



विदर्भ अर्थशास्त्र परिषदेची  
तज्ज्ञ परीक्षित संशोधन पत्रिका  
(Included in UGC CARE List Group -1)

# अर्थमीमांसा (ARTHAMIMANSA)

भारतीय सौर शके १९४६  
(जानेवारी-जून २०२४ / खंड १६, अंक १)

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◆ मुख्य संपादक ◆

डॉ. धीरज सु. कदम

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**विदर्भ अर्थशास्त्र परिषद कार्यकारिणी**

(२०२४-२५)

- ☐ **कार्याध्यक्ष**  
डॉ. एच. ए. हुद्दा
- ☐ **अध्यक्ष**  
डॉ. गजानन पाटील
- ☐ **सचिव**  
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डॉ. संजय कोठारी (अमरावती विभाग परिक्षेत्र)
- ☐ **प्रमुख संपादक – ‘अर्थमीमांसा’**  
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डॉ. पंकज तायडे (अकोला)  
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डॉ. संजय राचलवार (यवतमाळ)  
डॉ. गजानन कुबडे (वाशीम)  
डॉ. संजय महाजन (गडचिरोली)  
डॉ. वर्षा गंगणे (गोंदिया)

**आजीव सदस्यता शुल्क :** रू. १५०० /-  
आहे, ही रक्कम सचिव डॉ. विठ्ठल घिनमिने, सहयोगी प्राध्यापक, श्री साईबाबा लोकप्रबोधन कला महाविद्यालय, वडनेर, ता. हिंगणघाट, जिल्हा वर्धा यांचेकडे “विदर्भ अर्थशास्त्र परिषद” या नावाने डिमांड ड्राफ्टने पाठवावी किंवा डॉ. विठ्ठल घिनमिने यांच्याशी ९६८९६४२४४९ या नंबरवर संपर्क साधावा.

- ☐ **अक्षर जुळवणी व मुद्रक**  
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**स्वागत मूल्य:**

- १) परिषद सभासद - २५० रू.
- २) शैक्षणिक संस्था - ३५० रू.

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## संपादकीय .....

अर्थमीमांसा या संशोधन पत्रिकेचा खंड १६, अंक १ (जानेवारी-जून २०२४) हा अंक सादर करतांना विशेष आनंद होत आहे. प्रस्तुत अंकात परीक्षकांनी निवडलेले देशाच्या विविध राज्यांमधून प्राप्त झालेल्या १६५ शोधनिबंधांपैकी ९ व परिषदेच्या सभासदांचे ६ असे एकूण पंधरा लेख प्रकाशित करण्यात आले आहेत. प्राप्त १५ साहित्याकृतींपैकी १२ लेख इंग्रजीमध्ये व ३ मराठी भाषेत असून त्यात एक ग्रंथ परिचय देखील समाविष्ट आहे.

डॉ. समित माहोरे आणि प्रा. उपेंद्र बागुल यांनी आपल्या शोध निबंधात नागपूर जिल्ह्यातील सार्वजनिक आरोग्य सुविधा आणि त्याच्याशी संबंधीत निर्देशांकाचा संशोधनात्मक आढावा घेतला आहे. तर डॉ. प्रशांत हरमकर यांनी, भारताचे पहिले कृषिमंत्री डॉ. पंजाबराव देशमुख यांचे कृषी विषयक विचार आणि भारतातील शेती व शेतकऱ्यांच्या समस्या सोडविण्यासाठी त्यांच्या योगदानाची चर्चा आपल्या लेखात केली आहे.

स्नेहा जाधव आणि डॉ. धनश्री महाजन यांनी आपल्या *'Revealed Comparative Advantage from Trade among SAARC Countries: An Empirical Analysis'* या शोधनिबंधात बालासा (१९६५) निर्देशांकाचा वापर करून भारत आणि सार्क सदस्य देशांमधील स्पर्धात्मकता आणि व्यापार प्रवाहाच्या तुलनात्मक लाभाचे विश्लेषण केले आहे. त्यांनी विविध सांख्यिकीय माहितीच्या विश्लेषणाद्वारे सार्कमधील प्रादेशिक एकात्मतेमुळे व्यापार पद्धती, तुलनात्मक लाभ आणि स्पर्धात्मकतेवर लक्षणीय परिणाम झाला असल्याचा निष्कर्ष काढला. आंतरराष्ट्रीय अर्थशास्त्रात रुची असणाऱ्या अभ्यासकांना हा शोधनिबंध निश्चितच आवडेल.

*"Fintech for digital financial inclusion - A study in reference to Global Findex Database"* या शोधनिबंधात, डॉ. अपर्णा समुद्र आणि रुवेद गाडगे यांनी वित्तीय तंत्रज्ञान (फिनटेक) क्षेत्रातील प्रगती आणि आर्थिक समावेशकतेवरील त्याच्या प्रभावाचा अभ्यास केला आहे. जागतिक बँकेच्या 'ग्लोबल फिंडेक्स' डेटाबेसचा वापर करून ग्राहकांना येणाऱ्या अडचणी आणि आव्हाने यांचा आढावा घेतला आहे. समाजातील विषमता कमी करण्यासाठी फिनटेकचा वापर कसा करता येईल यादृष्टीने त्याला अधिक कार्यक्षम बनवण्यासाठी काही उपाय देखील सुचविण्यात आले आहेत.

*"Disaggregated Public Expenditure and Economic Growth: A Second-Generation Panel Data Analysis of Selected Indian States"* या शोधनिबंधात शिल्पा छात्रा आणि डॉ. ग्रीशमा मनोज यांनी १९९०-९१ ते २०२०-२१ या काळातील १४ प्रमुख भारतीय राज्यांमधील विकास खर्च (सामाजिक आणि आर्थिक सेवा खर्च) आणि विकासेतर खर्च (सामान्य सेवा खर्च) यांचा आर्थिक वृद्धीवरील परिणाम अभ्यासला आहे. यासाठी त्यांनी पॅनेल डायनामिक ऑर्डिनरी लीस्ट स्क्वेअर तंत्राचा वापर केला आहे. भांडवली खर्चातील विकास आणि विकासेतर खर्चाचे घटक अल्पकाळामध्ये आर्थिक वृद्धीवर प्रभाव करतात, परंतु दीर्घकाळात हा संबंध अदृश्य होतो. हे परिणाम भांडवली खर्चाच्या कुआवंटनाच्या समस्येवर प्रकाश टाकतात, ज्यामुळे भ्रष्टाचाराचा धोका वाढत असल्याचा निष्कर्ष त्यांनी काढला आहे.

*"Irrigation and Production of Rabi Crops in Udalguri District: An Economic Analysis"* या शोधनिबंधात, पपीना बासुमातारी आणि डॉ. कांदरपा कुमार बर्मन यांनी लिनियर रिग्रेशन विश्लेषण तंत्राचा वापर करून सिंचित क्षेत्रातील वाढीची प्रवृत्ती आणि निवडक रब्बी पिकांच्या उत्पादनावर निव्वळ सिंचित क्षेत्राच्या (NIA) प्रभावाचा अभ्यास केला आहे. त्यांच्या अभ्यासाचे परिणाम दर्शवतात की आसाममधील उदलगुरी

जिल्ह्यात NIA चा उन्हाळी भात आणि बटाट्याच्या उत्पादनावर महत्त्वपूर्ण प्रभाव आहे, तर तो रेपसीड आणि मोहरीच्या उत्पादनावर महत्त्वपूर्ण प्रभाव दाखवत नाही.

*"Industry 4.0 Leading to Environment Sustainability: Consumer's Choice and Preference in Tech-Enabled Marketplace"* या शोधनिबंधात, इती साहू आणि हिमांशू खटीक यांनी तंत्रज्ञानातील प्रगती ही उद्योग आणि किरकोळ विक्रेत्यांना पर्यावरणीय शाश्वततेची उद्दिष्टे साध्य करण्यात कशी साहाय्यक ठरते याचे विश्लेषण केले आहे.

संजली डिओस आणि प्रा. वर्षा देशपांडे यांनी आपल्या *"Evaluating the Impact of GST on Indirect Tax Revenue and Tax Efficiency in North-Eastern India"* या शोधनिबंधात, GSTच्या अंमलबजावणीमुळे ईशान्य भारतातील आठ राज्यांमधील अप्रत्यक्ष कर महसूल आणि कर कार्यक्षमतेवर झालेल्या परिणामाचा अभ्यास केला आहे. GSTN डेटाबेसमधील माहितीच्या आधारे GST पूर्व काळ आणि GST नंतरचा काळात अप्रत्यक्ष कर महसूल, त्याचा वार्षिक वृद्धी दर, GSDP च्या टक्केवारीतील अप्रत्यक्ष कर महसूल, मासिक अनुपालन अशा विविध घटकांचा वापर करून अभ्यास केला आहे. GST लागू झाल्यानंतर महसूल संकलन वाढले असून कर कार्यक्षमता सुधारली असल्याचा निष्कर्ष त्यांनी काढला आहे.

*"Analysing E-Governance Adoption in The Digital Era: A Study"* या संशोधनपत्रात, शिल्पा कोरडे आणि डॉ. सिताराम सुकथणकर यांनी डिजिटल क्रांतीच्या पार्श्वभूमीवर ई-शासन सेवांच्या स्वीकारावर डिजिटल परिवर्तनाचे बहुआयामी परिणाम तपासले आहेत. गोवा राज्यातील ८० नागरिकांकडून गोळा केलेल्या सर्वेक्षणाच्या माध्यमातून डिजिटल परिवर्तनाच्या काळात ई-शासन सेवांच्या स्वीकारावर प्रभाव टाकणाऱ्या घटकांचे SPSS आणि PLS-SEM तंत्र वापरून विश्लेषण केले आहे. हा अभ्यास धोरणकर्ते, व्यावसायिक आणि हितधारकांना डिजिटल युगात ई-शासन सेवांचा स्वीकार कसा वाढवायचा यासाठी मार्गदर्शक आहे.

*"A Comprehensive Examination of Economic Crime in India"* या संशोधनपत्रात स्वस्तिक सेन चौधरी, पंचानन दास आणि संतनू घोष यांनी आर्थिक गुन्हेगारी या एका वेगळ्या विषयावर प्रकाश टाकला आहे. संपत्ती आणि उत्पन्नाच्या असमान वाटपामुळे आणि शैक्षणिक संधींच्या असमानतेमुळे काही लोक बेकायदेशीर कृतींकडे वळतात. या संशोधनात विविध भारतीय राज्यांमधील आर्थिक गुन्हेगारीच्या घटकांचे अनुभवात्मक विश्लेषण करून त्यांची खरी कारणे शोधण्याचा प्रयत्न केला आहे. त्यांच्या अभ्यासाचे निष्कर्ष असे दर्शवतात की गरीबी रेषेखालील लोकसंख्येचा आर्थिक गुन्हेगारीवर नकारात्मक प्रभाव आहे, तर प्रति व्यक्ती निव्वळ राज्य उत्पादनाचा महत्त्वपूर्ण सकारात्मक प्रभाव आहे.

*"Gender-Based Inequalities in Shadow Education Participation at Secondary Education Level in Haryana: An Analysis"* या संशोधनपत्रात, डॉ. हरविंदर सिंह आणि डॉ. अंग्रज सिंह गिल यांनी हरियाणामधील दुय्यम शिक्षण पातळीवर पालकांच्या छाया शिक्षण पर्यायांच्या निवडीत लिंग हा महत्त्वाचा घटक आहे का हे तपासले आहे. या अभ्यासात २०१८-१९ मध्ये सर्वेक्षण केलेल्या विद्यार्थ्यांपैकी ४३.९३ टक्के विद्यार्थ्यांनी छाया शिक्षणाचा वापर केला असल्याचे दिसून आले आहे, छाया शिक्षणाच्या अस्तित्वामुळे लिंग आधारित असमानतेची समस्या तीव्र झाली असल्याचे निरीक्षण त्यांनी नोंदविले आहे. याशिवाय, हरियाणातील

दुय्यम शिक्षणावर होणाऱ्या घरगुती खर्चाच्या विश्लेषणातही घरगुती पातळीवर मुलांसाठी लिंगविषयक पक्षपातीपणा दिसून येत असल्याचे त्यांनी अधोरेखित केले.

*"Management of Non-Performing Assets of Public Sector Bank in India: Identification, Magnitude, Causation and Resolving"* या आपल्या लेखात डॉ. गजानन पाटील यांनी सार्वजनिक क्षेत्रातील बँकांच्या (PSBs) थकित मालमत्तेच्या (NPAs) व्यवस्थापनावर चर्चा केली आहे. NPA चे प्रभावी व्यवस्थापन हे भारताची बँकिंग प्रणाली आणि अर्थव्यवस्थेची स्थिरता व प्रगतीसाठी अत्यंत महत्त्वाचे असल्याचे ते नमूद करतात.

*"Multidimensional Poverty Index: A Comparative Analysis of the Indian states"* या शोधनिबंधात डॉ. दीपक चौधरी यांनी गरीबीच्या विविध पैलूंचे विश्लेषण केले आहे. यात NITI आयोगाने २०१५-२०१६ आणि २०१९-२०२१ या कालावधीत प्रकाशित केलेल्या बहुआयामी गरीबी निर्देशांकाचे (MPI) विश्लेषण केले आहे. राष्ट्रीय स्तरावर MPI मध्ये घट होत असूनही, प्रचंड आंतरप्रादेशिक असमानता कायम असल्याचे ते दर्शवितात. भारतीय राज्यांमधील गरीबीच्या विविध स्वरूपांना लक्षात घेऊन लक्षित धोरणांची गरज त्यांनी अधोरेखित केली आहे. डॉ. मंगला भाटे आणि डॉ. प्रशांत विघे यांनी आपल्या लेखात महाराष्ट्रातील पर्यटन क्षेत्राचा आढावा घेतला आहे. तर डॉ. सिद्धार्थ मेश्राम यांनी डॉ. बी. आर. आंबेडकर लिखित *"द प्रॉब्लेम ऑफ द रुपी: इट्स ओरिजिन अँड इट्स सोल्युशन"* या ग्रंथाला शंभर वर्षे पूर्ण झाल्याबद्दल त्याचा समुचित शब्दात प्रासंगिक परीचय करून दिला आहे.

संशोधकांना यातील विविध लेख व शोधनिबंध मार्गदर्शक ठरतील तसेच विविध आर्थिक घटना आणि पैलूवर अभ्यासपूर्ण भाष्य करणारा हा अंक आपणा सर्वांना आवडेल अशी अपेक्षा करतो.

हा अंक सिद्ध करण्यासाठी सर्व लेखकांनी जे सहकार्य केले त्याबद्दल त्यांचे आभार व्यक्त करतो. सोबतच, परिषदेचे माजी व वर्तमान कार्याध्यक्ष आणि अध्यक्ष, सचिव आणि कार्यकारिणीचे सर्व सदस्य या सर्वांची मला हा अंक सिद्ध करत असतांना मदत झाली; तसेच अर्थमीमांसाच्या संपादक मंडळाने योग्य ते मार्गदर्शन केले आहे. यापूर्वीच्या अंकाचे आपण सर्व सभासद व वाचकांनी केलेले स्वागत व कौतुक माझ्यासाठी निश्चितच प्रेरणादायी आहे, त्याबद्दल मी आपण सर्वांचे आभार व्यक्त करतो.

‘सृष्टी ग्राफीक्स’चे श्री. रवी अंधारे यांनी मुद्रणाचे कार्य सुबकपणे व वेळेत करून दिल्याबद्दल त्यांचे देखील आभार!



(डॉ. धीरज सु. कदम)

प्रमुख संपादक – ‘अर्थमीमांसा’

दिनांक : १५ जुलै २०२४

स्थळ : नागपूर

## नागपूर जिल्ह्यातील आरोग्य सुविधांचा आढावा

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### गोषवारा:

भारतातील ग्रामीण भाग हा सामाजिक आणि आर्थिक विकासाच्या दृष्टीने अत्यंत महत्वाचा आहे. स्वच्छता आणि आरोग्य ह्या मानवीच्या मूलभूत गरजा आहेत. आणि त्यांचा मानवी जीवनाशी थेट संबंध आहे. अपुरी पाणी पुरवठा योजना सार्वजनिक शौचालयांची कमतरता, सुधारित स्वच्छता साधनांचा अभाव, स्वच्छ इंधन आणि वीज पुरवठा, आरोग्य केंद्रांची अपुरी सुविधा यामुळे अनेक आरोग्य विषयक समस्या निर्माण होतात. या सुविधामध्ये सुधारणा करणे आव्हानात्मक आहे. परंतु या सुधारणांमुळे समाजातील सर्व स्तरातील जीवनमानात भरीव वाढ होते. या लेखात नागपूर जिल्ह्यातील सार्वजनिक आरोग्य सुविधा आणि त्यासंबंधी महत्वाच्या निर्देशांकांचा आढावा घेण्यात आलेला आहे.

**बीज शब्द :** सार्वजनिक आरोग्य सुविधा, आरोग्य क्षेत्रावरील खर्च, आरोग्य विषयक निर्देशांक.

### प्रस्तावना:

मानवी विकासाच्या प्रत्येक पातळीवर जे घटक महत्वाचे आहेत त्यातील महत्वाचा घटक म्हणजे लोकांना आरोग्यदायी व दीर्घकालीन जीवन प्राप्त होणे होय. मानवी जीवनाची गुणवत्ता वाढविण्यासाठी आरोग्य सुविधा, पोषणमान, स्वच्छता, स्वच्छ इंधन, वीज, पिण्याचे शुद्ध पाणी, शौचालये आणि स्वच्छ परिसर ह्या लोकांच्या आरोग्याचा दर्जा सुधारण्यासाठी निर्देशांक महत्वाचे आहेत. कारण हे व्यक्तीच्या राहणीमानावर धनात्मक प्रभाव टाकतात. ग्रामीण भागातील आरोग्य सुविधा अपुऱ्या असल्याने अनेक आव्हाने आणि समस्या निर्माण होतात. त्याच बरोबर स्वच्छतेच्या सुविधांचा कमी वापर, स्वच्छ इंधनचा कमी वापर, आरोग्यविषयक सुविधांचा अभाव, सामाजिक आणि आर्थिक घटकांमुळे या समस्या अधिक तीव्र बनतात. आरोग्य सेवा शेवटच्या घटकापर्यंत नसल्याने शासन आणि सामाजिक संघटनांनी एकत्र येऊन या क्षेत्रात अधिक गुंतवणूक करून या समस्यांचे निराकरण करणे गरजेचे आहे. आरोग्य हा विकासाच्या केंद्रस्थानी असलेला विषय आहे. कोणत्याही देशाच्या आर्थिक

विकासाची 'आरोग्य' ही कोणशीला आहे. ग्रामीण भागातील आरोग्य सुविधांमुळे लिंग आणि गरीब वर्गातील लोकांना योग्य आरोग्य सेवा मिळाल्यास त्यांच्या सामाजिक आणि आर्थिक स्थितीत सुधारणा होऊ शकते. देशाला अधिक उत्पादनक्षम आणि आर्थिकदृष्ट्या सुरक्षित बनविण्यासाठी आरोग्य सुविधांची उपलब्धता महत्त्वपूर्ण योगदान देते. (चंद्रकांत, 2016).

महाराष्ट्र हे आरोग्य सेवा विकसित करण्यामध्ये देशातील अग्रेसर राज्य आहे. गुणात्मक प्रतिबंधात्मक व रोगनिवारक आरोग्य सेवा जनतेला पुरविणे हा सार्वजनिक आरोग्य सेवेचा उद्देश असून माता आणि बालकांच्या आरोग्यात सुधारणा करण्यावर शासनाने लक्ष केंद्रित केले आहे. स्थानिक गरजा विचारात घेऊन विशेषतः आदिवासी व ग्रामीण भागातील जनतेसाठी सार्वजनिक आरोग्य सुविधा शासन उपलब्ध करून देत असते. भारतीय राज्यघटनेत विभाग 3 मधील कलम 36 ते 51 या मार्गदर्शक तत्वांतर्गत आरोग्य आणि आरोग्याशी संबंधित तत्वांचा यात समावेश केला आहे. (लक्ष्मीकांत, 2021).

जागतिक बहु-आयमी दारिद्र्य निर्देशांक संयुक्त राष्ट्र संघाच्या विकास कार्यक्रम (UNDP) आणि ऑक्सफर्ड दारिद्र्य आणि मानव विकास उपक्रम (OPHI) यांच्या संयुक्त विद्यमाने 2010 मध्ये बहु आयमी दारिद्र्य निर्देशांक दारिद्र्य मापनाचा नवीन दृष्टिकोण आहे. या निर्देशांकात आरोग्य, शिक्षण आणि राहणीमान हे तीन आयाम असून या अंतर्गत 10 निर्देशांक आहे. 2021 मध्ये हा निर्देशांक 109 देशांनाकरिता तयार करण्यात आला. जागतिक बहु-आयमी दारिद्र्य निर्देशांकाच्या धर्तीवर नीती आयोगाने 2021 ला अहवाल तयार केला. या निर्देशांकात आरोग्य, शिक्षण आणि राहणीमान हे तीन आयाम आसून या अंतर्गत 12 निर्देशांक आहे. आयाम-1 - आरोग्य – पोषण, बालमृत्यू, गर्भावस्थेतील काळजी (नवीन निर्देशांक). आयाम- 2 – शिक्षण - या आयामात-शाळेतील वर्ष,शाळेची हजेरी आयाम- 3- राहणीमान – यात स्वयंपाक इंधन, स्वच्छता, पिण्याचे पाणी, वीज, निवास व्यवस्था, मालमत्ता, बँक खाते (नवीन निर्देशांक), असे वरील 12 निर्देशांक तीन आयामात समाविष्ट करण्यात आले. या अहवालात म्हटले गेले की भारताने गेल्या दोन दशकात आरोग्याच्या क्षेत्रातील प्रमुख निर्देशक बालमृत्यू, आयुर्मान, कुपोषण, आणि माता मृत्यू दर यात लक्षणीय प्रगती केली आहे परंतु आरोग्य आणि

आरोग्य सेवा यावरील खर्च इतर देशांपेक्षा कमी केला आहे. (नीती आयोग, 2021)

आरोग्य आणि आरोग्य सेवांमध्ये पुरेशी गुंतवणूक करणे व आरोग्याच्या सामाजिक निर्धारक घटकांवर (पोषण, पिण्याचे पाणी आणि स्वच्छता)या लक्ष देणे गरजेचे आहे. शाश्वत विकासाची एकूण 17 ध्येय आहेत त्यापैकी चांगले आरोग्य आणि कल्याण हे तिसऱ्या क्रमांकाचे ध्येय आहे. यावरून आरोग्य सुविधांचे महत्व अधोरेखित होते. अमर्त्य सेन यांच्या मते “विकासासाठी शिक्षण व सार्वजनिक आरोग्य यांची फार गरज आहे. उत्तम आरोग्य ही व्यक्तीच्या जीवनात सामाजिक दृष्ट्या तसेच देशाच्या विकासाच्या दृष्टीने महत्त्वाचे आहे. (सेन, 1981)

लोकसंख्येचे जीवनमान आणि आरोग्य स्थिती सुधारणे हे भारतीय नियोजनातील एक महत्त्वाचे उद्दिष्ट आहे. पंचवार्षिक योजनांमध्ये आंतरराष्ट्रीय स्तरावरील ध्येयांशी सुसंगत अशी दीर्घकालीन उद्दिष्टे नियोजनात प्रतिबिंबित केले आहे. दीर्घकालीन उद्दिष्टावर राष्ट्रीय लोकसंख्या धोरण, राष्ट्रीय आरोग्य धोरण इत्यादींवर भर देण्यात आला. राष्ट्रीय आरोग्य धोरण 2002 नुसार राष्ट्रीय ग्रामीण आरोग्य अभियान (NRHM) 12 एप्रिल 2005 रोजी ग्रामीण जनतेला सुलभ, स्वस्त, आणि दर्जेदार आरोग्य सेवा प्रदान करण्याच्या उद्देशाने सुरू करण्यात आली.

