

Unemployment and the Informal Economy: A Comparative Analysis among Least Developed, Developing, and Developed Countries

Rafiul Ahmed

Graduate Student (M.S. in Economics), School of Economics, University of Maine

Introduction

A large informal sector is often associated with unfavorable macroeconomic and development outcomes, such as lower productivity, slower physical and human capital accumulation, less educated workforces, and smaller fiscal resources, eventually leading to a higher unemployment rate (Elgin et al., 2021). Our study aims to see how the relationship between unemployment and the informal economy varies across the least developed, developing, and developed countries. For this research, we worked on the data on the unemployment rate and the output of the informal economy for 150 countries across the world from 1993 to 2020, extracted from the World Bank and the International Labour Organization (ILO) database.

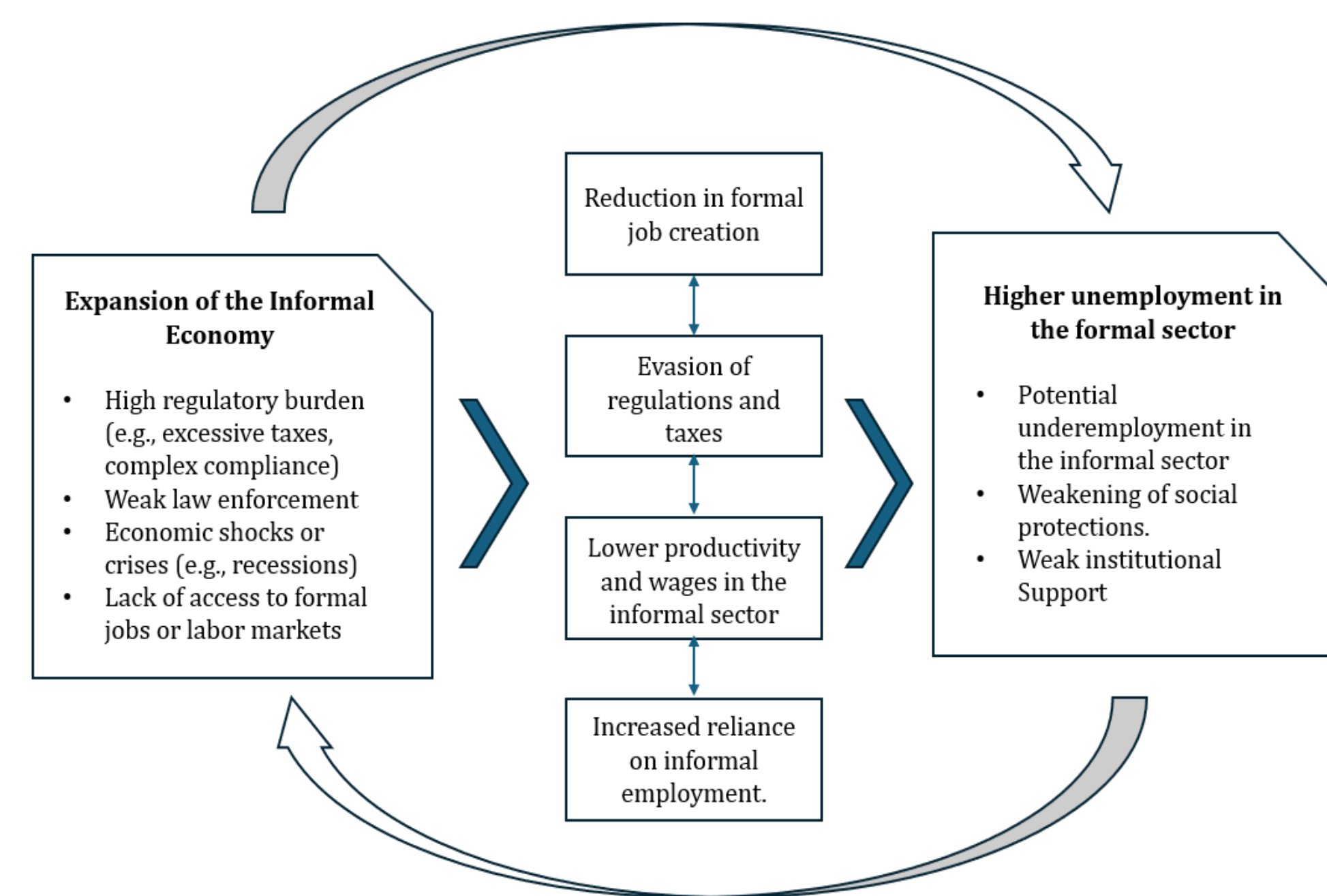
Informality is typically defined as the market-based and legal production of goods and services hidden from public authorities for monetary, regulatory, or institutional reasons (Schneider, Buehn, and Montenegro, 2010). Reflecting the difficulty of measuring informality, researchers have developed a wide range of estimation methods to capture its scale.

