The Effect of Unemployment and The Labour Market Tightness on Migration in the Grand Duchy of Luxembourg

Final Results

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Review the research question & project positioning

- Research question: "**How does unemployment and labour market tightness affect migration in Luxembourg?**"

- **Context:**
  - Luxembourg has a highly **international workforce** (almost **50%** of workers are non-Luxembourgers).
  - **Labour market disparities** between Luxembourg and neighboring countries drive **migration trends**.

- **Key Hypothesis:**
  1. Lower **relative labour market tightness** in a country (e.g., Portugal, France) $\rightarrow$ Higher net migration to Luxembourg.
  2. Higher **unemployment** in Luxembourg $\rightarrow$ Affects migration inflows and outflows differently.

- **Policy Relevance:** Findings will inform Luxembourg's labour migration policies, particularly in managing skill shortages and workforce planning.

Review of the methodology, including data & model

Empirical Approach:

- **Labour Market Tightness Over Time** (Key graph & equation determining job-finding rate, job-filling rate, welfare implications).
- **Migration Trends** (Arrivals, Departures, Net Migration) for Luxembourg, Belgium, France, Germany, Italy, Spain, and Portugal.
- **Relative Labour Market Tightness:** Examining if changes in Luxembourg's labour market tightness influence surrounding countries, particularly those with high cross-border employment.
- **Labour Market Tightness vs. Net Migration.**
- **Unemployment vs. Net Migration.**
- **Relative Tightness & Portugal's Net Migration.**
- **Relative Tightness & France's Net Migration**

Review of the methodology, including data & models

Causal Analysis:

- **AutoRegression Model**: Examining dynamic interaction between migration and unemployment, as well as Relative Tightness vs. Net Migration for key countries..
- **Granger Causality Test**: Testing if migration influences unemployment or vice versa, as well as Relative Tightness vs. Net Migration for key countries.
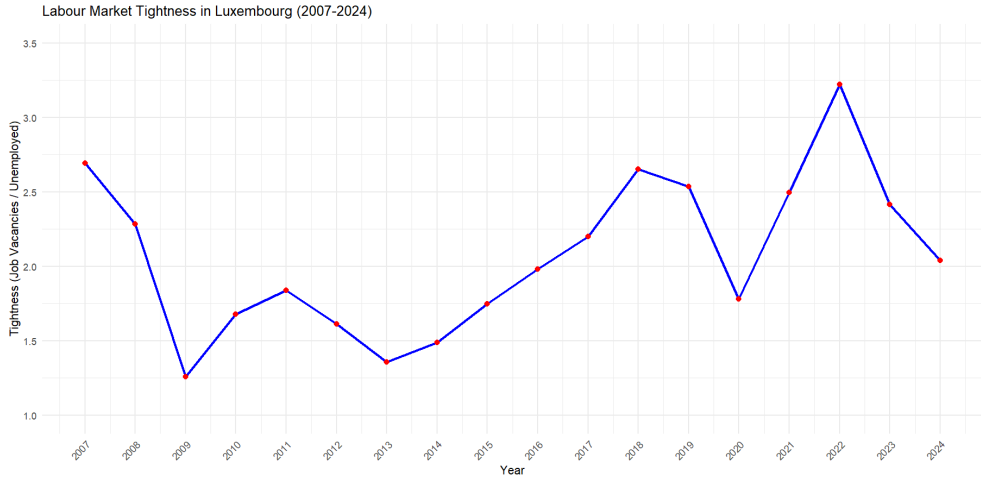
Data Collection

