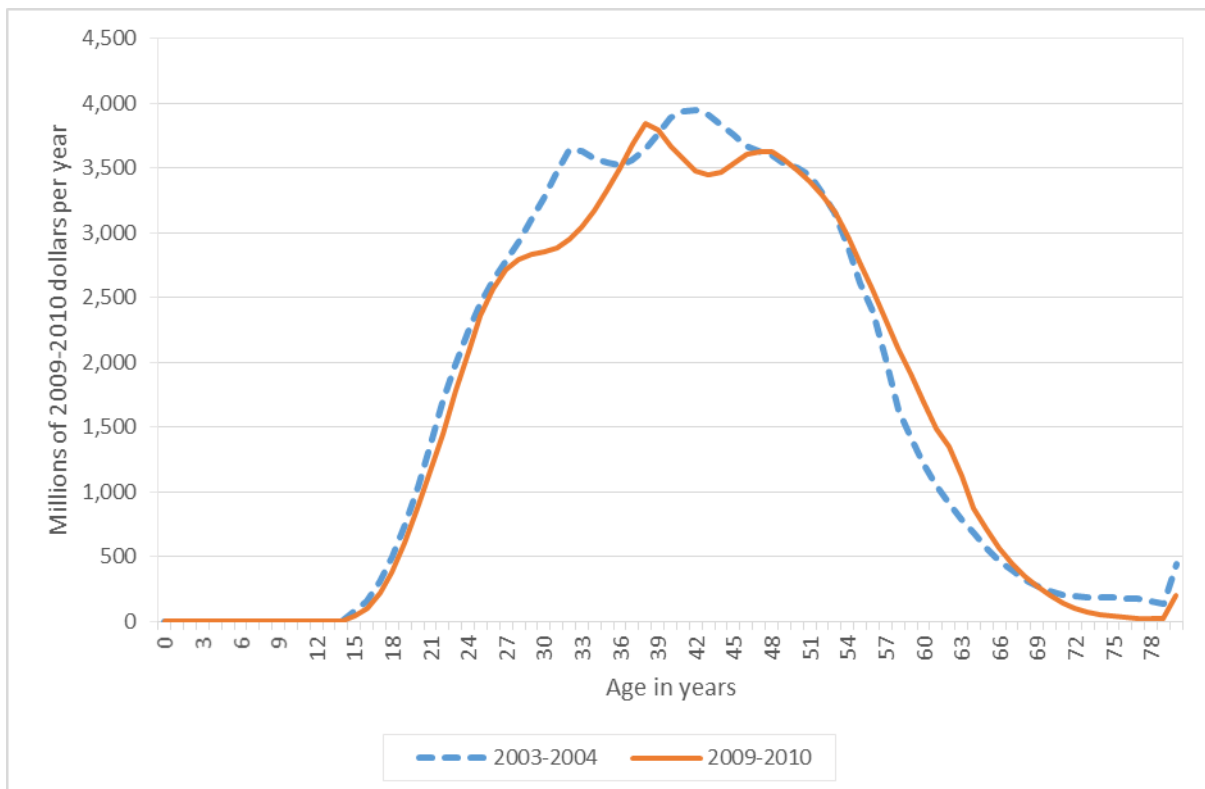


Figure 50: Aggregate age profile, Income Taxes Levied on Individuals.



Definition: Taxes levied on the incomes of individuals and unincorporated businesses. These taxes include personal income taxes, the Medicare levy, and capital gains taxes paid by individuals and unincorporated businesses.

Aggregate benchmark: The basis for the aggregate benchmark for income taxes levied on individuals is current taxes on income, wealth, etc. receivable by general government, less income tax from non-residents receivable by general government and current taxes on income, wealth, etc. payable by public non-financial corporations, as reported in the general government and public non-financial corporations income accounts of the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to income taxes levied on individuals and income taxes levied on enterprises on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to income taxes levied on individuals is the aggregate benchmark for income taxes levied on individuals.

Per capita age profile: In conjunction with the 2003-04 and 2009-10 Household Expenditure Surveys the ABS constructed estimates of income taxes levied on individuals (Australian Bureau of Statistics 2006, 2007, 2012a, 2012b). These estimates included estimates of personal income tax and the Medicare levy, but not capital gains tax. Estimates were based on the liability rules described in the Tax Pack for the relevant year and the incomes reported by individuals in the 2003-04 and 2009-10 Household Expenditure Surveys, as well as other information reported by individuals in these surveys. These estimates of income taxes levied on individuals are included in the 2003-04 and 2009-10 Household Expenditure Surveys.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Generally reflective of a profile of average wages by age, income taxes rise sharply from early adulthood, reaching a peak in the mid 30s – remaining at this level until the mid 50s when labour force participation begins to decrease. Between the two years, income taxes levied appear to be higher in 2003-04 from ages 15 through to the early 50s. This likely reflects the drop in capital gains taxes and unincorporated business income due to GFC effects, or 'bracket creep'.

4.2.5.2 Income Taxes Levied on Enterprises

Figure 51: Per capita age profile, Income Taxes Levied on Enterprises.

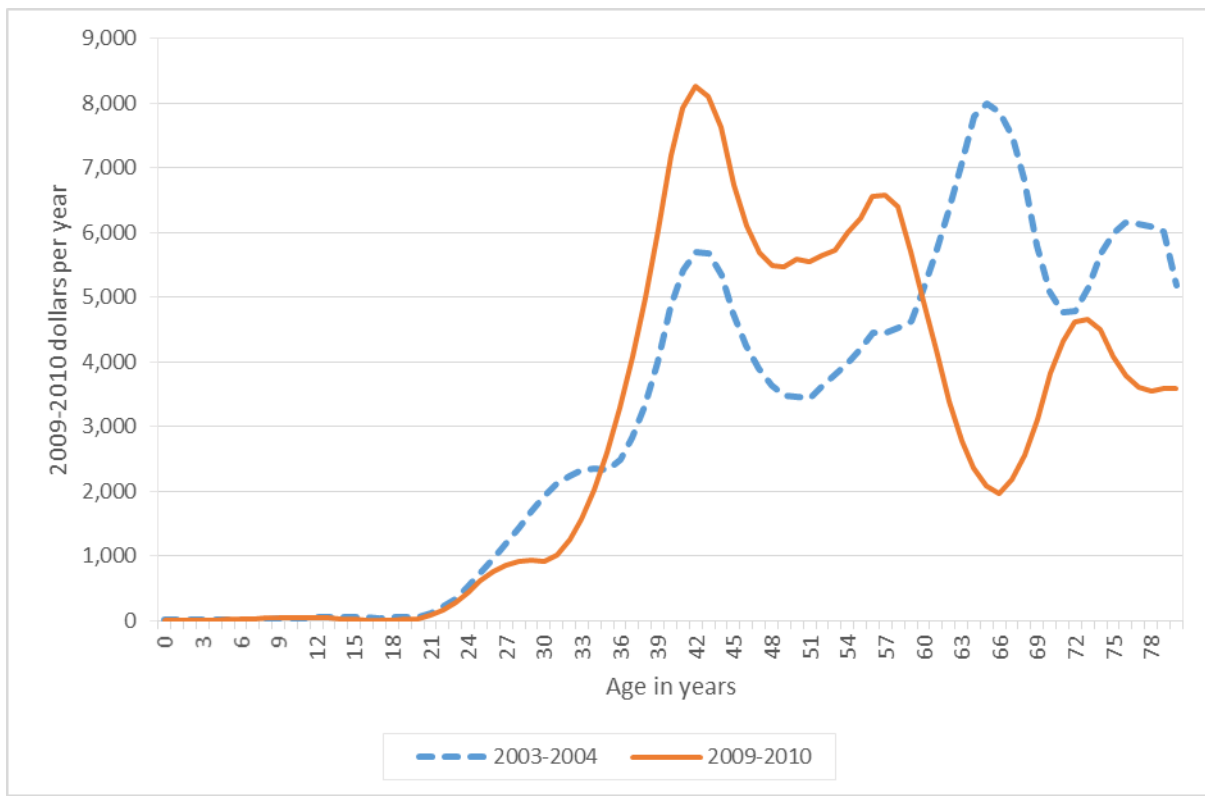
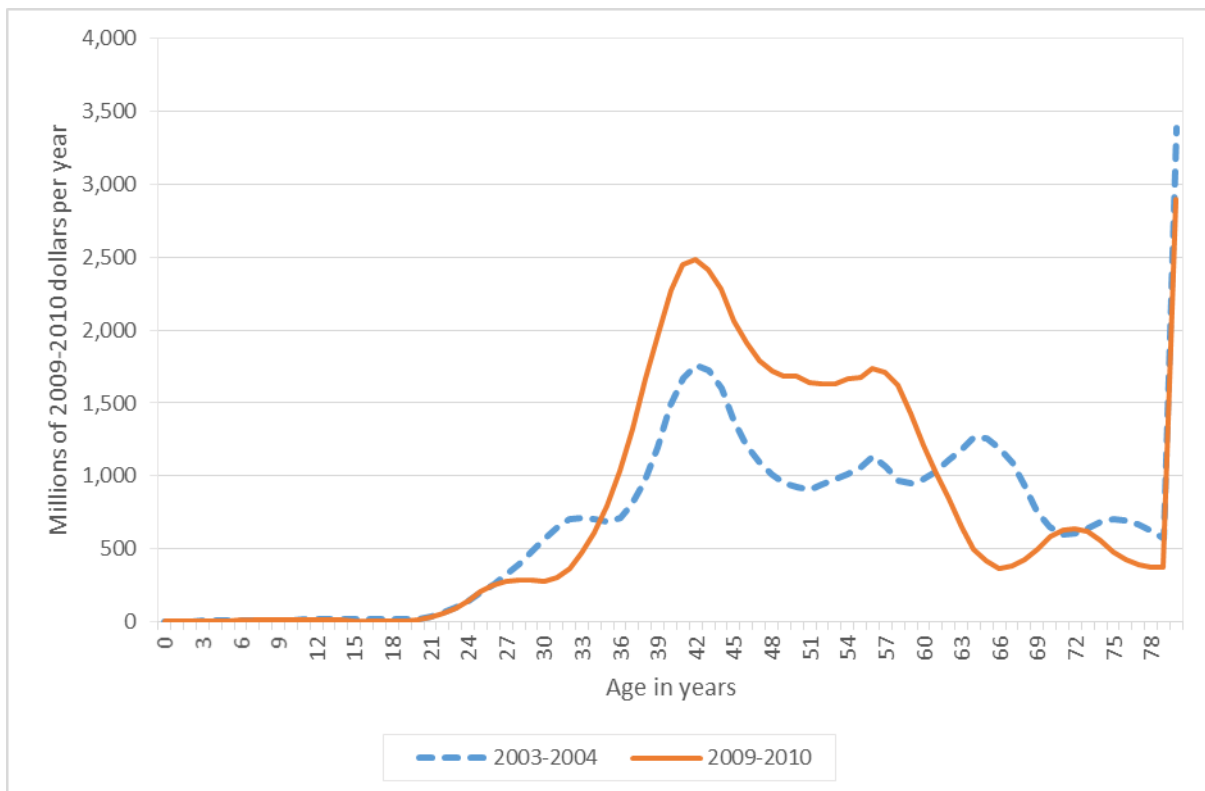


Figure 52: Aggregate age profile, Income Taxes Levied on Enterprises.



Definition: Taxes levied on the incomes of private corporations. These taxes include company income taxes, income taxes on the earnings of superannuation funds, and capital gains taxes paid by private corporations.

Aggregate benchmark: The basis for the aggregate benchmark for income taxes levied on enterprises is current taxes on income, wealth, etc. receivable by general government, less income tax from non-residents receivable by general government and current taxes on income, wealth, etc. payable by public non-financial corporations, as reported in the general government and public non-financial corporations income accounts of the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to income taxes levied on individuals and income taxes levied on enterprises on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to income taxes levied on enterprises is the aggregate benchmark for income taxes levied on enterprises.

Per capita age profile: The per capita age profile for income taxes levied on enterprises is assumed to be similar to the per capita age profile for income received from dividends. In line with this, income taxes levied on enterprises are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from dividends.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Reflective of the age profile of dividend recipients, the age profile of income taxes levied on enterprises rises from the mid 20s to a peak in the mid to late 30s for 2009-10. For 2003-04, the peak occurs later toward the mid 60s. Indeed there appears to be greater variability in the age profile at later ages and this may be due to GFC effects causing variability in the payment of dividends or may also be due to some small cohort effects in the ownership of shares.

4.2.5.3 Employers' Payroll Taxes

Figure 53: Per capita age profile, Employers' Payroll Taxes.

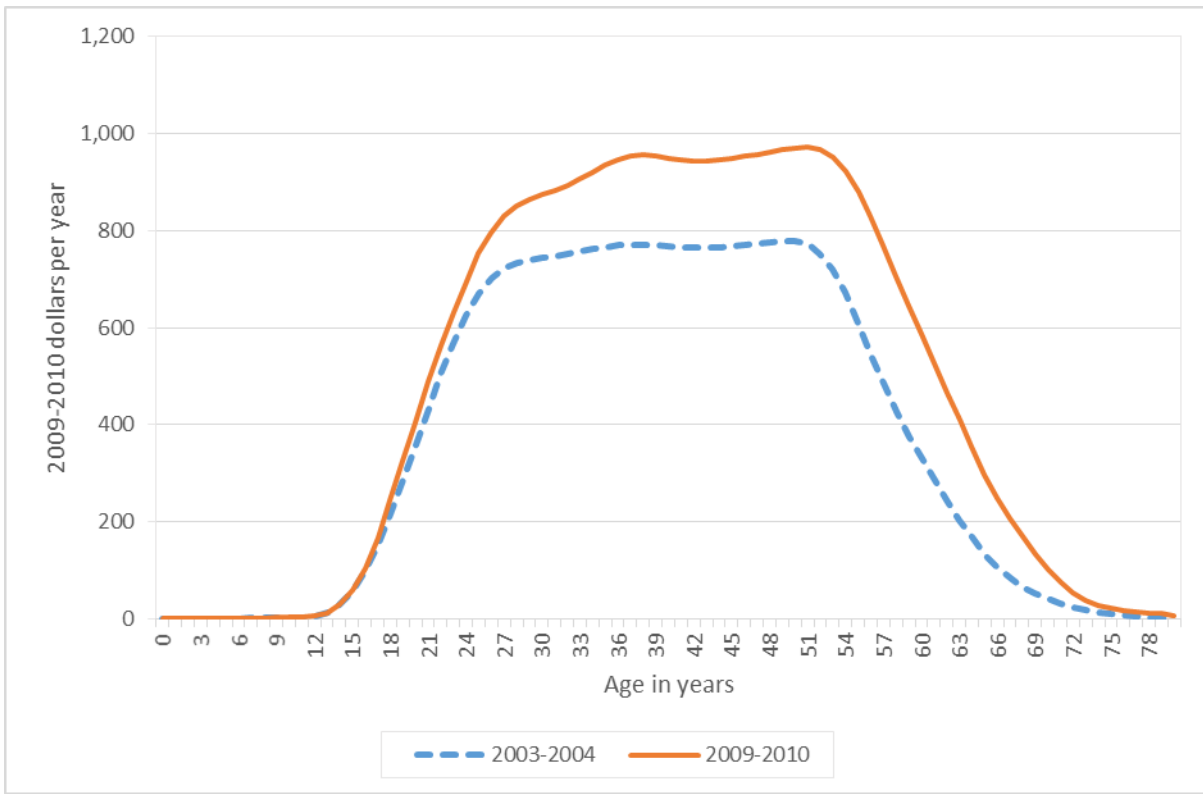
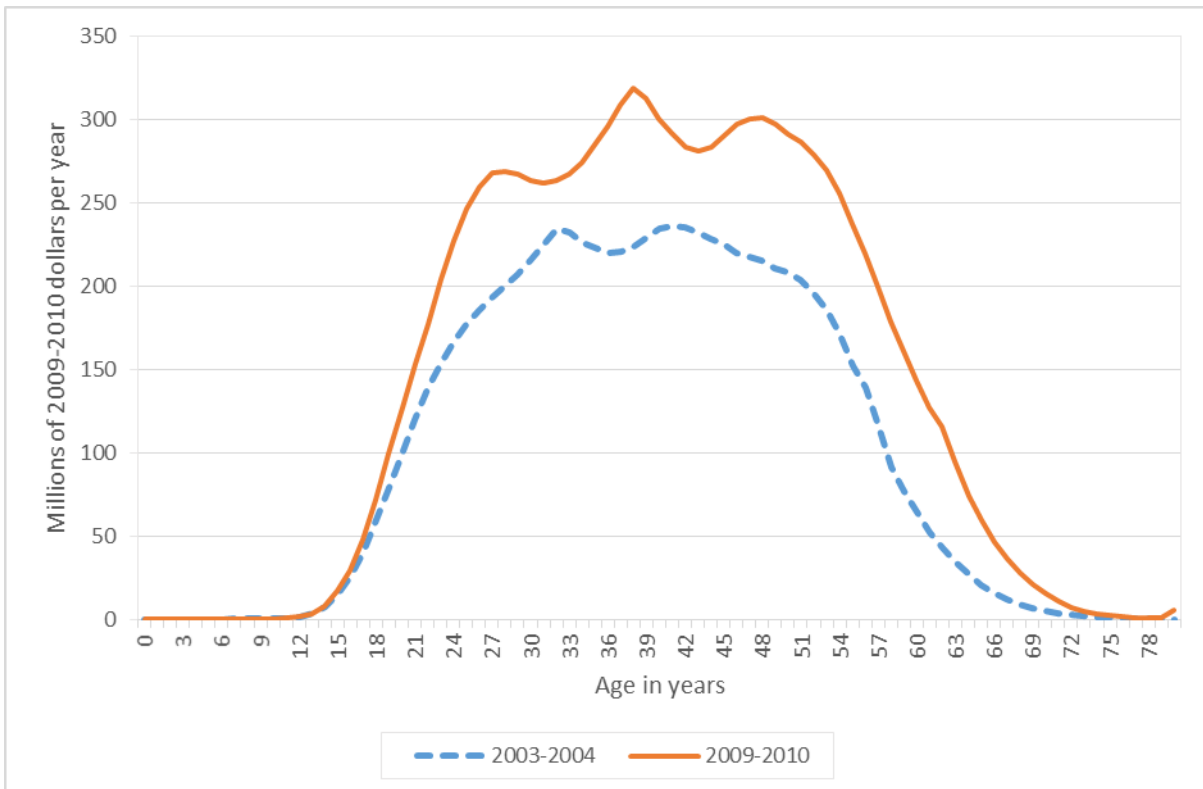


Figure 54: Aggregate age profile, Employers' Payroll Taxes.



Definition: Taxes paid by employers that are levied either as a proportion of payroll or as a fixed amount per employee.

Aggregate benchmark: The basis for the aggregate benchmark for employers' payroll taxes is taxes (less subsidies) on production and imports, minus taxes (less subsidies) on products, as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to employers' payroll taxes, taxes on property, and taxes on the use of goods and performance of activities on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to employers' payroll taxes is the aggregate benchmark for employers' payroll taxes.

Per capita age profile: Employers' payroll taxes are considered to be taxes on labour that are deducted from the labour earnings of employees by employers prior to these earnings being received by employees. Consequently, despite employers' payroll taxes being formally paid by employers, these taxes are considered to be borne in actuality by employees. In line with this, the per capita age profile for employers' payroll taxes is assumed to be similar to the per capita age profile for labour earnings, including fringe benefits.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Employers' payroll taxes, increases sharply until the late 20s, at which point its pace of increase slows, although continuing to rise until the mid 50s – before beginning to fall off thereafter. Reflective of earlier labour earnings results, employers' payroll taxes fall at significantly later ages in 2009-10, compared to 2003-04. As a result, employers' payroll taxes at later ages are much greater in 2009-10 than they are in 2003-04.

4.2.5.4 Taxes on Property, Private Corporations

Figure 55: Per capita age profile, Taxes on Property, Private Corporations.

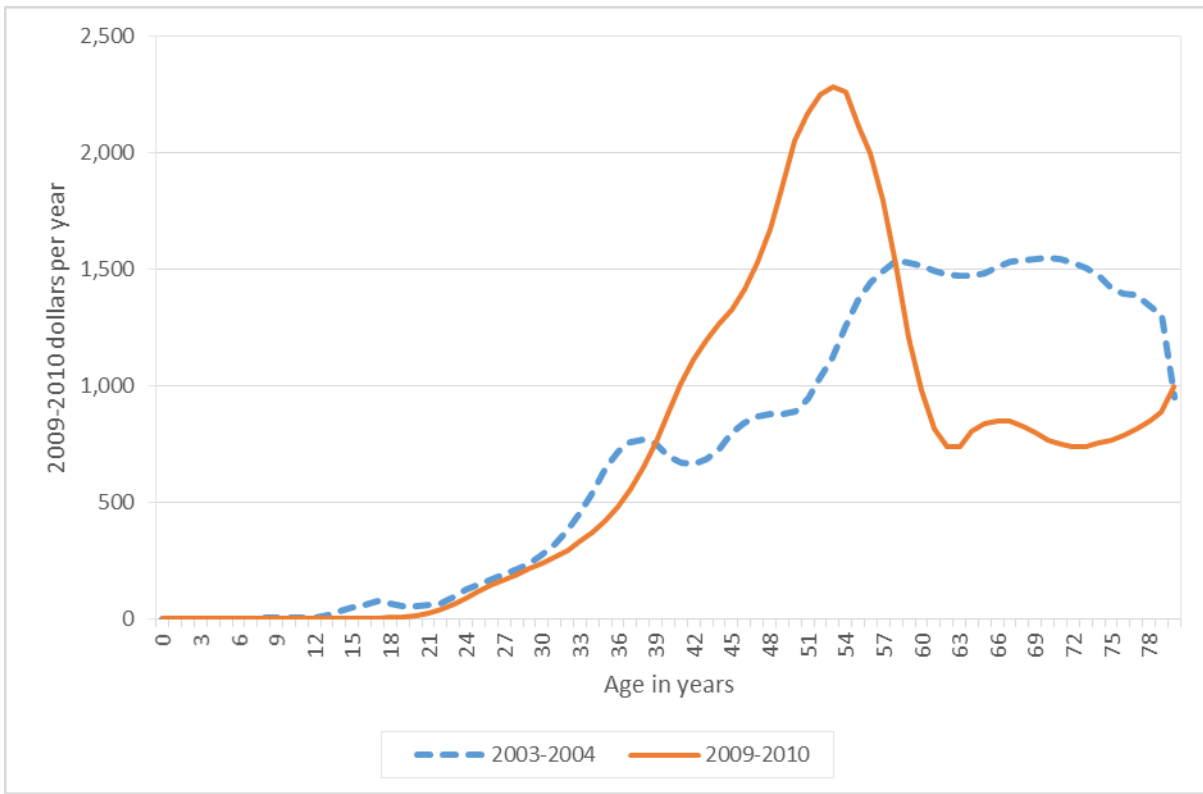
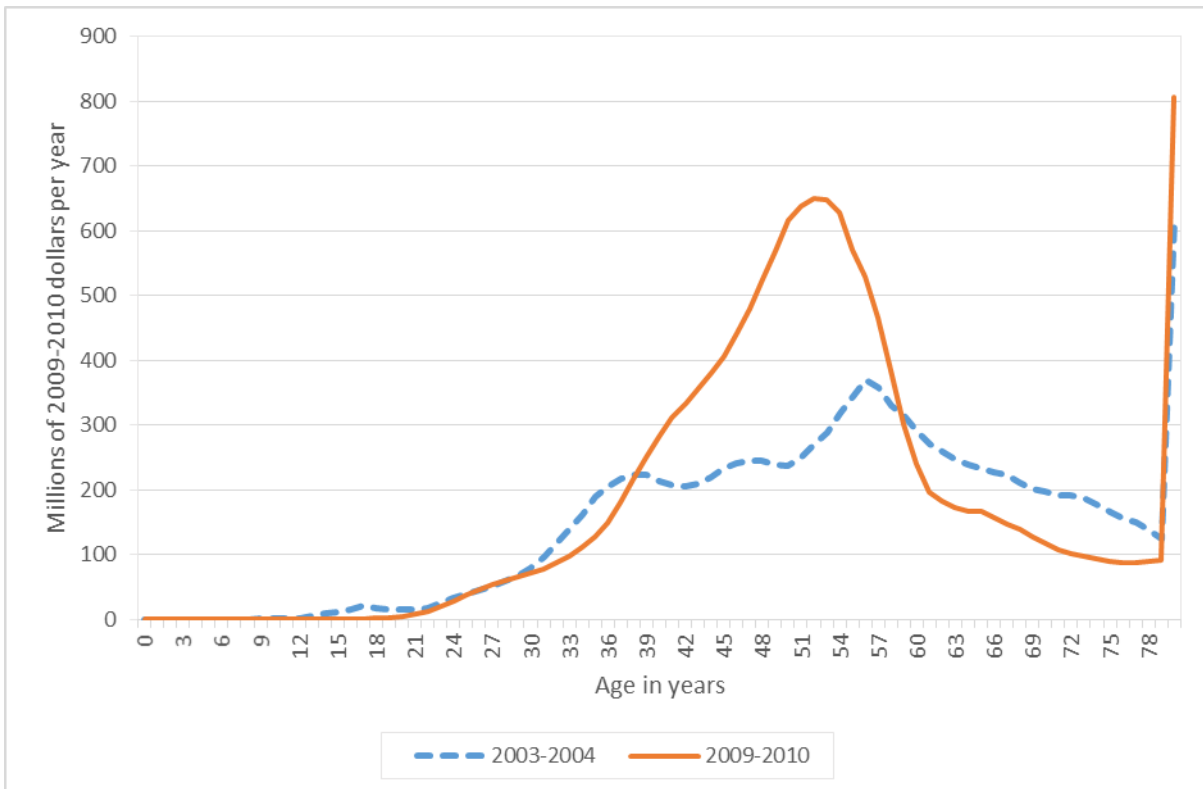


Figure 56: Aggregate age profile, Taxes on Property, Private Corporations.



Definition: Taxes levied on the use or ownership of property and on property transfers that are paid by private corporations. These taxes include taxes on immovable property, such as land taxes and municipal rates, as well as taxes on financial and capital transactions, such as financial institutions transactions taxes, government borrowing guarantee levies, stamp duties on conveyances, and stamp duties on shares and marketable securities.

Aggregate benchmark: The basis for the aggregate benchmark for taxes on property paid by private corporations is taxes (less subsidies) on production and imports, minus taxes (less subsidies) on products, as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to employers' payroll taxes, taxes on property, and taxes on the use of goods and performance of activities on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to taxes on property is then further distributed to private corporations, households, and unincorporated businesses in proportion to, respectively: (1) gross operating surplus of financial and private non-financial corporations; (2) gross operating surplus of households (that is, the gross operating surplus of dwellings owned by persons); and (3) one third of gross mixed income. Figures for gross operating surplus and gross mixed income are taken from the Australian System of National Accounts (Australian Bureau of Statistics 2013b). Concerning gross mixed income, one third of gross mixed income is used because the NTA manual (United Nations 2013) suggests that gross mixed income should be allocated between capital and labour in the following proportions: one third to capital and two thirds to labour. The amount of taxes on property that is distributed to private corporations as a result of these calculations constitutes the aggregate benchmark for taxes on property paid by private corporations.

Per capita age profile: Taxes on property paid by private corporations are allocated to the owners of private corporations. As a result, the per capita age profile for these taxes will have the same age pattern as the per capita age profile for ownership of private corporations. In line with this, these taxes are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of shares and incorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Reflective of the age profile of business owners, the age profile of taxes on property (private corporations) rises from the mid 20s to a peak in the mid to late 50s for 2009-10 and declining thereafter. Given the age profile of business owners in 2003-04 appears somewhat flatter than the later profile, the transfers simply reflect this trend.

4.2.5.5 Taxes on Property, Households

Figure 57: Per capita age profile, Taxes on Property, Households.

