

Exploring the Dynamics Between Self-Employment and Shadow Economy in India; Granger Causality Analysis

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Abstract:

This study investigates the relationship between informal employment and the shadow economy in India. Utilizing time series data spanning from 1991 to 2016, this study employs regression analysis to analyze the dynamics between these variables. While its primary objective is to examine the association between informal employment and the shadow economy, it also explores the relationship between self-employment and the shadow economy. Initial analyses focus on the computation of statistical measures such as mean, variance, and distribution characteristics. To address concerns of potential spurious regression outcomes, the study rigorously applies the Augmented Dickey-Fuller (ADF) test for stationarity verification. Findings of this study reveal significant correlations between informal employment, self-employment, and the shadow economy, shedding light on the complex interplay among these factors within India's economic landscape. This study contributes valuable insights to the existing literature, identifying key factors influencing the scale of informal employment and its impact on the shadow economy. This, in turn, offers significant implications for both policymakers and scholars in the field.

Keywords: Informal Employment, Self-Employment, Shadow Economy, Granger Causality, Financial Inclusion, tax evasion.

JEL Classification codes: E26, J46, O17

1. Introduction

Informal employment and the shadow economy are two significant factors affecting India's labor market and economic dynamics. Informal employment pertains to jobs that lack official regulation or protection under labor laws, social security, or contracts. These jobs frequently do not offer benefits, job security, or legal safeguards. Most of India's labor force is engaged in informal employment. Over 90% of the nation's labor force is engaged in the informal sector, encompassing occupations like street sellers, domestic labor, agriculture (particularly small-scale farming), and unregistered small businesses (Govindan Raveendran, 2020).

The National Commission for Enterprises in the Unorganized Sector (NCEUS) offers a comprehensive framework for understanding the various components of the informal economy. It defines the informal sector as encompassing private enterprises that are unincorporated and are either owned by individuals or households. These enterprises typically operate on a small scale, either as sole proprietorships or partnerships, and employ fewer than ten workers. When it comes to informal employment, the definition broadens to include workers not only within these unorganized sectors but also those employed by households. This category specifically excludes employees who receive social security benefits from their employers, highlighting a key distinction between informal and formal employment. Furthermore, the informal economy, as outlined by the NCEUS, is an amalgamation of the informal sector and its workforce, in addition to informal workers who may be found within the formal sector. This inclusive definition captures the essence of the informal economy, highlighting its diverse and multifaceted nature.

In India, informal employment is persisting due to various reasons. Here many people work informally because the country relies heavily on agriculture. A lot of people are categorized as unskilled workers whereas very limited formal job opportunities are available for them. Apart from this problem, complex labor laws and bureaucracy make it harder for small businesses to operate formally. Lack of good education and training is another big factor due to which many people are not prepared for formal jobs. Urbanization or the growth of cities invite more informal jobs, especially in informal settlements. Above all reasons, people often find informal work through friends and family, which keeps the cycle of informal employment running.

The variables that contribute to informal employment in India are directly linked to the creation and expansion of the shadow economy or informal sector in the country. Informal employment, characterized by cash-based transactions, unregulated labor practices, and unreported revenue, creates an environment conducive to the growth of the shadow economy. Without formal contracts, adequate social security, and higher earnings in the informal sector, people and enterprises may be motivated to participate in unreported economic activity to evade taxes and regulations, thus sustaining the shadow economy. Complicated rules, bureaucracy, and limited access to official financial channels might drive economic activities into informal and shadow sectors. Informal employment and the shadow economy in India are closely connected in a symbiotic relationship. Policymakers must address both simultaneously to encourage formalization and economic transparency.

The Granger causality test is an important and useful tool for understanding how informal employment and the shadow economy relate over time. It helps us to investigate if changes in one element lead to changes in the other. This helps for designing better policies because, if informal employment causes the shadow economy, we can focus on getting more people into formal jobs to reduce shadow economic activities. Whereas, if the shadow economy causes more informal employment, we might need to vigil more the shadow economic activities so that more formal jobs can be created. This test is helpful for policymakers not only to examine the direction and magnitude of the two elements of the economy but also to design strategies that work. It is also useful for researchers to learn more about how these two elements are connected. It's all about using data to make smarter decisions and policies.

