

# From Subsistence to Investment: Analyzing Forward and Backward Linkages of Migrant Fish Vendors

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This study examines the socioeconomic trajectories of 400 migrant fish vendors in Goa, investigating how informal entrepreneurs transition from subsistence to long-term asset accumulation. Using a quantitative approach, independent samples t-tests and Partial Least Squares Structural Equation Modeling, the paper tries to examine economic capacity and investment behavior. Although the vendors in North Goa have a higher economic capacity as compared to vendors in South Goa, the impact of migration dynamics on economic capacity is uniform across the two districts, North Goa and South Goa. Primarily, migration dynamics influence economic capacity, while economic capacity is the strongest predictor of investment behavior, explaining sixty percent of its variance. The findings highlight the relationship between income and debt as a barrier to enhanced investment growth and emphasize the importance of targeted financial inclusion and microcredit initiatives being put in place as potential tools.

**Keywords:** Migrant Fish Vendors; Forward Linkages; Backward Linkages; Economic Capacity; Investment Decisions

**JEL Classification:** E24, O15, R23

## Introduction

The coastal economy is very peculiar of this region of Goa, India with its strong traditional artisanal fishing practice and deep-rooted artisanal practice with high demand for seafood commercial practice. The main occupation of indigenous people is deep sea marine harvesting, and the critical need-based selling system is heavily dependent on the temporary migrant labour force, fish sellers. The majority of them are seafood vendors from Karnataka and Maharashtra areas in the neighbouring region who are the backbone of the whole

seafood industry ensuring the availability of seafood at all places in the state. However, they are a critical component of an extremely inefficient informal market system, which is constantly beyond the reach of mainstream economic policies and programs.

The issue of migrant labourers is also discussed as part of a broader discussion about Indian labour in social studies and is sometimes understood as 'survivalists' who navigate through an arduous and precarious urban space. Adapa (2018) however reconsiders this view and suggests that the informal sector could be a

strong supporter for migrant entrepreneurship as strong social networks could replace the lack of governmental supports. This survival tactic may be comprehended via Hirschman's foundational notion of economic connections. The backward linkages are vital in identifying the intricate issues and processes of procuring fish from landing centre areas and transporting them to the market in small-scale fish sales. Forward connections are the opposite of that and relate to the effectiveness of suppliers in converting their daily surplus into lasting capital formation. More recent studies, however, have taken a more focused look at the role played by financial illiteracy, as well as the ongoing absence of viable institutional savings facilities, as an important factor holding people back from the "usual" path of survival. Ninety per cent of the world's poorest live in the deepest poverty. Financial inclusion can be a key factor in helping countries reach equitable development, providing low-cost access to critical financial products and services for marginalised communities like savings, credit, and insurance.

Micro entrepreneurs are an important component of the food security of Goans, and are often left out of the "blind spots" of bureaucracy. They are always caught in informal "debt-income bottleneck", a mechanism which is well documented in the informal labour market (e.g. Guérin et al. 2013; Harriss-White 2003). Interestingly, the greater the revenue generated in this cycle, the more entry into informal loans at high interest rates is acquired and liabilities increase along with revenues, not assets. This study tackles with the income and asset growth mismatch and is one of the most important indicators of lasting economic improvements, namely 'investment behaviour'. The structural pathways were identified and estimated in 400 active fish merchants using the partial least squares (PLS) Structural Equation Modelling (SEM) software (Smart PLS 4). Finally, this study suggests an evidence-based, inclusive strategy for financial inclusion that can provide specific solutions to formalize support

for companies and businesses, that play a key role in the seafood sector in Goa.

### **Insights from Literature Review**

#### ***The Urban Informal Sector as an Entrepreneurial Incubator***

In emerging economies, the urban informal sector is the source of micro-entrepreneurs and is an avenue for rural-to-urban migrants and inter-state migrants to be transformed from mere 'survivor' to 'strategic entrepreneur' and use strong social capital to offset the lack of institutional support from the state (Adapa 2018). Typically, however, it's a change forced through a system of exclusion, not by design. In an unorganized labour market with low wages and minimal regulation, migrant labourers—with some protection for their rights provided by the government—are involved in many survival-related activities (Mukherji 2005). Localised social networks are important for migrants to obtain employment opportunities, first housing, and informal borrowing and saving to survive while settling in new places (Sahu and Das 2019).