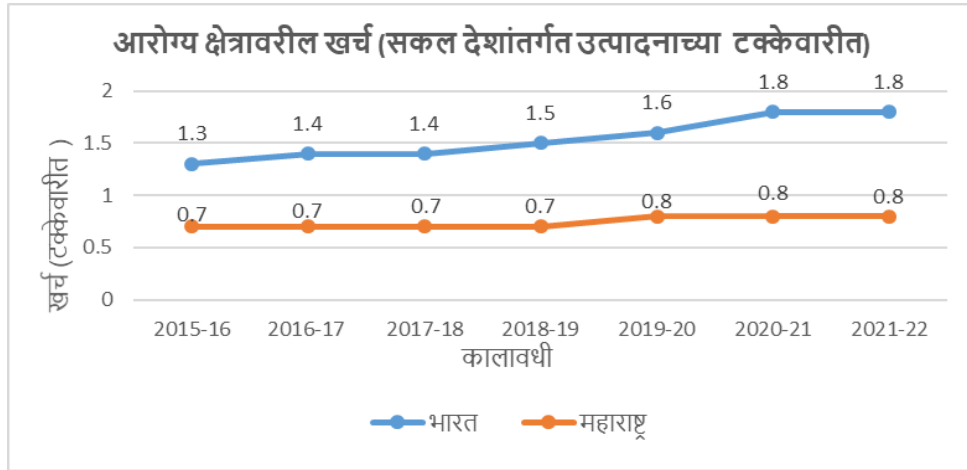
#### तक्ता-1

#### आरोग्य क्षेत्रावरील खर्च (सकल देशांतर्गत उत्पादनाच्या टक्केवारीत)

वर्ष	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
भारत	1.3	1.4	1.4	1.5	1.6	1.8	1.8
महाराष्ट्र	0.7	0.7	0.7	0.7	0.8	0.8	0.8

स्रोत – आर्थिक समीक्षा – भारत सरकार 2008 ते 2022, नॅशनल हेल्थ अकाउंट एस्टिमेट -2015 ते 2023; (Annual Report on Health, 2005).

## आलेख -१



सामाजिक पायाभूत सुविधामधील गुंतवणुकीने भारताच्या आर्थिक विकासात महत्त्वाची भूमिका बजावली आहे. 2014 ते 2020 -21 या कालावधीत केंद्र आणि राज्य सरकारकडून जीडीपी च्या प्रमाणात सामाजिक सेवांवरील खर्च 6.2 टक्के वरून 8.8 टक्के पर्यंत वाढविण्यात आला. 2008-09 ते 2020-21 या काळात सार्वजनिक आरोग्यवरील खर्चात वाढ सरासरी स्थिर आहे. यात वाढ होणे आवश्यक आहे. कोविड -19 या साथीने अर्थव्यवस्था आणि सामाजिक क्षेत्रावर खूप प्रतिकूल प्रभाव पडला. साथीच्या रोगामुळे जीवित हानी कमी करण्यासाठी सामाजिक क्षेत्रात होणाऱ्या खर्चात वाढ करण्यात आली. प्रधानमंत्री गरीब कल्याण योजना , आत्मनिर्भर भारत अभियान अंतर्गत सर्वसमावेशक मदत पॅकेज देण्यात आले. महाराष्ट्राचा विचार केल्यास, आरोग्य सेवेवरील खर्च 0.8 टक्के च्या वर गेला नाही. कोविड च्या काळात सामाजिक सुविधांचे महत्व या काळात प्रकर्षाने जाणवले. त्यामुळे यात मोठी गुंतवणूक होणे आवश्यक आहे.

भारत सरकारच्या मार्गदर्शक सूचनांप्रमाणे आरोग्य संस्था स्थापन करण्यासाठी लोकसंख्या हे निकष आहे. 1 उपकेंद्र सुरू करण्यासाठी आदिवासी

क्षेत्रात 3000 लोकसंख्या हे निकष आहे, तर बिगर आदिवासी क्षेत्रासाठी 5000 लोकसंख्या आवश्यक आहे. 1 प्राथमिक आरोग्य केंद्र स्थापन करण्यासाठी आदिवासी क्षेत्रात 20000 लोकसंख्या तर बिगर आदिवासी क्षेत्रासाठी 30000 लोकसंख्या हे निकष आहे. तसेच प्रत्येक 4 ते 5 प्राथमिक आरोग्य केंद्रासाठी एक ग्रामीण रुग्णालय दिले जाते.

सर्वसमावेशक आरोग्यसेवा पुरविण्यासाठी राज्यात त्रिस्तरीय आरोग्यविषयक पायाभूत सुविधा आहेत. त्यामध्ये प्राथमिक स्तरावरील आरोग्य सेवा यात प्राथमिक आरोग्य केंद्र आणि उपकेंद्रांचा समावेश आहे. महाराष्ट्रात 1096 प्राथमिक आरोग्य केंद्रांपैकी नागपूर मध्ये 53 प्राथमिक आरोग्य केंद्र आहेत. महाराष्ट्रात 10740 उपकेंद्र आहे त्यापैकी नागपूरमध्ये 316 उपकेंद्र आहेत. द्वितीय स्तरावरील आरोग्य सेवे अंतर्गत उपजिल्हा रुग्णालये (100) खाटा), उपजिल्हा रुग्णालये (100 खाटा) , उपजिल्हा रुग्णालये (50 खाटा) येतात. नागपूरमध्ये एकही जिल्हा रुग्णालय नाही. 50 खाटांचे 2 उपजिल्हा रुग्णालय व 12 ग्रामीण रुग्णालये आहेत. तृतीय स्तरावरील आरोग्य सेवेमध्ये अतिविशेष सेवांचा समावेश आहे. नाशिक आणि अमरावती येथे 2008 पासून सुरू या सेवा सुरू करण्यात आल्या आहेत.

## तक्ता -2

महाराष्ट्र शासनाद्वारे पुरविण्यात येणाऱ्या सार्वजनिक आरोग्य सुविधा -महाराष्ट्र व नागपूर तुलना

आरोग्य सेवा स्तर	केंद्र	महाराष्ट्र	नागपूर
प्राथमिक स्तर	प्राथमिक आरोग्य केंद्र	1906	53
स्तरावरील आरोग्य सेवा	उपकेंद्र	10740	316
द्वितीय स्तरावरील आरोग्य सेवा	जिल्हा रुग्णालये	23	0
	उपजिल्हा रुग्णालये (100) खाटा	25	0
	उपजिल्हा रुग्णालये (50 खाटा)	56	2
	ग्रामीण रुग्णालये (30 खाटा )	387	12
तृतीय स्तरावरील आरोग्य सेवा	अतिविशेष सेवा अंतर्गत नासिक आणि अमरावती येथे 2008 पासून सुरू करण्यात आले	2	0

स्रोत - महाराष्ट्र शासन सार्वजनिक आरोग्य विभाग (2023)

## तक्ता -3

महाराष्ट्र व नागपूर जिल्ह्यातील आरोग्य विषयक स्थिती दर्शक (आकडेवारी टक्केवारीत)

अ. क्र.	निर्देशांक	महाराष्ट्र		नागपूर जिल्हा	
		2015-16 NFHS 4	2019-20 NFHS 5	2015-16 NFHS 4	2019-20 NFHS 5
1	6 वर्षे आणि त्यापेक्षा अधिक वय असणाऱ्या शाळेत गेलेल्या महिला	77.4	79.6	86	86.5
2	15 वय वर्षे पेक्षा कमी वय असलेली लोकसंख्या	24.5	22.8	20.9	20.9
3	विजेची सुविधा असणाऱ्या घरांमध्ये राहणारी लोकसंख्या	93.5	97.8	97.9	99.5
4	स्वच्छ पाण्याची सुविधांचा वापर करणारी लोकसंख्या	92.5	93.5	97.4	99.5
	सुधारित स्वच्छता सुविधेचा वापर करणारी कुटुंबे	51.9	72.0	72.2	88.9
5	स्वयंपाकसाठी स्वच्छ इंधन सुविधा वापरणारी घरे	59.9	79.7	75.7	96
6	आरोग्य विमा किंवा वित्त नियोजन या अंतर्गत समाविष्ट असलेले कोणतेही सामान्य सदस्य असलेले कुटुंब	15	20	18	25.6
8	10 किंवा त्यापेक्षा अधिक शालेय शिक्षण असलेल्या	42	50.4	53.1	67.6
9	संस्थात्मक आरोग्य सुविधामध्ये जन्म प्रमाण	90.3	94.7	97.2	100
10	सार्वजनिक आरोग्य सुविधा असणाऱ्या संस्था मध्ये जन्म प्रमाण	48.9	55.8	70.6	61.9

स्रोत - नॅशनल फॅमिली हेल्थ सर्वे 2015 -16 व 2019-20

महाराष्ट्र आणि नागपूर जिल्ह्यातील आरोग्य विषयक काही निवडक निर्देशांकचा वरील सारणीत विचार केला आहे. या निर्देशक घटकांचा व्यक्तीच्या आरोग्य आणि जीवमानाशी धनात्मक संबंध आहे. या निर्देशक घटकातील सुधारणांनामुळे आरोग्य बाबतच्या समस्या टाळता येऊ शकतात. 2015 -16 च्या

नॅशनल फॅमिली हेल्थ सर्वे नुसार महाराष्ट्रात 2015-16 मध्ये विजेची सुविधा असणाऱ्या घरात राहणारी लोकसंख्या 93.5 टक्के इतकी होती तर 2019- 20 मध्ये यात 97.8 टक्के इतकी वाढ झाली, नागपूर जिल्ह्यात हे प्रमाण 2015-16 मध्ये 97.9 इतके होते तर 2019-20 मध्ये यात वाढ होऊन 99.5 टक्के झाले.

स्वच्छ पाण्याची सुविधांचा वापर करणारी लोकसंख्या 2019-20 मध्ये 92.5 टक्के इतकी होती. म्हणजे 7.5 टक्के लोकसंख्येला अजूनही शुद्ध पाण्याची उपलब्धता नाही, 2019-20 मध्ये स्वच्छ पाण्याच्या सुविधा प्राप्त 99.5 टक्के लोकसंख्या होती.

सुधारित स्वच्छता सुविधेचा वापर करणारी कुटुंबे 2015 -16 मध्ये 51.9 टक्के कुटुंबे होती तर 2019-20 मध्ये 72 टक्के झाली, महाराष्ट्रातील 28 टक्के कुटुंबे सुधारित स्वच्छता साधनांचा वापर करीत नव्हते. शहरी भागापेक्षा ग्रामीण भागात हे प्रमाण जास्त आहे, तर नागपूर जिल्ह्याचा विचार करता 2015-16 मध्ये 72.2 टक्के लोकसंख्या सुधारित स्वच्छता सुविधांचा वापर करत होती त्यात 2019-20 मध्ये वाढ होऊन 88.9 टक्के झाली ,तरी 21.1 टक्के स्वच्छता सुविधा वापरू शकत नाही. 2015-16 नुसार स्वयंपाकसाठी स्वच्छ इंधन सुविधा असणारी घरे 59.9 टक्के त्यात 2019-20 मध्ये 79.7 टक्के इतकी वाढ झाली असली तरी 20.3 टक्के महाराष्ट्रातील कुटुंबांना स्वच्छ इंधनाची सोय नव्हती. नागपूर जिल्ह्यात 2019-20 मध्ये 96 टक्के कुटुंबाकडे स्वच्छ इंधन सुविधा आहेत. महाराष्ट्र राज्यात 10 वर्षे शालेय शिक्षण किंवा त्यापेक्षा अधिक शालेय शिक्षण घेणाऱ्यांचे प्रमाण 2019-20 मध्ये 50.4 टक्के इतके होते. तर नागपूर जिल्ह्यात हे प्रमाण 67.6 टक्के होते. संस्थात्मक आरोग्य सुविधा असणाऱ्या प्रसूती गृहात जन्माचे प्रमाण 94.5 टक्के होते त्यात सार्वजनिक प्रसूतीगृहात जन्म प्रमाण 2019 मध्ये महाराष्ट्रात 55.8 इतके होते. महाराष्ट्रात आरोग्य विमा धारक कुटुंबे किंवा कुटुंबातील सदस्य 2019-20 मध्ये केवळ 20 टक्के होते तर नागपूर जिल्ह्यात 25.6 कुटुंबांकडे किंवा सदस्यांकडे आरोग्य विमा किंवा आरोग्याचे वित्त नियोजन होते. 74.4 टक्के कुटुंबांकडे आरोग्य विमा किंवा त्यासंबंधित वित्त नियोजन नव्हते. त्याचे कारण ग्रामीण भागात शेतीतील उत्पन्न हे निश्चित नसते तसेच आर्थिक परिस्थितीमुळे विम्याचे प्रीमियम देणे शक्य होत नाही, आरोग्य विम्याचे फायदे याबद्दल पूर्ण

माहिती नसते. विमा कंपन्या शहरी भागात केंद्रित असतात त्यामुळे ग्रामीण भागात आरोग्य विमा आणि त्याबाबत जागृती होणे गरजेचे आहे. नागपूर जिल्ह्यात आरोग्य विमा नसणाऱ्यांचे प्रमाण 61.9 टक्के इतके होते. ग्रामीण भागात हे प्रमाण फार जास्त आहे. त्यामुळे एखाद्या आजाराच्या उपचारावर खर्चही जास्त होतो आणि त्यासाठी पर्यायाने कर्जेही घ्यावी लागतात.

“देश, राज्य, जिल्हापरतवे आरोग्याच्या दर्जात भिन्नता आढळते.सार्वजनिक आरोग्य यावरील वित्तीय तरतूद लोकसंख्येचा विचार आरोग्य सेवाही आपुन्या आहेत. त्यासाठी आरोग्यावरील सार्वजनिक खर्चातील वाढीबरोबरच आरोग्य विम्याची अंमलबजावणी होणे आवश्यक आहे.” (माहोरे रामदास, जुलै सप्टें 2019).

नागपूर जिल्ह्यात 14 तालुके आहेत. नागपूर शहराच्या सार्वजनिक आरोग्य सुविधांचा अभ्यास केल्यास आरोग्य सुविधेत असमानता दिसून येते . ही असमानता नागपूर शहर - तालुके यांचा दरम्यान तसेच तालुक्यां- तालुक्यांमध्ये ही आहे. 2022-23 च्या स्थितीचा विचार केला असता नागपूर शहरात 7 रुग्णालये आहेत व सावनेर ,नागपूर ग्रामीणमध्ये एकही रुग्णालय नाही. रामटेक तालुक्यात 2 रुग्णालये असून इतर उर्वरित तालुक्यांमध्ये प्रत्येकी एक-एक रुग्णालय आहे. सावनेर तालुक्यात एकही प्रसूती गृह नाही तर इतर तालुक्यांमध्ये 1-1 प्रसूती गृह आहे आणि नागपूर शहरात एकूण 6 सार्वजनिक प्रसूती गृहे आहेत. नागपूर शहर वगळता इतर कोणत्याही तालुक्यात विशेष रुग्णालय नाही. कुही तालुक्यात सर्वात जास्त 10 दवाखाने आहेत . पारशिवणी आणि रामटेक मध्ये सर्वात कमी 2 सार्वजनिक दवाखाने आहेत. वरील तक्तात्याचा विचार करता ग्रामीण आणि शहरी लोकसंख्येच्या तुलनेत डॉक्टर आणि परिचारिका असणारे प्रमाण कमी आहे. सार्वजनिक आरोग्य संस्था आणि सुविधा अपुन्या आहेत, त्यामुळे आरोग्य यंत्रणेवर अतिरिक्त भार येतो.

## तक्ता - 4

## नागपूर जिल्ह्यातील सार्वजनिक आरोग्य सुविधा (2022-23)

तालुके	प्राथमिक आरोग्य केंद्र	उपकेंद्र	डॉक्टर व वैद्य	परिचारिका	रुग्णालये	विशेष रुग्णालये	दवाखा ने	प्रसूती गृहे
नरखेड	5	26	21	29	1	0	6	1
काटोल	3	31	26	39	1	0	7	1
कळ मेश्वर	4	21	19	26	1	0	3	1
सावनेर	5	33	18	33	0	0	3	0
परशिवणी	5	26	19	32	1	0	2	1
रामटेक	5	32	27	50	2	0	2	2
मौदा	5	22	16	24	1	0	5	1
कामठी	3	20	31	32	1	0	4	1
नागपूर ग्रामीण	3	14	9	14	0	0	5	0
नागपूर शहर	0	0	639	1752	7	2	72	6
हिंगणा	4	20	21	27	1	0	5	1
उमरेड	4	23	20	27	1	0	4	1
कुही	4	29	26	35	1	0	10	1
भिवापुर	3	19	17	22	1	0	5	1
एकूण	53	316	909	2142	19	2	133	18

स्रोत - सामाजिक आर्थिक समोलचन, नागपूर. (2022-23)

## तक्ता - 5

## महाराष्ट्रात प्राथमिक आरोग्य केंद्रांमध्ये डॉक्टर आणि विशेषतज्ञांची उपलब्धता

वर्ष	आवश्यक	मंजूर	कार्यरत	रिक्त	कमतरता
2005	1780	3157	3158	-1	-1378
2015	1811	3009	2931	72	-1126
2020	1829	3587	2848	739	-1019
2021	1839	4021	3252	769	-1413

स्रोत - माहोरे समित व रामदास माहोरे, (2022)

“राज्यामध्ये ज्या प्रमाणात लोकसंख्या वाढीबरोबर डॉक्टर आणि विशेषतज्ञांची आवश्यकता असते, त्याचप्रमाणे विविध आरोग्य सेवा देणाऱ्या आरोग्य कर्मचाऱ्यांची देखील आवश्यकता असते.

2021 मध्ये मंजूर पदांच्या तुलनेत 70 टक्के पदांची उणीव दिसून आली. यावरून महाराष्ट्रात आरोग्याचा खालवलेला दर्जा स्पष्ट होतो.” (माहोरे समित व रामदास माहोरे, 2022).

## तक्ता - 6

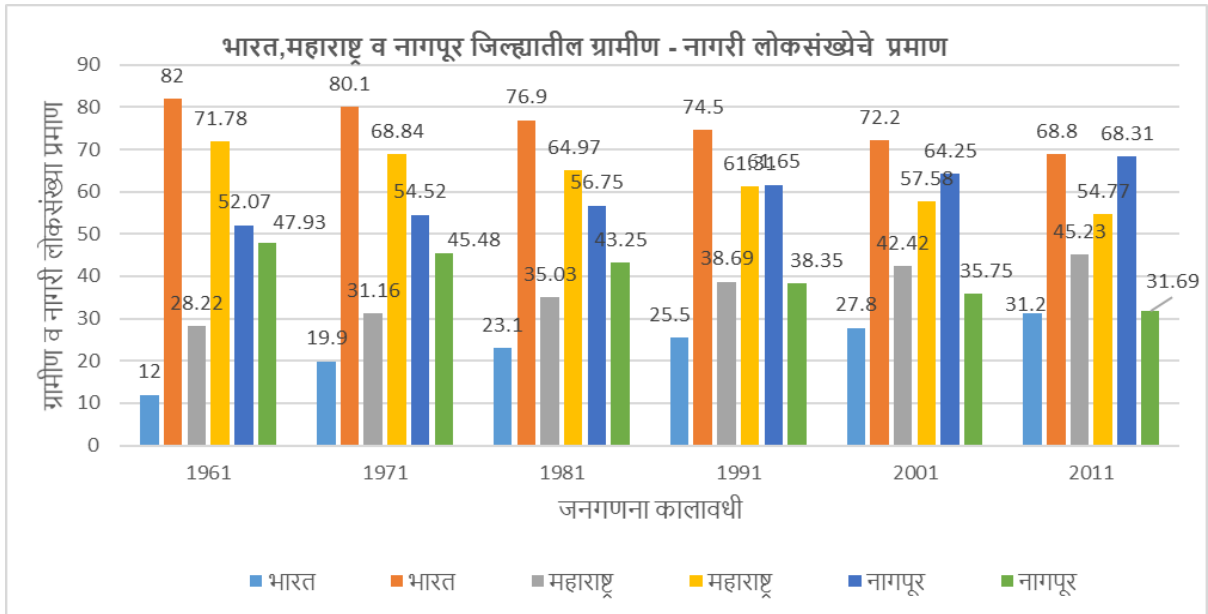
## नागपूर जिल्ह्यातील सार्वजनिक आरोग्य केंद्रांमध्ये डॉक्टर व परिचारिका यांची उपलब्धता

नागपूर जिल्ह्यातील सार्वजनिक आरोग्य सुविधा						नागपूर जिल्ह्यातील सार्वजनिक आरोग्य सुविधा				
नागपूर शहर स्थिति						नागपूर जिल्ह्यातील ग्रामीण क्षेत्र स्थिति				
	2018-19	2019-20	2020-21	2021-22	2022-23	2018-19	2019-20	2020-21	2021-22	2022-23
डॉक्टर व वैद्य	646	648	655	623	629	206	256	256	278	270
परिचारिका	2000	1808	1761	1689	1752	316	401	401	390	390

स्रोत - आर्थिक व सामाजिक समलोचन नागपूर जिल्हा 2018 ते 2023

## आलेख - 2

## नागरी व ग्रामीण लोकसंख्या प्रमाण



स्रोत: आर्थिक व सामाजिक समलोचन, नागपूर (2018 ते 2023), Population Census (2011)

वरील आलेखात भारत, महाराष्ट्र व नागपूर जिल्ह्यातील नागरी आणि ग्रामीण लोकसंख्येचे वितरण दर्शविले आहे. 2011च्या जनगणनेनुसार नागपूर जिल्ह्याची लोकसंख्या 46,53,570 आहे. 23,84,975 पुरुष व 22,68,595 स्त्रिया आहेत. जिल्ह्याच्या नागरी भागात 68.31 टक्के लोकसंख्या आहे तर नागपूर शहरात 76 टक्के लोकसंख्या निवास करते. WHO नुसार 1000 लोकसंख्येस एक डॉक्टर असे आहे आणि या मानकानुसार भारत, राज्य आणि जिल्ह्याच्या लोकसंख्येच्या तुलनेत आरोग्य यंत्रणा

अपुरी आहे. नागपूर जिल्ह्यात दर लाख लोकसंख्येमागे सार्वजनिक वैद्यकीय संस्थेतील खाटांची संख्या 72 आहे. तसेच उपचार केलेल्या आंतर-रुग्णांची संख्या 2,77,200 व बाह्यरुग्णांची संख्या 54,34,200 इतकी आहे. 13 ऑगस्ट 2017 पासून नागपूर जामठा येथे 470 खाटांचे, नॅशनल कॅन्सर इंस्टीट्यूट सुरू करण्यात आले. 2018-19 ते 2022-23 या काळात कोरोना महामारीमुळे आरोग्य सुविधांच्या अभावी ग्रामीण भागातील जनतेसमोर अनेक अडचणी निर्माण झाल्या. स्थानिक पातळीवरील आरोग्य सेवांमध्ये सुधारणा

दिसून येते परंतु रिक्त पदे, औषधांची नियमित उपलब्धता, लोकसंख्येनुसार सरकारी दवाखान्यांची संख्या या बाबतीतील प्रश्न कमी प्रमाणातच सुटू शकले आहे.

महाराष्ट्रात लोकाधारीत देखरेख व नियोजन प्रक्रिये अंतर्गत प्राथमिक आरोग्य केंद्रे, तालुका पातळीवरील ग्रामीण रुग्णालय, जिल्हा आणि राज्य पातळीवर राबविली जात असून आरोग्य यंत्रणेचे अधिकारी कर्मचारी लोकप्रतिनिधी आणि स्वयंसेवी संस्था किंवा सामाजिक बांधिलकी असणारे लोक या तीन घटकांच्या पायावर ही प्रक्रिया उभी आहे. तरी सुद्धा आरोग्य विषयक प्रश्न सुटलेले नाही. आरोग्य विषयक प्रश्न सोडविण्यासाठी स्वच्छ ऊर्जा वापर, पोषक आहार, उघड्यावर शौचाची पद्धत पूर्णपणे बंद केली पाहिजे. प्रथम आरोग्य बऱ्याच अंशी सरकारची जबाबदारी आहे आता ती खाजगी क्षेत्राकडे सोपविण्यात येत आहे. खाजगी विमा कंपन्या आणि बहुराष्ट्रीय कंपन्या त्यासाठी निधी उपलब्ध करून देत आहेत. परंतु भारत सरकारच्या आर्थिक नियोजनाच्या प्रक्रियात “आरोग्य सुविधा” या केंद्रस्थानी नव्हत्या. (के अरुण, 2009) आरोग्य कार्यक्रमाचे नियोजन, निरीक्षण आणि परीक्षण आणि मूल्यमापन यांचा समावेश असण्याची गरज आहे. तंबाखू आणि आमली पदार्थांचा पुरवठा नियंत्रित करावा. आरोग्य साक्षरता हा कार्यक्रम मोठ्या प्रमाणावर हाती घेतला पाहिजे. त्यामुळे आधुनिक तंत्रज्ञानाच्या मदतीने समाजाच्या अगदी तळागळा पर्यंत पोहचता येईल.

