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Consumption and Its Function: Exploring the Time-Series "Consumption Function" in Australia 1959-60 to 2005-06

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This paper revisits the traditional economic consumption function, in time-series form. Motives of economic agents differ. We locate the decision to consume by households in a brief economic-philosophical consideration of motives and causation. Of special interest are the original constructions of John Maynard Keynes. The aim here is to describe how consumption figures in the Australian economy. This translates in practice into explaining the consumption mechanism and accounting for it with reasonable empirical confidence. We assume that readers understand reasonably well how national income accounting works. While Australia, 1960 to 2005, will act as a case study, the description should have wider validity.

1. Introduction

The aim here is to describe how consumption figures in the Australian economy. This translates in practice into explaining the consumption mechanism[1] and accounting for it with reasonable empirical confidence. We assume that readers understand reasonably well how national income accounting works. While Australia (1959-60 to 2005-6) will act as a case study, the description should have wider validity.We will take it as read that aggregate effective demand comprises the different forms of effective demand attributable to different kinds of economic agents. The characteristic actions of economic agents express their different motives. These in turn cause economic mechanisms to function in characteristic ways. The relevant economic agent here is the household because households only are responsible for consumption spending. Households differ widely, of course, especially in the levels of income they receive and in the levels of spending needed to sustain their members. Different households also buy different consumer products. Nevertheless it is appropriate at the highest level of analysis to attribute to households essentially similar motives.

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[1] 'A *mechanism* is basically a way of acting or working of a structured thing.' (Lawson 1997, p. 21)

The next section will explain why. Then the article will consider an appropriate economic-accounting framework within which to apply the Australian national-accounting data 1959-60 to 2005-6. Using this data we will then discuss the traditional 'consumption function', namely a function of the form C = Co + c(Ye), in which C represents consumption spending, Co is a constant, c is the marginal propensity to consume out of additional income and Ye is aggregate expenditure and income. This discussion will ground a section on consumption causality and a section that challenges readers to focus on the average propensity to consume.

2. Motives Of Economic Agents

Persons, grouped into households, consume instrumentally for most part. This is to say that consumption spending is not an end in itself. In the first place households consume in order to satisfy various desires or more or less ordered sets of desires. Some of these desires are appetitive (e.g. food, clothing, shelter and other fundamental physical and psycho-physical desires associated with our fundamental appetites). Other desires are more obviously social and cultural, regardless of whether they are also physical or psycho-physical (e.g. haute cuisine, haute couture, dishwashers and internet services).

Traditionally we might have said that satisfying our varied consumption desires or ordered sets of desires sought to satisfy higher ends (e.g. quality of life, *eudaimonia*, well-being, contentment, happiness etc.).[2] For most part this is still the case, though many cultural critics suggest that capital-c 'Consumption' has now become just an end in itself and is not something that people do for the sake of higher ends. Thus to consume *is* the good life per se: capital-c 'Consumption' for its own sake has, as it were, consumed higher notions of quality of life, *eudaimonia*, well-being, contentment and happiness.

We should acknowledge this criticism. If households consume merely for consumption's own sake it will affect the economic act of consuming differently than if they had consumed instrumentally. The effect might be subtle, and it might not be obvious in the economic aggregates, but it is a worthy subject to consider. However, the point that is pertinent here is that, whatever the varied motives of people in households as 'units of consumption activity' might be, they are more like each other than they are like those of other economic agents. For example, private business corporations invest and produce instrumentally with the purpose or end of profit. They do not invest in order to satisfy human desires. Governments, too, have distinctly different motives, whether these are simply staying in office, maintaining the social status quo or pursuing particular ideological objectives more or less vigorously.

[2] Aristotle (*Nicomachian Ethics*).

John Maynard Keynes drew the distinction well. In doing so, Keynes acknowledged that Karl Marx also had attributed the right motives to the main economic agents:

> The distinction between a cooperative economy and an entrepreneur economy bears some relation to a pregnant observation made by Karl Marx, – though the subsequent use to which he put this observation was highly illogical. He pointed out that the nature of production in the actual world is not, as economists seem to suppose, a case of C-M-C+, that is, of exchanging commodity (or effort) for money in order to obtain another commodity (or effort). That may be the standpoint of the private consumer. But it is not the attitude of business, which is a case of M-C-M+, that is, of parting with money for commodity (or effort) in order to obtain more money. (1971, vol XXIX, p. 81)[3]

It is the economic act Keynes described as C-M-C+, namely consumption *spending*, that interests us here. It is this act that causes the characteristic functioning of the economic mechanism that we endeavour to capture in a 'consumption function'. Indeed a strong and relatively stable economic tendency relates the level of aggregate effective demand, which causes an equal level of income, and consumption spending. The cause is reciprocal.[4] Causality runs from effective demand to income, but the level of actual current income causes the level of consumption spending.

3. Establishing An Appropriate Economic-Accounting Framework

It is necessary therefore to categorise spending and income according to kinds of economic agent. While this may be done in different and sociologically better ways (e.g. Kalecki 1971; 1968), here we will adhere to the categories common to systems of national accounts. Despite imperfections, the categories offer consistent time-series data and obviate the need to make additional arbitrary assumptions.[5] Figure 1 describes the aggregated categories. The direction of causality is from left to right.