Data

In this study, we used two different estimation methods from the World Bank to measure the size of the informal economy. The first one is the Multiple Indicators Multiple Causes (MIMIC) model, a category of structural equation models utilized to assess the magnitude of informal economic activity. The MIMIC approach considers several potential causes of informal activity and encompasses multiple outcome indicators; simultaneously, it can be directly applied to estimate informal activity across different countries and temporal contexts. The second estimate we used for the output of the informal economy is the Dynamic General Equilibrium (DGE) model, which considers how optimizing households will allocate labor between formal and informal economies in each period and how the allocation changes over time. Compared to alternative estimation approaches, the DGE approach is distinguished by its extensive coverage of countries and years, robust theoretical foundation, and relevance to policy experiments and forecasts.

Understanding the Relationship between Unemployment rate and the Informal Economy

Figure 1: A conceptual framework of the relationship between the informal economy and unemployment



Adapted & modified from Mishra et al (2024)

Summary of Key Descriptive Statistics

The table 1 of summary statistics focused on the key variables: Unemployment Rate, DGE, and MIMIC estimations of informal economy. On average, unemployment is 7.68%, while informal economy estimates are 31.41% (DGE) and 33.17% (MIMIC), showing notable variation across countries. The dataset includes 4,200 observations, ensuring robustness for analysis. These statistics highlight the diverse economic environments across the dataset, with substantial variability in both unemployment rates and the size of the informal economy.

Table 1: Summary of key descriptive statistics

Variable	Mean	SD	Min	Max	N
Unemployment Rate	7.68	5.73	0.10	38.80	4200
DGE	31.41	12.28	7.91	69.79	4200
MIMIC	33.17	12.68	8.07	69.03	4200

How does the relationship vary across least developed, developing and developed countries?

Figure 2(a): MIMIC estimated informal output over time (1993-2020)

