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# An Analysis of Foreign Direct Investment Policies and Telecom Reforms in the Development of Indian Telecommunications Sector

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***Abstract:*** *The Indian telecommunications sector has undergone a transformation since the 1991 economic reform, evolving from a restricted economy into the world's second-largest telecom market. This paper analyses the impact of Foreign Direct Investment (FDI) policies and major telecom reforms on the growth and digital inclusion of the sector. Using the secondary data from the available official sources such as TRAI, DoT, and DPIIT, the study identifies the interplay between sectoral outcomes and regulatory shifts.*

*This paper reviews landmark policies starting with the New Industrial Policy 1991, which allowed 51% foreign ownership, and covering the latest reform Telecom Reforms Package 2021, which permitted 100% FDI under the automatic route to eliminate financial stress and attract global capital. The analysis further covers strategic initiatives including the National Digital Communications Policy (NDCP) 2018, the National Broadband Mission (2019), the Production Linked Incentive (PLI) scheme, and the 5G Spectrum Auction Policy (2022).*

*The findings reveal that cumulative FDI inflows- reaching US$ 20 billion between 2010 and 2023 have been critical in expanding broadband users to nearly 1 billion and raising rural teledensity to 76% by 2025. Additionally, the study addresses the strategic balance between market liberalisation and national security, as stated by the mandatory screening requirements of Press Note 3 (2020). The paper concludes that the synergy between investor-friendly reforms and sustained capital infusion has been fundamental in drivingmodern infrastructure, competitive pricing, and India evolving as a global digital hub.*

***Keyword:*** ***Foreign Direct Investment, Indian Telecommunications Sector, Telecom Reforms, Economic Liberalisation, Digital Inclusion, 5G Deployment, National Digital Communications Policy (NDCP).***

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## I. Introduction

### 1. Historical Background of Indian Telecom Sector Post-Liberalization

The Indian telecommunications sector has undergone a profound transformation since the initiation of economic liberalization in 1991. Prior to liberalization, the sector was largely state-controlled, characterized by limited infrastructure, low teledensity, and minimal technological advancement. However, the opening up of the economy and the subsequent policy reforms paved the way for private sector participation and foreign investment which enabled the entry of new operators, increased competition, and a rapid rollout of mobile networks and internet services., fundamentally reshaping the structure of the Indian telecom sector. Among various forms of external capital, Foreign Direct Investment (FDI) has played a pivotal role in enhancing network infrastructure, expanding digital connectivity, fostering technological innovation, and improving service quality in the Indian telecom sector. Over the last decade, India has emerged as the second-largest telecommunications market in the world, with its total telephone subscriber base reaching approximately 1.21 billion by mid-2025 and tele-density climbing to around 86 percent, reflecting widespread connectivity across urban and rural areas. Wireless services dominate this growth, accounting for over 1.17 billion subscriptions by June 2025, while internet penetration has surged alongside, with nearly 979 million total internet users and broadband subscriptions rising steadily from around 131 million in 2015 to 1 billion by late 2025, marking a more than sixfold increase over ten years. This expansion has been accompanied by significant revenue growth, with gross industry revenue increasing from about ₹3,36,066 crore (US$ 39.22 billion) in FY24 to ₹3,72,097 crore (US$ 43.42 billion) in FY25. These trends demonstrate how liberalization-linked policies and market reforms have supported an enormous scale-up in subscriber base, broadband adoption, and financial performance of the Indian telecom sector.

The Government of India has progressively liberalized FDI policies in telecommunications through regulatory reforms, spectrum allocation policies, and initiatives aimed at promoting digital inclusion. These policy measures have not only attracted substantial foreign investment but have also facilitated competition,

efficiency, and technological diffusion within the sector. As a result, India has emerged as one of the largest and fastest-growing telecom markets globally, with significant advancements in broadband penetration, mobile connectivity, and digital services.

### 1.1. Growth of Telecom subscribers, Broadband, and Internet Penetration and Need of FDI

Post-liberalization, India's telecom sector has grown rapidly, with mobile subscriptions rising from 12.8 million in 2001 to 1.17 billion by June 2025. Broadband users increased from 13.8 million in 2012 to nearly 1 billion by 2025, while total internet users reached 979 million. Rural tele-density improved from 42% in 2012 to 76% in 2025, reflecting better connectivity across regions. This expansion was supported by policy initiatives like the National Broadband Mission (2019) and fiber rollout programs. Foreign Direct Investment (FDI) played a critical role by providing capital, technology, and expertise for network and infrastructure expansion. Policies allowing up to 100% FDI under the automatic route attracted global players such as Vodafone, Telenor, and Reliance Jio. Between 2010-2023, cumulative FDI inflows in telecom reached US$ 20 billion, enabling rapid deployment of 4G/5G networks and fiber infrastructure. Subscriber growth increased from 900 million in 2014 to 1.21 billion in 2025, while industry revenue increased from ₹3,36,066 crore (FY24) to ₹3,72,097 crore (FY25). These figures highlight the combined impact of policy reforms and FDI on Indian telecom sector growth, broadband adoption, and digital inclusion.

## II. Research Gaps

Although India's telecom sector has grown rapidly since liberalization, the role of policy reforms in attracting FDI and driving sectoral growth is often overlooked. Previous studies focus mainly on FDI caps or investment flows but do not link policies like licensing reforms, spectrum allocation, and digital infrastructure initiatives to outcomes such as urban-rural subscriber growth, broadband adoption, and telecom revenue. This study addresses this gap by analyzing how FDI-related policy reforms collectively contributed to the development of India's telecommunications sector, highlighting the interplay between policy, foreign investment, and digital inclusion.

