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FDI Inflows and Their Impact on Employment and Technology Transfer in India

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Abstract

Foreign Direct Investment (FDI) plays a vital role in the economic development of a country. Basically, Foreign Direct Investment is an investment where a foreign company or investor invests capital in the business of a domestic or host country. Foreign Direct Investments can be made in various ways, that is, by establishing a new company, or by merging or acquiring a company or by joint ventures.

Foreign Direct Investment helps in increasing capital for domestic countries, creating job opportunities, increases exports and helps maintain exchange rate stability. It also promotes integration into global value chains (GVCs) and enhances competitiveness. However, both the host country as well as the investor gets benefitted from Foreign Direct Investments.

Through this research paper, the author has made an attempt to what Foreign Direct Investment refers to and what is its impact on employment and technology transfer.

Keywords: Foreign Direct Investment, Employment, Technology Transfer.

INTRODUCTION

Foreign Direct Investment (FDI) is an investment made by an individual, or by a company, or a government entity of one country into businesses established in another country. Such investments are made with the intention of establishing a lasting interest and influence over the management of that enterprise. In other words, FDI occurs when a foreign investor acquires ownership or control of 10% or more of a business equity in another country, as is defined by international standards such as those of the International Monetary Fund (IMF) and the Organisation for Economic Co-operation and Development (OECD).[3] FDI implies a long-term relationship and direct involvement into the operations of the foreign enterprise by the investor of some another country. FDI includes various forms such as, **greenfield investments** in which a company builds new facilities, **brownfield investments** in which a company purchases or merges with existing companies, and **joint ventures** in which two or more companies agree to pool their resources.

FDI is regarded as a key component of economic growth and globalization, as it not only brings capital but also advanced technology and access to global markets. For developing countries like India, FDI serves

[3] International Monetary Fund (IMF), Balance of Payments and International Investment Position Manual (6th ed., 2009), para. 6.12 — defines FDI as a "category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy."

as an important source of financial resources which helps bridge the investment gap, create employment opportunities and foster industrial development.[4] In addition to this, FDI promotes integration into global value chains (GVCs) and enhances competitiveness. However, both the host country as well as the investor gets benefitted from Foreign Direct Investments. The host country benefits from technology transfer, skill development, employment opportunities, export diversification and friendly relations with other countries, while investors benefit from new market access, resource advantages and cost efficiencies. Furthermore, the actual impact of FDI depends upon factors like host country's policies, absorptive capacity of companies and sectoral composition of investment.[5]

In India, FDI policy is regulated by the **Foreign Exchange Management Act (FEMA), 1999**, and administered by the Department for Promotion of Industry and Internal Trade (DPIIT) under the Ministry of Commerce and Industry. The Government of India has also liberalized its FDI regime, by allowing foreign investors to invest in most sectors through the automatic route in which no prior government approval is required, however, certain sensitive sectors remain under the government route which require prior government clearance or approval.[6]

How FDI Affects Employment?

Foreign Direct Investment (FDI) affects employment in the host country by multiple theoretical channels, encompassing both direct as well as indirect effects on labour markets. From a theoretical view, FDI generates employment by creating new productive capacities and expansion of industries. If we talk about the direct employment effect, it arises when multinational enterprises (MNEs) establish new operations or acquire existing companies in the host countries, thereby hiring local workers.[7] This happens in greenfield investments where a company builds new facilities, leading to direct job creation like construction, manufacturing, and other related services. On the other hand, brownfield investments where a company purchases or merges with existing companies can create employment opportunities through expansion of existing operations or efficiency improvements.

Beyond the direct effects, FDI also generates indirect effects on employment by linkages with domestic industries of the host country. When foreign companies source inputs, raw materials and services locally, backward linkages are created that stimulate production and employment among domestic suppliers.[8] For example, when an automobile manufacturer enters in India through FDI, it may generate thousands of jobs in the auto parts, retail sector and logistics. In addition to this, forward linkages arise when local companies use the outputs of foreign -invested companies as inputs for their production purposes, fostering productivity and growth along with job creation.[9] Foreign Direct Investment, thus, helps in enhancing regional employment opportunities along with promoting sectoral diversification.