2. Problem of the study

Despite extensive scholarly attention and policy efforts directed at both informal employment and the shadow economy, a comprehensive analysis of their interrelationship, specifically in the context of India, remains a critical gap in the literature. The lack of empirical evidence regarding the causal dynamics between informal employment and the shadow economy hinders the formulation of targeted policies and interventions to address these interconnected issues effectively. To address this research gap, our study seeks to employ Granger causality analysis to investigate whether informal employment significantly influences the growth and sustenance of the shadow economy in India, and vice versa. By elucidating the temporal causality between these phenomena, this research aims to provide a foundation for evidence-based policymaking and a deeper understanding of the intricate economic landscape in India, ultimately contributing to the broader discourse on labor market informality and hidden economic activities.

2.1 Objective of the study

- 1.1. The main goal of this research is to examine the correlation between informal employment and India's shadow economy over time.
- 1.2. This study aims to determine the causal relationship between two variables, Informal Employment and Shadow Economy.
- 1.3. In our study, we quantify the strength and magnitude of causality to understand how much one variable affects the other.
- 1.4. It attempts to provide insights into how government policies can address informality and the shadow economy more effectively.

2.2 Hypotheses:

- Null Hypothesis (H₀)¹: There is no Granger causality between informal employment and the shadow economy in India.
- Alternative Hypothesis (H₁)¹: There is Granger causality between informal employment and the shadow economy in India.

- Null Hypothesis (H0)²: Informal employment does not Granger cause changes in the shadow economy in India.
- Alternative Hypothesis (H1)²: Informal employment Granger causes changes in the shadow economy in India.
- Null Hypothesis (H0)³: The shadow economy does not Granger cause changes in informal employment in India.
- Alternative Hypothesis (H1)³: The shadow economy Granger causes changes in informal employment in India.
- Null Hypothesis (H0)⁴: Bidirectional Granger causation does not exist between informal employment and the shadow economy in India.
- H1: Bidirectional Granger causation exists between informal employment and the shadow economy in India.

3 Literature review

Researchers, politicians, and economists have shown considerable interest in the informal employment and shadow economy in India because of their major socio-economic ramifications. Informal employment, usually devoid of official agreements and social safeguards, is closely connected to the shadow economy, which includes unreported economic activities. The literature review tries to summarize important studies and findings in this topic.

The historical roots of informal employment in India can be traced back to agrarian societies, where subsistence farming and artisanal activities prevailed (Benjamin, 2014). As India transitioned into a more industrialized economy, the informal sector persisted, becoming a prominent feature of urban and rural labor markets (Gang et al., 2022). This study underscores the historical evolution of informal employment in India from agrarian societies to industrialized economies. These insights inform our understanding of the persistence and prominence of the informal sector in both urban and rural labor markets.

Understanding the breadth and complexity of informal employment is crucial for contextualizing its relationship with the shadow economy. India's informal sector is renowned for its vast size, since it is estimated that more than 80% of the nation's labor force is involved in informal jobs (Qayyum et al., 2021). This sector spans diverse activities, including street vending, small-scale farming, domestic work, and unregistered small enterprises (Welter et al., 2015).

Several factors contribute to the prevalence of informal employment in India. Complex labor laws, bureaucratic red tape, and limited access to formal employment opportunities create incentives for individuals and businesses to remain in the informal sector. Additionally, a lack of quality education and vocational training hinders the transition to formal employment (Bacchetta et al., 2009).

Studies by Friedrich Schneider et al. and Medina & Schneider elucidate the intertwined nature of informal employment and the shadow economy, emphasizing the substantial contribution of underground economic activities to India's GDP. These findings underscore the need to explore the causal relationship between informal employment and the shadow economy, which forms the core focus of our research. India's shadow economy, characterized by unreported commercial activities, tax fraud, and underground transactions, occurs alongside informal employment (Friedrich Schneider & Dominik Enste, 2002). The shadow economy is believed to provide a substantial share of the country's GDP (Medina & Schneider, 2018).