## III.Review of Literature

Mishra (2022) conducted a critical analysis of FDI inflows in the Indian telecom sector. The study highlights fluctuations in FDI, with inflows rising from approximately US$1.3 billion in 2015-16 to US$6.2 billion in 2017-18, followed by a decline to US$2.6 billion in 2018-19. Findings indicate that policy liberalization, investor-friendly regulations, and global investor participation significantly influenced these trends. The paper emphasizes the importance of FDI in supporting infrastructure, technology adoption, and sectoral growth, especially in light of upcoming developments like 5G rollout.Singh, Soni, and Kathuria (2000) examine the evolution of India's telecommunications policy reforms using a historical and qualitative analysis of policy documents, regulatory frameworks, and sector outcomes, emphasizing liberalization and competition. Their study highlights how early reforms, particularly since the New Telecom Policy of 1994 and subsequent liberalization measures, shifted the sector from state monopoly toward greater private participation and market convergence.The findings suggests that these reforms facilitated increased technology choice, competitive entry, and infrastructure expansion, resulting in improved service provision and more dynamic market structures which created an investment-friendly environment for the growth of Telecom sector. Shetty (2024) conducted an analytical study that finds that FDI has significantly strengthened the financial health of telecom firms by supplying capital for network and infrastructure expansion, leading to improved connectivity and competitive pricing. The study highlights that strategic foreign investments have facilitated wider market reach and accelerated adoption of advanced technologies like 4G and 5G, benefiting both urban and rural users. Mangla and Singh (2023) conducted an econometric analysis and their empirical results indicate that FDI inflows did not have a statistically significant impact on telecom sector revenue, internet access, or subscriber base in both the short-run and long-run, suggesting a limited direct influence of FDI on these growth indicators. However, the study notes that foreign investors consider existing sector revenue and internet access levels when making investment decisions, implying FDI responds to, rather than drives, sector growth.Chodisetty and Raja Babu (2022) conducted a study to assess the relationship between FDI and growth in the Indian telecommunication sector and the findings indicates that increased FDI contributes meaningfully to sectoral development where the FDI acts as a catalyst for structural expansion in telecommunications, improving infrastructure and market performance.Bansal and Gupta (2013) conducted a descriptive analysis to assess the role of Foreign Direct Investment (FDI) in India's telecommunications industry. The study finds that the telecom sector has attracted major foreign capital, with cumulative FDI of Rs 9,576.40 crore from 1991 to 2003. They suggested that FDI brought technology transfer, capital infusion, and increased competition, all of which contributed to sectoral development. They argue that a stable, transparent, and non-discriminatory regulatory system is critical to attract further foreign investment and sustain growth. The paper concludes that foreign investment not only supports

infrastructure expansion but also enhances market dynamics, making India's telecom sector more competitive and technologically advanced.

## IV.Research Methodology

This research paper tries to discuss about the impact of Foreign Direct Investment and the major telecom reforms on the growth of the Indian telecommunications sector in the post-liberalization era. The data has been collected from the secondary sources form the official websites of TRAI Annual Reports, Consultation papers, various agreements, Press Information Bureau, DoT, DPIIT, IBEF, FDI Policy Circulars and various Reports, Articles and Journals.

## V.Foreign Direct Investment policiesand Telecom Reforms and its impact on growth of the Telecom Sector

### a. New Industrial Policy, 1991

This policy was launched on 24th July 1991which was approved by Government of India under Prime Minister P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh. The main objective of this policy was to liberalize the Indian economy by reducing government control and encourage the private and foreign participation. The Industrial Policy of 1991 was a turning point in India's economic history.

- **Major Change in FDI Policy**

For the first time, India openly welcomed foreign investment, recognizing that it could bring advanced technology, global business practices, and better management skills.

- **51% Foreign Ownership Allowed:** The policy allowed foreign companies to hold up to 51% equity in important industries through an automatic approval route. This made India more attractive to foreign investors and reduced unnecessary delays.
- **Special Negotiation Board:** For very large and high-tech investments, the government created a special board to directly negotiate with foreign companies in India's national interest.
- **Easier Technology Transfer:** Earlier, every foreign technology agreement required strict government approval. The new policy removed many of these restrictions, allowing Indian businesses to negotiate freely with foreign firms.

- **Direct Impact on Telecom Sector**

Telecommunication was identified as a high-priority sector for development under this policy.

- The policy allowed automatic 51% foreign investment in telecom-related equipment such as:
- Telephone instruments and subscriber equipment
- Optical fibre cables
- Advanced telecommunication cables

This helped bring modern technology into India and improved telecom infrastructure. The policy also reduced government monopolies in manufacturing. Earlier, many sectors were completely controlled by public sector companies. By opening them to private players, competition increased, which later supported the introduction of private telecom services under the National Telecom Policy (NTP) 1994.

### b. Press Note 5 (2005 Series)

This Note was issued on 3 November 2005 by the Department of Industrial Policy and Promotion (DIPP), which marked a significant policy shift in Indian telecommunications sector. This policy increased the Foreign Direct Investment (FDI) cap from 49% to 74% in specific telecom services, including Basic, Cellular, Unified Access Services, National/International Long Distance, V-SAT, Public Mobile Radio Trunked Services (PMRTS), Global Mobile Personal Communications Services (GMPCS), and other value-added services.