Another theoretical channel is by way of technology transfer and productivity spillovers. When multinational companies bring advanced technologies, managerial know-how, and training programs to

[4] United Nations Conference on Trade and Development (UNCTAD), World Investment Report 2024: Investing in Sustainable Energy for All (2024).

[5] Dunning, J.H., Multinational Enterprises and the Global Economy, 2nd Edition (Edward Elgar, 2008).

[6] Government of India, Foreign Exchange Management Act (FEMA), 1999; and Consolidated FDI Policy, Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce & Industry, Government of India (Press Note 1 of 2024).

[7] Caves, R.E., Multinational Enterprise and Economic Analysis, 3rd Edition, Cambridge University Press, 2007.

[8] Hirschman, A.O., The Strategy of Economic Development, Yale University Press, 1958.

[9] Javorcik, B.S., "Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers through Backward Linkages," American Economic Review, Vol. 94, No. 3 (2004).

the host country, they enhance the productivity of the local workforce. This increases human capital and employability, fostering long-term job growth.[10] FDI contributes to economic growth by improving the technological base and human capital formation, both of which are crucial for employment expansion. Moreover, competition given by foreign companies forces domestic companies to improve efficiency and adopt better labour practices, thereby, indirectly boosting employment quality.

Foreign Direct Investment also affects employment through wage and skill-upgrading channel. The presence of foreign companies raises the demand for skilled labour due to their reliance on advanced technology and modern management systems. However, wages in FDI related sectors tend to be higher than domestic sectors, leading to “wage premium”.[11] This encourages workers to learn new skills, enhancing the quality of human capital in the host country. This process may also result in labour market polarization, where demand for skilled workers rises compared to unskilled labour, widening income inequality.[12]

In developing countries like India, the export-oriented FDI model is often observed which provides another employment pathway. When foreign companies establish export-manufacturing units, they expand labour-intensive production, which creates large scale employment, especially for semi-skilled workers.[13] Therefore, the macroeconomic and policy environment mediates how FDI generates employment outcomes. A stable policy regime, flexibility in labour market and infrastructural development determines whether foreign investments lead to net job creation.[14] In countries with strong absorptive capacity, FDI enhances employment multipliers. However, where skill constraints exist, the employment effects may be limited. Thus, the overall employment impact of Foreign Direct Investment does not depends only on the volume of inflows but also on factors like sectoral composition, type of investment, and domestic policy frameworks.

Sectoral Patterns: Where Employment and Technology Transfer Occur

The impact of Foreign Direct Investment (FDI) on the generation of employment opportunities and transfer of technology in India varies across different sectors, reflecting the structural composition of the Indian economy. Over the last two decades, certain sectors, especially services, manufacturing and information technology (IT) have emerged as principal beneficiaries of FDI inflows, creating both direct as well as indirect job creation as well as technological upgrading. According to the report from the Department for Promotion of Industry and Internal Trade (DPIIT), the services sector (including financial, insurance, banking, non-financial business, R&D, consultancy and outsourcing holds the largest share of total FDI inflows.[15] The dominance of this sector shows India’s comparative advantage in skilled human capital and business process outsourcing. The expansion of FDI in Information Technology and IT-enabled services (ITES) has also created vast employment opportunities, especially in cities like Pune, Hyderabad

[10] Blomstrom, M. & Kokko, A., “The Impact of Foreign Investment on Host Countries: A Review of the Empirical Evidence,” World Bank Policy Research Working Paper No. 1745, 1997.
[11] Feenstra, R.C. & Hanson, G.H., “Foreign Investment, Outsourcing and Relative Wages,” American Economic Review, Vol. 86, No. 2 (1996).
[12] UNCTAD, World Investment Report 2022: The Future of FDI in Development (2022).
[13] Moran, T.H., Foreign Direct Investment and Development: Launching a Second Generation of Policy Research, Peterson Institute for International Economics, 2011.
[14] OECD, Policy Framework for Investment, 2015 Edition, Paris.
[15] Department for Promotion of Industry and Internal Trade (DPIIT), FDI Fact Sheet – March 2024, Ministry of Commerce and Industry, Government of India.

and Bengaluru, which have become a hub of IT and IT-enabled services. It has facilitated technology diffusion through training programs and adoption of global digital platforms.