- **Sources:**
  - **STATEC Luxembourg:** Unemployment, vacancies.
  - **Eurostat:** Migration & labor force statistics.
- **Variables:** Unemployment rate, labour market tightness, migration data (Arrivals, Departures, Net Migration).
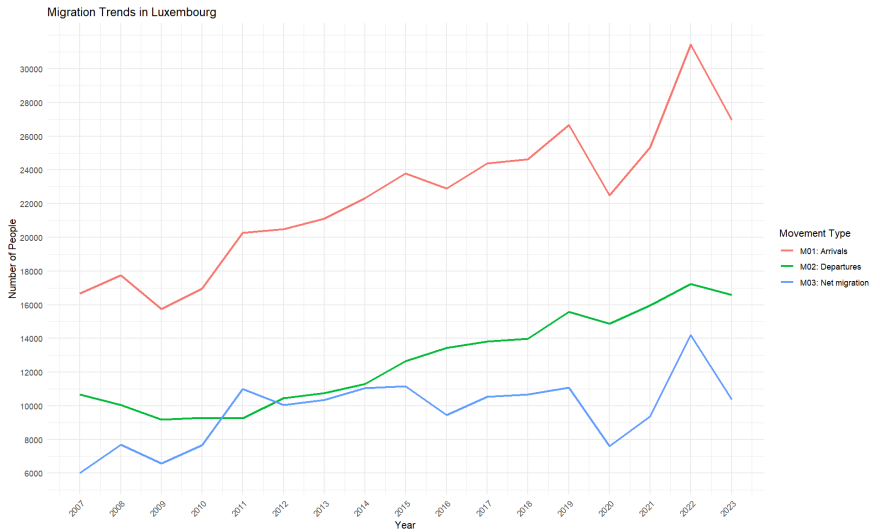
Labour Market Tightness & Migration Trends

- **Negative relationship**: When relative labour market tightness is low (e.g., Portugal's tightness/Luxembourg's tightness is small), net migration from that country to Luxembourg is high.
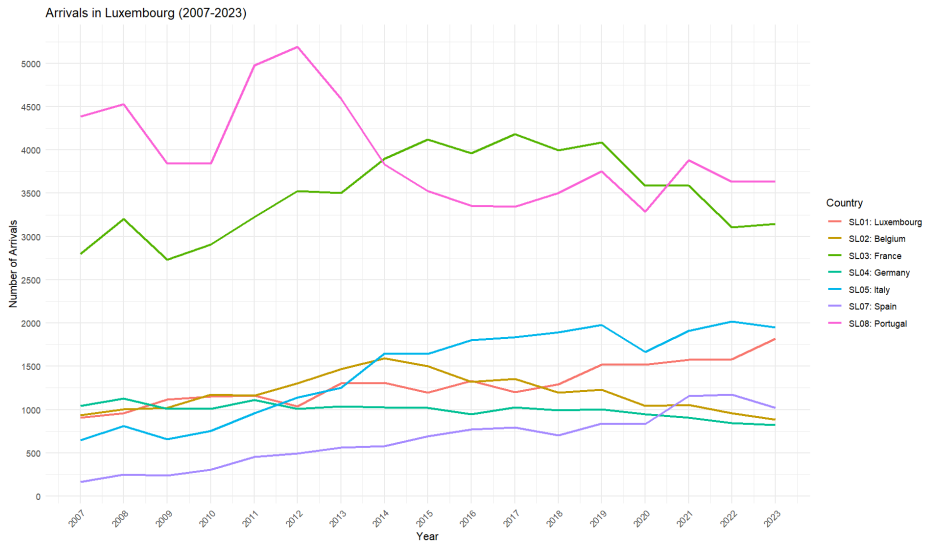
- Wider trend observed for **Portugal** and **France**.

Detailed presentation of final theoretical & empirical & computational results, with tables & graphs
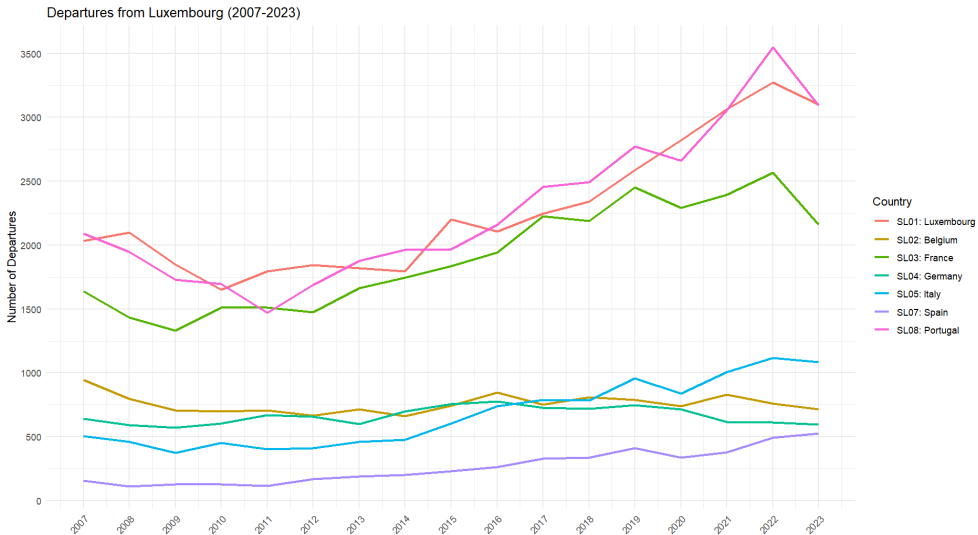