#### निष्कर्ष –

ग्रामीण भागात आरोग्य सुविधांची आवश्यकता फार महत्वाची आहे. कारण शहरी भागापेक्षा आरोग्या संबंधित समस्या ग्रामीण भागात अधिक भेडसावत असतात. शिक्षणाच्या अभावी आणि आरोग्य विषयक अपुऱ्या माहिती अभावी आरोग्याच्या सुविधांचा लाभ घेता येत नाही. जिल्ह्यातील ग्रामीण भागातील आरोग्य सुविधांमध्ये सुधारणा होणे गरजेचे आहे; परंतु आरोग्य सुविधांच्या

ह्या स्थानिक समुदायांच्या गरजा आणि पर्याय यावर आधारित असाव्यात आरोग्याच्या गुणवत्तेत वाढ करण्यासाठी शासनाने संसाधने आणि अधिक निधी उपलब्ध करून द्यावा. जिल्ह्याच्या आरोग्य सेवा पूर्णपणे विकसित नसल्या तरी त्या सतत सुधारणेच्या प्रक्रियेत आहे.

#### संदर्भ –

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## डॉ. पंजाबराव देशमुख : शेती आणि शेतकरी संघटना

डॉ. प्रशांत हरमकर

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### गोष्टवारा:

डॉ. पंजाबराव देशमुख यांच्या जीवनातील कार्यावर आधारित या लेखात, त्यांच्या सामाजिक, आर्थिक, व राजकीय योगदानाची चर्चा केली आहे. त्यांनी भारतातील शेती आणि शेतकऱ्यांच्या समस्यांवर लक्ष केंद्रित करून त्यांच्या आर्थिक स्थितीतील सुधारणा करण्यासाठी विविध उपाययोजना सुचवल्या. शेतकरी संघटना आणि सहकार विपणन व्यवस्थेच्या माध्यमातून शेतकऱ्यांना मदत करण्याचे त्यांनी आवाहन केले. शेती उत्पादन वाढवण्यासाठी आधुनिक पद्धतींचा स्वीकार आणि कृषी उद्योगाच्या स्थापनेवर त्यांनी भर दिला. त्यांच्या या कार्यामुळे भारताच्या कृषी क्षेत्रात महत्त्वपूर्ण बदल घडवून आले आहेत.

**बीज शब्द:** डॉ. पंजाबराव देशमुख, शेती, शेतकरी संघटना, शेतकरी समस्या

### प्रस्तावना :-

असे फारच कमी राजकीय नेते आहे की, ते राजकारण करतांना सामाजिक कार्यामध्ये सहभागी झाले. त्यांचा सामाजिक आणि इतर कार्यातील सहभाग म्हणजे त्यांनी त्यांच्यामधील उर्जेचा उपयोग सामाजिक आणि इतर कार्यासाठी करून घेतला. यांना शिक्षणमहर्षी, लोकमहर्षी आणि समाजसुधारक म्हणून ओळखल्या जाते. यामध्येच त्यांची अदम्य क्षमता दिसून येते. अशी अदम्य क्षमता घेऊन सामाजिक, आर्थिक व राजकीय कार्यात ठसा उमटविणारे डॉ. पंजाबराव उपाख्य भाऊसाहेब देशमुख होय. त्यांनी त्यांच्या जीवनातून त्यांचे कार्यकर्तृत्व सिद्ध केले. सर्वसामान्यांना सार्वजनिक वस्तू संपादित करता याव्यात याकरिता राजकारणाचा उपयोग केला. केवळ प्रशासकिय कृती केल्या नाही तर रचनात्मक कार्याद्वारे सामान्य लोकांना लाभ प्राप्त करून दिले. त्यांच्या कार्यामध्ये विविधता होती व काम करण्याची अफाट क्षमता होती.

ते अनेक समित्या परिषदा आणि मंडळाचे अध्यक्ष अथवा सदस्य होते. ऐवढे सगळे सांभाळून त्यांना सामान्य लोकांना न्याय देणे अशक्य वाटत होते.

पण त्यांनी अशक्यांचे रूपांतरण शक्यामध्ये केले. त्यांच्या कार्याकडे प्रत्येक व्यक्ती आणि व्यक्ती समूह वेगवेगळ्या दृष्टिकोनातून पाहतो. त्यांनी अनेक संकल्पना मांडल्या. या सर्व संकल्पनांनी त्यांचे जीवन व्यापून टाकले होते. भारताच्या शेतकरी संघटनेचे किंवा शेतकरी चळवळीचे ते आद्य संस्थापक होते. म्हणून त्यांना शेतकरी संघटनेचे जनक असे म्हणतात.

### भारतातील शेती आणि शेतीच्या समस्या :-

शेती आणि शेतकरी हा डॉ. पंजाबराव देशमुखाचा अत्यंत आवडीचा विषय होता. ते शेतकऱ्यांना त्यांच्या हृदयापासून दूर ठेवू शकत नव्हते. त्यांना विश्वास होता की, शेतकरी एकमेकांशी जुळण्याकरीता शेतकऱ्यांचे संघटन असणे आवश्यक आहे. त्यांना विश्वास होता की, शेतकरी त्यांच्या समस्या सोडवू शकले तर निश्चितपणे त्यांच्या परिस्थितीत सुधारणा होईल. त्यांच्या मते तत्कालीन कालावधीमध्ये १० पैकी ७ व्यक्ती कृषी क्षेत्रावर अवलंबून होते. बहुसंख्य लोकांची जिविका शेती हीच होती. इ.स.न. १९५५ मध्ये देशाच्या एकूण उत्पन्नापैकी ५० प्रतिशत उत्पन्न शेतीमधून प्राप्त होत होते. यामध्ये पशुपालन व संबंधित व्यवसाय समाविष्ट होता.

देशामध्ये शेती हा असंघटीत व्यवसाय होता. देशातील उद्योग यशस्वी होते पण ते शेतकऱ्यांच्या परिश्रमावर अवलंबून होते. त्यांचे मत होते की, भारतातील शेती व्यवसाय हा पूर्णतः निसर्ग आणि ऋतुच्या अनियमिततेवर अवलंबून आहे. या अनियमिततेचा प्रतिकूल परिणाम भारतीय शेतीवर घडून आला आहे. यामुळे शेतकऱ्यांच्या जीविकेवर परिणाम होऊन भारतीय शेतकऱ्यांची आर्थिक स्थिती बिघडलेली आहे. शेतकऱ्यांच्या अनेक पिढ्या कर्जामध्ये जन्मलेला आहे आणि शेतकऱ्यांना कर्जाशिवाय कोणता वारसा नाही. यामुळे कृषी क्षेत्राला अंगत्व प्राप्त झाले आहे. परिणामतः केवळ कृषी अर्थव्यवस्थेला कृतीशील आणि पुर्नः कृतीशील करण्याची गरज नाही तर संपूर्ण देशाच्या आर्थिक संरचनेलाच कृतीशील आणि पुर्नः कृतीशील करण्याची गरज आहे. देशाला सर्वच पातळ्यावर विकास साध्य करायचा आहे. असे असतांना उत्पादन घटकामध्ये तटस्थता आहे. ही तटस्थता दीर्घकाळपर्यंत परवडणारी नाही. म्हणून कृषी विकास समर्थपणे घडवून आणण्याची आवश्यकता आहे. याकरीता कृषी क्षेत्रामध्ये परिवर्तन घडवून नवीन मार्ग स्विकारण्याची आवश्यकता आहे. अर्थव्यवस्थेत उत्पादनामध्ये आधिक्य आणि शाश्वतता आणण्याची आवश्यकता आहे. तरच शेतकऱ्यांची आर्थिक स्थिती सुधारेल हे या देशाचे वास्तव असल्याचे त्यांचे मत होते.

गेल्या काही वर्षांपासून शासन धोरणात्मक पाठपुरावा करित असल्यामुळे शेतकऱ्यांना विविध मार्गाने मदत होत आहे. यामध्ये कृषी उत्पादन टप्पाटप्प्याने वाढविण्याचा विचार आहे. याकरीता विविध राज्याचे परिश्रम व शेतकऱ्यांचे परिश्रम कारणीभूत ठरले आहे. याचा परिणाम असा झाला की, कृषी उत्पादन वाढले. यामुळे भविष्यातील आपत्तीचा सामना करणे शक्य झाले आहे. सोबतच कृषी वस्तूला योग्य किंमत मिळणे आवश्यक आहे. कृषी किंमतीचे मापण प्रचलित होणे आवश्यक आहे. कृषी किंमतीवर नियंत्रण असणे आवश्यक आहे. शेतकऱ्यांच्या आर्थिक स्थितीमध्ये सुधारणा घडून येत असतांना हे बदल जाणवले पाहिजे. अपेक्षापेक्षा बदल वेगाने घडून

आले पाहिजे. काही कृषी उत्पादनाच्या किंमती घसरतात. किंमत घसरण म्हणजे कृषी क्षेत्रात अडचणी आहेत. शेतकऱ्यांचा उत्पादन व्यय उच्चतम पातळीपर्यंत वाढत असतांना किंमतीमध्ये घसरण घडून आली आहे. अशा प्रकारची स्थिती कृषी ऐलर क्षेत्रामध्ये दिसून येत नाही. किंमत घसरणीचा परिणाम हा शेतकऱ्यांच्या उत्पन्नावर होतो. म्हणून उत्पादन वाढत असतांना उत्पादन व्यय वाढून किंमतीमध्ये घसरण व्हायला नको ही गंभीर समस्या आहे. ही समस्या सोडविल्या गेली नाही तर कृषी उत्पादक आणि उत्पादन दोन्ही प्रभावित होतील म्हणून यावर लक्ष केंद्रीत करण्याची आवश्यकता आहे.

आपल्याला अडचणीवर मात करायची आहे. याकरीता शेतकऱ्यांना दिलेल्या किंमत पातळीकडे पहावे लागेल. किंमती या उत्पादकांना मोबदला देणाऱ्या असायला पाहिजे आणि उपभोक्त्यांना त्या स्विकार्य असायला पाहिजे. जर शेती उत्पादन कार्यक्रमाची दुर्बळपणे अंमलबजावणी झाली आणि शेतकऱ्यांना आर्थिक संकटातून वाचवायचे असेल तर किंमतीत झालेल्या घसरणीचे मापन होणे आवश्यक आहे. किंमत घसरणीचे मापन करणे सोपे कार्य नाही. केवळ शासनाने उपाय करून परिणाम मिळणार नाही. याकरीता शेतकऱ्यांचे कृतीशील सहकार्य मिळणे अपेक्षित आहे. जर कृषी उत्पादनाच्या किंमती विशिष्ट पातळीपर्यंत आणायच्या असतील तर मोठ्या प्रमाणात मापकांना समजवून घ्यावे लागेल. एकत्रितपणे कृती शासन आणि शेतकऱ्याला करावी लागेल. कृषी क्षेत्राची वास्तविकता समजून घेत असतांना शासन ते शेतकरी यापर्यंत अडचणी कशा आहे त्या समजवून घ्याव्या लागेल. याकरीता सहकार्य करण्याची आवश्यकता आहे. जर शेतकरी एकत्रित आले तर त्यांच्या समस्यावर चर्चा घडून येईल. यामधून शेतकऱ्यांच्या संघटना अथवा चळवळी निर्माण होऊ शकतात. याद्वारे शेतकऱ्यांना त्यांच्या समस्या शासनासमोर मांडता येईल. जेणे करून शेतकऱ्यांना सहाय्य करता येईल. यामध्ये कृषी क्षेत्राशी संबंधित सर्वच क्षेत्र राहतील. परिणामतः कृषी क्षेत्राची स्थिती अधिक सुसंगत आणि सुलभ निर्माण होईल.

शेतीला व्यवसायाचा महत्वाचा घटक म्हणून पाहिल्या गेले पाहिजे. शेतीच्या बाह्य स्वरूपात बदल करण्याची आवश्यकता आहे. कारण या बाह्यस्वरूपात त्रुट्या आणि गैरसमजुती मोठ्या प्रमाणात आहे. म्हणून अपयशी शेतकऱ्यांना मदत करण्याची आवश्यकता आहे. शेतीकडे शेवटचा पर्याय म्हणून बघितल्या जाते म्हणून शेती मागे पडत आहे. यामध्ये शेतकऱ्याच्या जिविकेकरिता सुधारणा करण्याची आवश्यकता आहे. शेतकऱ्याच्या बाबत म्हटल्या जाते की, तुम्ही अल्प आहात; तुमच्याकडे भौतिक व अभौतिक साधनाची कमतरता आहे. शेतीला विकसित करायचे असेल तर इतर व्यवसायाकडून बोध घेणे आवश्यक आहे. शेतकरी त्यांच्या व्यवसायामध्ये पारंगत झाले पाहिजे. शेतकऱ्यांनी स्वतःला अद्यावत केले पाहिजे. शेतीचे उपपयोजन करतांना सुधारणा केल्या गेल्या पाहिजे. शेती हा अगतिशील व्यवसाय नाही. हा व्यवसाय करतांना सातत्याने त्यामध्ये शिकावे लागते. संशोधक आणि प्रयोगशाळा कडून सातत्याने शिक्षणाचा प्रवाह शेतीपर्यंत येणे आवश्यक असते. तरच शेती हा खात्रीशीर उत्पन्न मिळून देणारा व्यवसाय होईल. शेती ही जिविका असून ती उत्पादकीय असायला पाहिजे. तरच शेतकऱ्यांना चांगल्या प्रकारची शेती करण्यास मदत होईल.

### सहकार विपणन व्यवस्था :-

भारताचा ग्रामिण ऋण सर्व्हेक्षण (All India Rural Credit Survy 1955) अहवालामध्ये शेत विषयक शिफारशी केल्या आहे. डॉ. पंजाबराव देशमुखाच्या मते या शिफारशीचा गंभीरपणे विचार करण्याची आवश्यकता आहे. या अहवालामध्ये प्रत्येक शेतकऱ्याला कर्ज देण्याचे समर्थन केले आहे. सहकारावर आधारीत संघटीत कृषी बाजार संस्था निर्माण करण्याचा प्रस्ताव आहे. कृषी बाजार संस्थांचे जाळे निर्माण करण्याची आवश्यकता आहे. शेतीचे उत्पादन उपभोक्त्यासाठी केले पाहिजे. यामध्ये प्रमुख वाटा देय किंमतीचा राहिल ही वास्तविकता समजवून घ्यायला पाहिजे. म्हणून कृषी उत्पादनासाठी सहकार विपणन व्यवस्था असणे आवश्यक आहे. भारताच्या ग्रामिण ऋण सर्व्हेक्षण अहवालामध्ये कृषी

उत्पादनासाठी संघटीत सहकारी विपणन व्यवस्थेवर भर दिला आहे. त्याला प्रत्यक्षात महत्वाचे स्थान देण्याची आवश्यकता डॉ. पंजाबराव देशमुखांनी अधोरेखित केली आहे. सहकारी विपणन व्यवस्था शेतकऱ्याकरीता यशस्वी संघटन राहण्याचा त्याचा आत्मविश्वास होता. त्याचे मत होते की, या सहकार विपणन व्यवस्थेचे यश शेतकऱ्यांचे हित आणि पुढाकार यावर अवलंबून राहिल. याकरीता सहकार विपणन व्यवस्थेचा विस्तार घडवून आणावा लागेल. मध्यस्थाचे उच्चाटन करावे लागेल हे सर्वोत्तम उपाय करण्याची संधी सहकार विपणन व्यवस्थेमुळे निर्माण झाली आहे. यामुळे शेतकऱ्यांना लाभ प्राप्त होणार आहे. याकरिता कायदेशीरपणे सहकार विपणन संघटन स्थापन करून घेणे आवश्यक आहे.

### कृषी उत्पादन व्यय :-

शेतकऱ्याच्या उत्पन्नामध्ये सुधारणा होण्याची आवश्यकता आहे. याकरिता उत्पादन व्यय किमान असण्याकरीता प्रयत्नशील असण्याची आवश्यकता आहे. उत्पादन व्ययामध्ये बदल करण्याचा प्रभावी मार्ग म्हणजे लहान धारण क्षेत्र एकत्रित करून लहान धारण क्षेत्राची जोडणी करण्यास परवानगी शेतकऱ्यांना देण्याची आवश्यकता आहे. जोपर्यंत उत्पादनाचा घटक मोठा होत नाही तोपर्यंत शेती आर्थिकदृष्ट्या परवडत नाही. शिवाय शेतीमध्ये आधिक्य उत्पादन घडून येण्याची संभाव्यता कमी असते. पण लहान धारण क्षेत्र जोडणीमध्ये अनेक प्रकारच्या अडचणी आहे याची जाणीव डॉ. पंजाबराव देशमुखांना होती. कारण याला शेतकऱ्यासह इतरांची मान्यता मिळण्यामध्ये अनेक प्रकारच्या अडचणी आहे. या मार्गाचा उपयोग करण्याचे उद्दीष्ट म्हणजे शेतकऱ्यांचे मोठ्या प्रमाणात हित साध्य करण्याचे आहे. कारण शेतकऱ्याकडे अनार्थिक (Non-economic) धारण क्षेत्र आहे. यामुळे शेतकरी शेती वाहू शकत नाही. अंतिमतः शेतकऱ्यावरचे कर्ज वाढून ते कर्जबाजारी होतात.

शेतकरी हा त्याच्या शेतीशी लौकिक दृष्ट्या जुळलेला असतो याची जाण डॉ. पंजाबराव देशमुखांना होती. म्हणून शेतकऱ्याच्या शेतीला वैयक्तिक पातळीवर प्रोत्साहन मिळण्याची

आवश्यकता आहे. वैयक्तिक पातळीवर प्रोत्साहन देणे या मापकाचे उद्दीष्ट कृषी क्षेत्रामध्ये सुधारणा करण्याचे आहे. कृषी क्षेत्रामध्ये सुधारणा घडवून आणणे हा राष्ट्रीय विकासाचा महत्वपूर्ण भाग आहे. मात्र कृषी व्यवसायामध्ये रूढीवादी पद्धती आणि भावनांना प्राधान्य आहे. यापेक्षाही कृषी उत्पन्न घेतांना उत्पादन घटकाचा विचार होण्याची आवश्यकता आहे. केवळ उत्पादनामध्ये सुधारणा करून चालणार नाही तर प्रति एककरी उत्पादन वाढवणे आवश्यक आहे. सोबतच प्रतिव्यक्ती उत्पन्न वाढणे आवश्यक आहे. याकरिता डॉ. पंजाबराव देशमुखांना सहकार शेती ही सर्वोत्तम संधी वाटत होती. यामुळे उत्पादन वाढ घडून उत्पादन व्ययामध्ये कपात घडून येईल, असे त्यांना अभिप्रेत होते.

### प्रति एकरी उत्पादकता वाढ :-

जगामध्ये भारताची प्रति एकरी उत्पादकता फार कमी आहे म्हणून डॉ. पंजाबराव देशमुख असे म्हणतात की, आपल्या सांस्कृतिक पद्धती व प्रत्यक्ष कृतीमध्ये बदल करण्याची आवश्यकता आहे. शेतीची प्रति एकरी उत्पादकता वाढविण्याकरीता शेतीमध्ये खताचा उपयोग होण्याची आवश्यकता आहे. यामुळे प्रति एकरी उत्पादकता वाढेल. शेतीमध्ये बदल करतांना अगदी साध्या सूचना नांगरावरच्या शेतकऱ्यांपर्यंत पोहचण्याची आवश्यकता आहे तरच उत्पादनामध्ये क्रांतीकारक बदल होऊ शकतात. असे क्रांतीकारक बदल भात शेतीमध्ये घडून आले आहे. यामुळे उत्पादन वाढले व अभूतपूर्व यश तांदुळ उत्पादनामध्ये प्राप्त झाले आहे. डॉ. पंजाबराव देशमुखांचा विश्वास होता की, जर जपानच्या भात शेती पद्धतीचा शेतकऱ्यांनी स्विकार केला तर संपूर्ण देशातील तांदुळाचे उत्पादन दुप्पटीने वाढेल. याकरीता जास्त खर्च सुध्दा येणार नाही. जपानी पद्धतीच्या भात शेतीचा ज्या प्रदेशामध्ये स्विकार केला आहे तेथील उत्पादन 24 प्रतिशतने वाढले आहे. जे जपानच्या सरासरीच्या 1/3 होते. डॉ. पंजाबराव देशमुखांचे असे मत होते की, जर आपण तांदुळाचे उत्पादन 100 प्रतिशतने वाढविले तर त्याचे काय परिणाम घडून येईल याची आपण कल्पना करू शकतो. म्हणून

आधुनिक पिक पद्धतीचा स्विकार करण्याची आवश्यकता यावर त्यांनी भर दिला आहे.

सर्व शेतकऱ्यांनी स्वतःच्या परिश्रमाबाबत जागरूक असायला पाहिजे. कारण यामध्ये निम्मे प्रयत्न हे शासनाचे राहणार आहे. प्रायोगिक तत्वावर सर्वोत्तम शेती उत्पादन करणाऱ्या पद्धतीचे मापण करता आले पाहिजे. यामुळे उत्पादनामध्ये वाढ घडून येईल. अशा प्रयोगाचे लाभ प्राप्त झाले तर मोठ्या प्रमाणात उत्पादन वाढ घडून येईल. देशामधील सर्व शेतकऱ्यांनी शेतकरी संघटनांच्याद्वारे पुढाकार घेवून आधुनिक शेती पद्धतीचा प्रसार केला पाहिजे. या कृतीला सर्वोत्तम केले पाहिजे. कृषी क्षेत्रामध्ये आधिक्य उत्पादन निर्माण होऊ शकते. याकरिता शेतकरी संघटनाकडून शिफारशी येणे आवश्यक आहे. म्हणून कृषी उत्पादन वाढविण्यासंबंधीचे अध्ययन होणे आवश्यक आहे. यामुळे प्रत्यक्षात उत्पादन वाढविणे शक्य होईल. राज्याने सर्व शेतकऱ्यांना सर्व प्रकारच्या संभाव्य सुविधा प्राप्त करून दिल्या पाहिजे. आधिक्य उत्पादन निर्माण करायचे असेल तर कृषी उत्पादनाचे नियोजन करणे आवश्यक आहे. या करिता राज्यासोबत सल्लामसलती शेतकरी संघटनांनी करणे आवश्यक आहे. या मार्गाचा अवलंब करतांना आधिक्य उत्पादन घेण्याकरीता जाचकता नसावी आणि फाजीलपणा असु नये कारण यामुळे जलद गतीने कृषी उत्पादनाच्या किंमतीमध्ये घसरण घडून येते असे डॉ. पंजाबराव देशमुखांचे मत होते.

### कृषी उद्योग :-

कृषी क्षेत्रामधील कार्य हे हंगामी स्वरूपाचे असते. शेतकऱ्याचा हंगाम संपला की, त्यांना बराच काळ विश्रांती असते. यामध्ये शेतकऱ्याचे बरेच महिने जातात. पिकाची कापणी झाल्यानंतर शेतकऱ्यांना रोजगार नसतो. यावर परिणामकारक उपाय म्हणजे कृषी उद्योगाचे जाळे निर्माण केले पाहिजे असे डॉ. पंजाबराव देशमुख यांचे मत होते. त्यांच्या मते कृषी उद्योग हे सहकाराच्या आधारावर स्थापन करता येतात. याकरीता कृषी उत्पादन जेथे होते त्यांच्या जवळच निवडक स्थळी उत्पादन केंद्र निर्माण करण्याची आवश्यकता आहे. यामुळे शेतकऱ्याच्या हंगामी

बेरोजगारीकरिता दीर्घकालीन उपाय करता येईल. या कृषी उद्योगाचे वैशिष्ट्य म्हणजे हे उद्योग हंगामी रोजगार निर्माण करणारे आहे. यामुळे शेतकरी पिक कापणीच्या नंतरच्या विश्रांतीच्या काळात या उद्योगामध्ये सहभागी होऊ शकतो. या उद्योगाच्या स्थापनेमागे केवळ आपल्या गरजा पूर्ण व्हाव्या ऐवढे मर्यादित उद्दीष्ट नाही तर हे उद्योग यशस्वीपणे उभारल्या गेले पाहिजे. उद्योगाचे विकेंद्रिकरण झाले पाहिजे. यामुळे शेतकऱ्यांना मदत होवून उत्पन्न प्राप्तीमध्ये सुधारणा घडून येईल. हे तत्व स्विकारल्या गेले तर या क्षेत्रातील इतर अभिकरण (Agencies) आणि शासनासोबत सल्लामसलत करून याबाबत संपूर्ण मांडणी करता येईल. यामध्ये ग्रामिण वाहतूक हा अत्यंत महत्वाचा भाग आहे. याला व्यवस्थाबद्धरित्या विकसित करण्याची आवश्यकता आहे. याचा शेतकरी उत्पादकांना लाभ होईल असा आत्मविश्वास डॉ. पंजाबराव देशमुख यांनी व्यक्त केला होता.