Figure 1 Summary of national accounts categories expressing the causal relationship

Y = Ye = Yy = Yd

[3] 'Keynes says here that he found the distinction in Marx, though he might also have got it from Aristotle, whom he read, and who first made the distinction in *Politics* book one. Marx himself took it from Aristotle and made it the cornerstone of his analysis of market economy.' Meikle (2001, p. 41; see also Dillard 1984, p. 427) Note also that the distinct *motives* (in the sense of reasons for acting) of agents corresponds to another sense of cause. This is another of Aristotle's four causes, which became known the final cause. Aristotle described it as being 'in the sense of end or "that for the sake of which" a thing is done' (*Physics* 195a, 3).

[4] Again the terminology is Aristotle's (*Physics* II, 3): 'Some things cause each other reciprocally, e.g. hard work causes fitness and *vice versa*, but again not in the same way, but the one as end, the other as origin of the change.' In our case consumption spending comprises about two-thirds of the efficient cause (effective demand), but its end or final cause is not to produce income. Rather it is to produce well-being or some such. Income is an unintended consequence of effective demand because of the way the economy works.

[5] An example is the problem of allocating mixed income (formerly operating surplus of unincorporated enterprises or self-employment income) between notional wage and profit components (see e.g. Armstrong, Glyn and Harrison 1984, p. 461).

Expenditure on gross domestic product, or GDP, by economic agents (Ye)	*Gross income from GDP attributable to economic agents (Yy)*	*Disposable income from GDP after transfers between agents (Yd)*
Consumption expenditure by households (C)	Total compensation of employees (W)	
Gross fixed capital formation, or investment, by households (Ih)	Gross mixed income (N) Imputed gross operating surplus on dwellings owned by households (Pr)	Household disposable income (Yh)
Gross fixed capital formation, or investment, by corporate enterprises (Ic)	Corporate gross operating surplus (Pc)	Corporate gross disposable income, or retained profits before depreciation (Yc)
General government expenditure (G)	Direct taxes less subsidies on production and imports plus general government gross operating surplus (Pg)	General government gross disposable income after indirect taxes and other transfers (Yg)
Net exports, or exports (X) less imports (M), (NX)		Overseas income (Yo)
C + Ih + Ic + G + NX = Ye	*W + N + Pc + Pg + Pr = Yy*	*Yd = Yh + Yc + Yg + Yo*

See appendix 1a and 1b for the above in chain-volume data form for Australia June 1959-60 to June 2005-6.

Table 1 provides the chain-volume (i.e. real dollar) data from the Australian National Accounts that correspond to each of the above categories and symbols. It does so in average percentage form for all years and for each of Australia's economic cycles during that time. Although our focus is consumption, juxtaposing the other categories and data helps to provide context. Clearly consumption (C) is the largest category of spending, just as household income (Yh) is the largest category of disposable income (Yd).

Table 1 Chain-volume per cent GDP by category of agent Australia 1960-2006 by economic cycle

	C	*Ih*	*Ic*	*G*	*NX*	*Ye*	*W*	*N*	*Pc*	*Pg*	*Pr*	*Yy*	*Yh*	*Yg*	*Yc*	*Yo*	*Yd*
Year ending																	
Jun.1960-Jun2006	57.5	10.6	13.0	19.9	-1.0	*100.0*	50.3	13.7	18.5	11.8	5.7	*100.0*	70.3	18.1	9.3	2.2	*100.0*
Cycles																	
Jun.1960-Jun1975	57.0	13.0	13.2	17.3	-0.6	*100*	49.7	19.6	17.1	10.0	3.5	*100*	74.0	16.1	8.8	1.2	*100*
Jun.1976-Jun.1983	57.0	10.5	12.3	21.4	-1.2	*100*	54.1	12.7	15.7	11.8	5.6	*100*	72.5	17.9	8.0	1.6	*100*
Jun.1984-Jun.1991	56.7	9.3	14.1	21.7	-1.7	*100*	50.0	11.1	19.2	12.9	6.8	*100*	68.8	18.8	9.6	2.8	*100*
Jun.1992-Jun2006	58.8	8.9	12.5	20.8	-1.1	*100*	48.9	9.3	21.2	13.0	7.6	*100*	66.2	20.1	10.5	3.3	*100*

4. The Traditional Linear 'Consumption Function'

To begin with we can estimate in time-series form the traditional linear (Keynesian) expression for the consumption function, namely C = Co + c(Ye), using the actual data for the Australian economy 1959-60 to 2005-6.[6] The relationship is:

[6] See Figure 1 for the symbols. It is possible to use the expression C = Co + c(Yd) and then to relate Yd, household income, and Ye, effective demand. This, however, complicates matters and gives no additional accuracy.

$$C = - 7007.4 + 0.5922Ye \quad (1)$$

Chart 1 shows the relationship using the actual data for the Australian economy 1959-60 to 2005-6. It also gives a tight regression equation (R^2 = 0.9975). Substituting the regression equation's values for C into the time-series data at appendix 1 allows us to calculate the values for Ye had the linear relationship been constant and a ceteris paribus rule applied. The relationship between the calculated values ($Y\varepsilon$) and the actual values for Ye is also tight (R^2 = 0.9948) (cf. Kalecki 1971, p. 101).

However, such long-run estimations do not account for economic cycles.[7] Table 2 gives data for Australia's economic cycles over the relevant period. An alternative is to calculate C and Ye data according to regression equations for each cycle. Table 3 gives the resulting estimates and data. It also gives calculations of the consumption multiplier (k) according to the simplest ceteris paribus clause, which is also to say that that Ih, Ic, G and NX are 'exogenous' for the purposes of the calculation. Substituting the four regression equations' values for C into the time-series data at appendix 1 as above delivers a tighter relationship between the calculated values ($Y\varepsilon$) and the actual values for Ye (R^2 = 0.9984).