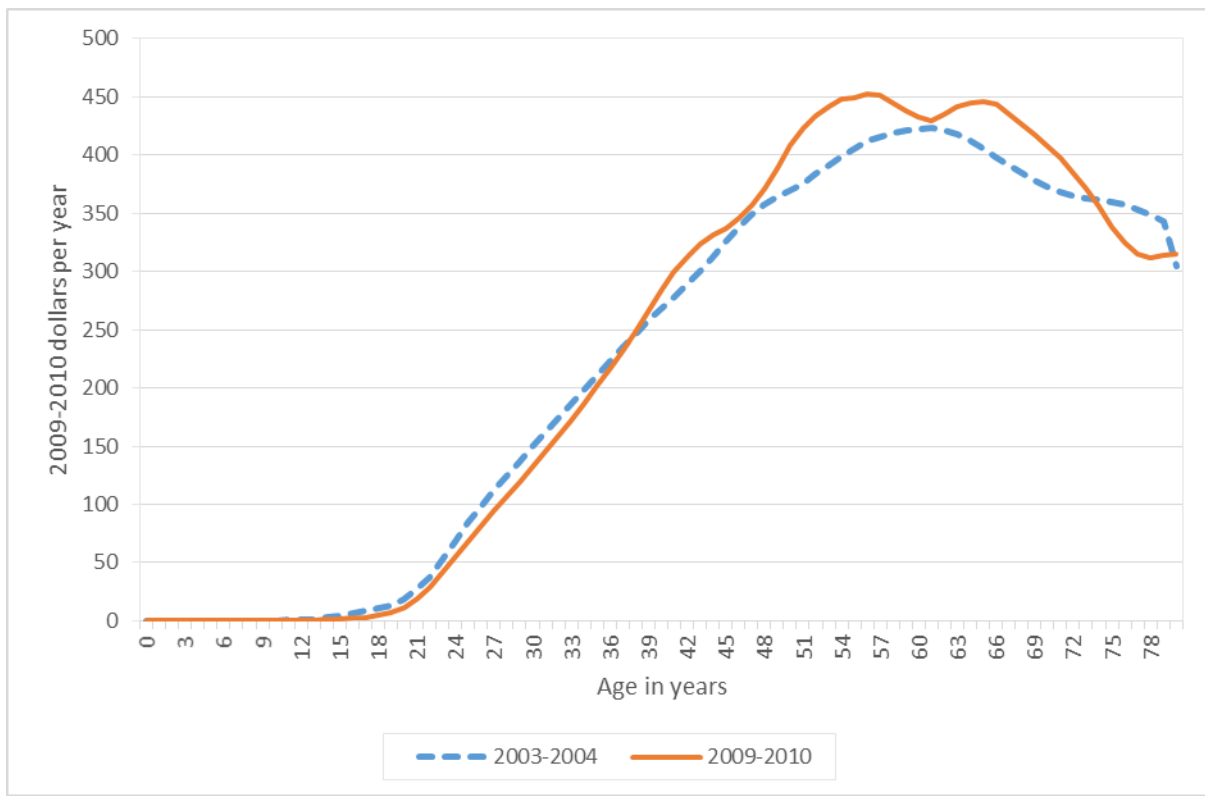
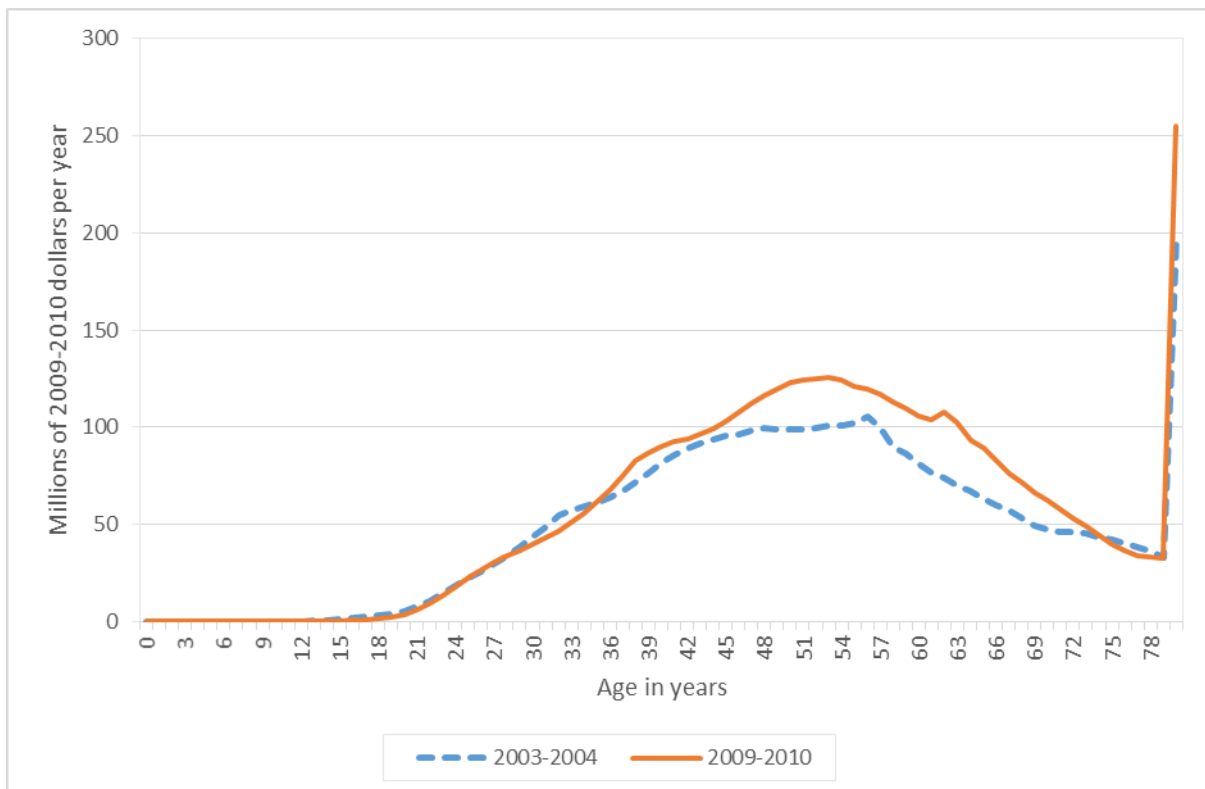


Figure 58: Aggregate age profile, Taxes on Property, Households.



Definition: Taxes levied on the use or ownership of property and on property transfers that are paid by households. These taxes include taxes on immovable property, such as land taxes and municipal rates, as well as taxes on financial and capital transactions, such as financial institutions transactions taxes, government borrowing guarantee levies, stamp duties on conveyances, and stamp duties on shares and marketable securities.

Aggregate benchmark: The basis for the aggregate benchmark for taxes on property paid by households is taxes (less subsidies) on production and imports, minus taxes (less subsidies) on products, as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to employers' payroll taxes, taxes on property, and taxes on the use of goods and performance of activities on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to taxes on property is then further distributed to private corporations, households, and unincorporated businesses in proportion to, respectively: (1) gross operating surplus of financial and private non-financial corporations; (2) gross operating surplus of households (that is, the gross operating surplus of dwellings owned by persons); and (3) one third of gross mixed income. Figures for gross operating surplus and gross mixed income are taken from the Australian System of National Accounts (Australian Bureau of Statistics 2013b). Concerning gross mixed income, one third of gross mixed income is used because the NTA manual (United Nations 2013) suggests that gross mixed income should be allocated between capital and labour in the following proportions: one third to capital and two thirds to labour. The amount of taxes on property that is distributed to households as a result of these calculations constitutes the aggregate benchmark for taxes on property paid by households.

Per capita age profile: Taxes on property paid by households are allocated to individuals on the basis of the value of the property they own. The 2003-04 and 2009-10 Household Expenditure Surveys contain information on the value of a range of types of property owned by individuals, including the value of accounts held with financial institutions, debentures and bonds, loans to people living in other households, trusts, shares, incorporated businesses, unincorporated businesses, and silent partnerships owned by individuals, as well as the balance of accounts with government and non-government superannuation funds held by individuals. These surveys also contain information on the value of owner-occupied housing and non-owner-occupied (residential and non-residential) property owned by households. The value of non-owner-occupied property owned by households is allocated to individuals within households on the basis of the relative incomes received by household members from non-owner-occupied property. The value of owner-occupied housing is allocated on an equal basis to the owner-occupiers within households, if known, or else to the household head and his or her spouse.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: Between the two years, there is a great deal of consistency in the value and age profiles of taxes on property (households). The taxes paid by those in the mid 40s to mid 50s are marginally higher, potentially reflective of increases in higher value properties. Interestingly, from early adulthood through to about age 60, the increase in taxes paid on property is almost linear, slowly falling off thereafter.

4.2.5.5 Taxes on Property, Unincorporated Businesses

Figure 59: Per capita age profile, Taxes on Property, Unincorporated Businesses.

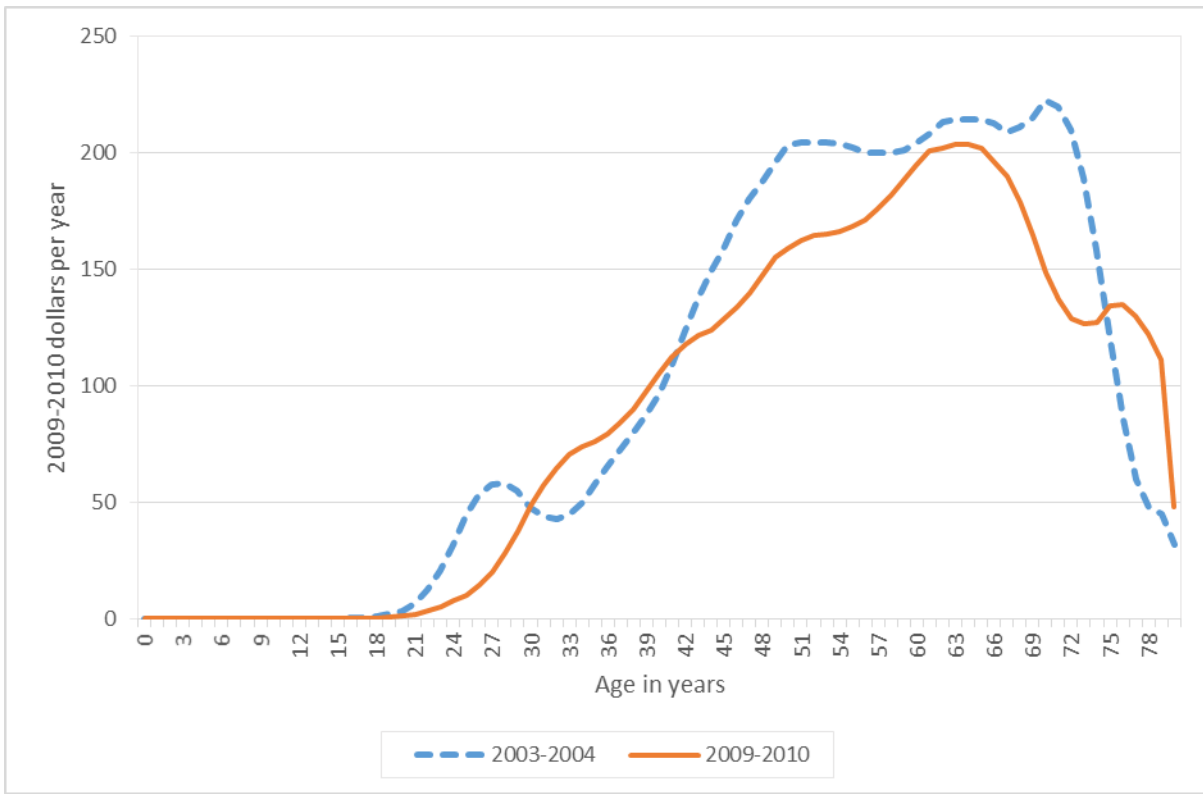
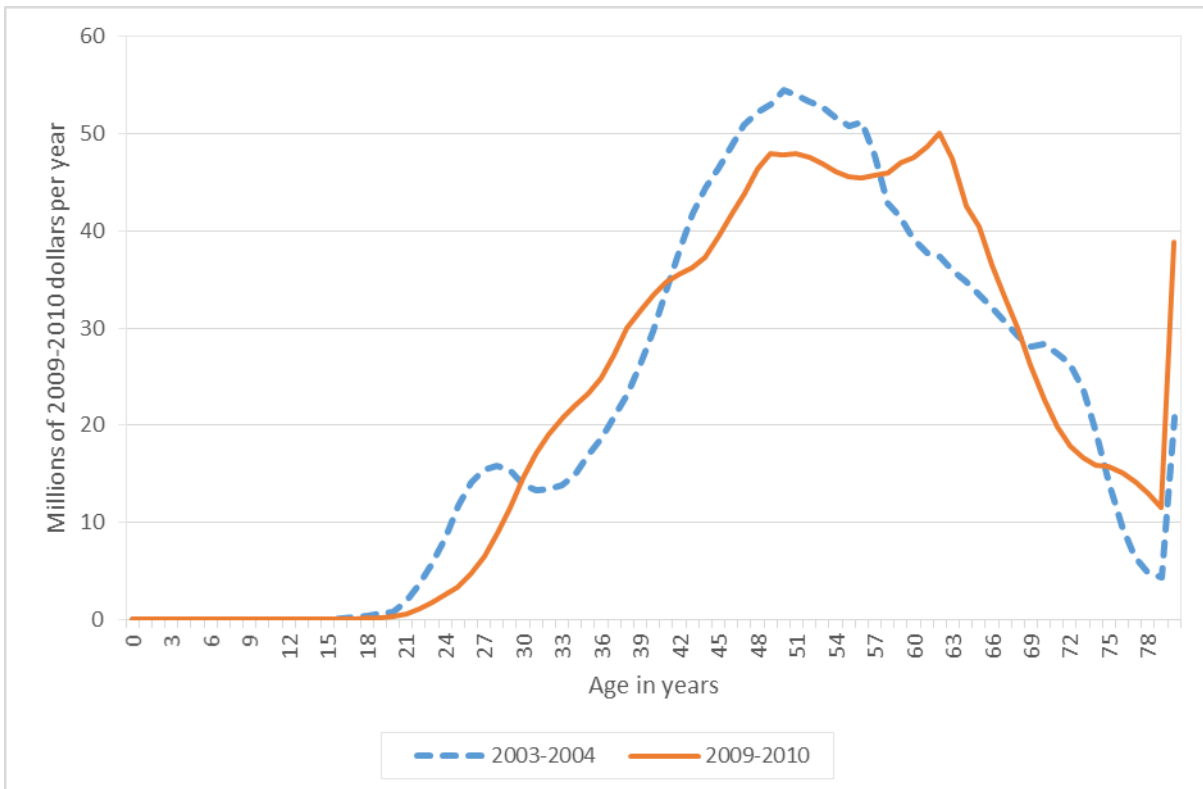


Figure 60: Aggregate age profile, Taxes on Property, Unincorporated Businesses.



Definition: Taxes levied on the use or ownership of property and on property transfers that are paid by unincorporated businesses. These taxes include taxes on immovable property, such as land taxes and municipal rates, as well as taxes on financial and capital transactions, such as financial institutions transactions taxes, government borrowing guarantee levies, stamp duties on conveyances, and stamp duties on shares and marketable securities.

Aggregate benchmark: The basis for the aggregate benchmark for taxes on property paid by unincorporated businesses is taxes (less subsidies) on production and imports, minus taxes (less subsidies) on products, as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to employers' payroll taxes, taxes on property, and taxes on the use of goods and performance of activities on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to taxes on property is then further distributed to private corporations, households, and unincorporated businesses in proportion to, respectively: (1) gross operating surplus of financial and private non-financial corporations; (2) gross operating surplus of households (that is, the gross operating surplus of dwellings owned by persons); and (3) one third of gross mixed income. Figures for gross operating surplus and gross mixed income are taken from the Australian System of National Accounts (Australian Bureau of Statistics 2013b). Concerning gross mixed income, one third of gross mixed income is used because the NTA manual (United Nations 2013) suggests that gross mixed income should be allocated between capital and labour in the following proportions: one third to capital and two thirds to labour. The amount of taxes on property that is distributed to unincorporated businesses as a result of these calculations constitutes the aggregate benchmark for taxes on property paid by unincorporated businesses.

Per capita age profile: Taxes on property paid by unincorporated businesses are allocated to the owners of unincorporated businesses. As a result, the per capita age profile for these taxes will have the same age pattern as the per capita age profile for ownership of unincorporated businesses. In line with this, these taxes are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of unincorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Reflective of the age profile of unincorporated business owners, the age profile of Taxes on Property (Unincorporated Business) rises from the mid 20s to a peak in the early 60s for 2009-10. The peak extends a little further into the late 60s for the earlier 2003-04 year.

4.2.5.6 Goods and Services Tax (GST)

Figure 61: Per capita age profile, Goods and Services Tax (GST).

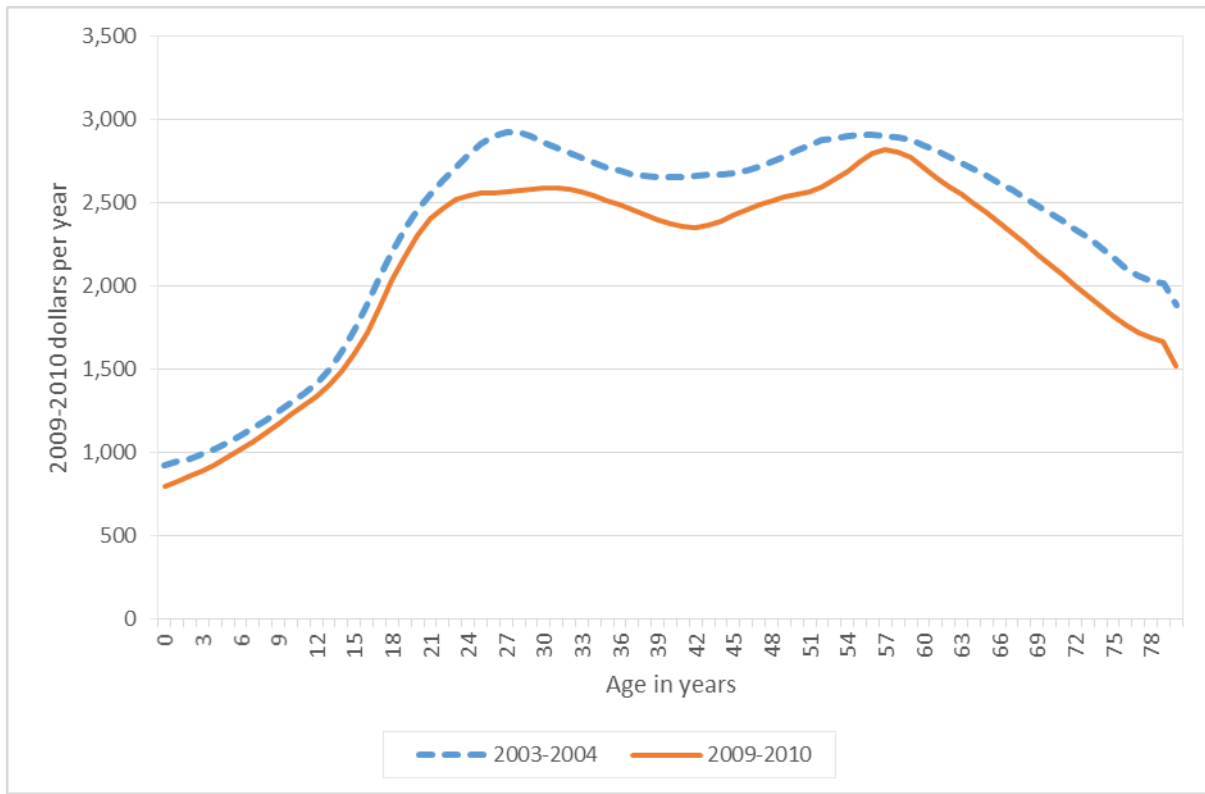
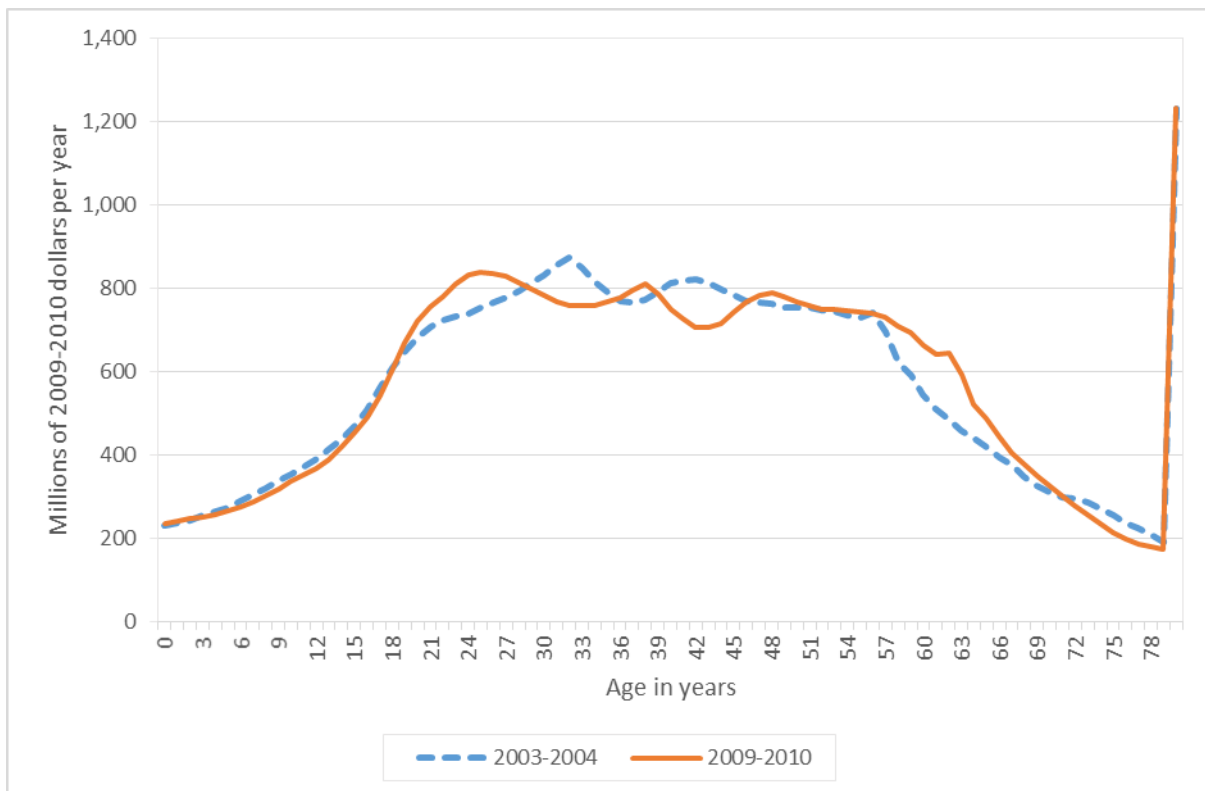


Figure 62: Aggregate age profile, Goods and Services Tax (GST).



Definition: Cash transfers from the private sector to the public sector as a result of the Goods and Services Tax (GST).

Aggregate benchmark: The basis for the aggregate benchmark for the GST is taxes (less subsidies) on products as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). These taxes are allocated to the GST and to other taxes on the provision of goods and services on the basis of relative revenue raised by the GST and by other taxes on the provision of goods and services (that is, sales taxes, excises, taxes on international trade, taxes on gambling, and taxes on insurance), as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to the GST is the aggregate benchmark for the GST.

Per capita age profile: In conjunction with the 2003-04 and 2009-10 Household Expenditure Surveys the ABS has conducted studies into the effects of government benefits and taxes on household income in Australia during these years (Australian Bureau of Statistics 2007, 2012a). As part of these studies the ABS constructed estimates of the amounts of GST paid by households. These estimates are included in the 2003-04 and 2009-10 Household Expenditure Surveys. These estimates of the amounts of GST paid by households are allocated to individuals within households on the basis of relative amounts of other private consumption by household members.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The incidence of GST falls primarily on those in the prime working ages – with the bulk of GST payments from those aged in the late teens to early 60s. In the mid to late 60s, GST payments drop off considerably. This may reflect falls in expenditure in retirement as indicated by the permanent income and lifecycle hypothesis. Decreases in general expenditure may be due to smaller household size (lower economies of scale), elimination of work related expenses, or more constrained financial capacity among other reasons.

4.2.5.7 Other Taxes on the Provision of Goods and Services

Figure 63: Per capita age profile, Other Taxes on the Provision of Goods and Services.

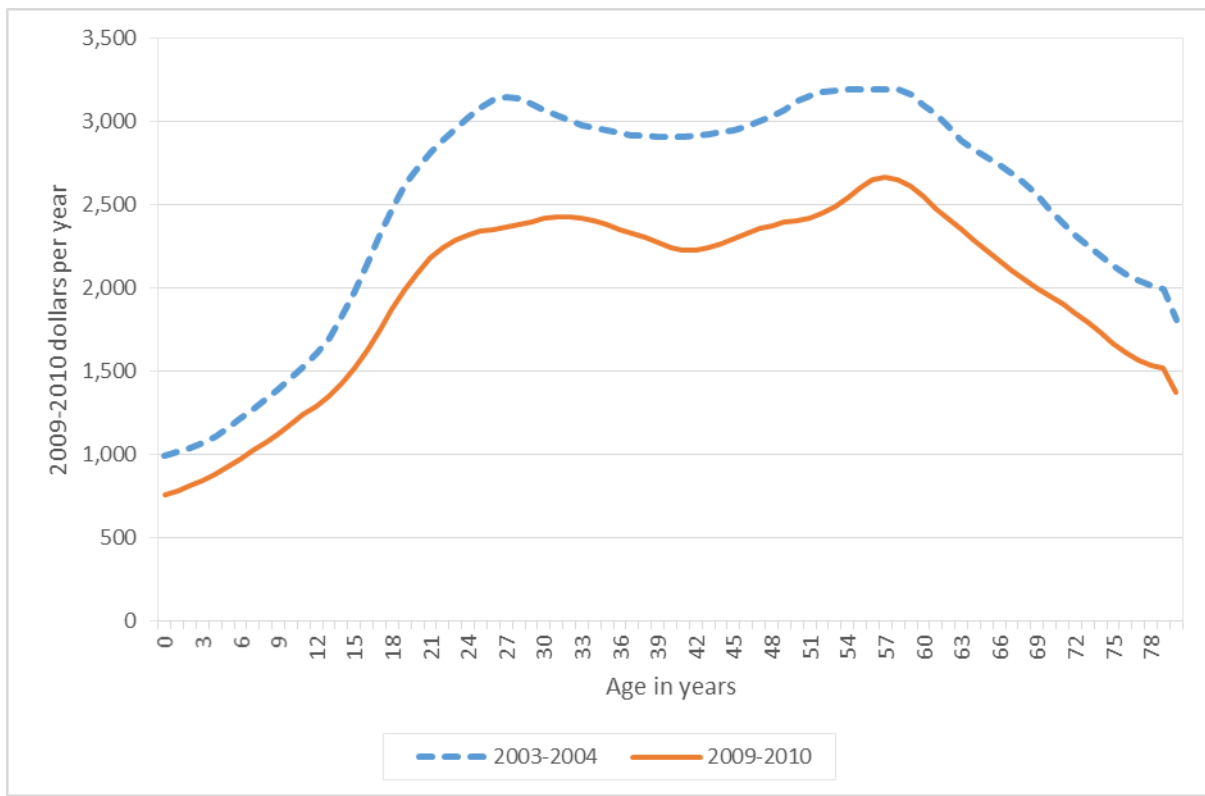
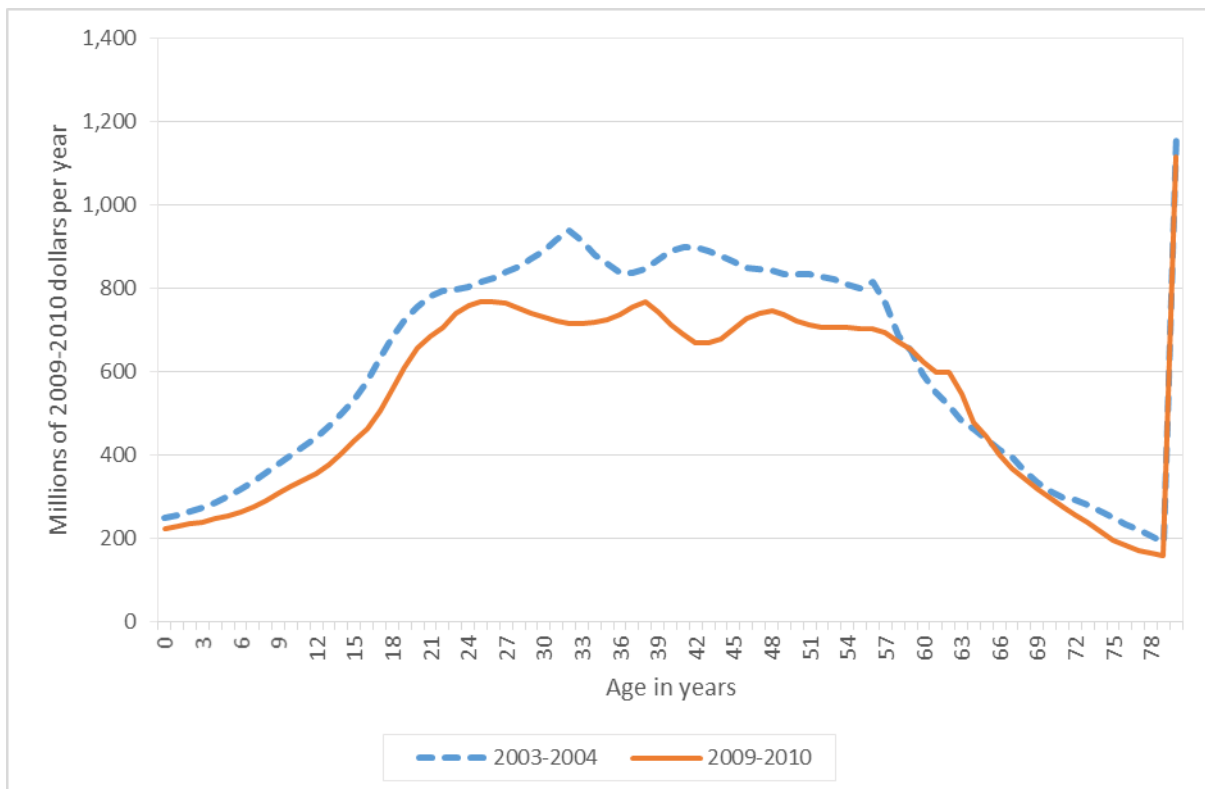


Figure 64: Aggregate age profile, Other Taxes on the Provision of Goods and Services.



Definition: Taxes levied on the production, sale, transfer, leasing, or delivery of goods and services apart from the GST. These taxes consists of sales taxes, excises, taxes on international trade, taxes on gambling, and taxes on insurance.