- **Provisions and their Impact**

- **Appraised FDI Limit:**The policy allowed up to 74% foreign investment in the specified telecom services, with up to 49% permitted under the automatic route. Investments beyond 49% required approval from the Foreign Investment Promotion Board (FIPB).
- **Management and Security Conditions:**

To address security concerns, the policy stated that the majority of directors on the board, including the Chairman, Managing Director, and Chief Executive Officer (CEO), be resident Indian citizens. This provision ensured that control remained with Indian nationals, even with increased foreign equity.

- **Telecom Sector Growth**

- **Increased Foreign Investment:**

The telecom sector witnessed a significant rise in FDI inflows.FDI in the telecom sector increased from approximately $118 million in 2004-05 to around $618 million in 2005-06.

- **Infrastructure Expansion:**

The influx of foreign capital facilitated the expansion and modernization of telecom infrastructure, leading to improved service quality and coverage.

- **Market Competition and Consumer Benefits:**

The entry of foreign players intensified competition, resulting in better services and reduced tariffs for consumers.

**c. Press Note 3 (2020 Series)**

This Note was issued on 17 April 2020under theDPIIT. The Press Note made significant changes in the FDI policies particularly in the Indian Telecom sector. The Press Nore was released in response of the concerns over opportunistic takeovers of Indian companies during the economic uncertainty caused by the COVID-19 pandemic, where an entity of a country, sharing land border with India or where the beneficial owner of an investment into India is situated in or is a citizen of any such country, can invest only under the Government approval route.

**d. National Telecom Policy (NTP) 2012**

The National Telecom Policy 2012 was approved by the Union Cabinet on May 31, 2012. Its main aim was to transform India's telecom sector into an inclusive, and forward-looking industry. With major key provisions of achieving 100% teledensity and broadband on demand, Encouraging the domestic manufacturing and reduce import dependence and promote R&D and innovation in telecom technologies.

The Rationale behind this policy was to bridge the digital divide, enhance connectivity, and position India as a global telecom hub. NTP 2012 laid the groundwork for a digitally connected India and increased the teledensity from 78.66 % in March 2012 to 79.38% in March 2016, Broadband subscribers from 13.81 million in March 2012 to 149.75 million in March 2016 and the total internet subscribers reached 342.65 million by March 2016.

**e. Unified Licensing Regime (ULR) 2013**

The Unified Licensing Regime **(**ULR) was launched on 19 August 2013, with the aim to simplify the previous licensing framework and consolidate various telecom specific licenses into a single and unified license. The Department of Telecommunications under the Ministry of Communications, approved and implemented this policy regime.The Rationale of this policy was to promote efficient utilization of network resources, encourage service convergence, and foster a competitive environment conducive to investment and innovation. The FDI provisions allowed FDI up to 74% with 49% under the automatic route and beyond that government approval was required. The ULR facilitated market entry for the players and provided the service diversification, contributing to gradual growth in subscribers and internet users with following evidence in the telecom market:

- Total internet subscribers reached to 251.59 million by March 2014.
- Broadband subscribers stood at 60.87 million in March 2014.
- Wireless subscribers increased to 904.51 million by March 2014.

**f. Right of Way (RoW) Rules 2016**

Indian Telegraph Right of Way (RoW) Rules, 2016 enacted under the Indian Telegraph Act 1885 and was launched on 15$^{th}$ November, 2016 which was notified by the Ministry of Communications, (GOI). The primary objective was to simplify the approval process by establishing a transparent regulatory framework to grant the approval to the telecom service providers for laying and installing the fibre cables and mobile networks and introduce standardize charges to prevent arbitrary charges by local authorities, thereby reducing the cost burden on telecom operators. This reform led to the development of Telecom infrastructure by accelerating the network expansion and improving the connectivity in both the rural and urban areas, it also reduced the bureaucratic hurdles and the rules created a more favorable environment for investment in the telecom sector. And it laid the foundation for digital initiatives and projects by promising a smooth implementation process for the upcoming events.

**g. National Digital Communications Policy (NDCP) 2018**

The National Digital Communications Policy (NDCP) 2018 was approved by the Union Cabinet on 26 September 2018, replacing the National Telecom Policy 2012, NDCP 2018 aimed to transform India into a digitally empowered economy by 2022.

**Table I: NDCP 2018: Targets vs Achievements**

| Objective | Target | Achievement Status |
|---|---|---|
| **Universal broadband connectivity at 50 Mbps to every citizen** | **50 Mbps to every citizen by 2022** | **Partially Achieved: Broadband connections reached 99.56 crore by 2025, with average mobile broadband speeds increasing to 105.85 Mbps. However, universal 50 Mbps access for every citizen has not been fully achieved.** |
| **1 Gbps connectivity to all Gram Panchayats (GPs) by 2020 and 10 Gbps by 2022** | **1 Gbps by 2020; 10 Gbps by 2022** | **Substantially Achieved: By 2025, 2.14 lakh GPs were service-ready under BharatNet, with scalable infrastructure supporting up to 1 Gbps. Upgrades to 10 Gbps are ongoing.** |
| **Enable 100 Mbps broadband on demand to all key development institutions, including educational institutions** | **100 Mbps on demand** | **Progressing: Initiatives like BharatNet have provided Fiber-to-the-Home connections, including to rural schools. However, comprehensive data on 100 Mbps availability to all key institutions is limited.** |
| **Enable fixed-line broadband access to 50% of households** | **50% of households by 2022** | **Not Achieved: Fixed broadband subscribers increased from 1.52 crore in 2014 to 3.46 crore in 2023, which is below the 50% household coverage target.** |
| **Achieve 'unique mobile subscriber density' of 55 by 2020 and 65 by 2022** | **55 by 2020; 65 by 2022** | **Achieved: Total mobile connections reached 1,182.32 million by September 2025, with overall tele-density at 86.65%, indicating the target has been met.** |
| **Enable deployment of public Wi-Fi hotspots; reach 5 million by 2020 and 10 million by 2022** | **5 million by 2020& 10 million by 2022** | **Not Achieved: As of June 2025, 3,33,300 public Wi-Fi hotspots were installed under PM-WANI, which is significantly below the 10 million targets.** |
| **Ensure connectivity to all uncovered areas** | **100 percent coverage** | **Substantially Achieved: By April 2024, 95.15% of villages had 3G/4G mobile connectivity. Efforts are ongoing to connect the remaining areas.** |