We should note for later consideration that the regression equations corresponding to equation (1) have different parameters. In particular, corresponding to changes in the propensity to consume,[8] the value of Co is positive or negative. A negative value for Co does not conform to Keynes's original formulations. It means that the marginal propensity to consume is greater than its average counterpart and, therefore, that we have an increasing average propensity to consume (cf. Keynes 1936, pp. 89-131).

[7] We will use this term because it is familiar. We do not mean to imply that cycles are uniform or predetermined.

[8] The phrase 'propensity to consume' used without a modifier means both average and marginal.

Chart 1 Time-series consumption-income relationship Australia 1959-60 to 2005-6

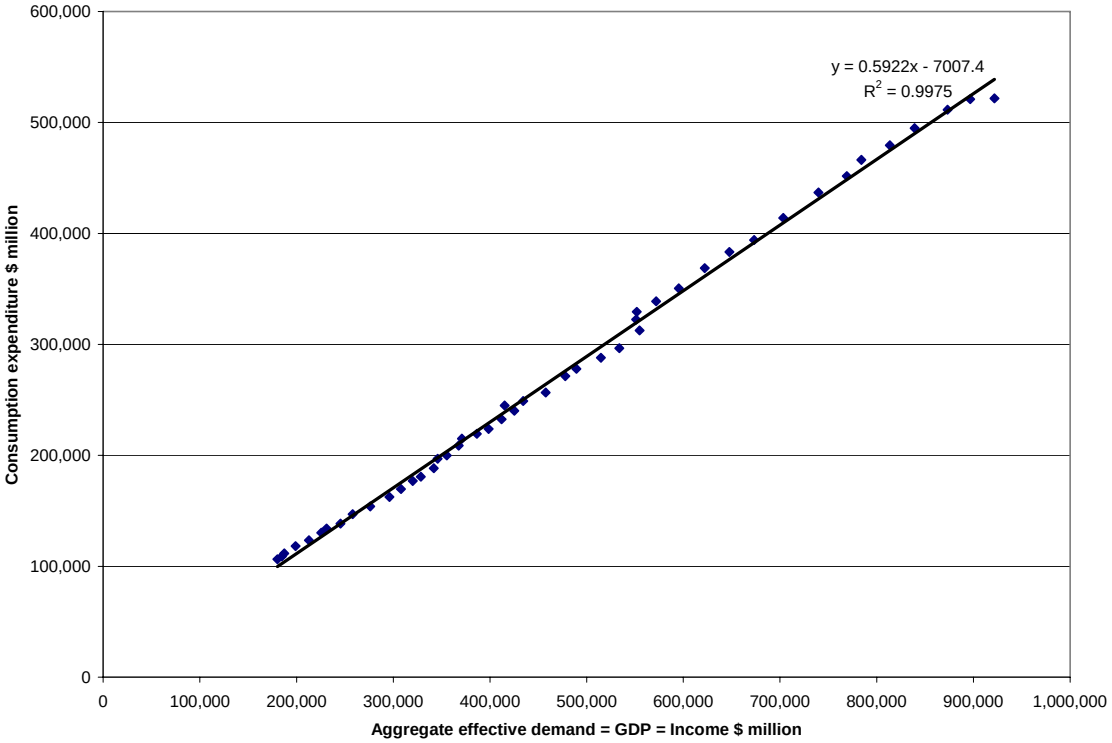


Table 3 Australia's economic cycle 1959-60 to 2005-6 growth rates (%)

Year ending	*C*	*Ih*	*Ic*	*G*	*NX*	*Ye*
Jun.1960-Jun2006	3.5	2.3	3.4	4.1	-107.4	*3.5*
Cycles						
Jun.1960-Jun1975	4.4	3.2	5.3	7.1	-42.1	*4.9*
Jun.1976-Jun.1983	2.9	0.6	7.5	1.7	-251.5	*2.6*
Jun.1984-Jun.1991	3.8	3.1	4.3	2.3	8.4	*3.7*
Jun.1992-Jun2006	3.6	5.6	5.2	3.4	-157.6	*3.8*

Source: see Australian Bureau of Statistics Cat. No. 5204.0

Table 4 Time-series consumption-income relationships by cycle Australia 1959-60 to 2005-6

Year ending	Co	c	R^2	k = 1/(1-c)
Jun.1960-Jun2006	-7,007	0.592	0.998	2.451
Cycles				
Jun.1960-Jun1974	15,867	0.506	0.995	2.024
Jun.1975-Jun.1983	-7,919	0.590	0.951	2.439
Jun.1984-Jun.1991	-2,839	0.572	0.964	2.336
Jun.1992-Jun2006	22,530	0.557	0.995	2.257

Source: see Australian Bureau of Statistics Cat. No. 5204.0

5. Causality In The Relationship Between Consumption And Income

The reciprocal causality between consumption and income can sometimes cause confusion. The principle of priority Keynes clearly articulates:

> A decision to consume or not to consume truly lies within the power of the individual; so does a decision to invest or not to invest. The amounts of aggregate income and aggregate saving are the *results* of the free choices of individuals whether or not to consume and whether or not to invest; but they are neither of them capable of assuming an independent value resulting from a separate set of decisions taken irrespective of the decisions concerning consumption and investment. (1936, p. 65)

Then, however, Keynes makes another move that is entirely consistent with this priority. In effect he asks: 'what causes (accounts for, explains etc.) the consumption decision?'[9] The move is to define '*the propensity to consume* [Keynes's emphasis] as the functional relationship c between [Y] … and [C] the expenditure on consumption out of *that level of income* [my emphasis]' (Keynes 1936, p. 90). That is, Keynes very deliberately defines the relationship as a function of the income that consumers actually have earned over the same period. This is to give consumption a passive role, unless a change occurs in the propensity to consume.