Aggregate benchmark: The basis for the aggregate benchmark for other taxes on the provision of goods and services is taxes (less subsidies) on products as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). These taxes are allocated to the GST and to other taxes on the provision of goods and services on the basis of relative revenue raised by the GST and by other taxes on the provision of goods and services (that is, sales taxes, excises, taxes on international trade, taxes on gambling, and taxes on insurance), as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to other taxes on the provision of goods and services is the aggregate benchmark for other taxes on the provision of goods and services.

Per capita age profile: Other taxes on the provision of goods and services are levied on a range of goods and services. Given this, it is assumed that the per capita age profile for other taxes on the provision of goods and services is similar to the per capita age profile for other private consumption.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Again, consistent with the results for GST, the incidence of Other Taxes (Provision of Goods and Services) falls predominately on those in the prime working ages. The age profile reflects the double peaked profile as shown in the total consumption profiles earlier in this report. Once adjusted for population counts, the aggregate age profile of other taxes is relatively flat throughout the prime working ages.

4.2.5.8 Taxes on the Use of Goods and Performance of Activities

Figure 65: Per capita age profile, Taxes on the Use of Goods and Performance of Activities.

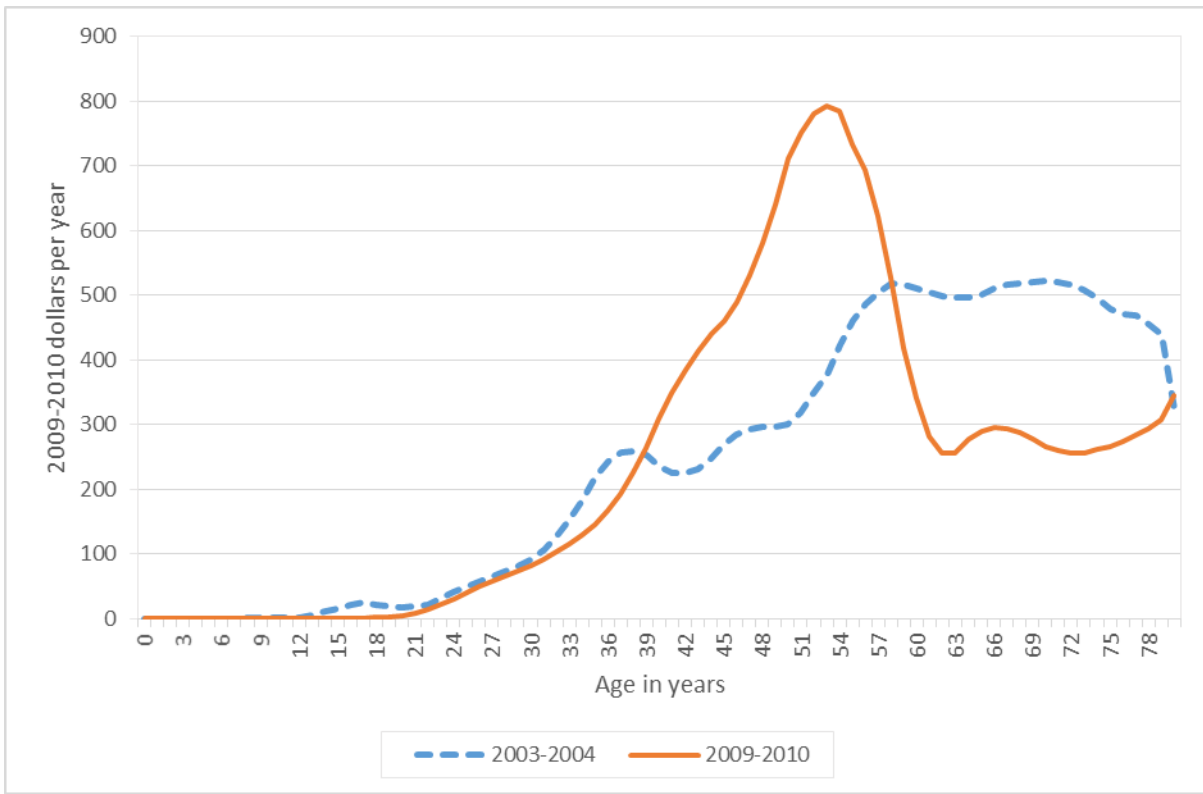
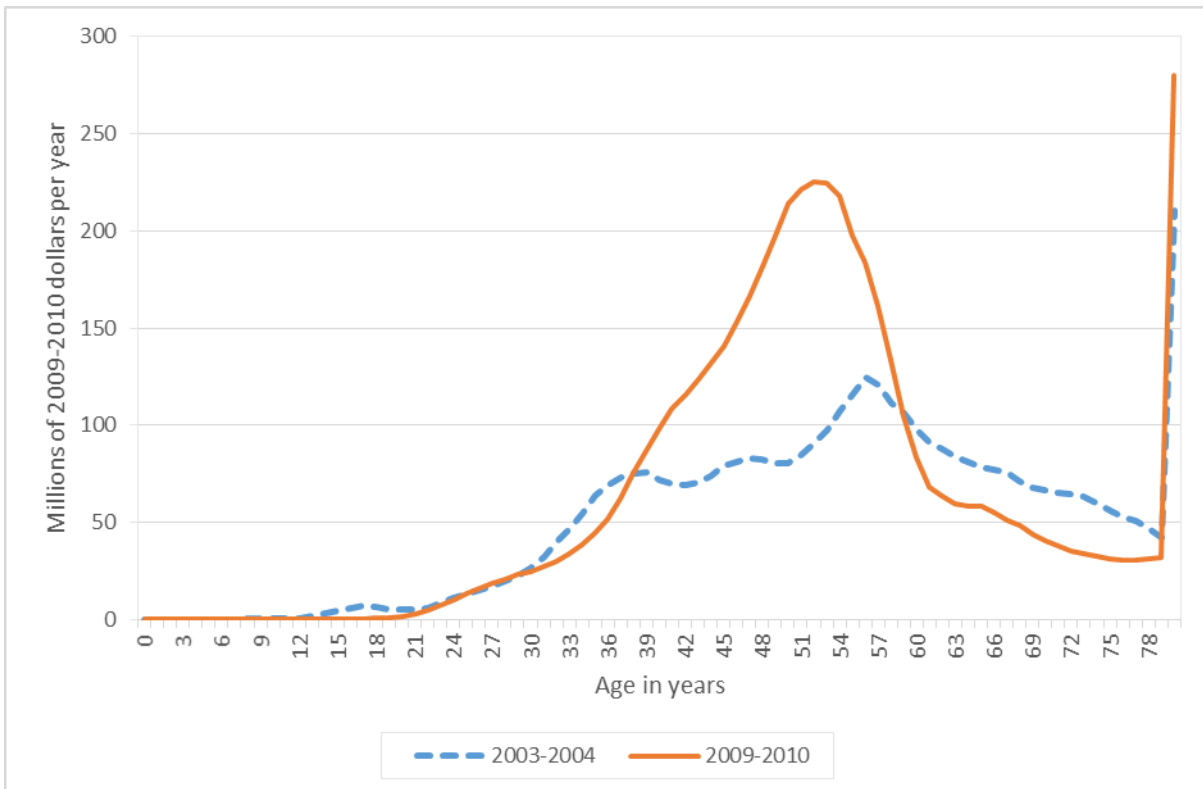


Figure 66: Aggregate age profile, Taxes on the Use of Goods and Performance of Activities.



Definition: Taxes levied on the use of goods and in respect of permission to perform activities. These taxes include motor vehicle taxes and franchise taxes.

Aggregate benchmark: The basis for the aggregate benchmark for taxes on the use of goods and performance of activities is taxes (less subsidies) on production and imports, minus taxes (less subsidies) on products, as reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). This amount of taxes is then allocated to employers' payroll taxes, taxes on property, and taxes on the use of goods and performance of activities on the basis of relative revenue raised by these taxes as reported in Australian Bureau of Statistics (2013a). The amount of taxes allocated to taxes on the use of goods and performance of activities is the aggregate benchmark for taxes on the use of goods and performance of activities.

Per capita age profile: Most taxes on the use of goods and performance of activities are paid by private corporations. Because of this, these taxes are allocated to the owners of private corporations and, correspondingly, the per capita age profile for these taxes will have the same age pattern as the per capita age profile for ownership of private corporations. In line with this, these taxes are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of shares and incorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Reflective of the age profile of business and share owners, the age profile taxes on the use of Goods and Performance of Activities rises from the mid 20s to a peak in the mid to late 50s for 200-10 and declining thereafter. Given the age profile of business owners in 2003-04 appears somewhat flatter than the later profile, the transfers simply reflect this trend.

4.2.5.9 Other Transfers from Private to Public

Figure 67: Per capita age profile, Other Transfers from Private to Public.

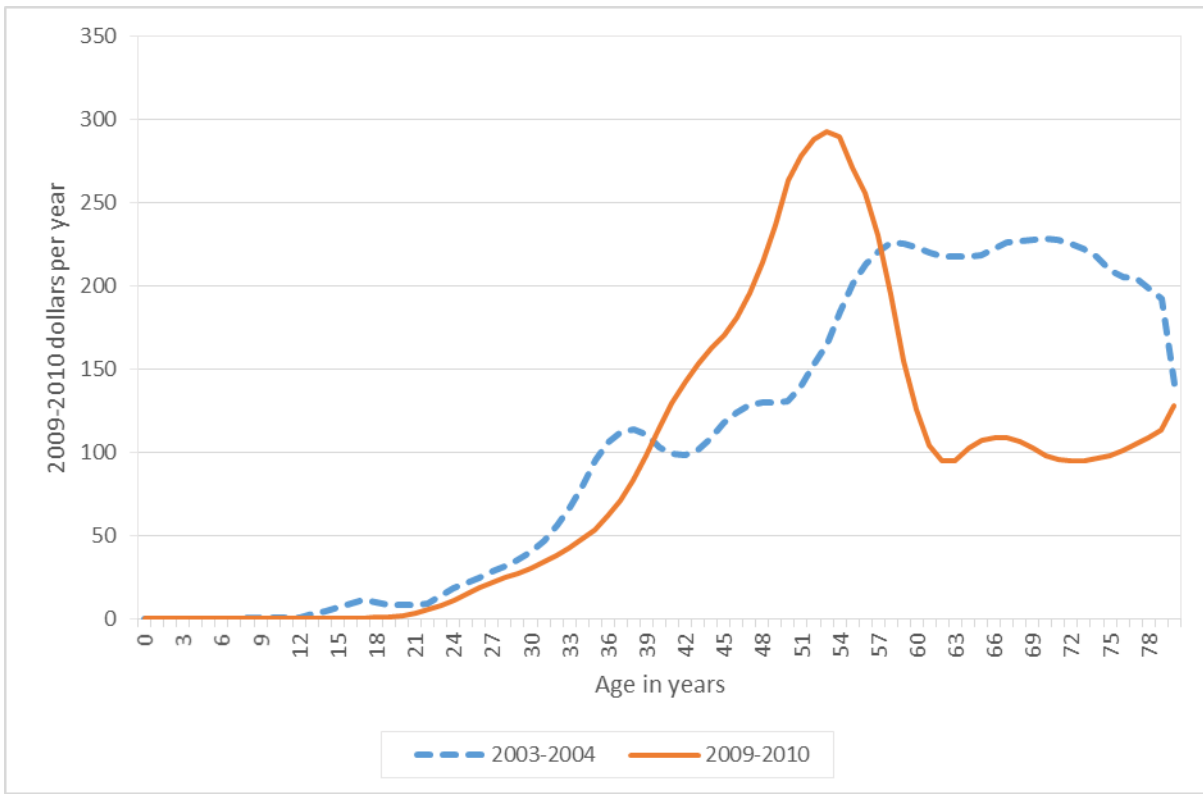
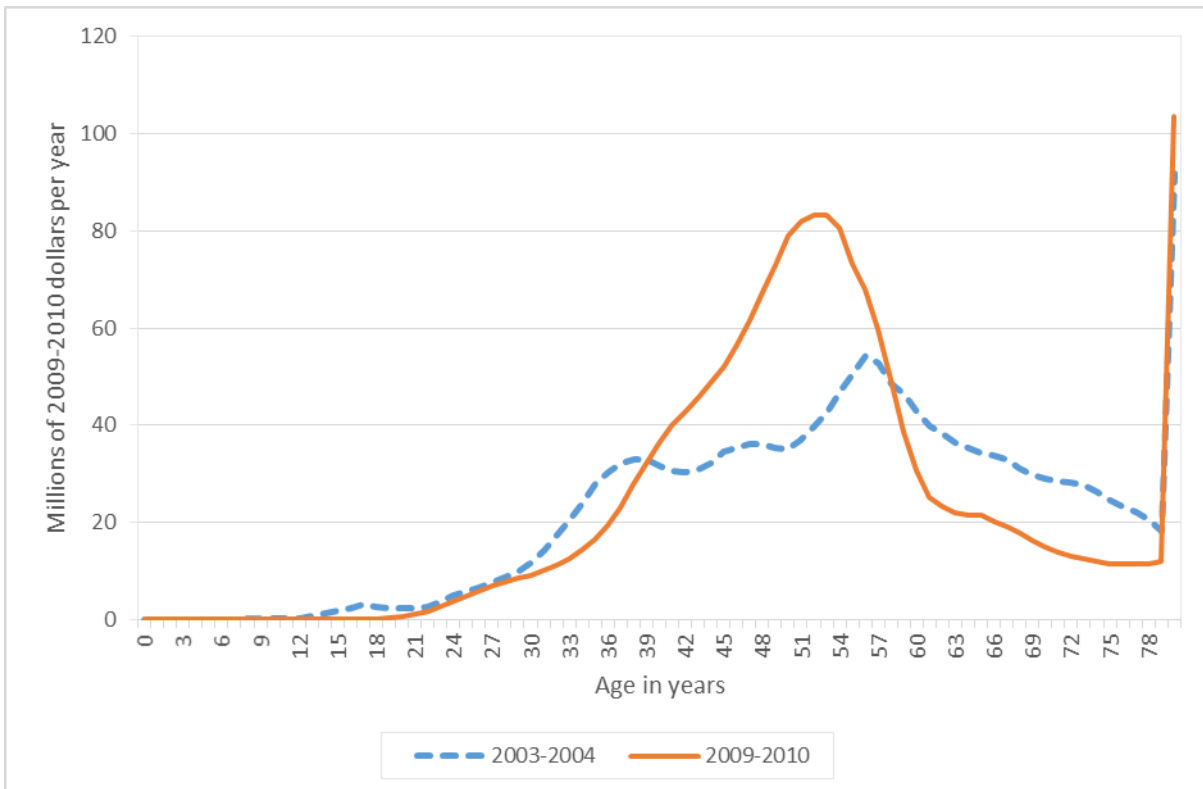


Figure 68: Aggregate age profile, Other Transfers from Private to Public.



Definition: Cash transfers from the private sector to the public sector, other than taxes. A large portion of these transfers consists of non-life insurance transfers from the private sector to the public sector.

Aggregate benchmark: Derived from information on transfers reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: A large portion of other transfers from the private sector to the public sector consists of non-life insurance transfers from the private sector to the public sector. Given this, it is assumed that a large portion of these transfers consists of transfers from private corporations to the public sector. Transfers from private corporations to the public sector are allocated to the owners of private corporations and, correspondingly, the per capita age profile for these transfers will have the same age pattern as the per capita age profile for ownership of private corporations. The per capita age profile for other transfers from the private sector to the public sector, then, is likely to be similar to the per capita age profile for ownership of private corporations. In line with this, other transfers from the private sector to the public sector are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of shares and incorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Again, Reflective of the age profile of business and share owners, the age profile of other transfers from private to public rises from the mid 20s to a peak in the mid to late 50s for 2009-10 and declining thereafter. Given the age profile of business and share owners in 2003-04 appears somewhat flatter than the later profile, the transfers simply reflect this trend.

4.2.5.10 Public Transfers, Public Transfer Deficit, Outflow

Figure 69: Per capita age profile, Public Transfers, Public Transfer Deficit, Outflow.

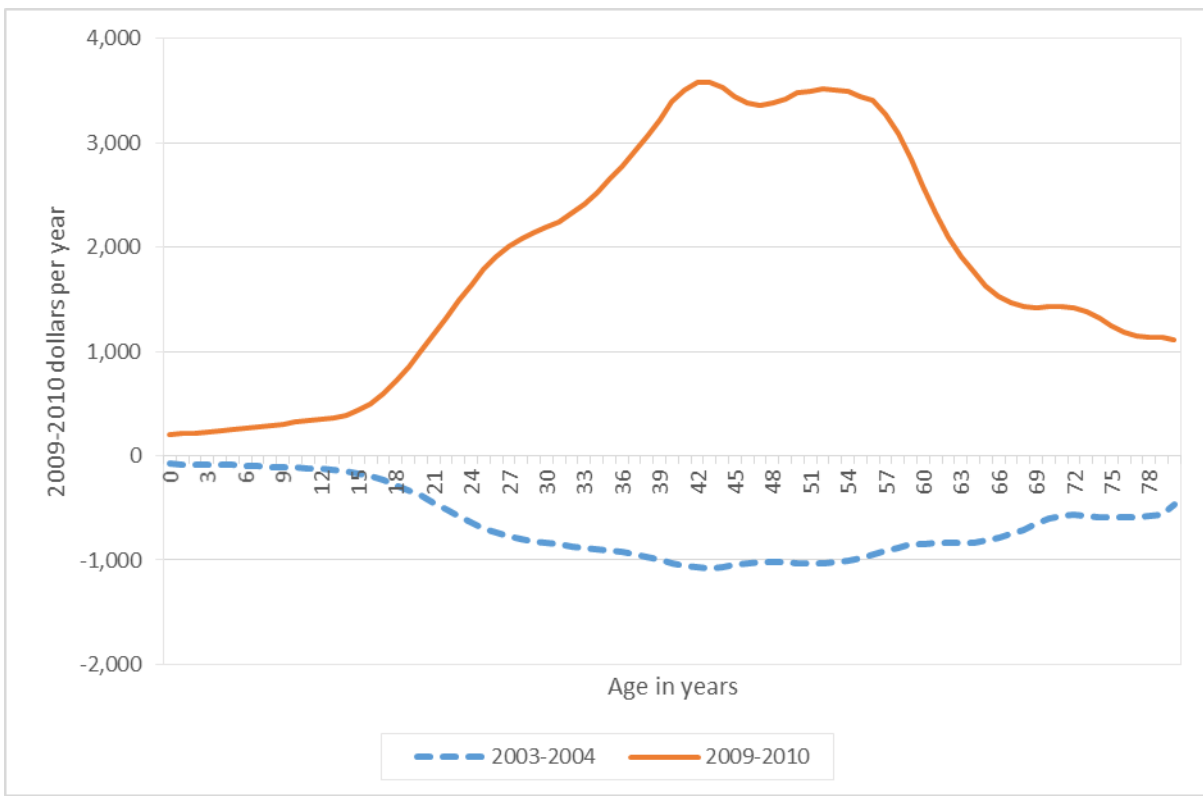
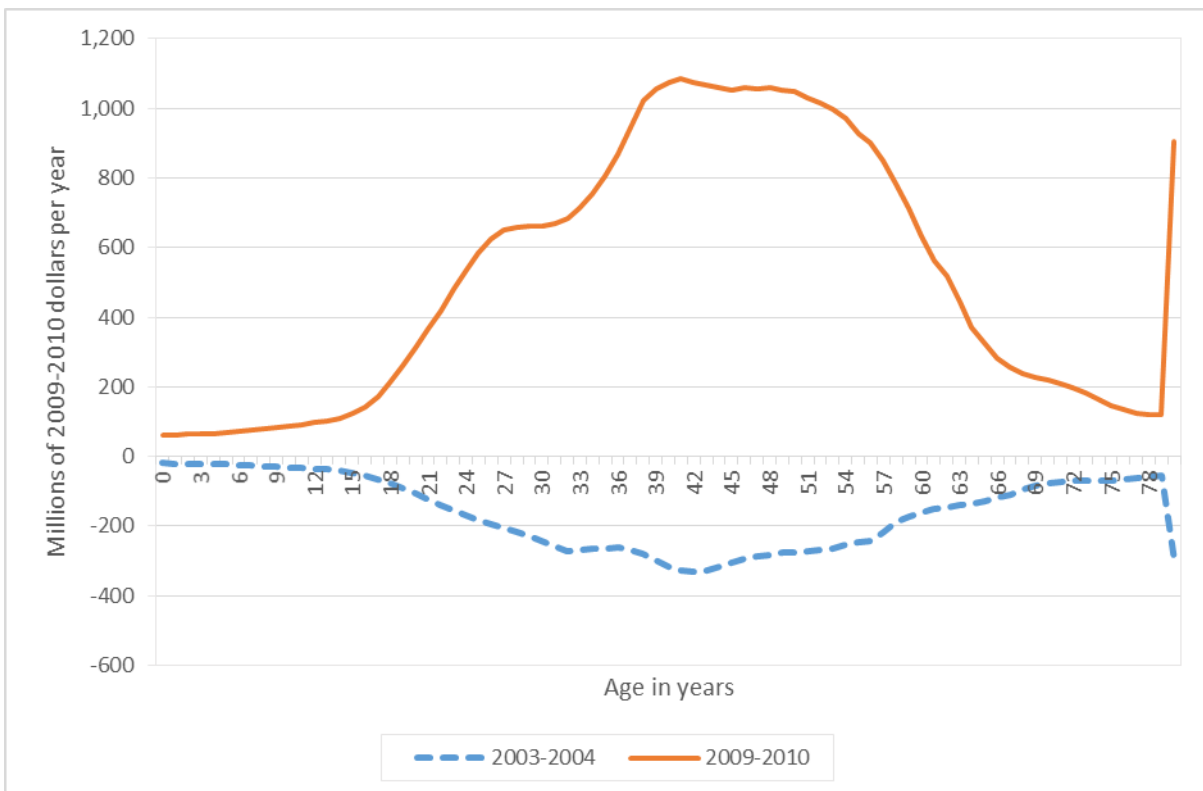


Figure 70: Aggregate age profile, Public Transfers, Public Transfer Deficit, Outflow.



Definition: The public transfer deficit is a balancing item that is equal to the difference between inflows of public transfers, on the one hand, and taxes and other transfers from the private sector to the public sector, on the other hand. The public transfer deficit measures the amount of inflows of public transfers that must be funded by means other than taxes and other transfers from the private sector to the public sector. It is unique to National Transfer Accounts (United Nations 2013).

Aggregate benchmark: The aggregate benchmark for the public transfer deficit is the difference between the aggregate benchmarks for: (1) inflows of public transfers; and (2) taxes and other transfers from the private sector to the public sector. In more specific terms, the aggregate benchmark for the public transfer deficit is the difference between the aggregate benchmarks for: (1) public consumption of education, public consumption of health, public consumption of housing, public consumption of child care, public consumption of high care residential aged care, public consumption of low care residential aged care, other public consumption, inflows of social protection targeted at the elderly, inflows of social protection targeted at the prime-aged, inflows of social protection targeted at the young, inflows of other social protection, and inflows of other cash public transfers; and (2) income taxes levied on individuals, income taxes levied on enterprises, employers' payroll taxes, taxes on property paid by private corporations, taxes on property paid by households, taxes on property paid by unincorporated businesses, the GST, other taxes on the provision of goods and services, taxes on the use of goods and performance of activities, other transfers from the private sector to the public sector, and net public transfers from the rest of the world.

Per capita age profile: As suggested by the NTA manual (United Nations 2013: 127), the per capita age profile for the public transfer deficit is derived from the per capita age profile for total taxes and other transfers from the private sector to the public sector. The latter per capita age profile is the profile that results from the sum of the per capita age profiles for the separate taxes and for other transfers from the private sector to the public sector, after these per capita age profiles have been adjusted to bring them in line with the relevant aggregate benchmarks.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: There is a marked difference in the public transfers (public transfer deficit – outflow) between the two years. In 2003-04, this account item is low for younger Australians, before increasing significantly for working age people. The profile decreases once more in retirement years. In the later year 2009-10, the transfer, although exhibiting a similar shape is much larger, and positive in direction. The public transfer deficit is negative in 2003-04 but positive in 2009-10. This indicates that in 2003-04 inflows of public transfers were less than taxes and other transfers from the private sector to the public sector, not an altogether surprising result in a time of

government budget surpluses. In 2009-10 inflows of public transfers were greater than taxes and other transfers from the private sector to the private sector, again, not an altogether surprising result in a time of budget deficits.

4.2.5.11 Net Public Transfers from the Rest of the World

Figure 71: Per capita age profile, Net Public Transfers from the Rest of the World.

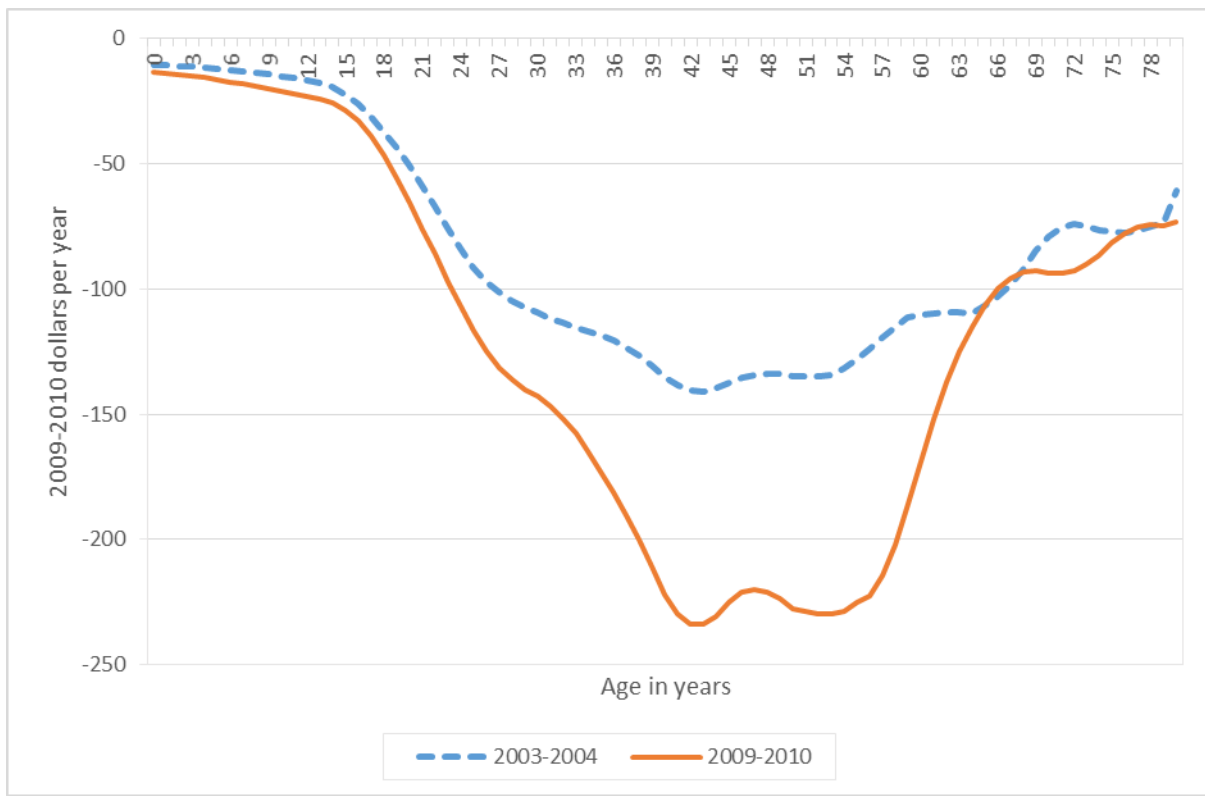
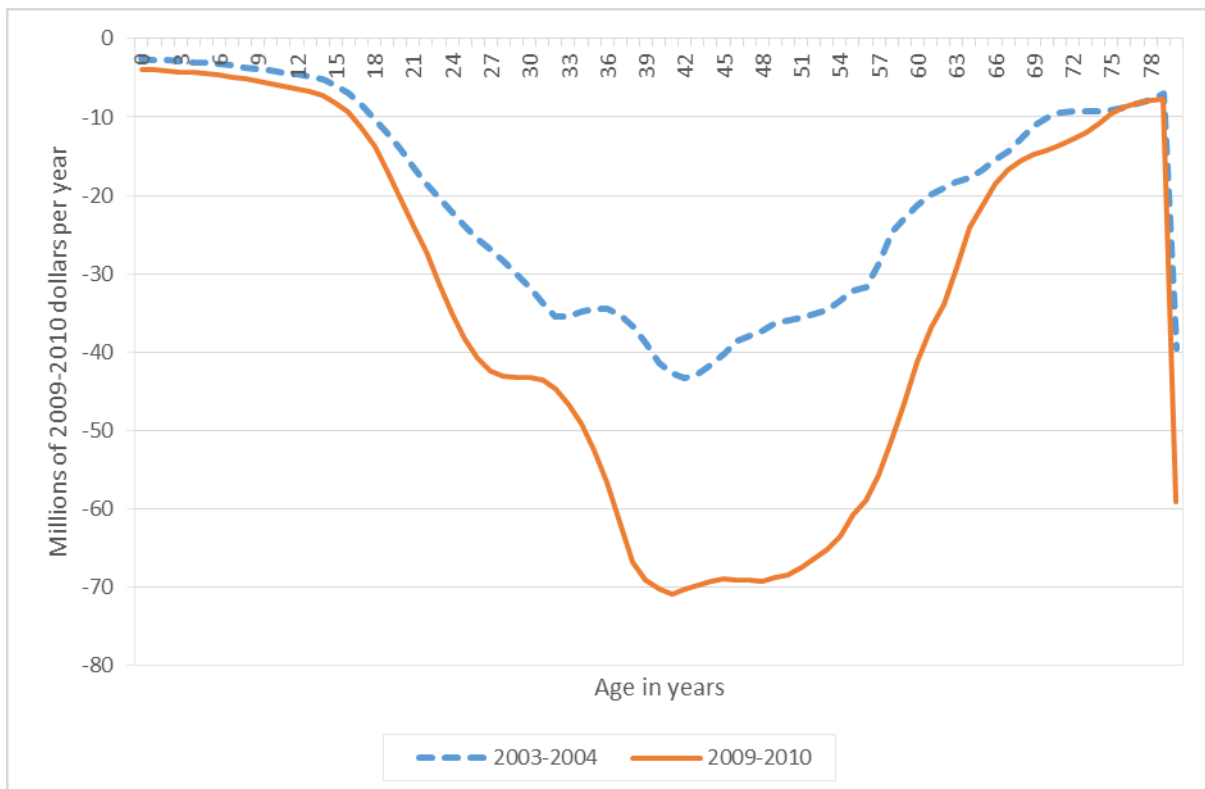


Figure 72: Aggregate age profile, Net Public Transfers from the Rest of the World.



