



## Sustainable and inclusive growth of Kerala economy in the ICT era and the role of bank credit

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### Abstract

**Background:** Given the high ICT infrastructure in Kerala State and the State's exceptional attainments like universal literacy, greater share of manpower with higher level of education and technical training, very conducive climate for the growth of tourism sector, rich history of private banking, trade relations with the rest of the world right from historical times, excellent public healthcare infrastructure including trained medical professionals, etc. this study critically analyses Kerala's growth pattern. The relevance of inclusive growth and also the need for proper use of credit of commercial banks for the sustained growth of Kerala. Accordingly, the current growth that is essentially services sector oriented can be made more industry-oriented in view of the persisting stagnancy noticed in Kerala's industrial sector over the years. The potential of ICT should be properly leveraged too.

**Objectives:** To make a critical study of the growth pattern of Kerala economy and relevance of credit facilities from the commercial banks, and to suggest policies for the sustained and balanced growth of Kerala based on the findings of the study.

**Methods:** A descriptive analytical study based using the authentic secondary data, especially the reports of the RBI and the publications of the State and Union governments. Popular statistical tools have been used for data analysis and interpretation.

**Results:** A detailed study of the reports of the government, the RBI, and other publications and research papers including various policy documents, it is noted that better use of formal sector banking services especially by the labor-intensive sectors like housing and real estate, tourism, MSMEs etc. can accelerate the growth rate of Kerala and that too in a sustainable manner.

**Conclusion:** There is a vital need for better channeling of the formal sector bank credit to various sectors of Kerala economy, including those under the various government-sponsored schemes, thrust on financial inclusion including microfinance, and focused thrust on labor-intensive sectors with vast linkages (tourism, housing and real estate, etc.) for the inclusive as well as sustained growth of the State. Special attention be paid for the extensive use of ICT and allied technologies in all such efforts.

**Keywords:** Bank credit, economic growth, ICT, Sustainable Development Goals, linkage effects

### Introduction

It is widely recognized that Kerala economy presents a unique growth pattern in the whole of India, probably globally too. Kerala's growth paradigm within Indian union has been shaped by the State's significant human development indices, superior ICT infrastructure and a dominant services sector. Renowned for achieving universal literacy, high healthcare standards, and robust social infrastructure, Kerala has consistently outperformed many Indian states in human development outcomes. These attainments have provided a sound basement for various economic activities, especially in services like tourism, trade, healthcare, education, banking, information technology (IT), etc. Gross State Value Added (GSVA) of Kerala reflects the above structural composition. Of late, in 2023–24, Kerala's services sector contributed as high as 64.3 percent of the State's GSVA, thus significantly outpacing the primary and secondary sectors. Kerala's high dependency on the service sector is further reinforced by its fast-growing IT sector, the presence of established IT parks (Technopark at Thiruvananthapuram, Infopark at Ernakulam, Cyberpark at Kozhikode, etc.), mounting fintech startups, and the State's success in sectors such as tourism and hospitality. Despite the appreciable growth in service sector and its impact on Kerala's economic growth, this relative strength equally poses a structural challenge too: the stagnancy persisting in

Kerala's industrial sector (specially manufacturing segment) and also the declining share of the agriculture sector its GSDP. This situation hinders the diversified and inclusive economic growth of Kerala economy.

In the context of the stagnancy of Kerala's industrial sector (specially manufacturing segment within it) it is relevant to critically look into the role of the financial system of the State. Kerala's financial system is characterized by higher share of foreign inward remittances, robust cooperative sector and vast network of private banks and financial service providers. The role of financial system is vital in economic sustenance. Commercial Banks (CBs) and other financial intermediaries have a pivotal role in credit allocation and hence in deciding the pace of growth of different economic sectors. Thus, the utilization of bank credit across various key sectors such as housing, MSMEs, tourism and allied industries is an aspect that requires critical review and detailed investigation.

Given this context, a comprehensive study of Kerala's growth pattern since 2015 deserves a closer evaluation not only based on macroeconomic indices but also the role played by formal sector credit, ICT adoption etc. in facilitating an inclusive and sustainable economic development of Kerala. In this context, the present paper analyses how better deployment of credit by CBs and effective leveraging of the potential of ICT foster faster and more balanced economic development of Kerala, and

stimulate industrial activities, especially those ensuring more employment opportunities at the grassroots level.