#### महिला शेतकरी व युवक :-

डॉ. पंजाबराव देशमुख यांच्या मते या देशातील शेतकऱ्यांसोबत शेतामध्ये त्यांच्या पत्नी प्रत्यक्ष काम करतात. या देशातील महिला म्हणून त्यांची ओळख आहे. जोपर्यंत शेतकरी महिलांना आपण पुढे घेऊन जात नाही, त्यांना संधी उपलब्ध करून देत नाही तोपर्यंत शेतकरी संघटनेच्या कर्तृत्वाला आणि कृतीला सहाय्य मिळणार नाही. स्त्री सक्षमता निर्माण करतांना केवळ त्यांच्या कामाच्या वाट्यावर भर न देता त्यांचा विचार विनिमयामध्ये सहभाग वाढविणे आवश्यक आहे. स्त्रियांनी शेतकरी संघटनेला सल्ले देखील दिले पाहिजे. यामुळे केवळ देशाचीच प्रगती घडून येणार नाही तर सर्वांगीण प्रगती घडून येईल. शेतकरी संघटनेला निश्चित असे स्थान प्राप्त करून घ्यायचे असेल तर शेतकरी स्त्रियांना शेतकरी संघटनेमध्ये सामावून घेणे आवश्यक आहे. यामुळे या देशातील स्त्रीया त्याचे योगदान जागतिक पातळीवर देऊ शकतील.

शेतीमध्ये काम करणाऱ्या युवकांनी त्यांच्या कार्यामध्ये योग्य समन्वय साधण्याची आवश्यकता आहे. डॉ. देशमुखांच्या मते हा देश भाग्यशाली आहे

की, या देशामध्ये असंख्य तरुण आहे. हे तरुण कृषी क्षेत्रामध्ये कार्यरत आहे. ते शेतीवर प्रेम करतात आणि देशाची सेवा करतात. या तरुणांना सहाय्य करण्याची आवश्यकता आहे. युवकाचे राष्ट्रबांधणीच्या रचनात्मक कार्यामध्ये मोठ्या प्रमाणात योगदान मिळू शकते. म्हणून युवकांकरीता संघटनेच्या रचनेमध्येच नियोजन करणे आवश्यक आहे. शेतकरी समुदायाचे कार्य हे स्वतःच्या गटाशी संबंधित असलेच पाहिजे. पण त्याचबरोबर इतरांना सहकार्य केले पाहिजे. प्रथम, आपण सर्व शेतकरी आहोत. यामध्ये पुरुष, स्त्रीया आणि युवक सामील आहे. द्वितीय महिलांकरिता ग्रामिण महिला संघटना असणे आवश्यक आहे. तृतीय लिंग दृष्टीकोनातून दोन्ही बाजूंनी तरुण शेतकरी आहे. हे लक्षात घेऊन योग्य मार्गाने शेतकरी संघटना निर्माण करण्याची आवश्यकता आहे. शेतकरी संघटनेची स्थापना खेड्यामधून झाली पाहिजे. त्याचे गट तहसिल पातळीवर असले पाहिजे. यानंतर हे गट जिल्हा आणि राज्य पातळीवर एकत्रित असायला पाहिजे. संघटनाची साखळी निर्माण व्हायला पाहिजे. या संघटनाची बांधणी ही मजबूत असायला पाहिजे. या शेतकरी संघटनांनी देशातील नामांकित कृषी स्थळांना भेटी दिल्या पाहिजे. देशातील कृषी क्षेत्राची स्थिती व धान्याचा साठा जाणून घेतला पाहिजे.

#### शेतकरी संघटना :-

शेतीचा सर्वांगीण विकास घडून येण्याकरीता शेतकरी संघटनाची आवश्यकता आहे. शेतकरी संघटनेच्या माध्यमातून शेतकऱ्यांना देशाकरीता सेवा देता येते. शेतकरी संघटनेचा उपयोग शेतकऱ्यांची मते आणि दृष्टिकोन मांडण्यासाठी होऊ शकतो. यामुळे शेतकऱ्यांचे संघटन शेतकऱ्यांकरीता अनेक बाबी घडवून आणू शकतो. शेतकऱ्याची चळवळ अराजकीय असायला पाहिजे. शेतकरी चळवळीने शेतकऱ्यांच्या व्यावसायिक कार्याला मध्यवर्ती स्थान दिले पाहिजे. कृषी उत्पादने आणि शेतकऱ्यांच्या कल्याणाला प्राथमिक स्थान दिल्या गेले पाहिजे. शेतकरी चळवळी अंतर्गत शेतकऱ्यांच्या सर्वसाधारण सभा घडून आल्या पाहिजे. शासनाचे अधिकारी, कृषी

संशोधक, उद्योगपती, बाजार तज्ञ हे या चळवळीच्या कार्यकारीणीचे कायदेशीर सदस्य असायला पाहिजे. या शेतकरी चळवळीमध्ये प्रत्यक्ष शेतीमध्ये काम करणाऱ्या पुरुष आणि स्त्रियांनी देशाच्या कृषी अर्थव्यवस्थेचे सामर्थ्य वाढविण्याची रूची दाखवली पाहिजे. सर्वांनी एकत्र येऊन आपल्या बुद्धीमत्तेचा उपयोग शेतीच्या विकासाकरिता केला पाहिजे. उर्जा आणि संसाधनाचा महत्तम उपयोग झाला पाहिजे. प्रत्येक दिवशी कृषी क्षेत्रातल्या समस्या सोडविण्याचा प्रयत्न झाला पाहिजे. या कार्याला मदत करण्यासाठी प्रत्येक शेतकऱ्याने स्वतःला जुळवून घेतले पाहिजे. शेतकऱ्यांनी आपली भूमी आधिक्याने उत्पादन करण्याकरिता निर्माण केली पाहिजे.

शेतकऱ्याचे संघटन अथवा चळवळ या राजकीय विचारसरणीशी जोडल्या जाऊ नये अथवा राजकीय प्रभावाखाली काम करू नये. या संघटनांनी देशातील कृषी उत्पादक प्रस्तुत केला पाहिजे. त्याचा आवाज उठविला पाहिजे. कशाचीही पर्वा न करता शेतकरी हिताशी संघटनाचे संलग्निकरण असायला पाहिजे. शेतकऱ्यांचे संघटन हे खाजगी असून यामध्ये शासनाचा हस्तक्षेप नसायला पाहिजे. शेतकऱ्यांचे कल्याण आणि हित यावर भर देणाऱ्याचे शेतकरी संघटनेमध्ये स्वागत असायला पाहिजे. अनेक वेळा शेतकरी अडचणीमध्ये असतो पण त्याच्या वतीने बोलल्या जात नाही याची चिंता डॉ. पंजाबराव देशमुखांना भेडसावत होती. पुरेशा प्रमाणात शेतकऱ्याचे हित संरक्षित करण्याकरिता त्यांच्यामध्ये सक्षमता नाही. शेतकऱ्याचे हित लक्षात घेता त्यांना परिणामकारक संरक्षणाची तरतुद आवश्यक आहे. हि स्थिती एखाद्या शेतकऱ्याची नसुन सर्वच शेतकऱ्याची आहे. शेतकरी संघटना असल्या तरच शेतकऱ्यांच्या समस्यांचे निराकरण होऊ शकते, यावर डॉ. पंजाबराव देशमुखांचा ठाम विश्वास होता.

भारतीय शेतकरी शोषण आणि दुर्लक्षितपणा यांच्या व्यथा दीर्घकाळापासून सहन करित आहे. हा सर्व दैवाचा भाग आहे म्हणून तो विनातक्रार सहन करित आहे. यामुळे त्याच्या मानसिकतेवर परिणाम होऊन त्याच्या जीवनात स्थैतिकता आणि निराशावाद

निर्माण झाला आहे. यामुळे शेतकऱ्याच्या सामाजिक जीवनामध्ये बिंबवणे आवश्यक आहे की, शेतकऱ्यांनी एकत्रितपणे कार्य केले पाहिजे. शेतीमध्ये गतिशीलता निर्माण केली पाहिजे. याकरिता त्यांना मानसिक दृष्ट्या तयार केले पाहिजे. शेतकऱ्याच्या समस्या समजवून घ्यायला पाहिजे. शेतकऱ्याच्या समस्या आर्थिक, सामाजिक आणि सांस्कृतिक स्वरूपाच्या आहे. या समस्यावर विचार करून उपाय सुचविल्या गेले पाहिजे. याचे प्रत्यक्ष परिणाम मिळायला पाहिजे. हा हेतू साध्य करण्याकरिता शेतकरी संघटनांनी जिकरीने कार्य केले पाहिजे.

### प्रशासन आणि शेतकरी संघटना :-

सामंत जमिनदार पद्धती दीर्घकाळ अस्तित्वात राहणार नाही. यामुळे शेतकरी आधिक्याने मुक्त आणि सुरक्षित होईल. दीर्घकाळापासून जमिनदारांना शेतकऱ्यांचे प्रमुख मानल्या जात होते. जमिनदारांच्या मार्फत प्रशासन केल्या जात होते. आता जमिनदारी पद्धती नाहिशी झाल्यामुळे प्रशासन आणि शेतकरी यामध्ये मोठे अंतर निर्माण झाले आहे. यामुळे शेतकऱ्यांनी परिणामकारकपणे पूल जोडणीचे काम करायला पाहिजे. शेतकऱ्यांनी स्वतःला प्रशासनाशी जोडून घेण्याचे काम करायला पाहिजे. याकरिता शेतकरी संघटनेने योग्य यंत्रणेची तरतुद निर्माण करण्याची आवश्यकता आहे. शेतकरी संघटनेने केवळ शेतकऱ्यांच्या दृष्टीकोनातून कार्य करू नये तर शेतकरी आणि प्रशासन यामधील संपर्क जोडून ठेवण्याचे कार्य करण्याची आवश्यकता आहे. सामुहिक प्रकल्प प्रशासन (Community Project Administration) आणि राष्ट्रीय विस्तार सेवा (National Extension Service) याबाबत साशंकता बाळगू नये. या दोन्ही सेवा शेतकऱ्यांना मदत करणाऱ्या आहे. शेतकऱ्यांना उदभवणाऱ्या समस्यांवर त्या सल्ला देणाऱ्या सेवा आहेत. शेतकरी संघटनांनी यांना बदलविण्याचा प्रयत्न करू नये किंवा तसा हेतू बाळगू नये. शेतकरी संघटनांनी यांना पूरक असे कार्य करावे. सामुहिक प्रकल्प प्रशासन आणि राष्ट्रीय विस्तार सेवा यांनी देशाचे मर्यादीत क्षेत्र व्यापले आहे. शेतकरी संघटनांनी विस्तारीत दृष्टिकोन ठेवावा आणि शेतकरी व ग्रामिण

लोकांना मदत करावी. शेतकरी संघटनांचा देशांतर्गत प्रक्रियेमध्ये प्रभावशाली सहभाग असावा. शेतकरी संघटनांनी चर्चेसाठी संधीची निर्मिती करावी. शेतकरी संघटनांनी चर्चा निकडीच्या गरजा व समस्याबाबत घडवून आणाव्या. शेतकऱ्यांमध्ये आत्मविश्वास निर्माण करावा. शेतकऱ्यांची परिस्थिती समजवून घ्यावी. शेतकरी संघटनांनी घेतलेले निर्णय छाप सोडणारे असावे. शेतकरी संघटनांनी शेतकऱ्यांचे प्रश्न सोडविण्याकरीता अभेद्य युक्तीवाद केला पाहिजे. हे केवळ शेतकऱ्यांची सहानुभूती मिळविण्याकरीता करू नये तर शेतकऱ्यांचे प्रश्न मांडतांना शासनाचा आदर ठेवला गेला पाहिजे.

शेतकरी संघटना सर्वोच्च पातळीवर पोहचण्याकरीता केवळ शेतकऱ्यांनी शेतकरी संघटनेमध्ये सामील होवून चालणार नाही तर शेतकऱ्यांना संघटीत करणे, संघटन बांधणे आणि संघटनेच्या कामामध्ये स्वतःला झोकून देणे महत्वाचे आहे. शेतकऱ्यांची चळवळ म्हणजे शेतकऱ्यांचे वास्तविक संघटन असायला पाहिजे. शेतकऱ्यांना हे संघटन स्वतःचे वाटायला पाहिजे. शेतकरी संघटनांच्या कार्याचा स्रोत हा कल्याणकारी कार्याचा असायला पाहिजे. शेतकरी संघटन ग्रामिण लोकांकरीता निर्माण झाले पाहिजे. ग्रामिण लोकांनी चांगले जीवनमान व्यतीत करण्याची इच्छा शेतकरी संघटनांद्वारे पूर्ण झाली पाहिजे.

#### प्रगत देशातील शेतकरी संघटना :-

शेतकरी संघटना अथवा चळवळ ही काही नवीन संकल्पना नाही. प्रत्येक प्रगत देशामध्ये शेतकऱ्यांनी स्वतः स्थापित केलेल्या शक्तीशाली संघटना आहे. प्रगत देश औद्योगिकदृष्ट्या पुढारलेले असले तरी त्या देशांमध्ये शेतकरी संघटना प्रबळ आहे. याचे उत्तम उदाहरण म्हणजे इंग्लंड आहे. इंग्लंड उच्चतम पातळीवर औद्योगिकीकरण झालेला देश आहे. National Farmer Union आणि The National Farmer Union of Scotland या दोन महत्वाच्या इंग्लंडमधील शेतकरी संघटना आहे. या दोन्ही शेतकरी संघटनांचे प्रशासकीय कार्य शेतकरी स्वतः करतात. शेतकऱ्यांना लाभ मिळवून देण्यासाठी

स्वतः प्रयत्न करतात. इंग्लंडमध्ये अत्यंत शिस्तबद्ध पद्धतीने शेतकरी संघटन निर्माण झाले आहे. या संघटना शेतकऱ्यांचे हित आणि अधिकारांचे संरक्षण करतात. यामधूनच राजकीय विचार आणि चळवळीचा विस्तार घडून येतो. अमेरिकेमध्ये प्रबळ शेतकरी चळवळ आहे. अमेरिकेमध्ये The American Fram Bureau Federation, The National Farmer Union आणि The Grange या तीन महत्वाच्या संघटना आहे. या सर्व संघटना अमेरिकेमधील शेतकऱ्यांच्या आर्थिक, सामाजिक आणि शैक्षणिक हितांचे रक्षण करतात. सोबतच शेतकऱ्यांचे व्यावसायिक हित जपतात. ग्रामिण भागातील लोकांच्या सामाजिक, शैक्षणिक आणि सांस्कृतिक कार्याची सुरक्षा करतात. कॅनडामध्ये शेतकरी संघटना कार्यरत आहे. शेतकरी संघटनांच्या कार्यामुळे कॅनडाचे शासन शेतीच्या एकूण खर्चापैकी 59 प्रतिशत खर्च करते.

#### शेतकरी संघटनेची बांधणी :-

शेतकरी संघटनांनी विशेष संधी प्रस्तुत केली पाहिजे. समाजाचा आकृतीबंध समाजवादी आहे हे लक्षात घेतले पाहिजे. शेतकऱ्यांच्या खांद्यावर मोठी जबाबदारी असून त्यांना नेतृत्व करायला मिळायला पाहिजे. शेतकरी या देशाचा प्राथमिक उत्पादक आहे. त्याला लाभ प्राप्त होणे आवश्यक आहे. त्याच्या जीवनमानाची पातळी उंचावल्या गेली पाहिजे. जीवनमानाची पातळी घसरू नये याची काळजी घेतल्या गेली पाहिजे. देशामधील एकूण कृषी उत्पादनामध्ये वाढ घडून आली पाहिजे. यामुळेच शेतकऱ्यांचे जीवनमान उंचावण्याची शक्यता आहे.

भारतातील शेतकऱ्यांचे संघटन म्हणजे दीर्घकाळापासून विचार आणि सल्लामसलती करून निर्माण झाले आहे. शेतकरी संघटनांमध्ये विचार आणि सल्लामसलती सर्व बाजूंनी घडून आल्या पाहिजे. कृषी क्षेत्राची कार्ये, कर्तव्य गृहीत मानून संपूर्ण भारताच्या पातळीवर शेतकऱ्यांशी जोडतांना प्रत्येक टप्प्यावर उणीवा आहेत. याकरिता शेतकऱ्यांचे संघटन महत्वाचे

आहे. म्हणून राज्याच्या कृषी मंत्र्यांनी शेतकऱ्यांकरीता कृषी परिषदाचे यशस्वीपणे आयोजन केले पाहिजे.

शेतकरी संघटनेचा दृष्टिकोन हा संघटनेची बांधणी करण्याचा असला पाहिजे. संघटनेच्या विचारविनिमयाचा मुख्य उद्देश हा शेतकऱ्यांना मदत करणे आणि कृषी क्षेत्राचा विकास घडवून आणणे असला पाहिजे. सर्वच शेतकरी अन्नधान्याचा पुरवठा करतात. त्यामुळे संघटनेमध्ये मोठ्या शेतकऱ्यांचे वर्चस्व असू नये. शेतकरी संघटनांचे कार्य केवळ मोर्चे काढणे, जनआंदोलन करणे ऐवढेच मर्यादित नाही. तर प्रत्येक मुद्दा हा शेतकरी हिताचा असला पाहिजे. प्रत्येक मुद्द्याचे अध्ययन केल्यानंतरच स्वतःचे दृष्टीकोन शेतकरी संघटनेने प्रस्तुत केले पाहिजे. शेतकऱ्यांच्या प्रश्नावर काळजीपूर्वक विचार व्हायला पाहिजे. शेतकरी संघटनांनी शासनासोबत कर आणि धोरणाबाबत चर्चा घडवून आणली पाहिजे. शासनाचे मन वळवता आले पाहिजे. शासनाचे मन वळवता येणे हेच शेतकरी संघटनेचे प्रमुख साधन आहे. शेतकरी संघटनांनी केवळ दबाव, संघर्ष आणि संप घडवून आणू नये.

शेतकरी संघटनांनी विचाराचा विस्तार केला पाहिजे. या विचारामध्ये मुलभूत तत्व असायला पाहिजे. कोणत्याही परिस्थितीत संघटन विचलीत होवू नये याची खबरदारी घेतली पाहिजे. संघटनाचा आधार स्वयमनिर्भर असायला पाहिजे. शेतकरी संघटना या केवळ तक्रारी आणि मागण्या करणाऱ्या असू नये. जर आपल्या विचाराची हानी घडून येत असेल तर त्याचे अध्ययन केल्या गेले पाहिजे. आपले विचार योग्य प्रकारे मांडून त्यामध्ये सुधारणा केल्या पाहिजे. हे सर्व उत्तम प्रकारे करू शकतो असे स्पष्ट केले पाहिजे. हे संघटनेचे दुय्यम कार्य आहे. संघटनेचे प्राथमिक आणि मुलभूत कार्य म्हणजे संघटनेने अभ्यास मंडळे स्थापित केली पाहिजे. भारताच्या पुर्ननिर्माणासाठी शेतकऱ्यांनी योगदान दिले पाहिजे. हा शेतकरी संघटनेचा हेतू असायला पाहिजे. शेतकरी संघटना सक्षम करण्याकरिता सामुदायिक मार्ग स्विकारला पाहिजे. संघटनामध्ये स्फुर्ती देणारी नाविण्यता आणल्या गेली पाहिजे. कृती करतांना त्यागाचा अंश असायला पाहिजे. संघटनेमध्ये मुलभूत विचार रूजले नाही तर

संघटनेची हानी घडून येईल. आपल्या देशावर प्रेम करतांना संघटनेच्या माध्यमातून महान सेवा घडवून आणली पाहिजे. आपली संख्या लक्षात घेता आपण नाविण्यपूर्ण आवाजाशी जुळलो पाहिजे. शेतकऱ्यांना संघटनेची आवश्यकता आहे. संघटनेचा उपयोग करून शेतकऱ्यांना बोलायला शिकवले पाहिजे. यामध्ये शेतकऱ्यांनी स्वतःच्या संकल्पना मांडायला पाहिजे. यामधून आदर्श घडवायला पाहिजे. संघटनेने शासन आणि इतर अभिकरणांना (Agrncies) सहकार्य केले पाहिजे. सहकार्य करतांना देशाचे हित लक्षात घेतले पाहिजे. यामध्ये अध्ययन आणि समजूतदारपणाचे मूल्य असायला पाहिजे. संघटन हे विस्तारलेले असले पाहिजे. यामध्ये सर्व देशाच्या गरजा अंतर्भूत असायला पाहिजे. नेहमी लक्षात असायला पाहिजे की, आपण एकमेकांशी जुळलेलो असतांना आपली काय भूमिका राहणार आहे. जर आपण एकमेकांशी योग्य प्रकारे जुळल्या गेलो नाही तर संकल्पनाची गंमत होईल, त्याची खिल्ली उडविल्या जाईल आणि संघटनेवर आक्षेप घेतल्या जाईल. मात्र डॉ. पंजाबराव देशमुखांना अत्मविश्वास होता की, शेतकरी अशा विचारांना लागू करणार नाही. आक्षेपामुळे भरकटल्या जाणार नाही. म्हणून आपल्यामध्ये (शेतकऱ्यामध्ये) भिन्नता असली तरी शेतकरी संघटनेने उद्देशानुसार कार्यान्वित असणे आवश्यक आहे.

अनेकांच्या मनामध्ये प्रश्न आहे की, संघटनेच्या बाहेर राहून राजकारण कसे करता येईल. याबाबत फार काळजी करण्याची आवश्यकता नाही. यामागे शतकाचा अनुभव आहे. भारतातील शेतकऱ्याबाबत साशंक असू नये. शेतकरी संघटनेमध्ये राजकारण मिसळण्याच्या आमिषाला परवानगी देऊ नये. याकरीता आपण अमेरिकेकडून धडा शिकलो पाहिजे. अमेरिकेतील काही मोठ्या शेतकरी संघटना काही काळातच कोसळल्या होत्या. कारण त्यांचा उपयोग राजकारणाकरीता झाला. असा अनुभव लक्षात घेता भारतातील शेतकरी त्याला मान्यता देणार नाही. कारण राजकारणामधून शेतकरी संघटना नष्ट होवू शकतात. यावर डॉ. पंजाबराव देशमुखांचा ठाम विश्वास होता.

**समारोप :-**

आजही शेतीच्या समस्या या शेतकऱ्यांच्या अतिगंभीर आर्थिक समस्याचा भाग आहे. आजही देश या समस्याचा सामना करित आहे. राज्याचे धोरण हे शेतीच्या समस्या सोडविणारे असले पाहिजे. समस्या सोडविणारी परिणामकारक मापके शासनाकडे असायला पाहिजे. कारण शेतकरी समुदाय या व्यवस्थेचा कणा आहे. शेतकरी या देशाचा दैवत आहे. याकरिता शेतकऱ्याकडून सूचना आणि शिफारशी येण्याची आवश्यकता आहे. शेतकऱ्यानी सूचना आणि शिफारशी शेतकरी संघटनेव्दारे दिल्या पाहिजे. यामुळे देशाचे धोरण आणि शेतकऱ्यांच्या समस्या सोडवणूकीमध्ये योग्य प्रकारचा मेळ बसू शकतो. शेतकरी संघटना या प्रभावीपणे अशा द्विमार्ग - शृंखलाचा (Two way channel) उपयोग शेतकऱ्यांकरीता करू शकतात. यामुळे कृषी समस्याचे निर्मूलन घडून कृषी क्षेत्रामध्ये बदल घडून येण्याची आजही आवश्यकता आहे.