The relationship between informal employment and the shadow economy is widely recognized, although the causation direction is still a topic of controversy. Some research indicates that informal employment contributes to the expansion of the shadow economy, while others contend that the shadow economy fuels informal employment by engaging in tax evasion and non-compliance (Demiral et al., 2020).

In his study, Phuc Nguyen Canh utilizes both the panel-corrected standard errors (PCSE) estimator and the dynamic fixed effects autoregressive distributed lag (DFE ARDL) estimator to investigate how institutional quality and economic integration influence the shadow economy worldwide, analyzing data from 112 countries over the period from 2005 to 2015. The results of the research reveal that there are two-way relationships among inward foreign direct investment (FDI), trade openness, institutional quality, and the shadow economy, indicating a complex interplay between these factors (Canh et al., 2021).

Nedra Baklouti, along with her research team, delved into the impact of public administration corruption on economic growth, considering its association with the shadow economy. They applied various statistical methods, including Ordinary Least Squares (OLS), fixed effects, and system generalized method of moments (GMM), analyzing data from 34 OECD countries spanning from 1995 to 2014. Their findings indicate a direct correlation where increased corruption and a more substantial informal economy contribute to reduced economic growth (Baklouti & Boujelbene, 2020).

Bajaj and Damodaran developed a model in which the extent of the shadow economy is determined as an equilibrium result, affected by the trade-offs between two distinct payment methods. They adjusted their model by using data from the United States and India. Their research suggests that offering incentives to shift towards digital currency in India can reduce the extent of the shadow economy and improve private welfare. However, it is noteworthy that demonetizing legal tender can involve short-term costs and may only lead to welfare improvements under specific conditions characterized by multiple equilibria (Bajaj & Damodaran, 2018).

Ginevicius et. al. research seeks to uncover a consistent trend in the association of economic development and shadow economy. His results prove that as a nation's economic development increases, the shadow economy tends to diminish in size (Ginevicius et al., 2020).

Kireenko and Nevzorova's study aims to examine how the shadow economy affects the standard of living and quality of life. The initial assumption was that the shadow

economy has a beneficial impact on the quality of life, mainly because of the rise in overall income generated by shadow activities. Nevertheless, it was anticipated that the informal sector could have an adverse effect on the quality of life. The research results indicate that there is a significant correlation between the growth of the shadow economy and an increase in the level of living. Simultaneously, the quality of life measures, including characteristics like life expectancy and access to education, are showing a decrease (Kireenko & Nevzorova, 2015).

Above mentioned studies offer valuable insights into the global dynamics and implications of informal employment and the shadow economy. By synthesizing these findings with our research context in India, we aim to contribute to the broader literature on this topic.

The extensive body of research examined through the above literature review underscores the intricate relationship between informal employment, the shadow economy, and national economic development. Scholars have delved into various dimensions of this complex relationship, shedding light on the dynamics and implications for different countries and regions. Notably, GDP per capita has emerged as a common benchmark for assessing economic development, while the size of the shadow economy provides insights into the informal economic activities that often operate alongside formal sectors.

A recurring theme in the literature is the debate over causality, with some studies suggesting that informal employment drives the shadow economy, while others argue the reverse. This unresolved question highlights the need for rigorous empirical analysis, which forms the basis of our research methodology.

4 Methodology

I have adopted a multi-step approach to comprehensively analyze the relationship between self-employment and the shadow economy in India. Firstly, data on self-employment as a percentage of total employment and the shadow economy as a percentage of GDP has been collected from reliable sources such as the World Bank database for the period spanning from 1991 to 2016. Subsequently, I conducted descriptive statistics to examine the central tendency, dispersion, and distributional characteristics of the data, including measures such as mean, median, standard deviation, skewness, and kurtosis. This initial analysis provided valuable insights into the basic features of the variables under investigation.

Following the descriptive analysis, regression analysis has been employed to investigate the relationship between self-employment and the shadow economy.

To further explore the causal relationship between self-employment and the shadow economy, I conducted Granger causality tests, allowing for the assessment of the temporal precedence and direction of causality between the variables. This analysis involved examining lagged relationships between self-employment and the shadow economy to determine whether changes in one variable precede changes in the other.