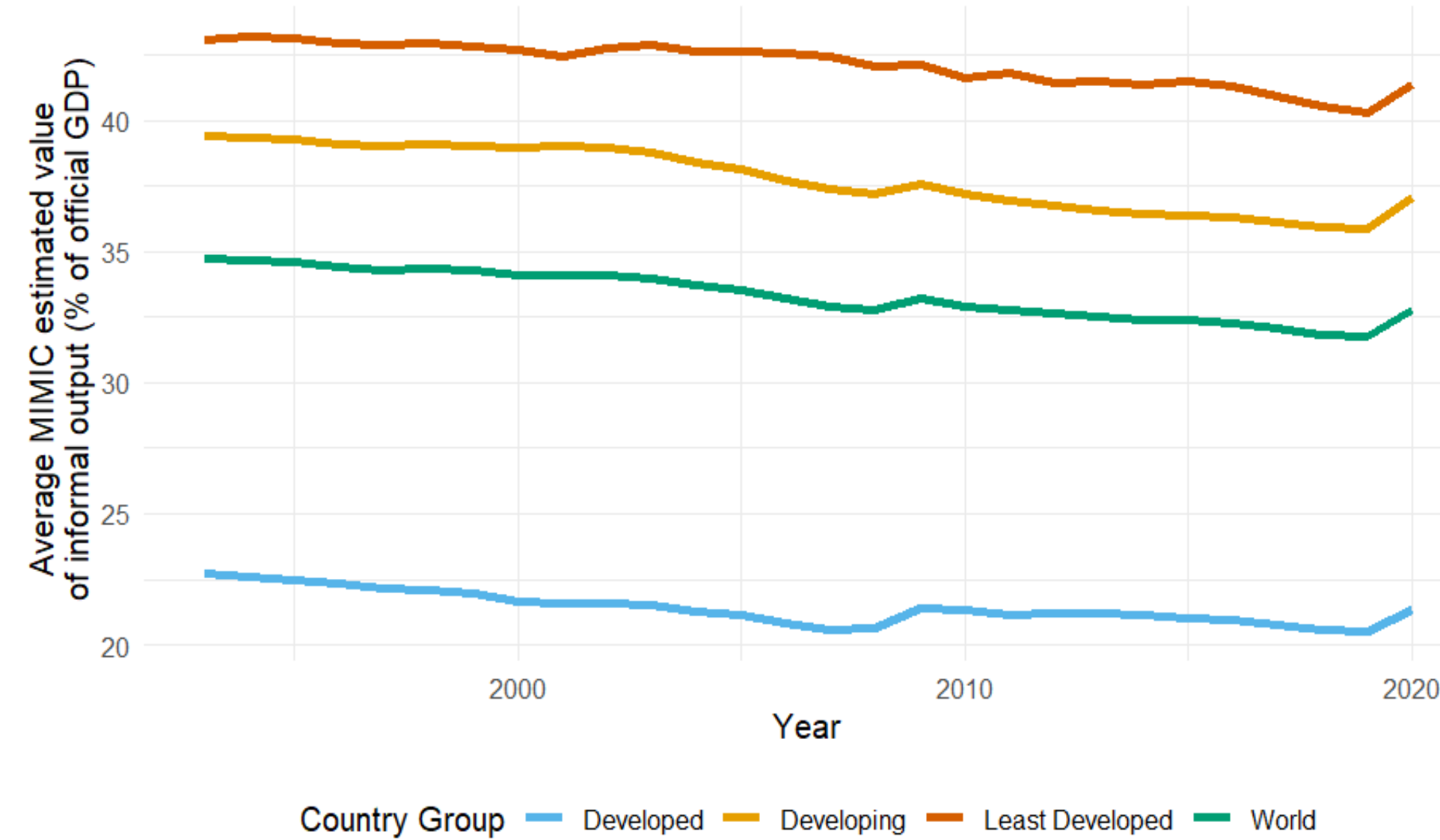


Figure 2(b): DGE estimated informal output over time (1993-2020)

