

An Analytical Framework for Assessing the Influence of Foreign Direct Investment Inflows on Labour Productivity

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Abstract

The food processing industry in Vietnam represents a critical pillar of economic development, export competitiveness, and Foreign direct investment (FDI) is an important mechanism through which economies may acquire capital, advanced technologies, managerial expertise, and access to international production networks. However, increased FDI inflows do not automatically translate into higher labour productivity, as the outcomes depend on institutional quality, domestic firms' absorptive capacity, technological diffusion, workforce capabilities, and the structure of investment. This article develops an analytical framework for assessing the relationship between FDI inflows and labour productivity by integrating endogenous growth theory, productivity spillover mechanisms, institutional conditions, and dynamic econometric analysis. Drawing on the supplied literature, the study proposes a conceptual and methodological approach that distinguishes direct productivity gains from indirect spillovers and identifies the conditions under which FDI may produce sustained improvements in productive capacity. The framework combines labour productivity indicators, FDI measures, institutional variables, and relevant macroeconomic controls within a dynamic analytical structure. It also outlines an empirical strategy based on autoregressive distributed lag modelling and bounds testing to distinguish short-run adjustments from long-run relationships. The synthesis indicates that the productivity effects of FDI should be evaluated conditionally rather than assumed to be uniformly positive. The framework provides a basis for comparative research and evidence-informed investment policy, while recognizing that the proposed relationships require empirical validation using country-specific or panel data.

Keywords: Foreign direct investment, labour productivity, endogenous growth, productivity spillovers, technological diffusion, institutional quality, economic growth, ARDL modelling, absorptive capacity.

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1. Introduction

The Foreign direct investment has become a significant component of international economic integration, connecting domestic economies with multinational

enterprises, global production systems, and international knowledge networks. Beyond financing physical capital formation, FDI can introduce production technologies, organizational practices, employee training, and managerial systems that influence the efficiency with

which labour and other productive inputs are used. Nevertheless, the scale of investment inflows alone provides an incomplete measure of their economic contribution. The central issue is whether foreign investment improves output per worker or per hour worked and whether any resulting productivity gains persist after the initial investment period.

Labour productivity is commonly understood as the amount of output generated per unit of labour input. Its growth may reflect capital deepening, technological progress, improved worker skills, more efficient management, and changes in the allocation of resources across firms and industries. FDI may influence each of these dimensions, but its effects depend on the characteristics of investing firms and the capacity of domestic businesses to adopt and adapt imported knowledge. Consequently, investment can expand production without producing proportionate improvements in productivity if it relies primarily on additional labour, remains weakly connected to local suppliers, or operates in an environment with limited technological and institutional capacity.

Pegkas (2015) examines the impact of FDI on economic growth in Eurozone countries, providing a relevant macroeconomic foundation for investigating the broader economic implications of foreign investment. However, economic growth and labour productivity are distinct outcomes: aggregate output may increase through employment expansion even when output per worker changes only modestly. Therefore, an analytical framework focused specifically on labour productivity must separate changes in total economic activity from improvements in productive efficiency.

The research problem addressed in this article is the absence of a sufficiently integrated perspective when FDI is evaluated primarily through its financial volume or its association with aggregate growth. A more comprehensive assessment must identify the channels connecting investment to productivity, account for institutional and technological differences, and distinguish immediate effects from longer-term adjustments.

The principal objective is to develop a theoretically grounded framework for assessing the influence of FDI inflows on labour productivity. Specifically, the article examines direct and indirect transmission mechanisms, synthesizes relevant theoretical and empirical perspectives, proposes measurable analytical dimensions, and establishes a methodology for investigating short-run and long-run relationships.

The contribution is conceptual and methodological rather than a claim of newly estimated empirical effects. By combining productivity measurement, institutional analysis, spillover mechanisms, and dynamic

econometric techniques, the framework can support future country-level and comparative investigations. Its practical significance lies in helping policymakers distinguish investment that merely increases economic activity from investment that strengthens productive capabilities, domestic enterprise development, and sustainable productivity growth.

