

# How much to workers really lose to inflation?

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<https://github.com/jimb0w/Inflation>

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# 1 Average loss to inflation from July 2021 to June 2025

The goal was to estimate the total earnings (in dollars) lost to inflation for an average earner from July 2021 to June 2025 in Australia. Data were sourced directly from the Australian Bureau of Statistics (see the methods for full sources), and are shown in Figure 1.1. The slope of the lines is representative of an average across the economy, but for an individual wage earner, who only gets a pay rise once a year, while prices rise more or less continuously, the actual experience looks more like Figure 1.2.

We calculated the cumulative lost earnings to inflation (i.e., the area shown in Figure 1.3) under the following assumptions:

- The period of study starts at 1 July 2021 and ends on 30 June 2025.
- Workers receive annual wage rises on 1 January each year (timed to be at the mid-point of the study yearly cycles).
- Inflation is continuous.

The results are shown in Figure 2.1 and Table 1.1.

Figure 1.1: Crude data derived from the ABS.

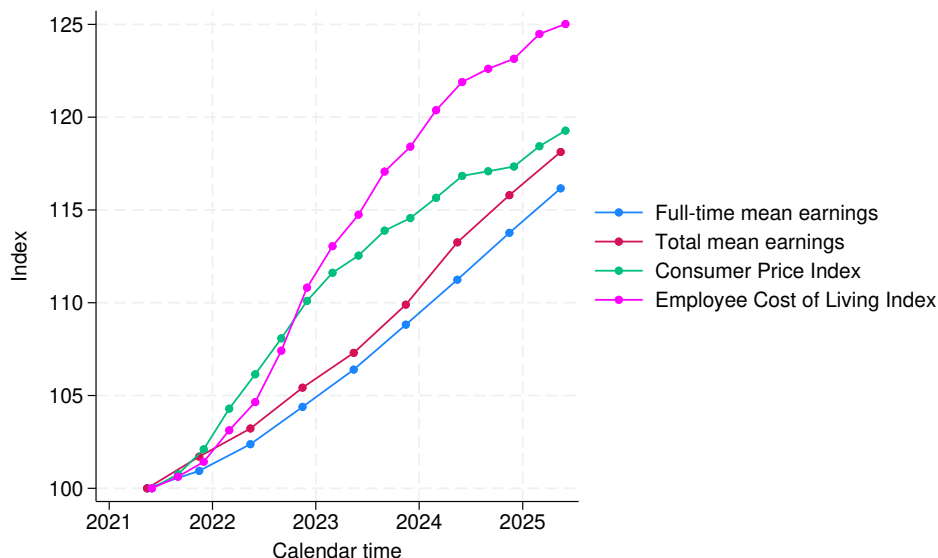


Figure 1.2: Schematic of what inflation looks like for an individual.

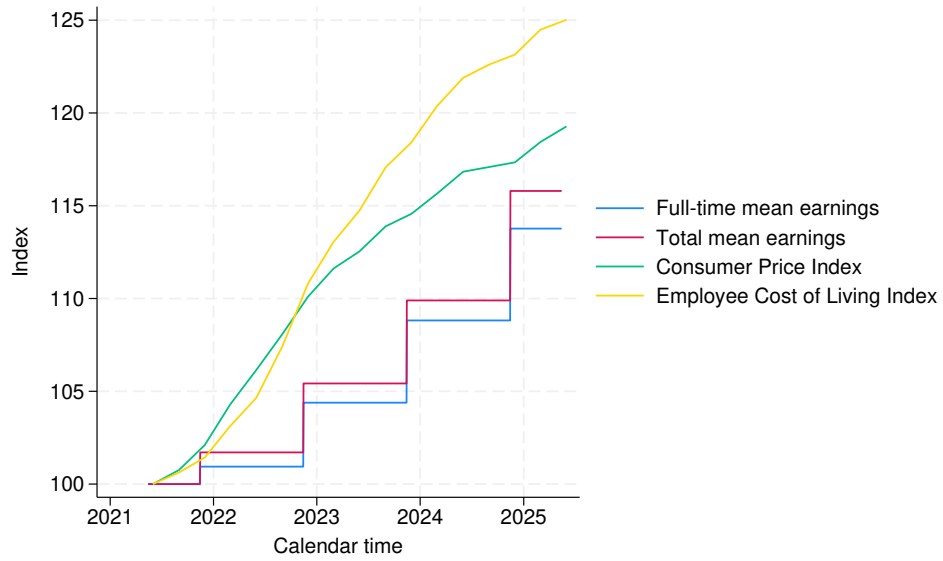


Figure 1.3: Illustration of what was estimated.

