Personal Consumption Percentages in Australia - Current Tables for 2015

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Foreword by Professor Emeritus Harold Luntz

FOREWORD

By Professor Emeritus Harold Luntz

Over 200 years ago, an English judge, Lord Ellenborough, said: 'In a civil court, the death of a human being could not be complained of as an injury'.[1] Two years ago the High Court of Australia concluded that this was still the common law position prevailing in Australia and that any further changes were a matter for the legislature.[2] Of course, there have been changes by legislatures all over the common law world. They commenced in England with the Fatal Accidents Act 1846, which resulted from the efforts of Lord Campbell, who, as a young barrister had reported the decision of Lord Ellenborough.[3] The Fatal Accidents Act 1846 was copied in all Australian jurisdictions and has been amended and re-enacted many times. Only in Tasmania and Western Australia does it bear the name Fatal Accidents Act; in New South Wales it is called the Compensation to Relatives Act; in Victoria, Part III of the Wrongs Act; and in Queensland, I found to my chagrin, just after the latest edition of my Casebook[4] was published, that the Supreme Court Act, which I had set out in the book, had been replaced by the Civil Proceedings Act 2011 (Qld) Pt 10. But everywhere the legislation is known as 'Lord Campbell's Act'.

Lord Campbell's Act was in a sense an early form of class action, since in ordinary circumstances it permitted the executor or administrator of the deceased's estate to sue on behalf of certain close relatives of the deceased. However, it gave no guidance as to how those people were to be compensated. It merely permitted the court to 'give such damages as the court may think proportioned to the injury resulting from such death to the parties respectively for whom and for whose benefit such action shall be brought'.

What is the nature of the 'injury' to which the damages must be 'proportioned'? Grief, bereavement or other mental suffering? Loss of companionship or society? After some difference of opinion, a court presided over by Lord Campbell, by then the Chief Justice of the Queen's Bench, ruled that damages for non-pecuniary loss of this type were not to be awarded.[5] As it was later put by a member of the House of Lords, the assessment 'is a hard matter of pounds, shillings and pence, subject to the element of reasonable future probabilities'.[6] What has to be ascertained is the reasonable expectation of benefit which those for whose benefit the action is brought would have had if the death had not occurred.[7] These people are often

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[1] *Baker v Bolton* (1808) 1 Camp 493.

[2] *Barclay v Penberthy* (2012) 246 CLR 258; 291 ALR 608; [2012] HCA 40.

[3] The history of the Act and the role of Lord Campbell is well told by P Handford, 'Lord Campbell and the Fatal Accidents Act' (2013) 129 *LQR* 420.

[4] H Luntz *et al*, *Torts: Cases and Commentary*, 7th ed, LexisNexis Butterworths, Sydney, 2013.

[5] *Blake v Midland Railway Co* (1852) 18 QB 93; 118 ER 35. See *De Sales v Ingrilli* (2002) 212 CLR 338; 193 ALR 130; [2002] HCA 52 at [55] per Gaudron, Gummow and Hayne JJ.

[6] *Davies v Powell Duffryn Associated Collieries Ltd* [1942] AC 601 (HL); [1942] 1 All ER 657 at AC 617 per Lord Wright.

[7] *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [14] per Gleeson CJ, [57] per Gaudron, Gummow and Hayne JJ (citing with approval Windeyer J in *Parker v Commonwealth* (1965) 112 CLR 295; [1965] ALR 1094; [1965] HCA 12 at CLR 307-8), [91] per McHugh J, [183] per Callinan J.

called 'dependants', but, as has been pointed out in the High Court,[8] they need not have been dependent on the deceased, as long as they had a reasonable expectation of benefiting from the deceased in monetary terms, or from services that have a monetary value.[9]

In early cases the court recognised also that the death of the deceased often brought with it financial benefits to the surviving members of the family, such as from life insurance policies that the deceased had taken out. These financial benefits had to be set off against the lost expectations.[10] Perhaps reacting against the harshness of the decision of the courts to allow damages for pecuniary loss only, legislatures have more and more instructed the courts to ignore different sorts of benefit accruing on the death, so that these days in most jurisdictions few benefits are taken into account on the debit side of the ledger.[11]

How are we to measure the reasonable expectation of benefit? The starting point in a majority of matters is what the deceased would have earned, which needs to be estimated subject to the contingencies or 'vicissitudes of life'.[12] Recently, after the Ipp Report,[13] some legislatures have placed a cap on the deceased's earnings, so that they may be taken into account only up to a particular multiple (two or three) of average weekly earnings, which are not consistently defined. Some legislatures have placed the cap on the *claimant's* earnings, which I am sure is a drafting mistake, but which the High Court, by a majority of 3:2 reversing the NSW Court of Appeal, has held means what it says.[14] The deceased's earnings are considered post-tax, on the assumption that no benefit could be conferred on the beneficiaries out of the tax compulsorily paid.[15]

Theoretically, the court is then concerned to ascertain in each individual case how much of the deceased's net income would have been spent for the benefit of each beneficiary, of which past expenditure may be the best evidence.[16] Contributions that the family share, such as for housing, are not apportioned, but are assumed to benefit all, even though the deceased would also have benefited. With most families the assumption is made that they would have spent all their earnings or, if they had saved — for instance, through compulsory superannuation — the savings would have accrued to the same beneficiaries, though possibly in different proportions. 'Unless the income of the deceased was very high, the evidence showing

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[8] *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [12] per Gleeson CJ.

[9] *Nguyen v Nguyen* (1990) 169 CLR 245; 91 ALR 161; 10 MVR 417; [1990] HCA 9; *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [13] per Gleeson CJ, [93], [96] per McHugh J.

[10] *Public Trustee v Zoanetti* (1945) 70 CLR 266; [1945] HCA 26; at CLR 282 per Dixon J; *Parker* (1965) 112 CLR 295; [1965] HCA 12 at CLR 307-8, cited approvingly in *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [57] per Gaudron, Gummow and Hayne JJ. See also McHugh J in *De Sales* at [92].

[11] See H Luntz, *Assessment of Damages for Personal Injury and Death*, 4th ed, Butterworths, Sydney, 2002, Chap 9, Section 5.