2. Literature Review

2.1. Foreign investment and macroeconomic performance

The relationship between FDI and economic performance has attracted considerable attention because foreign investment can expand the capital stock while connecting recipient economies to international markets and production systems. Pegkas (2015) investigates the impact of FDI on economic growth in Eurozone countries, establishing a relevant reference point for assessing investment-related macroeconomic outcomes. Nevertheless, the distinction between growth and productivity remains essential. Growth measures changes in aggregate output, whereas labour productivity focuses on output relative to labour input. An economy may therefore experience output growth without equivalent productivity improvement.

This distinction has direct analytical consequences. An assessment based exclusively on gross domestic product growth may overstate the productive contribution of FDI when expansion results primarily from additional employment or the enlargement of existing production capacity. Conversely, investment that initially contributes modestly to aggregate output may generate longer-term productivity gains through technology adoption, employee training, and organizational improvement. Pegkas (2015) thus provides a starting point for examining FDI-related economic performance, while the present framework narrows the outcome of interest to labour productivity.

The World Bank (2020), through its discussion of trading for development in the age of global value chains, provides a broader context for understanding how international production relationships can connect domestic firms with foreign markets and production networks. Participation in such networks may create opportunities for specialization, access to intermediate inputs, and learning from international buyers. However, participation alone does not establish that domestic firms capture substantial productivity gains. The depth of local linkages and the distribution of knowledge across firms remain important considerations.

2.2. Endogenous growth and technological diffusion

Romer (1986) explains long-run growth through mechanisms associated with increasing returns and the accumulation of knowledge, challenging the assumption

that capital accumulation alone necessarily sustains economic growth. This perspective is relevant to FDI because foreign enterprises may introduce technologies and production methods that increase the productive value of domestic labour. When investment facilitates knowledge accumulation, its contribution may extend beyond the output of the foreign-owned enterprise itself.

Romer (1990) further develops endogenous growth theory by emphasizing technological change as an outcome of economic incentives and knowledge-producing activities. Applied to FDI, this perspective suggests that productivity gains depend not only on the arrival of foreign capital but also on the creation, adoption, and adaptation of productive knowledge. Foreign investors may introduce advanced equipment, specialized production systems, and organizational expertise, but the durability of these benefits depends on whether domestic workers and firms can absorb them.

The distinction between imported technology and effective technological adoption is particularly important. A foreign enterprise may operate sophisticated equipment while domestic suppliers continue to use comparatively inefficient production methods. In that situation, productivity gains remain concentrated within the foreign-owned operation. Alternatively, employee mobility, supplier training, demonstration effects, and collaborative production arrangements may transmit knowledge to domestic enterprises. Endogenous growth theory therefore supports a conditional interpretation of FDI: its contribution to sustained productivity growth depends on the extent to which investment stimulates knowledge accumulation and productive learning.

2.3. Econometric foundations for dynamic relationships

Pesaran and Shin (1999) develop an autoregressive distributed lag approach to cointegration analysis, providing a methodological basis for investigating relationships that evolve over time. This approach is relevant because the effects of investment may not emerge immediately. Capital installation, worker training, technology adaptation, and supplier development require time, and their productivity consequences may differ between short-run and long-run periods.

Pesaran, Shin, and Smith (2001) develop bounds testing approaches for analysing level relationships. Their contribution supports the investigation of whether variables exhibit a stable long-run relationship under appropriate econometric conditions. For FDI and labour productivity, this distinction helps separate temporary movements from longer-term associations.

However, a statistically supported long-run relationship does not by itself establish causality. Productive

economies may attract additional FDI, while foreign investment may also influence productivity. Macroeconomic conditions, institutional reforms, and industrial composition may affect both variables simultaneously. Dynamic modelling must therefore be combined with careful specification, appropriate diagnostic testing, and cautious interpretation.

2.4. Institutional quality and productivity spillovers

Vu, Ngoc, and To Quyen (2022) examine the effect of institutions on productivity spillovers from FDI to domestic firms in Vietnam. Their research direction highlights the importance of institutional conditions in determining whether the benefits of foreign investment extend beyond foreign-owned enterprises. Institutional quality may influence contract enforcement, competitive conditions, knowledge exchange, supplier relationships, and the predictability of investment decisions.