The active roles in changing the level of income are those of investment, government spending and the like: '… employment can only increase *pari passu* with an increase in investment; unless, indeed there is a change in the propensity to consume' (1936, p. 98; see also pp. 245-9). Moreover, Keynes says, as a matter of experience, the relationship between consumption and current income – i.e. the propensity to consume – is 'fairly stable'. Keynes attributes this to 'psychological' and other reasons that he explores at length (e.g. 1936, chapters 8-9). The stability of the propensity to consume, 'at any rate on the average of the community' (1936, p. 251), if not for each individual, reproduces and adds force to the passive role of consumption.

[9] Similarly, Kalecki was later to stress the question of the cause of the investment decision, describing it as the 'piece de resistance' of economics (1971, p. 148) and 'the central problem of the political economy of capitalism' (Kalecki 1971, p. 165).

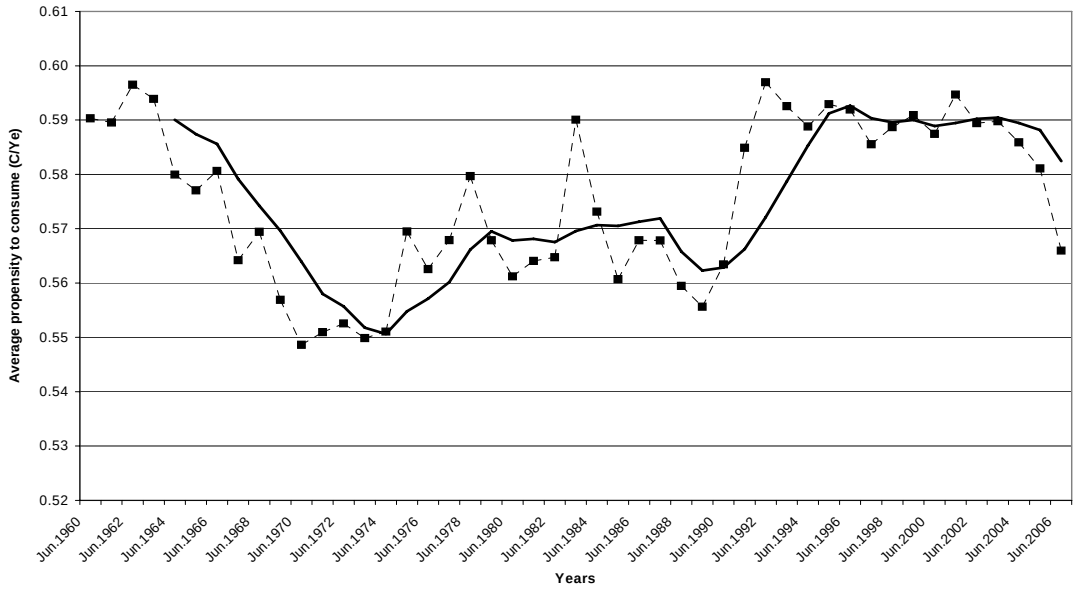
6. Conclusion: The Average Propensity To Consume

Now we should consider a relatively controversial point. The previous section mentioned two moves by Keynes designed to explain any statistical estimation of the 'consumption function' causally. Keynes's first move was to justify his approach with a behavioural postulate, namely that the average propensity to consume would decline as income rose. He supported this with a psychological explanation of behaviour. In other words, his reasoning implied that a linear function would have a positive constant. His second move was to postulate that the relationship between income and consumption spending would be relatively stable.

The Australian time-series data do not exactly confirm out Keynes's postulates. While it is true that the relationship is relatively stable (see chart 1), the data do call the first postulate into doubt. That is, the relationship has been sufficiently unstable that, for significant time-periods, the average propensity to consume has increased. For this reason we will propose that it might be more rewarding to focus on the average propensity alone. We might then track more clearly the changes in actual consumption behaviour that have occurred. Chart 2 provides the yearly average propensity to consume data, together with a five-year moving average. More usefully, chart 3 segments the data cyclically.

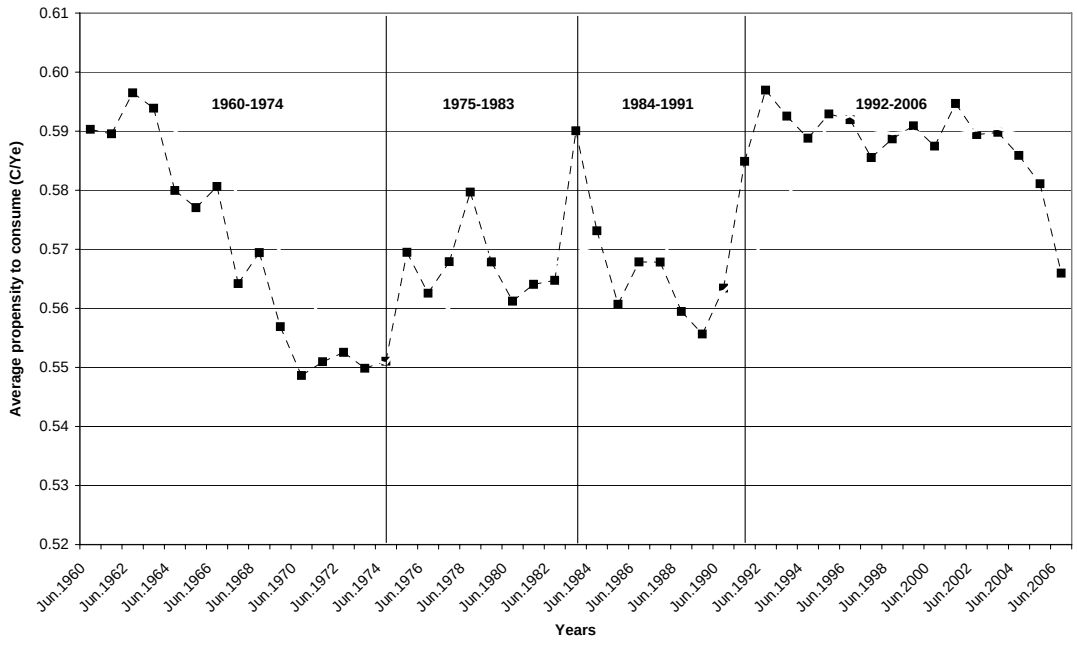
Chart 2 Average propensity to consume Australia 1959-60 to 2005-6 with five-year moving average