**Source: Author's Compilation &National Digital Communications Policy 2018, PIB**

✓ **The implementation of NDCP 2018 and Advancements in Indian telecom sector:**

- **Optical Fiber Cable Network:** Expanded from 17.5 lakh km in March 2018 to 41.9 lakh km in 2024.
- **Base Transceiver Stations:** Increased from 19.8 lakh in 2018 to 29.4 lakh in 2024.
- **Mobile Connectivity:** as of 2024, out of 6,44,131 villages, 6,22,840 are covered with mobile connectivity.
- **Broadband Subscribers:** Grew from 48 crore in 2018 to 94 crores in 2024.
- **Data Usage:** Rose from 8.32 GB per month in September 2018 to 21.30 GB per month in June 2024.
- **Data Tariffs:** Average tariff per GB of wireless data decreased from ₹10.91 in 2018 to ₹8.31 in 2024.

The NDCP 2018 has significantly influenced the development of India's telecom sector. The significant expansion of the optical fiber network and base transceiver stations has enhanced connectivity infrastructure; the increased data consumption paired with reduced tariffs indicates enhanced affordability and user involvement. These developments collectively underscore the NDCP (2018) role in advancing India's telecom ecosystem.

### h. National Broadband Mission (2019)

The National Broadband Mission (NBM) was launched by the Government of India on 17th December 2019 under the aegis of the Department of Telecommunications (DoT), Ministry of Communications. It is an initiative under the National Digital Communications Policy (NDCP) 2018, aiming to fast-track the growth of digital communications infrastructure, bridge the digital divide, and provide affordable and universal access to broadband for all. The mission has three main Principles:

- **Universality:** Ensure ubiquitous availability of broadband services to bridge the digital divide.
- **Affordability:** Provide affordable broadband services to every citizen to bridge the socio-economic divide.
- **Quality:** Ensure high-speed and highly reliable broadband access to all.

➢ **The Mission had structured objectives in accordance with the core 3 principles:**

1. **Universal Broadband Access**: Provide broadband access to all villages by 2022.
2. **Policy and Regulatory Support**: Facilitate Right of Way (RoW) approvals through a single-window clearance system.
3. **Infrastructure Development**: Lay incremental 30 lakh km of Optical Fiber Cable (OFC) and increase tower density from 0.42 to 1.0 per thousand population by 2024.

**Table II: National Broadband Mission (2019) Targets Vs. Achievements**

| Parameter | Target (2019) | Achievements (2024-25) |
|---|---|---|
| **Broadband Subscribers** | 62.54 crore | 99.56 crore |
| **Optical Fiber Cable (OFC) Length** | 19.35 lakh km | 42.36 lakh km |

| | | |
|---|---|---|
| **Mobile Towers** | 5.37 lakh | 8.43 lakh |
| **Base Transceiver Stations (BTSs)** | 21.80 lakh | 31.44 lakh |
| **Median Mobile Download Speed** | 10.71 Mbps | 131.47 Mbps |
| **Fixed Broadband Download Speed** | 29.25 Mbps | 60.34 Mbps |
| **Village Broadband Connectivity** | 1.81 lakh Gram Panchayats connected | 2.14 lakh Gram Panchayats connected |

**Source: Author's Compilation & PIB Press Release**

➢ **National Broadband Mission (NBM) 2.0 (2025–2030):** The National Broadband Mission (NBM) 2.0 launched on January 17, 2025, is an initiative by the Government of India aimed at accelerating the expansion of digital communications infrastructure, bridging the digital divide, and fostering digital empowerment and inclusion across the country. Building upon the achievements of NBM 1.0 (2019–2024), NBM 2.0 sets forth ambitious targets to be achieved by 2030, including extending Optical Fiber Cable (OFC) connectivity to 2.70 lakh villages, providing broadband access to 90% of anchor institutions such as schools and healthcare centers, and achieving a minimum fixed broadband download speed of 100 Mbps nationwide. The mission also emphasizes sustainable development by aiming to power 30% of mobile towers with renewable energy sources. Additionally, it seeks to streamline infrastructure deployment through policy reforms like the Telecommunications Act 2023 and the Telecommunications (Right of Way) Rules 2024, and by leveraging technologies such as satellite broadband and Optical Ground Wire (OPGW) to enhance connectivity in remote and challenging areas. NBM 2.0 aligns with the vision of a digitally inclusive and empowered India, contributing to the broader goal of transforming the nation into a global knowledge society by 2047.