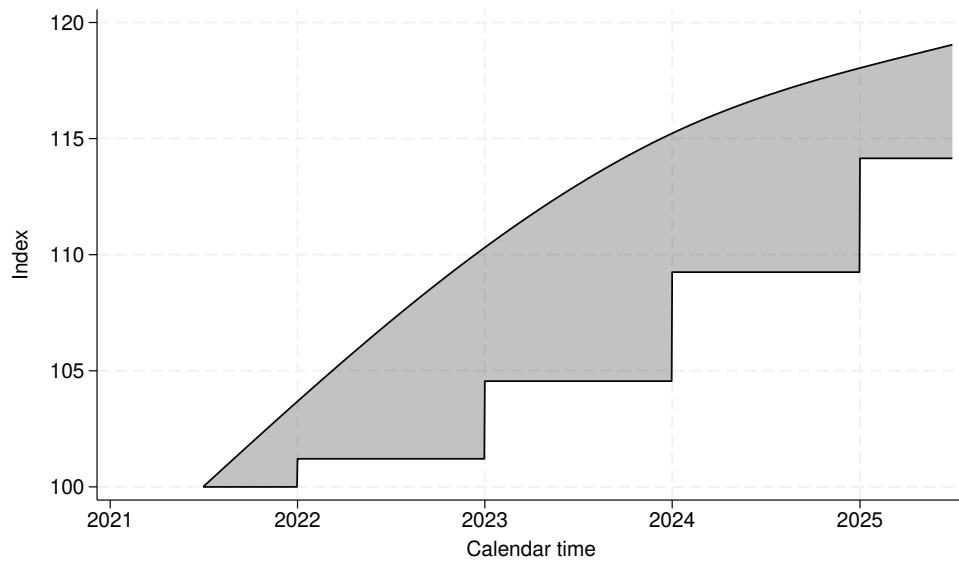


Figure 1.4: Cumulative loss to inflation for the average full time worker.

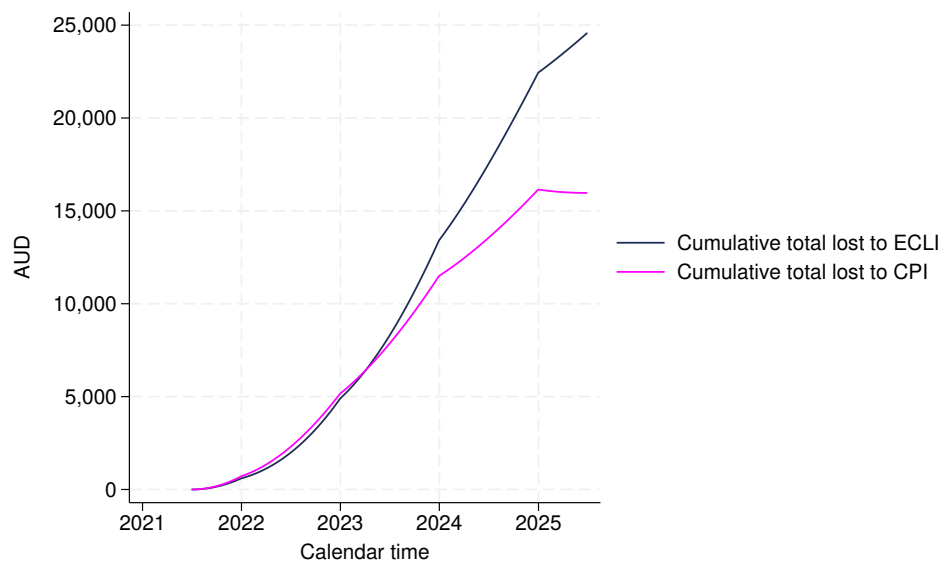


Table 1.1: Summary statistics.