Source: see Australian Bureau of Statistics Cat. No. 5204.0



Clearly the average propensity to consume changed over the years shown. We do not intend to dig deep for an explanation, except to note the manifestly Keynesian period (1960-74), the impact of the three recessions (1974-5, 1983-4 and 1991-2) and the current high-consumption but uncertain phase. Note also that the average propensity to consume during the 1974-92 'crisis' phase includes both changes in consumption behaviour and changes in investment, government spending and net exports. A fall in investment in a recession, for instance, reduces the size of the GDP denominator and, ceteris paribus, pushes up the propensity to consume. Similarly, recessionary periods typically reduce household incomes (e.g. via unemployment) and increase the share of those incomes necessarily devoted to consumption spending. Thus the 1974-92 data actually confirm Keynes's behavioural postulate in reverse. It is reasonable that we should see the average propensity rise and or chop about during such times. Less amenable to Keynes's viewpoint are the post-1992 data. These do suggest a change in behaviour that requires some investigation.

Chart 3 Average propensity to consume Australia 1959-60 to 2005-6 with economic periods



Source: see Australian Bureau of Statistics Cat. No. 5204.0

The inconsistent data for the marginal propensity to consume suggest that we might be better of to focus on the average propensity alone. It can do the work of both without the troublesome concept of 'autonomous consumption' (Co), always a bedevilling concept to explain, muddying the waters. Hence we conclude that the average propensity to consume might become the main variable of interest in future analyses.

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Appendix 1a Chain-volume data by category of agent Australia 1960-2006 ($ million)