[12] See *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [14]-[15], [32] per Gleeson CJ, [66] per Gaudron, Gummow and Hayne JJ, [96] per McHugh J, [186] per Callinan J (all dissenting on the principal issue in the case, viz whether allowance is to be made for the prospect of the surviving partner gaining support in the future from a new partner).

[13] Commonwealth of Australia, *Review of the Law of Negligence: Final Report*, Canberra, 2002, <http://bit.ly/ITD5vf> (accessed 14 May 2012) (Ipp Report).

[14] *Taylor v Owners - Strata Plan No 11564* (2014) 306 ALR 547 (HCA); [2014] HCA 9.

[15] *Lincoln v Gravil* (1954) 94 CLR 430 at 438, 442.

[16] *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [17] per Gleeson CJ (citing *Nance v British Columbia Electric Railway Co Ltd* [1951] AC 601 (PC) at 614-15), [67] per Gaudron, Gummow and Hayne JJ, [186] per Callinan J.

the relatives' benefit at the time of death will probably be determined by taking the deceased's income and deducting an amount to cover the cost of the deceased's food, clothing and personal expenditure.'[17] But evidence as to the precise expenditure of the deceased is seldom reliable, particularly when the trial occurs years after the death, and whether any past expenditure pattern would have continued in the future is even more doubtful.[18] English courts have recognised the unreliability of such evidence and the waste of court time that delving into the minutiae entails. They have consequently devised rules of thumb under which they assume that for such periods as there are no children in the family, the deceased would have spent one-third of the income exclusively for his or her own benefit and two-thirds for the benefit of the partner, including shared benefits. During a period when there are children, the deduction for the deceased's own expenditure is reduced to 25%. When both partners were earning, the net income of the two are added, the same percentage is applied to the joint income and then the survivor's income is deducted. It has been held that the court is obliged to adopt this method[19] in all but the most exceptional case.[20] It was recently adopted in New South Wales in a case where the parties agreed that English law (apparently including procedural matters of this kind) applied.[21]

Although sometimes applying similar rules of thumb, Australian courts have been more receptive to the acceptance, as evidence of what the deceased would have spent for the benefit of other members of the family, statistical tables based on surveys of household expenditure conducted by the Australian Bureau of Statistics.[22] The history of some of the tables is recounted in the paper which follows and which seeks to update them. Two points should be noted. The ABS now makes available information on expenditure of families in each decile of family income and the expenditure does vary between deciles. As McHugh J noted, averages may not be suitable for very high earners (though such cases would now mostly be capped under the Civil Liability Acts). Secondly, the High Court has in a related area held that projections by the ABS of future patterns (in that case of life expectancy) may be more accurate than statistics based on the past and such accuracy should be encouraged.[23]

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[17] *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [96] per McHugh J.
[18] *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [97] per McHugh J.
[19] *Coward v Comex Houlder Diving Ltd* [1988] EWCA Civ 18; *Knauer v Ministry of Justice* [2014] EWHC 2553 (QB)
[20] *Cox v Hockenhull* [1999] 3 All ER 577 (CA) (couple living on social welfare benefits, including rent).
[21] *O'Reilly v Western Sussex NHS Trust (No 6)* [2014] NSWSC 1824 .
[22] See the cases cited in Luntz, *Assessment of Damages*, 4th Ed, p 499 n 142; and also *Axiak v Pezzano* (2002) 35 MVR 424 (NSW CA)*;* [2002] NSWCA 65 at [53]-[59] ('the table … has become a standard reference point', and judge not in error in choosing from within range shown, though it did not sit comfortably with other evidence in case); *Alderson v Commonwealth of Australia* (NSW SC, Ireland J, 10 June 1993, unreported, BC9301734); *Thornton v Lessbrook Pty Ltd* [2010] QSC 308; BC201006125 at [62] (dealing with hypothetical situation of deceased having children in future). Compare *De Sales* (2002) 212 CLR 338; [2002] HCA 52 at [96] per McHugh J ('more sophisticated evidence, based on Household Expenditure Surveys of the Australian Bureau of Statistics').
[23] *Golden Eagle International Trading Pty Ltd v Zhang* (2007) 229 CLR 498; 234 ALR 131; 47 MVR 1; [2007] HCA 15.

EXECUTIVE SUMMARY

The quantification of loss of dependency / compensation to relatives matters necessarily requires that the personal consumption of the deceased is estimated. Whilst it is preferable to estimate this based on the deceased's actual expenditure prior to their death, this data is often unavailable or difficult to obtain.

In these instances, dependency percentages derived from statistical data are instead relied upon. Historically, the dependency percentages relied upon by the legal profession in Australia are those published in Professor Luntz's "*Assessment of Damages for Personal Injury and Death*".

The 3rd edition of "*Assessment of Damages for Personal Injury and Death*" included dependency percentages prepared by Mr David Koob. The dependency percentages were revised in the 4th edition of "*Assessment of Damages for Personal Injury and Death*" based on a paper prepared by Messrs Cumpston and Sarjeant in 2001 titled "*Dependency percentages for two-parent families*". These percentages were subsequently updated in a paper by Messrs Sarjeant and Thomson in 2009 titled "*Dependency percentages for two-parent and one-parent families*"

The dependency percentages calculated by Messrs Cumpston, Sarjeant and Thomson are intended to be applied consistently across income levels. However, the use of these constant dependency percentages implies that all household income will be consumed, regardless of the level of income derived, and provides no allowance for household savings. The empirical data suggests this assumption is unsupported.

By undertaking an analysis of (i) the assumptions underlying the calculation of dependency percentages by Messrs Cumpston, Sarjeant and Thomson; and (ii) the statistical data regarding household expenditure, we have concluded that the available evidence indicates dependency percentages vary depending upon the level of household income and composition. Specifically, our analysis shows that while personal consumption increases as household income increases, the increase is not linear.

Based on the most recent statistical data available from the Australian Bureau of Statistics (ABS) we have determined that as household income increases, personal consumption as a dollar amount also increases, but at a lower rate than the increase in income. This means that personal consumption as a percentage of income decreases, and therefore our findings are that dependency percentages actually statistically increase with higher levels of income. Our conclusions in this regard are consistent with those of similar studies undertaken in the USA and Canada and the previous Australian study undertaken by Mr David Koob.