### i. Telecom Reforms Package 2021

The Telecom Reforms Package 2021 approved by the Union Cabinet on 15th of September 2021, turned as major event for refurbishing the financially stressed telecom sector of India. The major objectives of this reform were to reduce the financial burden of the telecom operators as they were financially collapsing so the telecom reform aimed of easing the burden of heavy AGR dues and penalties of the TSPs for their long-term sustainability. To attract the foreign expertise and capital it raised the FDI caps to 100% under the automatic route. It also aimed at facilitating the deployment of the 5G services by providing a suitable landscape including infrastructure support.

**Table III: Core Components of Telecom Reform Package**

| Component | Key Provisions |
|---|---|
| **AGR Rationalization** | Exclusion of non-telecom revenue from AGR calculation on a prospective basis |
| **Reduction of Bank Guarantees (BGs)** | 80% reduction in BG requirements; elimination of multiple BGs across LSAs |
| **Interest & Penalty Rationalization** | Interest reduced from SBI MCLR + 4% to MCLR + 2%; annual compounding; removal of penalties and interest on penalties |
| **Spectrum Reforms** | Spectrum tenure increased from 20 to 30 years; option to surrender spectrum after 10 years; removal of SUC for future auctions; removal of 0.5% additional SUC on sharing |
| **Option to Convert Interest into Equity** | TSPs could convert interest dues into equity; government could take equity if required |
| **100% FDI under Automatic Route** | Allowed 100% FDI in telecom with safeguards to attract investment |
| **Ease of Doing Business Reforms** | Self-declaration for wireless equipment instead of licensing requirements |
| **KYC Reforms** | App-based self-KYC; e-KYC cost reduced to ₹1; no fresh KYC for prepaid-postpaid switch |
| **Digitalization of Customer Acquisition Forms (CAF)** | Shift from paper-based to digital Customer Acquisition Forms; removal of warehouse audits |
| **Simplified SACFA Clearance** | Self-declaration-based approvals; portal integration with other agencies for faster tower installation |

**Source: Author's Compilation from Press Information Bureau**

**Table IV: Selected Indicators of Telecom Sector Development**

| Indicator | **Before** (2018) | **After**(2024) | **Implication**s |
|---|---|---|---|
| **Optical Fiber Cable (OFC) Network** | 17.5 lakh km | 42.36 lakh km | Strengthened digital backbone and enhanced broadband capacity |
| **Base Transceiver Stations (BTS)** | 19.8 lakh | 29.4 lakh | Improved mobile coverage and network quality |
| **Village Mobile Connectivity** | Incomplete coverage | 6,22,840/6,44,131 villages | Greater rural digital inclusion |
| **Broadband Subscribers** | 48 crores | 94 crores | Expanded internet penetration |

| | | | |
|---|---|---|---|
| **Average Monthly Data Usage per User** | 8.32 GB | 21.30 GB | Higher digital engagement and network utilization |
| **Average Wireless Data Tariff per GB** | ₹10.91 | ₹8.31 | Increased affordability of data services |

**Source: Author's Compilation from TRAI and PIB**

### j. Production Linked Incentive (PLI) Scheme for Telecom (2021)

The Production Linked Incentive (PLI) Scheme for Telecom and Networking Products, launched by the Department of Telecommunications (DoT) on February 24th 2021, this scheme was launched under the broader vision of the "Atmanirbhar Bharat" and "NDCP 2018" policy , its primary focus is to boost the domestic manufacturing, reduce dependency on the imports, and position India as a global hub for telecom equipment production, the PLI scheme aims to create a sustainable manufacturing base for telecom products, including 4G/5G equipment, core transmission systems, routers, switches, Internet of Things (IoT) devices, and customer premises equipment.

The Government of India allocated a **financial outlay of total Rs.12,195 crores over five years** from the F.Y. 2021-22 to F.Y. 2025-26, out of which **MSME Allocation₹1,000 crore** offering higher incentives in the first three years.

➢ **Incentive Structure**:

- Incentives from 4% to 7% on incremental sales of manufactured goods
- Additional 1% incentive for Micro, Small, and Medium Enterprises for the first three years.
- Additional 1% incentive for products that are designed, developed, and manufactured in India.

➢ **Achievements & Impact (As on January 2025)**

- **Employment:** Creation of 26,351 jobs in the telecom manufacturing sector.
- **Design-Led Manufacturing:** Amendments to the scheme have introduced an additional 1% incentive for products that are designed, developed, and manufactured in India, promoting indigenous innovation.
- **Sales:** Total sales of ₹78,672 crore, including export sales worth ₹14,963 crore.
- **Investments:** Beneficiaries have invested ₹4,081 crore.

➢ **Approved Beneficiaries**

- A total of 42 companies has been approved under the scheme, comprising:
- 16 MSMEs
- 8 Non-MSME Domestic Companies
- 7 Non-MSME Global Companies

These companies are expected to invest ₹4,115 crores and generate sales of ₹2.45 lakh crores, and create employment for over 44,000 individuals over the scheme period.

### k. 5G Spectrum Auction Policy (2022)

The 5G Spectrum Auction Policy (2022) acted as a backbone to facilitate the deployment of 5G services nationwide approved by the Union Cabinet on 15th June 2022, with the spectrum auction conducted in July 2022. Subsequently, 5G services were officially launched on October 1, 2022, by the Hon'ble Prime Minister. By auctioning a total of 72,098 MHz of spectrum across various frequency bands, the policy aimed to provide telecom service providers with the necessary resources to roll out high-speed, low-latency 5G networks, thereby propelling India's digital transformation.