	C	Ih	Ic	G	NX	Ye	W	N	Pc	Pg	Pr	Yy	Yh	Yg	Yc	Yo	Yd
Jun.1960	106,343	27,891	21,222	26,735	-2,045	*180,146*	83,400	44,947	29,016	18,504	4,279	*180,146*	138,189	25,888	14,973	1,095	*180,146*
Jun.1961	108,879	29,068	23,283	28,439	-4,989	*184,680*	87,349	44,034	29,141	19,234	4,922	*184,680*	140,983	26,945	15,112	1,640	*184,680*
Jun.1962	111,654	22,563	22,162	28,421	2,388	*187,187*	90,181	42,164	30,617	18,605	5,620	*187,187*	144,045	26,147	16,092	902	*187,187*
Jun.1963	118,153	26,378	25,739	30,425	-1,752	*198,943*	94,252	44,667	33,560	20,078	6,387	*198,943*	151,126	27,930	17,797	2,090	*198,943*
Jun.1964	123,456	28,537	26,128	32,349	2,403	*212,873*	99,624	48,387	37,390	20,634	6,838	*212,873*	160,800	30,269	20,108	1,697	*212,873*
Jun.1965	130,202	31,238	32,468	36,491	-4,765	*225,633*	108,490	47,799	39,634	22,425	7,286	*225,633*	167,525	35,033	21,883	1,191	*225,633*
Jun.1966	134,099	28,749	32,463	40,851	-5,206	*230,957*	114,929	45,567	39,007	23,729	7,725	*230,957*	171,041	36,584	20,848	2,484	*230,957*
Jun.1967	138,485	32,092	33,410	44,080	-2,603	*245,464*	120,586	50,371	41,593	24,476	8,439	*245,464*	181,526	38,182	21,847	3,909	*245,464*
Jun.1968	146,965	33,818	35,142	47,930	-5,755	*258,101*	128,371	48,514	45,634	26,264	9,318	*258,101*	187,288	42,704	23,457	4,652	*258,101*
Jun.1969	153,849	36,588	40,129	49,635	-3,943	*276,259*	136,335	52,361	50,060	27,374	10,129	*276,259*	198,486	45,350	26,079	6,343	*276,259*
Jun.1970	162,414	40,501	42,306	51,671	-862	*296,031*	145,432	54,968	55,652	29,002	10,977	*296,031*	211,255	50,790	28,068	5,918	*296,031*
Jun.1971	169,649	37,121	46,432	55,706	-988	*307,920*	158,851	50,949	55,902	29,820	12,399	*307,920*	220,857	52,559	28,427	6,078	*307,920*
Jun.1972	176,859	36,662	45,115	59,021	2,416	*320,073*	166,351	52,191	56,630	31,460	13,441	*320,073*	230,440	56,137	29,413	4,083	*320,073*
Jun.1973	180,682	38,797	38,344	60,799	9,976	*328,598*	169,564	53,495	59,141	32,275	14,123	*328,598*	239,185	56,862	29,544	3,006	*328,598*
Jun.1974	188,392	46,878	42,674	64,503	-577	*341,871*	179,261	58,687	54,988	34,631	14,304	*341,871*	250,452	62,025	25,240	4,155	*341,871*
Jun.1975	197,020	33,179	42,240	75,446	-1,924	*345,961*	197,253	45,669	50,738	37,107	15,194	*345,961*	256,887	65,352	22,151	1,572	*345,961*
Jun.1976	199,890	36,195	38,278	80,735	220	*355,317*	199,549	45,603	52,172	41,574	16,418	*355,317*	258,998	68,395	25,062	2,861	*355,317*
Jun.1977	208,769	41,071	39,741	80,681	-2,642	*367,620*	203,153	47,229	56,702	42,477	18,059	*367,620*	267,905	67,256	27,004	5,455	*367,620*
Jun.1978	215,019	38,669	40,066	81,083	-3,920	*370,917*	206,683	46,021	56,035	41,810	20,368	*370,917*	273,228	64,702	25,830	7,157	*370,917*
Jun.1979	219,459	42,238	47,555	81,627	-4,419	*386,460*	204,593	54,876	60,539	44,394	22,059	*386,460*	282,416	65,194	30,947	7,904	*386,460*
Jun.1980	223,684	44,181	47,127	81,887	1,699	*398,578*	206,464	56,782	64,705	47,371	23,257	*398,578*	285,769	73,213	32,814	6,781	*398,578*
Jun.1981	232,434	46,873	54,696	85,998	-7,934	*412,068*	216,887	53,402	67,667	49,430	24,682	*412,068*	295,471	75,034	37,287	4,275	*412,068*
Jun.1982	240,094	46,783	64,438	88,378	-14,557	*425,137*	228,363	50,739	68,637	51,199	26,199	*425,137*	302,383	75,408	36,670	10,676	*425,137*
Jun.1983	244,911	32,542	56,493	90,034	-8,925	*415,056*	227,345	41,037	67,454	52,535	26,685	*415,056*	302,206	71,512	35,550	5,788	*415,056*
Jun.1984	249,000	40,113	56,909	95,168	-6,732	*434,458*	222,773	49,592	79,402	55,593	27,098	*434,458*	311,445	73,094	41,443	8,476	*434,458*
Jun.1985	256,572	46,083	60,661	104,169	-9,892	*457,594*	233,568	50,264	85,625	59,989	28,148	*457,594*	320,431	81,508	44,654	11,000	*457,594*
Jun.1986	271,396	43,868	68,990	108,901	-15,223	*477,932*	242,853	52,482	89,013	62,564	31,020	*477,932*	334,493	86,282	46,059	11,097	*477,932*
Jun.1987	277,936	39,507	69,919	110,217	-8,099	*489,481*	246,070	53,198	93,258	63,798	33,156	*489,481*	339,043	95,976	44,088	10,374	*489,481*
Jun.1988	287,979	46,109	75,585	108,794	-3,727	*514,739*	250,871	56,589	104,859	67,482	34,939	*514,739*	344,713	101,557	55,047	13,421	*514,739*
Jun.1989	296,596	57,579	81,070	108,807	-10,258	*533,794*	256,983	62,918	107,641	68,592	37,659	*533,794*	355,327	106,435	56,035	15,997	*533,794*
Jun.1990	312,600	55,749	83,774	113,757	-11,062	*554,819*	273,306	62,214	108,406	70,203	40,690	*554,819*	374,880	107,959	53,508	18,472	*554,819*
Jun.1991	322,435	43,780	68,944	117,044	-941	*551,261*	276,332	58,076	104,385	69,724	42,744	*551,261*	377,623	103,341	45,801	24,496	*551,261*
Jun.1992	329,349	41,467	59,528	120,301	1,077	*551,722*	276,502	54,136	107,983	68,438	44,663	*551,722*	382,582	95,498	50,086	23,557	*551,722*
Jun.1993	338,867	47,152	63,361	125,228	-2,721	*571,887*	282,083	58,456	117,312	69,268	44,767	*571,887*	394,755	95,711	62,796	18,625	*571,887*
Jun.1994	350,557	52,356	67,920	127,376	-2,849	*595,360*	290,072	59,388	125,667	75,182	45,051	*595,360*	409,766	102,918	65,784	16,893	*595,360*
Jun.1995	368,829	58,846	75,100	131,800	-12,519	*622,057*	304,466	62,092	128,922	80,502	46,075	*622,057*	428,055	105,916	64,319	23,767	*622,057*
Jun.1996	383,371	49,992	81,884	134,827	-2,415	*647,659*	320,065	64,284	131,887	84,466	46,957	*647,659*	444,793	118,327	60,013	24,525	*647,659*
Jun.1997	394,119	52,879	85,292	138,240	2,569	*673,099*	337,044	62,238	135,790	86,969	51,058	*673,099*	455,951	131,788	61,713	23,647	*673,099*
Jun.1998	413,992	59,752	92,168	142,356	-5,011	*703,258*	346,963	64,911	146,864	89,881	54,638	*703,258*	464,818	145,427	71,003	22,011	*703,258*
Jun.1999	437,034	65,785	99,496	153,651	-16,337	*739,629*	368,310	68,103	150,085	95,213	57,918	*739,629*	485,236	163,704	67,351	23,338	*739,629*
Jun.2000	451,791	73,636	99,074	159,989	-15,444	*769,045*	380,417	69,042	160,541	99,485	59,560	*769,045*	502,260	176,572	68,715	21,497	*769,045*
Jun.2001	466,253	64,472	89,078	162,123	2,091	*784,017*	385,946	66,832	164,790	106,564	59,885	*784,017*	520,629	161,109	81,002	21,276	*784,017*
Jun.2002	479,525	72,946	92,829	167,110	1,132	*813,542*	393,765	76,117	174,170	107,962	61,528	*813,542*	532,051	169,571	90,154	21,766	*813,542*
Jun.2003	494,952	83,034	106,105	172,216	-17,119	*839,187*	403,138	74,828	184,530	114,723	61,968	*839,187*	531,594	183,667	99,873	24,053	*839,187*
Jun.2004	511,598	92,118	114,254	177,578	-22,351	*873,197*	414,975	80,795	195,837	118,381	63,208	*873,197*	549,909	187,419	111,139	24,730	*873,197*
Jun.2005	520,984	92,736	120,635	184,839	-22,626	*896,568*	428,549	80,049	205,772	117,525	64,673	*896,568*	562,872	196,473	104,360	32,863	*896,568*
Jun.2006	521,686	88,978	135,738	189,046	-13,701	*921,747*	439,864	78,448	220,393	117,176	65,865	*921,747*	571,568	206,828	105,880	37,470	*921,747*