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## Revealed Comparative Advantage from Trade among SAARC Countries: An Empirical Analysis

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### Abstract:

*The analysis of comparative advantage has been undertaken using the Balassa (1965) index of revealed comparative advantage for six-digit level of Harmonized System (HS) classification. This study analyses the competitiveness and the pattern of trade flows from India to SAARC member countries. Regional integration in SAARC has significantly affected trade patterns, comparative advantage and competitiveness. In the light of evidence, some policy implications are drawn. The present paper has examined India's relative advantage on various commodities with SAARC countries on export and import with the help of relative comparative advantage on export and imports.*

**Keywords:** Revealed Comparative Advantage (RCA), Trade, Specialization, Competitiveness, Balassa Index, Imports, Exports

### Introduction:

During and after the great depression of 1930s, developed and developing countries in the world have increased trade restrictions. (Madsen, 2001, pp. 848). There are two approaches with regard to reducing and lifting trade restrictions: One is the reciprocal reduction in trade barriers on a non-discriminatory basis and another is forming groups of nations on a regional basis.

International trade contributes to the growth & development of a country in several ways. Firstly, it increases output and income by warranting greater employment of domestic resources. Secondly, it helps out a country to streamline production portfolio by specializing in the production of goods for which it enjoys a natural comparative advantage over other producing countries. Regional integration has gained strategic importance because members of WTO cannot offer trade related favor to any

country except when they are members of some form of regional integration due to the Most Favored Nation clause.

As the SAARC countries have similar factor endowments, their mutual trade based on product differentiation will result in low unit cost, more efficiency. Therefore, it is important to explore the structure of comparative advantage of India and other SAARC member countries. International trade changed rapidly across the world after the establishment of World Trade Organization (WTO) and subsequent liberalization of trade barriers. Reduction of trade barriers creates competitive pressures and the potential for technology transfer so as to lead to productivity gains and restructuring of an economy toward its comparative advantage. It is therefore expected that trade liberalization in India would have led to changes in the composition of exports so as to reflect India's comparative advantage in the global economy.

## Past Studies on RCA in Trade:

Balassa (1977) has undertaken an analysis of the pattern of comparative advantage of industrial countries for the period 1953 to 1971. The concept of revealed comparative advantage (Balassa 1965, 1977, 1979, 1986) pertains to the relative trade performance of individual countries in particular commodities. On the assumption that the commodity pattern of trade reflects the inter-country differences in relative costs as well as in non-price factors, this is assumed to “reveal” the comparative advantage of the trading countries.

## Methodology:

In the study we use Balassa’s (1965) Index of relative export performance by country and industry/commodity, defined as a country’s share of world exports of a commodity divided by its share of total world exports. It uses relative exports share of the individual countries to analyse the comparative advantage and therefore, the export potential of an economy. The index for country ‘i’ commodity ‘j’ is calculated as follows:

$$RCA_{ij} = (X_{ij}/X_{wj})/(X_i/X_w)$$

Where,

$X_{ij}$  = ith country’s export of commodity j

$X_{wj}$  = World exports of commodity j

$X_i$  = Total exports of country i

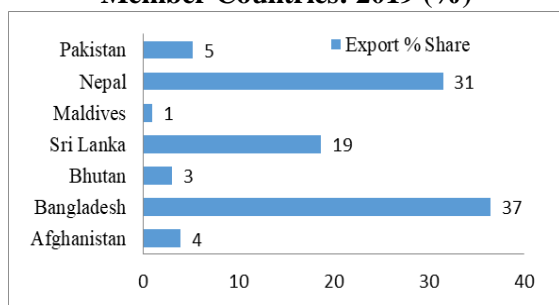
$X_w$  = Total world exports

The index of RCA follows simple interpretation as if a country takes a value greater than the unity; it appears the country has a revealed comparative advantage in that product. The advantage of using the RCA is that it contemplates the intrinsic advantage of a specific export commodity and remains consistent with the change in an economy’s productivity and relative factor endowment. Hence, this paper examined India relative advantage on various commodities with SAARC countries on exports and imports.

## India’s Trade with SAARC member countries:

India’s trade with SAARC countries in 2019 along with trade balance and import- export share among SAARC countries is calculated for 2019 and provided into figure 1 and 2. India had highest exports to Bangladesh followed by Nepal. However, India’s imports from SAARC countries were highest from Bangladesh followed by Sri Lanka and Nepal.

**Figure 1: India’s Export Share with SAARC Member Countries: 2019 (%)**

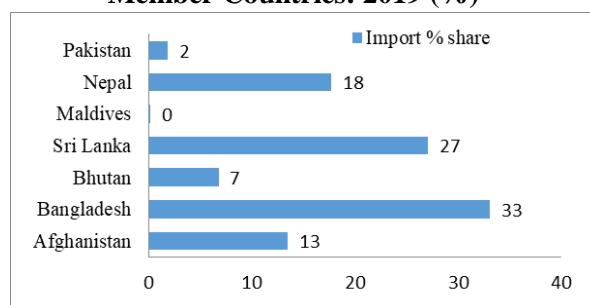


Source: Computed using WITS (World Integrated Trade Solution) data

## India’s trade with SAARC Countries and the World:

Analysis of India’s trade with SAARC countries for over the period of 35

**Figure 2: India’s Import Share with SAARC Member Countries: 2019 (%)**



Source: Computed using WITS (World Integrated Trade Solution) data

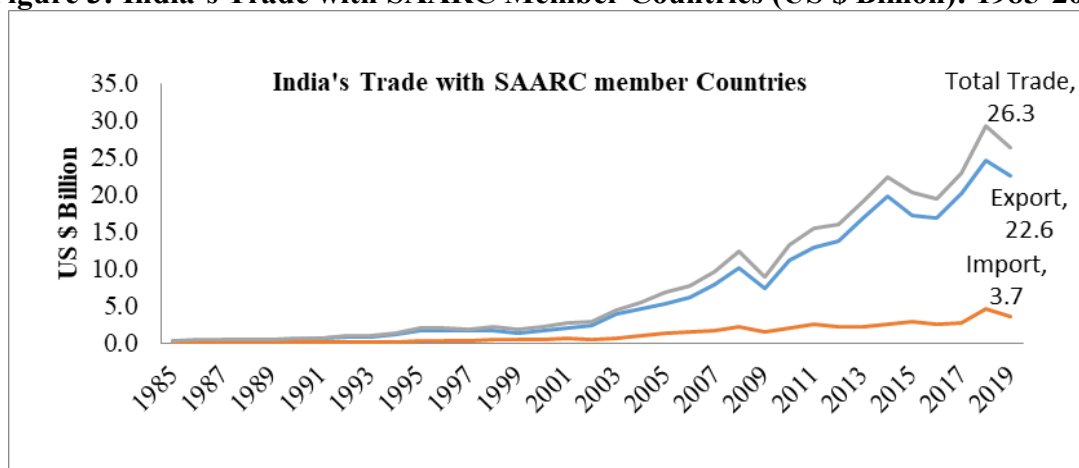
years has been done to observe the emerging trend in figure 3.

India’s total trade has increased from \$US 0.4 billion in 1985 to \$US 2.0

Billion in 1995 to \$US 6.8 billion in 2005 and further to \$US 20.2 billion in 2015 and reached to \$US 26.3 billion in 2019. Trade balance remained positive in favour of India that reflects more exports to the SAARC countries than the import from the SAARC countries. The total trade of the country increased from \$US 0.5 billion during 1985-1990 to \$US 4.5 billion in

2001-05 to \$US 24.5 billion during 2016-19 and this has happened due to fast rise in export to SAARC countries which made possible for positive trade balance in the favour of India. The trade growth rate only for 1996-2000 has been found negative (-2.90%) and highest growth rate is observed in 2001-05.

**Figure 3: India's Trade with SAARC Member Countries (US \$ Billion): 1985-2019**



Source: Computed using WITS (Word Integrated Trade Solution) data

**Table 1: India's Trade with SAARC countries (US \$ Billion): 1985-2019  
(On 5 years moving average)**

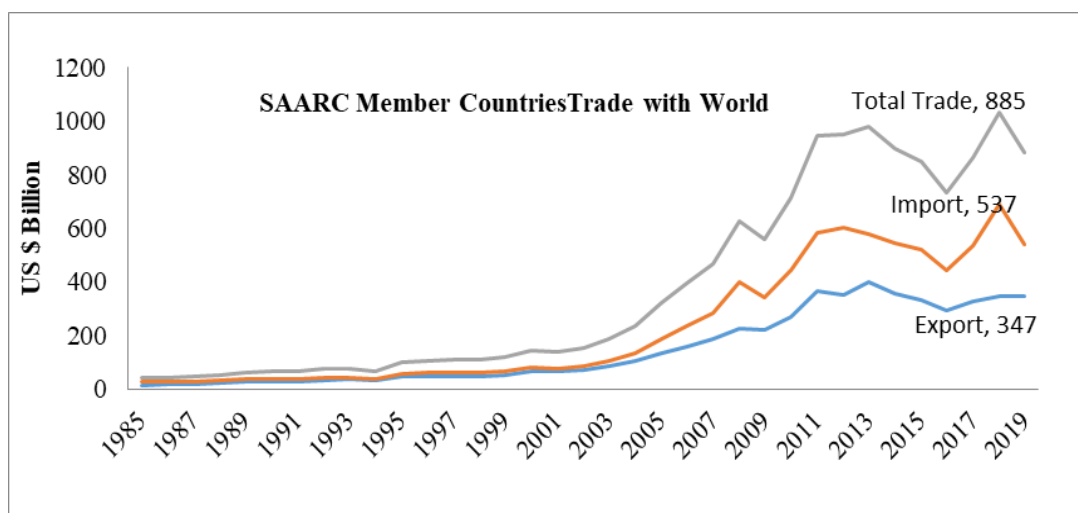
Year	Export	Import	Total Trade	Trade Balance	Growth Rate
1985-90	0.40	0.11	0.50	0.31	16.45
1991-95	1.08	0.17	1.25	0.91	26.25
1996-2000	1.64	0.38	2.02	1.26	-2.90
2001-2005	3.67	0.80	4.48	2.87	28.52
2006-2010	8.54	1.79	10.33	6.75	21.02
2011-2015	16.13	2.50	18.63	13.63	10.74
2016-2019	21.08	3.40	24.48	17.69	7.77

Source: Computed using WITS (Word Integrated Trade Solution) data

Further, it has been calculated on moving year average for total trade along with import and export. SAARC's total trade has increased from \$US 41 billion in 1985 to \$US 99 Billion in 1995, \$US 320 billion in 2005, to \$US 847 billion in 2015 and

reached to \$US 885 billion in 2019. Moreover, the trade balance remained negative in favour of world that reflected higher value of imports by the SAARC countries than the value of exports to the world.

**Figure 4: SAARC Member Countries Trade with World (US \$ Billion): 1985-2019**



Source: Computed using WITS (Word Integrated Trade Solution) data

The total trade of the country increased from \$US 51 billion during 1985-1990 to \$US 207 billion in 2001-05 to \$US 879 billion during 2016-19 due to fast rise in imports by SAARC countries resulting in

negative trade balance. The trade growth rate was found positive throughout with high growth in first decade but found declining in the second decade.

**Table 2: SAARC-8 Trade with World (US \$ Billion): 1985-2019**  
(On 5 years moving average)

Year	Export	Import	Total Trade	Trade Balance	Growth Rate
1985-90	20.16	30.67	50.83	-10.51	8.20
1991-95	34.31	41.43	75.74	-7.12	10.64
1996-2000	50.96	65.69	116.65	-14.73	7.89
2001-2005	90.12	117.02	207.14	-26.89	18.31
2006-2010	211.53	339.86	551.40	-128.33	18.55
2011-2015	358.91	564.89	923.80	-205.99	4.42
2016-2019	328.65	550.18	878.83	-221.53	2.41

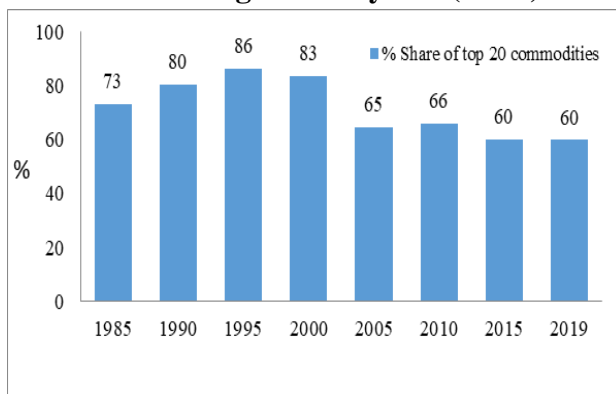
Source: Computed using WITS (Word Integrated Trade Solution) data

#### India's Export to SAARC Member Countries between 1985 and 2019:

Figure 5 reveals that there was increasing trend for export of the selected 20 commodities before 2000 but the share of other commodities increased from export to SAARC which resulted into decline in

share of those selected 20 commodities. In 1985, the share of those commodities was 73 percent which increased to a maximum of 86 percent during 1995 but 2000 onwards the share of it declined and floated around 60 percent during the last one decade.

**Figure 5: Share of India's 20 top commodities export to SAARC member countries during various years (In %)**



Source: Computed using WITS (Word Integrated Trade Solution) data

As per Commodity wise export to the SAARC member countries, it is found that textile, yarn and fabrics remained at the top through the study period although the share varied between 10 to 26 percent during the specified period. It was a maximum of 26 percent in 1995 to low of 10 percent in 2000. The second topmost commodities exported from India were motor vehicles for years 1995 and 2005. The share of motor vehicle varied between 8-10 percent.

**Table 3:**  
**Top five commodities exported from India to SAARC countries over the period 1985 to 2019**

Year	First	Second	Third	Fourth	Fifth
1985	Textile Yarn, Fabrics	Motor Vehicles	Machinery Specialized	Coffee, Tea, Cocoa	Veg. & Fruit
1990	Textile Yarn, Fabrics	Motor Vehicles	Rubber Manuf.	Machinery Specialized	Veg. & Fruit
1995	Textile Yarn, Fabrics	Cereals & Cereal Prep.	Motor Vehicles	Iron & Steel	Machinery Specialized
2000	Textile Yarn, Fabrics	Motor Vehicles	Veg. & Fruit	Iron & Steel	Medicinal & Pharma Products
2005	Textile Yarn, Fabrics	Cereals & Cereal Prep.	Motor Vehicles	Iron & Steel	Veg. & Fruit
2010	Textile Yarn, Fabrics	Motor Vehicles	Sugars, Sugar Prep.	Iron & Steel	Veg. & Fruit
2015	Textile Yarn, Fabrics	Motor Vehicles	Cereals & Cereal Prep.	Iron & Steel	Medicinal & Pharma Products
2019	Textile Yarn, Fabrics	Motor Vehicles	Iron & Steel	Machinery Specialized	Medicinal & Pharma Products

Source: Computed using WITS (Word Integrated Trade Solution) data

**Table 4: Percent share of India's Export to SAARC Member Countries: 1985-2019 (Based on top 20 commodities)**

In %	1985	1990	1995	2000	2005	2010	2015	2019
Cereals & Cereal Prep.	0.83	0.88	18.89	4.70	8.63	2.51	4.69	2.30
Veg. & Fruit	5.98	4.19	2.62	5.71	5.19	4.03	2.83	1.62
Sugars, Sugar Prep.	0.97	0.13	1.50	3.21	0.41	6.16	1.22	1.79
Coffee, Tea, Cocoa	6.97	2.91	2.33	2.76	1.06	2.07	1.40	1.64

Feeding Stuff For Animals	0.37	1.57	2.22	3.41	2.20	3.48	1.69	1.25
Coal, Coke & Briquettes	2.47	0.86	1.67	1.90	1.09	0.87	0.57	0.44
Organic Chemicals	0.19	0.43	0.98	2.55	4.65	2.90	1.74	2.59
Dyeing, Tanning & Coloring Materials	1.43	1.75	1.57	1.74	0.96	0.83	1.42	1.60
Medicinal & Pharma Products	4.64	4.04	2.85	5.01	3.39	2.80	2.94	3.44
Rubber Manuf.	3.58	9.37	2.11	1.99	1.51	1.27	1.01	1.06
Paper, Paper Board	1.23	1.17	2.26	2.23	1.35	1.00	1.06	1.26
Textile Yarn, Fabrics	15.97	26.25	21.11	19.52	9.95	14.76	13.34	11.69
Non Metallic Mineral	3.70	2.89	3.40	4.14	2.28	1.56	2.08	1.88
Iron & Steel	0.59	1.81	5.15	5.11	6.12	4.92	4.36	7.52
Manufactures Of Metals	2.25	1.39	0.75	2.61	1.71	1.05	1.32	2.68
Machinery Specialized	7.74	5.93	3.68	2.31	1.97	2.28	2.89	3.61
Electrical Machry, Apparatus & Appliances	2.60	1.64	1.84	1.83	1.82	1.47	1.93	2.56
Motor Vehicles	9.53	11.61	10.18	8.59	7.55	10.07	9.99	8.28
Articles Of Apparel And Clothing	0.33	0.31	0.29	1.88	1.36	0.84	1.86	1.22
Miscellaneous Manufactured Articles	1.69	1.35	0.84	2.22	1.34	1.15	1.56	1.40
Sum total of 20 commodities	73.06	80.46	86.23	83.43	64.53	66.01	59.90	59.84
Note- Prep: Preparation, Veg: Vegetables, Pharma: Pharmaceuticals, Machry: Machineries, Manuf: Manufactures								

Source: Computed using WITS (Word Integrated Trade Solution) data

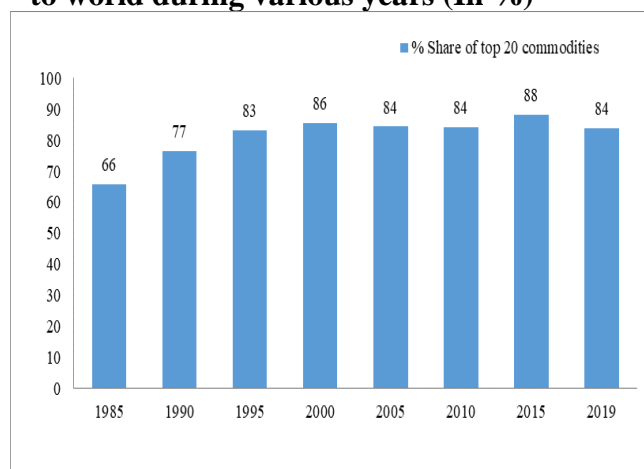
### SAARC Member Countries Exports to World:

Figure 6 reveals that there was increasing trend on export of those selected top 20 commodities and found at highest of 88 percent in year 2015. Although share of those selected commodities was continuous on increase from 66 percent in year 1985 to 1986 percent in year 2000 and goes on decline for next 14 years. However, it is notable that in the last 20 years, the share of the selected 20 commodities floated between 80 percent and 88 percent. It happened possibly due to increased share of other commodities export from SAARC countries to the world.

Moving on the commodity wise export from the SAARC member countries to the world, it is found that textile yarn and fabrics remained at the top between first 10 years between 1985 and 1995 followed by articles of apparel and clothing. Moreover,

in 2019, again textile yarn and fabrics placed at the top position within the world SAARC export trade with the world countries.

**Figure 6: Share of 20 top commodities export from SAARC member countries to world during various years (In %)**



Source: Computed using WITS (Word Integrated Trade Solution) data.

**Table 5: Top five commodities exported from SAARC countries to World over the period 1985 to 2019**

	First	Second	Third	Fourth	Fifth	% share
1985	Textile Yarn, Fabrics	Articles Of Apparel And Clothing	Coffee, Tea, Cocoa	Cereals & Cereal Prep.	Veg. & Fruit	60.4
1990	Textile Yarn, Fabrics	Articles Of Apparel And Clothing	Coffee, Tea, Cocoa	Cereals & Cereal Prep.	Non Metallic Mineral	71.2
1995	Textile Yarn, Fabrics	Articles Of Apparel And Clothing	Cereals & Cereal Prep.	Miscellaneous Manufactured Articles	Sugars, Sugar Prep.	80.8
2000	Articles Of Apparel And Clothing	Textile Yarn, Fabrics	Coffee, Tea, Cocoa	Cereals & Cereal Prep.	Miscellaneous Manufactured Articles	80.5
2005	Articles Of Apparel And Clothing	Textile Yarn, Fabrics	Cereals & Cereal Prep.	Coffee, Tea, Cocoa	Miscellaneous Manufactured Articles	76.5
2010	Articles Of Apparel And Clothing	Textile Yarn, Fabrics	Cereals & Cereal Prep.	Coffee, Tea, Cocoa	Miscellaneous Manufactured Articles	75.5
2015	Articles Of Apparel And Clothing	Textile Yarn, Fabrics	Cereals & Cereal Prep.	Coffee, Tea, Cocoa	Veg. & Fruit	81.1
2019	Textile Yarn, Fabrics	Articles Of Apparel And Clothing	Cereals & Cereal Prep.	Veg. & Fruit	Sugars, Sugar Prep.	75.4

*Source: Computed using WITS (Word Integrated Trade Solution) data*

The commodity wise share has also been calculated and presented in table 6. Keeping the other commodities which are not included in the analysis, but having shared in total export to world from the SAARC countries, the highest share at the initial period of the study i.e. year 1985 is found for textile yarn & fabrics which shared for 27 percent in the specified year. Moving on the succeeding years, the share of textile yarn & fabrics increased a high of 41 percent in 1995 there after the share decreased and come down to 20 percent in the year 2010. The second highest share is

found for the articles of apparel and clothing which moved to the first position in later years after 1995 and being on the top position till 2015.

Some other observations are the export of cereals and cereals preparation which was between 3-6 percent for most of the year except for the current year of 2019. It is notable that in 2019, the share increased to 11 percent for the first time. It is also notable that the commodities which India exports to SAARC countries, among them some have significant share in the SAARC export to world.

**Table 6: Percent share of SAARC Member Countries Export to World: 1985-2019**  
(Based on top 20 commodities)

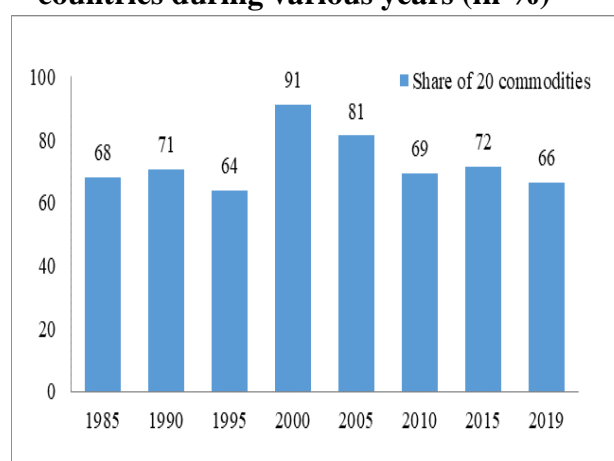
In %	1985	1990	1995	2000	2005	2010	2015	2019
Cereals & Cereal Prep.	5.8	2.7	4.1	2.7	4.0	5.0	3.8	10.6
Veg. & Fruit	2.4	1.5	0.5	1.2	1.3	1.7	2.2	4.7
Sugars, Sugar Prep.	0.6	0.5	1.9	0.3	0.3	0.2	0.6	1.5
Coffee, Tea, Cocoa	10.4	6.4	0.4	3.9	3.0	3.4	2.9	0.8
Feeding Stuff For Animals	0.3	0.1	0.0	0.1	0.1	0.3	0.3	0.4
Coal, Coke & Briquettes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Organic Chemicals	0.1	0.1	0.0	0.2	0.5	0.4	0.5	1.3
Dyeing, Tanning & Colouring Materials	0.1	0.0	0.0	0.0	0.2	0.1	0.1	0.2
Medicinal & Pharma Products	0.1	0.1	0.3	0.3	0.4	0.4	0.4	0.9
Rubber Manuf.	0.1	0.3	0.0	0.6	1.0	0.9	0.9	0.1
Paper, Paper Board	0.2	0.0	0.0	0.1	0.2	0.2	0.3	0.3
Textile Yarn, Fabrics	27.4	34.0	40.6	26.0	25.0	19.8	15.9	32.0
Non Metallic Mineral	0.9	2.2	0.4	1.2	1.7	2.2	1.1	1.3
Iron & Steel	0.4	0.0	0.0	0.0	0.4	0.9	0.3	0.3
Manufactures Of Metals	0.6	0.4	0.3	0.3	0.6	0.5	0.4	0.7
Machinery Specialized	0.4	0.2	0.3	0.3	0.1	0.2	0.1	0.2
Electrical Machry, Apparatus & Appliances	0.1	0.1	0.1	0.4	0.5	0.6	0.5	0.2
Motor Vehicles	0.0	0.1	0.0	0.1	0.5	0.5	0.3	0.1
Articles Of Apparel And Clothing	14.4	25.8	31.5	45.6	42.2	44.8	56.3	26.6
Miscellaneous Manufactured Articles	1.4	2.0	2.7	2.3	2.3	2.6	1.1	1.4
Sum total of 20 commodities	65.7	76.6	83.2	85.5	84.4	84.3	88.1	83.9

Source: Computed using WITS (Word Integrated Trade Solution) data

### India's Imports from SAARC Member Countries between 1985 and 2019

It is observed in figure 7 that there was an increasing trend for import of the selected 20 commodities before 2000 but the share of other commodities either increased or trade dynamics has changed for import from SAARC countries which resulted in the decline in share of these selected 20 commodities. It is one of the important observations that the till 1995, the trade balance was in favour of India and the trade share difference increased to 23 percent in 1995.