Labour Market Tightness in Luxembourg (2007-2024)

Migration Trends in Luxembourg

Arrivals in Luxembourg (2007-2023)

Detailed presentation of final theoretical & empirical & computational results, with tables & graphs
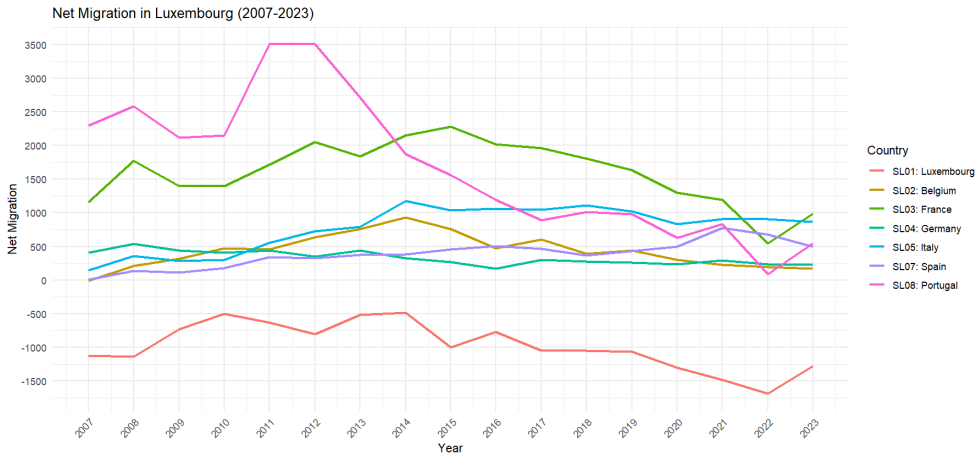

Departures from Luxembourg (2007-2023)

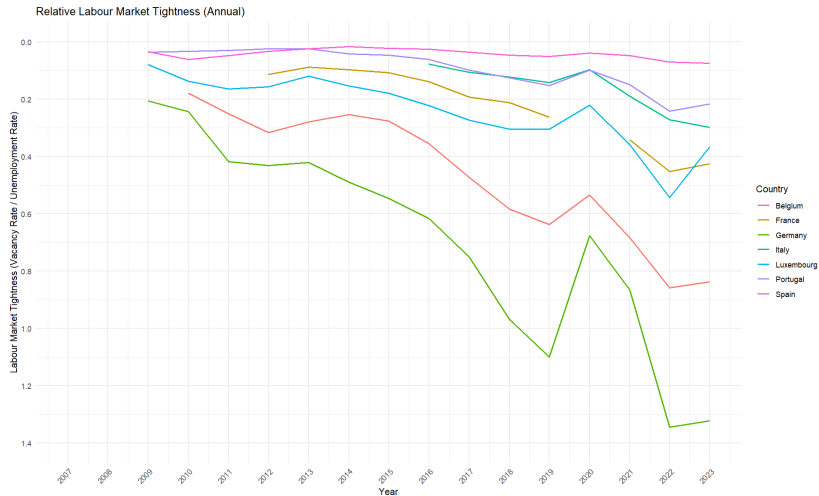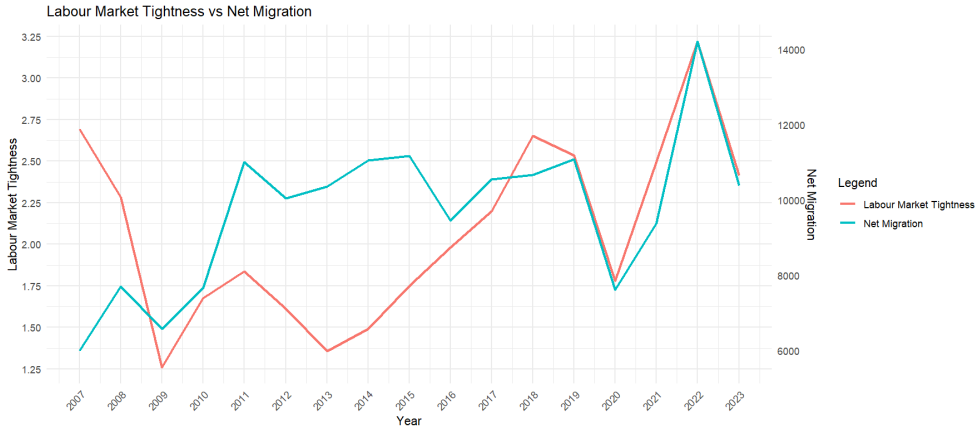# Detailed presentation of final theoretical & empirical & computational results, with tables & graphs

