



Creating an Income Calculation Model

Group 8

Justin Maguire

Connor Martin

Iraklis Pissaris

Euan Smith

Nikhil Reddy

Objective

TO CALCULATE ANNUAL GROSS INCOME FROM
GIVEN MONTHLY NET INCOME USING REGION-
SPECIFIC TAX RULES.

Relevance

- Scotland vs. Rest of the UK (ROU):
 - Scotland uses a more granular tax system with five income tax bands compared to three in ROU.
 - Regional differences also extend to National Insurance contributions.
- Why This Matters:
 - Without accounting for these differences, income calculations risk inaccuracy.
 - Precise modelling ensures fair and consistent assessments for individuals across regions.



Our Proposed Framework

Split Data by Region

Define Tax Bands and
Rates

Handle Tax
Calculations Per Region

Net-to-Gross
Calculation

Limitations

Exclusion of Non-Tax Deductions:

- The model does not account for deductions like:
 - Pensions
 - Student loans
 - Salary sacrifice schemes
- These deductions significantly affect net income, making the current calculations less reflective of an individual's financial reality.

No Council Tax or Regional Expenses:

- Regional-specific expenses like council tax are omitted.
- Council tax varies across bands in Scotland and ROU, directly impacting disposable income but is not included in the calculations.

Limitations

Exclusion of Self-Employment Contributions:

- The model does not calculate Class 2 and Class 4 NI contributions for self-employed individuals.
- With over 4 million self-employed people in the UK, this is a significant gap.

Static Tax Year Assumptions:

- The model is fixed to the 2024/25 tax bands.
- Without updates, it becomes outdated for future years, limiting scalability.

Enhancements

Include Non-Tax Deductions:

- Incorporate pensions, student loans, and salary sacrifice schemes.
- Enhances the model's precision by reflecting real-world deductions.

Incorporate Regional Expenses:

- Add council tax and other local taxation policies.
- Tailor calculations to reflect regional differences (e.g., council tax bands in Scotland and ROU).

Enhancements

Automate Tax Updates:

- Link to HMRC APIs for dynamic tax band updates.
- Provide a simple interface for manual updates as a backup.

Support for Self-Employment:

- Implement Class 2 and Class 4 NI contributions for self-employed individuals.
- Categorize income sources (e.g., salaried vs. freelance income).

Leverage Transactional Data:

- Use patterns in bank transactions to infer:
 - Income types
 - Deduction categories (e.g., rent, council tax).
- Ensure data is processed ethically, respecting privacy and consent.

Enhancement Implementation

Immediate Steps:

- Include non-tax deductions.
- Incorporate regional expenses.

Medium-Term Steps:

- Support for self-employment.
- Manual updates for tax changes.

Long-Term Goals:

- Automate tax updates.
- Leverage transactional data.

Conclusion

By addressing current limitations and implementing enhancements, the model can evolve into a robust and adaptable tool for accurately calculating net income from gross income.

These improvements will enable more precise and conclusive financial analysis, supporting better decision-making

Any Questions?