Historically, calculations of loss of dependency in Australia using statistical data has been undertaken with reference to "dependency percentages" which are applied to the deceased's after-tax weekly earnings. We are of the opinion that this approach is unnecessarily complicated and susceptible to inaccuracy as it (i) requires practitioners to calculate the applicable dependency percentage, based on the deceased's earnings as a proportion of the total household; and (ii) inserts additional steps into what mathematically can be undertaken in a simpler manner.

We have concluded that the application of "personal consumption" percentages to total after-tax household income eliminates these difficulties and implicitly takes account of the pooled income approach. It also allows a practitioner to consider the reasonableness of the estimated personal consumption.

The application of the percentages calculated in this paper estimate the deceased's personal consumption as a dollar amount, which is then deducted from the deceased's after-tax earnings in order to calculate the loss of dependency.

The following tables set out our estimates of personal consumption based on differing levels of income and household composition:

2 PARENT FAMILIES – PERSONAL CONSUMPTION EXPRESSED AS PERCENTAGE OF AFTER-TAX HOUSEHOLD INCOME

Weekly Income (before tax)		Number of Children			
		0	1	2	3
1st Decile	$ 251	44.3%	36.7%	31.7%	28.1%
2nd Decile	$ 480	27.9%	23.2%	20.0%	17.7%
3rd Decile	$ 668	24.7%	20.4%	17.6%	15.6%
4th Decile	$ 896	22.3%	18.5%	16.0%	14.2%
5th Decile	$1,177	21.8%	18.1%	15.7%	14.0%
6th Decile	$1,475	20.6%	17.2%	14.8%	13.2%
7th Decile	$1,807	19.0%	15.7%	13.6%	12.0%
8th Decile	$2,241	18.3%	15.2%	13.1%	11.6%
9th Decile	$2,870	16.6%	13.8%	11.9%	10.6%
10th Decile	$5,003	13.4%	11.1%	9.5%	8.4%
All Households	**$1,688**	**18.6%**	**15.4%**	**13.3%**	**11.8%**

Table 1

1 PARENT FAMILIES – PERSONAL CONSUMPTION EXPRESSED AS PERCENTAGE OF AFTER-TAX HOUSEHOLD INCOME

Weekly Income (before tax)		Number of Children		
		1	2	3
1st Decile	$ 251	63.4%	50.8%	43.2%
2nd Decile	$ 480	40.0%	32.1%	27.3%
3rd Decile	$ 668	35.2%	28.1%	23.9%
4th Decile	$ 896	32.1%	25.8%	22.0%
5th Decile	$1,177	31.4%	25.3%	21.7%
6th Decile	$1,475	29.7%	23.9%	20.4%
7th Decile	$1,807	27.2%	21.8%	18.5%
8th Decile	$2,241	26.2%	20.9%	17.8%
9th Decile	$2,870	23.9%	19.3%	16.5%
10th Decile	$5,003	19.0%	15.1%	12.7%
All Households	**$1,688**	**26.6%**	**21.3%**	**18.2%**

Table 2

HISTORY OF STUDIES IN AUSTRALIA

We have identified the following studies in relation to dependency / personal consumption percentages in Australia:

(i) David Koob utilising the 1984 Household Expenditure Survey (as summarised in Professor Luntz's *"Assessment of Damages for Personal Injury and Death (3rd edition)"* (**Koob**);

(ii) Richard Cumpston and Hugh Sarjeant utilising the 1998/1999 Summarised Household Expenditure Survey (**Cumpston and Sarjeant**);

(iii) Hugh Sarjeant and Paul Thomson utilising the 2003/2004 Summarised Household Expenditure Survey (**Sarjeant and Thomson**); and

(iv) Michael J Lee and Julia Bossert utilising the 2009/2010 Detailed Household Expenditure Survey (**Lee and Bossert**).

We summarise the dependency / personal consumption percentages under each study as follows:

2 PARENT DEPENDENCY PERCENTAGES

Children	Koob	Cumpston and Sarjeant	Sarjeant and Thomson	Lee and Bossert
0	63.0% to 69.0%	66.0%	65.6%	66.2% to 82.3%
1	69.0% to 76.0%	72.2%	71.9%	71.7% to 85.0%
2	74.0% to 81.0%	76.4%	76.1%	75.4% to 86.9%
3	77.0% to 84.0%	79.1%	79.0%	78.0% to 88.2%
4	79.0% to 87.0%	81.3%	81.1%	80.0% to 89.2%
5	79.0% to 87.0%	83.1%	82.8%	81.5% to 89.9%

Table 3

2 PARENT PERSONAL CONSUMPTION PERCENTAGES

Children	Koob	Cumpston and Sarjeant	Sarjeant and Thomson	Lee and Bossert
0	31.0% to 37.0%	34.0%	34.4%	17.7% to 33.8%
1	24.0% to 31.0%	27.8%	28.1%	15.0% to 28.3%
2	19.0% to 26.0%	23.6%	23.9%	13.1% to 24.6%
3	16.0% to 23.0%	20.9%	21.0%	11.8% to 22.0%
4	13.0% to 21.0%	18.7%	18.9%	10.8% to 20.0%
5	13.0% to 21.0%	16.9%	17.2%	10.1% to 18.5%

Table 4

Personal consumption is the reverse of the dependency rate and is the difference between 100% and the percentage of dependency.

In relation to the above studies we make the following general observations:

(i) The Koob and Lee and Bossert studies have a range of dependency / personal consumption percentages based on differing income levels;

(ii) The Cumpston, Sarjeant and Thomson studies have constant dependency / personal consumption percentages regardless of income levels;

(iii) Dependency / consumption percentages are, in part, impacted by after-tax income. Accordingly, ceteris paribus, higher tax rates would result in lower dependency rates and conversely lower income tax rates would result in higher dependency rates. In this regard we note that the marginal tax rates have been as follows:

Year	1984	1999	2004	2010
Low Threshold	$ 4,595	$ 5,401	$ 6,001	$ 6,001
Low Rate	30%	20%	17%	15%
			Increasing to	
High Threshold	$35,788	$50,001	$62,501	$180,001
High Rate	60%	47%	47%	45%

Table 5

(iv) The decline in income tax rates and increases in thresholds may, in part, explain the differences between the Koob and Lee and Bossert ranges.