➢ **Vital Characteristics of 5G Spectrum Auction Policy (2022)**

**a) Spectrum Bands Auctioned:**Total of 72,098 MHz of spectrum was made available across various frequency bands, including low (600 MHz, 700 MHz, 800 MHz, 900 MHz, 1800 MHz, 2100 MHz, 2300 MHz), mid (3300 MHz), and high (26 GHz) bands.

**b) Auction Outcome:** The auction commenced on July 26, 2022, and concluded on August 1, 2022. Out of the total spectrum, 51,236 MHz (approximately 71%) was sold, generating a record revenue of ₹1,50,173 crore, the highest ever from a single spectrum auction in India.

**c) Policy Reforms:** In line with the telecom sector reforms announced in September 2021, the policy introduced several measures to ease the financial burden on telecom service providers (TSPs):

- No SUC was levied on the spectrum acquired in this auction, reducing operational costs for TSPs.
- TSPs were allowed to pay the auction amount in 20 equal annual installments, with the option to surrender the spectrum after a minimum period of 10 years.

**d) Impact on 5G Deployment:** The successful auction paved the way for the rapid deployment of 5G services in India. Telecom operators began rolling out 5G networks, leveraging the newly acquired spectrum to offer enhanced mobile broadband services, ultra-reliable low-latency communications, and massive machine-type communications.

**Table V: State-wise 5G Deployment in India March,2025**

| State | Districts with 5G Rollout | Villages with 5G BTSs Installed |
|---|---|---|
| **Andhra Pradesh** | 26 | 3,797 |
| **Arunachal Pradesh** | 27 | 108 |
| **Assam** | 35 | 1,757 |
| **Bihar** | 38 | 4,601 |
| **Chhattisgarh** | 33 | 1,362 |
| **Goa** | 2 | 111 |
| **Gujarat** | 33 | 4,842 |
| **Haryana** | 22 | 2,538 |
| **Himachal Pradesh** | 12 | 1,192 |
| **Jharkhand** | 24 | 1,642 |
| **Karnataka** | 31 | 3,750 |
| **Kerala** | 14 | 925 |
| **Madhya Pradesh** | 55 | 3,686 |
| **Maharashtra** | 36 | 6,910 |
| **Manipur** | 14 | 214 |
| **Meghalaya** | 12 | 182 |
| **Mizoram** | 11 | 45 |
| **Nagaland** | 16 | 114 |
| **Odisha** | 30 | 2,934 |
| **Punjab** | 23 | 2,669 |
| **Rajasthan** | 41 | 5,393 |
| **Sikkim** | 6 | 98 |
| **Tamil Nadu** | 38 | 3,211 |
| **Telangana** | 33 | 2,145 |
| **Tripura** | 8 | 108 |
| **Uttar Pradesh** | 75 | 8,451 |
| **Uttarakhand** | 13 | 845 |
| **West Bengal** | 23 | 4,521 |

**Source: Press Information Bureau**

- **How the 5G Spectrum Auction Policy (2022) Led to Telecom Sector Growth?**

The policy accelerated 5G deployment, leading to improved network speed, capacity, and quality of service. It Enabled new-age digital services such as IoT, AI, cloud computing, smart cities, and Industry 4.0. It stimulated investment in telecom infrastructure by improving the investor confidence due to transparent spectrum policy, including fiber backhaul and advanced base stations. Additionally, it promoted digital innovation, enterprise applications, and strengthened the overall growth and competitiveness of India's telecom sector.

## VI. CONCLUSION

The paper concludes that FDI has played a major role in expanding India's telecom sector by bringing not only capital but also advanced technology and greater competition. It highlights how policy reforms—from the 1991 Industrial Policy allowing 51% FDI to the 2021 reforms permitting 100% FDI under the automatic route—have helped revive and modernise a financially stressed industry. At the same time, the government has maintained strategic control through safeguards like Press Note 3 (2020) to prevent opportunistic takeovers. The study also notes that FDI is no longer just responding to sectoral growth but actively driving high-tech advancements such as 5G, IoT, and AI by strengthening investor confidence through transparent policies. Overall, the outlook remains optimistic, especially with NBM 2.0 (2025–2030) aiming to ensure nationwide high-speed connectivity and position India as a global knowledge hub by 2047.