Date	Full-time earnings	Full-time earnings if they matched CPI inflation	Full-time earnings if they matched ECLI inflation	Cumulative loss to CPI	Cumulative loss to ECLI
31dec2021	93,898.44	97,337.30	96,852.27	870.39	733.04
30jun2022	95,034.85	100,574.16	100,203.66	2,827.27	2,443.94
31dec2022	95,034.85	103,564.54	104,352.23	6,390.41	6,065.97
30jun2023	98,175.92	106,104.11	108,771.38	9,711.77	10,232.57
31dec2023	98,175.92	108,186.23	112,661.10	14,256.05	16,601.00
30jun2024	102,585.09	109,699.04	115,151.95	17,446.81	22,303.28
31dec2024	102,585.09	110,832.71	116,575.04	21,329.59	29,027.42
30jun2025	107,186.73	111,780.76	117,512.37	23,374.95	33,919.94

## 2 Median earnings

Mean earnings are right-skewed because of high-income earners; median earnings probably more accurately capture the experience for the average Australian than does the mean. Let's repeat the above calculations, but using median wage instead of mean. This will also be stratified by sex.

Figure 2.1: Cumulative loss to inflation for the median full time worker, by sex.

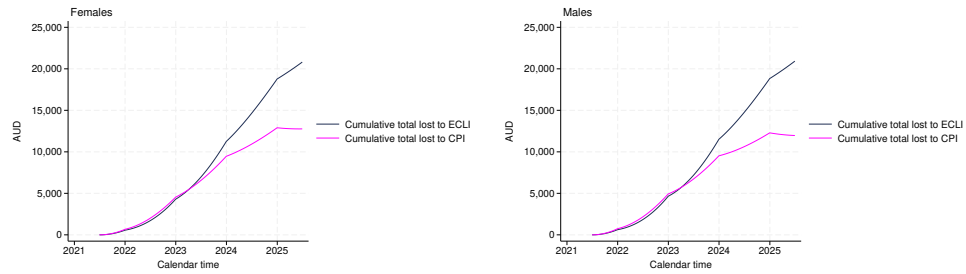


Table 2.1: Summary statistics.

Sex	Date	Full-time earnings	Full-time earnings if they matched CPI inflation	Full-time earnings if they matched ECLI inflation	Cumulative loss to CPI	Cumulative loss to ECLI
Females	31dec2021	71,666.95	74,291.63	73,921.43	664.32	559.48
Females	30jun2022	72,874.77	76,762.12	76,479.33	1,989.16	1,696.59
Females	31dec2022	72,874.77	79,044.49	79,645.69	4,537.17	4,289.55
Females	30jun2023	76,008.74	80,982.79	83,018.55	6,538.43	6,935.92
Females	31dec2023	76,008.74	82,571.95	85,987.34	9,464.22	11,253.98
Females	30jun2024	80,253.98	83,726.58	87,888.45	10,924.37	14,631.01
Females	31dec2024	80,253.98	84,591.84	88,974.61	12,901.97	18,777.26
Females	30jun2025	85,231.39	85,315.43	89,690.02	12,767.14	20,815.49
Males	31dec2021	79,778.12	82,699.87	82,287.78	739.51	622.80
Males	30jun2022	81,247.70	85,449.98	85,135.18	2,152.33	1,826.64
Males	31dec2022	81,247.70	87,990.66	88,659.90	4,925.73	4,650.08
Males	30jun2023	85,499.45	90,148.34	92,414.50	6,713.37	7,155.85
Males	31dec2023	85,499.45	91,917.34	95,719.30	9,522.90	11,515.21
Males	30jun2024	90,394.52	93,202.66	97,835.57	10,621.36	14,747.53
Males	31dec2024	90,394.52	94,165.85	99,044.66	12,290.07	18,830.31
Males	30jun2025	95,224.09	94,971.33	99,841.03	11,968.37	20,927.62



### 3 Methods

TBD