**Figure 7: Share of 20 top commodities India Imported from SAARC member countries during various years (in %)**



Source: Computed using WITS (Word Integrated Trade Solution) data

In the later years, the opposite happened, which resulted in negative trade balance for India. In the last one decade, India's imports from SAARC countries increased by 6 to 12 percent.

Table 7 presented the top 5 commodities' share in India's total trade was 45-58 percent in last 35 years. In year 1985, its share was 58 percent which reduced to 45 percent in 1995 which further increases and reached to 55 percent in year 2000-2005.

**Table 7: Top Five Commodities India Imported from SAARC Member Countries between 1985 and 2019**

Year	First	Second	Third	Fourth	Fifth	% Share
1985	Textile Fibres	Vegetables & Fruit	Textile yarn, Fabrics	Cereals and Cereal Preparation	Crude Animal and Vegetable Materials	57.8
1990	Vegetables & Fruit	Textile Fibres	Textile yarn, Fabrics	Metalliferous Ores	Coffee, Tea, Cocoa	57.9
1995	Inorganic Chemicals	Vegetables & Fruit	Textile Fibres	Textile yarn, Fabrics	Iron & Steel	45.4
2000	Vegetables & Fruit	Textile yarn, Fabrics	Essential Oils	Animal/ Veg Fats/ Oils Process/ Waste	Inorganic Chemicals	55.7
2005	Non-Ferrous Metals	Animal/Veg Fats/Oils Process/Waste	Vegetables & Fruit	Textile yarn, Fabrics	Iron & Steel	55.1
2010	Textile yarn, Fabrics	Iron & Steel	Vegetables & Fruit	Coffee, Tea, Cocoa	Nonferrous Metals	45.4
2015	Vegetables & Fruit	Textile yarn, Fabrics	Coffee, Tea, Cocoa	Articles of Apparel & Clothing	Petroleum, Petroleum Products	46.9
2019	Articles of Apparel & Clothing	Vegetables & Fruit	Textile yarn, Fabrics	Coffee, Tea, Cocoa	Iron & Steel	44.3

*Source: Computed using WITS (Word Integrated Trade Solution) data*

In Table 8, the textile share was on the top in the year 1985 with 17 percent share in total India's import from SAARC countries which reduced and reached to only a mere share of one percent in year 2005. However, in the later years it increased and reached to 4 percent in the year 2019. In the year 2000, vegetables & fruits were at the top with 14 percent share. Although even in 1985, the share of vegetables & fruits constituted 16 percent share in India's total imports from the

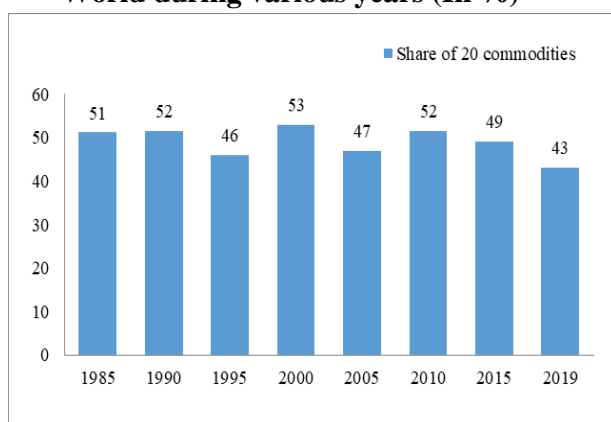
SAARC countries. Even in 2019 it constituted only 10 percent share. The changing share and ranking in the total import happened due to diversification, inclusion of more items within the trade and signing of free trade agreement (SAFTA). Overall, it can be added here that India's import share from SAARC countries are based on articles of apparel & clothing, vegetables & fruits, textiles yarn & fabrics, coffee/tea/cocoa, iron & steel and textile fibres.

**Table 8: Share of commodities India Imported from SAARC Member Countries between 1985 and 2019 (%)**

Commodities	1985	1990	1995	2000	2005	2010	2015	2019
Cereals and Cereal Preparation	7.5	0.5	0.6	1.7	0.3	0.4	0.4	0.6
Vegetables & Fruit	16.5	26.3	13.5	13.6	10.5	10.3	16.4	10.6
Sugars, Sugar Preparations	0.0	0.0	0.6	0.9	1.2	0.0	0.1	0.2
Coffee, Tea, Cocoa	3.7	5.5	2.8	4.5	5.1	6.5	7.8	5.2
Feeding Stuff for Animals	4.0	1.4	0.7	0.8	0.9	3.0	2.6	3.5
Textile Fibres	17.0	12.1	6.6	5.3	1.3	3.1	3.7	4.1
Metalliferous Ores	0.2	5.8	4.1	1.6	1.5	2.2	1.1	1.9
Crude Animal and Vegetable Materials	5.3	4.9	1.8	1.7	1.3	2.8	3.1	3.7
Petroleum, Petroleum Products	0.0	0.0	0.0	4.5	0.1	2.4	5.5	0.1
Animal/ Veg Fats/ Oils Process /Waste	0.0	0.0	0.0	11.0	12.6	0.0	0.0	2.0
Inorganic Chemicals	0.0	0.0	14.8	7.1	4.6	1.9	2.3	1.1
Medicinal and Pharmaceutical Products	0.1	0.0	1.1	2.3	1.6	0.3	0.3	0.3
Essential Oils	0.0	0.0	3.1	11.3	1.7	0.8	0.6	0.6
Cork and Wood Manufactures	0.2	0.5	2.9	1.0	0.7	0.3	0.2	0.1
Textile Yarn, Fabrics	11.5	8.2	5.7	12.8	9.9	12.6	11.1	10.1
Iron & Steel	1.3	4.8	4.8	3.3	5.6	11.3	5.3	5.1
Non-Ferrous Metals	0.0	0.0	0.2	3.1	16.5	4.8	1.8	1.5
Manufactures of Metals	0.4	0.3	0.1	0.7	2.3	0.6	0.4	0.7
Articles of Apparel and Clothing	0.0	0.0	0.1	0.9	0.9	2.3	6.0	13.3
Miscellaneous manufactured Articles	0.1	0.2	0.2	2.9	2.5	3.8	2.8	1.7
Total share of 20 commodities	67.9	70.6	63.7	91.0	81.3	69.3	71.6	66.3

Source: Computed using WITS (Word Integrated Trade Solution) data

**Figure 8: Share of 20 top commodities SAARC member countries Imports from World during various years (In %)**



Source: Computed using WITS (Word Integrated Trade Solution) data

### SAARC Member Countries' Imports from the World between 1985 and 2019:

It is observed that there was no consistent trend in import by SAARC countries and it floated between 43 percent and 53 percent. During the year 1995, 2005 and 2019, the share is found to be 46 percent, 47 percent and 43 percent respectively. It was highest of 53 percent in year 2000. The low and not consistent trend on import by SAARC countries reveals heterogeneity in need and demand by different countries along with diverse nature of trading behaviour of those SAARC countries. Less share of these selected 20 commodities import from world

reveals possibility of its import from and within the SAARC countries.

In the table 9, out of the total 20 selected commodities, the top five commodities which usually SAARC countries have imported in last 35 years have been presented. The top 5 commodities' share in total trade from the world constituted 39 percent in the year 1985, which gradually declined first then increased again to 38 percent in year 2000. However, after 2000, there was declining trend except for year 2010. In the last decade their shares come down to 33

percent in 2015 and 29 percent in 2019. One possible reason may be the introduction of South Asian Free Trade Agreement (SAFTA). Moving on the commodities, it is notable that petroleum and petroleum products remained at top for SAARC countries import from world in the last 35 years. Its share varied between 13 to 21 percent during the study period. During the first 10 years between 1985- 1995, the second highest share among top 5 commodities was cereals & cereals preparations.

**Table 9: Top Five Commodities SAARC Member Countries Imported from World between 1985 and 2019**

Year	First	Second	Third	Fourth	Fifth	% Share
1985	Petroleum, Petroleum Products	Cereals and Cereal Preparation	Textile Yarn, Fabrics	Iron & Steel	Textile Fibres	38.9
1990	Petroleum, Petroleum Products	Textile Yarn, Fabrics	Cereals and Cereal Preparation	Iron & Steel	Textile Fibres	36.5
1995	Petroleum, Petroleum Products	Textile Yarn, Fabrics	Cereals and Cereal Preparation	Iron & Steel	Textile Fibres	33.6
2000	Petroleum, Petroleum Products	Textile Yarn, Fabrics	Iron & Steel	Textile Fibres	Cereals and Cereal Preparation	38.1
2005	Petroleum, Petroleum Products	Textile Yarn, Fabrics	Iron & Steel	Textile Fibres	Cereals and Cereal Preparation	33.1
2010	Petroleum, Petroleum Products	Textile Yarn, Fabrics	Textile Fibres	Iron & Steel	Cereals and Cereal Preparation	36.9
2015	Petroleum, Petroleum Products	Textile Yarn, Fabrics	Iron & Steel	Textile Fibres	Cereals and Cereal Preparation	33.4
2019	Petroleum, Petroleum Products	Iron & Steel	Textile Yarn, Fabrics	Metalliferous Ores	Textile Fibres	29.3

*Source: Computed using WITS (Word Integrated Trade Solution) data*

**Table 10: Share of commodities SAARC Member Countries Imported from World between 1985 and 2019 (%)**

	1985	1990	1995	2000	2005	2010	2015	2019
Cereals and Cereal Preparation	6.5	5.2	5.0	2.5	2.0	2.3	2.6	1.6
Vegetables & Fruit	1.1	1.5	1.3	1.9	1.3	1.9	2.3	1.8
Sugars, Sugar Preparations	1.2	2.5	0.4	1.7	1.8	2.2	1.0	0.5
Coffee, Tea, Cocoa	2.1	1.7	1.3	1.2	0.8	0.9	1.1	1.6
Feeding Stuff for Animals	0.1	0.1	0.0	0.4	0.3	0.5	1.0	0.2
Textile Fibres	2.5	2.8	3.4	2.6	3.4	4.0	3.2	2.5
Metalliferous Ores	0.6	1.0	0.6	0.5	1.4	0.9	1.2	2.8
Crude Animal and Vegetable Materials	0.3	0.4	0.2	0.2	0.2	0.2	0.2	0.3
Petroleum, Petroleum Products	21.0	17.1	12.4	18.3	16.0	18.7	13.5	17.6
Animal/ Veg Fats/ Oils Process /Waste	0.1	0.2	0.2	0.1	0.1	0.3	0.4	0.7
Inorganic Chemicals	0.8	0.9	0.6	0.8	1.0	0.8	0.9	1.0
Medicinal and Pharmaceutical Products	1.9	2.0	2.3	2.0	1.3	1.5	1.5	1.8
Essential Oils	0.2	0.3	0.3	0.5	0.5	0.5	0.6	0.6
Cork and Wood Manufactures	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.0
Textile Yarn, Fabrics	4.7	7.4	9.0	11.5	7.3	8.0	9.8	3.1
Iron & Steel	4.2	4.0	3.8	3.2	4.5	3.9	4.2	3.3
Non-Ferrous Metals	1.1	1.4	1.5	1.1	1.4	1.2	1.3	0.7
Manufactures of Metals	1.5	1.4	1.3	1.3	1.2	1.0	1.3	1.6
Articles of Apparel and Clothing	0.1	0.2	0.6	1.2	0.8	1.0	1.2	0.2
Miscellaneous manufactured Articles	1.1	1.4	1.7	2.0	1.7	1.5	1.7	1.3
Total share of 20 commodities	51.1	51.6	46.0	53.0	47.0	51.5	49.2	43.2

*Source: Computed using WITS (World Integrated Trade Solution) data*

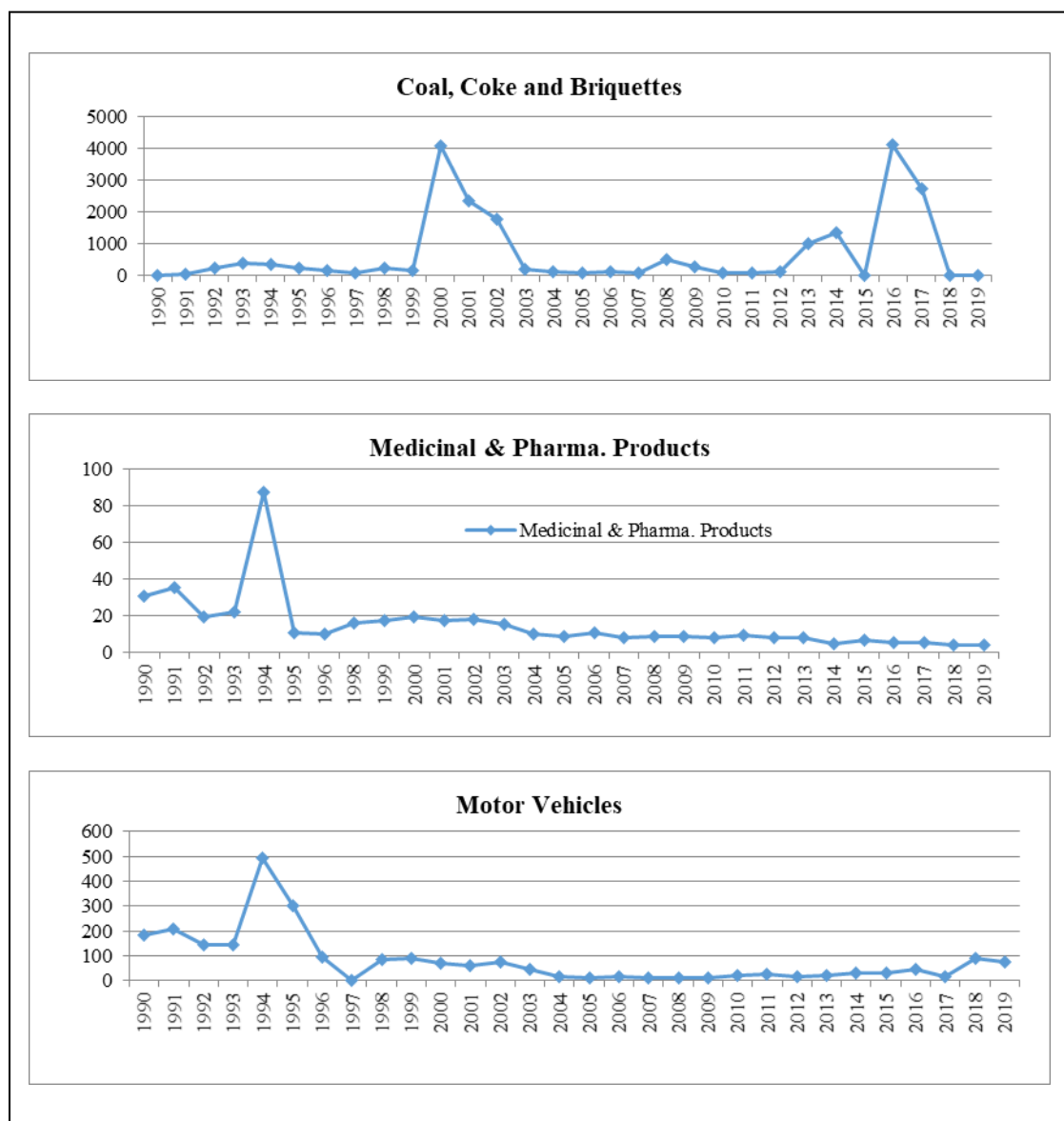
### **Revealed Comparative Advantage for Exports using Balassa Index:**

Reduction in trade barriers creates competitive pressures and switch to possibilities of productivity gains resulting in restructuring of the economy towards comparative advantage. India's economic reforms in the decade of the 90s have made possible a shift in competitive advantage. It was also expected that the country's trade liberalization would lead to changes in exports and their composition and reflect India's comparative advantage in the international trade and global

economy. RCA shows how a commodity is competitive in a country's exports compared to the commodity's share in the other countries exports having a lower RCA.

RCA index on export for India since 1985 till 2019, it is observed that in 1985 there were three commodities- 'Coal, Coke & Briquettes', 'Motor vehicles' and 'Medicinal and Pharmaceutical products' having high to very high competitive advantages in exporting to SAARC countries.

**Figure 9: Competitive advantages on Export of selected commodities placed at top between 1985- 2019**



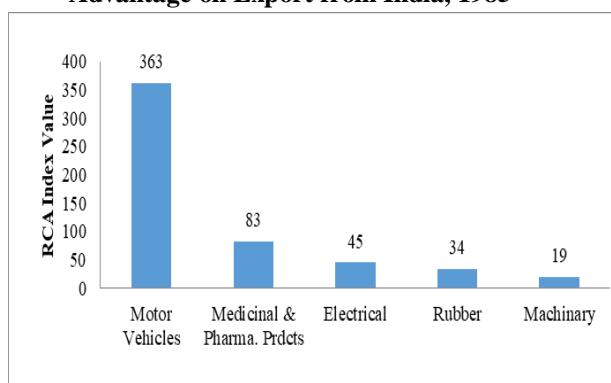
However, over the period with the changing international trade behaviour, liberalization, and inclusion and licensing more products to be exported, the RCA values seem reduced but still having high competitive advantages in the international market for export to the SAARC countries and can be observed in figure 10.

The very high competitive advantages of 'coal, coke and briquettes' during 1985 and later years mainly due to the other SAARC countries were not

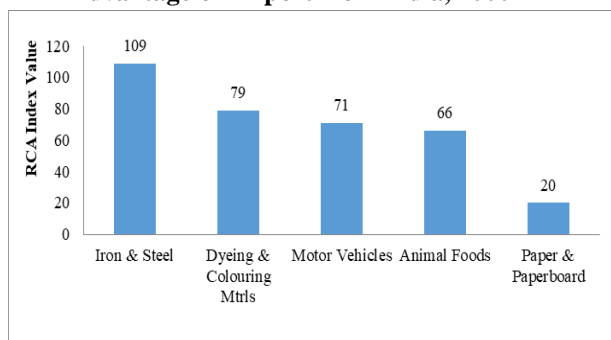
having the availability of this ore and minerals in their own country where as India was the largest producers of various qualities of coal at the time. Looking at the Index value of Coal, coke & briquettes at 1985, the value was very high (76811), although over the year the RCA value for coal and allied commodities declined but remained very high for long time. In the other years very high RCA of coal in 1987-88, 2000-02, 2013-14 and 2016-17, floated between 1000 and 4000.

The next commodity that had high competitive advantages in early period of 90s was motor vehicles followed by medicinal & pharmaceutical products. Both these commodities had higher relative advantages during till 1995 after that their export went down resulting in lowering of index values, although for the motor vehicle still the value is beyond 50 but for medicinal & pharmaceutical products it went below 10 in the last decade. In 2019, the RCX value for motor vehicles, medicinal products, electrical, rubber and machinery was 363, 83, 45, 34 & 19 respectively, which shows the India will have competitive advantages in export with SAARC in transportation sector especially for the motor vehicles.

**Figure 10: Commodities having high Competitive Advantage on Export from India, 1985**



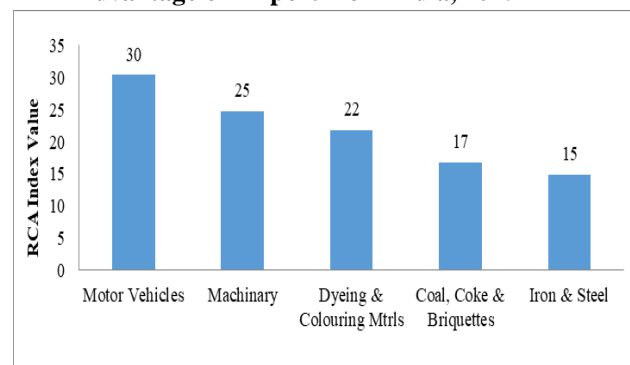
**Figure 11: Commodities having high Competitive Advantage on Export from India, 2000**



In this segment, we have focused on the top five commodities having highest competitive advantages in different point of time. In 1985, other than the 'coal, coke &

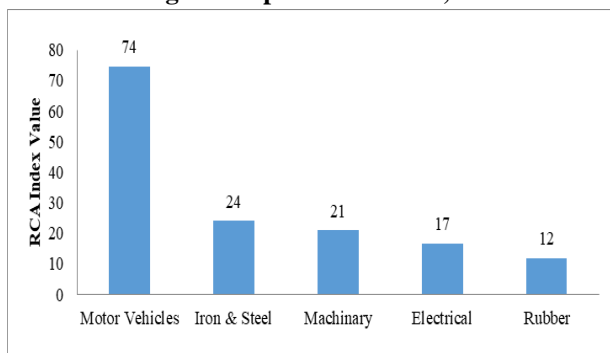
briquettes', the five top commodities were motor vehicles (363), Medicinal & pharmaceutical products (83), Electrical machinery, apparatus and Appliances (45), Rubber manufactures (34) and Specialized machinery (19). There were the products which were having high production and specialization in India which have put high competitive advantages during the early period. Although in the share terms, there was a very high competitive and can we say as a monopoly of coal within the export products to the SAARC countries. In the year 2000, the scenario of the international trade of India with SAARC countries had changed the top position was replaced by Iron & steel with a score of 190 followed by Dyeing & colouring materials (79). The other three commodities which were place within top five were Motor vehicles (71), Animal foods (66) and Paper & paperboard (20).

**Figure 12: Commodities having high Competitive Advantage on Export from India, 2015**



In the 2015, the position of motor vehicle changed to first with importance of high rise of transportation sector due to modernization and rise in economic growth in the SAARC countries. This resulting in high demand for motor vehicle that created an opportunity for transportation sector in India.

**Figure 13: Commodities having high Competitive Advantage on Export from India, 2019**



In the recent years, as the international trade scenario has changed but still motor vehicles found having highest RCA value followed by iron & steel in 2019. The other commodities having highest values were specialized machinery, electrical and rubber. However, there were only 4 commodities having RCA value below the one. These commodities are Coffee, tea & cocoa; Textile yarn & fabrics; Cereals & cereals preparation; and articles of apparel and clothing. Even in the year 2000, the commodities having RCA value below unity were all these commodities of 1985 having RCA values below one excluding cereals & cereals preparation.

Even in the year 2015, the same three commodities lie with RCA value below one. However, in 2019, some other commodities export RCA values gone down below the unity. In this year- textile yarn & fabrics; vegetable & fruits; cereals & cereal preparations; and articles of apparel and clothing found having RCA value below the unity. Overall, the Export of clothing, fabric yarn and articles of apparel & clothing are not having a good sign for India to export it to the SAARC countries because it found at the bottom

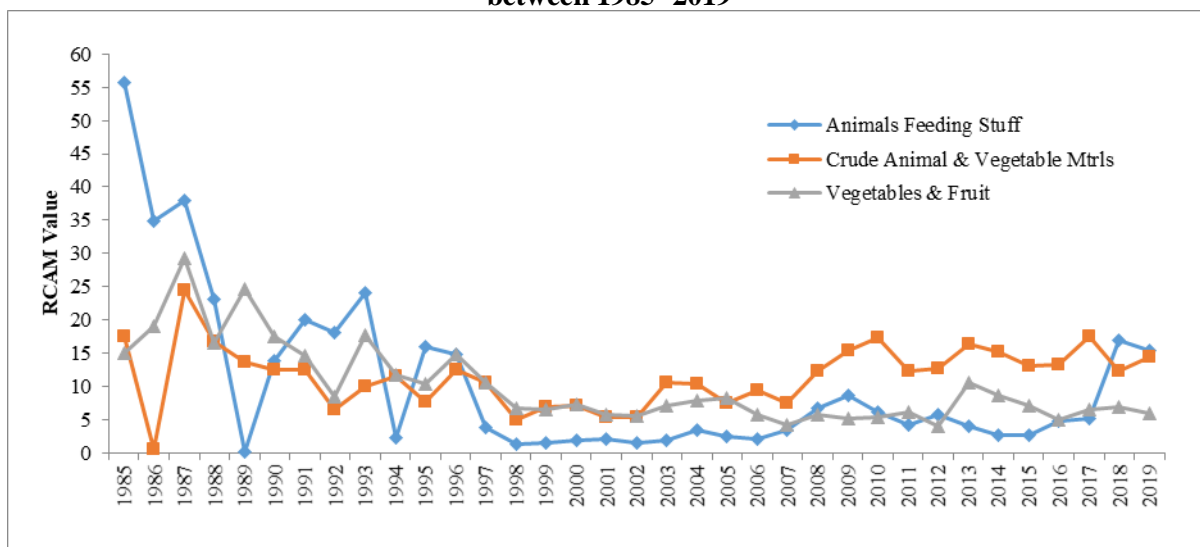
through the last 35 years as during these periods, many rules & regulations have been modified and liberalized in international trade domain.

