Tax Simulation Results

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1. Overview

In preparation for the upcoming work with the Family Resources Survey.

I wrote a microsimulation script to replicate the UK 2024/25 income tax and National Insurance liabilities. This document summarises the outputs of that model using a mock dataset of 5 hypothetical individuals.

2. Tax Parameters Applied (2024/25 Rules)

I used the current fiscal year parameters to verify the logic, specifically focusing on the Personal Allowance taper for high earners.

- **Standard Personal Allowance:** £12,570
    - *Logic:* Reduced by £1 for every £2 of adjusted net income above £100,000.
- **Income Tax Bands:**
    - **Basic Rate (20%):** £12,571 to £50,270
    - **Higher Rate (40%):** £50,271 to £125,140
    - **Additional Rate (45%):** Over £125,140
- **National Insurance (Class 1 Employee):**
    - **Main Rate (8%):** Earnings between £12,570 and £50,270
    - **Upper Rate (2%):** Earnings above £50,270

3. Simulation Output

The table below displays the results generated by the Stata script (frs_tax_simulation.do).

Table 1: Calculated Tax and Net Income

```
(2 real changes made)

.

. gen net_income = income - tax_due - ni_due

.

. format income tax_due ni_due net_income %9.2f

.

. list name income tax_due ni_due net_income, separator(5)


            name       income      tax_due       ni_due     net_in~e

  1.    Low Earner     12000.00         0.00         0.00     12000.00
  2.    Basic Rate     25000.00      2486.00       994.40     21519.60
  3.      Threshold    50270.00      7540.00      3016.00     39714.00
  4.   Higher Rate     80000.00     19432.00      3610.60     56957.40
  5.     Add. Rate    150000.00     53703.00      5010.60     91286.40


.
end of do-file
.
```

4. Conclusion

The environment is successfully installed, and the logic holds up against manual verification.