Wang and Sun (2024) address threshold effects of institutional quality on FDI-induced labour productivity in China. The threshold perspective is important because institutional conditions may not operate as a simple linear influence. FDI may generate limited spillovers below a particular level of institutional development, while stronger institutions may allow domestic enterprises to capture greater benefits. This possibility implies that an average positive coefficient could conceal substantial differences across institutional environments.

Yuan, Chen, and Li (2023) examine FDI spillovers and productivity in high-tech Chinese cities using a spatial Durbin approach. This research direction introduces a further dimension: productivity effects may extend across geographical boundaries. Investment in one city may influence nearby areas through supplier networks, labour mobility, infrastructure, or knowledge exchange. Alternatively, benefits may remain concentrated in established industrial centres, increasing spatial disparities.

Saha (2022) specifically considers how the impact of FDI on labour productivity affects productive capacity. This focus connects productivity outcomes with the broader ability of an economy to sustain and expand production. It also reinforces the need to distinguish temporary output increases from improvements in the underlying capabilities that support long-term economic performance.

2.5. Research gap and theoretical positioning

The supplied literature collectively indicates that FDI should be assessed through multiple dimensions: macroeconomic performance, knowledge accumulation, institutional conditions, productivity spillovers, spatial relationships, and productive capacity. Yet these dimensions answer different questions and cannot be treated as interchangeable. Aggregate growth studies

establish a macroeconomic context; endogenous growth theory explains the importance of knowledge; institutional and spatial studies identify conditions shaping spillovers; and dynamic econometric methods provide tools for testing temporal relationships.

The analytical gap addressed here is the need to integrate these dimensions into a coherent framework specifically centred on labour productivity. The proposed framework treats FDI inflows as an explanatory factor whose effect is mediated by capital intensity, technology adoption, workforce capabilities, domestic linkages, and institutional quality. It also recognizes that reverse causality, heterogeneous effects, and spatial dependence can complicate interpretation. This integrated positioning provides the foundation for the methodology developed in the next section.

3. Methodology

3.1. Research design and analytical approach

This article adopts a conceptual, literature-based research design supported by a proposed quantitative assessment framework. The approach synthesizes the supplied references to establish the theoretical relationships among FDI inflows, labour productivity, institutional quality, technological diffusion, and productive capacity. It does not claim to estimate new coefficients or report original observations because no country-level dataset, sample period, or econometric output has been provided.

The methodology comprises three connected stages. First, the relevant literature is organized according to its contribution to the explanation of productivity outcomes. Second, the mechanisms connecting FDI to labour productivity are translated into measurable variables and testable propositions. Third, a dynamic econometric strategy is proposed to investigate short-run adjustments, long-run relationships, and institutional differences. This design links theoretical explanation with an empirical procedure that can be implemented in future research.

The principal unit of analysis may be a country-year observation or a firm-year observation, depending on data availability and the research objective. Country-level analysis captures aggregate productivity and investment patterns, whereas firm-level analysis is better suited to identifying differences between foreign-owned and domestic enterprises. A panel of countries, regions, or firms may provide additional variation for investigating institutional and spatial heterogeneity.

3.2. Conceptual framework and transmission mechanisms

The proposed framework treats FDI inflows as the principal explanatory variable and labour productivity as the outcome variable. Institutional quality, technology adoption, human capital, and domestic economic

linkages are incorporated as potential mediating or moderating factors. Macroeconomic and structural variables are considered controls where reliable data are available.

The first transmission mechanism is capital deepening. Foreign investment may provide domestic production facilities with modern machinery, digital infrastructure, and equipment that enables each employee to generate more output. However, capital intensity is not equivalent to productivity improvement in every case. Underutilized equipment, unsuitable technology, or inadequate worker training can reduce the expected return on investment.

The second mechanism is technological diffusion. Foreign enterprises may introduce advanced production processes and quality-control systems. Domestic firms can potentially learn through supplier contracts, employee mobility, imitation, and collaborative arrangements. Romer (1986, 1990) provides the theoretical basis for treating knowledge accumulation and technological change as important drivers of sustained productivity growth. The extent of diffusion, however, should be measured rather than presumed.