### Objectives

1. To critically study the growth pattern of Kerala economy and the relevance of credit from commercial banks (CBs);
2. To suggest policies for the sustained and balanced growth of Kerala based on the findings of the present study.

### Methodology

A descriptive analytical study based using the authentic secondary data like the reports of the RBI and the publications of the State and Union governments. Popular statistical tools have been used for data analysis and interpretation.

### Review of Literature

#### Kerala's Growth Trajectory and the Paradox of high HDIs

The growth trajectory of Kerala in India has long evinced the attention of many scholars due to its apparent divergence from the typical conventional growth–development nexus observed elsewhere in India or even the whole world. The so-called ‘Kerala Model of Development’ is characterised by the State’s outstanding attainments in human development indicators (HDIs) like universal literacy, low IMR (infant mortality rate), high life expectancy rate, and relatively equitable access to all the basic services for all people etc. is globally renowned. This model is globally acclaimed as all its achievements have been attained with relatively low PCI (per capita income) growth during the post-Independence era (Kurien, 2015; Sen, 1999) <sup>[1, 19]</sup>. This paradox has attracted the attention of many scholars and has created a wide array of literature on the sustainability, inclusiveness and sectoral composition of this growth process. As suggested by Manoj (2023) <sup>[49]</sup> ‘Affordable Healthcare and Affordable Housing: Need for an Integrative Approach for the Holistic Growth of the Digital Economy of Kerala, India’ an integrative and holistic approach, along with ICT adoption, in two key sectors (healthcare and housing) is vital for sustained growth of Kerala. Reports of GOK (Govt. of Kerala), Kerala State Planning Board (2022,2024) and NITI Aayog (2025) <sup>[65]</sup> show that Kerala has entered a new growth phase since the mid-2010s. This new phase is marked by higher growth rates in GSDP (Gross State Domestic Product), very dominant services sector, and growing integration with digital economy. Even though Kerala is endowed with excessively rich tourism resources, like, exceptional natural beauty and conducive natural resources Kerala is not in the top ten Indian States in domestic tourist visits (FTVs). In foreign tourist visits (FTVs), Kerala with a 3.53 percent share of India’s FTVs is only in the eighth rank, far below Maharashtra (17.69 percent, first), and is below Tamil Nadu (5.55 percent, seventh) – the other south Indian State among the top ten States in FTVs into India. So, as noted by Manoj, P.K (2017) <sup>[23]</sup>, ‘Segmentation Strategy for Promotion of Ecotourism Products: Evidence from Thenmala Ecotourism’, a clear segmentation strategy based on specific customer groups is essential to attract more foreign visitors. Despite the State’s growth in absolute terms primarily driven by the structural weaknesses still persist in Kerala’s

growth trajectory and the stagnation in the manufacturing sector is too glaring. So is the decline in the share of agriculture to GSDP. The above situation poses challenge to the inclusive, balanced and equitable economic growth of this State. In this context, Zubair and Santha (2020) <sup>[43]</sup> have noted that service-sector-led growth that is going on in Kerala could generate income and foreign exchange earnings, but it could not translate itself into comparable level of generation of employment opportunities, thereby reiterating apprehensions on Kerala’s jobless growth as articulated earlier by Kannan and Raveendran (2009) <sup>[6]</sup>. So, the current literature converges on the fact that the State’s growth path, even though highly socially progressive, needs structural remodeling so as to ensure that it is sustainable and also inclusive. While more growth avenues (e.g. Vizhinjam port in south Kerala besides ICTT in central Kerala, IT parks) are being created to boost the services, commensurate support to boost the industries too, especially small industries, is vital. As Manoj, P.K (2015) <sup>[17]</sup>, ‘International Container Transshipment Terminal (ICTT) and its impact on coffee exports from India: An analysis’ remarks that ICTT aids faster growth in exports, ways to boost industries too is vital to balance growth pattern.