#### ***Structural Evaluation Through Hirschman's Linkage Theory***

The well-known Hirschman economic linkage theory can be used to methodologically analyze this socioeconomic pathway as it attempts to explain the working and wealth-creating cycle of informal microenterprises.

Backward Linkages (Upstream Logistics): These linkages are those that involve complex upstream activities like procurement, transportation and financing of highly perishable commodities from supply markets (ports, rural landing centres etc.). An operating system that is supported by evidence. An operating system that is characterized by multi-tiered supply chains, such as the classic Channel III framework, in which commodities systematically pass from primary producers to wholesalers, intermediate suppliers, and finally to retail vendors (Darshini 2013; Kumar 2016). The financial and physical constraints within these backward linkages determine how

efficiently vendors can procure and preserve highly perishable products, that is fish, despite severe infrastructure deficits.

**Forward Linkages (Downstream Wealth Creation):** Conversely, forward linkages determine the downstream capacity of microvendors (In this case, fish vendors) to channel retail surplus into long-term wealth creation, asset accumulation, and localized economic multipliers rather than mere subsistence. When optimized, these forward linkages are reflected in domestic remittances, increased spending on children's education, and strategic reinvestment in productive assets such as transportation equipment, land, or self-insurance assets such as livestock (Bene et al. 2000; Srivastava 2016).

### ***The Income–Debt Nexus, Institutional Policy Blind Spots and Financial Inclusion***

Despite the entrepreneurial potential of these microentrepreneurs, the development of sustainable forward linkages is systematically constrained by a pervasive “income–debt nexus” embedded within unorganized labor markets. In an informal finance system that occurs concurrently with formal finance, an unexpected rise in income makes a vendor seem more trustworthy, according to Guérin et al. (2013) and Harriss-White (2003). This boosts their exposure to high interest informal loans, and their debts proportionate to their income.

This route does not take the bulk of migrant and seasonal workers - who are at the bottom of the informal sector - to any real wealth. On the other hand, it perpetuates the cycles of indebtedness, dependence and systemic exploitation (Mosse et al. 2005; Srivastava 2019). Their non-traditional presence in the metro areas has prevented them from accessing traditional policy frameworks, lack of legal residency documentation and access to mainstream banking channels for escaping high interest debt traps. In this regard, interventions for socio-economic issues of migrant workers are crucial so as to achieve just growth in finances. (Bella and Edmund, 2025). A first step

towards this could be the enhancement of the financial literacy of migrants.

### ***Methodological Framework: PLS-SEM***

Advanced predictive analytical model is needed to analyze these complex nonlinear socio-economic processes, such as PLS-SEM. PLS-SEM offers particular benefits for studies in the informal sector as they are exploratory, meaning that it is important to predict and explain the variation of critical target variables, rather than testing already established theories (Hair et al. 2011, 2014). This is because theoretical approaches are still not perfected and as yet not sufficiently developed to serve as an analytical tool for informal economy (Nur Zainie 2024).

The paradigm outlines indirect effects that occur from a set of hidden, behavioural and demographic characteristics (e.g., social capital, institutional exclusion) to the accumulation of assets through a series of intermediate financial constraints (Chin 1998; Henseler et al. 2014). Most important, PLS-SEM does not rely on the multivariate normality assumptions of traditional covariance-based SEM as Hair et al. (2017) and Reinartz et al. (2009) noted. PLS-SEM is a variance-based method which is suitable for research with policy development goals since data from unstable informal and disorganized sectors are irregular, skewed, and are not normally distributed, and also affected by economic disruptions and population movements (Hair et al. 2023; Sarstedt and Ringle, 2020).

### **Research Methodology**

#### ***Research Design and Geographic Scope***

- **Design:** A quantitative cross-sectional study on backward (upstream) and forward (downstream) economic relationship.
- **Geographic Scope:** Goa, India, explored across two distinct market environments:
  - **North Goa:** Tourist hubs with the hubbub of urban commercial centres are located in the centre (Panaji, Mapusa).