Definition: Transfers of income received by the public sector resident in Australia from individuals and institutions who are not resident in Australia, less transfers of income paid by public sector residents to non-residents.

Aggregate benchmark: Derived from information on transfers reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: As suggested by the NTA manual (United Nations 2013: 127), the per capita age profile for net public transfers from the rest of the world is derived from the per capita age profile for total taxes and other transfers from the private sector to the public sector. The latter per capita age profile is the profile that results from the sum of the per capita age profiles for the separate taxes and for other transfers from the private sector to the public sector, after these per capita age profiles have been adjusted to bring them in line with the relevant aggregate benchmarks.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The age profile for net public transfers from the rest of the world is identical to public transfers (public transfer deficit – outflow) – thus exhibiting a similar shape when the aggregate value is applied, albeit inverted. In both years, the transfers are negative, but more pronounced in 2009-10, particularly in the prime working ages.

4.2.6 Public Asset Income and Saving

4.2.6.1 Public Property Income, Inflow

Figure 73: Per capita age profile, Public Property Income, Inflow.

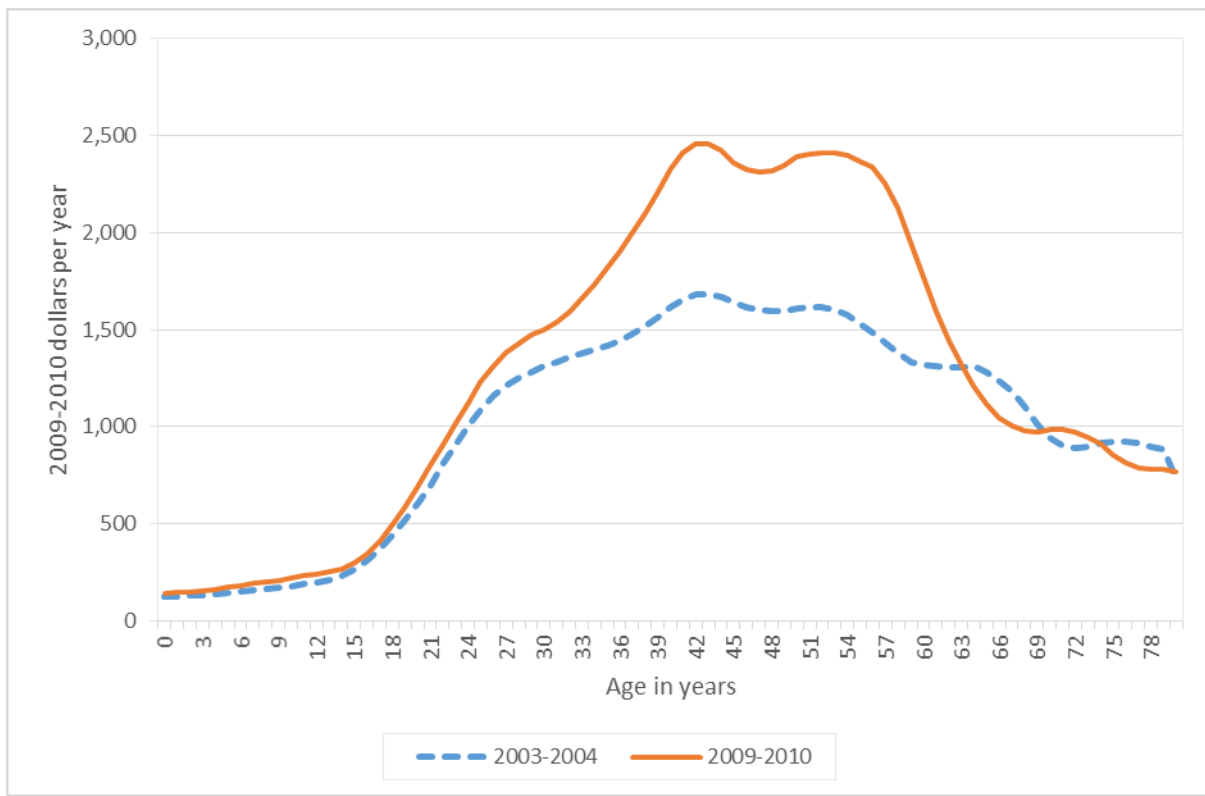
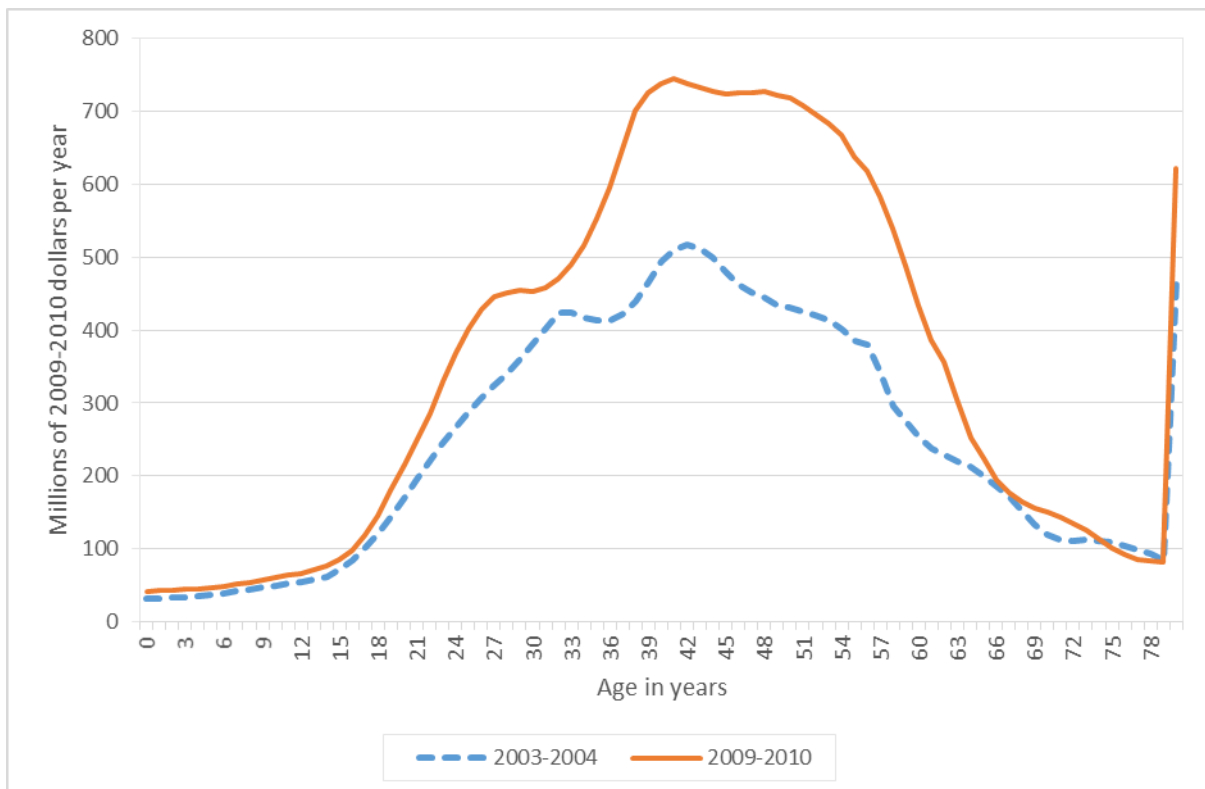


Figure 74: Aggregate age profile, Public Property Income, Inflow.



Definition: Property income received by the public sector. Property income consists of reallocations of income that result from the use of financial assets and tangible non-produced assets, such as land and sub-soil assets. It includes interest, dividends, and rent on natural assets.

Aggregate benchmark: Property income receivable by general government and public non-financial corporations as reported in the general government and public non-financial corporations income accounts of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: As suggested by the NTA manual (United Nations 2013: 127), the per capita age profile for inflows of public property income is derived from the per capita age profile for total taxes and other transfers from the private sector to the public sector. The latter per capita age profile is the profile that results from the sum of the per capita age profiles for the separate taxes and for other transfers from the private sector to the public sector, after these per capita age profiles have been adjusted to bring them in line with the relevant aggregate benchmarks.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The age profile for public property income (inflow) is identical to public transfers (public transfer deficit – outflow) – thus exhibiting a similar shape when the aggregate value is applied. For younger and older Australians, the inflow amount is roughly consistent between the two years. For those in the prime working ages, the inflow value is considerably higher in 2009-10, from the late 30s through to the late 60s.

4.2.6.2 Public Property Income, Outflow

Figure 75: Per capita age profile, Public Property Income, Outflow.

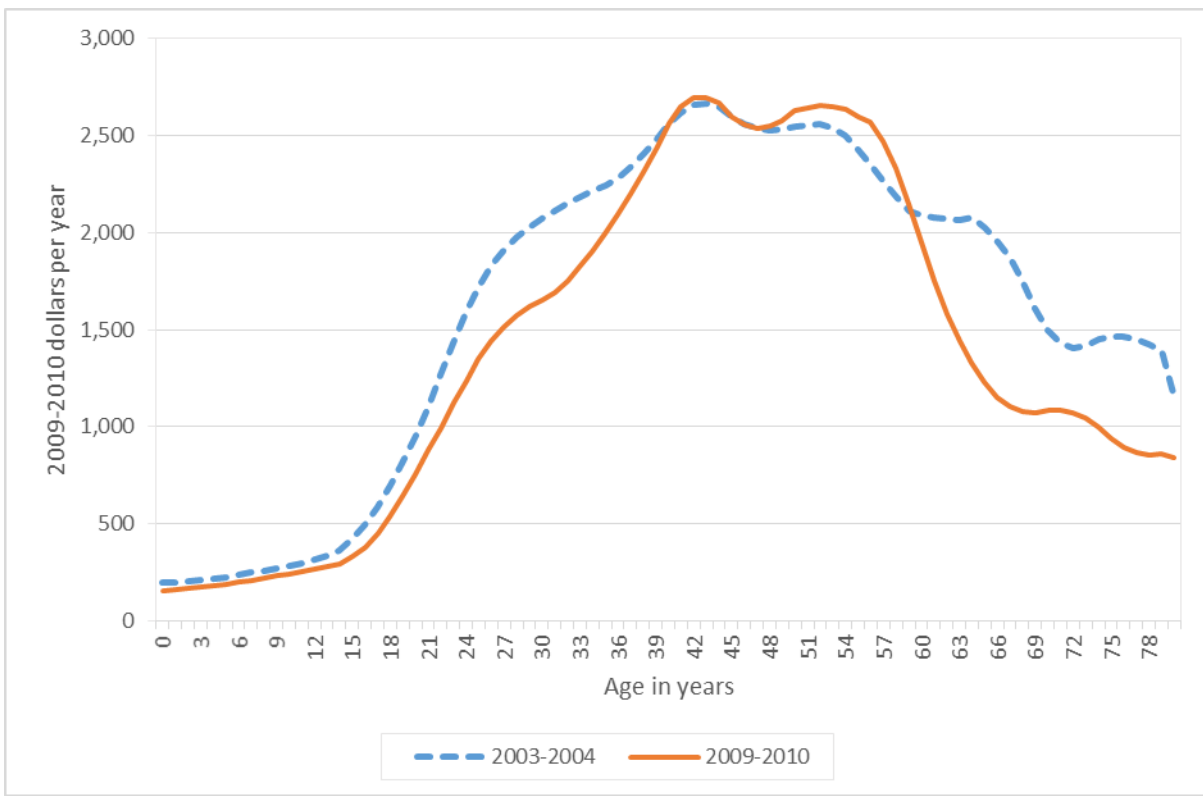
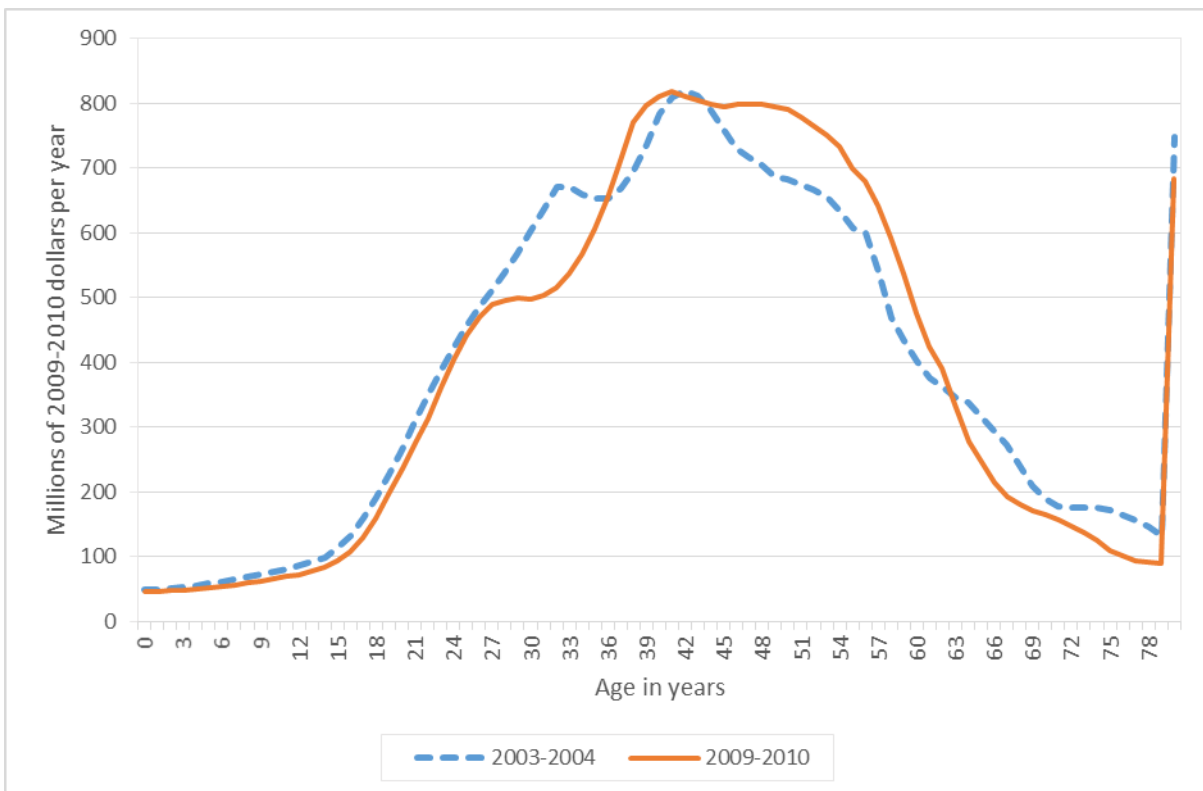


Figure 76: Aggregate age profile, Public Property Income, Outflow.



Definition: Property income paid by the public sector. Property income consists of reallocations of income that result from the use of financial assets and tangible non-produced assets, such as land and sub-soil assets. It includes interest, dividends, and rent on natural assets.

Aggregate benchmark: Property income payable by general government and public non-financial corporations as reported in the general government and public non-financial corporations income accounts of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: As suggested by the NTA manual (United Nations 2013: 127), the per capita age profile for outflows of public property income is derived from the per capita age profile for total taxes and other transfers from the private sector to the public sector. The latter per capita age profile is the profile that results from the sum of the per capita age profiles for the separate taxes and for other transfers from the private sector to the public sector, after these per capita age profiles have been adjusted to bring them in line with the relevant aggregate benchmarks.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The age profile for public property income (outflow) is identical to public transfers (public transfer deficit – outflow) – thus exhibiting a similar shape when the aggregate value is applied. Compared to other items in this account, public property income between the two years is relatively stable by age. The outflow peaks in the late 30s remaining until the late 50s and falling rapidly thereafter.

4.2.6.4 Public Capital Income

Figure 79: Per capita age profile, Public Capital Income.

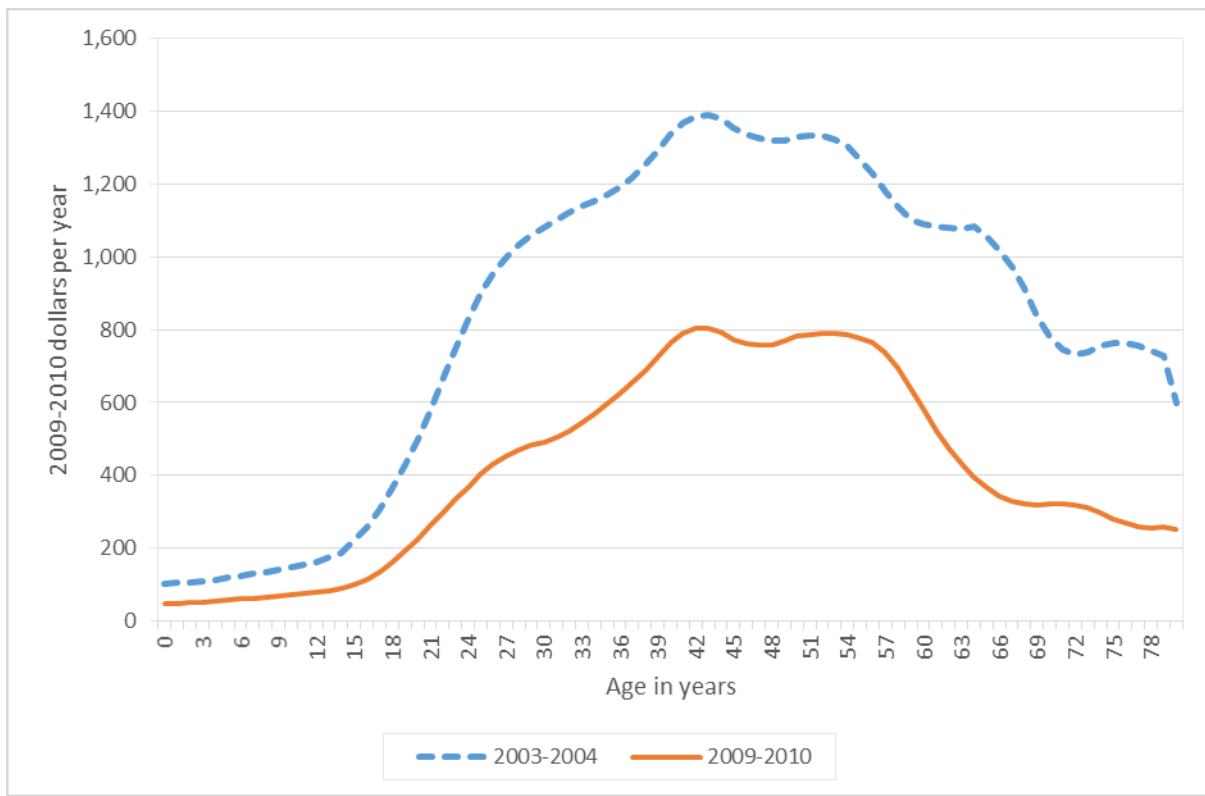
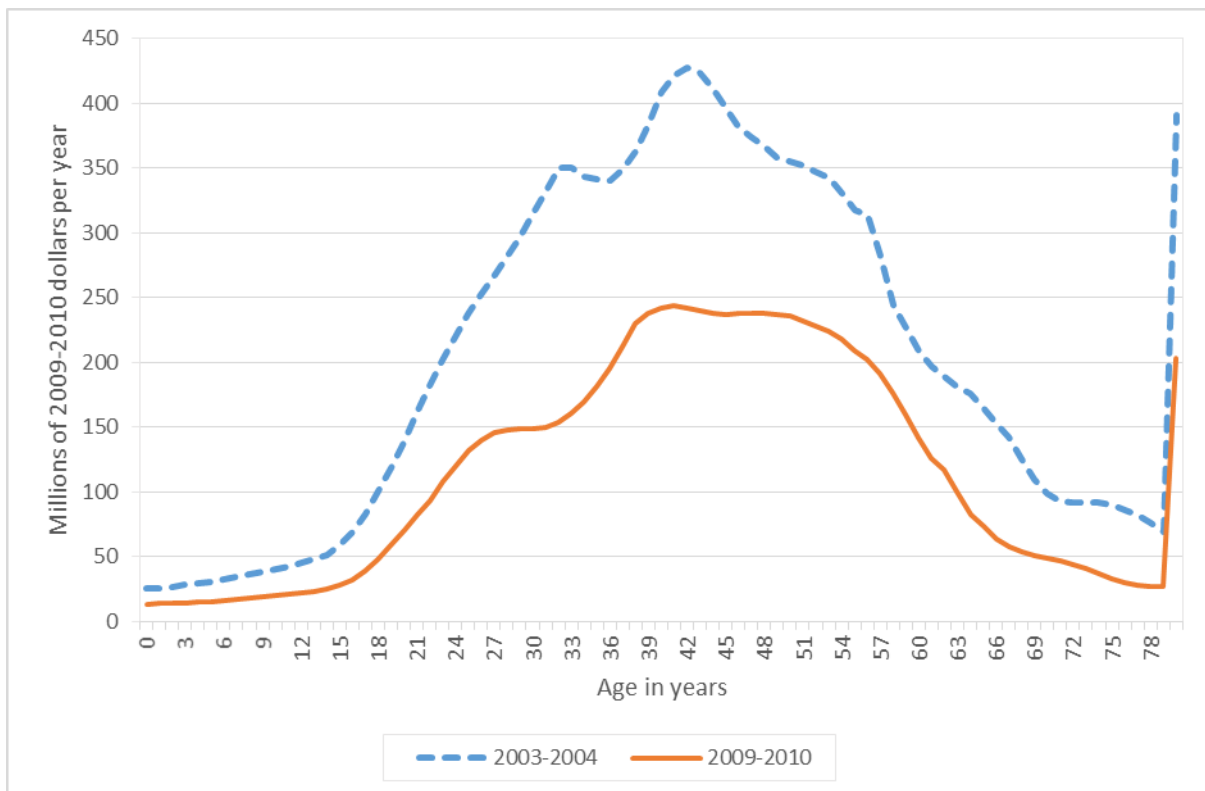


Figure 80: Aggregate age profile, Public Capital Income.



Definition: The income that accrues from the operation of public corporations, less the associated consumption of fixed capital.

Aggregate benchmark: Gross operating surplus of general government and public non-financial corporations, less consumption of fixed capital by general government and public non-financial corporations, derived from information on gross operating surplus and consumption of fixed capital reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: As suggested by the NTA manual (United Nations 2013: 127), the per capita age profile for public capital income is derived from the per capita age profile for total taxes and other transfers from the private sector to the public sector. The latter per capita age profile is the profile that results from the sum of the per capita age profiles for the separate taxes and for other transfers from the private sector to the public sector, after these per capita age profiles have been adjusted to bring them in line with the relevant aggregate benchmarks.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The age profile for public capital income is identical to public transfers (public transfer deficit – outflow) – thus exhibiting a similar shape when the aggregate value is applied. Between the two years, public capital income is significantly higher in 2003-04 when compared to later years. This occurs across the age profile, but is once more pronounced during the prime working ages.

4.2.6.5 Public Saving

Figure 81: Per capita age profile, Public Saving.

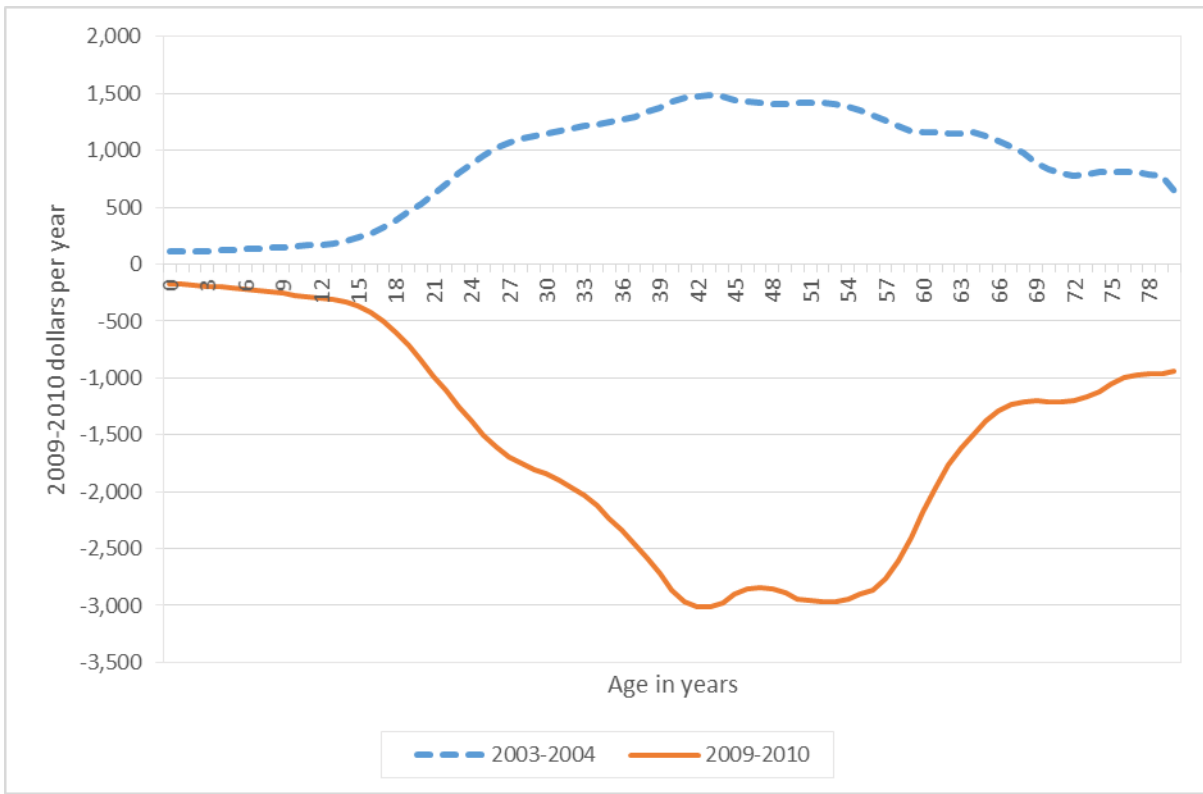
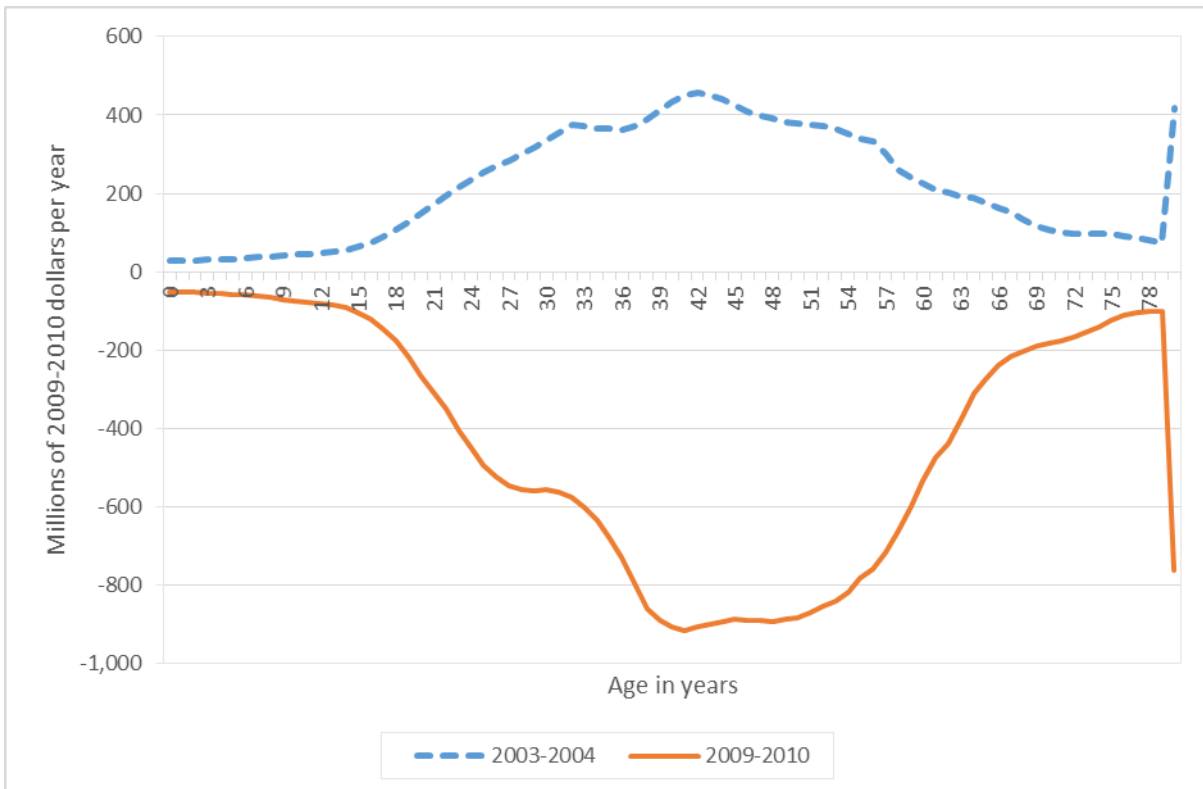


Figure 82: Aggregate age profile, Public Capital Saving.