#### Bank Credit and Economic Growth with Structural Change

Erstwhile models like SEZs (of early 2000s) have lost steam. The SEZ-based route for inclusive growth, Manoj, P.K (2009) <sup>[5]</sup> ‘Special economic zones in India: financial inclusion: challenges and opportunities’ has its own limits. Rather, today the finance-growth nexus can play a key role in development discourses, since a large body of evidence shows that efficient financial intermediation can accelerate economic growth by savings mobilisation, capital allocation, innovation etc. While Rangarajan and Dev (2014) <sup>[16]</sup> emphasise financial inclusion and access to institutional credit are critical for inclusive growth, Manoj, P. K. (2012) <sup>[12]</sup>, ‘Potential of micro enterprises in women empowerment: A critical study of micro enterprises run by women under the Kudumbashree Programme in Kerala’ has observed the key role of financial inclusion of women through SHGs under the GOK-controlled ‘Kudumbashree’ project for grassroots level industrialization and hence financial security. Manoj, P.K. (2015) <sup>[17]</sup> ‘Housing Microfinance: A Study on Quality, Cost and Default Rate with Respect to Bhavanashree in Kerala’ suggest microfinance way to housing development and hence economic growth through linkage effects. Given Kerala’s unique banking system characterised by the dense branch network, robust system of cooperative banking, high financial literacy levels. RBI publications *viz.* *State Finances* and RBI’s reports and state-wise data (RBI, 2022, 2024) show that Kerala has constantly scored high in CD (credit–deposit) ratio. This suggests significant use of bank credit by the State.

However, many studies have pointed out a mismatch between the credit supply and sectoral demand for credit. For instance, Manoj, P.K (2016) <sup>[20]</sup> ‘Real Estate Investment Trusts (REITs) for Faster Housing Development in India: An Analysis in the Context of the New Regulatory Policies of SEBI’ has noted the need for innovative financing models like REITs for better credit into the construction sector so that linkage effects could translate housing development into overall economic growth.

Chakravarty and Pal (2013) <sup>[13]</sup> suggest an axiomatic model to bring about financial inclusion, indicating that just access to various banking services is inadequate unless such access is duly aligned with relevant developmental goals. In Kerala's context, an apt reorientation of bank credit towards housing, tourism, MSMEs, green financing projects etc. is an imperative for creation of employment and sustained growth.

### **Structural Change for Inclusive Growth and Employment**

A vital element in the literature currently available relating to the growth pattern of Kerala economy has been, as already noted, the mismatch (disconnect) between growth in output and creation of employment. Kannan and Raveendran (2009) <sup>[6]</sup> have pointed out that growth in India's organised sector has by and large bypassed employment generation over the years; this phenomenon being glaringly visible in Kerala State as this State has been relying on various capital-intensive and skill-intensive services. Narayana and Gulati (2016) <sup>[22]</sup> have pointed out another complex issue in Kerala's growth process i.e. Kerala's peculiar situation in demographic transition and also its ageing population. This underscores the crucial need for generating more employment opportunities in productive sectors, particularly in the State's labour-intensive sectors like, construction, tourism, housing, etc. Manoj, P. K. (2016) <sup>[20]</sup>

'Impact of Rural Tourism on the Environment and Society: Evidence from Kumbalangi in Kerala, India' points out the utmost need for promoting rural tourism and allied sectors for the sustained and environment-friendly growth of Kerala. The 'inclusive growth' as a concept, as articulated by Sen (1999) <sup>[1]</sup>, and then adopted in India's policy discourses since Twelfth Five-Year Plan (Planning Commission of India, 2013), lays thrust not only on income creation but on access to avenues for productive employment, social security etc. as well.

Datt and Ravallion (2011) <sup>[11]</sup> empirically shows that growth processes could differ markedly in poverty-reducing impact, and this underlines the key relevance of balancing the sectoral composition as well as a re-orientation of relevant policies. In the context of Kerala State, the State's Planning Board (2024) has pointed out that sectors like tourism, housing, MSMEs, healthcare, real estate, etc. deserve more attention. This is due to the extensive linkages, both backward and forward, of the above sectors which in turn raises the employment prospects. Manoj (2009, 2017a) <sup>[5, 23]</sup> similarly argues that revitalising agriculture, manufacturing, and construction-related activities is essential for sustainable development. So, the literature shows the need for targeted financial and technological interventions to stimulate employment-intensive sectors.

### **Financial Inclusion, Social Banking, and Microfinance**

Financial inclusion has emerged as a cornerstone of India's development strategy, culminating in the National Strategy for Financial Inclusion 2019–2024 (Government of India, 2021) <sup>[44]</sup>. The RBI's Financial Inclusion Index (Reserve Bank of India, 2022) <sup>[48]</sup> provides empirical evidence of Kerala's relatively strong performance in access and usage dimensions.

