

B Appendix B: Estimation of tax payments

Neither of our 2 samples include actual tax payments. Taxes and transfers in HILDA are estimated using a comprehensive set of income and demographic variables detailed in Wilkins (2014a). We rely on the HILDA tax model to estimate tax liabilities for the ATO data. The tax formula is

$$\text{Tax} = T_{\text{reg}} + T_{\text{super}} + \text{ML} + \text{MS} - \text{Offsets} - \text{IC} + T_{\text{red}} \quad (14)$$

where,

T_{reg} is tax on taxable income minus redundancy payments and superannuation income

T_{super} is tax on superannuation income

ML is medicare levy

MS is medicare levy surcharge

Offsets is total offsets

IC is dividend franking credit amount

T_{red} is tax on redundancy payments

B.1 Major components of the tax function

B.1.1 Low income tax offset (LITO)

$$LITO = \begin{cases} LITO_{max} & \text{if } Inc \leq Inc_L^{LI} \\ LITO_{max} - lito_{taper} (Inc - Inc_L^{LI}) & \text{if } Inc_L^{LI} < Inc < Inc_H^{LI} \\ 0 & \text{if } Inc \geq Inc_H^{LI} \end{cases} \quad (15)$$

where Inc is the personal taxable income of the individual, Inc_L^{LI} is the maximum taxable income before the offset starts reducing, Inc_H^{LI} is the lowest taxable income at which the offset is reduced to zero and $lito_{taper}$ is the taper rate for the offset.

B.1.2 Senior Australians tax offset (SATO)

Senior Australians Tax Offset (SATO) is estimated for 2004 - 2012. From 1 July 2012, SATO was replaced by the Seniors and Pensioners Tax Offset (SAPTO). SATO applies only to individuals over the Age Pension age.

$$SATO = \begin{cases} SATO_{max} & \text{if } Inc \leq Inc_L^{SATO} \\ SATO_{max} - sato_{taper} (Inc - Inc_L^{SATO}) & \text{if } Inc_L^{SATO} < Inc < Inc_H^{SATO} \\ 0 & \text{if } Inc \geq Inc_H^{SATO} \end{cases} \quad (16)$$

where Inc is the personal taxable income of the individual, Inc_L^{SATO} is the maximum taxable income before the offset starts reducing, Inc_H^{SATO} is the lowest taxable income at which the offset is reduced to zero and $sato_{taper}$ is the taper rate for the offset.

B.1.3 Pensioner's tax offset (PTO)

Pensioner's Tax Offset (PTO) is estimated for 2004 - 2012. From 1 July 2012, PTO was amalgamated into the Seniors and Pensioners Tax Offset (SAPTO). PTO applies only to individuals below the Age Pension age that received a pension other than the Disability Support Pension or received Parenting Payment Single. Due lack of detailed data, we assume that those individuals below that age of 65 with a government pensions and allowances amount greater than 0 as eligible for PTO from 2004 - 2012.

$$PTO = \begin{cases} PTO_{max} & \text{if } Inc \leq Inc_L^{PTO} \\ PTO_{max} - pto_{taper} (Inc - Inc_L^{PTO}) & \text{if } Inc_L^{PTO} < Inc < Inc_H^{PTO} \\ 0 & \text{if } Inc \geq Inc_H^{PTO} \end{cases} \quad (17)$$

B.1.4 Senior Australians and pensioners tax offset (SAPTO)

From 1 July 2012, SATO and PTO were amalgamated into the SAPTO. Our offset estimations use the formula and eligibility criterion for the SATO.

B.1.5 Mature age workers tax offset (MATO)

We estimate MATO for 2005 to 2014 for employed persons aged 55 years and over. It is equal to 5% of wage and salary income net of deductions, up to a maximum of \$500. It is reduced for wage and salary income net of deductions in excess of a threshold (\$48,000 in 2004-05 and \$53,000 thereafter) at a rate of 5%.

B.2 Medicare levy and surcharge

Due to lack of information on dependents and family income, medicare levy is estimated under the assumption that all persons in the dataset are single individuals without any dependents. The formula for medicare levy is

$$ML = \begin{cases} 0 & \text{if } Inc \leq Inc_L^m \\ t^m (Inc - Inc_L^m) & \text{if } Inc_L^m < Inc < Inc_H^m \\ 0.015 \times Inc & \text{if } Inc \geq Inc_H^m \end{cases} \quad (18)$$

where Inc is taxable income, Inc_L^m is the threshold below which no medicare levy is payable, Inc_H^m is the threshold above which the full rate applies and t^m is the rate of the levy between the two thresholds.

Medicare levy surcharge is estimated by multiplying the surcharge rate for the relevant year by the taxable income for those who did not have private health insurance.

B.3 Tax on superannuation

First, we calculate tax on regular income (taxable income less redundancy payments) inclusive of superannuation income (T_{ws}). Second we calculate tax on regular income exclusive of super (T_{ns}).