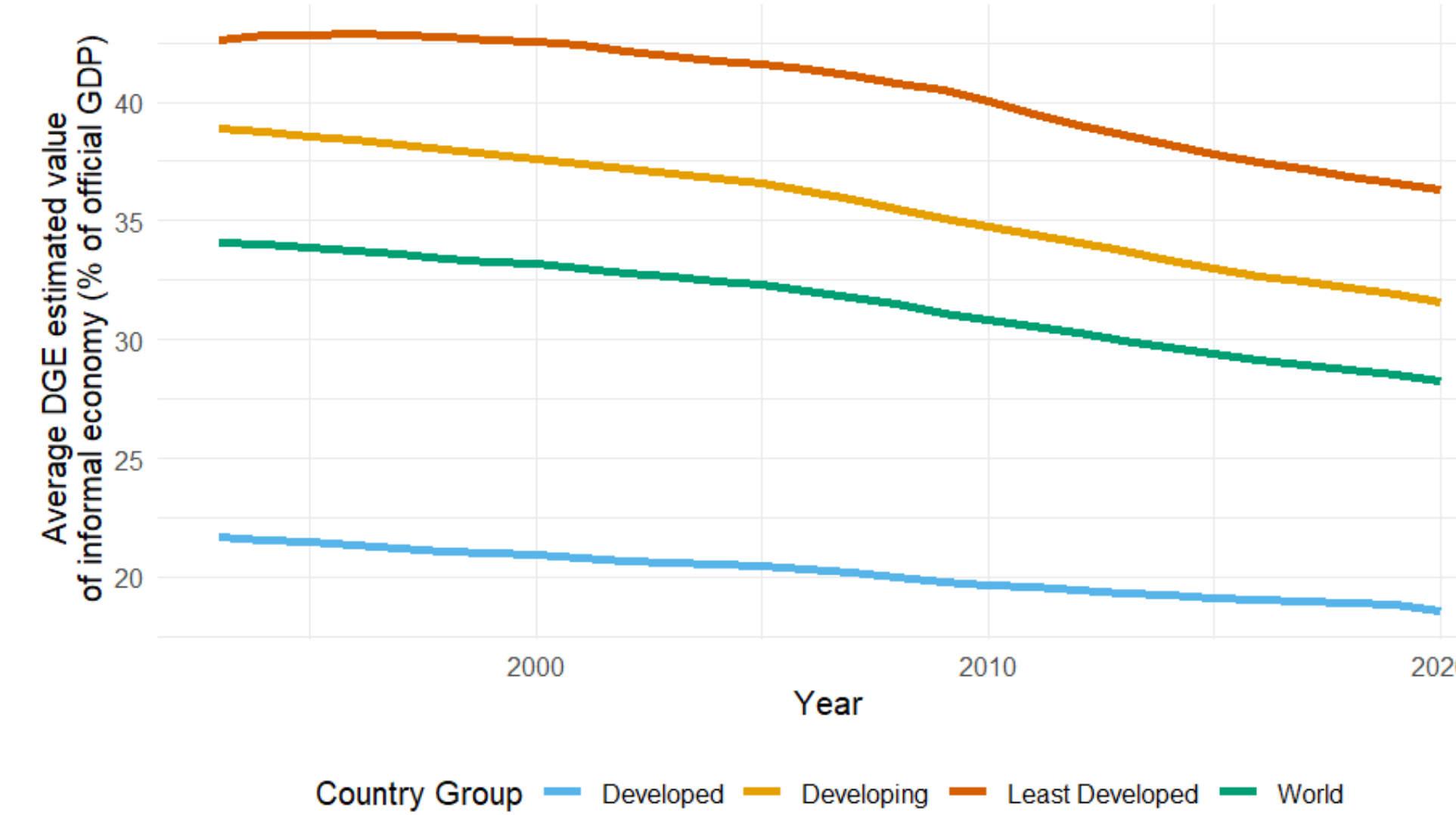
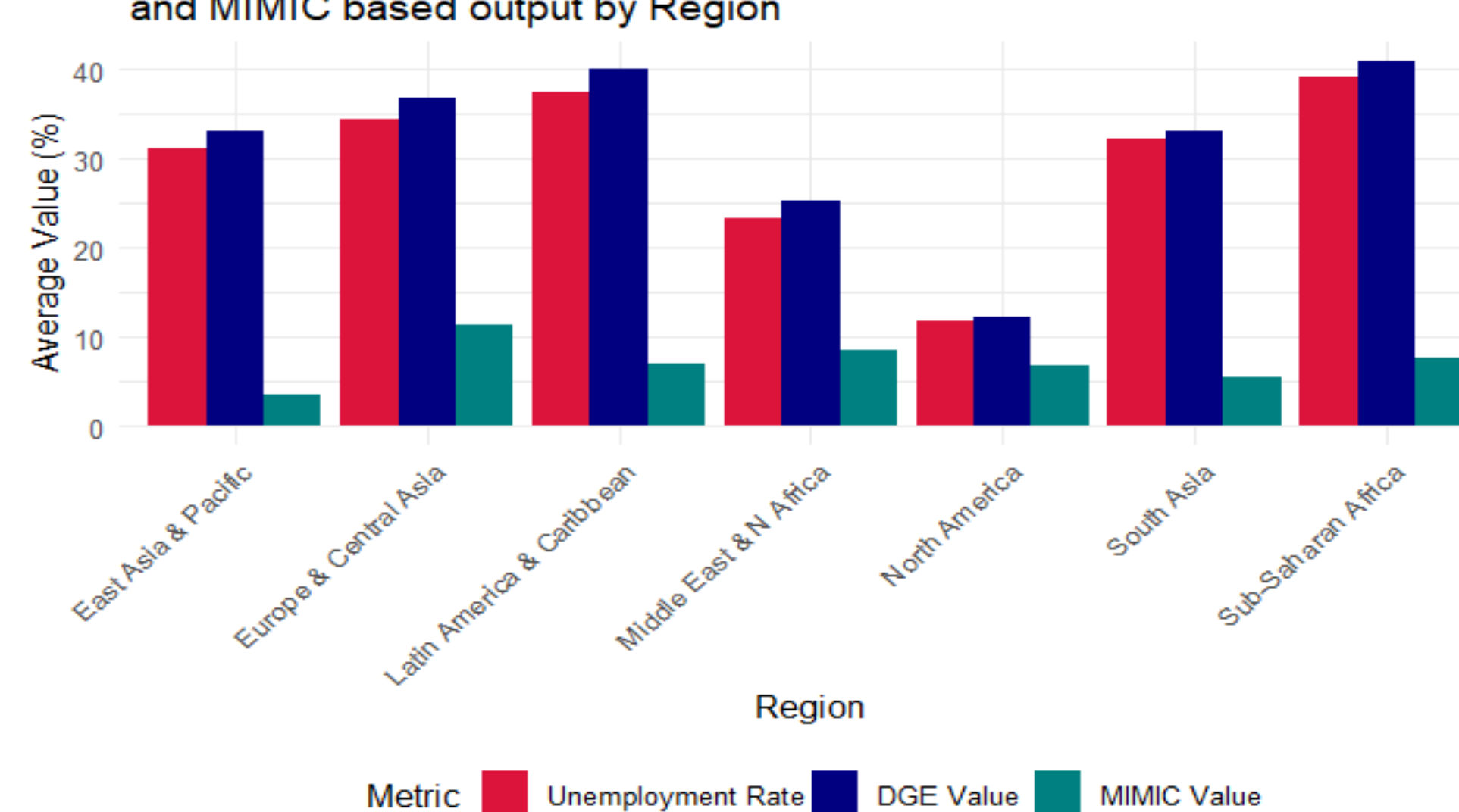