The third mechanism concerns institutional quality and absorptive capacity. Institutions can shape incentives for training, innovation, competition, and investment in productive assets. Domestic firms with limited technical capabilities may be unable to adopt foreign technologies, even when investment inflows are substantial. The institutional perspectives of Vu, Ngoc, and To Quyen (2022) and Wang and Sun (2024) motivate the inclusion of interaction and threshold effects.

The fourth mechanism concerns industrial and spatial linkages. Foreign investment concentrated in advanced industrial clusters may produce spillovers through local supply chains and labour markets, while regions with weak infrastructure may capture fewer benefits. Yuan, Chen, and Li (2023) provide a basis for considering spatial relationships when geographical data are available.

3.3. Variable specification and measurement

Labour productivity should be measured as real value added or real output divided by an appropriate measure of labour input. Where employment data are reliable, output per worker offers a practical indicator. Output per hour worked is preferable when differences in working hours are substantial. Nominal output should be adjusted for price changes, and sectoral comparisons should account for differences in production structure.

FDI inflows may be measured as net inward flows relative to GDP, as real inflow values, or through a measure appropriate to the selected sample. These indicators capture different characteristics. An FDI-to-GDP ratio measures investment relative to economic

scale, while real inflows provide a measure of the amount entering an economy. Net flows may be affected by disinvestment and financial restructuring; therefore, their interpretation requires caution.

Institutional quality can be represented by a consistent, documented indicator of governance or regulatory effectiveness. Human capital may be approximated using educational attainment, vocational training, or workforce skill indicators. Domestic absorptive capacity may be represented by research expenditure, technology adoption, or the capabilities of local enterprises. Trade openness, domestic capital formation, industrial composition, and macroeconomic conditions may be included as controls when supported by data.

The World Bank (2021) indicator on external debt flows as a percentage of gross national income provides an example of a macroeconomic indicator that may help characterize the broader financing environment. Nevertheless, external debt flows are not a direct measure of FDI and should not be treated as a substitute for investment data. The selection of controls must be guided by a clear theoretical rationale rather than by the mere availability of indicators.

3.4. Econometric model specification

A baseline dynamic model can be expressed as:

$$LP_{it} = \alpha_i + \lambda_t + \beta FDI_{it} + \gamma' X_{it} + \varepsilon_{it} \quad LP_{it} = \alpha_i + \lambda_t + \beta FDI_{it} + \gamma' X_{it} + \varepsilon_{it}$$

where LP_{it} represents labour productivity in country or entity i at time t ; FDI_{it} represents foreign investment; X_{it} is a vector of control variables; α_i captures entity-specific characteristics; λ_t captures common time effects; and ε_{it} represents unexplained variation.

The coefficient β describes the conditional association between FDI and labour productivity in this baseline specification. It should not automatically be interpreted as a causal effect. Reverse causality, omitted variables, and differences in investment composition may influence the estimate.

To examine institutional moderation, the specification can be extended as follows:

$$LP_{it} = \alpha_i + \lambda_t + \beta_1 FDI_{it} + \beta_2 INST_{it} + \beta_3 (FDI_{it} \times INST_{it}) + \gamma' X_{it} + \varepsilon_{it}$$

$$LP_{it} = \alpha_i + \lambda_t + \beta_1 FDI_{it} + \beta_2 INST_{it} + \beta_3 (FDI_{it} \times INST_{it}) + \gamma' X_{it} + \varepsilon_{it}$$

Here, $INST_{it}$ denotes institutional quality. A positive and statistically significant β_3 would be consistent with the proposition that the relationship between FDI and productivity becomes more favourable as institutional quality improves, subject to the model's assumptions and the scale of the variables.

The marginal association is:

$$\frac{\partial LP_{it}}{\partial FDI_{it}} = \beta_1 + \beta_3 INST_{it} \quad \frac{\partial LP_{it}}{\partial FDI_{it}} = \beta_1 + \beta_3 INST_{it}$$

This expression emphasizes that a single average coefficient may not adequately describe the productivity implications of FDI across different institutional environments.