Foreign Direct Investment has also played a crucial role in the manufacturing sector in promoting industrialization, creating job opportunities and technological modernization or advancement. Major manufacturing units such as electronics, pharmaceuticals, automobiles, chemicals and engineering goods have attracted significant foreign investments, driven by initiative like Make in India and the Production Linked Incentive (PLI) schemes.[16] One of the most prominent examples of FDI-driven employment and technology transfer is the **automobile industry**. Global companies like Hyundai, Suzuki, and Toyota have established large-scale manufacturing facilities in India, generating a number of employment opportunities by way of creating direct and indirect jobs across assembly lines, logistics, component manufacturing and dealership networks. In addition to this, the domestic suppliers and small enterprises have been benefitted from technology spillovers, as foreign automakers provide training, design access and access to global supply chains, therefore, improving the technological capabilities of local companies.

The other major recipients of FDI is the **pharmaceutical and biotechnology industries** which have contributed to skill development, high-value employment and R&D advancements. Multinational companies (MNCs) like Novartis and Pfizer have made substantial investments in India's pharmaceutical sector, capitalizing on the country's strong scientific base and cost-effective production.[17] Also the establishment of joint ventures and research collaborations has deepened the exchange of bi-directional technology transfer, strengthening India's position as the "pharmacy of the global south. However, the generation of employment in this sector is skill-intensive, focusing on regulatory specialists, R&D scientists and quality assurance personnel rather than unskilled workers.

The **telecommunications and information technology** sectors have also witnessed significant FDI inflows resulting in job creation and rapid technological upgradation. Multinational telecom operators and equipment manufacturers like Vodafone and Nokia has expanded network infrastructure, enhanced service quality as well as introduced new advances technologies such as 5G, Internet of Things (IoT) and cloud computing.[18] These investments have resulted in generation of employment across different segments such as customer support, digital marketing, network engineering and mobile application development.

The **renewable energy and infrastructure sectors** also constitute a rapidly emerging domain for FDI-driven employment and technology transfer. There have been substantial foreign investments from global energy firms such as TotalEnergies and ReNew Power with respect to India's commitment to achieving net-zero carbon emissions by 2070 and expanding renewable energy capacity to 500 GW by 2030.[19] Thus, these investments have generated jobs in solar and wind power installation, manufacturing, maintenance and R&D on green technologies. Similarly, FDI inflows in infrastructure like ports, logistics and construction has created large-scale employment opportunities, especially for semi-skilled and unskilled labour.

The retail and e-commerce sectors are another prominent sectors of FDI-driven employment and technology transfer. Global electronic-commerce giants like Amazon and Flipkart have invested in India's retail market, enabling generation of employment in warehousing, customer service, digital marketing and

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[16] Government of India, Production Linked Incentive (PLI) Scheme – Progress Report 2024, Ministry of Commerce and Industry.
[17] Indian Pharmaceutical Alliance (IPA), FDI in Pharma Sector: Policy Implications and Growth Prospects, 2023.
[18] Telecom Regulatory Authority of India (TRAI), Annual Report 2023–24, New Delhi, 2024.
[19] International Energy Agency (IEA), India Energy Outlook 2024, Paris, 2024.

logistics.[20] These investments have enabled digital supply chain management, data analytics and AI-driven logistics optimization. However, FDI in retail sector generates new types of employment opportunities, which also requires re-skilling of the workforce to adapt to the current needs.

However, the sectoral analysis reveals that FDI's employment and technology transfer impacts are not uniform across industries. Sectors such as textiles, food processing, construction, commonly called the labour-intensive sectors generate employment opportunities at large-scale but involves low level of technology diffusion. On the other hand, capital and knowledge intensive sectors like IT, pharmaceuticals and automobiles contribute more to technological advancement and creates fewer job opportunities.[21] So, the challenge for Indian policymakers is to balance employment-intensive growth with technology-driven industrial transformation, ensuring that Foreign Direct Investment contributes to both social and economic development.