Figure 2(c): Average Unemployment Rate, DGE based output, and MIMIC based output by Region



Modeling the Informal Economy's Influence on Unemployment Rates

Using OLS:

Two OLS models were employed to explore the relationship between the informal economy and unemployment.

$$\begin{aligned} \text{UNEMP}_{it} &= \beta_0 + \beta_1 \text{DGE}_{it} + \epsilon_{it} \dots \dots (1) \\ \text{UNEMP}_{it} &= \beta_0 + \beta_1 \text{MIMIC}_{it} + \epsilon_{it} \dots \dots (2) \end{aligned}$$

Table 2: Compiled coefficients of DGE and MIMIC estimated coefficients of Informal Economy

Country Group	DGE Model	MIMIC Model
	DGE Coefficient (S.E.)	MIMIC Coefficient (S.E.)
Least Developed	-0.09 *** (0.024)	-0.066 * (0.029)
Developing	-0.051 *** (0.011)	-0.04 *** (0.01)
Developed	0.197 *** (0.013)	0.186 *** (0.013)

The results from the OLS models reveal significant differences in the relationship between the informal economy and unemployment across country groups. For least developed and developing countries, both DGE and MIMIC coefficients are negative, suggesting that an increase in the informal economy reduces unemployment by absorbing surplus labor. In developed countries, however, the coefficients are positive, indicating that the informal economy increases unemployment, potentially due to competition with formal labor markets.