Definition: Saving by the public sector.

Aggregate benchmark: Net saving by general government and public non-financial corporations, derived from information reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: As suggested by the NTA manual (United Nations 2013: 127), the per capita age profile for public saving is derived from the per capita age profile for total taxes and other transfers from the private sector to the public sector. The latter per capita age profile is the profile that results from the sum of the per capita age profiles for the separate taxes and for other transfers from the private sector to the public sector, after these per capita age profiles have been adjusted to bring them in line with the relevant aggregate benchmarks.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The age profile for public saving is identical to public transfers (public transfer deficit – outflow) – thus exhibiting a similar shape when the aggregate value is applied – albeit inverted. Once more, between the two years, the aggregate benchmark creates a marked difference in the result. Prior to the GFC, public saving was positive, reaching a peak around age 39 years. Post GFC, the saving profile turns strongly negative – exaggerated through the working age years.

4.2.7 Private Transfers

4.2.7.1 Private Inter-Household Transfers, Inflow

Figure 83: Per capita age profile, Private Inter-Household Transfers, Inflow.

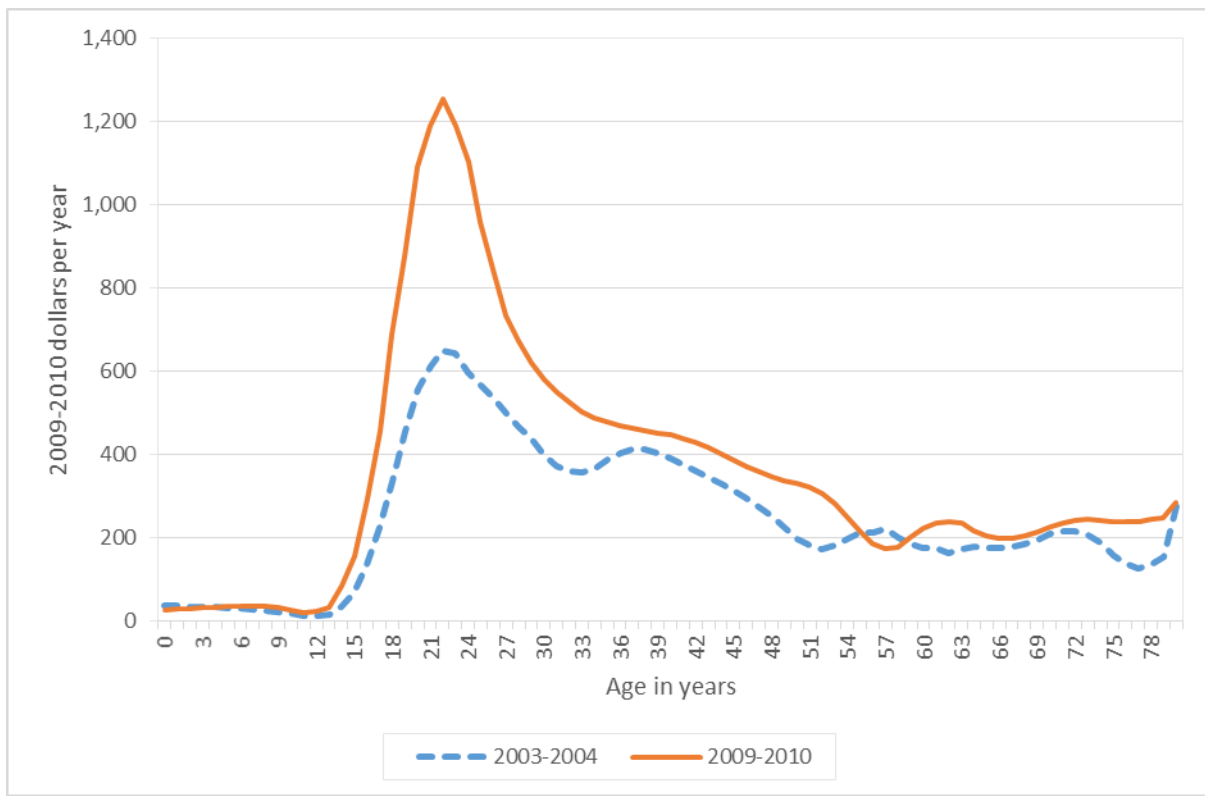
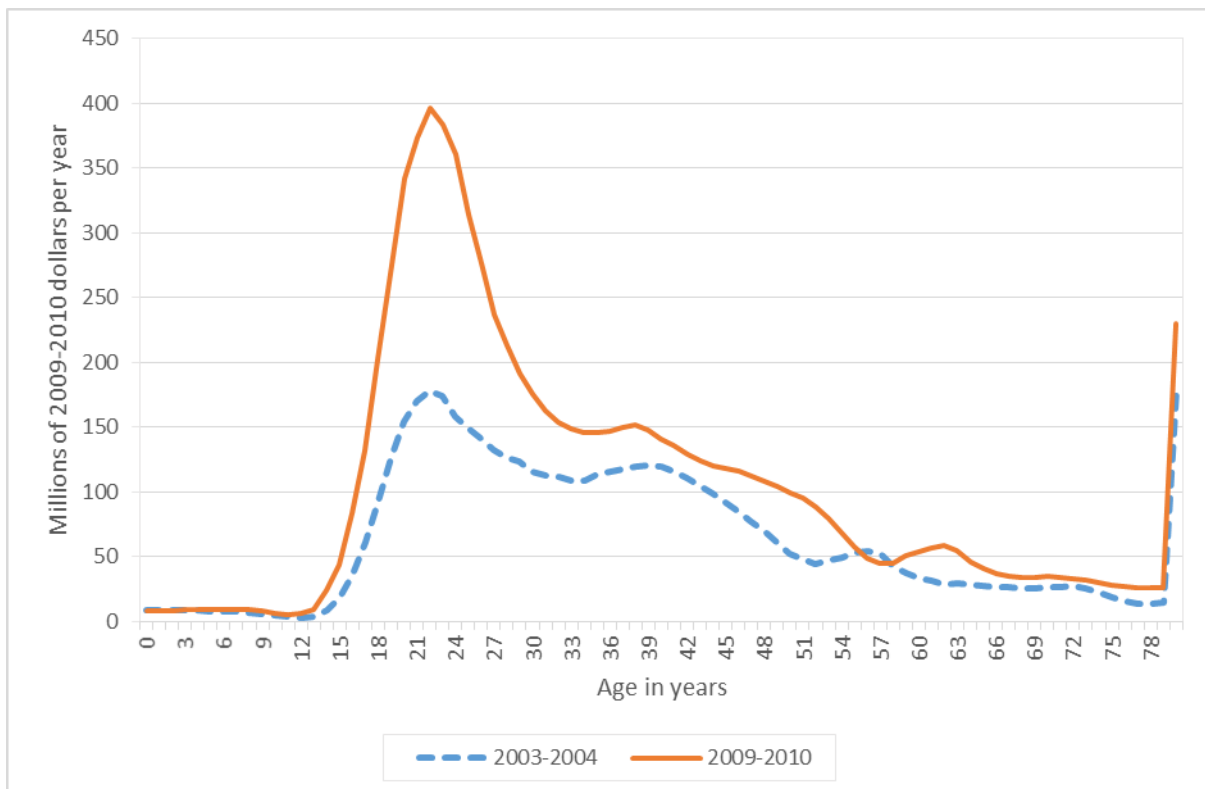


Figure 84: Aggregate age profile, Private Inter-Household Transfers, Inflow.



Definition: Transfers of income received by households from other households.

Aggregate benchmark: As outlined in the NTA manual (United Nations 2013: 143-145), the difference between inflows of private inter-household transfers and outflows of private inter-household transfers must equal net private transfers from the rest of the world. In the Australian National Transfer Accounts for 2003-04 and 2009-10, inflows of private inter-household transfers and outflows of private inter-household transfers are both multiplied by the same, positive adjustment factor such that the difference between them is brought into line with the aggregate benchmark for net private transfers from the rest of the world.

Per capita age profile: Inflows of private inter-household transfers are allocated on the basis of information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from child support, spousal maintenance, alimony from former spouses, and family members living in other households, as well as the estimates of “net imputed rent” constructed by the ABS for private rental housing leased from parents or other relatives. (For further details on net imputed rent for this type of housing, see the section above on the per capita age profile for private consumption of housing.) Estimates of net imputed rent for private rental housing leased from parents or other relatives are allocated to individuals within households using weights derived from an “equivalence scale” suggested in the NTA manual (United Nations 2013: 100-101). According to this equivalence scale, individuals aged 4 or under are given a weight of 0.4, individuals aged 20 or over are given a weight of 1, and weights are linearly interpolated between the ages of 4 and 20.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: Private inter-household transfers (inflow) rise rapidly from early adolescence, peaking around 21 years of age. Thereafter, the transfers fall off rapidly. This likely reflects the age profile of support by parents of their children in tertiary training. Ages at greater risk of receipt of these transfers (17-24) receive considerably more during 2009-10 when compared with 2003-04.

4.2.7.2 Private Inter-Household Transfers, Outflow

Figure 85: Per capita age profile, Private Inter-Household Transfers, Outflow.

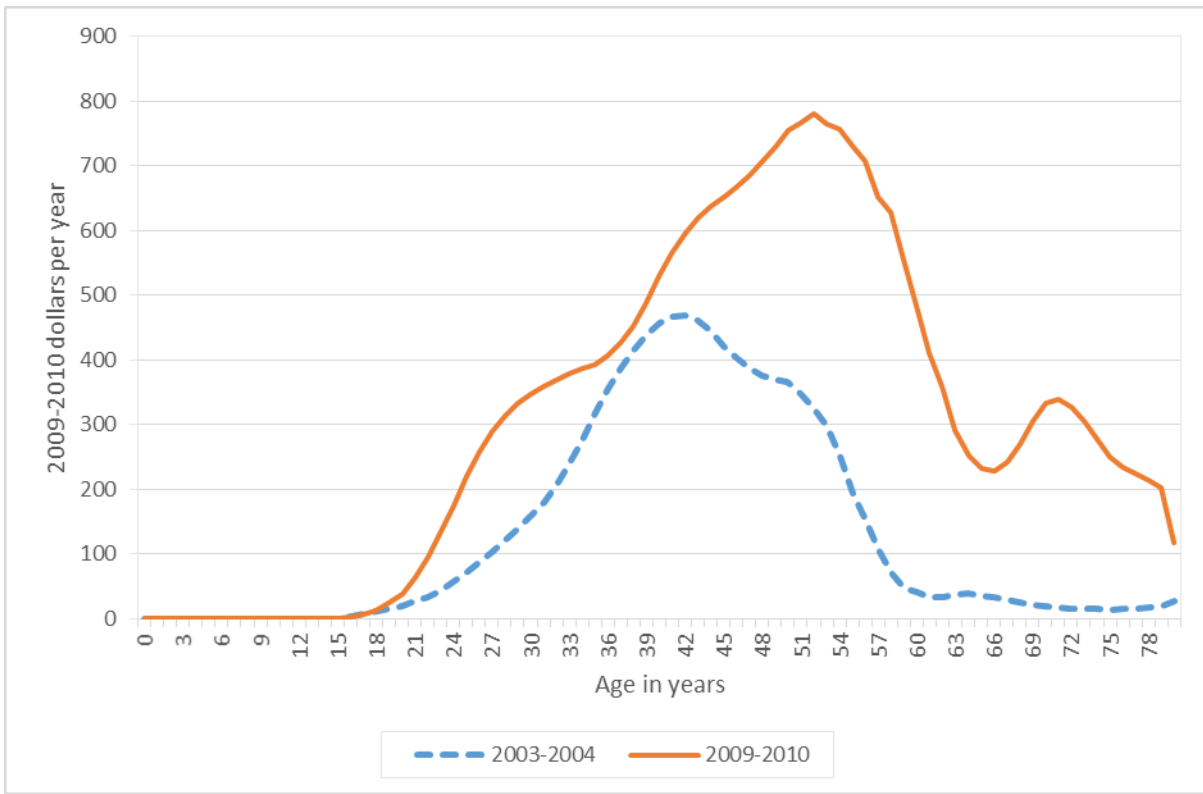
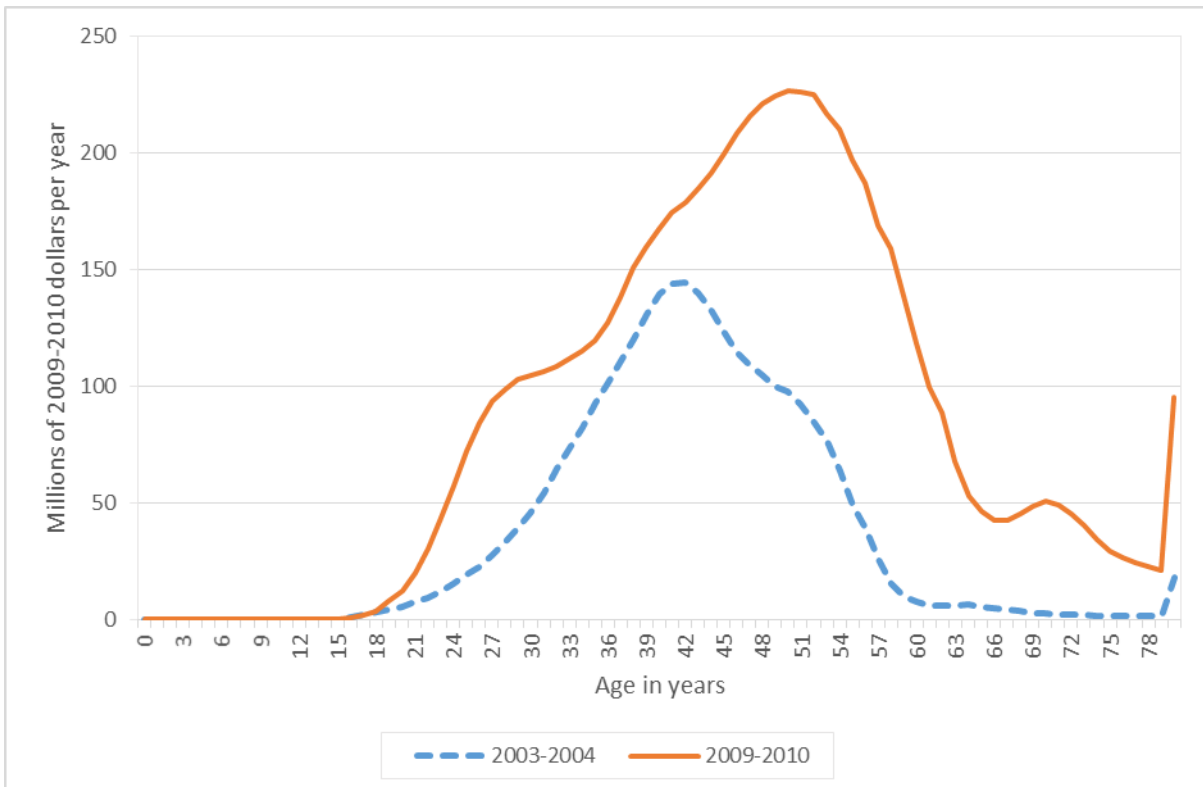


Figure 86: Aggregate age profile, Private Inter-Household Transfers, Outflow.



Definition: Transfers of income paid by households to other households.

Aggregate benchmark: As outlined in the NTA manual (United Nations 2013: 143-145), the difference between inflows of private inter-household transfers and outflows of private inter-household transfers must equal net private transfers from the rest of the world. In the Australian National Transfer Accounts for 2003-04 and 2009-10, inflows of private inter-household transfers and outflows of private inter-household transfers are both multiplied by the same, positive adjustment factor such that the difference between them is brought into line with the aggregate benchmark for net private transfers from the rest of the world.

Per capita age profile: Outflows of private inter-household transfers are allocated on the basis of information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the payments that individuals make for child support, spousal maintenance, and alimony to former spouses, as well as the payments individuals make to family members living in other households.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Compared with the inflow counterpart of this account item, outflows for private inter-household transfers occur at a significantly later age. For both years, the outflow increase rapidly from the early 20s. However, the outflow in 2009-10 appears to peak later in the mid 50s compared with the early 40s in 2003-04. This profile is consistent with the payment of support to children in tertiary education.

4.2.7.3 Private Intra-Household Transfers, Inflow

Figure 85: Per capita age profile, Private Intra-Household Transfers, Inflow.

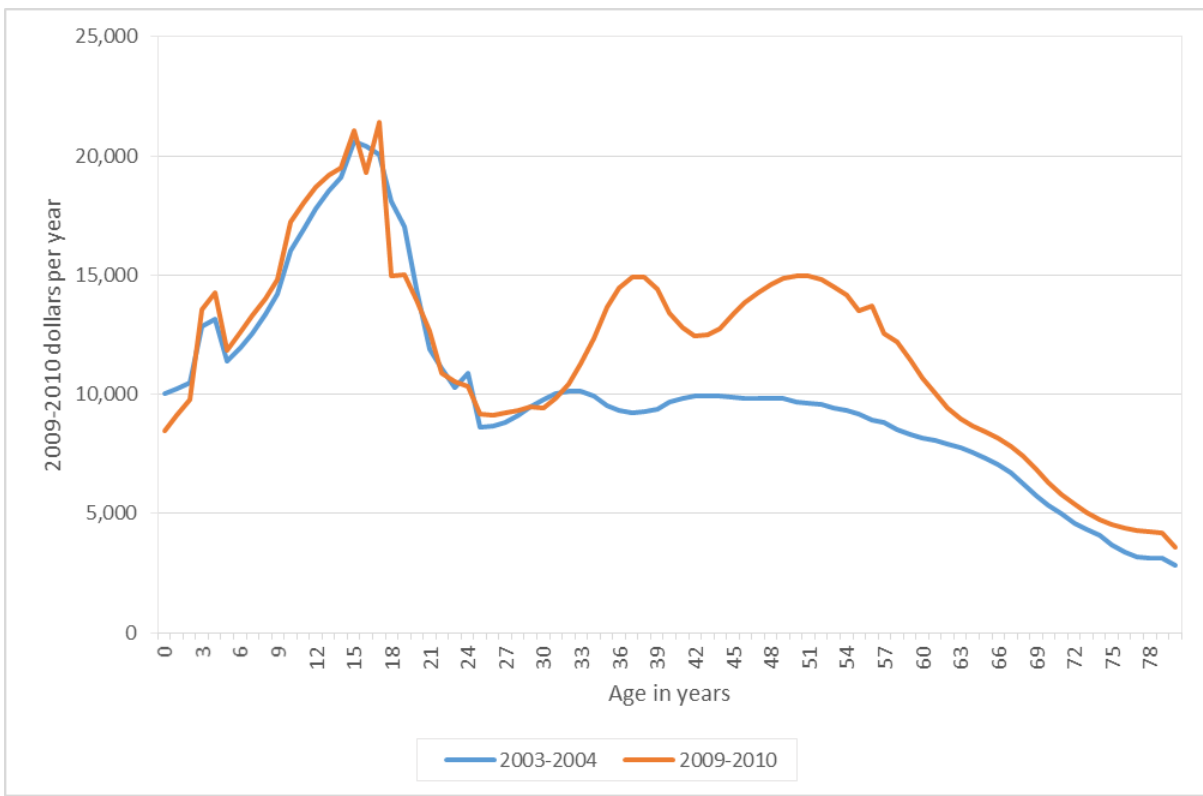
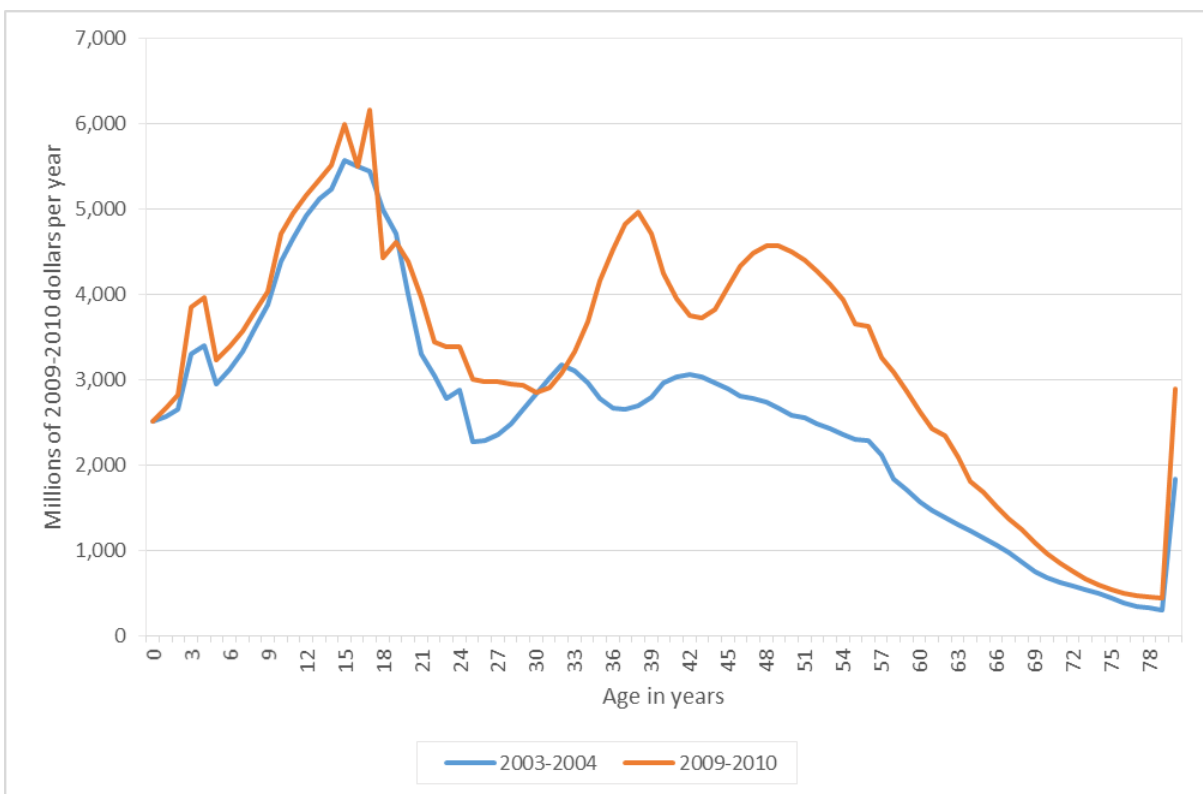


Figure 86: Aggregate age profile, Private Intra-Household Transfers, Inflow.



Definition: Transfers of income received by individuals from other individuals within the same household.

Aggregate benchmark: Inflows of private intra-household transfers are derived from other components of the Australian National Transfer Accounts that have already been brought into line with the relevant aggregate benchmarks. As a result, no separate aggregate benchmark for inflows of private intra-household transfers is required.

Per capita age profile: Inflows and outflows of private intra-household transfers are determined on the basis of a model of intra-household sharing. According to this model, individuals within the household whose income exceeds their consumption transfer some of their income to those in the household for whom consumption exceeds disposable income. If, after these transfers, there are still some individuals with an unmet deficit between consumption and income, this deficit is met by transfers from the household head and his or her spouse, who potentially fund this deficit through dissaving. If, after these transfers, there are still some individuals with a surplus of income over consumption, this surplus is transferred to the household head and his or her spouse for saving.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: As expected, inflows of private intra-household transfers are most pronounced for children.

4.2.7.4 Private Intra-Household Transfers, Outflow

Figure 85: Per capita age profile, Private Intra-Household Transfers, Outflow.

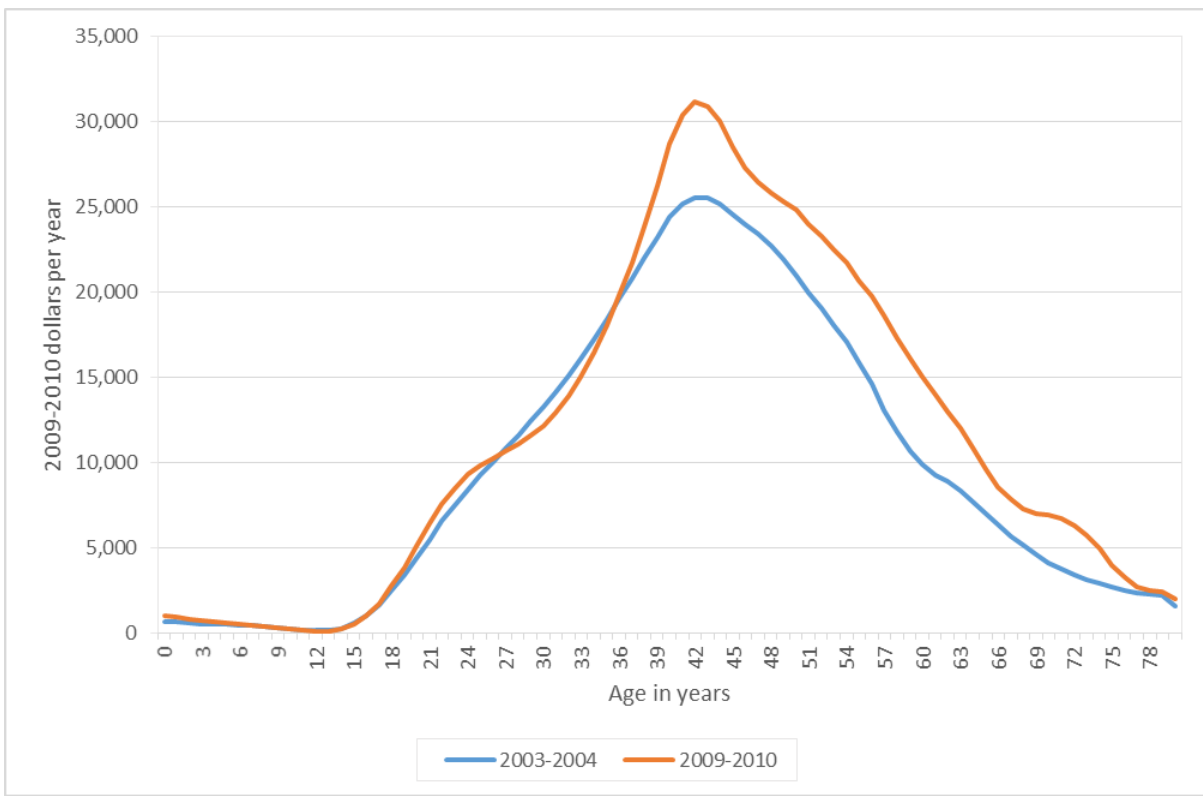
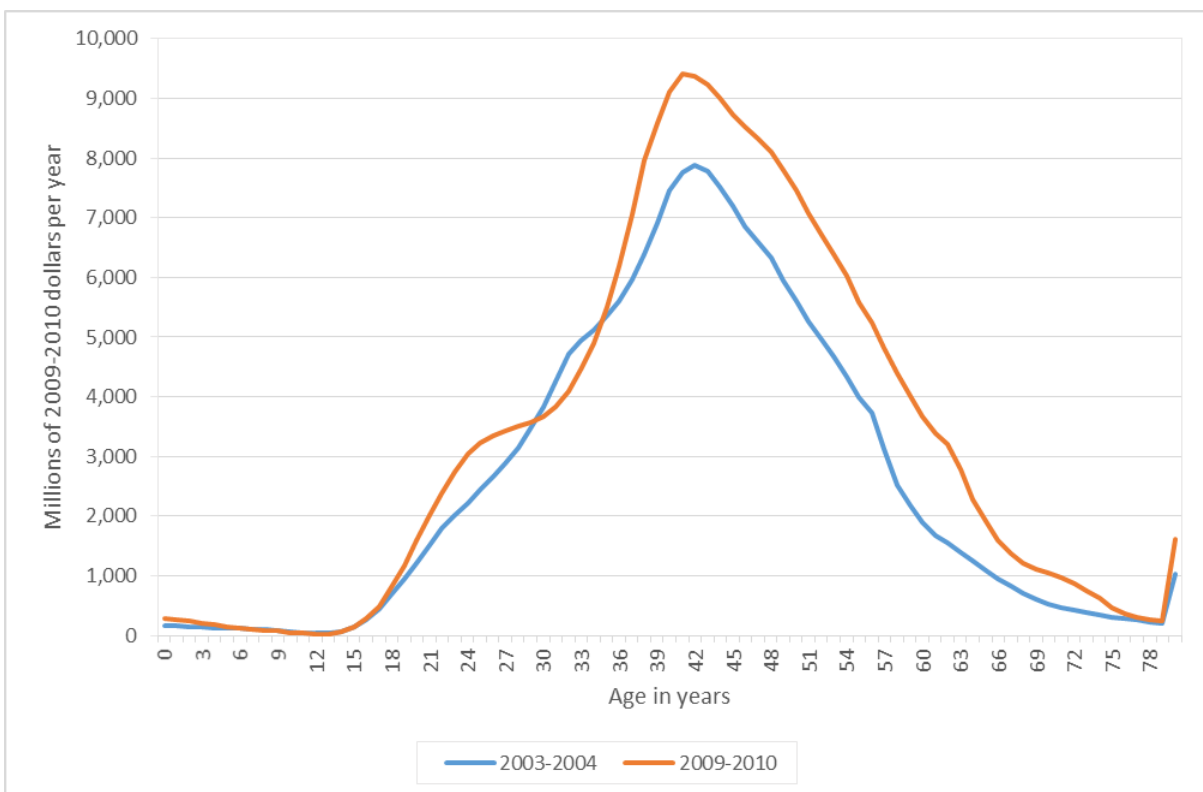


Figure 86: Aggregate age profile, Private Intra-Household Transfers, Outflow.