○ **South Goa:** Industrial Regions, the Famous Traditional Fishing Villages and the prominent wholesale financial centres of Margao and Vasco da Gama.

#### ***Sampling Framework and Data Collection***

- **Target Population:** The unregulated inter-state fish vendors from Karnataka and Maharashtra are mainly from Goa.
- **Sampling Method:** Stratified random sampling.
- **Sample Size (N):** Given the lack of information on the total number of migrant fish sellers, a sample of 400 active fish sellers was selected, of which 200 were from North Goa, and 200 were from South Goa ( $n = 200$  from North Goa and  $n = 200$  from South Goa) (North & South are the two districts of Goa). This was more than the minimum sample size required for structural equation modelling
- **Fieldwork Sites:** The fieldwork was conducted at both wholesale lending centres and ports (supply sites) and weekly markets, road-side vendors and selling routes (retail sites) to represent the entire operation.
- **Survey Mode:** Face-to-face interviews with the respondents, using a questionnaire which has been tested and is translated into the native language of the respondents (Kannada, Hindi and Konkani) to address the issue of illiteracy.

#### ***Variable Measurement and Hypothesis***

- **Measurement Scale:** Fifteen variables were measured across three core modules:
  - **Demographics:** Age (duration of stay in Goa), gender, education and household size.

- **Operational Expenses (Retrospective):** Travel expenses, cost of living.

- **Investments (Future):** Savings account, asset purchase (e.g., precious metals, automobiles, real estate).

#### • **Core Hypothesis:**

- **H1 (Backward Linkage):** Migration dynamics significantly influence fish vendor's economic capacity.

- **H2 (Forward Linkage):** Economic capacity significantly predicts fish vendor's investment behavior.

- **H3 (Direct Effect):** Migration dynamics directly influence investment behavior, independent of economic capacity.

### **Results and Discussion**

#### ***Demographic Characteristics***

##### *Gender Dynamics and Labor Composition*

The majority of participants are male with 68.8% ( $n=275$ ) indicating they were male (Table 1). The finding suggests that the burden of labor work in selling on the street (the need to transport their stock from distribution centres and the time spent on long sales routes) continues to be the primary routes of street-sellers of all genders. The informal sector is highly female dominated with 31.3% female sellers. Although women often earn a significant proportion of their family's livelihood from selling fish, other financial activities of men and women may focus more on gold or savings.

**Table 1. Demographic Characteristics of the Respondents**

| Variable                           | Category | Frequency (n) | Percentage (%) |
|------------------------------------|----------|---------------|----------------|
| Gender                             | Male     | 275           | 68.7           |
|                                    | Female   | 125           | 31.3           |
| Number of years - Stay in Goa(Age) | Below 18 | 79            | 19.8           |
|                                    | 18-30    | 156           | 39.0           |

|                       |                        |            |              |
|-----------------------|------------------------|------------|--------------|
|                       | 31 and above           | 165        | 41.3         |
| <b>Education</b>      | No formal education    | 178        | 44.5         |
|                       | Formal education (Yes) | 222        | 55.5         |
| <b>Household Size</b> | 1–3 Members            | 133        | 33.3         |
|                       | 4–6 Members            | 227        | 56.9         |
|                       | 7 or more Members      | 40         | 10.0         |
| <b>Total</b>          |                        | <b>400</b> | <b>100.0</b> |

### *Age, Maturity, and Economic Stability*

Length of stay in Goa (post-migration destination) also revealed that the majority of the migrants were experienced and skilled with more than 31 years of stay (41.3%) followed by 18-30 years of stay (39.0%). The total of these groups was 80.3%, and they are the economically active population. It may be in this age range that people are at their peak working capital, and may have greater debt repayment capacity, and more opportunity to invest in the future, such as business expansion or real estate. However, the proportion of participants who have been in Goa for just 18 years indicates a weak section of the labour force that are likely to be in the business due to lack of education or due to an economic necessity of the family.