Additionally, to address potential issues of non-stationarity in the time series data, unit root tests such as the Augmented Dickey-Fuller (ADF) test have been employed to ascertain the stationarity of the variables.

By conducting this analysis meticulously and accounting for various influencing factors, this study aims to provide clear and valuable insights to address our research questions effectively.

5 Data Presentation

Table 1:

Yearly Data Self-employment (% of total employment)

Yearly Data Shadow economy (% of GDP)

Years	Self-employment (% of total employment)	Shadow economy (% of GDP)	Years	Self-employment (% of total employment)	Shadow economy (% of GDP)
1991	84.9	28.43	2004	80.6	23.87
1992	85.1	27.96	2005	84.4	23.44
1993	85.2	28.02	2006	83.8	22.06
1994	85.0	26.5	2007	83.9	21.03
1995	86.5	26.67	2008	84.1	21.68
1996	87.8	25.69	2009	83.5	22.27
1997	86.2	27.07	2010	81.9	20.65
1998	87.7	26.96	2011	78.2	19.71
1999	87.8	27.83	2012	76.2	18.99
2000	84.3	26.7	2013	76.6	18.11
2001	81.1	26.62	2014	77.1	18.33
2002	82.8	26.48	2015	75.3	17.89
2003	82.7	24.84	2016	75.8	17.22

Source: World Bank Informal Economy Database (Informal Economy Database, n.d.)

TheGlobalEconomy.com (India Shadow Economy - Data, Chart, n.d.)

Table 1 presents the annual data on self-employment as a percentage of total employment from 1991 to 2016. Self-employment, often reflective of entrepreneurial endeavors and informal labor practices, provides insights into the resilience and adaptability of the workforce. It encompasses various forms of independent work, including freelancing, small-scale entrepreneurship, and informal sector activities, highlighting the diverse ways individuals participate in the economy outside traditional employment structures. Self-employment

reflects the proportion of individuals engaged in informal job market, such as small-scale entrepreneurship or unregistered economic activities. This indicator is important to understand the prevalence of informal labor in India's labor force and provides a foundation for further analysis of its relationship with the shadow economy. Data on self-employment as a percentage of total employment and the shadow economy as a percentage of GDP have been obtained from annual reports and databases provided by the World Bank, ensuring consistency and reliability in the dataset. Our data displays the annual figures on the shadow economy as a percentage of GDP for the same period, 1991 to 2016. The shadow economy which is normally characterized by hidden or unreported economic activities, tax evasion, and informal transactions, is an essential indicator of India's economic health. It sheds light on the economic significance of the shadow economy and its potential impact on formal economic activities.

6 Empirical Analysis

Step 1: Descriptive analysis

We conducted an extensive statistical analysis preceding the application of time series econometric techniques. Our dataset comprises 26 years of annual observations, spanning from 1991 to 2016, as outlined in Table 1. During the descriptive analysis, we examined key statistical measures, including measures of central tendency such as the mean and median, as well as the range (min-max), standard deviation, skewness, kurtosis, Jarque-Bera statistic, and associated probabilities.

Table 2

Descriptive Statistics

	SELFEMPLOYMENT	SHADOWECONOMY
Mean	82.63462	23.65462
Median	83.85000	24.35500
Maximum	87.80000	28.43000
Minimum	75.30000	17.22000
Std. Dev.	3.885866	3.712814
Skewness	-0.616130	-0.353732
Kurtosis	2.206984	1.667706
Jarque-Bera	2.326284	2.465138
Probability	0.312503	0.291543
Sum	2148.500	615.0200
Sum Sq. Dev.	377.4988	344.6246

Source: E-View calculation

Interpretation of Table 2:

- Both variable (Self-employment and Shadow economy) are negatively skewed. It shows both the series are long left tail (left-skewed).
- Kurtosis of both variable is less than 3. It shows that our data is short tailed platykurtic.
- Jarque-Bera of both variables is high and p value is also greater than 0.05. It shows our variables are normally distributed.

Step 2: Analysis of Regression($y=\alpha+\beta x$)

In this phase, we will employ regression analysis to discern the significant factors or variables and explore the interactions among them. We have taken shadow economy as the dependent variable, while self-employment is delt as the independent variable.