Definition: Transfers of income paid by individuals to other individuals within the same household.

Aggregate benchmark: Outflows of private intra-household transfers are derived from other components of the Australian National Transfer Accounts that have already been brought into line with the relevant aggregate benchmarks. As a result, no separate aggregate benchmark for outflows of private intra-household transfers is required.

Per capita age profile: Inflows and outflows of private intra-household transfers are determined on the basis of a model of intra-household sharing. According to this model, individuals within the household whose income exceeds their consumption transfer some of their income to those in the household for whom consumption exceeds disposable income. If, after these transfers, there are still some individuals with an unmet deficit between consumption and income, this deficit is met by transfers from the household head and his or her spouse, who potentially fund this deficit through dissaving. If, after these transfers, there are still some individuals with a surplus of income over consumption, this surplus is transferred to the household head and his or her spouse for saving.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Outflows of private intra-household transfers are negligible until the age of 15. After then, these transfers rise in a linear manner to a peak in the early 40s, when the differentiation between a breadwinner spouse and homemaker spouse and dependent children is likely to be at its most pronounced. After then, these transfers decline in a similarly linear manner.

4.2.7.5 Net Private Transfers from the Rest of the World

Figure 87: Per capita age profile, Net Private Transfers from the Rest of the World.

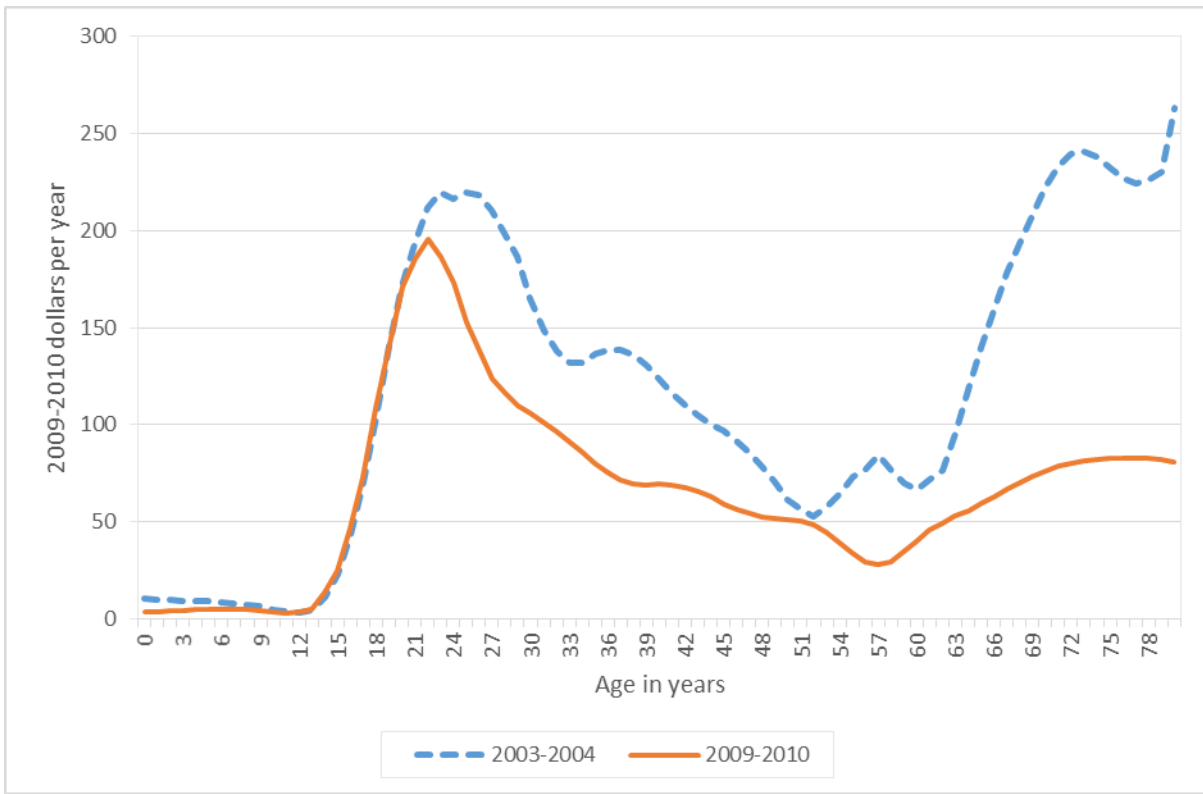
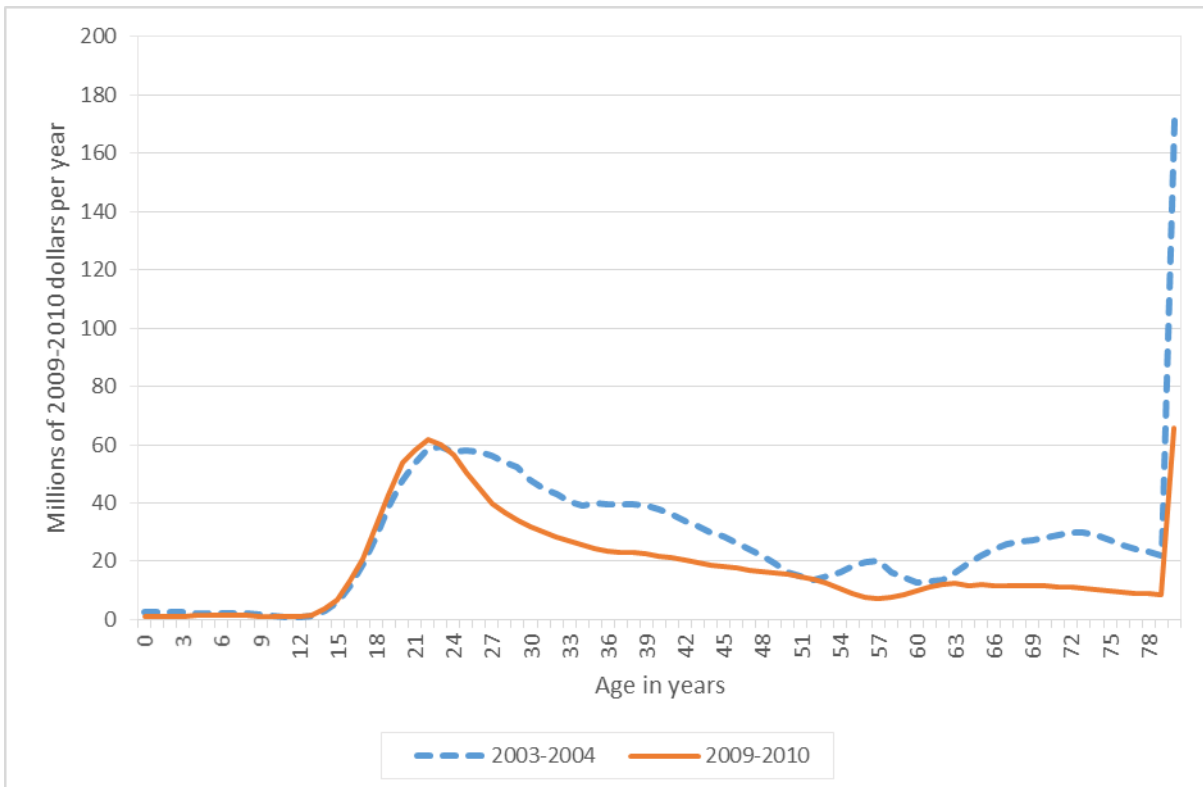


Figure 88: Aggregate age profile, Net Private Transfers from the Rest of the World.



Definition: Transfers of income received by the private sector resident in Australia from individuals and institutions who are not resident in Australia, less transfers of income paid by private sector residents to non-residents.

Aggregate benchmark: Derived from information on transfers reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Net private transfers from the rest of the world are allocated on the basis of information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from child support, spousal maintenance, alimony from former spouses, family members living in other households, scholarships, and overseas pensions and benefits, as well as the estimates of “net imputed rent” constructed by the ABS for private rental housing leased from parents or other relatives. (For further details on net imputed rent for this type of housing, see the section above on the per capita age profile for private consumption of housing.) Estimates of net imputed rent for private rental housing leased from parents or other relatives are allocated to individuals within households using weights derived from an “equivalence scale” suggested in the NTA manual (United Nations 2013: 100-101). According to this equivalence scale, individuals aged 4 or under are given a weight of 0.4, individuals aged 20 or over are given a weight of 1, and weights are linearly interpolated between the ages of 4 and 20.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: Until the mid 50s, the profile of net private transfers from the rest of the world is relatively consistent between the two years, albeit slightly higher in 2003-04. This transfer peaks in the early 20s and declines thereafter. The one exception is for net transfers for persons aged over 60 in 2003-04 which increase to a second peak in the late 60s early 70s.

4.2.8 Private Asset Based Reallocations

4.2.8.1 Private Property Income, Private Corporations, Inflow

Figure 89: Per capita age profile, Private Property Income, Private Corporations, Inflow.

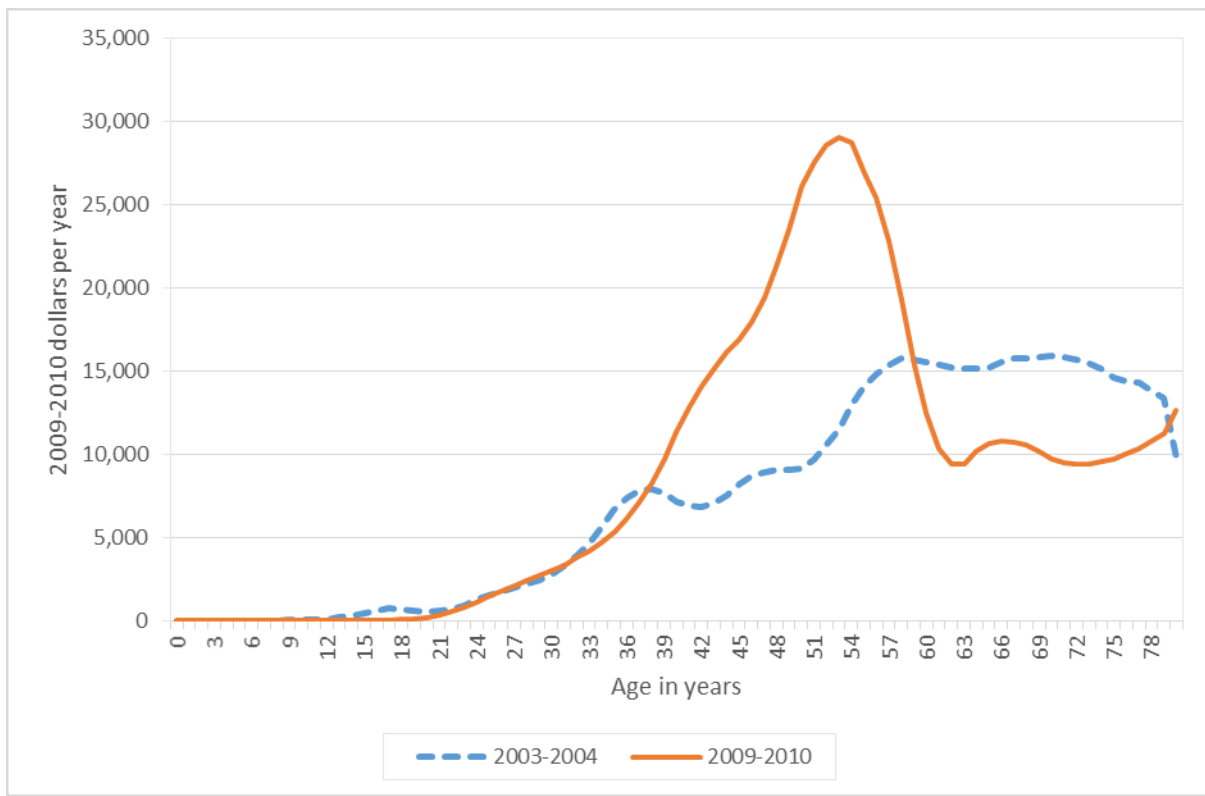
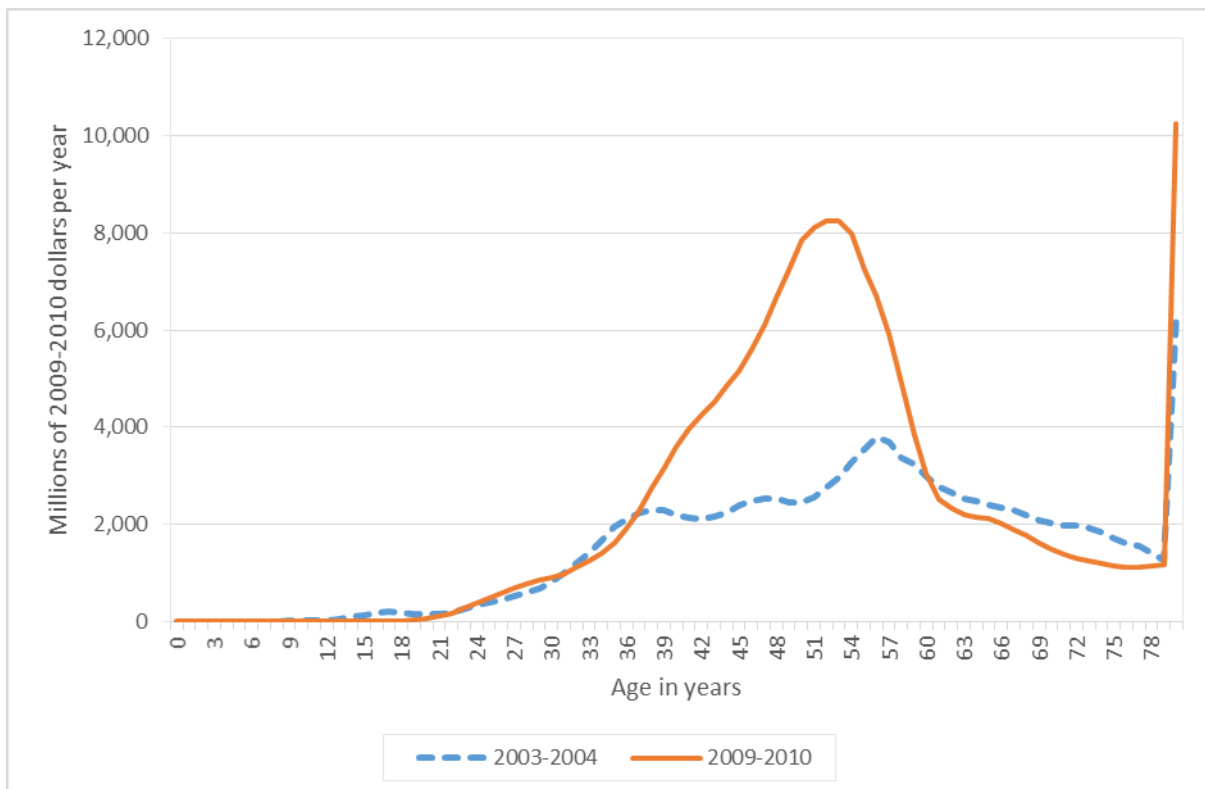


Figure 90: Aggregate age profile, Private Property Income, Private Corporations, Inflow.



Definition: Property income received by private corporations. Property income consists of reallocations of income that result from the use of financial assets and tangible non-produced assets, such as land and sub-soil assets. It includes interest, dividends, and rent on natural assets.

Aggregate benchmark: Property income receivable by financial corporations and private non-financial corporations as reported in the financial corporations and private non-financial corporations income accounts of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Inflows of private property income received by private corporations are allocated to the owners of private corporations. As a result, the per capita age profile for these inflows will have the same age pattern as the per capita age profile for ownership of private corporations. In line with this, these inflows are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of shares and incorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The inflow of private property income that people receive by way of private corporations rises with age until the 50s. This rise was gradual in 2003-04 and steep in 2009-10. In 2003-04, after this rise has ended, these inflows plateau until later life. In 2009-10, after this rise has ended these inflows drop quickly prior to plateauing.

4.2.8.2 Private Property Income, Households, Imputed Interest, Inflow

Figure 91: Per capita age profile, Private Property Income, Households, Imputed Interest Inflow.

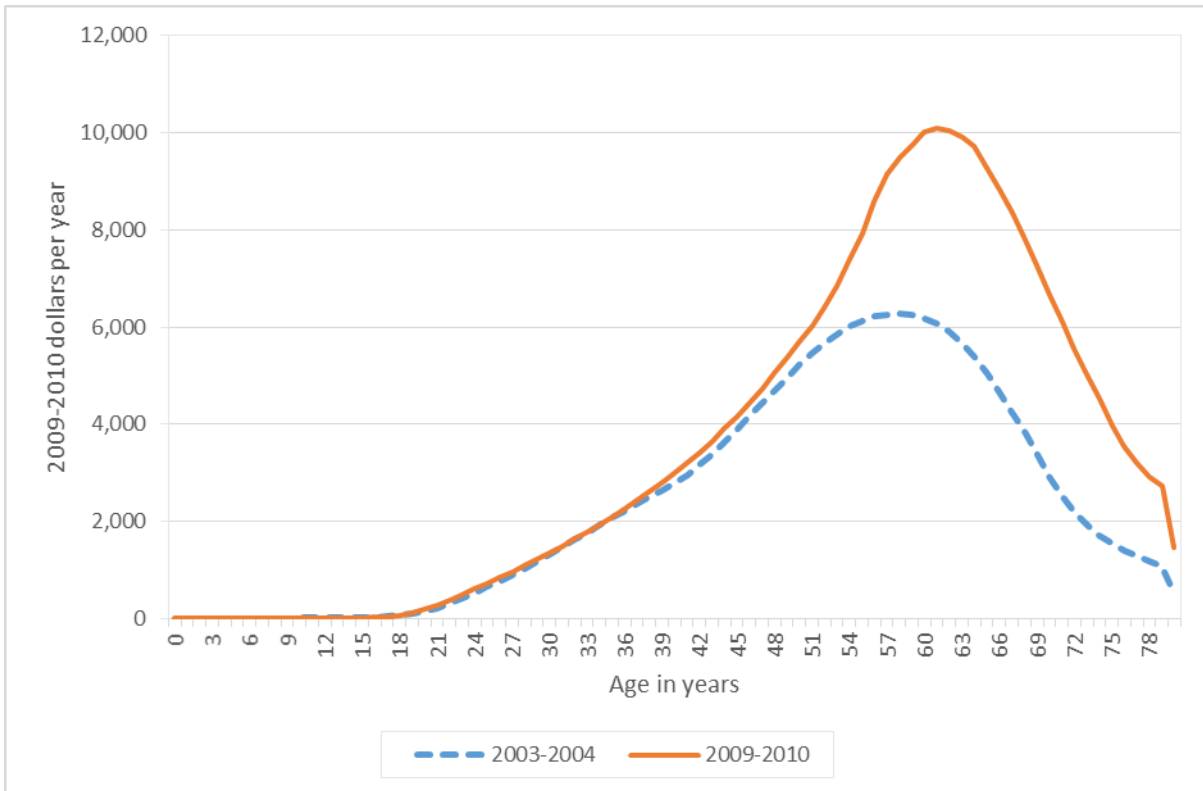
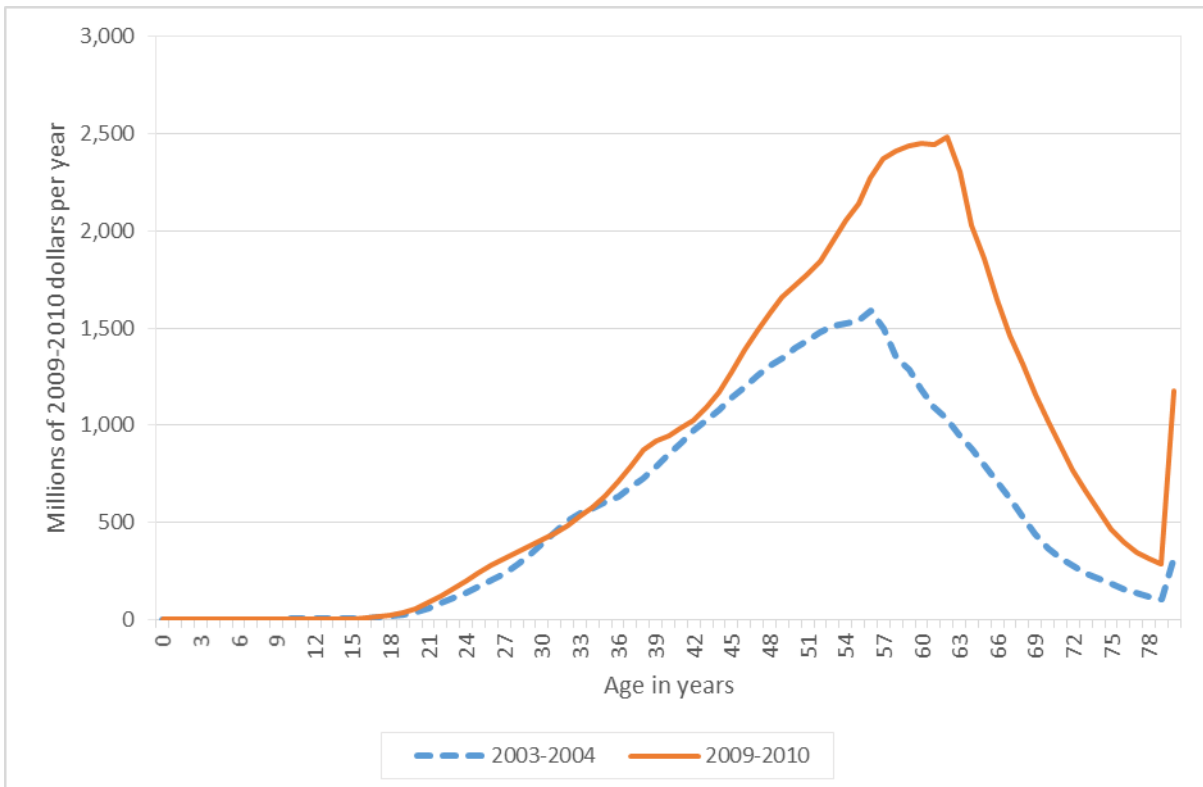


Figure 92: Aggregate age profile, Private Property Income, Households, Imputed Interest Inflow.



Definition: Imputed interest attributed to individuals who hold policies with life insurance and superannuation funds, unfunded superannuation schemes operated by the public sector, and non-life insurance corporations.

Aggregate benchmark: Imputed interest receivable by households (and unincorporated enterprises) as reported in the household income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Inflows of imputed interest received by households are allocated to individuals using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the balance of accounts with government and non-government superannuation funds held by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Inflows of imputed interest rise gradually with age, reflecting increases that occur with age in the value of life insurance and superannuation policies held. Inflows of imputed interest begin to decline in the 60s, reflecting declines in the value of life insurance and superannuation policies held. Inflows of imputed interest for younger people were similar in 2003-04 and 2009-10. For older people, however, these inflows were substantially higher in the later year.

4.2.8.3 Private Property Income, Households, Other, Inflow

Figure 93: Per capita age profile, Private Property Income, Households, Other, Inflow.

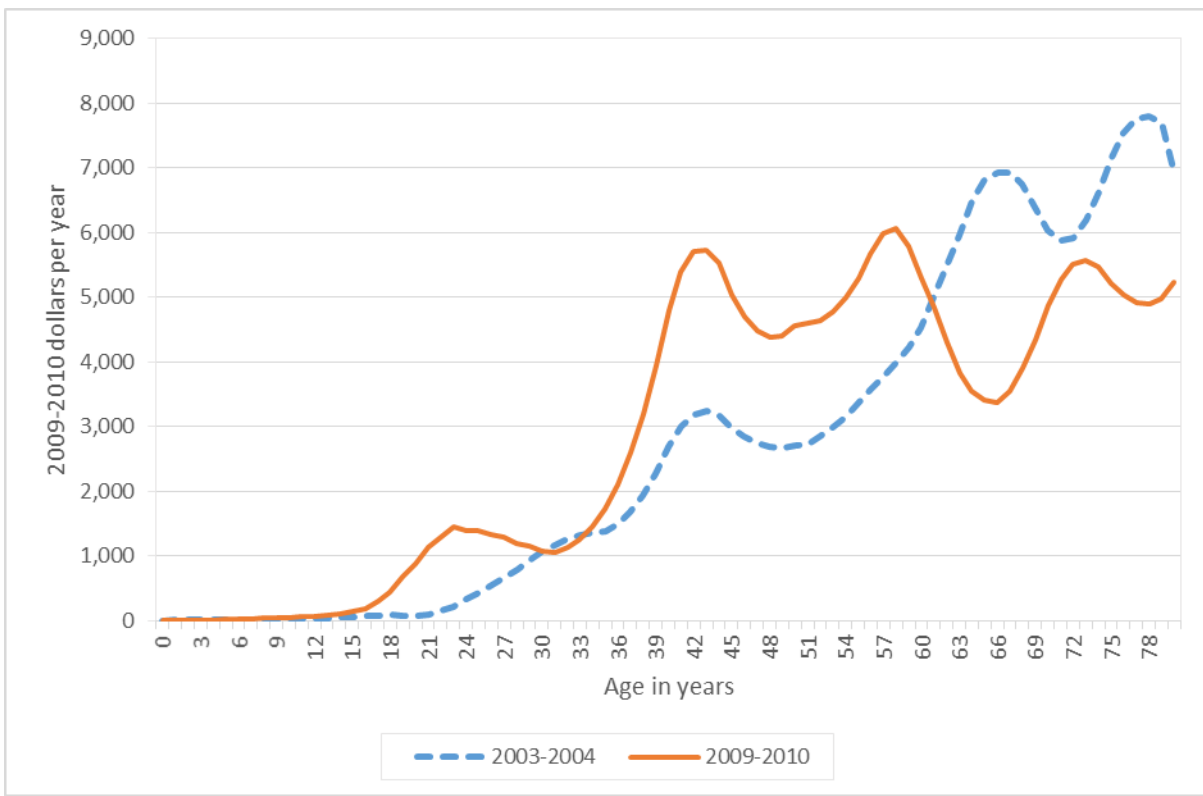
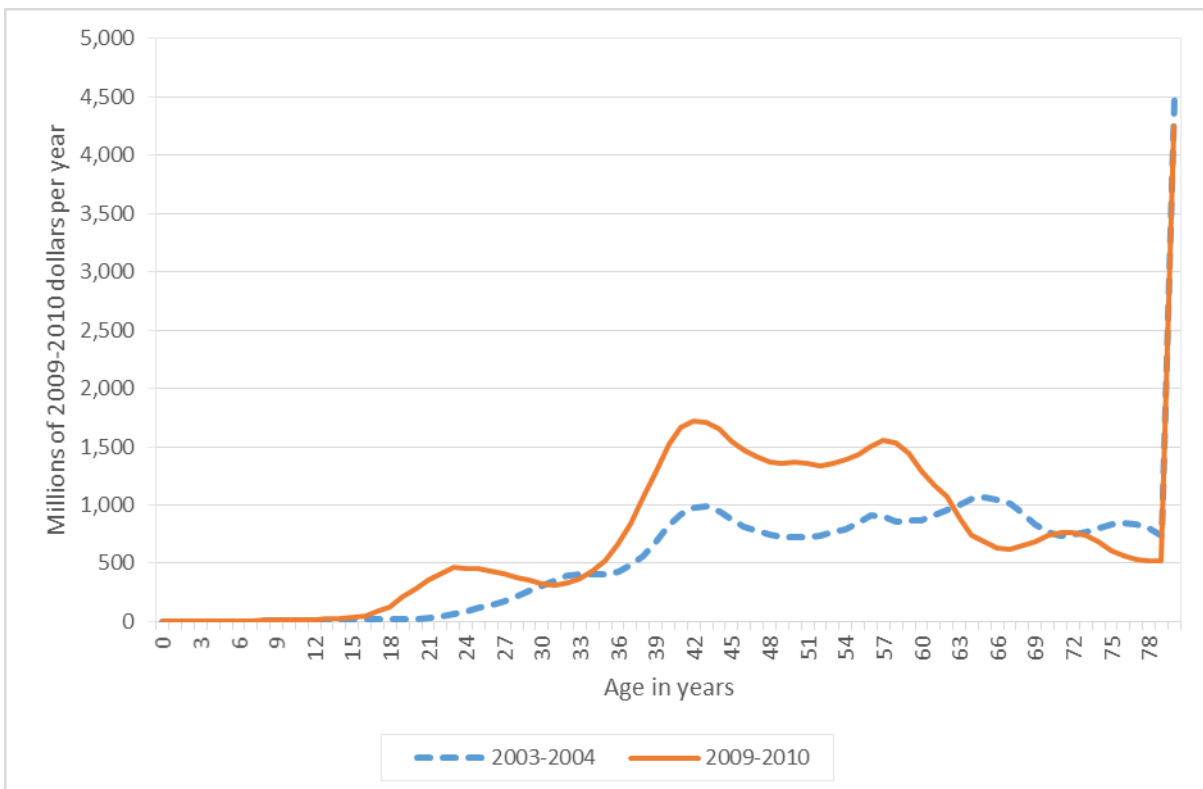


Figure 94: Aggregate age profile, Private Property Income, Households, Other, Inflow.



Definition: Property income received by households (and unincorporated businesses), apart from imputed interest attributed to life insurance, superannuation, and non-life insurance policy holders. Property income consists of reallocations of income that result from the use of financial assets and tangible non-produced assets, such as land and sub-soil assets. It includes interest, dividends, and rent on natural assets.