3.5. Short-run and long-run analysis

The autoregressive distributed lag approach developed by Pesaran and Shin (1999) provides a suitable starting point for modelling dynamic relationships, while the bounds testing framework of Pesaran, Shin, and Smith (2001) supports the investigation of long-run level relationships under appropriate conditions.

A simplified error-correction representation is:

$$\Delta LP_t = c + \phi LP_{t-1} + \theta FDI_t + \sum_j a_j \Delta LP_{t-j} + \sum_k b_k \Delta FDI_{t-k} + \delta' Z_t + u_t$$

$$\Delta LP_t = c + \phi LP_{t-1} + \theta FDI_t + \sum_j a_j \Delta LP_{t-j} + \sum_k b_k \Delta FDI_{t-k} + \delta' Z_t + u_t$$

In this representation, changes in productivity depend on its own lagged values, the level and changes of FDI, and other relevant variables represented by Z_t . Under a valid specification, the estimated level relationship can be used to investigate long-run associations, while differenced terms capture short-run dynamics.

The procedure requires unit-root testing, an appropriate lag-selection strategy, bounds testing where applicable, and residual diagnostics. The standard bounds-testing framework must not be applied mechanically when variables are integrated of order two or when other underlying assumptions are violated. Where the dataset contains multiple countries, cross-sectional dependence and slope heterogeneity also require consideration.

3.6. Testable propositions and robustness

The framework generates four propositions. First, FDI inflows are expected to be positively associated with labour productivity when investment introduces productive capital and technology. Second, stronger institutional quality may enhance the productivity association by facilitating technology adoption and

spillovers. Third, the relationship may differ between short-run and long-run periods because knowledge transfer and organizational adaptation take time. Fourth, productivity effects may vary across industries and locations according to domestic capabilities and linkages.

These propositions should be tested rather than reported as established findings. Robustness analysis can compare alternative productivity measures, alternative FDI specifications, different lag structures, and subsamples based on institutional or industrial characteristics. Where the data permit, spatial models and designs addressing endogeneity can strengthen the analysis. Without such testing, the framework remains a structured explanation and empirical research proposal rather than a completed causal evaluation.

4. Results

4.1. Findings from the conceptual synthesis

The synthesis produces a multidimensional framework for assessing how FDI inflows may influence labour productivity. The central finding is conceptual: the productivity implications of foreign investment cannot be adequately represented by investment volume alone. Instead, outcomes depend on the interaction between the resources introduced by foreign investors, the capacity of domestic firms and workers to use them, and the institutional and structural environment in which investment occurs.

The first identified dimension is the distinction between direct productivity effects and indirect spillovers. Direct effects arise when foreign-owned operations adopt modern equipment, more efficient production processes, and improved managerial practices. Indirect effects arise when knowledge and capabilities spread beyond the original investment recipient. These pathways have different measurement requirements. Firm-level productivity data can help identify improvements within foreign-owned operations, whereas evidence concerning domestic firms is necessary to establish whether spillovers extend across ownership boundaries.

The second dimension is the difference between aggregate economic growth and labour productivity. Pegkas (2015) examines FDI in relation to economic growth in Eurozone countries, but the framework developed here emphasizes that output expansion does not necessarily imply an equivalent improvement in output per worker. An economy may increase employment and total production while experiencing limited productivity growth. Consequently, productivity-specific indicators are essential for evaluating whether investment improves productive efficiency rather than merely enlarging economic activity.

The third dimension concerns the role of knowledge. Romer (1986, 1990) provides a theoretical basis for understanding why technological progress and knowledge accumulation may produce persistent growth effects. Applied to FDI, this perspective suggests that investment is more likely to support sustained productivity when it contributes to capabilities that can be retained, adapted, and disseminated. The presence of advanced technology is insufficient if domestic workers lack the training or organizational support required to use it effectively.

4.2. Institutional and spatial heterogeneity

The synthesis also identifies institutional quality as a potentially important conditioning factor. The research directions of Vu, Ngoc, and To Quyen (2022) and Wang and Sun (2024) support the analytical importance of examining institutional conditions when investigating productivity spillovers. Institutions may influence the extent to which domestic firms can enter supplier relationships, enforce contracts, invest in skills, and respond to competitive pressures.