Net Migration in Luxembourg (2007-2023)

Relative Labour Market Tightness (Annual)

Detailed presentation of final theoretical & empirical & computational results, with tables & graphs

Labour Market Tightness vs Net Migration

Net Migration vs Unemployment in Luxembourg (2007-2023)

Detailed presentation of final theoretical & empirical & computational results, with tables & graphs

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Regression Results: Net Migration vs Unemployment
===============================================
                          Dependent variable:
                      ---------------------------
                             Unemployed
-----------------------------------------------
Net Migration                  0.668*
                              (0.315)

Constant                     8,570.302**
                            (3,115.888)

-----------------------------------------------
Observations                     17
R2                              0.231
Adjusted R2                     0.180
Residual Std. Error    2,568.025 (df = 15)
F Statistic            4.502* (df = 1; 15)
===============================================
Note:                  *p<0.1; **p<0.05; ***p<0.01
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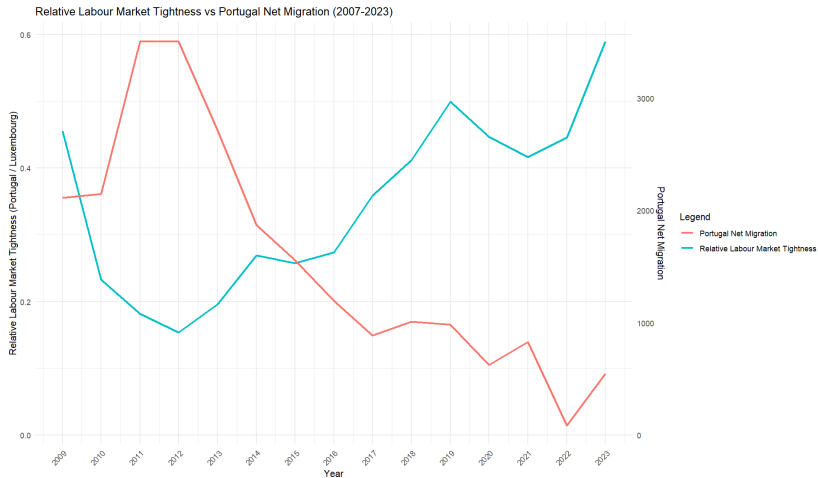
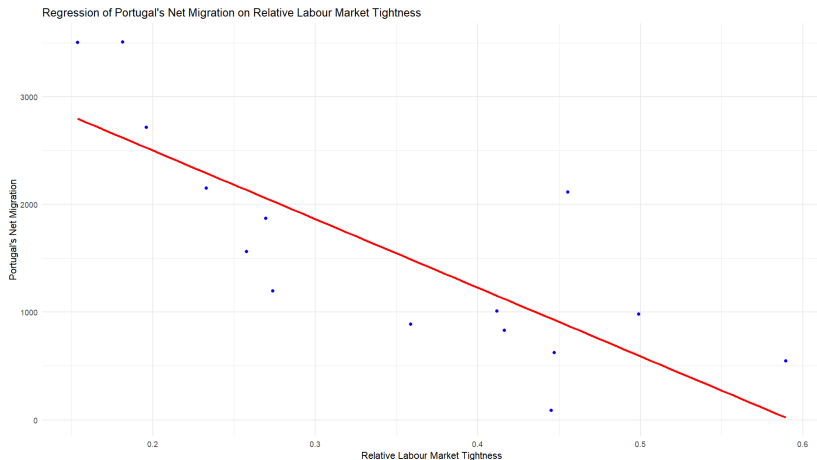# Detailed presentation of final theoretical & empirical & computational results, with tables & graphs

Granger Causality Test Results

Direction	F_Statistic	P_Value	Significance
Net Migration → Unemployment	4.948719	0.0444432	* Significant
Unemployment → Net Migration	5.292105	0.0386260	* Significant