Aggregate benchmark: Interest (excluding imputed interest), dividends, and rent on natural assets receivable by households (and unincorporated enterprises), as well as reinvested earnings attributable to households (and unincorporated enterprises), as reported in the household income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Inflows of other private property income received by households are calculated from information included in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from investments. Income from investments includes income from financial institution account interest, interest on debentures and bonds, interest on loans to people living in other households, dividends, non-owner-occupied (residential and non-residential) property, royalties, trusts, and silent partnerships.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results:

Inflows of other private property income received by households increased with age in 2003-04. In 2009-10, these inflows also increased with age until the early 40s, but increased little after then.

4.2.8.4 Private Property Income, Private Corporations, Outflow

Figure 95: Per capita age profile, Private Property Income, Private Corporations, Outflow.

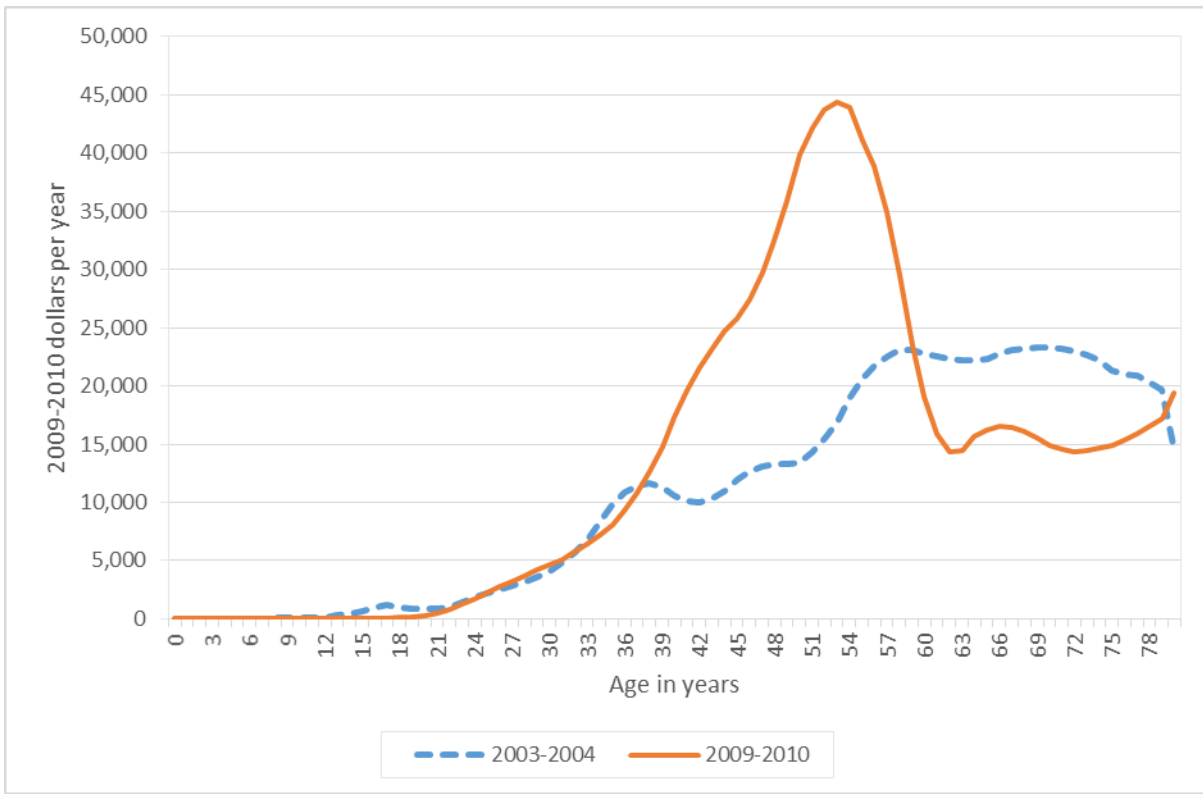
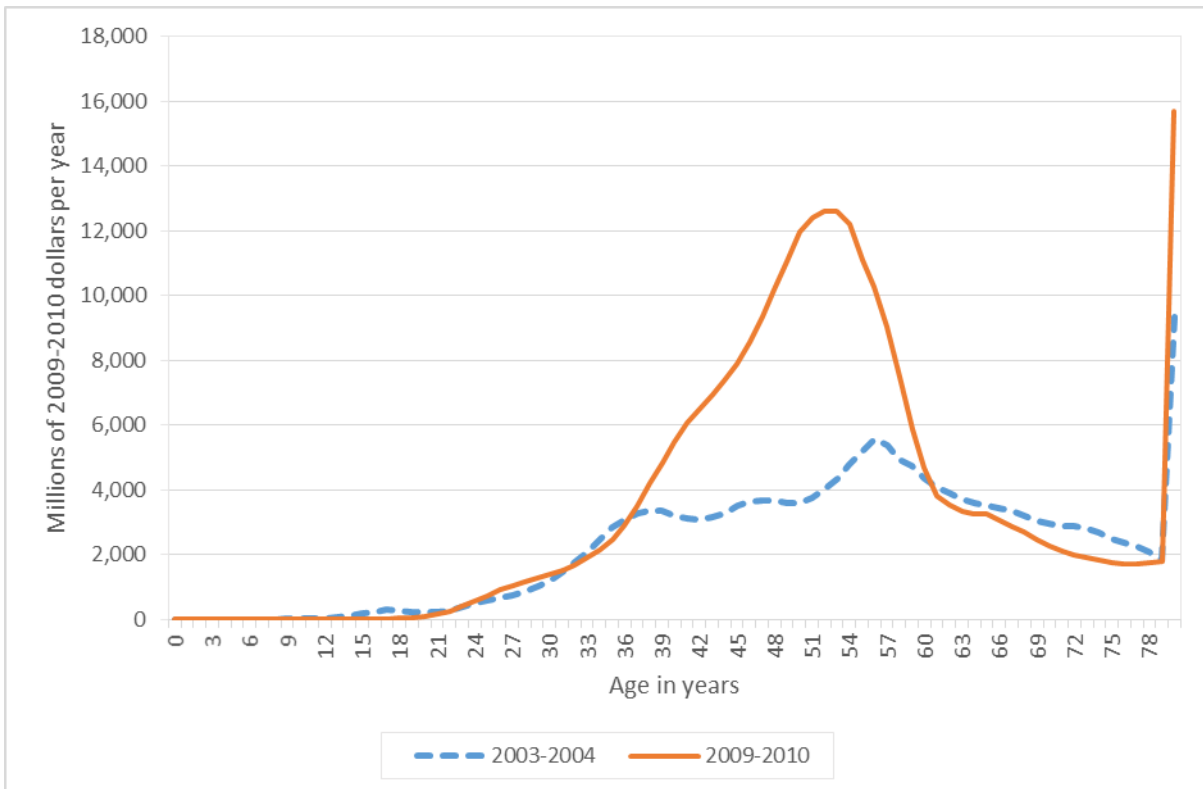


Figure 96: Aggregate age profile, Private Property Income, Private Corporations, Outflow.



Definition: Property income paid by private corporations. Property income consists of reallocations of income that result from the use of financial assets and tangible non-produced assets, such as land and sub-soil assets. It includes interest, dividends, and rent on natural assets.

Aggregate benchmark: Property income payable by financial corporations and private non-financial corporations as reported in the financial corporations and private non-financial corporations income accounts of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Outflows of private property income paid by private corporations are allocated to the owners of private corporations. As a result, the per capita age profile for these outflows will have the same age pattern as the per capita age profile for ownership of private corporations. In line with this, these outflows are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of shares and incorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: The inflow of private property income that people pay by way of private corporations rises with age until the 50s. This rise was gradual in 2003-04 and steep in 2009-10. In 2003-04, after this rise has ended, these inflows plateau until later life. In 2009-10, after this rise has ended, these inflows drop quickly before plateauing.

4.2.8.5 Private Property Income, Households, Consumer Credit, Outflow

Figure 97: Per capita age profile, Private Property Income, Households, Consumer Credit, Outflow.

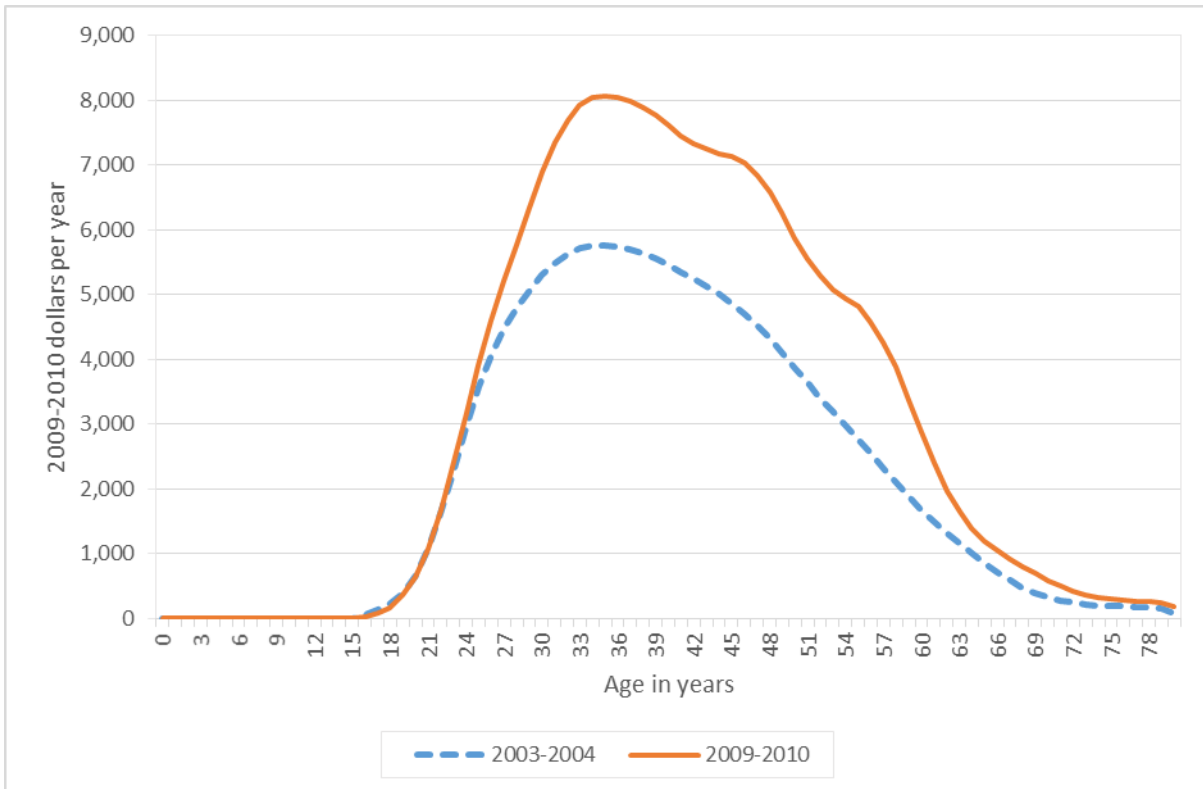
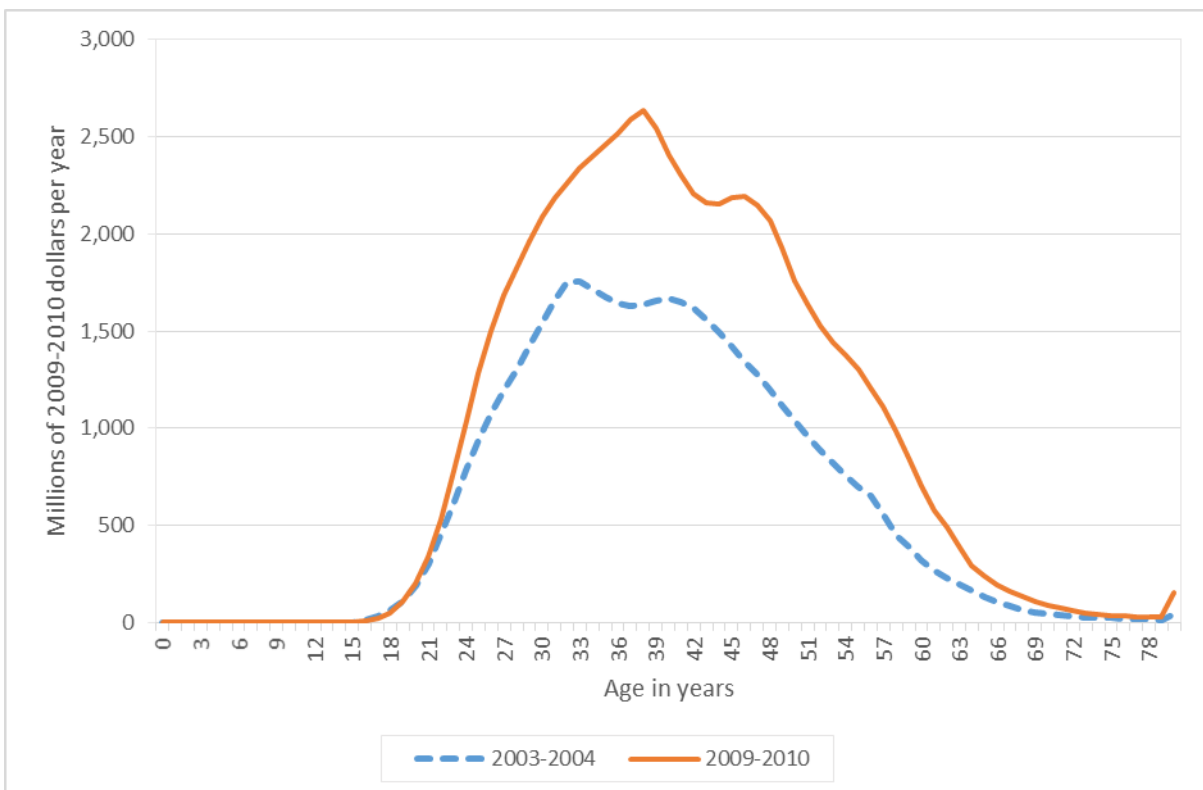


Figure 98: Aggregate age profile, Private Property Income, Households, Consumer Credit, Outflow.



Definition: Interest paid by households (and unincorporated businesses).

Aggregate benchmark: Interest payable by households (and unincorporated enterprises) as reported in the household income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: The 2003-04 and 2009-10 Household Expenditure Surveys collected information on interest paid by households on loans for vehicles, loans for holidays, credit card purchases and cash advances, mortgages on owner-occupied housing, and mortgages on non-owner-occupied (residential and non-residential) property. These surveys also collected information on interest paid by individuals on money borrowed to purchase shares or units in trusts. These types of interest paid are allocated to individuals within households in the following manner. Interest paid by individuals on money borrowed to purchase shares or units in trusts are allocated to the individuals who made these interest payments. Interest paid by households on loans for vehicles, loans for holidays, and credit card purchases and cash advances are allocated on an equal basis to the household head and his or her spouse. Interest paid by households on mortgages on non-owner-occupied property is allocated on the basis of the relative incomes received by household members from non-owner-occupied property. Interest paid by households on mortgages on owner-occupied housing are allocated on an equal basis to the owner-occupiers within households, if known, or else to the household head and his or her spouse.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results: Outflows of private property income paid for consumer credit by households has increased substantially between 2003-04 and 2009-10, with this increase affecting those aged 30 to 60 the most. Interest paid on consumer credit increases to a peak in the mid 30s and then begins to fall away gradually.

4.2.8.6 Private Property Income, Households, Other, Outflow

Figure 99: Per capita age profile, Private Property Income, Households, Other, Outflow.

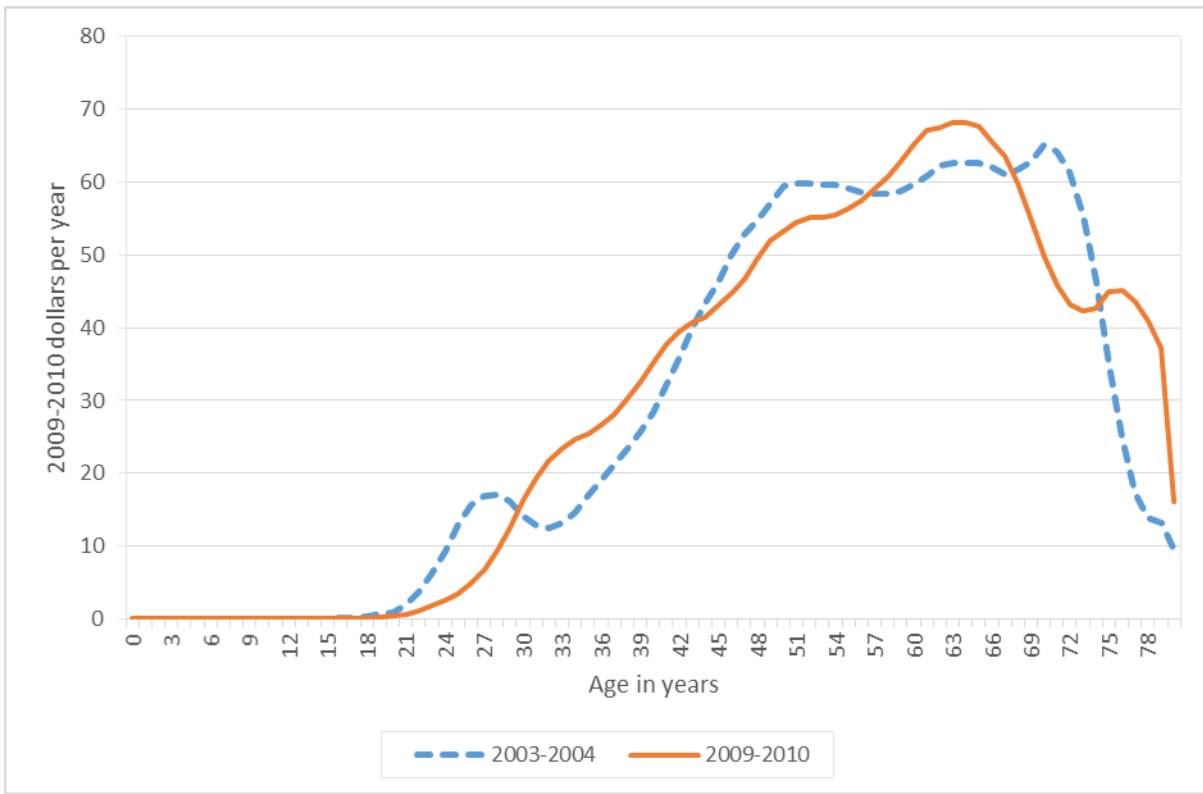
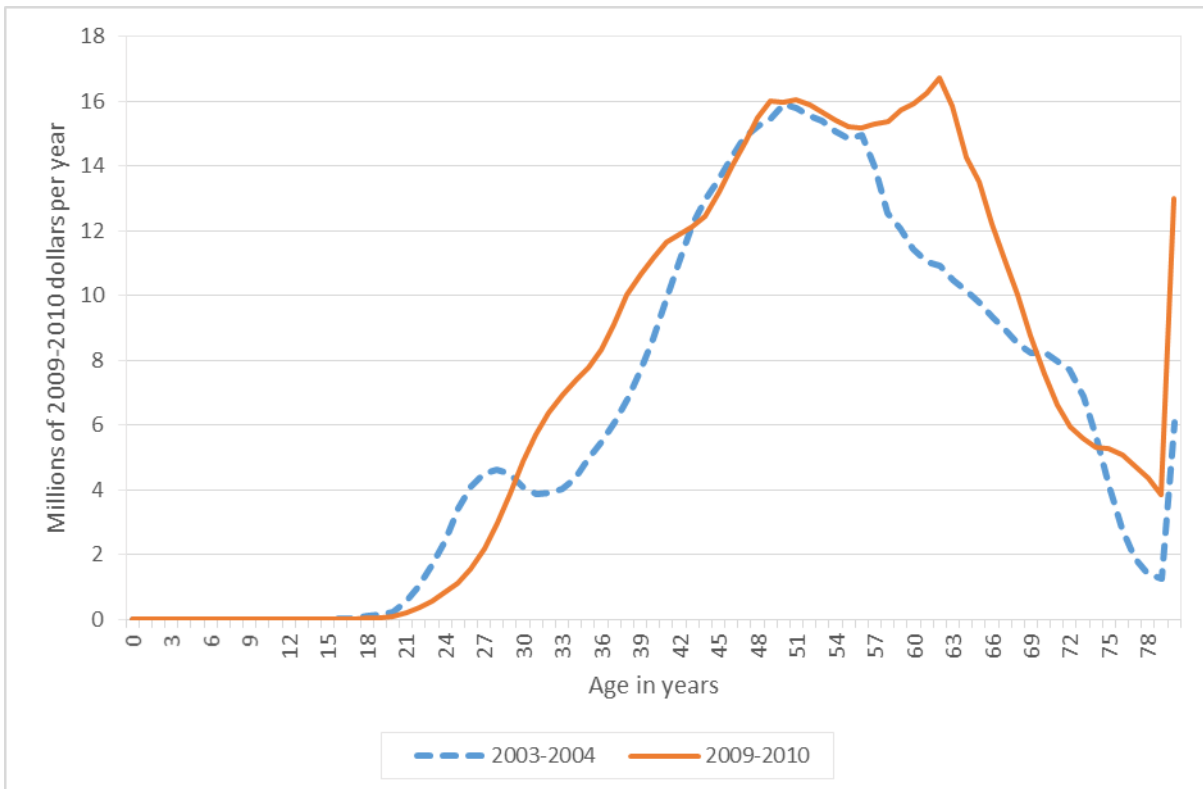


Figure 100: Aggregate age profile, Private Property Income, Households, Other, Outflow.



Definition: Property income paid by households (and unincorporated businesses) apart from interest. This property income paid consists entirely of rent on natural assets.

Aggregate benchmark: Rent on natural assets payable by households (and unincorporated enterprises) as reported in the household income account of the Australian System of National Accounts (Australian Bureau of Statistics 2013b).

Per capita age profile: Outflows of other private property income paid by households (and unincorporated businesses) consist entirely of rent on natural assets. According to (Australian Bureau of Statistics 2000: 315), land rent is mainly paid by unincorporated businesses and corporations, rather than households. Given this, outflows of other private property income paid by households (and unincorporated businesses) are allocated to the owners of unincorporated businesses. More specifically, these outflows are allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the value of unincorporated businesses owned by individuals.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results Outflows of other private property income paid by households (and unincorporated enterprises) rise until the mid 50s and decline after the 60s. Amounts of outflows paid, though, are comparatively small.

4.2.8.8 Private Capital Income, Private Corporations

Figure 103: Per capita age profile, Private Capital Income, Private Corporations.

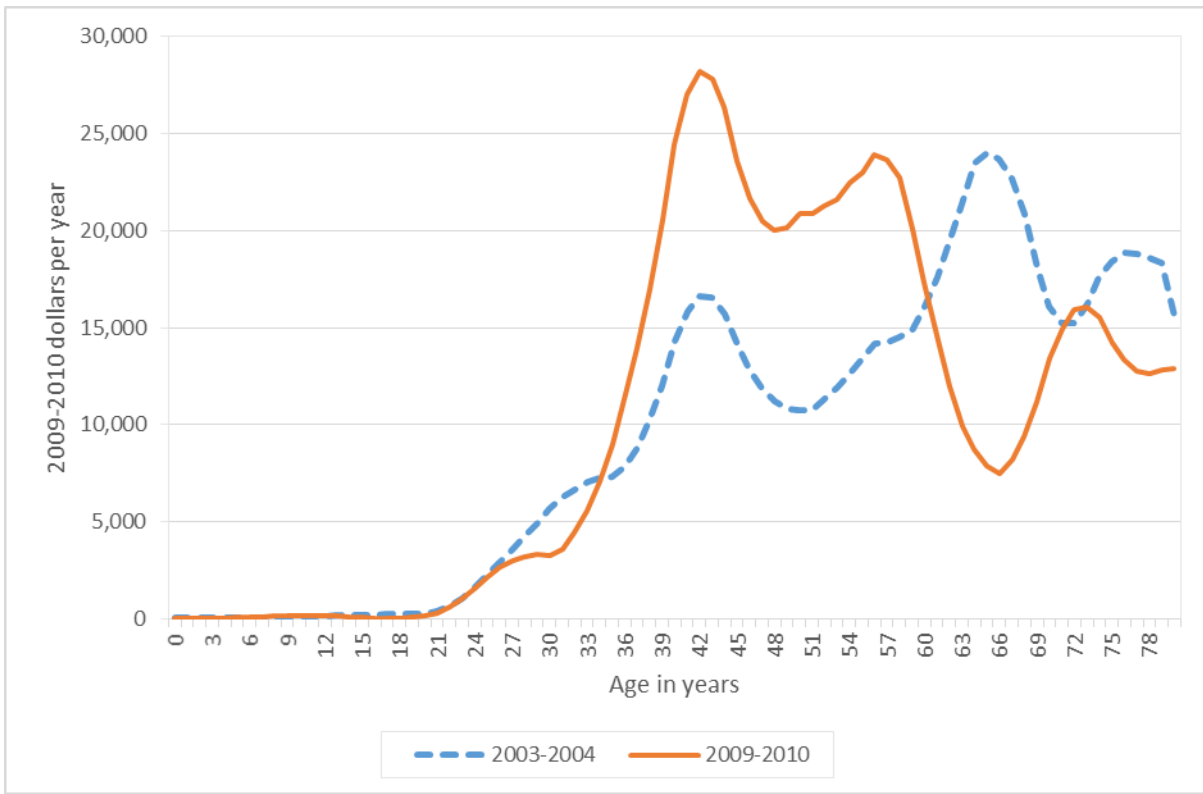
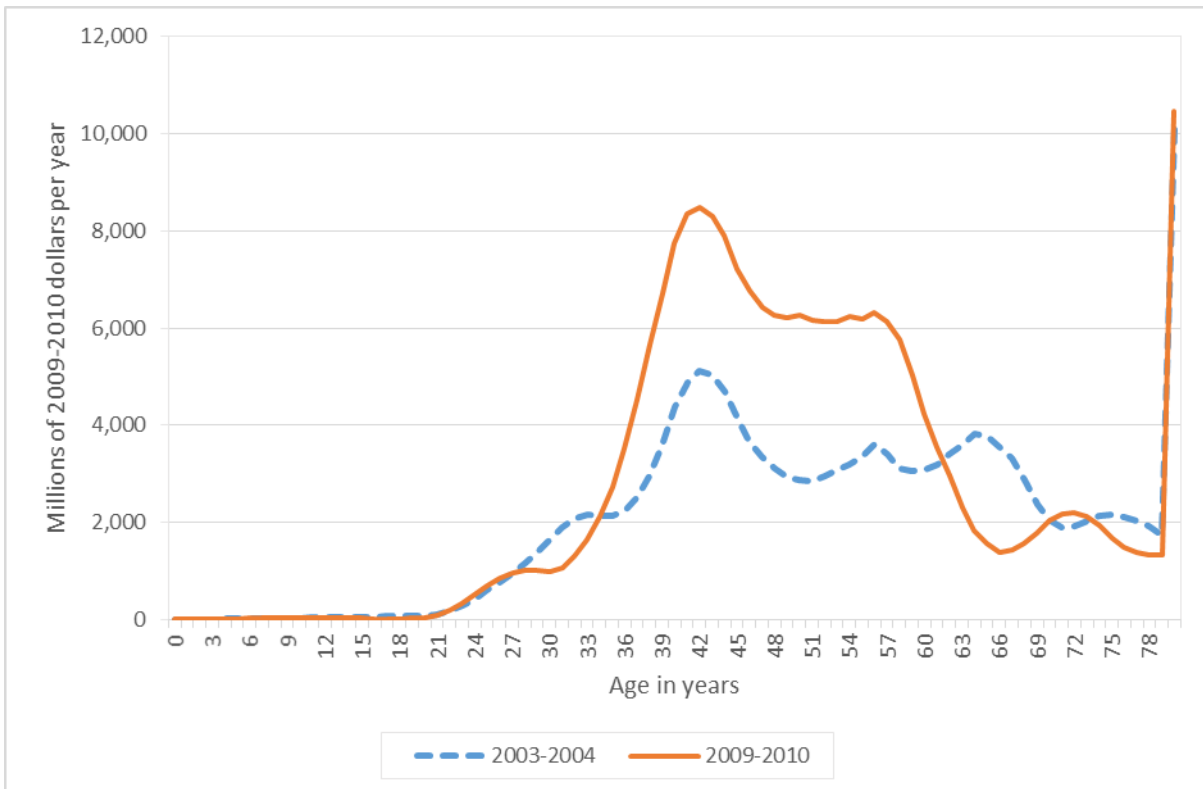


Figure 104: Aggregate age profile, Private Capital Income, Private Corporations.



Definition: The income that accrues from the operation of private corporations, less the associated consumption of fixed capital. This income is defined as pre-tax, that is, prior to the payment of any taxes associated with this income (such as taxes on property).

Aggregate benchmark: The basis for the aggregate benchmark for private capital income from private corporations is the gross operating surplus of financial corporations and private non-financial corporations, less consumption of fixed capital by financial corporations and private non-financial corporations. Figures for gross operating surplus and consumption of fixed capital are derived from information reported in the Australian System of National Accounts (Australian Bureau of Statistics 2013b). The amount that results from these calculations is converted from a post-tax to a pre-tax basis through the addition of the aggregate benchmark for taxes on property paid by private corporations, as well as the aggregate benchmark for taxes on the use of goods and performance of activities. The result is the aggregate benchmark for private capital income from private corporations.