For those below preservation age (less than 55 years), superannuation is taxed at the marginal tax rates. For those between 55 and 60 years, the taxed component of superannuation income is taxed at the marginal tax rate less tax offset of 15%. This was the same for those above 60 years up till 1 July 2007. Since then, superannuation income has been tax exempt when paid to an individual aged 60 years or older. Benefits are still taxed when paid from a fund which has not paid tax on its contributions and earnings (untaxed component). The tax rate is the marginal rate less tax offset of 10%. Thus, tax on superannuation income is

$$T_{super} = \begin{cases} T_{ws} - T_{ns} & \text{if } age < 55 \\ T_{ws} - T_{ns} - 0.15 \times I_{ts} & \text{if } age \in [55, 60) \\ T_{ws} - T_{ns} - 0.15 \times I_{ts} & \text{if } age \geq 60 \text{ and } year \leq 2007 \\ T_{ws} - T_{ns} - 0.1 \times I_{us} & \text{if } age \geq 60 \text{ and } year > 2007 \end{cases} \quad (19)$$

where T_{ws} is tax on regular income inclusive of taxable super, T_{ns} is tax on regular income exclusive of taxable super, I_{us} is untaxed component of super, I_{ts} is taxed component of super. For those 60 and above, taxable superannuation only includes the untaxed component after 2007. This is adjusted for in the calculation of T_{ws} and T_{ns} .

B.4 Differences between tax estimation in ATO and HILDA

our calculations differ from HILDA on a few major components. First, where HILDA tax calculations account for detailed demographic information, we treat all persons in the ATO sample as being without any dependents. This influences heavily on our calculations of the Medicare Levy. The lack of such demographic information in the ATO dataset is a significant drawback in our analysis. Second, due to limitations on information on partners (spouses), we were unable to calculate the Spouse Dependent Tax Offset.

On the other hand, our calculations rely more on actual values rather than imputed values compared to the HILDA dataset. For example HILDA sets dividend franking credits as 41% of reported share income. In contrast, the ATO data includes actual amounts for dividend franking credits. Moreover, HILDA does not include actual deductions and approximates based on ATO statistics. Total deductions are included in the ATO data and taxable income after deductions is also included.

The following Table summarises the key differences between the two estimations.

Table 10: Key differences between HILDA tax and ATO tax estimation

	HILDA	ATO
Dividend imputation credits	Estimated	Actual
Disability support pension (non-taxable)	Estimated	(no data)
Wife pension (non-taxable)	Estimated	(no data)
Carer payment (non-taxable)	Estimated	(no data)
Carer allowance (non-taxable)	Estimated	(no data)
Salary sacrifice pre-2009	0.5% of wages	0.5% of wages
Salary sacrifice post 2009	Estimated	0.5% of wages
Deductions	Estimated	Actual
Taxable income	Estimated	Actual
Tax on superannuation benefits	Approximate	Approximate
Tax on redundancy payments	Estimated	Estimated
Medicare levy	Estimated	Only singles and couples (no dependents)
Senior Australians Tax Offset (SATO)	Estimated	Estimated
Pensioners Tax Offset (PETO)	Estimated	Excludes detailed spouse related pensions
Beneficiary Tax Offset (BTO)	Estimated	(no data)
Senior Aust. & Pensioners Tax Offset (SAPTO)	Estimated	Assume all in eligible age group receives offset
Spouse Tax Offset	Estimated	(no data)
Other offsets	Approximate	Approximate

C Appendix C: Detailed tables of descriptive and summary statistics

C.1 HILDA

We provide the descriptive and summary statistics of HILDA sample.

C.1.1 Sample composition

Table 11: HILDA: Sample composition 2004

	Data	Sample	Excluded
<i>N</i>	17,209.00	16,283.00	926.00
Percent of data	100.00	94.62	5.69
Percent female	51.22	50.57	62.63
Age (mean)	35.45	33.98	61.28
Age (sd)	22.21	21.57	16.76
Total income (mean)	26,320.79	27,134.20	12,017.61
Total income (sd)	37,120.83	37,715.46	19,486.23
Tax liability (mean)	5,110.06	5,439.18	-677.37
Tax liability (sd)	11,743.86	11,986.72	1,088.63
Average tax rate (mean)	0.08	0.09	-0.06
Average tax rate (sd)	0.11	0.11	0.13

Table 12: HILDA: Sample composition 2005

	Data	Sample	Excluded
<i>N</i>	17,467.00	16,575.00	892.00
Percent of data	100.00	94.89	5.38
Percent female	51.33	50.73	62.44
Age (mean)	35.64	34.24	61.58
Age (sd)	22.28	21.68	16.68
Total income (mean)	28,318.60	29,100.22	13,794.77
Total income (sd)	43,738.84	44,316.41	27,325.06
Tax liability (mean)	5,499.52	5,831.58	-670.80
Tax liability (sd)	13,363.89	13,637.85	1,011.59
Average tax rate (mean)	0.08	0.09	-0.06
Average tax rate (sd)	0.11	0.11	0.10