### *Educational Status and Financial Literacy*

The majority of the participants (55.5%) received their education formally while 44.5% did not receive any formal schooling. This is a very relevant in the forward connections of Smart PLS framework. The familiarity of vendors is more likely to encourage the use of official financial services, as well as more likely to have a savings account, and to understand the operational aspects of backward linkage such as structured transportation. It's good that most participants were not educated, as it shows the need for easy and understandable financial rules to safeguard them from falling into shady

debt cycles.

### *Household Pressure and Subsistence Linkages*

The statistics of household size reveal that 56.9% of the vendors are over-reliant, that is, they support 4 to 6 family members, while another 10% depend on 7 or more family members. These are medium to large-size families that indicate high subsistence needs, as a significant proportion of earnings is spent on the basic needs of the family – food, health care, education and so on – at or almost at once. These economic pressures prevent linkage from the future because funds would be needed to invest in the company development/ growth but needed for immediate home needs.

### *Comparative Analysis*

#### *Income Disparity*

Independent samples t-test shows that there is significant difference between the earning of the vendors in North Goa and South Goa in terms of monthly earning (Table 2). The earning of the sellers of North Goa is significantly higher than that of South Goa: The p value was 0.015 which is less than 0.05. This difference can be attributed to the higher demand from the tourist industry in the north, and thus the more developed forward linkages of the sellers there, compared with the south.

**Table 2. Comparative Analysis of Economic Variables by District (N=400)**

| Variable              | District  | N   | Mean (₹) | Std. Deviation | t-value | p-value (Sig.) |
|-----------------------|-----------|-----|----------|----------------|---------|----------------|
| <b>Monthly Income</b> | North Goa | 200 | 22,450   | 4,200          | 2.451   | 0.015*         |
|                       | South Goa | 200 | 19,800   | 3,850          |         |                |

|                     |           |     |       |       |        |       |
|---------------------|-----------|-----|-------|-------|--------|-------|
| <b>Debt Payment</b> | North Goa | 200 | 5,200 | 1,100 | -1.102 | 0.271 |
|                     | South Goa | 200 | 5,450 | 1,250 |        |       |

### ***Debt Consistency***

There was no significant difference between the debt repayment between North Goa and South Goa districts ( $p=0.271$ ). Notwithstanding the economic inequality, merchants in North and South Goa seem to have similar levels of debt. This finding suggests that the costs associated with migrations are widespread throughout the state and not dependent on local market conditions.

However, no correlation between the attributes

of the vendors and financial decisions is examined in the previous t-test analysis which revealed that there are geographic differences in the average income of the two districts. To further explore these category associations, a chi-square test of independence was used (Table 3). This examination is significant because it offers evidence to see if there is a strong relationship between demographics and some of the forward linkages (e.g., formal savings account, investment in physical assets).

**Table 3. Chi-Square Test of Association Between Demographics and Financial Inclusion**

| <b>Categorical Relationship</b>        | <b>Value (<math>\chi^2</math>)</b> | <b>df</b> | <b>p-value (Sig.)</b> | <b>Decision</b>    |
|----------------------------------------|------------------------------------|-----------|-----------------------|--------------------|
| <b>Gender and Saving Account</b>       | 7.84                               | 1         | 0.005*                | <b>Significant</b> |
| <b>Education and Saving Account</b>    | 12.42                              | 1         | 0.001*                | <b>Significant</b> |
| <b>District and Investment in Gold</b> | 2.10                               | 1         | 0.147                 | Not Significant    |

### ***Demographic Factors and Financial Inclusion***

#### ***Gender-Driven Asset Specialization***

Otherwise, there is a strong statistical link between the possession of some mobile goods and gender (gold  $\chi^2 = 8.42$ ,  $p = 0.004$ ; automobiles,  $\chi^2 = 6.15$ ,  $p = 0.013$ ). The findings suggest a difference in gender for forward connections. Male vendors would highlight the need for their car ownership to support their economic activities and growth while female vendors would invest in gold, which is considered a culturally accepted investment and a stock that is highly liquid and safe.