OUR PREVIOUS PAPER ON THIS TOPIC

In January 2012, we prepared a paper in which we "revisited" the dependency percentages that were calculated by Richard Cumpston and Hugh Sarjeant[24] of Cumpston Sarjeant Pty Ltd and set out in Professor Luntz's *"Assessment of Damages for Personal Injury and Death"*.

At that time, we stated that our preferred approach for quantifying dependency / compensation to relatives matters was to estimate the personal consumption based on the deceased's actual expenditure prior to their death. We remain of the opinion that this approach attempts to take account of the deceased's personal circumstances and, whilst not perfect, provides a better indication of the deceased's personal consumption.

However, we acknowledged that in absence of specific information / instructions a statistical approach may be considered more appropriate and / or necessary.

[24] We note that since the original publication, Messrs Hugh Sarjeant and Paul Thomson of Cumpston Sarjeant have updated those tables to take account of 2003-2004 data.

We previously concluded that more recent statistical data was available which allowed the estimation of more precise[25] "standard dependency percentages" which took account of different levels of income and detailed household expenditure.

We acknowledge that since the publication of our original paper, debate has arisen as to which tables / percentages should be used to calculate personal consumption and, by deduction, damages in dependency / compensation of relatives claims.

It is our experience that rather than issues being raised regarding the validity of the underlying methodology we adopted, the two primary reasons identified for exercising caution in using our revised percentages have been as follows:

(i) The rates are materially different to those contained in Professor Luntz's "*Assessment of Damages for Personal Injury and Death 4th edition*"; and

(ii) No judgments exist where the Court has adopted the revised percentages.

Whilst we acknowledge that the nature of the legal system means that precedent will be adhered to in the absence of a "special" case, we are of the opinion that it is important for professionals practicing in this area not to simply adopt the "standard dependency percentages" without an understanding of what those percentages actually represent or the underlying basis of the derivation of those percentages.

In addition, we are of the opinion that if a statistical approach is to be adopted it may be appropriate for legal practitioners to make adjustments to the "standard" percentages" in order to attempt to take account of the deceased's lifestyle[26].

COMPARISON TO PREVIOUS AUSTRALIAN STUDIES

As noted in our previous paper, we are of the opinion that whilst the use of statistical data may be of assistance in estimating personal consumption, the resulting dependency percentages calculated by Messrs Cumpston, Sarjeant and Thomson are based on a number of inappropriate assumptions that are likely to lead to an inaccurate assessment of the level of personal consumption / dependency.

[25] Compared to those contained in *"Assessment of Damages for Personal Injury and Death"*

[26] We note such an approach would appear to have been adopted in the decision of *RTA* v *Cremona* [2001] NSWCA 338.

Our concerns related to the inclusion of expenditure that would not be saved as a result of the death of a parent (e.g. expenditure on or on behalf of children (ie. education) or other fixed expenditure (ie. audio visual equipment, etc.) and the inclusion of expenditure which is in the nature of asset accumulation (e.g. personal superannuation contributions). We acknowledged that Messrs Cumpston, Sarjeant and Thomson were constrained by their use of generalised household expenditure data as compared to detailed data now available to us in the preparation of our previous and current papers.

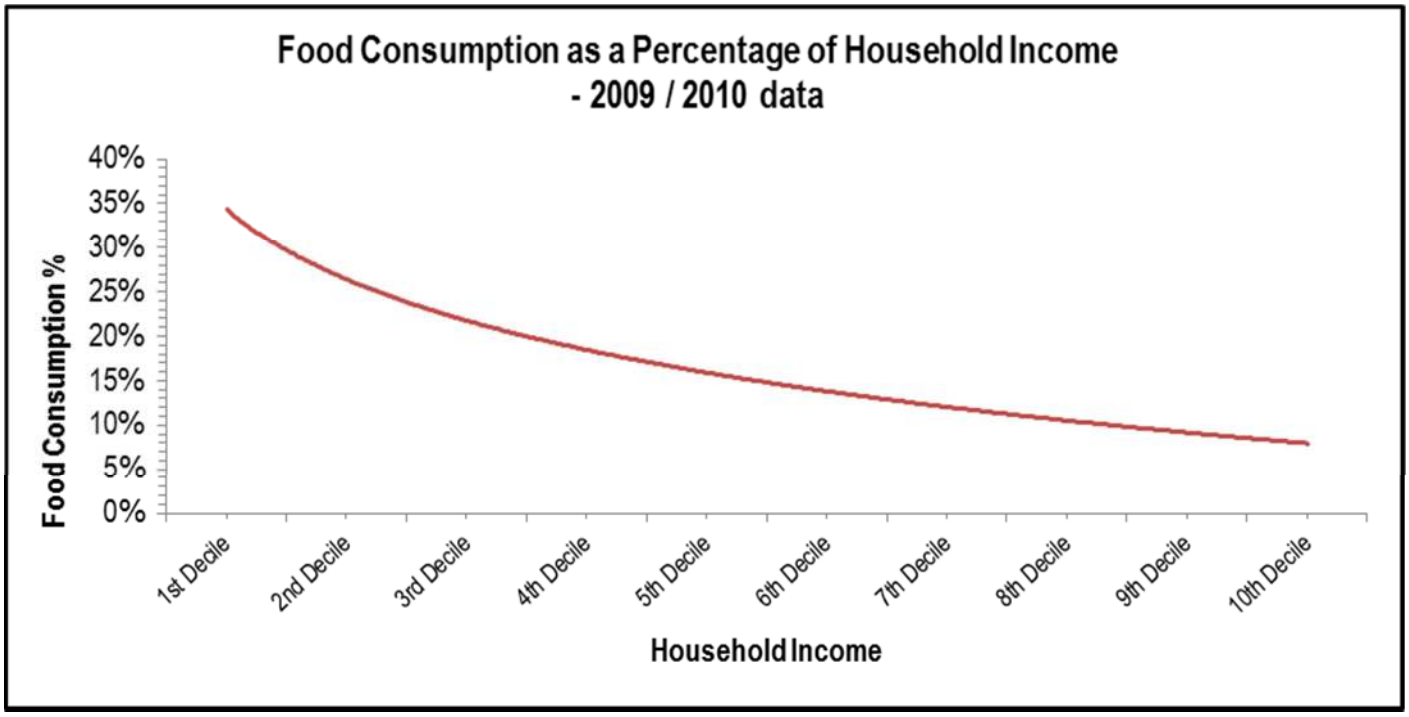
In addition, we expressed reservations regarding the underlying methodology whereby the percentages are determined by dividing personal consumption by total consumption. This implicitly assumes that a household consumes all of its income and does not save and is, in essence, the "constant" consumption approach.