Source: see Australian Bureau of Statistics Cat. No. 5204.0

Appendix 1b Chain-volume per cent GDP by category of agent Australia 1960-2006

	C	Ih	Ic	G	NX	Ye	W	N	Pc	Pg	Pr	Yy	Yh	Yg	Yc	Yo	Yd
Jun.1960	59.0	15.5	11.8	14.8	-1.1	*100.0*	46.3	25.0	16.1	10.3	2.4	*100.0*	76.7	14.4	8.3	0.6	*100.0*
Jun.1961	59.0	15.7	12.6	15.4	-2.7	*100.0*	47.3	23.8	15.8	10.4	2.7	*100.0*	76.3	14.6	8.2	0.9	*100.0*
Jun.1962	59.6	12.1	11.8	15.2	1.3	*100.0*	48.2	22.5	16.4	9.9	3.0	*100.0*	77.0	14.0	8.6	0.5	*100.0*
Jun.1963	59.4	13.3	12.9	15.3	-0.9	*100.0*	47.4	22.5	16.9	10.1	3.2	*100.0*	76.0	14.0	8.9	1.1	*100.0*
Jun.1964	58.0	13.4	12.3	15.2	1.1	*100.0*	46.8	22.7	17.6	9.7	3.2	*100.0*	75.5	14.2	9.4	0.8	*100.0*
Jun.1965	57.7	13.8	14.4	16.2	-2.1	*100.0*	48.1	21.2	17.6	9.9	3.2	*100.0*	74.2	15.5	9.7	0.5	*100.0*
Jun.1966	58.1	12.4	14.1	17.7	-2.3	*100.0*	49.8	19.7	16.9	10.3	3.3	*100.0*	74.1	15.8	9.0	1.1	*100.0*
Jun.1967	56.4	13.1	13.6	18.0	-1.1	*100.0*	49.1	20.5	16.9	10.0	3.4	*100.0*	74.0	15.6	8.9	1.6	*100.0*
Jun.1968	56.9	13.1	13.6	18.6	-2.2	*100.0*	49.7	18.8	17.7	10.2	3.6	*100.0*	72.6	16.5	9.1	1.8	*100.0*
Jun.1969	55.7	13.2	14.5	18.0	-1.4	*100.0*	49.4	19.0	18.1	9.9	3.7	*100.0*	71.8	16.4	9.4	2.3	*100.0*
Jun.1970	54.9	13.7	14.3	17.5	-0.3	*100.0*	49.1	18.6	18.8	9.8	3.7	*100.0*	71.4	17.2	9.5	2.0	*100.0*
Jun.1971	55.1	12.1	15.1	18.1	-0.3	*100.0*	51.6	16.5	18.2	9.7	4.0	*100.0*	71.7	17.1	9.2	2.0	*100.0*
Jun.1972	55.3	11.5	14.1	18.4	0.8	*100.0*	52.0	16.3	17.7	9.8	4.2	*100.0*	72.0	17.5	9.2	1.3	*100.0*
Jun.1973	55.0	11.8	11.7	18.5	3.0	*100.0*	51.6	16.3	18.0	9.8	4.3	*100.0*	72.8	17.3	9.0	0.9	*100.0*
Jun.1974	55.1	13.7	12.5	18.9	-0.2	*100.0*	52.4	17.2	16.1	10.1	4.2	*100.0*	73.3	18.1	7.4	1.2	*100.0*
Jun.1975	56.9	9.6	12.2	21.8	-0.6	*100.0*	57.0	13.2	14.7	10.7	4.4	*100.0*	74.3	18.9	6.4	0.5	*100.0*
Jun.1976	56.3	10.2	10.8	22.7	0.1	*100.0*	56.2	12.8	14.7	11.7	4.6	*100.0*	72.9	19.2	7.1	0.8	*100.0*
Jun.1977	56.8	11.2	10.8	21.9	-0.7	*100.0*	55.3	12.8	15.4	11.6	4.9	*100.0*	72.9	18.3	7.3	1.5	*100.0*
Jun.1978	58.0	10.4	10.8	21.9	-1.1	*100.0*	55.7	12.4	15.1	11.3	5.5	*100.0*	73.7	17.4	7.0	1.9	*100.0*
Jun.1979	56.8	10.9	12.3	21.1	-1.1	*100.0*	52.9	14.2	15.7	11.5	5.7	*100.0*	73.1	16.9	8.0	2.0	*100.0*
Jun.1980	56.1	11.1	11.8	20.5	0.4	*100.0*	51.8	14.2	16.2	11.9	5.8	*100.0*	71.7	18.4	8.2	1.7	*100.0*
Jun.1981	56.4	11.4	13.3	20.9	-1.9	*100.0*	52.6	13.0	16.4	12.0	6.0	*100.0*	71.7	18.2	9.0	1.0	*100.0*
Jun.1982	56.5	11.0	15.2	20.8	-3.4	*100.0*	53.7	11.9	16.1	12.0	6.2	*100.0*	71.1	17.7	8.6	2.5	*100.0*