Manoj (2019a) <sup>[33]</sup> situates financial inclusion within the broader framework of social banking, arguing that ICT-

enabled banking models can significantly enhance outreach, efficiency, and inclusiveness. Studies on housing microfinance (Manoj, 2015b) <sup>[17]</sup> demonstrate that targeted credit interventions can improve housing quality, reduce default rates, and enhance household welfare. These findings are particularly relevant for Kerala, where housing and real estate play a critical role in employment and investment.

Pickens (2009) <sup>[8]</sup> provides international evidence on mobile money systems, illustrating how ICT-driven financial services can bring unbanked populations into the formal financial system, the study being in the context of Philippines. Lakshmi and Manoj (2017) <sup>[23]</sup> and Joju, Vasantha, and Manoj (2017a) <sup>[23]</sup> empirically confirm that ICT-based banking products improve customer access and satisfaction in Kerala, especially in rural areas. The literature thus underscores that financial inclusion, when supported by ICT and aligned with sectoral priorities, can act as a catalyst for inclusive and sustainable growth.

### **ICT, Digital Economy, and Banking Transformation**

ICT has fundamentally transformed economic processes, governance, and financial intermediation. The World Bank (2019) <sup>[38]</sup> emphasises that digital technologies reshape labour markets, productivity, and the nature of work. Manoj (2007) <sup>[3]</sup> provides an early SWOT analysis of India's ICT industry, highlighting its potential to drive growth while cautioning against skill mismatches and digital divides.

In Kerala, ICT initiatives under the "Digital Kerala" vision have significantly improved e-governance, digital payments, and service delivery (Joju & Manoj, 2019) <sup>[33]</sup>. Jacob, Vasantha, and Manoj (2017b) <sup>[23]</sup> find that fintech adoption enhances service quality in banks, though branch banking continues to remain relevant due to trust and relationship-based interactions. The integration of ICT with banking has implications beyond efficiency. Manoj (2019b, 2019c) <sup>[33]</sup> argues that ICT-enabled CRM, HRM, and social banking strategies strengthen institutional capacity to support inclusive growth. These insights align with this study's emphasis on leveraging ICT to improve credit delivery to labour-intensive sectors.

### **Housing, Real Estate, and Linkage Effects**

Housing and real estate occupy a strategic position in development due to their strong multiplier and linkage effects. Manoj (2004, 2017c, 2017d) <sup>[23]</sup> provides detailed analyses of housing finance dynamics, construction costs, and cost management in affordable housing projects in Kerala. These studies demonstrate that housing investment generates employment across construction, manufacturing, and services, while also addressing social goals. Dhananka (2020) <sup>[40]</sup> situates housing within the political economy of urban India, highlighting its role in inclusive urban development. Manoj (2023a, 2023b) <sup>[49]</sup> extends this discussion by linking affordable housing with public health, ESG considerations, and the digital economy of Kerala. Green and sustainable housing has emerged as a complementary theme. Manoj (2013) and Tan and Goh (2018) <sup>[14, 32]</sup> explore consumer attitudes towards green residential buildings, while Darko *et al.* (2019) and Cole (2019) provide global perspectives on green building research and literacy. These studies support the argument that channelling bank credit into green and affordable housing can simultaneously ensure sustainable and also inclusive growth.

### Tourism, Services, and Community Development

Tourism is widely recognised as a key driver of Kerala's service-led growth. Manoj (2017e) <sup>[23]</sup> demonstrates that ecotourism initiatives generate income while preserving environmental assets. Social capital and community participation further enhance development outcomes, as evidenced by Manoj, Cyriac, and Pathak (2025) and Rao *et al.* (2025) <sup>[59, 62]</sup>, who highlight the role of social networks and community resilience in urban and rural development. The dependence of tourism on credit, infrastructure, and ICT-based marketing underscores the importance of coordinated financial and technological strategies. The literature suggests that bank credit, when aligned with tourism and community-based enterprises, can amplify inclusive growth effects.