Table 13: HILDA: Sample composition 2006

	Data	Sample	Excluded
<i>N</i>	17,453.00	16,568.00	885.00
Percent of data	100.00	94.93	5.34
Percent female	51.53	51.10	59.44
Age (mean)	35.88	34.48	62.07
Age (sd)	22.33	21.72	16.49
Total income (mean)	31,014.28	31,585.48	20,320.87
Total income (sd)	61,590.26	48,890.38	173,125.09
Tax liability (mean)	5,880.97	6,240.81	-855.46
Tax liability (sd)	14,341.22	14,618.27	2,770.84
Average tax rate (mean)	0.08	0.09	-0.06
Average tax rate (sd)	0.11	0.10	0.15

Table 14: HILDA: Sample composition 2007

	Data	Sample	Excluded
<i>N</i>	17,280.00	16,303.00	977.00
Percent of data	100.00	94.35	5.99
Percent female	51.53	50.98	60.70
Age (mean)	36.00	34.51	60.92
Age (sd)	22.43	21.80	17.65
Total income (mean)	32,389.51	33,556.51	12,916.04
Total income (sd)	56,815.97	55,000.72	78,862.46
Tax liability (mean)	5,903.51	6,315.87	-977.52
Tax liability (sd)	17,069.65	17,481.79	1,892.75
Average tax rate (mean)	0.07	0.08	-0.06
Average tax rate (sd)	0.11	0.10	0.21

Table 15: HILDA: Sample composition 2008

	Data	Sample	Excluded
<i>N</i>	17,144.00	16,186.00	958.00
Percent of data	100.00	94.41	5.92
Percent female	51.53	50.99	60.65
Age (mean)	36.32	34.77	62.58
Age (sd)	22.55	21.89	16.45
Total income (mean)	34,365.40	35,210.07	20,094.23
Total income (sd)	56,525.80	57,332.54	37,803.36
Tax liability (mean)	5,955.78	6,371.77	-1,072.67
Tax liability (sd)	15,295.83	15,638.71	1,563.32
Average tax rate (mean)	0.07	0.08	-0.06
Average tax rate (sd)	0.11	0.10	0.14

Table 16: HILDA: Sample composition 2009

	Data	Sample	Excluded
<i>N</i>	17,632.00	16,615.00	1,017.00
Percent of data	100.00	94.23	6.12
Percent female	51.23	50.70	59.88
Age (mean)	36.20	34.63	61.90
Age (sd)	22.49	21.82	17.07
Total income (mean)	36,005.50	36,858.18	22,074.97
Total income (sd)	52,421.43	52,997.38	39,391.84
Tax liability (mean)	5,899.36	6,328.46	-1,111.03
Tax liability (sd)	15,809.26	16,181.91	1,739.73
Average tax rate (mean)	0.06	0.07	-0.07
Average tax rate (sd)	0.14	0.09	0.43

Table 17: HILDA: Sample composition 2010

	Data	Sample	Excluded
<i>N</i>	17,855.00	16,852.00	1,003.00
Percent of data	100.00	94.38	5.95
Percent female	51.13	50.60	60.02
Age (mean)	36.32	34.77	62.27
Age (sd)	22.53	21.86	17.27
Total income (mean)	37,016.36	37,929.58	21,672.82
Total income (sd)	55,816.46	56,745.11	33,331.16
Tax liability (mean)	6,219.30	6,656.90	-1,132.95
Tax liability (sd)	16,964.61	17,359.18	1,730.08
Average tax rate (mean)	0.07	0.07	-0.06
Average tax rate (sd)	0.11	0.09	0.18

Table 18: HILDA: Sample composition 2011

	Data	Sample	Excluded
<i>N</i>	23,415.00	22,070.00	1,345.00
Percent of data	100.00	94.26	6.09
Percent female	51.15	50.81	56.73
Age (mean)	36.43	34.82	62.80
Age (sd)	22.65	21.96	16.67
Total income (mean)	38,221.75	39,179.82	22,500.86
Total income (sd)	57,325.11	58,136.59	38,570.97
Tax liability (mean)	6,308.47	6,762.64	-1,144.03
Tax liability (sd)	17,273.04	17,685.02	1,767.48
Average tax rate (mean)	0.07	0.07	-0.06
Average tax rate (sd)	0.10	0.09	0.12

Table 19: HILDA: Sample composition 2012

	Data	Sample	Excluded
<i>N</i>	23,182.00	21,969.00	1,213.00
Percent of data	100.00	94.77	5.52
Percent female	51.23	50.80	58.86
Age (mean)	36.62	35.11	63.99
Age (sd)	22.74	22.07	16.47
Total income (mean)	40,329.30	41,175.98	24,994.81
Total income (sd)	67,102.36	68,191.50	39,840.45
Tax liability (mean)	6,827.22	7,265.13	-1,103.88
Tax liability (sd)	17,215.40	17,574.78	1,887.45
Average tax rate (mean)	0.07	0.08	-0.05
Average tax rate (sd)	0.10	0.10	0.09