We strongly disagree with the implicit assumption that in every instance, every additional dollar earned will be consumed.

As Keynes stated in his 1935 book *"The General Theory of Employment, Interest and Money"*:

> *"the fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on the average, to increase their consumption as their income increases but not by as much as the increase in the income"*

The available statistics in Australia support Keynes' proposition. By way of example, we provide a graphical representation of food consumption expenditure as a percentage of household income in Australia:



Graph 1

The above graph demonstrates that as income increases, food consumption as a percentage of household income decreases. That is, food consumption is not a constant percentage of household income.

As detailed below, whilst the above graph relates specifically to food consumption, according to the statistics, the same proposition would appear to apply to all categories of personal consumption.

Accordingly, in our opinion, adopting a "constant" consumption percentage across all income levels cannot be supported and is contrary to the available empirical data.

DEPENDENCY PERCENTAGES OR CONSUMPTION PERCENTAGES?

In undertaking an assessment of the loss of financial dependency suffered as a result of the wrongful death of an adult, the following basic methodology is ordinarily adopted:

Estimate: *The ongoing level of earnings that the deceased would have derived but for their death (ie. the deceased's notional earnings)*

Deduct: *An allowance for the amount that the deceased would have spent upon themselves (ie. their personal consumption)*

Equals: *Loss of Dependency*

We note that the approach in Australia in recent times has been to adopt "dependency percentages" which are applied to after-tax income in order to estimate dependency. As noted above a dependency rate is the reverse of personal consumption and is the difference between 100% and personal consumption. By way of example a dependency percentage of 66% equates to a personal consumption percentage of 34% (ie. 100% - 66%). Therefore, the application of a "dependency percentage" is effectively calculating the personal consumption and deducting it from the deceased's income in a single step.

Whilst this approach may have some appeal at first instance, in our opinion the use of "dependency percentages" as percentages of after-tax income is unnecessarily complex, particularly in relation to households with dual and differing levels of incomes. It also does not allow a practitioner or the Court to readily consider the reasonableness of the estimate of the personal consumption.

An alternative approach is to calculate the personal consumption of the deceased as a dollar amount (by applying a personal consumption percentage), and then deducting that amount from the deceased's after-tax earnings. Mathematically, there is no difference between the two approaches, rather there is simply a difference between (i) the percentages adopted; and (ii) the amount to which the percentage is applied.

We have adopted the estimated consumption based on the percentage of the total after-tax household income. We are of the opinion that adopting this approach in Australia is preferable as:

(i) The approach does not require a series of additional tables to be produced. In this regard we note that previous Australian studies produced a variety of tables indicating the percentage of the surviving spouse income as a percentage of income of the deceased; and

(ii) The approach acknowledges that within a household there is a "cross dependency" on the spouse's income. By using after-tax household income any percentage of the household mathematically takes account of the pooled approach.

Having regard to the above, we are of the opinion that if a statistical approach is to be adopted, then the application of consumption percentages to after-tax total household income is a simpler approach which provides for a more reliable estimate of the deceased's personal consumption.

THE UPDATED ABS DATA

INCOME GROUPS

The data used in our original paper was based on income quintiles (i.e. data divided into five income groups).

Subsequent to issuing that paper, we have obtained household expenditure data from the ABS which is categorised by income deciles (i.e. the data is divided into ten income groups).

Essentially, the data allows a broader range of earnings and a more precise estimate of personal consumption for particular income brackets.

In relation to the above, we note household expenditure is categorised based on the following income deciles:

Description	Weekly Income (Before-tax)	Annual Income (Before-tax)
1st Decile	$ 251	$ 13,102
2nd Decile	$ 480	$ 25,056
3rd Decile	$ 668	$ 34,870
4th Decile	$ 896	$ 46,771
5th Decile	$1,177	$ 61,439
6th Decile	$1,475	$ 76,995
7th Decile	$1,807	$ 94,325
8th Decile	$2,241	$116,980
9th Decile	$2,870	$149,814
10th Decile	$5,003	$261,157
All Households	**$1,688**	**$ 88,114**

Table 6

We acknowledge that the data relates to household expenditure in 2009 / 2010 and, whilst labelled "detailed tables", is in a summarised form and not the "micro data" upon which the statistics are produced.

We also note the following other issues in relation to the data:

(i) The profile of persons within the 1st and 2nd deciles would appear to be predominantly comprised of single person households who are not employed and receive income primarily from government pensions and allowances. The average age of persons in this group is 62 years of age. We would place little value on the data in estimating personal consumption in loss of financial dependency cases;

(ii) The profile of persons within the 3rd decile would appear to be predominantly comprised of households with couples without dependent children. The average age of adults in this group is 56 years of age and over half of households in this group receive income primarily from government pensions and allowances. We are of the opinion that caution should be exercised in relying upon this data to estimate personal consumption in loss of dependency cases where children are dependants;

(iii) The profile of persons within the 4th and 5th deciles would appear to be predominantly comprised of households with couples with and without dependent children who receive income primarily from employment. The average age of adults in this group is 48 years of age;

(iv) The profile of persons within the 6th to 8th deciles would appear to be predominantly comprised of households with couples with and without dependent children, with a higher proportion of households with dependent children compared to lower deciles. Household income in these groups is primarily received from employment with government pensions and allowances comprising up to 30% of household income (presumably family tax benefits). The average age of adults in these groups is 44 years of age;

(v) The profile of persons in the 9th and 10th deciles would appear to be predominantly comprised of households with couples with and without dependent children. Household income in these groups is primarily received from employment and income from government pensions and allowances is minimal. The average age of adults in these groups is 45 years of age; and

(vi) The data does not outline the number of motor vehicles owned and operated in each income decile.

Any conclusions drawn from the available statistical data regarding dependency would appear to be most reliable when applied to households of a similar composition.

LEVEL OF DETAIL ADOPTED

In our original paper we used data at the "10 digit level". In essence, the data was broken down into individual components. The information provided a breakdown of the estimates of individual expenses, for example, fresh milk, fresh cream, cheese, butter, powdered milk, yoghurt, etc.