Using Fixed Effect Regression:

In this section, the fixed effect regression for the panel method is used for both estimations of the informal economy. With DGE estimated variable, econometric models are below:

$$\begin{aligned} \text{UNEMP}_{it} &= \beta_0 + \beta_1 \text{DGE}_{it} + \alpha_i + \epsilon_{it} \dots \dots (3) \\ \text{UNEMP}_{it} &= \beta_0 + \beta_1 \text{DGE}_{it} + \alpha_i + \lambda_t + \epsilon_{it} \dots \dots (4) \end{aligned}$$

Table 3: Fixed Effects Regression Results: DGE Estimated of Informal Economy on Unemployment

	Least Developed (FE by Country)	Least Developed (FE by Country + Year)	Developing (FE by Country)	Developing (FE by Country + Year)	Developed (FE by Country)	Developed (FE by Country + Year)
DGE Coefficient	-0.034 (0.028)	-0.078+ (0.044)	0.035 (0.031)	-0.056 (0.040)	0.188 (0.170)	-0.124 (0.190)
Num.Obs.	700	700	2212	2212	1344	1344

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

The fixed effect regression of the relationship between the DGE estimated informal economy and unemployment varies across development levels. In least-developed countries, the weak negative relationship suggests the informal sector plays a limited role in reducing unemployment, likely due to structural challenges such as underdeveloped labor markets and low productivity. In developing countries, the effects are mixed, indicating that while the informal economy may absorb surplus labor, it can also hinder formal job creation. In developed countries, the relationship is insignificant, reflecting the dominant role of formal labor markets and institutional factors that reduce reliance on informal employment. These findings highlight the diverse economic dynamics influencing unemployment and informality.

With MIMIC estimated variable, fixed effect regression-based econometric models are below:

$$\begin{aligned} \text{UNEMP}_{it} &= \beta_0 + \beta_1 \text{MIMIC}_{it} + \alpha_i + \epsilon_{it} \dots \dots (5) \\ \text{UNEMP}_{it} &= \beta_0 + \beta_1 \text{MIMIC}_{it} + \alpha_i + \lambda_t + \epsilon_{it} \dots \dots (6) \end{aligned}$$

Table 4: Fixed Effects Regression Results: MIMIC Estimated of Informal Economy on Unemployment

	Least Developed (FE by Country)	Least Developed (FE by Country + Year)	Developing (FE by Country)	Developing (FE by Country + Year)	Developed (FE by Country)	Developed (FE by Country + Year)
MIMIC Coefficient	0.072 (0.096)	0.063 (0.126)	0.549*** (0.106)	0.758*** (0.136)	1.528*** (0.190)	1.800*** (0.307)
Num.Obs.	700	700	2212	2212	1344	1344

The table displays fixed effects regression results using MIMIC estimated informal economy across least developed, developing, and developed countries. In least-developed countries, the relationship is positive but insignificant, suggesting that the informal economy has no clear impact on unemployment. In developing countries, the coefficients are positive and significant, indicating that an expansion of the informal economy increases unemployment, potentially reflecting its competition with formal labor markets. Similarly, in developed countries, the relationship is strongly positive and highly significant, implying that the informal economy disrupts formal employment and contributes to higher unemployment.

Conclusion

This study reveals the multifaceted relationship between the informal economy and unemployment, varying significantly across development levels and depending on the estimation method used. While the informal economy appears to mitigate unemployment in developing countries, its role is limited in least developed countries and disruptive in developed economies, reflecting differing labor market structures and institutional dynamics. The contrasting results from DGE and MIMIC estimators highlight the complexity of measuring informality, emphasizing the need for tailored policy interventions that consider country-specific economic contexts.

References

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