A key implication is that the relationship between FDI and productivity may be nonlinear. At lower levels of institutional effectiveness, additional investment may primarily benefit the foreign-owned enterprise. As institutional capacity and domestic capabilities improve, knowledge diffusion may become more extensive. This is a theoretical interpretation motivating threshold testing, not a claim that a particular threshold value has been established by the present article.

Spatial distribution represents another important dimension. Yuan, Chen, and Li (2023) focus on FDI spillovers and productivity in high-tech Chinese cities using a spatial Durbin approach. This perspective suggests that geographical proximity, industrial concentration, and interregional relationships should be considered where the research setting supports such analysis. A national average may conceal strong productivity improvements in established industrial centres alongside weaker outcomes in peripheral regions.

The proposed framework therefore distinguishes between the existence of a productivity relationship and its distribution across firms, sectors, and locations. This distinction is relevant for policy evaluation because aggregate improvements can coexist with uneven access to technology, skills, and productive investment.

4.3. Dynamic relationships and empirical interpretation

The methodological synthesis indicates that temporal dynamics are essential. The ARDL approach described by Pesaran and Shin (1999) and the bounds testing framework of Pesaran, Shin, and Smith (2001) provide tools for evaluating short-run adjustments and potential

long-run relationships. These methods are particularly relevant when investment effects emerge gradually rather than immediately.

For example, a foreign manufacturing investment may initially increase capital expenditure and employment before workers acquire the skills needed to operate new equipment efficiently. During the early phase, measured productivity may remain unchanged or fluctuate. Over time, training, production optimization, and supplier development may improve output per worker. An evaluation restricted to the first year could therefore produce a different conclusion from an assessment covering a longer period.

However, temporal ordering alone does not establish causality. High-productivity economies may attract more foreign investors, and changes in demand or domestic policy may influence both investment and productivity. A positive long-run association could also reflect common trends rather than a direct effect of FDI. The proposed methodology consequently requires diagnostic testing and, where feasible, stronger strategies for addressing endogeneity.

The framework also identifies a distinction between statistical relationships and economic significance. A coefficient may be statistically significant but imply a small productivity change, while a less precisely estimated relationship may have substantial practical implications. Interpretation should therefore consider effect sizes, uncertainty, the scale of the variables, and the robustness of results across alternative specifications.

4.4. Productive capacity and the interpretation of investment outcomes

The connection between labour productivity and productive capacity provides a final analytical dimension. Saha (2022) explicitly addresses the relationship between FDI's impact on labour productivity and productive capacity. Within the proposed framework, productive capacity refers to the capabilities that enable an economy or enterprise to sustain production, adopt new methods, and respond to changing demand.

An investment that increases output temporarily without developing worker skills, domestic suppliers, or technological capabilities may have a limited effect on long-term productive capacity. By contrast, investment that supports training, local sourcing, technological adaptation, and organizational learning may generate benefits beyond its initial production contribution. These outcomes require separate indicators and should not be inferred solely from aggregate FDI figures.

The World Bank (2020) discussion of global value chains provides a relevant context for examining how international production networks may create

opportunities for upgrading. Nevertheless, participation in such networks does not guarantee that domestic firms move into higher-value activities. The quality of local linkages and the capabilities developed through participation remain central questions.

Overall, the findings establish a coherent conceptual and methodological structure rather than a numerical estimate of FDI's effect. The framework identifies direct effects, spillovers, institutional moderation, spatial heterogeneity, and temporal dynamics as complementary dimensions of productivity assessment. Empirical conclusions about the magnitude, direction, and causal status of these relationships remain dependent on future data analysis.

5. Discussion

5.1. Interpreting the relationship between FDI and labour productivity

The proposed framework suggests that the relationship between FDI inflows and labour productivity should be interpreted as conditional, dynamic, and potentially heterogeneous. Foreign investment can expand the resources available for production, but the conversion of those resources into higher output per worker depends on how effectively capital, technology, and labour are combined. This interpretation shifts the analytical focus from the amount of investment received to the productive capabilities developed through investment.