Table 3

Findings of Regression Analysis

**Dependent Variable: Shadow Economy*

*** Number of observations included: 26*

Variables	Co-efficient	Std. Error	t-Statistic	Prob.
C	-42.43136	8.828080	-4.806408	0.0001
SELF EMPLOYMENT	0.799737	0.106719	7.493837	0.0000
R-squared	0.700590	Mean dependent var		23.65462
Adjusted R-squared	0.688114	S.D. dependent var		3.712814
S.E. of regression	2.073485	Akaike info criterion		4.370142
Sum squared resid	103.1841	Schwarz criterion		4.466918
Log likelihood	-54.81184	Hannan-Quinn criter.		4.398010
F-statistic	56.15759	Durbin-Watson stat		0.532630
Prob(F-statistic)	0.000000			

Source: E-View calculation

Interpretation of Table 3:

- Probability value is proving that the relationship between the two variables is significant.
- The coefficient for the constant term (C) is -42.43136 with a standard error of 8.828080. This coefficient represents the intercept of the regression equation.
- The coefficient for "SELF EMPLOYMENT" is 0.799737. This means that for every one-unit increase in the level of self-employment, the shadow economy increases by approximately 0.799737 units, holding all other variables constant.
- T statistics is also showing that the relationship between dependent and independent variables is significant.

- The R-squared value is 0.700590, indicating that approximately 70% of the variation in the dependent variable is explained by the independent variable in the model. The adjusted R-squared adjusts for the number of predictors in the model and is slightly lower at 0.688114.
- F statistics and probability is proving the fitness of model as p is less than 0.05.
- Durbin-Watson stat is 0.532630, which is less than 2. This statistic tests for autocorrelation in the residuals. A value close to 2 suggests no autocorrelation. Here, the value is 0.532630, indicating possible positive autocorrelation. It means there is positive auto correlation between the two variables.

Step 3: Stationarity Test

Time-series data generally involves the possibility of encountering spurious regression. Hence, it becomes imperative to test the stationarity of the variables in our model. If we find that a series lacks stationarity, we will apply the necessary differencing technique to render it stationary. To assess stationarity, we employed the Augmented Dickey-Fuller (ADF) test on our time series dataset (Table 1) to determine the presence of a unit root.

Null Hypothesis (H0): There is no stationarity in the data and it has a unit root.

Table 4

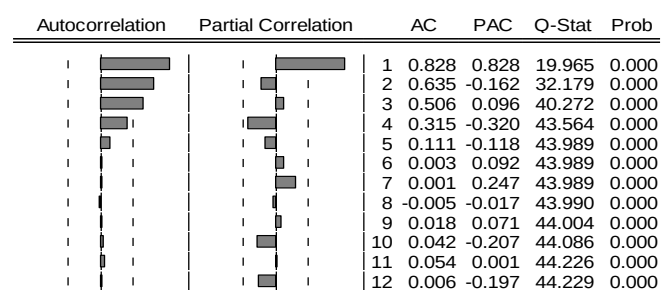
Results of Unit Root Test

Null Hypothesis (H0): There is no stationarity in the data and it has a unit root.

Variables	Augmented Dickey-Fuller test statistic		Augmented Dickey-Fuller test statistic	
	(At Level) I(0)		(At first difference) I(1)	
	t-Statistic	Prob.	t-Statistic	Prob.
Self-employment	-0.483632	0.8788	-4.644168	0.0012
Shadow economy	0.134207	0.9620	-5.296073	0.0003

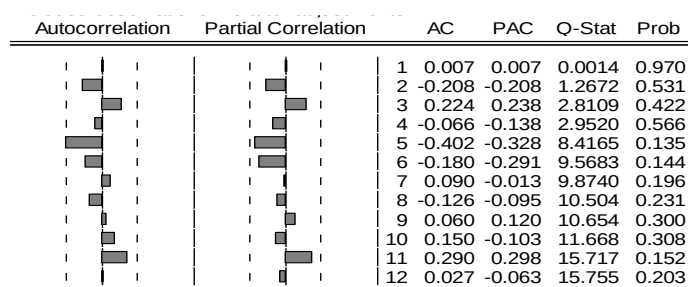
Table 4 suggests that at the first difference, both variables are stationary as the p value is less than critical value 0.05. The test is conducted with intercept. Our correlograms in Figure 1, 2, 3, 4 are explaining the same fact.