### Remittances, Investment, and Financial Intermediation:

Kerala's economy is significantly influenced by remittances from migrant workers. Sunny (2020) <sup>[42]</sup> and MEI (2010) document how remittances affect household consumption, housing investment, and savings behaviour. While remittances enhance income security, the literature cautions that excessive dependence may crowd out productive investment unless channelled through formal financial systems. This reinforces the relevance of banking institutions in mobilising remittance inflows for productive uses, particularly MSMEs, housing, and infrastructure.

### Synthesis and Research Gap

The reviewed literature provides rich insights into Kerala's growth dynamics, the role of bank credit, ICT, and sectoral linkages. However, much of the existing work examines these dimensions in isolation. There remains a relative paucity of integrative studies that simultaneously analyse growth patterns, credit allocation, ICT adoption, and inclusiveness in a unified framework. The present study seeks to bridge this gap by critically examining Kerala's growth trajectory in the ICT era, with a specific focus on how better deployment of bank credit can promote sustainable and inclusive growth.

### Significance of the Study

It is widely recognised that only inclusive and equitable growth only brings about sustainable economic development. By synthesising macroeconomic trends with sectoral and institutional analyses, this study can contribute positively to the policy and academic discourses on development finance and regional growth with special reference to Kerala as it aims to suggest pragmatic policies in the above direction.

### Analysis and Discussion

Sectoral composition and Services dominance (2015–2024)  
Between 2015 and 2023–24 Kerala sustained its services-dominant GSVA structure. Recent state and central analyses put the services share at roughly 64% of GSVA, with the industry sector (manufacturing and registered industry) contributing under 25% and agriculture contributing the balance. This structural profile reflects long-standing trends: growth concentrated in real estate, trade and services linked to tourism, health, and education; persistent underperformance of manufacturing despite the state's skilled workforce. Services dominance has both strengths and weaknesses. Strengths include resilience of high-value

services (IT/ITES, specialized healthcare, education) and robust human capital supporting service exports, while weaknesses emerge in limited employment absorption, given that many services are less labour-intensive than manufacturing. The real-estate and allied sectors' large share signals both investment in housing and the risk of speculative asset price dynamics that do not translate proportionately into productive job creation.

### Bank credit patterns and sectoral allocation

Available RBI and State Bankers' Committee data show that while aggregate credit penetration in Kerala is comparatively high (bank branches, deposit ratios), the sectoral allocation skews toward housing, personal loans, and services rather than manufacturing investment. Credit to MSMEs has grown but remains constrained by perceived credit risk, documentation barriers, and small firm informality. Notably, housing finance and credit for trade/services—including tourism-related small enterprises—have absorbed an increasing share of bank credit. The allocation pattern suggests that formal finance in Kerala is servicing consumption and asset accumulation (housing) as well as services expansion, rather than financing a structural shift to manufacturing. While housing credit supports construction activity and associated jobs, the long-run productivity gains and large-scale employment generation associated with manufacturing and tradable goods production remain limited. This pattern underlines the policy importance of incentivizing productive lending—through credit guarantees, targeted refinance schemes, or public-private credit platforms—for MSMEs and manufacturing startups.

### Remittances as an economic force – their linkages with credit

Remittances have a dual role: they bolster household balance sheets—raising demand for housing, consumer durables and services—and they change the demand for formal financial services. Studies show remittances are associated with higher household savings and investments, but they can also anchor consumption patterns that favour service-sector demand. In contexts where remittance income substitutes for formal wage employment, the spur for local industrial entrepreneurship may be dampened, potentially reducing productive investment demand that would otherwise attract bank lending to manufacturing or capital-intensive sectors. From a policy standpoint, linking remittances to productive use (e.g., remittance-backed loans for MSME start-ups, matched saving schemes, or diaspora investment windows) can redirect some flows into local productive capacity. Financial instruments that securitise stable remittance inflows to back small business credit can raise formal credit flows into the productive sectors.

### ICT diffusion and digital finance: Pros and Cons

Kerala's ICT infrastructure (broadband access, technology parks, and a skilled workforce) creates an enabling environment for digital finance, telemedicine, e-tourism services, and digital MSME platforms. Evidence from the State's ICT ecosystems (e.g., Technopark and other initiatives) suggests potential for high-value employment and exportable services. Digital finance innovations (e-KYC, UPI, credit scoring using alternate data) can lower transaction costs and widen credit access for micro and

small enterprises, provided last-mile digital literacy and infrastructure gaps are addressed. The power of ICT to modify intermediation is significant. Digital lending platforms can use alternative credit scoring and transaction histories to underwrite MSME loans more efficiently. However, policy and regulatory support—capacity building, data privacy safeguards, and targeted digital literacy programs—are needed to ensure equitable access and avoid reinforcing existing divides.