Relative Labour Market Tightness vs Portugal Net Migration (2007-2023)

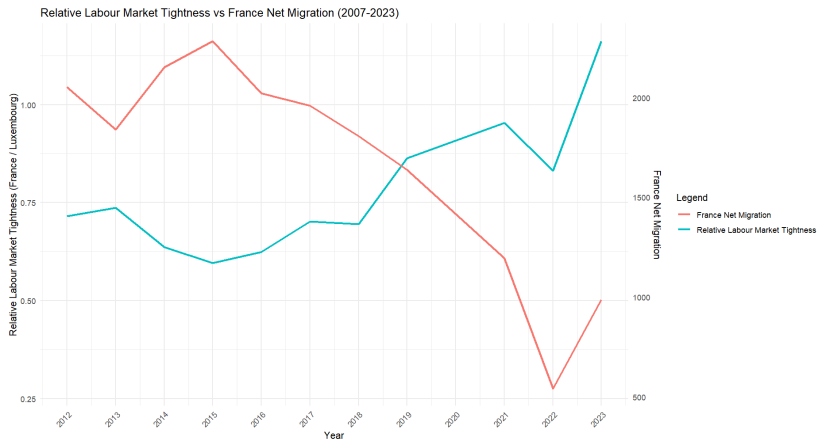Regression of Portugal's Net Migration on Relative Labour Market Tightness

Detailed presentation of final empirical & computational results - regression & correlation findings

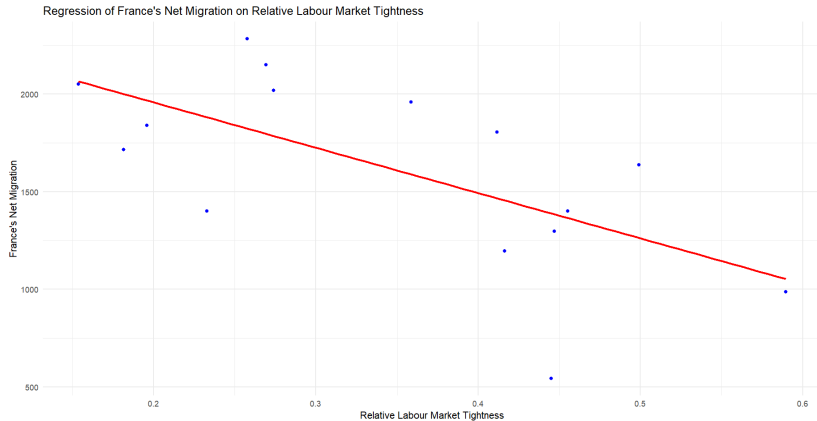**Portugal Regression Model Results:**

- **Regression Equation:** Net Migration = 3773.7 - 6365.6 × Relative Tightness
- For every **1-unit increase** in **Relative Tightness**, **Net Migration decreases by 6365.6**.
- **This confirms a strong negative relationship**—when a country's labour market tightness is low relative to Luxembourg, migration to Luxembourg is high.
- **Relative Tightness p-value = 0.000379 → Highly significant (p ¡ 0.001)**.
- **Intercept p-value = 3.68e-06** → Highly significant.
- **R2=0.6345 → 63.45% of the variation** in Net Migration is explained by Relative Tightness.
- **Adjusted R2=0.6063** → Slightly lower, but still indicates a strong explanatory model.
- **F-statistic = 22.56, p-value = 0.0003794** → The model is highly significant overall.

Relative Labour Market Tightness vs France Net Migration (2007-2023)

Regression of France's Net Migration on Relative Labour Market Tightness

Detailed presentation of final empirical & computational results - regression & correlation findings

France Regression Model Results:

- **Regression Equation:** Net Migration $= 2422.3 - 2323.4 \times$ Relative Tightness

- **Relative Tightness Coefficient:** -2323.4, p-value $= 0.0106$ (statistically significant at 5% level).

- **$R^2 = 0.4065$**, meaning 40.65% of Net Migration variation is explained by Relative Tightness.

- **Adjusted $R^2 = 0.3608$**.

Implications of the results, for instance for policy, & limitations

- **Labour market disparities drive migration more than absolute unemployment levels.**
- Luxembourg's tight labour market attracts workers from countries with **lower tightness**.
- **Targeted labour migration policies** may help manage workforce demand.
- **Data Gaps:** Lack of sector-specific migration trends.