The distinction between economic growth and labour productivity is especially important for evaluating investment policies. Pegkas (2015) examines the relationship between FDI and economic growth in Eurozone countries, providing a relevant basis for understanding the macroeconomic context of foreign investment. However, the implications for labour productivity require a separate analytical treatment because output growth can result from employment expansion, capital accumulation, or productivity improvements in different proportions. An economy experiencing rapid investment-led expansion may not achieve equivalent growth in output per worker.

This distinction also affects policy evaluation. If the principal objective is employment creation, the number of jobs generated may be an appropriate outcome measure. If the objective is productivity growth, policymakers must additionally consider output per worker, the quality of employment, technological upgrading, and the development of skills. Treating these objectives as interchangeable can lead to misleading assessments of investment performance.

5.2. Technological adoption and domestic absorptive capacity

Endogenous growth theory provides a useful explanation of why FDI can contribute to productivity beyond the immediate expansion of capital. Romer (1986) emphasizes increasing returns and long-run growth, while Romer (1990) develops the role of technological change in economic growth. These perspectives imply that investment may produce persistent benefits when it contributes to knowledge accumulation and technological development.

Nevertheless, technology transfer and technology absorption are distinct processes. A foreign enterprise may introduce advanced machinery while domestic suppliers continue to operate with less efficient systems. If local firms cannot meet quality standards, finance equipment upgrades, or recruit skilled workers, their participation in the foreign investment network may remain limited. In this situation, the productivity gains generated by FDI may be concentrated within foreign-owned firms rather than diffused throughout the domestic economy.

This limitation suggests that investment promotion should be accompanied by policies that strengthen technical education, vocational training, research capabilities, and supplier development. Domestic firms may also require access to finance and technical assistance to meet the operational requirements of multinational enterprises. Such measures can improve the conditions under which investment generates broader productive benefits, although their effectiveness depends on implementation and the characteristics of the industry.

An important trade-off concerns the possibility that imported technologies replace rather than complement existing labour capabilities. Automation may raise output per worker while reducing demand for certain occupations. Aggregate productivity improvements therefore do not necessarily imply that every worker benefits equally. A comprehensive evaluation should consider both productive efficiency and the distribution of adjustment costs across workers and firms.

5.3. Institutional quality and nonlinear effects

Institutional conditions may influence both the scale and the productivity consequences of FDI. Effective contract enforcement, predictable regulation, transparent administration, and competitive markets can facilitate investment and reduce the costs of collaboration between foreign and domestic enterprises. Conversely, regulatory uncertainty and weak institutional coordination may discourage long-term investment in training, research, and supplier relationships.

The work of Vu, Ngoc, and To Quyen (2022) directs attention to institutional influences on productivity spillovers in Vietnam, while Wang and Sun (2024) introduce the possibility of threshold effects in the relationship between institutional quality and FDI-

induced labour productivity in China. These research directions support examining whether the productivity association changes across institutional environments rather than assuming a uniform effect.

The policy implication is not that institutional reform automatically guarantees productivity growth. Institutional improvements must interact with practical capabilities, including worker skills, infrastructure, firm-level innovation, and access to markets. Furthermore, institutional indicators can be difficult to measure consistently, and composite indices may conceal differences between regulatory quality, governance effectiveness, and the enforcement of formal rules.

A nonlinear specification may help identify whether the relationship differs above or below an estimated institutional threshold. However, thresholds should be estimated using suitable data and statistical procedures rather than selected arbitrarily. Findings may also vary across industries because technology-intensive sectors and labour-intensive sectors face different adoption requirements.

5.4. Spatial distribution and global value chains

The spatial dimension further complicates the interpretation of aggregate productivity outcomes. Yuan, Chen, and Li (2023) examine FDI spillovers and productivity in high-tech Chinese cities using a spatial Durbin approach, highlighting a research direction in which geographical interactions form part of the analytical problem. Investment can generate local supplier demand, facilitate employee mobility, and encourage the concentration of specialized services. At the same time, these advantages may reinforce existing differences between industrial centres and less-developed regions.

The World Bank (2020) discussion of global value chains provides a broader context for considering how international production networks can connect local enterprises with foreign markets. Yet the benefits of integration depend on the nature of participation. Domestic firms supplying standardized inputs may face different learning opportunities from those engaged in product design, engineering, research, or other knowledge-intensive activities.