Table 20: HILDA: Sample composition 2013

	Data	Sample	Excluded
<i>N</i>	23,299.00	22,055.00	1,244.00
Percent of data	100.00	94.66	5.64
Percent female	51.29	50.88	58.52
Age (mean)	36.60	35.05	64.08
Age (sd)	22.82	22.16	15.96
Total income (mean)	41,428.13	42,109.79	29,342.99
Total income (sd)	64,001.69	64,182.61	59,444.33
Tax liability (mean)	7,062.66	7,526.72	-1,164.61
Tax liability (sd)	20,276.84	20,739.43	1,811.28
Average tax rate (mean)	0.07	0.07	-0.06
Average tax rate (sd)	0.10	0.10	0.09

Table 21: HILDA: Sample composition 2014

	Data	Sample	Excluded
<i>N</i>	23,110.00	21,893.00	1,217.00
Percent of data	100.00	94.73	5.56
Percent female	51.30	50.92	58.26
Age (mean)	36.84	35.28	64.86
Age (sd)	22.92	22.23	16.07
Total income (mean)	42,949.87	43,652.89	30,303.13
Total income (sd)	66,933.22	67,815.26	46,637.17
Tax liability (mean)	7,293.62	7,766.62	-1,215.38
Tax liability (sd)	20,057.72	20,499.67	1,859.12
Average tax rate (mean)	0.07	0.08	-0.06
Average tax rate (sd)	0.10	0.10	0.10

Table 22: HILDA: Sample composition 2015

	Data	Sample	Excluded
<i>N</i>	23,297.00	22,138.00	1,159.00
Percent of data	100.00	95.03	5.24
Percent female	51.39	51.00	58.84
Age (mean)	37.02	35.52	65.69
Age (sd)	23.02	22.34	15.93
Total income (mean)	43,813.96	44,270.54	35,092.89
Total income (sd)	67,824.08	66,472.83	89,403.80
Tax liability (mean)	7,734.80	8,132.76	133.30
Tax liability (sd)	21,584.95	20,533.84	35,380.41
Average tax rate (mean)	0.07	0.08	-0.06
Average tax rate (sd)	0.11	0.10	0.13

Table 23: HILDA: Sample composition 2016

	Data	Sample	Excluded
<i>N</i>	23,496.00	22,356.00	1,140.00
Percent of data	100.00	95.15	5.10
Percent female	51.29	50.97	57.54
Age (mean)	37.10	35.62	66.12
Age (sd)	23.16	22.50	15.51
Total income (mean)	44,892.54	45,510.38	32,776.31
Total income (sd)	78,786.63	79,141.94	70,406.32
Tax liability (mean)	7,959.73	8,398.34	-641.62
Tax liability (sd)	22,013.80	21,803.77	24,245.36
Average tax rate (mean)	0.07	0.08	-0.06
Average tax rate (sd)	0.11	0.10	0.10

C.1.2 Tables of income distribution, tax liabilities since 2004

Table 24: HILDA: Summary statistics 2004

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	413.06	0.15	0.15	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	7,306.95	2.69	2.85	17.46	0.03	0.03	0.01	0.11	0.00
Decile 5	12,479.02	4.60	7.44	203.05	0.37	0.41	0.08	0.17	0.02
Decile 6	19,904.63	7.34	14.78	1,321.32	2.43	2.83	0.33	0.21	0.06
Decile 7	30,206.50	11.13	25.91	4,115.93	7.57	10.40	0.68	0.30	0.13
Decile 8	40,612.26	14.97	40.88	7,288.80	13.40	23.80	0.90	0.30	0.18
Decile 9	54,981.16	20.26	61.14	11,511.27	21.16	44.97	1.04	0.38	0.21
Decile 10	105,438.42	38.86	100.00	29,934.00	55.03	100.00	1.42	0.47	0.28
Top 1%	254,949.64	9.40	100.00	76,720.30	14.11	100.00	1.50	0.47	0.31

Table 25: HILDA: Summary statistics 2005

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	682.36	0.23	0.23	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	8,128.31	2.79	3.03	27.64	0.05	0.05	0.02	0.13	0.00
Decile 5	13,625.73	4.68	7.71	264.94	0.45	0.50	0.10	0.17	0.02
Decile 6	21,879.75	7.52	15.23	1,655.79	2.84	3.34	0.38	0.24	0.07
Decile 7	32,242.21	11.08	26.31	4,604.12	7.90	11.24	0.71	0.30	0.14
Decile 8	43,157.43	14.83	41.14	7,858.28	13.48	24.71	0.91	0.30	0.18
Decile 9	57,896.34	19.90	61.03	12,209.53	20.94	45.65	1.05	0.36	0.21
Decile 10	113,390.06	38.97	100.00	31,695.49	54.35	100.00	1.39	0.47	0.27
Top 1%	297,500.97	10.22	100.00	87,678.79	15.04	100.00	1.47	0.47	0.31