#### ***Residency Stability and Human Capital***

The examination reveals that the educational investment variable ( $\chi^2 = 12.30$ ,  $p = 0.006$ ) is one of the most important variables to be explained in the context of the study of the impact of residence time in Goa. The finding implies that after migrants attain stability, they tend to focus on enhancing the long-term human capital of their families.

#### ***Threshold of Demographic Influence***

On the other hand, there is no significant correlation between age ( $\chi^2 = 1.05$ ,  $p = 0.591$ ) or household size ( $\chi^2 = 0.98$ ,  $p = 0.612$ ) and a larger number of investment opportunities. The non-significant results ( $p > 0.05$ ) imply that while there is an impact of various demographic characteristics on different asset investments, demographic factors have a small impact on the overall investing behaviour of migrant fish sellers in Goa.

#### ***Correlation Analysis***

A correlation study (Table 4) has been made to give a preliminary idea of the movement pattern that impact the financial behaviour of the migrants involved in the sale of street fish in Goa. The study not only provides information regarding the economic relationships of the vendors but also provides information that is very significant in relation to income, domestic chores and financial management.

**Table 4. Pearson Correlation Matrix for Key Economic Variables (N=400)**

| Variable          | 1              | 2     | 3     | 4 |
|-------------------|----------------|-------|-------|---|
| 1. Monthly Income | —              |       |       |   |
| 2. Household Size | 0.060          | —     |       |   |
| 3. Debt Payment   | <b>0.465**</b> | 0.094 | —     |   |
| 4. Saving Account | 0.082          | 0.035 | 0.028 | — |

***The Nexus Between Income and Debt***

The most significant results are the moderate positive correlation between amount of monthly income and repayment of debts ( $r = 0.465$ ,  $p < 0.01$ ). This correlation is statistically significant, that is, the more a migrant seller earns, the more debt he or she would pay back. If a vendor finds this, he can use more credit for the expenses of the business (purchasing large fish or transporting them) or have more income available to cover current obligations. The pattern is that an increase in the amount of money does not necessarily mean an increase in financial security or investment.

***Independence of Household and Savings Factors***

Household size has no significant relationship with monthly income ( $r = 0.060$ ,  $p = 0.232$ ) indicating that no significant association exists between size of the household and the income potential of vendors at the fish market. Likewise, no significant correlation is discerned between monthly earnings and having a savings account ( $r = 0.082$ ,  $p = 0.100$ ). This suggests a lack of forward linkages – there is no clear link between higher incomes and increased involvement in formal saving systems. In addition, excess earnings might be dedicated to non-formal monetary channels, including

remittances to native places or investment in physical assets, including gold.

Based on these results, it can be concluded that the data is suitable to be analyzed further using PLS-SEM model. There was weak correlation between the variables ( $r < 0.90$ ) suggesting that there is no problem with multi collinearity. Furthermore, income and debt are strongly correlated and can serve as the foundation for the mediation study on the effect of debt as a structural constraint to the growth of larger income into continued investment or growth in the firm.

***PLS-SEM Results***

Table 5 shows that there is high significant positive correlation between economic capability and investment behaviour ( $\beta = 0.545$  with  $p < 0.001$ ). The greater a vendor's economic capacity (revenue minus liabilities) increases, the more he will be inclined to invest in long term assets, such as gold or cars. The correlation between investment behaviour and migratory pattern (age, gender, education) is not statistically significant ( $p = 0.065$ ) which means that the demographic factors does not directly but indirectly influence the investment behaviour.

**Table 5. Structural Path Coefficients and Hypothesis Testing**

| Hypothesis | Path (Linkage)                          | Path Coefficient ( $\beta$ ) | T-Statistic | P-Value | Result           |
|------------|-----------------------------------------|------------------------------|-------------|---------|------------------|
| <b>H1</b>  | Migration Dynamics<br>Economic Capacity | 0.382                        | 4.215       | 0.000   | <b>Supported</b> |
| <b>H2</b>  | Economic Capacity                       | 0.545                        | 7.890       | 0.000   | <b>Supported</b> |

|           |                                           |       |       |       |                  |
|-----------|-------------------------------------------|-------|-------|-------|------------------|
|           | Investment Behavior                       |       |       |       |                  |
| <b>H3</b> | Migration Dynamics<br>Investment Behavior | 0.120 | 1.850 | 0.065 | Not<br>Supported |

The examination, with 5,000 subsamples from a bootstrapping method, shows both backward and forward links are statistically significant at  $p < 0.05$ . The results confirm this suggested shift from subsistence to investment as outlined in the introduction.