Per capita age profile: The per capita age profile for private capital income from private corporations is assumed to be similar to the per capita age profile for income received from dividends. In line with this, private capital income from private corporations is allocated using information contained in the 2003-04 and 2009-10 Household Expenditure Surveys concerning the incomes that individuals receive from dividends.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results:

In 2003-04, the private capital income that people receive by way of private corporations increased gradually with age, peaking in the mid 60s. In 2009-10, this private capital income peaked much earlier. Whereas in 2003-04, the highest amounts of private capital income from private corporations were received by people in their 60s, by 2009-10, the highest amounts were received by people in their early 40s.

4.2.8.9 Private Capital Income, Owner-Occupied Housing

Figure 105: Per capita age profile, Private Capital Income, Owner-Occupied Housing.

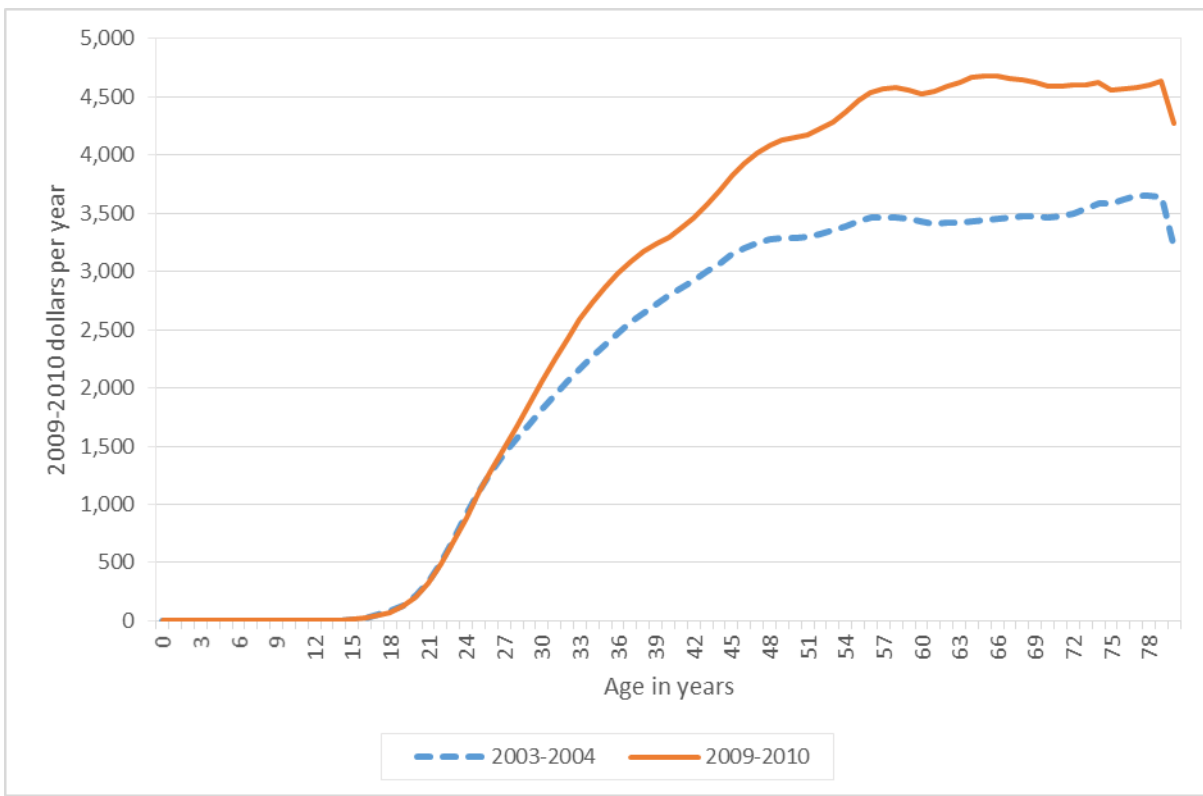
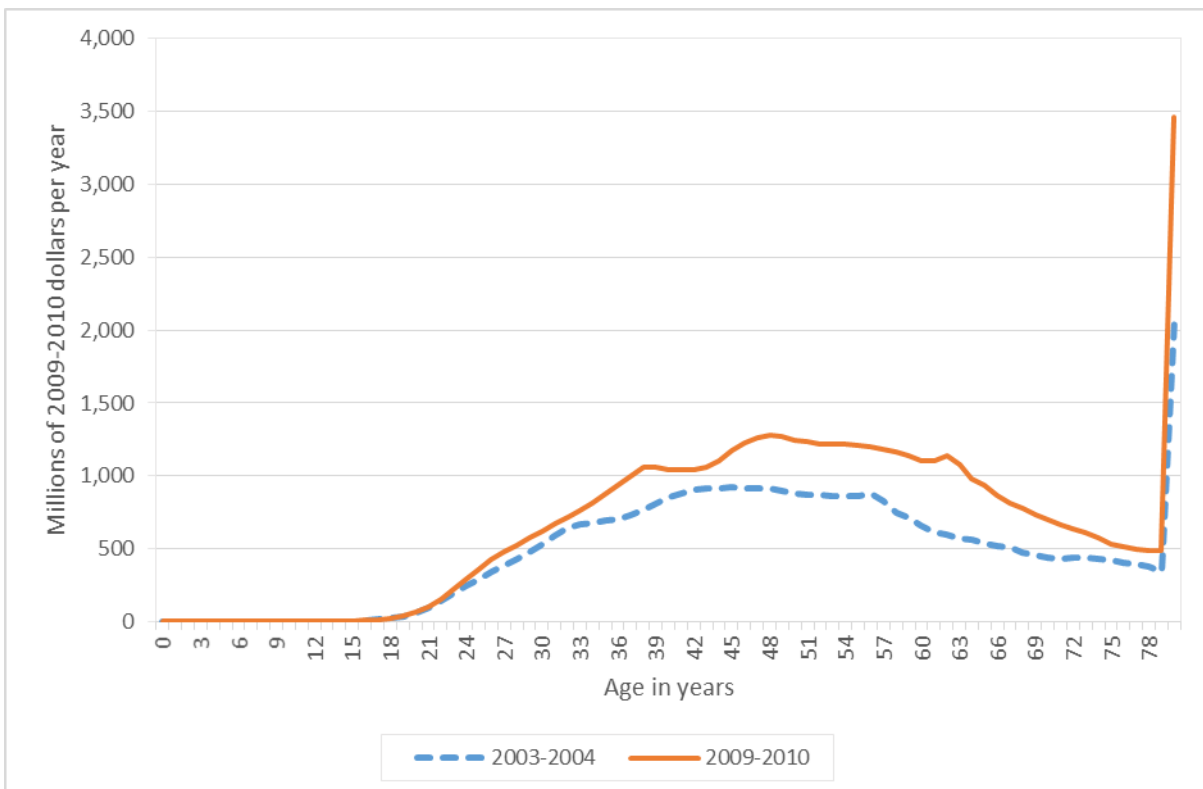


Figure 106: Aggregate age profile, Private Capital Income, Owner-Occupied Housing.



Definition: Owner-occupiers of housing are conceptualised as operating rental businesses whereby they rent the housing they own to themselves, pay and receive rent from themselves, and pay associated housing costs. Private capital income from owner-occupied housing is the income that accrues to owner-occupiers from the operation of these rental businesses. This income is considered to be the rent that owner-occupiers are imputed to receive from themselves – that is, the rent that would be paid for owner-occupied housing were owner-occupied housing rented, unsubsidised, on the private market – less the actual housing costs paid by owner-occupiers (although these housing costs do not include property income paid, such as interest on mortgages). This income is net of the associated consumption of fixed capital and is defined as pre-tax, that is, prior to the payment of any taxes associated with this income (such as taxes on property).

Aggregate benchmark: The basis for the aggregate benchmark for private capital income from owner-occupied housing is the gross operating surplus of households (that is, the gross operating surplus of dwellings owned by persons), less that portion of consumption of fixed capital by households (and unincorporated enterprises) that is associated with dwellings owned by persons. Figures for gross operating surplus and consumption of fixed capital are taken from the Australian System of National Accounts (Australian Bureau of Statistics 2013b). The amount that results from these calculations is converted from a post-tax to a pre-tax basis through the addition of the aggregate benchmark for taxes on property paid by households. The result is the aggregate benchmark for private capital income from owner-occupied housing.

Per capita age profile: The ABS has constructed estimates of “net imputed rent” for owner-occupied housing. In relation to owner-occupied housing, net imputed rent is equal to the rent that would be paid for owner-occupied housing were owner-occupied housing rented, unsubsidised, on the private market, less the actual housing costs paid by households living in owner-occupied housing (including, for example, interest on mortgages). (For further details, see the section above on the per capita age profile for private consumption of housing.) Net imputed rent for owner-occupied housing is thus very similar to private capital income from owner-occupied housing as defined above. There are important differences, however, including the differing treatments of interest on mortgages, consumption of fixed capital, and taxes on property. The estimates of net imputed rent for owner-occupied housing constructed by the ABS are included in the 2003-04 and 2009-10 Household Expenditure Surveys. In order to construct estimates of private capital income from owner-occupied housing, these estimates of net imputed rent for owner-occupied housing are adjusted by adding in interest on mortgages. The estimates for households that result are then allocated on an equal basis to the owner-occupiers within households, if known, or else to the household head and his or her spouse.

Smoothing: Smoothed using Friedman’s “supersmoother”, as implemented in the R statistical package.

Description of results: Private capital income from owner-occupied housing rises until the mid 50s, at which point, it plateaus. Private capital income from owner-occupied housing was significantly higher in 2009-10 than it was in 2003-04.

4.2.8.10 Private Capital Income, Share of Mixed Income

Figure 107: Per capita age profile, Private Capital Income, Share of Mixed Income.

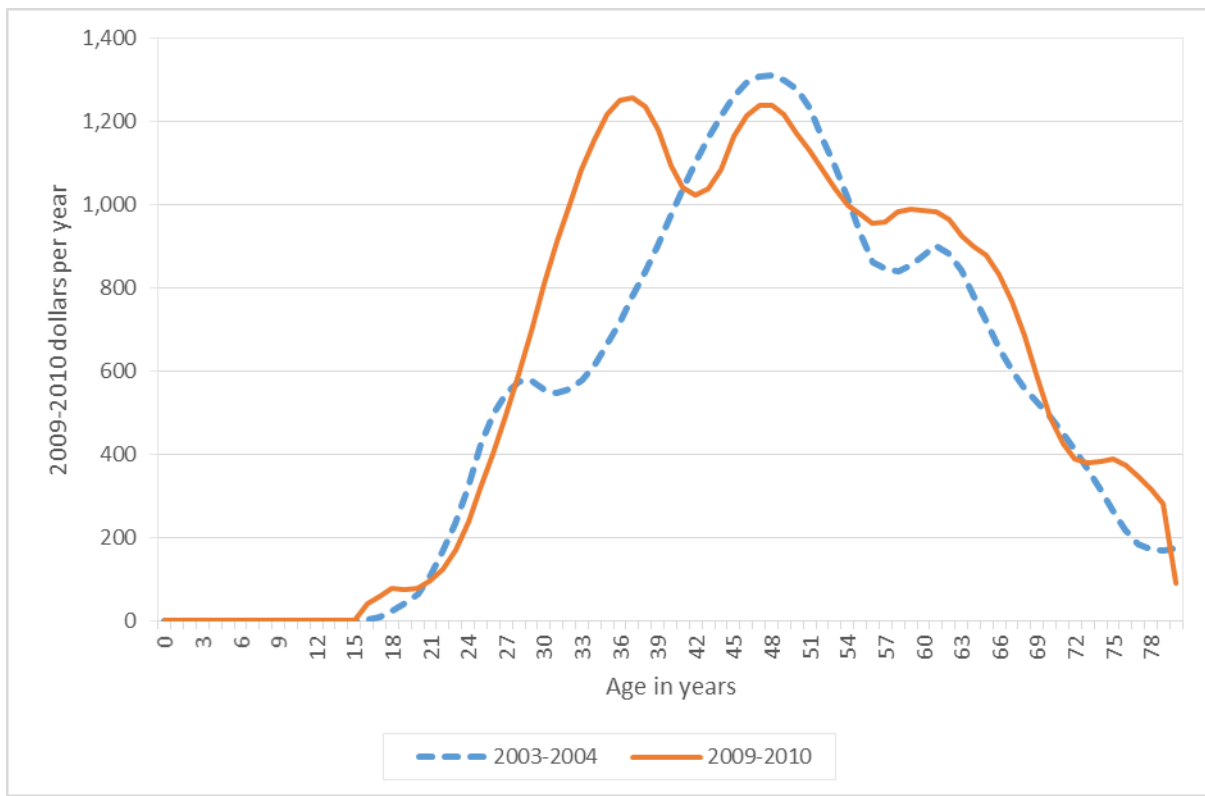
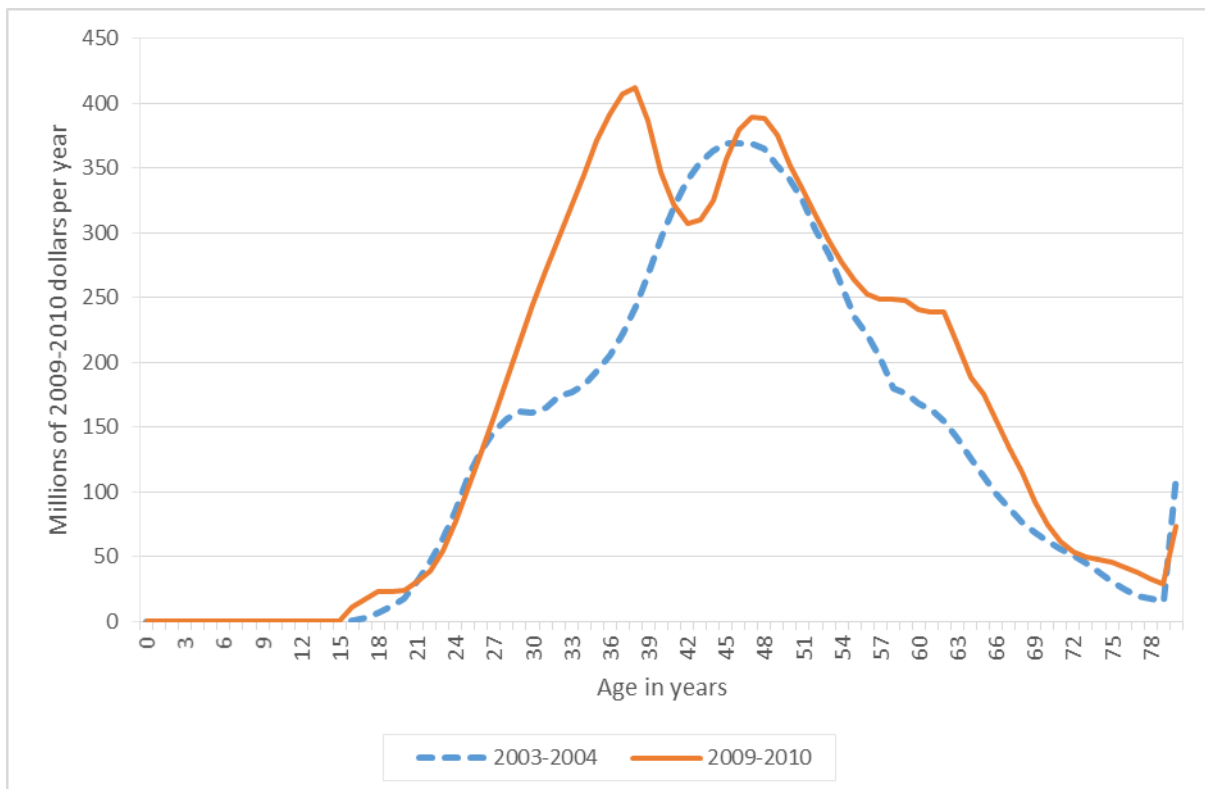


Figure 108: Aggregate age profile, Private Capital Income, Share of Mixed Income.



Definition: The particular share of income received by the self-employed from the operation of unincorporated businesses that is a return to capital, less the associated consumption of fixed capital. This income is defined as pre-tax, that is, prior to the payment of any taxes associated with this income (such as taxes on property).

Aggregate benchmark: The basis for the aggregate benchmark for mixed income's share of private capital income is one third of gross mixed income, less that portion of consumption of fixed capital by households (and unincorporated enterprises) that is not associated with dwellings owned by persons. Figures for gross mixed income and consumption of fixed capital are taken from the Australian System of National Accounts (Australian Bureau of Statistics 2013b). One third of gross mixed income is used because the NTA manual (United Nations 2013) suggests that gross mixed income should be allocated between capital and labour in the following proportions: one third to capital and two thirds to labour. The amount that results from these calculations is converted from a post-tax to a pre-tax basis through the addition of the aggregate benchmark for taxes on property paid by unincorporated businesses. The result is the aggregate benchmark for mixed income's share of private capital income.

Per capita age profile: The 2003-04 and 2009-10 Household Expenditure Surveys include information on cash income from individuals' own unincorporated businesses, goods received from individuals' own unincorporated businesses, and the value of unincorporated businesses owned by individuals. Information on cash income and goods received from individuals' own unincorporated businesses is used to construct estimates of the incomes that households receive from their own unincorporated businesses. Dividing these estimates by three yields estimates of mixed income's share of private capital income that is received by households. These estimates for households are then allocated to individuals within households on the basis of the relative value of unincorporated businesses owned by household members.

Smoothing: Smoothed using Friedman's "supersmoother", as implemented in the R statistical package.

Description of results:

In 2003-04, mixed income's share of private capital income was bell-shaped – rising to a peak at around age 50 and declining after then. In 2009-10, mixed income's share of private capital income still declined after age 50, but it rose much more rapidly before then. The result of this change is that people in their 30s received more private capital income from mixed income in 2009-10 than they did in 2003-04.

5.0 Summary and Potential Extensions

The purpose of this report has been to document the key inputs and results from the Australian NTA project. In this section, we summarise the key findings with respect to labour income, consumption, the lifecycle deficit, funding the lifecycle deficit, detailed account items and point to future research trajectories.

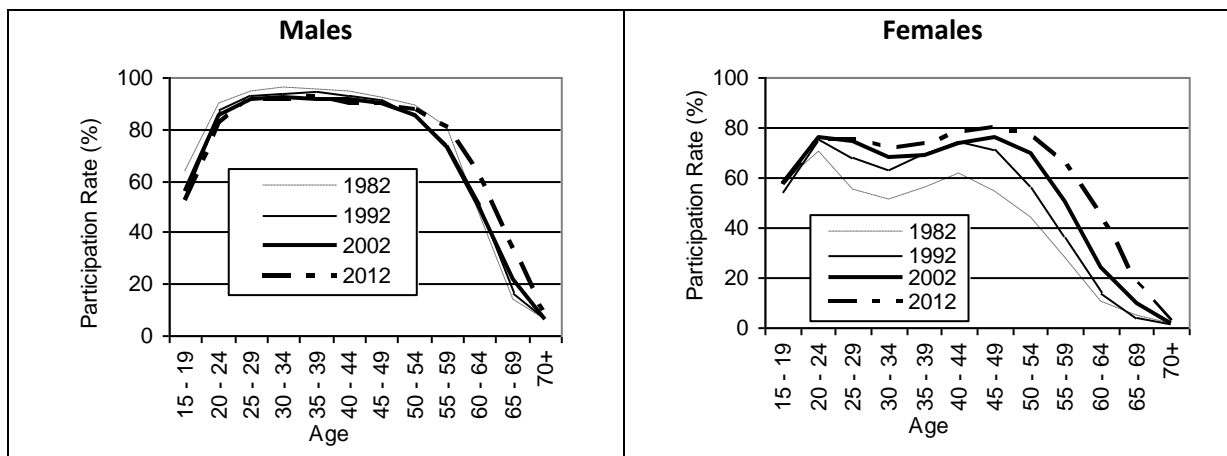
5.1 Summary

- Labour income, consumption and the lifecycle deficit

For both 2003-04 and 2009-10, it is clear that total consumption is greater than labour income for younger and older Australians, while labour income is greater than consumption for prime-aged Australians. This translates into a life cycle deficit which is positive for younger and older Australians. Importantly, the estimation of the NTA at two time intervals has identified changes in the age at which individuals are consuming more than they are producing. Specifically, the ages at which the life cycle deficit moves from positive to negative territory and vice versa have gradually increased over time. In 2003-04, the age at which the lifecycle deficit crosses into surplus territory is between 23 and 24 compared with between 24 and 25 in 2009-10. Similarly, the age at which the life cycle surplus turns to deficit moved from between age 55-56 in 2003-04 to between 57 and 58 in 2009-10.

The latter finding reflects the rapid increase in mature age participation that has occurred in the first decade of the 21st century in Australia, as shown in Figure 109. Indeed, the majority of the last 30 years of increases in male mature age labour force participation has occurred in the last decade (Temple 2014). For example, males aged 60-64 years had a labour force participation rate of around 50 per cent during the entire 1982-2002 period, but this increased to 62 per cent during the 10-year period to 2012. For females too there has been a strong increase in the last 10 years but following a long 30 year trajectory of increase. This rapid increase in labour force participation has thereby translated into an increase in the labour income of mature age Australians and a resulting shift outward of the crossover age for the lifecycle deficit.

Figure 109: Male and female labour force participation by age, Australia, 1982-2012.



Source: ABS, 2013c.

- Funding the lifecycle deficit

The existence of life cycle deficits among younger and older Australians raises the question: among these age groups: when labour income is less than consumption, how is this consumption funded? In the NTA, reallocation of resources among age groups can occur through a variety of mechanisms: private transfers (for example, parents purchasing goods and services for their children), public transfers (for example, public age pensions and publicly provided education and health services), asset income, and saving.

Results have shown differences in the reallocations by age. Younger Australians receive large public transfers in addition to private intra-household transfers. Mature age Australians also receive large public transfers but also significant amounts from private asset income. In the 2003-04 period, older Australians (over mid 60s) also received private intra-household transfers – although by 2009-10, this had reduced somewhat. For those in the prime working ages, there is a large surplus of private asset income, with an offsetting deficit of public transfers and private intra-household transfers (primarily to children) and private saving.

An ageing population places these reallocation mechanisms under stress. As the proportion of older Australians in the population rises and the proportion of prime working age Australians falls, the life cycle deficit in need of funding increases in relative terms just as the life cycle surplus used to fund this deficit decreases in relative terms, although the fall in the proportion of younger Australians in the population will offset this to an extent.

- The future lifecycle deficit

Projections were conducted to estimate the effects of changes in population size and composition on labour income, total consumption and the resulting lifecycle deficit. The results show that the ageing of the population leads to a substantial increase in the fiscal deficit, all else being equal. This result held true regardless of the underlying demography assumed through Series A-C of the ABS population projections. All three ABS projections assume relatively high levels of net overseas migration. Higher overseas migration increases the proportion of the population in the working ages thus having a positive effect on the projected fiscal deficit.

In interpreting these simple projections, it is important to recognize that the projections reflect what aggregate consumption, labour income, and the life cycle deficit would be if the age distribution of the population changed to that projected for 2050, while the per capita age profiles for consumption, labour income, and the life cycle deficit remained at their 2009-10 levels.

If the projected deficit is not to be addressed by falls in per-capita consumption, other solutions must be found. One option clearly is to strive to raise labour income through policies designed to increase employment rates, hours worked, or labour productivity. An increase in labour productivity would increase income components of the NTA for any given level of labour force participation. Improved labour productivity can also reduce consumption costs through the price effects of more efficient production of goods and services.

There are many factors that could shift the consumption and production profiles of mature age Australian in the future. On the production side, as noted earlier, mature age participation in Australia has changed considerably and there are many reasons to expect that future increases are possible. Policies to extend the retirement age and to provide incentives for people to keep working at older ages are important but social factors will also be important as hypothesized by McDonald and Kippen (1999):

- Future jobs may be less physically demanding;
- The next generation of mature age workers started formal employment later in life, and may therefore conclude work later in life;
- Numerically, more people will be self-employed and have greater autonomy over their work;

- The next generation will be healthier and more aware of the long years that remain in their lives;
- The coming 55-64 year age group will have had their children at later ages and their children will stay financially dependent for more years;
- Simultaneously, they may have financial responsibilities for their own parents;
- Being the baby-boom generation, they have expectations of higher living standards in retirement than their parents had. The Age Pension alone is not enough and the years of retirement income will be longer;
- In the 1990s, labour force participation at ages 55-64 years was low due to declines in the manufacturing industry in the 1980s. This generation would progress to older ages; and
- Because of cohort changes in women's participation, the wives of 55-64 year old men will be more likely to be working in the future.

On the consumption side, changes in private health insurance uptake among mature age Australians, longer exposure to the compulsory Superannuation Guarantee and increases in the eligibility age for the Age pension are all examples of policy changes that are likely to change the age-specific profile of aggregate consumption and its constituent parts. These are in addition to general cohort effects reflecting differing preferences between generations.

- Detailed item point

Underlying these key NTA concepts, are numerous NTA account items. Briefly, of the more detailed items, private education consumption, as well as public education consumption (that is, consumption of publicly provided education services), tend to be concentrated among younger Australians. In contrast, private health consumption and public health consumption (that is, consumption of publicly provided health services) tend to be concentrated among older Australians. Other private consumption, which includes all private consumption apart from education and health (for example, food, clothing, rent, and so on), tends to rise from birth to a first peak in the late 20s, fall and then rise to a second peak in the late 50s, and then fall in later life. The associations of both income and consumption with age indicate the importance of monitoring the future effects of population ageing upon the fiscal balance.

5.2 Potential Extensions to the Australian NTA

The NTA accounting system lends itself to some important extensions which would be valuable for the Australian NTA project. First, as the international NTA project covers over 40 countries, Australian intergenerational transfers can be compared with those of other countries. With differing political and economic systems, how does Australia's pattern of consumption, labour income and public and private transfers compare with those in other OECD countries?

Second, in this project we have included two cross-sections: 2003-04 and 2009-10. Adding additional years to the NTA accounts will enable an understanding of how intergenerational transfers have changed historically, and the role of the public sector, families and the private sector in creating these changes.

Third, the need to plan and prepare for population ageing in Australia is well acknowledged among policy makers, business leaders and the broader community at large. A less recognized fact is that the rate and speed of ageing within Australia differs considerably. Indeed, when combined with the uniqueness of regional level labour markets, the impact of population ageing on sub-national labour markets and local economies can be expected to differ considerably. Moreover, recent research shows considerable differences in mature age labour force participation between and within Australia's states and territories (Temple 2014). Disaggregating the NTA accounts by state of residence would enable an analysis of the effect of state-based policies on intergenerational transfers. This is particularly important given the different roles and responsibilities of states and territories in the Australian constitution.

Fourth, the NTA ignores intergenerational transfers that result from household production such as child care, elder care and volunteering. With very detailed time use data available in Australia since 1997, an NTA including time allocation would give a fuller understanding of economic transfers occurring in Australia.

Finally, building upon the simple projections completed for this project, a larger macro-simulation model could be built to simulate changes in intergenerational transfers over time. This would involve projecting each of the underlying components of the NTA – a very large, yet worthwhile task. As noted earlier, future generations at the child, prime working and mature age ages are likely to have very different production and consumption profiles – due among other reasons to a range of period and cohort effects.

Appendix 1: List of Government Payments

Payment	Actual Expenditure (\$000)	
	2003-04	2009-10
Age Pension	19,540,401	29,384,500
Senior supplement		128,920
Widow Allowance	469,276	441,134
Mature age allowance	372,523	
Newstart allowance	4,754,733	6,136,811
Sickness allowance	85,375	83,662
Youth allowance	2,257,447	
Youth allowance (other)		715,986
Youth allowance (tertiary and VET)		2,073,383
Austudy	258,848	343,385
Abstudy	171,349	
Abstudy (secondary)		136,467
Abstudy (tertiary)		62,682
Baby Bonus payment		1,398,430
Carer allowance	965,430	1,477,650
Carer payment	921,008	2,269,420
Disability support pension	7,492,532	11,859,670
Family tax benefits	12,869,904	17,848,000
One-off carer bonus†		
One-off payment to families	2,222,990	
Parenting payment	5,995,135	5,467,123
Partner allowance	860,462	280,651
Pension supplement‡		
Special benefit (income support for vulnerable people)	113,141	67,880
Utilities allowance (administered by FaHCSIA)		290,440
Utilities allowance (administered by DEEWR)		28,247
Wife pension (DSP)	326,083	176,800
Wife pension (Age)	194,176	144,360
Disability pension (DVA)	1,288,539	1,475,403
Service pension (DVA)	2,535,576	2,541,729
Income support supplement (DVA)	294,949	402,084
War widows/orphans pension (DVA)	1,445,065	1,806,120
Residential aged care (DoHA)	3,918,551	6,027,657
Residential aged care (States and Territories)	90,400	192,500
Residential aged care (DVA)	673,100	1,069,500
Residential aged care (private expenses)	1,687,228	3,354,697
Maternity allowances	223,256	
Maternity immunisation allowance		34,950
Child Care benefit	1,387,946	2,000,062
Child care rebate		1,304,429
Pensioner education supplement	72,139	79,350
Mobility Allowance	82,163	123,983
Child Disability Assistance payment		152,350
Widow B Pension	26,275	6,970
Telephone Allowance for Commonwealth Seniors Health Card Holders	12,251	8,960
Seniors Concession Allowance		33,870
SRCA payments (DVA)		110,844
MRCA payments (DVA)		62,416

Notes: †Included in carer allowance and carer payment. ‡This amount is not listed as a separate line item in the FaHCSIA annual report (or in future annual reports). It is assumed that it is included in the Age Pension outlays.

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