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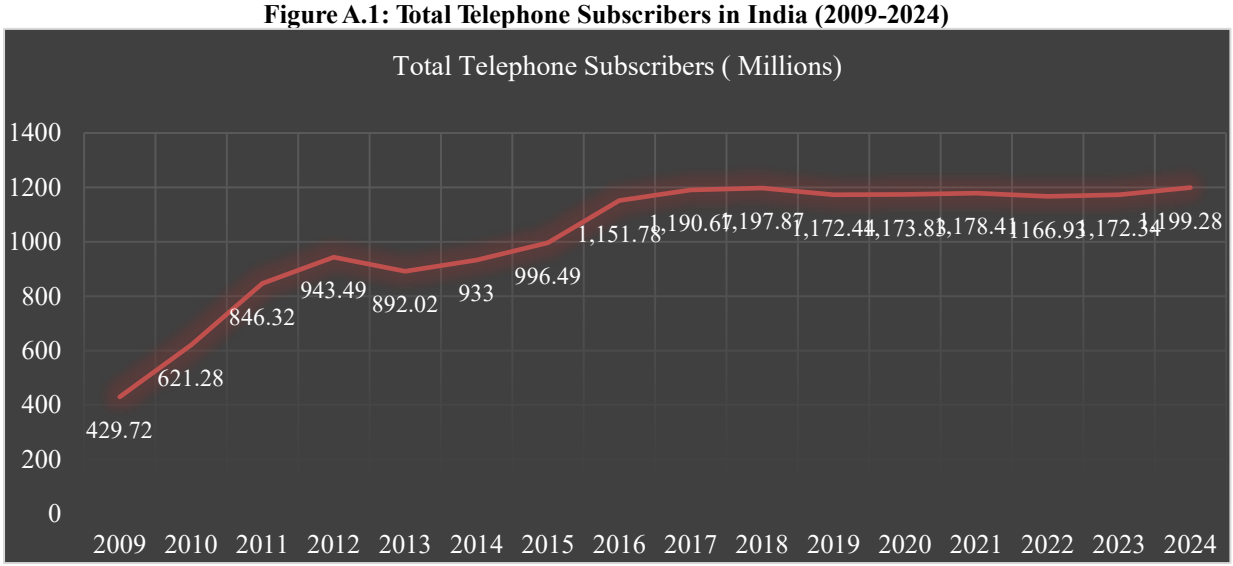
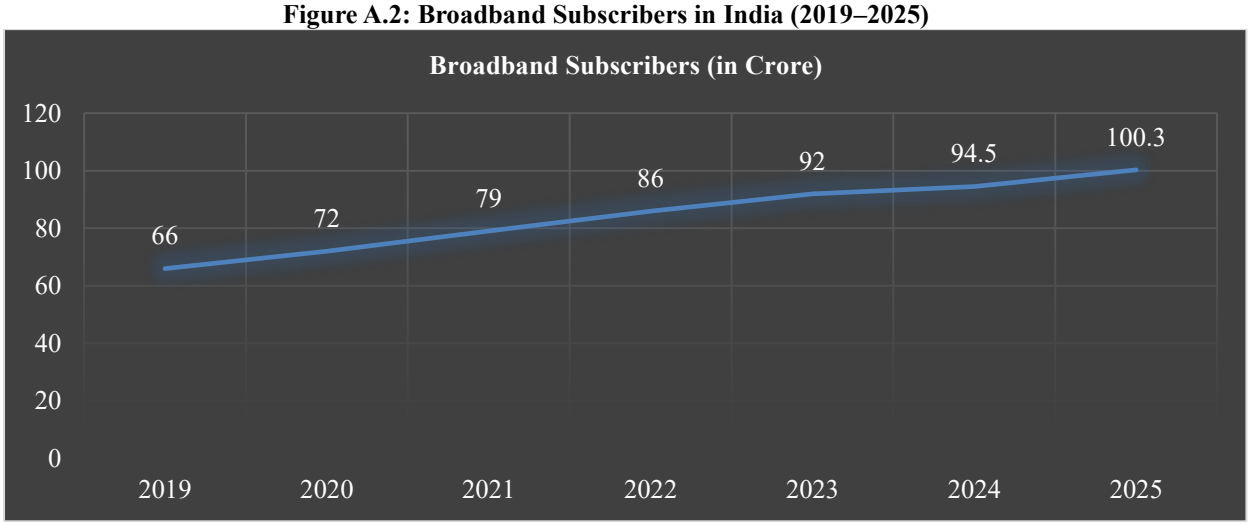
**Appendix**