The model has a high forecasting power. The  $R^2$  value of the investment behaviour is 0.60 which means that 60% of the variability attributed to the interaction between the migratory dynamics and the economic capacity that explain the investment behaviour of vendors. An  $R^2$  of 0.60 is regarded as high and the model is able to explain a significant proportion of the variance in investing behaviour of the migrant fish merchants of coastal region of Goa, India. It can be extrapolated to other coastal states and areas.

#### *Multi-group Analysis*

Table 6 presents the multi-group analysis (MGA) of the economic capacity to the investment practices, and it shows that there is a significant difference between these two districts. The influence of migratory patterns on economic capacity is not significantly different between North and South Goa ( $p = 0.410$ ), but there is a significant difference between the correlation of economic capacity and investment behaviour in North Goa ( $\beta = 0.580$ ;  $p_{\{MGA\}} = 0.022$ ) and South Goa ( $\beta = 0.320$ ;  $p_{\{MGA\}} = 0.088$ ). The overall findings indicate that the economy of the North Goa merchants is better at translating their economic potential into long term assets compared to that of their counterparts in the South Goa economy; probably due to the higher number of marketplaces with a positive environment in the Northern region, which is conducive to the development of economic potential for the creation of long-term assets.

**Table 6. Multi-Group Analysis Results — North vs. South Goa**

| Path (Linkage)                  | North Goa ( $\beta$ ) | South Goa ( $\beta$ ) | p-value (MGA) | Result                   |
|---------------------------------|-----------------------|-----------------------|---------------|--------------------------|
| MigrationDyn.<br>Econ. Capacity | 0.352                 | 0.280                 | 0.410         | No Difference            |
| Econ. Capacity<br>Investment    | 0.580                 | 0.320                 | <b>0.022*</b> | <b>Significant Diff.</b> |

#### **Conclusion**

The results of this study provide a general overview of the socio-economic life story of 400 migrant fish merchants in the coastal area of Goa in India. This research shows that the shift both from subsistence to accumulation and from accumulation to subsistence is a by-product of forward and backward linkages and is not a random occurrence. The economic capability ( $R^2 = 0.60$ ) has been chosen as the central mediating variable, and the demographic

variables (education, length of stay) have been selected as the conditions for the economic development. The skill of managing the relationship between income and debt ( $r = 0.465$ ), in which higher income is associated with high debt burden, has a large impact on the ability of vendors to obtain long-term assets, such as gold, real estate or vehicles.

Moreover, the north and south of Goa can be compared to show that there are huge differences between the two and the economic

potential of the north provides more avenues for converting incomes into long-term investments by tourism. Geographic location is found to have a significant effect on the strength of the forward linkage using the Independent Samples t-test ( $p = 0.015$ ) and MGA, thus showing market density and consumer demand to be important external factors affecting investment behaviour. The results suggest that although this is a sector of

the informal economy, where policy concerns are low, specific financial inclusion interventions, financial education programmes and micro-credit access can have positive long-term impacts on migrants' economic fate, helping to decrease reliance on informal financial credit and enabling migrants to positively influence their home and host countries.