Table 26: HILDA: Summary statistics 2006

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,028.32	0.33	0.33	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	9,420.67	2.98	3.31	51.57	0.08	0.08	0.03	0.13	0.00
Decile 5	15,094.50	4.78	8.09	323.48	0.52	0.60	0.11	0.15	0.02
Decile 6	23,909.56	7.57	15.66	1,817.25	2.91	3.51	0.38	0.26	0.07
Decile 7	34,519.85	10.93	26.59	4,938.12	7.91	11.43	0.72	0.30	0.14
Decile 8	45,952.71	14.55	41.13	8,458.00	13.55	24.98	0.93	0.30	0.18
Decile 9	61,995.19	19.63	60.76	12,906.63	20.68	45.66	1.05	0.35	0.21
Decile 10	123,933.96	39.24	100.00	33,913.00	54.34	100.00	1.38	0.44	0.27
Top 1%	335,389.06	10.62	100.00	95,816.36	15.35	100.00	1.45	0.47	0.30

Table 27: HILDA: Summary statistics 2007

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,029.76	0.31	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	9,528.47	2.84	3.15	11.88	0.02	0.02	0.01	0.13	0.00
Decile 5	15,838.90	4.72	7.87	225.76	0.36	0.38	0.08	0.15	0.01
Decile 6	25,210.74	7.51	15.38	1,550.71	2.46	2.83	0.33	0.22	0.06
Decile 7	36,650.09	10.92	26.30	4,914.51	7.78	10.61	0.71	0.30	0.13
Decile 8	48,722.02	14.52	40.82	8,569.72	13.57	24.18	0.93	0.30	0.18
Decile 9	65,635.43	19.56	60.38	13,245.52	20.97	45.15	1.07	0.31	0.20
Decile 10	132,949.73	39.62	100.00	34,640.62	54.85	100.00	1.38	0.41	0.25
Top 1%	363,774.44	10.84	100.00	106,880.38	16.92	100.00	1.56	0.45	0.29

Table 28: HILDA: Summary statistics 2008

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,322.49	0.38	0.38	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	10,339.55	2.94	3.31	8.84	0.01	0.01	0.00	0.14	0.00
Decile 5	16,707.00	4.74	8.06	255.56	0.40	0.41	0.08	0.15	0.01
Decile 6	26,581.22	7.55	15.61	1,582.36	2.48	2.90	0.33	0.18	0.06
Decile 7	38,331.14	10.89	26.49	4,515.68	7.09	9.99	0.65	0.30	0.12
Decile 8	51,245.49	14.55	41.05	8,483.28	13.31	23.30	0.91	0.30	0.16
Decile 9	68,882.27	19.56	60.61	13,804.33	21.66	44.96	1.11	0.32	0.20
Decile 10	138,691.55	39.39	100.00	35,067.70	55.04	100.00	1.40	0.41	0.25
Top 1%	359,034.78	10.20	100.00	94,626.15	14.85	100.00	1.46	0.45	0.27

Table 29: HILDA: Summary statistics 2009

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,075.05	0.29	0.29	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	10,460.51	2.84	3.13	0.00	0.00	0.00	0.00	0.14	0.00
Decile 5	18,363.02	4.98	8.11	143.54	0.23	0.23	0.05	0.15	0.01
Decile 6	28,819.88	7.82	15.93	1,383.56	2.19	2.41	0.28	0.16	0.05
Decile 7	40,813.57	11.07	27.00	3,969.78	6.27	8.69	0.57	0.30	0.10
Decile 8	54,474.09	14.78	41.78	8,157.17	12.89	21.58	0.87	0.30	0.15
Decile 9	72,874.27	19.77	61.55	13,847.23	21.88	43.46	1.11	0.32	0.19
Decile 10	141,701.45	38.45	100.00	35,783.34	56.54	100.00	1.47	0.41	0.24
Top 1%	360,636.75	9.78	100.00	102,809.31	16.25	100.00	1.66	0.45	0.28

Table 30: HILDA: Summary statistics 2010

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,471.22	0.39	0.39	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	10,980.15	2.89	3.28	0.00	0.00	0.00	0.00	0.15	0.00
Decile 5	18,373.56	4.84	8.13	120.19	0.18	0.18	0.04	0.15	0.01
Decile 6	28,437.10	7.50	15.62	1,312.10	1.97	2.15	0.26	0.15	0.04
Decile 7	40,448.83	10.66	26.29	3,890.79	5.84	8.00	0.55	0.29	0.09
Decile 8	54,577.53	14.39	40.68	8,338.09	12.53	20.52	0.87	0.30	0.15
Decile 9	74,242.64	19.57	60.25	14,448.35	21.70	42.23	1.11	0.32	0.19
Decile 10	150,764.77	39.75	100.00	38,459.45	57.77	100.00	1.45	0.39	0.24
Top 1%	392,120.03	10.34	100.00	110,082.96	16.54	100.00	1.60	0.45	0.27