Consequently, national productivity averages may conceal significant differences in the distribution of FDI-related gains. Regional and sectoral analysis can help determine whether investment supports broad-based productive development or primarily reinforces established clusters. This distinction is important for regional policy, infrastructure planning, and the design of supplier-development programmes.

5.5. Econometric implications, limitations, and policy relevance

The proposed dynamic approach provides a structured way to investigate temporal relationships, but its limitations must be recognized. The ARDL methodology of Pesaran and Shin (1999) and the bounds testing approach of Pesaran, Shin, and Smith (2001) can support the analysis of short-run adjustments and long-run relationships under appropriate conditions. Nevertheless, neither technique independently resolves all endogeneity concerns.

A positive estimated relationship between FDI and labour productivity may partly reflect reverse causality, because productive economies are often attractive locations for foreign investors. Omitted institutional reforms, industrial restructuring, or technological changes may also influence both variables. Stronger causal claims require suitable identification strategies, transparent assumptions, and robustness checks.

Measurement choices present another limitation. Output per worker can change when the composition of employment changes, even without an equivalent improvement in technology. Net FDI inflows can fluctuate because of disinvestment and financial restructuring, while aggregate institutional indicators may not reflect conditions experienced by individual firms. Results should therefore be compared across alternative indicators where data permit.

The World Bank (2021) external debt indicator may provide contextual information about the broader financing environment, but external debt and FDI represent different financial concepts. Their effects should not be conflated. Likewise, macroeconomic growth indicators should complement rather than replace direct productivity measures.

From a policy perspective, the framework favours evaluating investment according to productive outcomes, including changes in output per worker, worker skills, technological adoption, domestic supplier participation, and the durability of productivity improvements. Saha (2022) provides a relevant connection between labour productivity and productive capacity. Together, these considerations support a shift from evaluating investment solely through its volume towards assessing its contribution to productive capabilities.

The principal limitation of the present article is that it develops a framework without estimating a model using original data. It consequently establishes neither the magnitude nor the statistical significance of FDI's influence on labour productivity. Its contribution is to clarify the mechanisms, variables, and empirical conditions required for a more rigorous assessment. Future research should apply the framework to comparable country, regional, or firm-level datasets and investigate whether the proposed relationships remain robust across institutional and industrial settings.

6. Conclusion

This article develops an analytical framework for assessing the influence of foreign direct investment inflows on labour productivity. It argues that the productive contribution of FDI cannot be determined from investment volumes or aggregate economic growth alone. Instead, the assessment must consider how foreign investment affects capital intensity, technological adoption, managerial practices, workforce capabilities, domestic linkages, and institutional conditions.

The synthesis of the supplied literature establishes a theoretical foundation for understanding these mechanisms. Endogenous growth theory emphasizes knowledge accumulation and technological change, while research on institutional quality and productivity spillovers highlights the importance of domestic absorptive capacity. The spatial perspective further indicates that productivity outcomes may differ across regions and industrial clusters. Dynamic econometric methods provide a means of examining short-run adjustments and long-run relationships, provided their assumptions and limitations are carefully addressed.

The principal contribution is an integrated framework linking theoretical mechanisms to measurable variables and testable propositions. It distinguishes direct productivity effects from spillovers, treats institutional quality as a potential moderator, and recognizes that observed relationships may reflect reverse causality or broader macroeconomic changes. These distinctions can improve the design and interpretation of empirical research on foreign investment.

The framework also has practical implications. Investment policies should consider not only the attraction of foreign capital but also the development of local suppliers, technical education, worker training, technological capabilities, and institutional effectiveness. Such complementary conditions may help domestic firms capture more of the potential benefits associated with international investment.

However, the article does not report original econometric estimates. Its propositions require empirical testing before conclusions can be drawn about the magnitude, direction, or causal nature of FDI's effects. Future studies should use comparable productivity measures, examine alternative FDI indicators, account for institutional heterogeneity, and investigate spatial spillovers where appropriate. By connecting investment flows with the mechanisms that generate productive capabilities, the proposed framework offers a structured basis for evaluating whether FDI contributes to sustained labour productivity improvements.

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