**Figure A.1: Total Telephone Subscribers in India (2009-2024)**



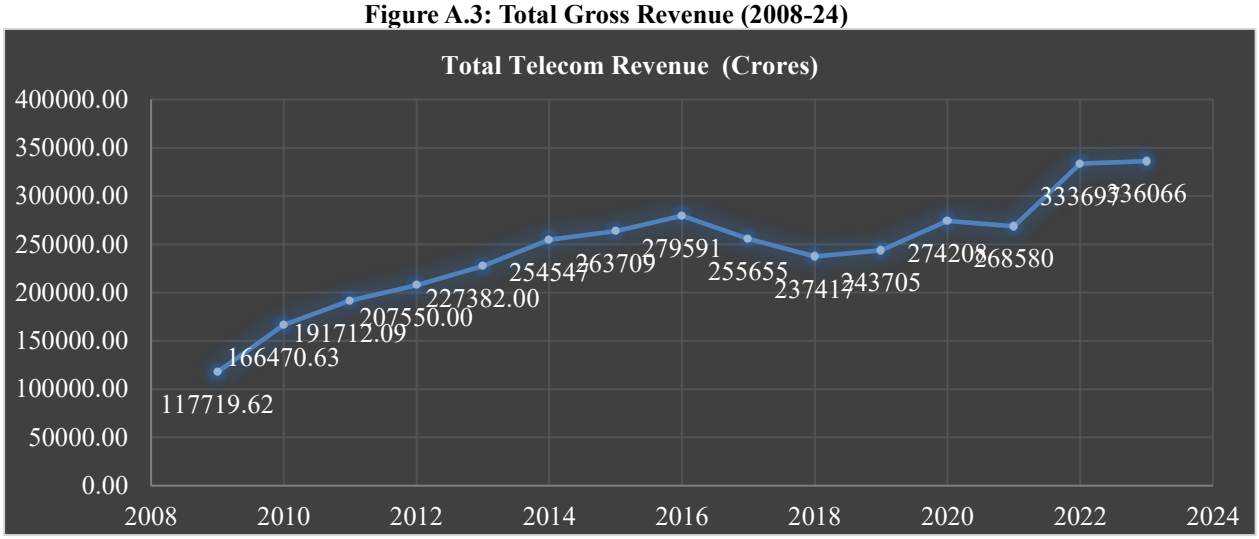

**Source: TRAI Annual Reports**

**Figure A.2: Broadband Subscribers in India (2019–2025)**



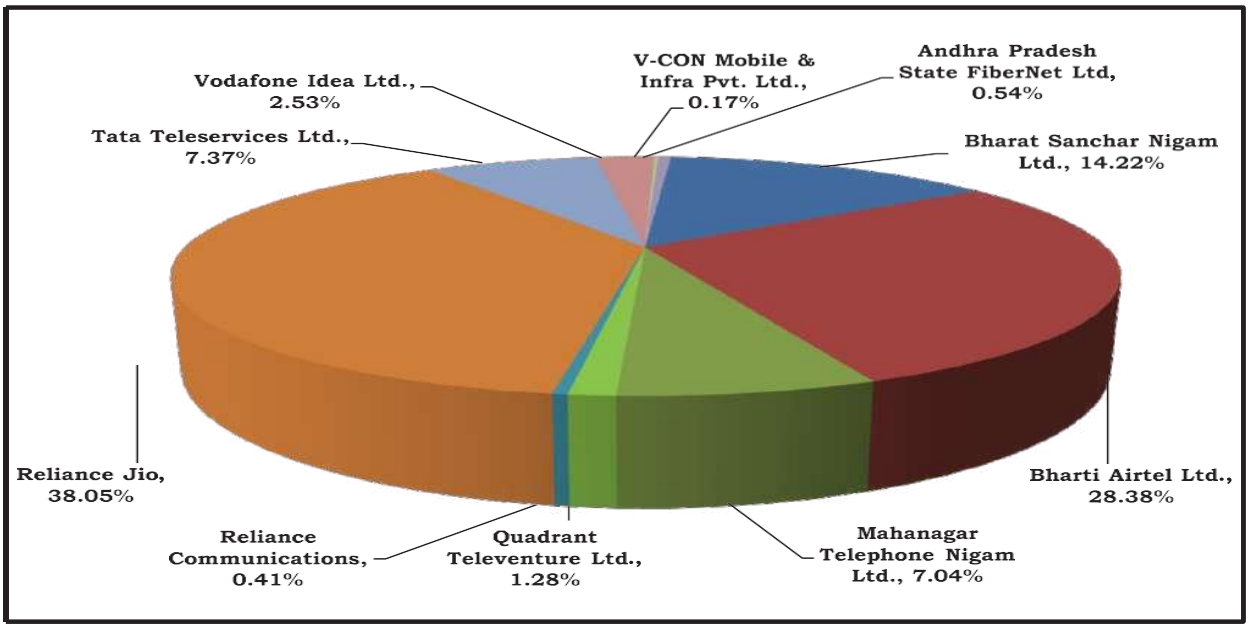

**Source: TRAI Annual Reports**

**Figure A.3: Total Gross Revenue (2008-24)**



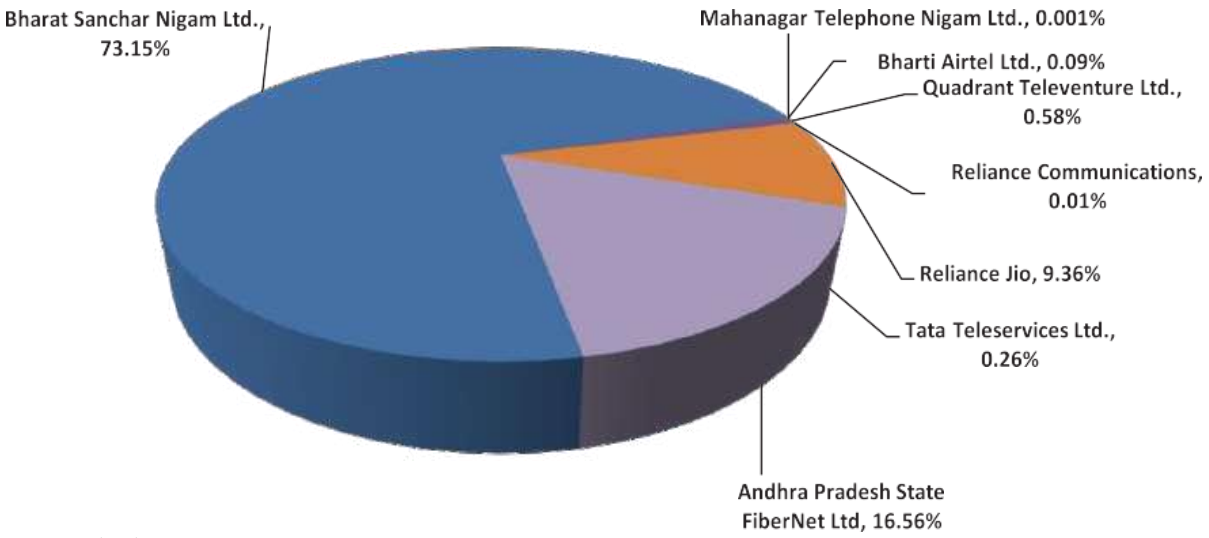

**Source: TRAI Annual Reports**

**Figure A.4: Composition of share of Wireline Service Providers Basein Urbanareas**




**Source: TRAI Annual Reports**

**Table A.5: Composition of share of Service Providers in Ruralareas**




**Source: TRAI Annual Report**