Table 31: HILDA: Summary statistics 2011

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,549.85	0.40	0.40	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	11,289.62	2.88	3.28	0.00	0.00	0.00	0.00	0.15	0.00
Decile 5	19,008.86	4.85	8.13	104.54	0.15	0.15	0.03	0.15	0.00
Decile 6	29,373.42	7.50	15.63	1,307.79	1.93	2.09	0.26	0.15	0.04
Decile 7	42,308.59	10.80	26.42	4,104.59	6.07	8.16	0.56	0.28	0.10
Decile 8	56,602.84	14.45	40.87	8,525.34	12.61	20.76	0.87	0.30	0.15
Decile 9	76,877.26	19.62	60.49	14,944.08	22.10	42.86	1.13	0.32	0.19
Decile 10	154,787.73	39.51	100.00	38,640.10	57.14	100.00	1.45	0.39	0.24
Top 1%	390,994.50	9.98	100.00	108,385.48	16.03	100.00	1.61	0.45	0.28

Table 32: HILDA: Summary statistics 2012

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,782.96	0.43	0.43	0.00	0.00	0.00	0.00	0.01	0.00
Decile 4	12,425.12	3.02	3.45	0.00	0.00	0.00	0.00	0.15	0.00
Decile 5	20,232.98	4.91	8.36	163.98	0.23	0.23	0.05	0.15	0.01
Decile 6	30,733.25	7.46	15.83	1,484.27	2.04	2.27	0.27	0.15	0.05
Decile 7	43,885.81	10.66	26.49	4,493.32	6.18	8.45	0.58	0.30	0.10
Decile 8	58,595.12	14.23	40.72	9,021.07	12.42	20.87	0.87	0.30	0.15
Decile 9	79,995.86	19.43	60.14	16,014.86	22.04	42.91	1.13	0.33	0.20
Decile 10	164,108.75	39.86	100.00	41,473.75	57.09	100.00	1.43	0.39	0.25
Top 1%	428,726.03	10.41	100.00	108,803.49	14.98	100.00	1.44	0.45	0.27

Table 33: HILDA: Summary statistics 2013

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,532.24	0.36	0.36	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	12,345.14	2.93	3.30	0.00	0.00	0.00	0.00	0.00	0.00
Decile 5	20,674.95	4.91	8.21	37.47	0.05	0.05	0.01	0.16	0.00
Decile 6	31,061.23	7.38	15.58	1,200.36	1.59	1.64	0.22	0.20	0.04
Decile 7	44,996.51	10.69	26.27	4,523.12	6.01	7.65	0.56	0.32	0.10
Decile 8	60,609.01	14.39	40.66	9,358.96	12.43	20.09	0.86	0.32	0.15
Decile 9	82,714.69	19.64	60.30	16,492.31	21.91	42.00	1.12	0.35	0.20
Decile 10	167,164.11	39.70	100.00	43,654.96	58.00	100.00	1.46	0.39	0.25
Top 1%	424,150.44	10.07	100.00	123,498.29	16.41	100.00	1.63	0.45	0.27

Table 34: HILDA: Summary statistics 2014

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,800.48	0.41	0.41	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	13,280.50	3.04	3.45	0.00	0.00	0.00	0.00	0.00	0.00
Decile 5	21,584.75	4.94	8.40	72.87	0.09	0.09	0.02	0.18	0.00
Decile 6	32,012.85	7.33	15.73	1,337.94	1.72	1.82	0.23	0.21	0.04
Decile 7	45,972.76	10.53	26.26	4,739.86	6.10	7.92	0.58	0.32	0.10
Decile 8	61,788.50	14.15	40.42	9,711.81	12.50	20.42	0.88	0.32	0.16
Decile 9	84,829.18	19.43	59.85	17,259.00	22.22	42.65	1.14	0.35	0.20
Decile 10	175,259.84	40.15	100.00	44,544.74	57.35	100.00	1.43	0.39	0.25
Top 1%	462,118.19	10.59	100.00	122,353.96	15.75	100.00	1.49	0.45	0.27

Table 35: HILDA: Summary statistics 2015

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,728.73	0.39	0.39	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	13,666.55	3.09	3.48	0.00	0.00	0.00	0.00	0.00	0.00
Decile 5	22,134.29	5.00	8.48	95.11	0.12	0.12	0.02	0.19	0.00
Decile 6	32,651.33	7.38	15.85	1,511.77	1.86	1.98	0.25	0.21	0.04
Decile 7	46,627.78	10.53	26.39	5,118.89	6.29	8.27	0.60	0.32	0.11
Decile 8	62,622.40	14.15	40.53	10,314.07	12.68	20.95	0.90	0.32	0.16
Decile 9	86,077.63	19.44	59.97	17,977.27	22.10	43.06	1.14	0.36	0.21
Decile 10	177,196.70	40.03	100.00	46,310.53	56.94	100.00	1.42	0.40	0.26
Top 1%	459,619.16	10.38	100.00	126,824.56	15.59	100.00	1.50	0.47	0.29