In preparing this paper we have used data at the "6 digit" level. The 6 digit level aggregates the individual expenses for each group. For example the above individual expenses are classified as "dairy products".

We note this does not pose any material issues and our predominant reason in using this level of data was to ensure we relied upon the most detailed data available whilst limiting the risk associated with relative standard errors in the data.

RELATIVE STANDARD ERRORS

In any review of statistical data there may be cases where the information obtained from a sample of the population produces estimates that are likely to be different from the entire population. These are known as sampling or standard errors.

We note that based on our review of the data only one item would appear to have a material impact on our calculations due to a high standard error. This relates to medicines, pharmaceuticals, first aid supplies for persons in the 5th decile. We note these expenses would appear to be approximately $12 per week higher than an "expected" level, having regard to the equivalent level of expenditure in the other income deciles.

In calculating our percentages we have attempted to adjust for this error by adopting the average medicines, pharmaceuticals, first aid supplies expenditure for persons in the 4th and 6th deciles.

METHODOLOGY

GENERAL METHODOLOGY ADOPTED / ALLOCATION RULES

Consistent with our original paper, on the basis that financial dependency is generally upon a parent / adult we have excluded expenditure which relates to children.

In undertaking our calculations we have assumed that household expenditure generally falls into the following categories:

(i) Divisible Expenditure;

(ii) Semi-Divisible Expenditure;

(iii) Non-Divisible Expenditure;

(iv) Support for Others; and

(v) Asset Accumulating Expenditure.

We attach as ***Appendix 1*** a table which outlines the detailed expenditure classifications under each heading and our assumptions and make the following general observations:

DIVISIBLE EXPENDITURE

Divisible expenditure relates to expenses which are divisible amongst the household members.

In relation to expenditure ordinarily incurred by adults only (eg. tobacco, alcohol and gambling) we have assumed that expenses should be shared among the adult members of the household and do not relate to children.

We acknowledge that it is likely there may be economies of scale in relation to food and consumables which we have classified as divisible expenditure but are unable to ascertain the extent.

SEMI-DIVISIBLE EXPENDITURE

Semi-divisible expenditure relates to items which have both fixed and variable components. In our opinion, such expenditure is for the general benefit of the household but also a component of the expenditure could represent consumption of the deceased. For the purposes of our calculations we have assumed that half the expenditure is non-divisible and the other half is divisible (eg. motor vehicle fuel).

NON-DIVISIBLE EXPENDITURE AND SUPPORT FOR OTHERS

Non-divisible expenditure relates to items that are fixed in nature and would not be saved as a result of the death of a person. In the main, these are best represented by housing and occupancy costs but also include purchase costs for assets such as motor vehicles and expenditure which is support for others (eg. gifts or donations).

ASSET ACCUMULATING EXPENDITURE

In our opinion it is important to acknowledge that some items of expenditure may be saved as a result of the death of an adult but in doing so the corresponding asset will cease to be accumulated (eg. personal superannuation contributions). In our opinion it is appropriate to treat this expenditure as non-divisible.

ADULT EXPENDITURE

Consistent with our previous approach and other studies we have assumed that consumption of an adult would be twice that of a child.

CALCULATION OF REVISED PERSONAL CONSUMPTION PERCENTAGES

Based on the methodology and classifications outlined above, we determined the dollar value of the expenditure which is directly attributable to, and would be saved in the absence of, one adult member of the household.

We have then divided this by the total household after-tax income in order to derive the personal consumption of the deceased as a percentage of the after-tax income household income.

We had previously prepared tables based on up to 5 children. Based on our review of the available statistical data and the apparent household compositions contained therein we have now limited our tables to households with up to 3 children.

For families with 4 or more children, we suggest that it would not be unreasonable to adopt the percentages for 3 children households for the purposes of calculating personal consumption.

2 PARENT FAMILIES – PERSONAL CONSUMPTION EXPRESSED AS PERCENTAGE OF AFTER-TAX HOUSEHOLD INCOME

Weekly Income (before tax)		Number of Children			
		0	1	2	3
1st Decile	$ 251	44.3%	36.7%	31.7%	28.1%
2nd Decile	$ 480	27.9%	23.2%	20.0%	17.7%
3rd Decile	$ 668	24.7%	20.4%	17.6%	15.6%
4th Decile	$ 896	22.3%	18.5%	16.0%	14.2%
5th Decile	$1,177	21.8%	18.1%	15.7%	14.0%
6th Decile	$1,475	20.6%	17.2%	14.8%	13.2%
7th Decile	$1,807	19.0%	15.7%	13.6%	12.0%
8th Decile	$2,241	18.3%	15.2%	13.1%	11.6%
9th Decile	$2,870	16.6%	13.8%	11.9%	10.6%
10th Decile	$5,003	13.4%	11.1%	9.5%	8.4%
All Households	**$1,688**	**18.6%**	**15.4%**	**13.3%**	**11.8%**

Table 7

1 PARENT FAMILIES – PERSONAL CONSUMPTION EXPRESSED AS PERCENTAGE OF AFTER-TAX HOUSEHOLD INCOME

Weekly Income (before tax)		Number of Children		
		1	2	3
1st Decile	$ 251	63.4%	50.8%	43.2%
2nd Decile	$ 480	40.0%	32.1%	27.3%
3rd Decile	$ 668	35.2%	28.1%	23.9%
4th Decile	$ 896	32.1%	25.8%	22.0%
5th Decile	$1,177	31.4%	25.3%	21.7%
6th Decile	$1,475	29.7%	23.9%	20.4%
7th Decile	$1,807	27.2%	21.8%	18.5%
8th Decile	$2,241	26.2%	20.9%	17.8%
9th Decile	$2,870	23.9%	19.3%	16.5%
10th Decile	$5,003	19.0%	15.1%	12.7%
All Households	**$1,688**	**26.6%**	**21.3%**	**18.2%**

Table 8

EXAMPLES OF THE HOW TO USE APPROACH

Mathematically the loss of financial dependency is calculated as follows:

Step 1 Determine the Deceased's Personal Consumption (DPC)

Determine the before and after-tax pool of income

Identify the appropriate range of percentages / adopt a percentage

Multiply the after-tax pool of income by consumption percentage

Step 2 Determine the deceased's notional after-tax income (DNE)

Step 3 Determine loss of financial dependency (DNE – DPC)

Example 1

Material facts	*Bill Smith (deceased)*	*$ 60,000 before-tax per year / $ 917 after-tax per week*
	Wilma Smith	*$ 75,000 before-tax per year / $1,103 after-tax per week*
	Household Income	*$135,000 before-tax per year / $2,020 after-tax per week*
	2 children	

Step 1 - Determine consumption of deceased (DPC)

Household Income of $135,000 before-tax per year equates to $2,586 before-tax per week which is between the 8th and 9th deciles.