### Fiscal context and institutional constraints

State fiscal pressures and the structure of intergovernmental transfers affect the ability of Kerala to underwrite development programs and support credit facilitation schemes. Recent studies and state finance overviews highlight improved fiscal indicators in some years while cautioning about risks related to debt servicing and contingent liabilities. Institutional bottlenecks (regulatory burden for businesses, land-use constraints impacting industrial expansion, and fragmented MSME support structures) further constrain rapid industrialization. Fiscal space constraints call for the design of high-impact, low-fiscal-cost interventions—credit guarantee mechanisms, public-private partnership models for industrial estates, targeted tax incentives for labour-intensive manufacturing, and leveraging multilateral/ donor funds for capacity building and ICT infrastructure.

### Results

This section summarises the principal empirical observations obtained from descriptive analyses (2015–2024) of the published datasets and policy documents cited above.

- 1. Persistence of services dominance:** Services share in GSVA remained near ~64% in the most recent published years (2023–24), with modest increases in certain services sub-sectors (real estate, business services, health and education). This confirms the continued structural tilt toward the services sector in the context of Kerala.
- 2. Sectoral credit intensity:** Credit-to-GSVA ratios indicate that housing and service sectors receive proportionally larger shares of bank credit relative to manufacturing. MSME lending has increased nominally, but its share relative to total credit remains below levels that would typically prefigure a manufacturing revival. (RBI and state banking committee reports). Reserve Bank of India
- 3. Remittances and investment patterns:** Remittance inflows remain a significant source of external household income and are correlated with increased housing investment and services consumption. Macro estimates and migration survey-based studies show remittances persistently amplifying household demand for housing and consumer services—channels that feed into the services-heavy GSVA composition.
- 4. ICT as an enabling factor but not yet a full equaliser:** ICT footprints (IT parks, broadband expansion) have facilitated the growth of IT/ITES and digital services, but ICT-based productivity gains have not yet uniformly translated into broad manufacturing

resurgence or massive rural MSME digital transformation at scale. Policy documents recommend targeted digital inclusion and skilling drives to close this gap.

In view of the major research findings as noted above, it is meaningful to draw the relevant actionable implications and also to suggest suitable policies for the inclusive and also sustainable economic growth of Kerala State.

### Policy Suggestions based on the Study.

1. Targeted credit instruments. Introduce or scale targeted credit guarantee funds and refinance windows to channel commercial bank lending to labour-intensive MSMEs and manufacturing clusters with strong local linkages. These instruments can de-risk bank lending and crowd in private capital.
2. Remittance-product innovation. Develop remittance-linked financial products (e.g., matched investment schemes, remittance-backed business loans) to convert part of household remittance flows into productive capital.
3. ICT-enabled credit and skilling. Encourage digital platforms for MSME lending that use alternative data for credit assessment, combined with skilling programs to ensure firms can adopt digital business models.
4. Land and infrastructure reforms. Simplify land-use rules and develop affordable industrial estates with plug-and-play facilities to reduce entry barriers for manufacturing firms.
5. Financial inclusion plus. Strengthen last-mile banking outreach and financial literacy campaigns, emphasizing formal account usage, credit discipline, and entrepreneurial finance.

### Conclusion

Kerala's 2015–2024 growth profile remains strongly services-oriented, shaped by remittances, ICT potential, and well-developed human capital. However, the observed allocation of formal bank credit—tilted toward housing, services and consumption—has not yet sufficiently catalysed a manufacturing-led, labour-intensive transformation. Policy interventions that redirect formal credit toward productive MSMEs and manufacturing, coupled with remittance-mobilisation tools and ICT-enabled financial platforms, offer a pragmatic pathway to more inclusive and sustained growth. The descriptive evidence assembled here suggests that a coordinated package - credit guarantee mechanisms, digital finance roll-outs, remittance-backed instruments and targeted skilling - could help Kerala harness its human and ICT benefits while broadening employment and production bases.

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