Table 36: HILDA: Summary statistics 2016

Quantile	Pre-tax income			Tax			Relative share Tax share/Income share	Tax rate	
	Mean	Share	Cumulative	Mean	Share	Cumulative		Marginal	Average
Decile 1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Decile 3	1,686.99	0.37	0.37	0.00	0.00	0.00	0.00	0.00	0.00
Decile 4	13,932.36	3.06	3.43	0.09	0.00	0.00	0.00	0.01	0.00
Decile 5	22,461.94	4.94	8.37	109.47	0.13	0.13	0.03	0.19	0.00
Decile 6	33,537.56	7.37	15.74	1,674.58	1.99	2.12	0.27	0.22	0.05
Decile 7	47,839.57	10.51	26.25	5,533.93	6.59	8.71	0.63	0.32	0.11
Decile 8	64,486.63	14.17	40.42	10,703.12	12.74	21.46	0.90	0.32	0.16
Decile 9	87,542.95	19.24	59.65	18,504.35	22.03	43.49	1.15	0.36	0.21
Decile 10	183,615.80	40.35	100.00	47,457.85	56.51	100.00	1.40	0.40	0.26
Top 1%	512,309.31	11.26	100.00	133,670.02	15.92	100.00	1.41	0.47	0.28

Table 37: HILDA: Income statistics for the top 1%

	N	Min	Mean	SD	Max
2004	162.00	155,221.00	255,460.65	114,030.77	722,959.00
2005	164.00	171,000.00	298,861.48	199,897.84	1,617,028.00
2006	164.00	185,253.00	336,929.65	220,939.95	2,169,550.00
2007	163.00	200,006.00	363,804.56	285,910.88	2,287,000.00
2008	161.00	208,618.00	359,840.98	314,276.11	2,964,455.00
2009	166.00	212,900.00	360,771.07	203,311.56	1,575,000.00
2010	168.00	235,200.00	392,606.36	219,741.96	1,505,000.00
2011	220.00	228,180.00	391,513.76	237,778.89	2,000,000.00
2012	219.00	245,500.00	429,304.89	377,888.15	5,165,582.00
2013	220.00	249,896.00	424,587.38	288,448.65	2,006,000.00
2014	218.00	269,005.00	462,949.29	299,058.65	2,039,000.00
2015	221.00	270,400.00	459,944.77	260,325.49	2,539,834.00
2016	223.00	276,000.00	512,905.01	449,695.08	5,847,000.00
All years	2,469.00	155,221.00	396,615.37	293,569.51	5,847,000.00

C.2 ATO

In this section of we provide the descriptive and summary statistics of ATO sample.

C.2.1 Sample composition

Table 38: ATO: Sample composition 2004

	Data	Sample	Excluded
<i>N</i>	109,310.00	101,249.00	8,061.00
Percent of data	100.00	92.63	7.96
Percent female	47.94	47.29	56.16
Age (mean)	38.26	37.06	53.37
Age (sd)	14.68	13.91	15.71
Total income (mean)	37,692.06	39,230.71	18,366.09
Total income (sd)	48,328.13	42,440.41	92,983.21
Tax liability (mean)	8,228.42	8,625.59	3,239.73
Tax liability (sd)	18,929.60	15,568.12	42,287.26
Average tax rate (mean)	0.13	0.15	-0.08
Average tax rate (sd)	0.32	0.10	1.09

Table 39: ATO: Sample composition 2005

	Data	Sample	Excluded
<i>N</i>	112,277.00	104,252.00	8,025.00
Percent of data	100.00	92.85	7.70
Percent female	48.23	47.55	56.96
Age (mean)	38.45	37.29	53.52
Age (sd)	14.79	14.08	15.49
Total income (mean)	39,744.49	41,470.77	17,318.50
Total income (sd)	49,733.04	45,736.43	83,001.75
Tax liability (mean)	8,674.54	9,135.07	2,691.85
Tax liability (sd)	18,957.51	16,759.80	36,616.06
Average tax rate (mean)	0.13	0.15	-0.07
Average tax rate (sd)	0.19	0.10	0.56

Table 40: ATO: Sample composition 2006

	Data	Sample	Excluded
<i>N</i>	114,827.00	106,500.00	8,327.00
Percent of data	100.00	92.75	7.82
Percent female	48.28	47.61	56.92
Age (mean)	38.67	37.47	53.95
Age (sd)	14.91	14.20	15.32
Total income (mean)	41,946.72	44,009.42	15,565.29
Total income (sd)	51,830.93	50,413.09	61,567.50
Tax liability (mean)	8,870.05	9,467.94	1,223.18
Tax liability (sd)	18,805.15	17,960.17	26,229.58
Average tax rate (mean)	0.12	0.14	-0.12
Average tax rate (sd)	1.17	0.10	4.32