### **Revealed Comparative Advantage for Imports using Balassa Index:**

It is observed that in 1985 there were three commodities- 'Animal feeding stuff', 'Crude animal and vegetable materials' and 'vegetables and fruits' were having high competitive advantages for India in importing from SAARC countries, however over the period with the changing international trade behaviour, liberalization, and inclusion and licensing more products from the SAARC, the RCA values seem reduced but still have high competitive advantages in the international market for import from the SAARC countries can be observed in figure 14.

The next commodity revealed high RCAM value at early period of 90s was crude animal & vegetable materials followed by vegetables & fruit. These both commodities found having high RCAM in initial years till 1990 but later go down with slight variation in it. In case of crude animal and vegetable materials, the RCAM value between 1985 and 1990 was floated to 12-18 except for 1987 when it goes a high of 24. The SAARC countries are large producers of these commodities where their competitive advantages are found better than India. As increasing the RCAM value results into more outflow of money to the SAARC countries. Hence, increasing production for the crude materials of animal and vegetables for India will reduce the RCAM value and reduce the outflow of Indian money.

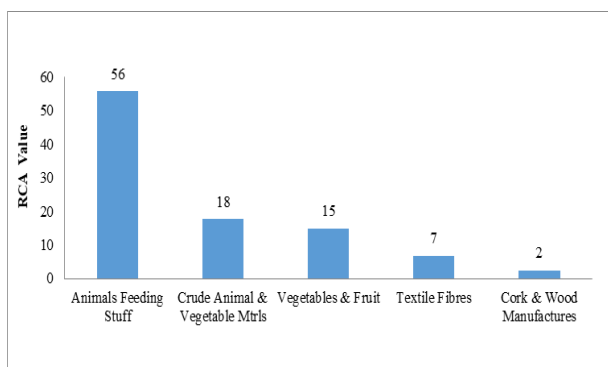
**Figure 14: Competitive advantages on Import of selected commodities placed among top three between 1985- 2019**



Source: Computed using WITS (Word Integrated Trade Solution) data

The third commodity is found high RCAM value in the later years of 1980 was vegetables & fruit with an index value of 15 which shows not a consistent trend over the study period. In the last decade the import value between 5 and 10 but for most of the year between 2010 and 2019, it floated to 6-7. The declining trend in RCAM value reveals the good sign for the country.

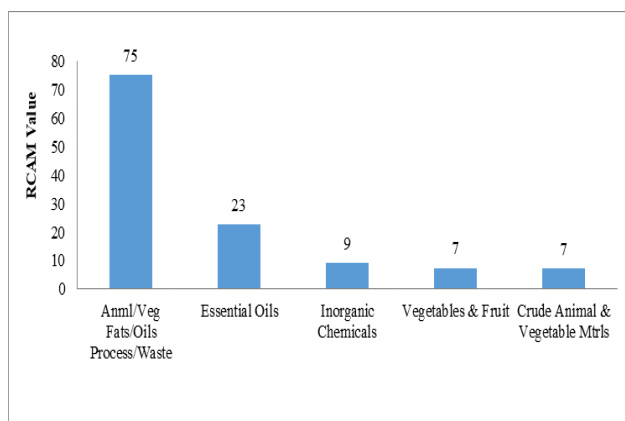
**Figure 15: Commodities having high Competitive Advantage on Import from India, 1985**



Source: Computed using WITS (Word Integrated Trade Solution) data

production and specialization were not much so the country was more dependent

**Figure 16: Commodities having high Competitive Advantage on Import from India, 2000**

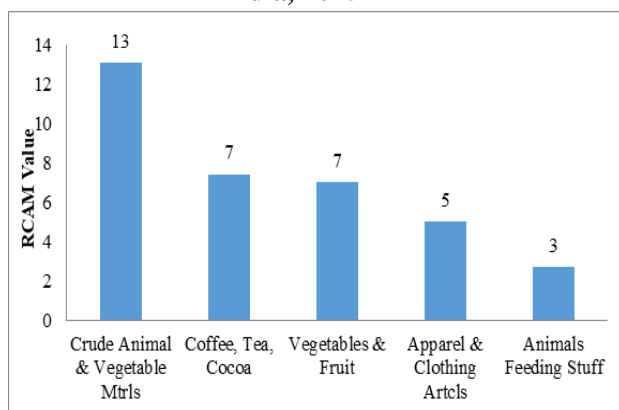


Source: Computed using WITS (Word Integrated Trade Solution) data

In this segment, we have focused on the top five commodities having highest competitive advantages on import for India in different point of time. In 1985, the five commodities having high RCAM values were Animal feeding stuff (56), Crude animal and vegetable materials (18), vegetables & fruit (15), textile fibres (7), and Cork and wood manufacturers (2). These were the products in which India's on other countries and in case of SAARC in the study had better advantages on

exporting them to the India. In the year 2000, the scenario of the international trade of India with SAARC countries had changed the top position was replaced by animal/vegetable fat/oil process/waste placed at the top with score of 75 followed by Essential oils (23) and Inorganic chemical (9). The other three commodities which were place within top five were vegetable and fruit (7), and crude animal and vegetable materials (7). This emerged pattern of international trade with SAARC countries reveals that during the period with the increasing consumption within the country and low production capacity within the countries has pushed to more import. So, it would have been high focus on production of stuffs related to animal, vegetables and fruits had revealed low advantages on import for India.

**Figure 17: Commodities having high Competitive Advantage on Import from India, 2015**

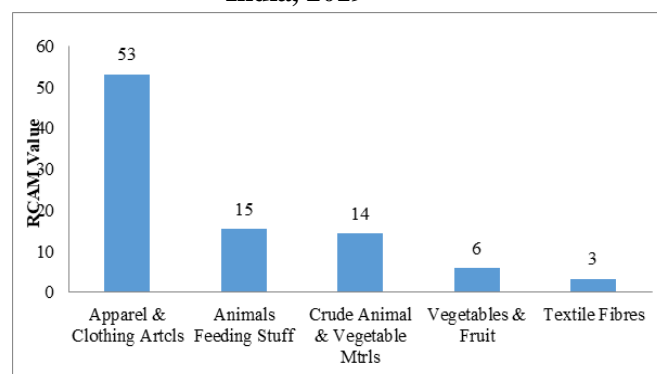


Source: Computed using WITS (Word Integrated Trade Solution) data

In the 2015, the scenario on import has changed and crude animal and vegetables material again placed on the top. However the top five commodities show high RCAM value reveals the heterogeneous nature like coffee, tea and cocoa; apparel & clothing articles came into the picture. In the later year apparel &

clothing materials placed at top with a high RCAM value of 53 in 2019 followed by animal feeding stuff have changed the scenario about the India's trade on import with SAARC countries.

**Figure 18: Commodities having high Competitive Advantage on Import from India, 2019**



Source: Computed using WITS (Word Integrated Trade Solution) data

However, if we look at the all 20 commodities, there were only 12 commodities having RCAM value below the one in 1985. Some of them were articles of apparel & clothing; nonferrous materials, animal/vegetable fats/oils process/waste; petroleum & petroleum products; sugar & sugar preparations etc. Even in the year 2000, the commodities having RCAM values below unity were all those commodities of 1985 having RCA values below one excluding cereals & cereals preparation.

### Conclusion:

India's economic liberalization and the subsequent establishment of World Trade Organization (WTO) has drastically reduce international trade barriers that created competitive market which leads to productivity gains and restructuring of Indian economy toward its comparative advantage. The revealed comparative advantage pushed the commodity pattern of

trade on inter-country differences in relative costs to reveal the comparative advantage of the trading countries.

Moving on to the RCA analysis, it notices that the value of RCA index has not remained consistent during the study period. Commodities such as Coal, Coke & Briquettes; Motor vehicles; and Medicinal & Pharmaceutical products found high to very high competitive advantages in exporting to SAARC countries and others found very low competitive advantages during the analysis. The paper also calculated the Revealed Comparative Advantage for Imports (RCAM) index and it found that, India has strong comparative advantage in imports of commodities such as Animal feeding stuff; Crude animal & vegetables materials; and vegetables & fruits during the study period.

Hence, the emerged pattern of international trade with SAARC countries reveals that during the period with the increasing consumption within the country and low production capacity has pushed to more import. So, it would have been high focus on production of stuffs related to animal, vegetables and fruits had revealed low advantages on import for India.

Overall, the paper concluded that there is further scope for growing India's trade with SAARC members because India has favourable trade balance throughout the study period. Hence, effort should be taken to strengthen policy initiative to promote India's trade with SAARC members in near future.

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## Fintech for digital financial inclusion- A study in reference to Global Findex Database

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### Abstract:

*Fintech has been the rising sector in the financial world and has a major focus when it comes to the developmental part. It has been associated with financial inclusion recently seeing the potential in being able to achieve the goals of financial inclusion. The paper refers to the World Bank's Global Findex database to understand and analyze the problems faced by the consumer and its challenges. With the reduced cost of the internet and competitive smartphone market, technology is now more affordable than ever before. Reducing inequality is essential in all dimensions to achieve holistic growth. The paper tries to analyze the inequality in the society and understand the use of fintech to reduce such gaps. Using the gaps and the questions the paper tries to identify the type of financial service company relevant for solving the issue. The paper displays a wide variety of scope for fintech to work in order to flourish and suggests few measures to function in a more economical and efficient way.*

**Keywords:** Fintech, Financial inclusion, Technology, Global Findex, Digitalisation.

### Introduction:

FinTech has been a major player recently. Fintech, or financial technology, refers to the technological innovation in the design and delivery of financial services and products. Technology in finance continues to evolve; advancements include the use of Big Data, artificial intelligence (AI), and machine learning to evaluate investment opportunities, optimize portfolios, and mitigate risks. The extent of the financial services technology has widened during and after the COVID-19 pandemic (Parvez, 2023). The rise of online payment applications, neobank, Unified payment Interface (UPI) has percolated the financial services sector to the roots which

is visible in the Global Findex Database. However, it is still visible from the World Bank's Global Findex Database (World Bank Group, 2023) that there is a lot of scope to reduce the divide between traditional ways to bank and digital banking. This is where the fintech companies may harness the opportunity to further seep into the system and narrow the gap to digitize.

Fintech services are divided into seven major categories:

1. Neobanks
2. Lending services
3. Personal financial services
4. Payment services
5. InsurTech (insurance technology)

## 6. RegTech (regulatory technology)

India has been very pressing in implementing and executing the United Nations 17 Sustainable Development Goals (SDGs) (*Financial Inclusion and the SDGs - UN Capital Development Fund (UNCDF)*, n.d.). The promotion of fintech and financial inclusion is important for formalizing the economy and streamlining the labor and payment markets. Various schemes have initiated the formalization of the economy in India. 50.09 crore accounts under the Pradhan Mantri Jan Dhan Yojana have been opened as of date.

It is essential to understand that Fintech can create a significant impact towards achieving the financial inclusion goals. It has the potential to transform the traditional banking methods towards digital banking. India has shown a sweeping change in its technological sector. This technological growth is to be accompanied by relevant infrastructure which is gaining traction in India. The Internet and mobile phones are the most important prerequisites for fintech to flourish. According to Nielsen's India internet report there are around 700 Million plus active internet users as of December 2022 report. Out of the total 425 Million users belong to the rural area and urban area consist of 295 Million users. This is almost 44% above the urban users (Pramshu, 2023). It is important to leverage the power of social media to percolate deeper into the system and familiarize the consumer with new methods of credit distribution. It is crucial for the fintechs to work through the product gaps, understanding the needs of the consumer and the relevance of the product they need. It is key for Fintechs to understand the significance of personalisation rather than focusing on

standardization. The use of data can help in profiling the probable customer to target them seeing their needs and addressing their problems

## Review of Literature:

A comparative study has been done between ASEAN and SAARC nations (Imam et al., 2022). Various problems have been identified in different SAARC and ASEAN nations which are an obstacle for the growth of the Fintech industry. According to the study India is a leading nation in digitizing and implementing the use of digital technology. Programs like 'Digital India' programme have accelerated the adoption of digital financial services and education. Various Asian Nations are seeing adopting fintech creating a conducive environment for further bloom. Globally seen the financial services sector has paced up after the global financial crisis of 2008 (Asif et al., 2023). COVID- 19 has been a blessing in disguise for the fintech industry. Data has shown that fintech lending and UPI transactions have gained momentum during the pandemic. RBI has been continuously working to promote and regulate the financial sector to protect the interest of the common man and also the financial players. Of the 14,000 newly funded start-ups between 2016 and 2021, close to half belonged to the FinTech industry. FinTech lending is projected to exceed traditional bank lending by 2030 (Anan et al., 2023). The growth in FinTech lending due to digitalization has also facilitated financial inclusion.

One of the major problems for fintech was the cost part. But due to rising competition in the fintech sector it has helped to reduce the cost of funding and

operating thereby further enabling the use of the UPI and other digital payment systems. This competition has helped to work on financial inclusion and has also motivated the players towards innovation. Association of economic development with fintech growth is very well established and visible in various South Asian countries.

There are various factor becoming an obstacle for the growth of fintechs

1. Risk factor and user trust: Various countries have listed this as the major obstacle for the adoption and growth of fintech. Associated risk creates a mistrust amongst the users which demotivates them to further increase their transaction and reduces the utility. This was visible in India and Indonesia. Fear of hacking and losing money detaches consumers from further adopting the technology which is also visible in Sri Lanka.
2. Cost factor: cost has a negative impact in countries like Myanmar. However, this cost can be reduced with a proper regulatory environment and healthy competition can be reduced to make fintech a more financially viable option.
3. Regulatory factor: Sri Lanka is an example for negative regulatory oversight which has decelerated the growth of fintechs. It is essential to adhere to the regulatory compliances to successfully grow. However, in countries like Singapore proper regulatory sandboxing has led to a sustainable and healthy growth in the utility of fintechs.
4. Literacy and infrastructure: The Philippines (Imam et al., 2022) has a problem of low financial literacy. This has created problems in accessing funds

and credit. Improper infrastructure i.e. low end technology, internet accessibility etc are important issues to solve which are prominent in under-developed and developing countries.

5. IT spending and Bank charges: The Asia Pacific region has staggered growth due to lower IT spendings and higher banking charges. Higher banking charges makes it expensive to transact, further increasing the scope for fintechs to improve.
6. Religion, culture and borrowing tradition: countries like Malaysia (Imam et al., 2022) have many Islamic fintechs specializing in catering to the needs of the Islam following population. It is observed in the rural areas that they rely more on money lenders due to unavailability of collateral and regulatory process. Traditional and cultural make them more obliged towards the money lenders of their community.

### Methodology:

The objective of this research paper is to identify the inequality in the use of digital banking technology tools in India and thereafter identify the opportunities for fintechs to reduce the gap for inclusive growth. The Global Findex Database published by the World bank is one of the most exhaustive databases on the access and use of formal and informal sources of finance. The database for India consists of numerous questions which are divided into methods and ways of traditional banking and that of Digital Banking. Inequality gap for digital banking technology access and usage is calculated for three different years i.e., 2014, 2017 & 2021. This inequality gap is calculated on three dimensions i.e.

1. Gender gap (Male – Female) / Male
2. Income gap (Richest 60% – Poorest 40%) / Richest 60%
3. Geographical gap (Urban - Rural)/ Urban

Gaps are calculated for each of the dimensions;

1. Access to digital financial service
2. Usage of financial instrument or service
3. Perceived Financial wellbeing

On calculation of the gap a trend analysis is done for a particular question to identify the widening or narrowing of the gap during the course of three time periods. Further, based on the extent of inequality gaps, the opportunity for different types of fintechs is classified. Table 1 explains the methodology of data classification of fintech opportunity scale based on the digital banking gap index range. In order to understand the concentration of the data we further calculate the geometric mean of each issue of the given dimensions. The calculated geometric mean will help compare the data averages which further assist to understand the extent of scope.

**Table 1: Digital banking gap and fintech Opportunity score**

Digital banking Gap index range	Fintech Opportunity Scale
Up to 0.3	Low
Between 0.3 - 0.6	Moderate
Between 0.6 - 1.0	High

Source: Author's calculations and interpretation

## Results & Discussion

### *Gaps in access of digital financial services/products*

Access to financial services is the first step in financial inclusion. Access to financial services refers to the availability and affordability of the financial services or products. In the past decade, the Government of India through the massive PM Jan Dhan Yojana scheme has tried to provide access to banking and financial services. Some additional schemes like Pradhan Mantri Suraksha Bima Yojana and Atal Pension Yojana have also opened up these segments of finance with a scope for introduction to fintechs (Industry & Industry, 2023). Remarkable progress in the number of bank accounts has been well documented, but the dormancy of many of these accounts remains a challenge. An increased smartphone ownership and access to the internet in India and development of financial technology products can be an answer to this challenge.

There exists a huge gap in mobile money accounts access in gender and income. Table 2 shows that there has been a persistent gap in men having higher numbers of mobile money accounts or mobile payment apps since 2014. The gender gap has been reduced in the 2021 survey probably as an impact of pandemic and introduction of UPI in India. The income inequality in mobile money account ownership has been increasing since 2014. This may be attributed to a greater share of cash earnings of the poor compared to the upper income class. Geographically also, the urban population has a greater share of mobile money accounts compared to the rural population.

**Table 2: Trends in Gap in access to digital banking**

Dimension	Access	Gap index value 2014	Gap index value 2017	Gap index value 2021	Geometric Mean Value	Fintech Opportunity
Gender	Mobile Money account	0.66	0.72	0.66	0.66	High
Income		0.70	0.73	0.77		
Geographical				0.49		
Gender	Has a debit or credit card	0.64	0.46	0.44	0.52	Moderate
Income		0.65	0.60	0.53		
Geographical				0.42		

Source: Author's calculation

*Gaps in usage of digital financial services/products*

**Table 3: Trends in Gap in usage**

Dimension	Usage indicators	Gap index value 2014	Gap index value 2017	Gap index value 2021	Geometric Mean Value	Fintech Opportunity
Gender	Has an inactive account	0.09	0.23	0.29	0.24	Low but increasing
Income		0.25	0.34	0.36		
Geographical				0.25		
Gender	Made a digital payment	0.66	0.48	0.52	0.56	Moderate
Income		0.69	0.60	0.63		
Geographical		-	-	0.42		
Gender	Saved using a mobile money account	-	-	0.62	0.68	High
Income		-	-	0.83		
Geographical		-	-	0.62		
Gender	Borrowed from family and friends	0.13	0.15	-0.01	0.05	Low
Income		-0.02	-0.1	-0.05		
Geographical		-	-	-0.05		

Source: Author's calculation

**Table 4: Gaps in perceived financial well being**

Dimension	Perceived financial well being	Gap index value 2021	Geometric Mean Value	Fintech Opportunity
Gender	Coming up with emergency funds in 30 days: not possible	-0.45	0.47	Moderate
Income		- 0.67		
Geographical		-0.36		
Gender	Most worrying financial issue: money for old age	-0.17	0.25	Low
Income		-0.47		
Geographical		-0.21		
Gender	Most worrying financial issue: paying for medical costs in case of a serious illness or accident	-0.21	0.18	Low
Income		0.16		
Geographical		-0.19		
Gender	Most Worrying financial issue: paying for monthly expenses and bills	-0.13	0.25	Low
Income		-0.51		
Geographical		-0.26		

Source: Author's calculation

#### Other Opportunities for Fintech (with and without an account gaps)

**Table 5: Trends in gap for not having bank accounts**

Questions	Time periods and gaps			Opportunity Index Score
	2014 Gap	2017 Gap	2021 Gap	
No account because financial institutions are too far away	-	-	0.75	High
No account because financial services are too expensive	-	-	0.76	High
No account because of a lack of necessary documentation	-	-	0.76	High
No account because someone in the family has one	-	-	0.75	High
Reason for not using their inactive account: bank or financial institution is too far away	-	-	0.63	High

Source: Author's calculation

The gap in table 5 is calculated by using the formula

reason for being = without an account - with an account / without an account, which shows the difference between the easy access to account.

## Suggestions & Discussion:

According to the World Bank's Global Findex Database, 78% of adults had a bank account in 2021 in comparison to that of it in 2014 which was 53% (Industry & Industry, 2023).

Fintech needs to be working on three basic principles to flourish which are accessibility, user friendly and safety should help reduce the number of obstacles. Fintech is a cheaper and convenient alternative to traditional banking as it requires minimal infrastructure, significantly reduces cost and improves consumer accessibility. Prominence of data and steps to digitize which will help fintech to leverage to provide a superior customer experience and will help the consumer to access credit easily. This will further help to reduce the gaps and achieve the goal of financial inclusion.

The data in the above table indicates some gaps which can be solved by working out the problems being specific about them. Table 2 to discuss the gap to access digital banking amongst various dimensions discussed. The gap in the mobile money segment points towards a high to moderate opportunity for fintech. The data indicates that the gap is maximum in the gender dimension and in the income dimension. Table 2 discusses the accessibility of fintech or products to the general people. Higher gap shows lesser financial inclusion where the government and the private sector can work in tandem towards a developmental motive. The reason for not having a mobile money account may be due to absence of internet, illiteracy, unavailability of mobile phones etc. Neobanks and personal payment services companies can work towards reducing the lack of infrastructure by coordinating with

the government to implement and execute the literacy programs. Having a mobile money account may solve problems like that of the distance from the financial institution thereby reducing the gap. Another problem with using the credit and debit cards is the associated fees. These fees are supposed to reduce when the company themselves have less operating cost which will reduce with the reduction of infrastructure spending. This will make the cards more affordable or can also be replaced with tools like UPI (Bhakta, 2023) which is clear from the data published by RBI. With hassle free products like UPI lite, products like debit and credit cards can be substituted and the unavailability of smartphones may not be a problem anymore.

The major problem from the data for having no account or having an inactive account is that the financial institution is far away which makes it inaccessible. Fintech can be a precise solution to the problem. The gaps in table 4 can be answered using various new tools and plans available with the fintech companies. Various issues like savings for old age may have use of multiple financial services. Services like Neobanks, personal financial services and insurtech can also solve these insecurities. Neobank and personal financial services may help them engage with different pension and savings plan (which will solve many issues in table 3 simultaneously) whereas insurtech can help them to invest into various endowment plans offered which will provide them with a fixed income source and a life insurance associated with it making the income tax free and life cover in case of the policy holder dies. Insuretechs also aid in providing medical insurances at a cheaper

cost. Due to rising competition various insurance players offer plans as low as Rs 1 per day insurance premium which manages the unforeseen medical expenditure with the medical claims settled at fingertips. Financial instruments like recurring deposits and fixed deposits can help get a periodic ensured sum and risk free investment which can be used as a method to pay for education and also encourage savings more which is usually seen less in low income groups (marginal propensity to save). This regular savings habit can also help manage the regular bills. Various financial products are available using the mobile banking applications and net banking facility with the NBFCs and financial aggregators promoting them with user friendly interface and attractive plans. It is important for the fintechs to customize their plans and provide a variety of options to compare and choose.

With the introduction of digilocker like platform access to and verification of documents is simple. The government recently announced that it will boost public digital infrastructure (PDI) which is believed to help fintech's cut their KYC costs (Banerjee, 2023). Various fintechs outsource the KYC part which increases their cost. Expanded budget on the Digilocker is expected to solve this issue and should make using fintech more affordable.

### Conclusion:

Management of cost, customizing according to the need, user friendly and accessible will help introduce fintech at a deeper root by also fulfilling the objective of financial inclusion. It is essential for the government and the technology companies to work together. Development of

infrastructure to support the growth of fintech is important. Technological development has to be similar to that of the urban part to reduce inequality. Various income redistribution schemes need to be promoted using fintechs to increase the formalization of the economy.