Jun.1983	59.0	7.8	13.6	21.7	-2.2	*100.0*	54.8	9.9	16.3	12.7	6.4	*100.0*	72.8	17.2	8.6	1.4	*100.0*
Jun.1984	57.3	9.2	13.1	21.9	-1.5	*100.0*	51.3	11.4	18.3	12.8	6.2	*100.0*	71.7	16.8	9.5	2.0	*100.0*
Jun.1985	56.1	10.1	13.3	22.8	-2.2	*100.0*	51.0	11.0	18.7	13.1	6.2	*100.0*	70.0	17.8	9.8	2.4	*100.0*
Jun.1986	56.8	9.2	14.4	22.8	-3.2	*100.0*	50.8	11.0	18.6	13.1	6.5	*100.0*	70.0	18.1	9.6	2.3	*100.0*
Jun.1987	56.8	8.1	14.3	22.5	-1.7	*100.0*	50.3	10.9	19.1	13.0	6.8	*100.0*	69.3	19.6	9.0	2.1	*100.0*
Jun.1988	55.9	9.0	14.7	21.1	-0.7	*100.0*	48.7	11.0	20.4	13.1	6.8	*100.0*	67.0	19.7	10.7	2.6	*100.0*
Jun.1989	55.6	10.8	15.2	20.4	-1.9	*100.0*	48.1	11.8	20.2	12.8	7.1	*100.0*	66.6	19.9	10.5	3.0	*100.0*
Jun.1990	56.3	10.0	15.1	20.5	-2.0	*100.0*	49.3	11.2	19.5	12.7	7.3	*100.0*	67.6	19.5	9.6	3.3	*100.0*
Jun.1991	58.5	7.9	12.5	21.2	-0.2	*100.0*	50.1	10.5	18.9	12.6	7.8	*100.0*	68.5	18.7	8.3	4.4	*100.0*
Jun.1992	59.7	7.5	10.8	21.8	0.2	*100.0*	50.1	9.8	19.6	12.4	8.1	*100.0*	69.3	17.3	9.1	4.3	*100.0*
Jun.1993	59.3	8.2	11.1	21.9	-0.5	*100.0*	49.3	10.2	20.5	12.1	7.8	*100.0*	69.0	16.7	11.0	3.3	*100.0*
Jun.1994	58.9	8.8	11.4	21.4	-0.5	*100.0*	48.7	10.0	21.1	12.6	7.6	*100.0*	68.8	17.3	11.0	2.8	*100.0*
Jun.1995	59.3	9.5	12.1	21.2	-2.0	*100.0*	48.9	10.0	20.7	12.9	7.4	*100.0*	68.8	17.0	10.3	3.8	*100.0*
Jun.1996	59.2	7.7	12.6	20.8	-0.4	*100.0*	49.4	9.9	20.4	13.0	7.3	*100.0*	68.7	18.3	9.3	3.8	*100.0*
Jun.1997	58.6	7.9	12.7	20.5	0.4	*100.0*	50.1	9.2	20.2	12.9	7.6	*100.0*	67.7	19.6	9.2	3.5	*100.0*
Jun.1998	58.9	8.5	13.1	20.2	-0.7	*100.0*	49.3	9.2	20.9	12.8	7.8	*100.0*	66.1	20.7	10.1	3.1	*100.0*
Jun.1999	59.1	8.9	13.5	20.8	-2.2	*100.0*	49.8	9.2	20.3	12.9	7.8	*100.0*	65.6	22.1	9.1	3.2	*100.0*
Jun.2000	58.7	9.6	12.9	20.8	-2.0	*100.0*	49.5	9.0	20.9	12.9	7.7	*100.0*	65.3	23.0	8.9	2.8	*100.0*
Jun.2001	59.5	8.2	11.4	20.7	0.3	*100.0*	49.2	8.5	21.0	13.6	7.6	*100.0*	66.4	20.5	10.3	2.7	*100.0*
Jun.2002	58.9	9.0	11.4	20.5	0.1	*100.0*	48.4	9.4	21.4	13.3	7.6	*100.0*	65.4	20.8	11.1	2.7	*100.0*
Jun.2003	59.0	9.9	12.6	20.5	-2.0	*100.0*	48.0	8.9	22.0	13.7	7.4	*100.0*	63.3	21.9	11.9	2.9	*100.0*
Jun.2004	58.6	10.5	13.1	20.3	-2.6	*100.0*	47.5	9.3	22.4	13.6	7.2	*100.0*	63.0	21.5	12.7	2.8	*100.0*
Jun.2005	58.1	10.3	13.5	20.6	-2.5	*100.0*	47.8	8.9	23.0	13.1	7.2	*100.0*	62.8	21.9	11.6	3.7	*100.0*
Jun.2006	56.6	9.7	14.7	20.5	-1.5	*100.0*	47.7	8.5	23.9	12.7	7.1	*100.0*	62.0	22.4	11.5	4.1	*100.0*

Source: see Australian Bureau of Statistics Cat. No. 5204.0