Authorship and Ownership Declaration

Title: Immigration Rental Impact Index (IRII) – Adjusted for Rental Supply

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1. Background and Purpose

This document formalizes the authorship of the custom metric **"Immigration Rental Impact Index (IRII) – Adjusted for Rental Supply"**. The IRII measures immigration's impact on Australia's long-term rental market by visa types. These formulas address concerns about the market's ability to accommodate growing migrant populations and feature unique design and analytical depth.

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2. Original Formula Definitions

IRII Formula:

$$IRII = \left(\frac{\Delta Immigrant\ renters}{Visa\ Grants}\right) \times 100$$

Adjusted IRII Formula:

$$IRII_{Adjusted} = \left(\frac{\Delta Immigrant\ renters}{Visa\ Grants}\right) \times \left(\frac{Immigrant\ Renters}{Vacant\ Rentals + Citizen\ Renters}\right) \times 100$$

The IRII Adjusted (%) gives a more accurate view of pressure per available rental unit.

Advantages:

- **Quantitative Impact:** Measures rental stress per visa grant.
- **Policy Responsive:** Linked to visa trends and housing stock.
- **Time-Series Insight:** Useful for forecasting and planning.

Limitations:

- **Data Consistency:** Assumes stable visa-to-renter ratios.
- **Market Exclusion:** Ignores other market forces like investors and construction delays.
- **Overlap Assumptions:** Assumes no overlap between immigrant and citizen renters.

Expended IRII Formula:

$$IRII_{Expanded} = \left(\frac{\Delta Immigrant\ renters}{Visa\ Grants}\right) \times \left(\frac{Immigrant\ Renters}{LVTR + NHS - STRC + Citizen\ Renters}\right) \times 100$$

This formula gives a more realistic measure of rental market pressure from immigration, adjusted not only for visa inflows and immigrant renting behaviour, but also for true housing availability.

LTVR – Long-Term Vacant Rentals (6+ months lease; excludes short-stay)
STRC – Short-Term Rental Conversions (Airbnb-style listings; estimated by occupancy reports)
NHS – New Housing Stock (completed dwellings)
DDD – Demolished/Downgraded Dwellings (lost to redevelopment or rezoning)
Citizen Renters – Households renting long-term under citizenship
Δ Immigrant Renters – Change in renting immigrant population YoY
Visa Grants – PRs and Temporary combined

Advantages:

- Captures hidden supply erosion from STR conversions.
- Includes net housing stock adjustments.
- Works well with public & scraped data (Airbnb, ABS, CoreLogic).

Limitations:

- STRC & DDD require estimates or modelled data, which may not be readily available.
- The model assumes uniform rental behaviour across cities, without considering local variations.
- Investor-led empty homes are not differentiated in the analysis.

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3. Authorship and Originality Statement

I, [Rajatkumar G. Patel], affirm that the above formula concept, accompanying indicators as (sentence/s) are my **original concept** and were **not copied, derived, or reproduced** from any pre-existing publication known to my knowledge. The work was generated under my direction and reflects unique analytical perspectives.

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4. Rights and Usage

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