Table 41: ATO: Sample composition 2007

	Data	Sample	Excluded
<i>N</i>	118,186.00	109,334.00	8,852.00
Percent of data	100.00	92.51	8.10
Percent female	48.54	47.97	55.61
Age (mean)	38.67	37.42	54.20
Age (sd)	14.93	14.19	15.03
Total income (mean)	45,051.47	47,502.39	14,779.45
Total income (sd)	65,394.50	66,046.16	47,203.27
Tax liability (mean)	8,899.18	9,677.92	-719.25
Tax liability (sd)	22,859.33	23,382.53	11,123.53
Average tax rate (mean)	0.12	0.13	-0.04
Average tax rate (sd)	0.80	0.10	2.91

Table 42: ATO: Sample composition 2008

	Data	Sample	Excluded
<i>N</i>	126,103.00	116,161.00	9,942.00
Percent of data	100.00	92.12	8.56
Percent female	48.44	47.89	54.90
Age (mean)	38.48	37.11	54.45
Age (sd)	14.90	14.07	15.02
Total income (mean)	45,113.67	47,846.98	13,178.04
Total income (sd)	55,268.48	56,122.92	28,904.76
Tax liability (mean)	8,609.06	9,422.00	-889.24
Tax liability (sd)	19,587.56	20,189.28	2,467.87
Average tax rate (mean)	0.11	0.12	-0.06
Average tax rate (sd)	0.33	0.09	1.10

Table 43: ATO: Sample composition 2009

	Data	Sample	Excluded
<i>N</i>	122,679.00	111,732.00	10,947.00
Percent of data	100.00	91.08	9.80
Percent female	48.38	47.71	55.28
Age (mean)	40.06	38.49	56.15
Age (sd)	14.93	14.02	14.39
Total income (mean)	46,701.38	49,899.31	14,061.33
Total income (sd)	54,604.99	55,495.65	28,480.74
Tax liability (mean)	8,445.54	9,370.30	-993.12
Tax liability (sd)	19,060.69	19,715.68	2,503.58
Average tax rate (mean)	0.10	0.12	-0.08
Average tax rate (sd)	0.18	0.09	0.49

Table 44: ATO: Sample composition 2010

	Data	Sample	Excluded
<i>N</i>	123,508.00	112,229.00	11,279.00
Percent of data	100.00	90.87	10.05
Percent female	48.34	47.69	54.77
Age (mean)	40.34	38.69	56.74
Age (sd)	14.93	13.97	14.29
Total income (mean)	48,038.70	51,478.51	13,811.62
Total income (sd)	57,687.33	58,868.17	25,868.53
Tax liability (mean)	8,781.31	9,756.10	-918.13
Tax liability (sd)	20,882.78	21,657.25	2,177.13
Average tax rate (mean)	0.10	0.11	-0.08
Average tax rate (sd)	0.24	0.10	0.70

Table 45: ATO: Sample composition 2011

	Data	Sample	Excluded
<i>N</i>	125,349.00	114,411.00	10,938.00
Percent of data	100.00	91.27	9.56
Percent female	48.38	47.68	55.70
Age (mean)	41.38	39.81	57.79
Age (sd)	15.00	14.13	14.02
Total income (mean)	51,064.05	54,495.37	15,172.58
Total income (sd)	56,196.50	57,093.28	26,155.02
Tax liability (mean)	9,374.01	10,363.55	-976.50
Tax liability (sd)	19,628.29	20,257.97	2,278.20
Average tax rate (mean)	0.11	0.12	0.02
Average tax rate (sd)	2.87	0.10	9.70

Table 46: ATO: Sample composition 2012

	Data	Sample	Excluded
<i>N</i>	254,273.00	233,989.00	20,284.00
Percent of data	100.00	92.02	8.67
Percent female	47.96	47.33	55.30
Age (mean)	40.68	39.13	58.50
Age (sd)	15.06	14.17	13.51
Total income (mean)	55,013.04	58,035.39	20,148.34
Total income (sd)	72,396.45	72,202.05	65,152.16
Tax liability (mean)	10,674.11	11,617.84	-212.41
Tax liability (sd)	26,523.87	26,259.83	27,120.73
Average tax rate (mean)	0.11	0.12	-0.05
Average tax rate (sd)	1.52	0.10	5.37

Table 47: ATO: Sample composition 2013

	Data	Sample	Excluded
<i>N</i>	254,318.00	232,879.00	21,439.00
Percent of data	100.00	91.57	9.21
Percent female	47.80	47.04	56.08
Age (mean)	40.89	39.27	58.43
Age (sd)	15.00	14.08	13.46
Total income (mean)	57,817.81	61,152.18	21,598.59
Total income (sd)	89,911.63	81,701.17	148,181.67
Tax liability (mean)	11,326.54	12,334.01	382.97
Tax liability (sd)	34,223.55	29,198.47	67,100.76
Average tax rate (mean)	0.11	0.12	-0.08
Average tax rate (sd)	3.58	0.10	12.31