Figure 1: Correlogram of Self Employment Series (Level)



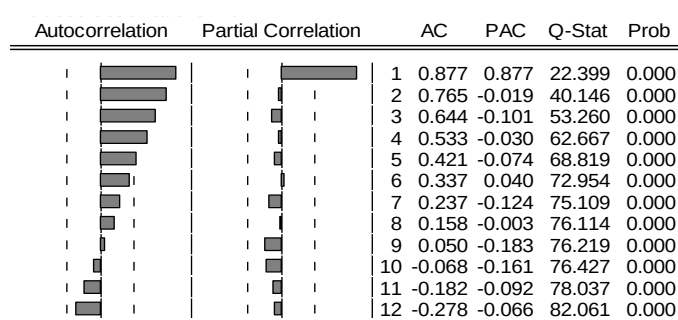
Source: E-views results

Figure 2: Correlogram of Self Employment Series (First Difference)



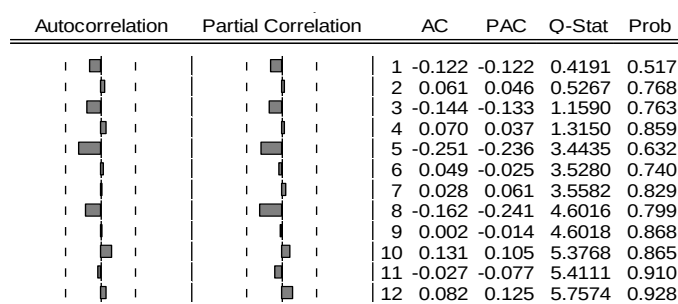
Source: E-views results

Figure 3: Correlogram of Shadow Economy Series (Level)



Source: E-views results

Figure 4: Correlogram of Shadow Economy Series (First Difference)



Source: E-views results

Step 4: Estimation Strategy

Hereafter, we will employ our data series, which has been transformed into an I(1) format, for the subsequent testing procedures.

Table 5

Granger Causality Test

Null Hypothesis	P value on Lag 1	P value on Lag 2	P value on Lag 3	P value on Lag 4
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D(SHADOW ECONOMY) DOES NOT CAUSE D(SELF EMPLOYMENT)	0.7138	0.1271	0.1525	0.1762
D(SELF EMPLOYMENT) DOES NOT CAUSE D(SHADOW ECONOMY)	0.9561	0.9873	0.3346	0.5586

D stands for Difference on Level 1

Both Null Hypothesis can be accepted as the p value in all cases is more than critical value 0.05.

Source: Author's compilation from e-views results

The results of the Granger causality test (Table 5) revealed that, despite the substantial relationship demonstrated by the regression analysis (Table 3), there is no statistically significant evidence of Granger causality between the two variables at lag values of 1, 2, 3, and 4. The high R-squared value in the regression analysis suggests that a considerable portion of the variation in the dependent variable can be explained by the independent variable. However, the Granger causality test, which assesses whether the lagged values of the independent variable can predict the future values of the dependent variable, did not provide significant results at these lag values. This may indicate that while there is a strong contemporaneous relationship between the variables, there may not be a directional causal relationship operating over different time lags.

7 Findings

The empirical analysis conducted in this study yields compelling insights into the relationship between self-employment as a percentage of total employment and the shadow economy as a percentage of GDP in India spanning the years from 1991 to 2016. Findings of the study reveal a robust positive correlation between these variables, supported by an R-squared value exceeding 68% in the regression analysis. This indicates that, on average, as self-employment rates increase, there is a simultaneous increase in the size of the shadow economy. However, our Granger causality test results, conducted across various lag values, consistently demonstrate a lack of temporal causality between self-employment and the shadow economy. These results imply that while a statistical association exists, neither self-employment causes changes in the shadow economy nor vice versa over short-term periods. This nuanced relationship underscores the multifaceted nature of informal labor markets and the complexity of factors driving the shadow economy in India. Findings of this study contribute valuable insights to the ongoing discourse on informal employment and the shadow economy, emphasizing the importance of considering the nuanced dynamics at play when formulating policies and strategies aimed at fostering economic development and formality within the labor market. It highlights the need for targeted policy interventions and regulatory frameworks tailored to address the unique challenges posed by informal employment and the shadow economy, with implications for fostering inclusive and sustainable economic growth in India.