Personal consumption percentage for a family with two children is between 11.9% and 13.1% - refer Table 7. Adopt 12.4%.

Personal consumption = $2,020 x 12.4% or $250 per week.

Step 2 - Determine the deceased's notional after-tax income (DNE)

$60,000 before-tax per year equates to $917 after-tax per week.

Step 3 - Determine the loss of financial dependency (DNE - DPC)

Loss of Dependency = $917 - $250 or $667 per week

Example 2

Material facts	*Bill Smith (deceased)*	*$ 90,000 before-tax per year / $1,283 after-tax per week*
	Wilma Smith	*$ 90,000 before-tax per year / $1,283 after-tax per week*
	Household Income	*$180,000 before-tax per year / $2,566 after-tax per week*
	1 child	

Step 1 - Determine consumption of deceased (DPC)

Household Income of $180,000 before-tax per year equates to $3,448 before-tax per week which is between the 9th and 10th deciles.

Personal consumption percentage for a family with one child is between 11.1% and 13.8% - refer Table 7. Adopt 13.1%.

Personal consumption = $2,566 x 13.1% or $336 per week.

Step 2 - Determine the deceased's notional after-tax income (DNE)

$90,000 before-tax per year equates to $1,283 after-tax per week.

Step 3 - Determine the loss of financial dependency (DNE - DPC)

Loss of Dependency = $1,283 - $336 or $947 per week

Example 3

Material facts	*Bill Smith (deceased)*	*$ 40,000 before-tax per year / $672 after-tax per week*
	Wilma Smith	*$ 65,000 before-tax per year / $978 after-tax per week*
	Household Income	*$105,000 before-tax per year / $1,650 after-tax per week*
	3 children	

Step 1 - Determine consumption of deceased (DPC)

Household Income of $105,000 before-tax per year equates to $2,011 before-tax per week which is between the 7th and 8th deciles.

Personal consumption percentage for a family with three children is between 11.6% and 12.0% - refer Table 7. Adopt 11.8%.

Personal consumption = $1,650 x 11.8% or $195 per week.

Step 2 - Determine the deceased's notional after-tax income (DNE)

$40,000 before-tax per year equates to $672 after-tax per week.

Step 3 - Determine the loss of financial dependency (DNE - DPC)

Loss of Financial Dependency = $672 - $195 or $477 per week

Example 4

Material facts *Wilma Smith (deceased)* *$55,000 before-tax per year*

No Spouse

Household Income *$55,000 before-tax per year / $855 after-tax per week*

3 children

Step 1 - Determine consumption of deceased (DPC)

Household Income of $55,000 before-tax per year equates to $1,054 before-tax per week which is between the 4th and 5th deciles.

Personal consumption percentage for family with three children is between 21.7% and 22.0% - refer Table 8. Adopt 21.8%.

Personal consumption = $1,054 x 21.8% or $230 per week.

Step 2 - Determine the deceased's notional after-tax income (DNE)

$55,000 before-tax per year equates to $855 after-tax per week.

Step 3 - Determine the loss of financial dependency (DNE - DPC)

Loss of Financial Dependency = $855 - $230 or $625 per week

PUTTING LEVELS OF CONSUMPTION CALCULATED INTO PERSPECTIVE

Whilst statistical "percentages" in all studies have been adopted to estimate consumption and dependency, these values have actually been determined with reference to actual dollar values and then simply calculated as a percentage of an appropriate denominator (eg. the total after-tax household income).

Based on the ABS data we note the following underlying estimates of personal consumption as a dollar value:

2 PARENT FAMILIES – PERSONAL CONSUMPTION EXPRESSED AS A DOLLAR AMOUNT

Weekly Income (before-tax)		Number of Children			
		0	1	2	3
1st Decile	$ 251	$ 112	$ 93	$ 80	$ 71
2nd Decile	$ 480	$ 134	$ 111	$ 96	$ 85
3rd Decile	$ 668	$ 162	$ 134	$ 115	$ 102
4th Decile	$ 896	$ 189	$ 157	$ 136	$ 121
5th Decile	$1,177	$ 233	$ 194	$ 168	$ 149
6th Decile	$1,475	$ 268	$ 223	$ 193	$ 171
7th Decile	$1,807	$ 295	$ 245	$ 211	$ 187
8th Decile	$2,241	$ 343	$ 284	$ 245	$ 217
9th Decile	$2,870	$ 391	$ 326	$ 282	$ 251
10th Decile	$5,003	$ 520	$ 429	$ 368	$ 325
All Households	**$1,688**	**$ 265**	**$ 220**	**$ 190**	**$ 168**

Table 9

1 PARENT FAMILIES – PERSONAL CONSUMPTION EXPRESSED AS A DOLLAR AMOUNT

Weekly Income (before-tax)		Number of Children		
		1	2	3
1st Decile	$ 251	$ 160	$ 128	$ 109
2nd Decile	$ 480	$ 192	$ 154	$ 131
3rd Decile	$ 668	$ 231	$ 185	$ 157
4th Decile	$ 896	$ 272	$ 218	$ 187
5th Decile	$1,177	$ 336	$ 271	$ 232
6th Decile	$1,475	$ 386	$ 311	$ 265
7th Decile	$1,807	$ 422	$ 339	$ 288
8th Decile	$2,241	$ 490	$ 392	$ 333
9th Decile	$2,870	$ 564	$ 455	$ 390
10th Decile	$5,003	$ 736	$ 585	$ 494
All Households	**$1,688**	**$ 380**	**$ 304**	**$ 259**

Table 10

SENSITIVITY OF ASSUMPTIONS

We note that our calculations are based on a series of assumptions. In our opinion, the most material assumption relates to motor vehicles. Our estimates of personal consumption are based on the assumption that the only savings in motor vehicle costs as a result of the death of the deceased would be a proportion of fuel costs and repairs and maintenance.