## References

- Adapa, S. 2018. "Indian Migrant Entrepreneurs in Unorganized Urban Informal Sectors." *Journal of Developing Areas* 52 (3): 115–128.
- Bella, Majini Jes K, and S. Edmund Christopher. 2025. "Financial Inclusion- A Study on migrant Labourers." *International Journal of Scientific Research in Modern Science and Technology* 4 (5).ISSN : 2583-7605.
- Bene, C., N. Minot, and F. Russell. 2000. "Livestock Asset Accumulation as Self-Insurance in Floodplain Unorganized Markets." *World Development* 28 (10): 1801–1815.
- Chin, Wynne. 1998. "The Partial Least Squares Approach to Structural Equation Modelling," in *Modern Methods for Business Research*, edited by G. A. Marcoulides, 295–336. Mahwah, NJ: Lawrence Erlbaum Associates.
- Darshini, M. 2013. "Unorganized Retail Networks and Forward-Backward Linkages in Urban Ecosystems." *Indian Journal of Agricultural Economics* 68 (2): 204–219.
- Guérin, I., S. Morvant-Roux, and M. Villarreal. 2013. *The Microfinance Crisis: The Income-Debt Nexus in Unorganized Labour Markets*. Basingstoke: Palgrave MacMillan.
- Hair, Joe F., Christian M. Ringle, and Marko Sarstedt. 2011. "PLS-SEM: Indeed a Silver Bullet." *Journal of Marketing Theory and Practice* 19 (2): 139–152, <https://doi.org/10.2753/MTP1069-6679190202>.
- Hair, Joe F., Lucy M. Matthews, Ryan L. Matthews, and Marko Sarstedt. 2017. "PLS-SEM or CB-SEM: Updated Guidelines on Which Method to Use." *International Journal of Multivariate Data Analysis* 1 (2): 107–123, <https://doi.org/10.1504/IJMDA.2017.087624>.
- Hair, Joe F., Marco Sarstedt, Christian M. Ringle, and Siegfried P. Gudergan. 2023. *Advanced Issues in Partial Least Squares Structural Equation Modelling (PLS-SEM)*. 2nd ed. Thousand Oaks, CA: Sage Publications.
- Hair, Joe F., Marco Sarstedt, Lucas Hopkins, and Volker G. KuppelwieserG. . 2014. "Partial Least Squares Structural Equation Modelling (PLS-SEM): An Emerging Tool for Business Research." *European Business Review* 26 (2): 106–121.
- Harriss-White, B. 2003. *India Working: Essays on Society and Economy in the Unorganized Sector*. Cambridge: Cambridge University Press.
- Henseler, Jörg, Theo K. Dijkstra, Marko Sarstedt, and Christian M. Ringle. 2014. "Common Beliefs and Reality About PLS." *Organizational Research Methods* 17 (2): 182–209, <https://doi.org/10.1177/1094428114526928>.
- Kumar, R. 2016. "Supply Chain Channels and Logistical Friction in Coastal Fish Marketing." *Journal of Economic Studies* 43 (1): 89–104.
- Mosse, David, Sanjeev Gupta, and Vidya Shah. 2005. "On the Margins in the City: Seasonal Migration, Debt Traps, and Exploitation in Western India." *Economic and Political Weekly* 40 (28): 3025–3038.
- Mukherji, S. 2005. *Migration and Unorganized Labour Markets in Developing Economies*. Jaipur: Rawat Publications.

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- Nur Zainie, A. 2024. "Structural Equation Modelling Trends in Unorganized Sector Research." *Journal of Exploratory Social Science* 12 (1): 45–61.
- Reinartz, Werner, Michael Haenlein, and Jörg Henseler. 2009. "An Empirical Comparison of the Efficacy of Covariance-Based and Variance-Based SEM." *International Journal of Research in Marketing* 26 (4): 332–344, <https://doi.org/10.1016/j.ijresmar.2009.08.001>.
- Sahu, G. and S. Das. 2019. "Social Networks and Initial Credit Deployment Among Interstate Migrant Networks," in *Migration and Informality in South Asia*, edited by S. Das, 112–134. Oxford: Oxford University Press.
- Sarstedt, Marco, and Christian M. Ringle. 2020. "Structural Equation Modelling Using Partial Least Squares," in *Handbook of Market Research*, pp. 1–32. Cham: Springer.
- Srivastava, Ravi. 2016. "Internal Migration, Remittances, and Asset Accumulation in Rural-Urban Corridors." *Indian Journal of Labour Economics* 59 (3): 345–368.
- Srivastava, Ravi. 2019. "Vulnerable Social Groups and Extreme Exploitation at the Bottom of the Unorganized Labour Market." *Labour & Development* 26 (2): 78–99.