Table 6

Result of the Hypothesis of the Study

Hypothesis	Results
H01 Informal employment and the shadow economy do not exhibit Granger causality.	Accept
H11 Informal employment and the shadow economy exhibit Granger causality.	Reject
H0 ² Informal employment does not Granger cause changes in the shadow economy in India.	Accept
H1 ² Informal employment Granger causes changes in the shadow economy in India.	Reject
H0 ³ The shadow economy does not Granger cause changes in informal employment in India.	Accept
H1 ³ The shadow economy Granger causes changes in informal employment in India.	Reject
H0 ⁴ There is no bidirectional Granger causality between informal employment and the shadow economy in India	Accept
H4 ⁴ There is no bidirectional Granger causality between informal employment and the shadow economy in India	Reject

9 Conclusion

By empirically examining the relationship between self-employment and the shadow economy in India over a substantial period from 1991 to 2016, this study fills a gap in the literature by providing new insights into the dynamics of these phenomena within the Indian context. Findings of this research offer valuable implications for policymakers and practitioners seeking to address the challenges posed by informal labor markets and the shadow economy, particularly in terms of formulating targeted policies and interventions aimed at fostering formalization and economic development. Its analysis contributes methodologically by employing rigorous statistical techniques, including regression analysis and Granger causality tests, to provide robust evidence on the nature of the relationship between self-employment and the shadow economy. Policymakers should implement a comprehensive strategy to tackle the issues and advantages associated with the strong link between self-employment and the shadow economy. Initiatives must incorporate;

- 11.1 Promoting formalization and financial inclusion by extending access to formal financial services and introducing financial literacy programs (R Khan, 2023).
- 11.2 Labor market reforms that are extremely required to strike a balance between worker rights and ease of entry for entrepreneurs (Khan & Syed, 2022).
- 11.3 Tax incentives, simplified tax structures, and enhanced tax administration can encourage formalization (Khan & Khan, 2022).

- 11.4 Skills development and training programs should empower informal workers and boost their digital literacy.
- 11.5 Expansion of social protection to cover health insurance, maternity benefits, and retirement savings is essential (Syed et al., 2021).
- 11.6 Regulatory reforms for streamlining business registration and to create an enabling environment for entrepreneurship (Ruby Khan et al., 2021).
- 11.7 Availability of reliable data collection and researches are necessary for evidence-based policymaking, and collaboration with civil society organizations and community groups is crucial.
- 11.8 Promotion of awareness campaigns that can highlight the benefits of formalization, while monitoring and evaluation mechanisms will help refine policies.
- 11.9 Customization of regional strategies and the adoption of international best practices round out a comprehensive approach to foster a dynamic, inclusive, and formalized economy while protecting the rights and well-being of informal workers.

10 Limitation

Several limitations impact the comprehensiveness of our analysis. Foremost, data availability on informal labor employment is restricted, primarily relying on governmental sources that provide only partial insights into this complex sector. Additionally, endogeneity concerns persist, given the mutual influence of variables like self-employment and the shadow economy. The findings are specific to India from 1991 to 2016 due to the unavailability of dataset related to the variables taken into consideration in this study. External factors, such as economic crises or policy changes, are not considered. Factors like tax evasion, black marketing, and related clandestine activities are not within the study's purview that are, warranting further examination in future research.

11 Recommendations for Future Research

Future research in this area could investigate deeper into the nuances of informal employment and the shadow economy, exploring the impact of tax evasion, black markets, and related clandestine activities on economic dynamics. Also, investigations into the effectiveness of financial inclusion initiatives after 2016 would provide valuable insight. Further studies assessing policy measures, such as labor regulation reforms and social protection schemes, can help policymakers in preparing better strategies for supporting informal workers.

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