If it was assumed that additional savings did exist (eg. the household had one less vehicle following the death of the deceased), then we would estimate that personal consumption would increase by, on average, **6% of the after-tax income of the household.**

COMPARISON TO OTHER STUDIES

As noted in our original paper, there have been numerous studies undertaken in Australia, the United States and Canada. Those studies appear to use very similar methodologies that are utilised in the assessment of the loss of financial support suffered upon wrongful death.

The following table sets out the range of levels of personal consumption percentages under each study:

Study Authors (Year)	Country	Number of Children and Percentage of Income			
		0	1	2	3
Lee & Bossert (2015)	Australia	13.40% - 44.30%	11.10% - 36.70%	9.50% - 31.70%	8.40% - 28.10%
Sarjeant & Thomson (2009)	Australia	34.40%	28.10%	23.90%	21.00%
Koob (1990)	Australia	27.00% - 31.00%	24.00% - 31.00%	19.00% - 26.00%	16.00% - 23.00%
Brown (2013) *	Canada	11.68% - 51.78%	10.38% - 39.19%	9.15% - 36.82%	8.63% - 25.02%
Krueger (2013) *	US	8.79% - 61.20%	7.86% - 42.00%	7.89% - 39.10%	7.74% - 31.50%
Ruble, Patton & Nelson (2002)	US	13.20% - 46.50%	11.80% - 35.00%	10.10% - 32.20%	10.00% - 29.50%

Table 11

* Note that the Brown and Krueger percentages are based on before-tax household income whereas others are based on after-tax income.

From Table 11 above, it is apparent that the personal consumption percentages calculated from our analysis are, in trend terms, broadly in line with equivalent studies undertaken in Canada and the United States[27] and the previous Australian study undertaken by Koob.

Specifically, the trend whereby personal consumption as a percentage of weekly income decreases as household income increases identified in our analysis is consistent with that determined in all studies other than those prepared by Messrs Sarjeant and Thomson.

[27] As the consumption percentages are expressed on an after-tax basis, the comparability between different countries is dependent on income tax brackets and rates. The results are also subject to issues relating to purchasing power.

ALLOWANCE FOR POST RETIREMENT CONSUMPTION

We note that Messrs Cumpston, Sarjeant and Thomson propose that the standard dependency percentage (for a 2 person household) should be applied to superannuation contributions. We disagree with this approach.

We note that the deceased may fund their and their spouse's retirement via a combination of the following sources:

(i) A portion of the deceased's pre-retirement income which was invested;

(ii) Personal and employer sponsored superannuation contributions;

(iii) The accumulation of other assets; and

(iv) Possible age pension payments / part payments.

To the extent that a portion of the deceased's income was being used to fund their own retirement, it may be appropriate to make allowance for the savings in the deceased's personal consumption from the date of their retirement to their notional life expectancy. Obviously the level of consumption needs to be considered in light of the deceased's intended lifestyle during retirement.

From a mathematical perspective, the allowance for post retirement consumption would be determined as follows:

Description		Amount
Life Expectancy at normal retirement	A	xx years
Relevant % multiple of A Years	B	xxx.xx
Weekly Personal Consumption	C	$ xxx
Present Value	B x C	$ xxx,xxx
Deferred Factor – Retirement age to present (y years)	D	x.xxx
Present Value of Savings	B x C x D	$ xx,xxx

Table 12

CONCLUSION

We are of the opinion that personal consumption / dependency is best estimated by having regard to the deceased's actual personal expenditure. However, in instances where specific information / instructions in this regard are not available, the statistical approach for calculating the deceased's personal consumption may be of assistance to the Court.

However, we believe a more reliable estimate of the rate of personal consumption than historically relied upon can be determined with reference to the more recently available and detailed statistical data. Further, consideration should be given to the likely types of savings that would be obtained following the death of the deceased and, if necessary, making adjustments to the statistical percentages.

In our opinion, the percentages derived in this paper better represent the rates of personal consumption. Our findings demonstrate that personal consumption (as a percentage of household income) decreases as family size and income levels increase, which is consistent with our experience in relation to matters of this nature and findings of studies undertaken in Canada and United States and the previous study in Australia.

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BROAD CATEGORIES OF EXPENDITURE APPENDIX 1

DIVISIBLE

Food and non-alcoholic beverages, Alcoholic Beverages, Tobacco, Gambling – Adult Only, Clothing and Footwear – Adult Only, Mobile Telephone – Adult Only, Health Insurance, Medical Fees (GP's, Dental Optical etc), Medicines and Therapeutic Appliances, Licenses, Sports Equipment, Fees and Charges, Cultural Fees and Charges (eg. Cinemas, Concerts, Art Galleries, Excursions etc), Air Fares, Rail Fares, Bus Fares, Personal Care (eg. Toiletries, Cosmetics, Hair Cuts), Watches, Jewellery, Sunglasses, Glasses, Handbags, Wallets.

NON-DIVISIBLE

Housing Costs including Rent, Mortgage Payments, Rates, Repairs and Maintenance, Body Corporate, Domestic Fuel and Power Costs such as Electricity, Gas, Heating, Household Furniture and Floor Coverings, Blankets, Linen and Household Furnishings, Household Appliances, Glassware, Tableware, Cutlery and Household Utensils, Tools and Household Durables, Motor Vehicle Purchase, Motor Vehicle Registration, Insurance and Accessories, Audio Visual Equipment and Parts (eg TV's, Game Consoles, Speakers, Home Entertainment Systems), Pay TV Subscriptions, Internet Fees, Stationery, Holiday - Motels, Hotels, Caravan Parks, Costs Associated with Owning Animals.

SEMI DIVISIBLE

Motor Vehicle Fuel, Lubricants and Additives, Computer Games, Books, Magazines, Higher Education Expenses (University / TAFE).

SUPPORT FOR OTHERS

Children / Infants' Clothing and Footwear, Driving Lessons, Education fees – Primary and Secondary, Toys, Donations, Child Support.

ASSET ACCUMULATING EXPENDITURE

Payments for Rental Properties including, Rates, Land Tax, Insurance, Body Corporate, Life Insurance, Superannuation.