Mechanisms of Technology Transfer via FDI

Foreign Direct Investment (FDI) serves as a powerful instrument for technology transfer in developing countries like India. With the help of FDI, organizational skills, managerial practices as well as advanced technologies developed in industrialized countries are transferred to host nations, strengthening innovation, productivity enhancement and industrial modernization. Technology transfer by way of Foreign Direct Investment occurs through various interrelated mechanisms, such as joint ventures, intra-firm transfers, licensing agreements, spillover effects, training programs and supplier linkages. The success of these transfers depends on the host country's absorptive capacity and the nature of the FDI.[22]

One of the most direct mechanisms is through **joint ventures and strategic alliances**, where domestic and foreign companies collaborate to share risk, ownership and expertise. Under this, the local firms gain exposure to advanced technology and management practices, while the foreign firms benefit from local market knowledge and regulatory familiarity.[23] One of the classic examples of this is the joint venture between Maruti Suzuki, that is, Maruti Udyog Limited (India) and Suzuki Motor Corporation (Japan). In the 1980s, Suzuki's investment in India not only brought capital but also modern advanced automative manufacturing techniques, design innovations and efficient management systems, evolving India's automobile sector into a globally competitive industry.

Another major channel is **intra-firm transfer of technology**, where multinational corporations (MNCs) establish subsidiaries and allies in the host country and transfer proprietary technologies, production processes and managerial systems to these units.[24] These involve the transfer of tangible assets like equipment and machinery, and intangible assets like patents, designs and software systems. For example, when a foreign automobile company like Hyundai or Honda establishes a manufacturing plant in India, it transfers its global production technology, quality control systems and supply-chain management techniques to ensure uniform standards across locations.[25]

Another prominent mechanism for technology transfer is **licensing and franchising agreements**, especially in sectors like retail, fast food and pharmaceuticals. In licensing, foreign companies allow

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[20] Deloitte, E-Commerce in India: Trends, Growth and Opportunities.
[21] UNCTAD, World Investment Report 2024: Investing in Sustainable Energy for All, Geneva, 2024.
[22] Dunning, J.H., Multinational Enterprises and the Global Economy, 2nd Edition, Edward Elgar, 2008.
[23] Lall, S., "The Transfer of Technology by Multinational Companies," Oxford Bulletin of Economics and Statistics, Vol. 36, No. 2 (1974).
[24] Caves, R.E., Multinational Enterprise and Economic Analysis, 3rd Edition, Cambridge University Press, 2007.
[25] Society of Indian Automobile Manufacturers (SIAM), Annual Report 2023–24, New Delhi, 2024.

domestic companies use their proprietary technology, brand or processes in return for royalties or fees.[26] For instance, foreign pharmaceutical companies often license production techniques to Indian firms, facilitating them to manufacture drugs domestically under strict quality standards. This helps Indian firms to gain advanced biotechnology, process innovations and acquire capabilities to manufacture for global companies.[27] Consequently, franchising arrangements in the services sector like involving global retail and hospitality chains helps in transfer standardized operating procedures, supply-chain technologies and customer service innovations to local franchisees.

Foreign Direct Investment also fosters **spillover-based technology transfer** by way of labour mobility, demonstration effects and competition.[28] Workers who are trained in foreign companies often move to domestic firms, carrying with them valuable technical and managerial skills. This inter-firm labour mobility helps spread knowledge within the industry and enhances overall skills of the workers. Further, the demonstration effects occur when local companies observe and follow the production techniques, product designs and quality standards of foreign companies operating in the same market. Furthermore, the competition introduced by multinational corporations compels the domestic companies to innovate, adopt advanced technology and improve product quality to survive in the business environment. These spillovers are mostly significant in technology-intensive sectors like IT, pharmaceuticals and telecommunications.

Another important mechanism for technology transfer in recent years has been **training programs and skill development initiatives** undertaken by foreign companies in the domestic country. Multinational corporations often invest in building human capital by way of specialized training programs, technical institutes and knowledge-sharing workshops.[29] Global firms like Intel and IBM have set up research and development (R&D) centers in India under the IT and telecommunications sectors. These help undertake global innovation projects and also transfer process and product knowledge to Indian engineers and scientists which further help in promoting reverse engineering, indigenous innovation and technological self-reliance.

Therefore, the success of technology transfer depends on effective integration between foreign investors and domestic companies, supported by skill development, institutional coordination and innovation-friendly governance.[30]

Challenges to Maximize FDI Benefits

Though Foreign Direct Investments play a crucial role in promoting growth, creating jobs and technology transfer, however, India faces certain challenges which limit it in fully realizing its potential benefits. The foremost challenge that arises in uneven regional distribution of FDI, in which most FDI inflows are concentrated only in a few states like Maharashtra, Tamil Nadu, Karnataka and Gujarat, while the northern and eastern states relatively receive little investment.[31]Another major challenge lies in infrastructural barriers like inadequate transport networks, unreliable power supply and limited digital connectivity which

[26] UNCTAD, World Investment Report 2022: The Future of FDI in Development, Geneva, 2022.
[27] Indian Pharmaceutical Alliance (IPA), FDI and Technology Transfer in the Indian Pharma Sector, 2023.
[28] Blomstrom, M. & Kokko, A., "The Impact of Foreign Investment on Host Countries: A Review of the Empirical Evidence," World Bank Policy Research Working Paper No. 1745, 1997.
[29] OECD, International Investment Perspectives 2023: FDI, Human Capital and Development, Paris, 2023.
[30] Government of India, National Intellectual Property Rights Policy, Ministry of Commerce and Industry, 2024.
[31] Department for Promotion of Industry and Internal Trade (DPIIT), FDI Fact Sheet – April 2000 to March 2024, Ministry of Commerce and Industry, Government of India, 2024.

increase operational costs and discourage foreign investments.[32] In addition to this, the regulatory complexity and bureaucratic delays hinder business operations.

Another important concern is policy inconsistency and legal uncertainty which affects investor confidence. Moreover, weak intellectual property protection and limited enforcement of contracts can discourage foreign investors as they may fear loss of proprietary knowledge.[33]

However, India has liberalized most of the sectors for FDI, but certain social and environmental sustainability concerns have emerged due to ecological degradation or labour rights issues resulting in project-delays and social tensions.[34] The crucial challenge is to balance economic growth with environmental sustainability.

Policy Levers: How India can Improve Employment and Technology Outcomes from FDI?

To utilize the potential of Foreign Direct Investment (FDI) for creating job opportunities and promoting technology transfer, India should adopt a set of policy mechanisms that strengthens linkages between foreign firms and host country. The first crucial step is to improve infrastructure and ease of doing business as these directly influence investor confidence and scale of operations.[35]

Another important step is to develop human capital and skills to meet the demands of technologically advanced foreign industries.[36] The government with the help of multinational companies should expand training programs and skill development initiatives.

India can also improve outcomes from FDI by regional diversification of FDI for inclusive growth. Policies that promote industrial corridors, state-level facilitation mechanisms, and regional infrastructure development can help attract FDI beyond traditional hubs like Maharashtra and Karnataka.[37] Additionally, environment and social governance (ESG) standards should be integrated into FDI policy frameworks to ensure sustainable development and community acceptance.[38] With the help of these changes, India can increase the volume of FDI and maximize its qualitative impact on employment, productivity, innovation and technology transfer.

Conclusion

Therefore, Foreign Direct Investment is a powerful and crucial instrument for India’s development providing capital, linking domestic firms to global value chains, creating job opportunities and enhancing technology transfer. However, India must continue its policy of openness to foreign investment, but pair it with strategic, well-calibrated policies that ensure these inflows generate sustainable employment, higher productivity, innovation and stronger technological capabilities across sectors.

[32] World Bank, India Development Update 2024: Infrastructure for Inclusive Growth, Washington D.C., 2024.
[33] Government of India, National IPR Policy, Ministry of Commerce and Industry, 2024.
[34] UNDP, Human Development Report: Sustainable Industrialization and FDI in Asia, 2023.
[35] OECD, Investment Policy Review: India 2023, Paris, 2023.
[36] World Bank, World Development Report 2023: Migrants, Refugees, and Societies, Washington D.C., 2023.
[37] Reserve Bank of India (RBI), State-wise Distribution of FDI Inflows 2023–24, Mumbai, 2024.
[38] UNDP, Sustainable Investment and ESG Integration in Asia, New York, 2023.