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## Disaggregated Public Expenditure and Economic Growth: A Second-Generation Panel Data Analysis of Selected Indian States

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### Abstract:

*Public expenditure is an important fiscal instrument to achieve the Sustainable Development Goals. The endogenous growth theories have a notion that efficient public expenditure can boost the output level of the economy, irrespective of income levels and development stages. This study uses balanced panel data to investigate the impact of the components of development expenditure (social and economic services expenditures) and non-development expenditure (general services expenditure) on economic growth for the fourteen major non-special category Indian States from 1990-91 to 2020-21. The States are categorized into two panels, i.e., high and low-income. Using the Panel Dynamic Ordinary Least Square technique, the results of long-run estimates revealed that the components of development expenditure under the revenue expenditure account contribute to economic growth in both cross-section dependent and slope heterogeneous sub-national panels. The component of non-development expenditure under the revenue expenditure account has a negative long-run relationship with economic growth for the high-income States' panel. The Dumitrescu & Hurlin Granger Causality results validate the two alternative propositions, supporting two opposite directions of causality, one connecting economic growth to the components of public spending (Wagner) and the other connecting the components of public expenditure to economic growth (Keynesian) in the short run. The components of development and non-development expenditures under the capital outlay account impact the economic growth of both the States' panels in the short run; however, the relationship disappears in the long run. These results highlight the problem of misallocation of capital outlay, which is more prone to corruption.*

**Keywords:** *Economic Growth; Public Expenditure; Social, Economic, and General Services Expenditure; Second-generation Panel Data Analysis; High and Low-Income States.*

**JEL Classification:** C33, H72, O11

### I. Introduction

The stability and growth of the economy largely depend upon public expenditure. The effect of public expenditure on economic growth (hereafter, EG) depends upon the nature and

composition of public expenditure (Simiyu, 2015). The effect of government expenditure on the output level of the economy depends on what the government has spent the money on, the type, and how well the spent money is utilized and

managed by the institutional mechanism (Seshaiah, 2018). Since India has chosen a federal structure, the sub-national level governments assist the central government in attaining equitable EG goals.

The concept of State government expenditure and EG nexus has been subjected to exploration. Theoretically, there are primarily two frameworks in this respect, one is the Wagner, and the other is the Keynesian approach. The former emphasizes the importance of EG over State expenditure to maintain economic equilibrium (Kalam & Aziz, 2009; Rehman, 2010; Samudram, 2009). Contrary, the Keynesian approach states that public expenditure is the principal determinant boosting EG (Dash & Sahoo, 2010; Dogan & Tang, 2011; Gangal & Gupta, 2013). The literature also witnesses the feedback relation between government expenditure and EG (Kumari & Sharma, 2017; Tiwari & Shahbaz, 2013; Ziramba, 2008). The empirical literature has also focused on the association of EG with the economic and functional classification<sup>1</sup> of public expenditure given by the International Monetary Fund (IMF). A plethora of literature shows contradictory results regarding the association between EG and the economic classification of budgetary spending (Egbetunde & Fasanya, 2013; Sharma, 2019; Kharel & Adhikari, 2021). The nexus between EG and the functional form of public expenditure has also shown mixed results (Ebong, 2016; Eggoh J. et al., 2015; Ray & Sarangi, 2021). Hence, the existing literature lacks a

## II. Model and Estimation Methods

The study used yearly balanced panel data for the fourteen major NSC Indian States,

consensus regarding the nature of the association between economic and functional classification of budgetary expenditure and EG.

This study focuses on decomposing the compositions of development and non-development expenditures, i.e., social, economic, and general services expenditures under revenue expenditure and capital outlay<sup>2</sup>, and measured its long-run (hereafter, LR) effect on EG. Unlike the previous studies conducted on the Indian States, this study focuses only on the Non-Special Category (hereafter, NSC) major Indian States<sup>3</sup>, which do not get benefits that special category States receive from the Central government based on social, economic, and geographical terms. The studies previously conducted on the major Indian States have taken both categories simultaneously, which should not be considered technically. For comprehensive understanding, the sub-nationals are categorised into two panels<sup>4</sup>, i.e., high-income States (hereafter, HYS) and low-income States (hereafter, LYS). The comprehensive results obtained from the study could help understand the government of Indian sub-nationals to re-strategies their expenditures, which are not contributing to or impeding their EG.

The remaining paper is drafted as below: The model and estimation methods are mentioned in Section II. The empirical results and discussion are shown in Section III. The paper finishes with Section IV, the conclusion, and policy implications.

which covers the period from 1990-91 to 2020-2021. ‘One best part of using annual data is it is hardly sensitive to seasonal and cyclical fluctuations’ (Singh & Sahni, 1984). The analysis period is based on the

consistent data available for the variables. The data for the dependent variable, per capita (hereafter, PC) real NSDP, is obtained from the Handbook of Statistics on Indian Economy- an annual publication by the Reserve Bank of India (RBI). The data for the components of State government expenditure, i.e., social, economic, and general services expenditure under the revenue expenditure and capital outlay accounts, is obtained from various annual and occasional publications by RBI, specifically, the State Finances: A Study of Budgets, Handbook of Statistics on State Government Finances- 2004, and Handbook of Statistics on State Government Finances- 2010. The nine independent variables used in the study are Revenue Social Services Expenditure (RSSE), Capital Social Services Expenditure (CSSE), Revenue Economic Services Expenditure (RESE), Capital Economic Services Expenditure (CESE), Revenue General Services Expenditure (RGSE), Capital General Services Expenditure (CGSE), Total<sup>5</sup> Social Services Expenditure (TSSE), Total Economic Services Expenditure (TESE), Total General Services Expenditure (TGSE). All the independent variables are transformed in PC terms. The natural log form (ln) of all the variables is taken to remove differences in the variables across States. Using State-level deflators, i.e., the Gross State Domestic Product (GSDP) deflator, all the State government expenditure variables are converted into real terms.

### Model Specification

From a theoretical perspective, in this study, we tried to examine the effect of

State government expenditures on EG. The Model is represented by equation (1):

$$\ln NSDP_{it} = \alpha_0 + \beta_1 \ln X_{1it} + \beta_n \ln X_{nit} + \mu_{it}$$

Here, NSDP<sub>it</sub> represents the dependent variable, Net State Domestic Product, which measures EG for the 'i' sub-national in the 't' time span. The pre-fix 'ln' represents the natural logarithm form of all the variables.  $\alpha_0$  represents intercept.  $X_{1it}$  and  $X_{nit}$  represent independent variables, i.e., government expenditure for the 'i' sub-national in the 't' time span.  $\beta_1, \beta_n$  represent coefficients of the independent variables. In this study, the following four log-log Models have been tested as follow:

Model I:  $\ln NSDP_{it} = f(\ln RSSE_{it}; \ln CSSE_{it})$

Model II:  $\ln NSDP_{it} = f(\ln RESE_{it}; \ln CESE_{it})$

Model III:  $\ln NSDP_{it} = f(\ln RGSE_{it}; \ln CGSE_{it})$

Model IV:  $\ln NSDP_{it} = f(\ln TSSE_{it}; \ln TESE_{it}; \ln TGSE_{it})$

### Econometric Methods-

#### • Summary Statistic:

The study begins with the summary statistics for both the States' panels under consideration. The mean and median values show the dataset's high accuracy as these are within the range of minimum and maximum values. The variables are not bell-shaped, as indicated by the values of skewness and kurtosis. 'However, violating the normality assumption is not crucial, particularly for a large panel dataset' (Olaoye, 2019) (See Appendix A). The study then progresses to ascertain the CSD for all the selected variables used in the study.

#### • Cross-section Dependent (CSD) Test:

For the analysis of the panel data set, it is imperative to ascertain the presence of

cross-section dependence (hereafter, CSD). ‘The cross-section dependence explains the unidentified mutual shocks, geographical effects, or interactions within social networks, which becomes part of the error term’ (Baltagi, 2016). Ignoring and applying the first-generation test (Standard order integration and cointegration tests) can produce biased, invalid test statistics, estimator inefficiency, probability of rejecting the true hypothesis, and inconsistent results (Iheonu, 2019). To check the existence of CSD, we follow the following CD statistic, which checks the average of pair-wise correlation coefficients of OLS residuals from the standard individual regression in the panel data set (Pesaran, 2004).

$$CD = \sqrt{\frac{2T}{N^2 - N}} \left( \sum_{i=1}^{N-1} \sum_{k=i+1}^N \rho_{ik} \right) \quad (2)$$

Where,  $\widehat{\rho}_{ik}$  finds the pair-wise correlation in residuals from the sample estimated using the basic ordinary least square regression. The null hypothesis ( $H_0$ ) shows the independence of the cross-section, whereas the alternative hypothesis ( $H_1$ ) shows CSD. The results reject the ( $H_0$ )

#### • Second-generation Panel Unit Root Integration tests:

Upon ascertaining the presence of CSD and slope heterogeneity (hereafter, SH), the study then progresses to ascertain the variables' correct integration order. ‘In the presence of cross-section dependency and slope heterogeneity, the conventional unit root tests possibly over-reject the null hypothesis ( $H_0$ ) and produce ineffective results’ (Levin et al., 2002). In contrast, the second-generation methodology accounts for CSD. The present study uses the second-generation panel integration test

and conclude that all the variables are CSD at a 1 % significance level in both panels (See Appendix B).

#### • Slope Heterogeneity (SH) Tests:

Like the CSD test, it is vital to test the SH of the panel data set. For this purpose, Hashem and Yamagata (2008) SH test is used. This method is suitable for CSD, large time periods and small cross-sections, i.e.,  $T > N$ . The ( $H_0$ ) is slope homogeneity against the ( $H_1$ ) of slope heterogeneity. The equations for the SH test are given below:

$$\bar{\Delta} = \sqrt{N} \left( \frac{N^{-1} \bar{S} - k}{\sqrt{2k}} \right) \sim X_k^2 \quad (3)$$

$$\bar{\Delta}_{adj} = \sqrt{N} \left( \frac{N^{-1} \bar{S} - k}{v(T, k)} \right) \sim N(0, 1) \quad (4)$$

Here  $\bar{\Delta}$  and  $\bar{\Delta}_{adj}$  Implies delta tilda and adjusted delta tilda, respectively.

The tests result reject the ( $H_0$ ) and deduce heterogeneity exists across sample States (See Appendix C). Thus, we should apply heterogeneous or second-generation panel techniques.

called Cross-sectional augmented IPS and Cross-sectional augmented Dickey-Fuller test (Pesaran, 2007). The CADF test statistic is shown in Eq (5) as follows:

$$\Delta Y_{it} = \beta_i + \alpha_i y_{i,t-1} + b_i \bar{y}_{t-1} + d_i \Delta \bar{y}_t + \mu_{it} \quad (5)$$

Adding one time lag in the result of Eq (5) generates Eq (6) mentioned below:

$$\Delta Y_{it} = \beta_i + \alpha_i y_{i,t-1} + b_i \bar{y}_{t-1} + \sum_{k=0}^j \gamma_{ik} \Delta \bar{y}_{t-k} + \sum_{k=1}^j \delta_{ik} \Delta y_{i,t-k} + \mu_{it} \quad (6)$$

Here,  $\bar{y}_{t-k}$  and  $\Delta y_{i,t-k}$ . It represents the average of each cross-section's lagged I (0) and the I (1) from each unit. ‘The statistics

of CIPS are obtained by calculating the average of the CADF statistics' (Usman, 2021). The statistics of the CIPS test are expressed in Eq (7) as follows:

$$CIPS = \frac{1}{N} \sum_{i=1}^N t_i(N, T) \quad (7)$$

Here, the term  $t_i(N, T)$  Can be re-write to represent the CADF Eq (8).

$$CIPS = \frac{1}{N} \sum_{i=1}^N CADF_i \quad (8)$$

The findings of the tests mutually consensus that all the variables are stationary either at level, i.e., I (0), or first difference, i.e., I (1), for both the States' panels. Thus, both tests ensured that no variable in the present dataset was stationary at the second difference, i.e., I (2) (See Appendix D).

#### • Long-run Estimates:

Once the correct order of integration is confirmed, the empirical panel data analysis proceeds to check the LR association between the variables. We applied the Panel Dynamic Ordinary Least Squares (PDOLS) method augmented by Pedroni (2001), which supports the abovementioned features. It augments basic individual time series Dynamic Ordinary Least Squares (DOLS), which considers the endogeneity problem. It performs well with mixed orders of integration, i.e., I (0) and I (1). Moreover, the group-mean PDOLS takes care of CSD in the panel data set and gives robust results in case of omitted variable bias arising in the cointegration relationship. The equation for DOLS is as follows:

$$Y_{it} = \alpha_i + \beta_i X_{it} + \sum_{j=-k_i}^{k_i} \gamma_{ij} \Delta X_{it-j} + \mu_{it} \quad (9)$$

Where Y refers to the log form of PC real NSDP, X refers to the log form of real State expenditure,  $\beta_i$  represents the slope coefficient, 'i' refers to the number of sample sub-nationals in the panel data set, 'j' refers to the number of lags, and 'k' refers to the number of periods. The t-statistic &  $\beta$  slope coefficients are averaged using Pedroni's group means test for the whole panel data.

$$\hat{\beta} = N^{-1} \sum_{i=1}^N \beta_i \quad (10)$$

Where,  $(\hat{\beta}_i)$  is the standard DOLS estimator for the 'i' panel's entities.

#### • Causality Test:

The present study used a panel Granger causality test to check the short-run (hereafter, SR) causal mechanism among the analysed variables, also known as Dumitrescu and Hurlin (2012) test. This method augments the Granger (1969). The test's ( $H_0$ ) assumes no causal relationship among the variables, and vice-versa for the ( $H_1$ ). This test accounts for the CSD and provides robust results in case of large periods and small heterogenous cross-section balanced panel data sets. The equation is as follows:

$$C_{it} = \alpha_i + \sum_{p=1}^r \gamma_i^p C_{it-p} + \sum_{p=1}^r \eta_i^p X_{it-p} + \mu_{it} \quad (11)$$

Here, 'p' shows the lag length,  $\gamma_i^p$  and  $\eta_i^p$  Denotes the regression and autoregressive parameters' coefficients. The findings obtained from applying the second-

generation macro-econometric approach are presented in the succeeding section.

### III. Empirical Results & Discussion

#### • Long-run Estimates Results

Using four Models each for both the States' panels, Table 1 represents the long-term association between the components of development and non-development expenditures and EG. The R-squared is significant, and the value is 99.18 % for the HYS panel, which means independent variables (development and non-development expenditures) explain 99.18 % of the variation or change in the dependent variable (EG). Similarly, it is 99 % for the LYS panel.

The results of Model I, for the panel of HYS, demonstrate that a 1 % rise in PC real RSSE results in a 0.39 % rise in PC real NSDP. This result is significant at a 1 % level. Similarly, for LYS, the results reveal that a 1 % rise in PC real RSSE results in a 0.31% rise in PC real NSDP. This result is significant at a 1 % level. This result supports the findings of Nworji (2012), who found a positive and significant relationship between SSE under revenue expenditure and EG in Nigeria. However, PC real CSSE is positive but insignificant for both the States' panels. The results align with Akpan and Abang (2013), who found an insignificant relationship between capital expenditure and EG.

The same scenario is seen in the case of Model II for both the categorised States' panels. The result shows that PC real RESE is significant at a 1 % significance level, which is 0.15 % and 0.19 %, respectively,

for HYS and LYS panels. However, like Model I, the PC real CESE is insignificant for both panels—the results supported by Gong and Zou (2002) found an insignificant relationship between capital expenditure and EG.

The results for model III show a negative relationship for both the States' panels. In the case of the HYS panel, a 1 % rise in PC real RGSE results in a 0.19 % reduction in PC real NSDP. This result is significant at a 1 % level. However, PC real CGSE is positive but insignificant for both the panels of the States.

In Model IV, PC real TSSE positively affects the PC real NSDP for the HYS and LYS panels. The result is significant at a 1% level. The effect is comparatively higher for the HYS (0.26 %) than for LYS (0.22 %). For the HYS panel, a 1 % rise in PC real TESE results in a 0.10 % rise in PC real NSDP. This result is significant at a 5 % significance level. Whereas for the LYS panel, a 1 % increase in PC real TESE results in a 0.11 % increase in PC real NSDP. This result is significant at a 1% significance level. Thus, development expenditure has a significant positive effect on EG for both the States' panels. The results are consistent with the findings of Alexiou (2009), which also found a direct relationship between development expenditure and EG. On the other hand, in non-development spending, in the case of the HYS panel, a 1 % rise in PC real TGSE results in a 0.18 % fall in PC real NSDP. This result is significant at a 1 % significance level, which is insignificant for the LYS panel.

**Table 1 Results of Panel DOLS**

Dependent lnNSDP	High-Income States				Low-Income States			
	Model I	Model II	Model III	Model IV	Model I	Model II	Model III	Model IV
lnRSSE	0.392*	--	--	--	0.313*	--	--	--
lnCSSE	0.017	--	--	--	0.021	--	--	--
lnRESE	--	0.151*	--	--	--	0.192*	--	--
lnCESE	--	0.019	--	--	--	0.008	--	--
lnRGSE	--	--	(-) 0.189*	--	--	--	(-) 0.031	--
lnCGSE	--	--	0.030	--	--	--	0.040	--
lnTSSE	--	--	--	0.262*	--	--	--	0.221*
lnTESE	--	--	--	0.098**	--	--	--	0.115*
lnTGSE	--	--	--	(-) 0.181*	--	--	--	0.065
	R <sup>2</sup> 0.991				R <sup>2</sup> 0.990			

Source: Researcher's calculation based on RBI data.

Note: Asterisks \* and \*\* represent 1 % and 5 % significance levels, respectively.

**Table 2 Results of (DH) Causality Test**

Causality & Direction	High-Income States				Low-Income States			
	$\bar{W}$	$\bar{Z}$	p-value	Relationship	$\bar{W}$	$\bar{Z}$	p-value	Relationship
lnTSSE → lnNSDP	0.152***	-1.695	0.090	Bi-causal	2.151**	1.995	0.046	Bi-causal
lnNSDP → lnTSSE	10.633*	19.267	0.000		6.544*	9.603	0.000	
lnTESE → lnNSDP	0.913	-0.172	0.862	Uni-causal	5.488*	4.272	0.000	Bi-causal
lnNSDP → lnTESE	9.439*	16.878	0.000		6.235*	9.068	0.000	
lnTGSE → lnNSDP	0.506	-0.987	0.323	Uni-causal	1.703	1.218	0.222	Uni-causal
lnNSDP → lnTGSE	1.907**	1.814	0.069		3.189*	3.793	0.000	
lnRSSE → lnNSDP	0.401	-1.196	0.231	Uni-causal	1.609	1.055	0.291	Uni-causal
lnNSDP → lnRSSE	10.879*	19.758	0.000		6.961*	10.324	0.000	
lnESE → lnNSDP	1.083	0.166	0.868	Uni-causal	0.487	-0.888	0.374	Uni-causal
lnNSDP → lnESE	9.236*	16.472	0.000		8.991*	13.842	0.000	
lnGSE → lnNSDP	0.56	-0.878	0.379	No	1.554	0.96	0.337	Uni-causal
lnNSDP → lnGSE	1.805	1.611	0.107		3.289*	3.966	0.000	
lnCSSE → lnNSDP	1.164	0.328	0.742	Uni-causal	2.884*	3.264	0.001	Bi-causal
lnNSDP → lnCSSE	4.680*	7.361	0.000		6.317*	9.209	0.000	
lnCESE → lnNSDP	1.825***	1.65	0.098	Bi-causal	7.831*	7.141	0.000	Bi-causal
lnNSDP → lnCESE	4.665*	7.33	0.000		2.876*	3.249	0.001	
lnCGSE → lnNSDP	2.265**	2.531	0.011	Bi-causal	2.014***	1.756	0.079	Bi-causal
lnNSDP → lnCGSE	5.219*	8.439	0.000		5.119*	7.135	0.000	

Source: Researcher's calculation based on RBI data.

Note: Asterisks \*, \*\*, and \*\*\* represent significance at the 1 %, 5 %, and 10 % levels, respectively.

### • Causality Test Results

Table 2 reveals that there is a homogeneous bi-causal relationship between PC real

NSDP and PC real TSSE in both the States panels. A unidirectional relationship exists between PC real NSDP to PC real TESE and TGSE for both the States' panels.

These results are consistent with the findings of Kumar and Hazarika (2022) and Rehman et al. (2010), who also found a bi-directional causal relationship between public expenditure and EG. However, the relationship between PC real NSDP and PC real TESE is an exception, which is bi-causal for LYS.

The relation between EG and PC real RSSE, RESE, and RGSE is unidirectional for both the States' panels. However, there is no relationship between PC real NSDP and PC real RGSE for HYS, which is aligned with the LR relationship. There is a

bilateral causal relationship between PC real NSDP and capital outlay components of the spending for both the States' panels, except PC real CSSE, which has a one-way relationship from growth to States' expenditure for the HYS panel.

Hence, in the SR, the result validated the two alternative propositions, supporting two opposite directions of causality, one connecting EG towards public spending (Wagner's proposition) and the other connecting public expenditure towards EG (Keynesian proposition).

#### IV. Conclusion & Policy Implications

Using the disaggregated approach, this study investigates if the components of State spending have an impact (positive/negative) or not on the EG of the major NSC States in India from 1990-91 to 2020-21. Two States' panels, HYS and LYS, were used to understand the effect of State expenditure on EG. In a nutshell, the results validated the two alternative propositions, supporting two opposite directions of causality, i.e., Wagner's and Keynesian propositions in the SR. The compositions of States' development expenditure (PC real SSE and ESE) under the revenue expenditure do not have a significant impact in the SR. However, it impacts the EG of both the States' panels in the LR. On the contrary, the compositions of States' development expenditure (PC real SSE and ESE) under the capital outlay have a significant impact in the SR; however, their significant impact on the EG disappears from both the States' panels in the LR.

Surprisingly, theoretically but not empirically, in developing countries, revenue expenditures are productive at the

margin (Devarajan et al., 1996; Kweka & Morrissey, 2000). One plausible explanation may be the misallocation of capital outlay, which is more prone to corruption. It may be because the State's spending is not always directly proportionate to the State's growth rate. 'When the size of government spending is smaller than the threshold regime, EG promotes; however, if government spending is larger than the regime, economic growth decreases' (See Appendix E, Rahn Curve). Thus, if the government expenditure is utilized in excess amount, the productive expenditure becomes unproductive at the margin" (Attari & Javed, 2013). Thus, productivity, not the type and the level of investment, is important (Kweka & Morrissey, 2000).

Hence, both the State governments' panels should rethink and formulate their policy more mindfully. The governments should cut or reduce the spending on the projects that have not contributed to or impeded EG. The State governments should re-adjust the spending priority so that the insignificant and negative impact of the variables could become significant so that it complements

and improves private sector competition for overall EG. There should be high accountability and transparency in the State

#### Note

1. The Government Financial Statistics database of the IMF classifies government expenditure into two types: (i) the economic classification based on economic characteristics of expenditure, i.e., revenue and capital expenditure. (ii) the functional classification based on the functions of the expenditure, i.e., social services, economic services, general services, and others.
2. The capital outlay is part of the State's total capital expenditure. It has two components, i.e., development and non-development expenditure. The development expenditure has two sub-components, i.e., social and economic services expenditures. At the same time, non-development expenditure has

government spending, and spending should be monitored closely to check embezzlement and diversion of funds.

a component, i.e., general services expenditure.

3. The fourteen major NSC States of India taken for the study are Haryana (HR), Maharashtra (MH), Punjab (PB), Karnataka (KA), Kerala (KL), Tamil Nadu (TN), Gujarat (GJ), Andhra Pradesh (AP), Rajasthan (RJ), West Bengal (WB), Odisha (OD), Madhya Pradesh (MP), Uttar Pradesh (UP), Bihar (BR).
4. During the period of study, the average income of the HYS, i.e., HR, MH, PB, KA, KL, TN, GJ, and AP, is more than the country's PC income, and vice-versa for the case of LYS, i.e., BR, UP, MP, OR, WB, and RJ.
5. Total here refers to the aggregate of revenue expenditure and capital outlay accounts.

## APPENDIX

### • APPENDIX B: Cross-Section Dependency (CSD) Test Results

Variable	High-Income States		Low-Income States	
	CD Stat.	p-value	CD Stat.	p-value
lnNSDP	29.27*	0.000	20.99*	0.000
lnTSSE	28.27*	0.000	20.51*	0.000
lnTESE	22.76*	0.000	18.30*	0.000
lnTGSE	26.49*	0.000	20.11*	0.000
lnRSSE	28.66*	0.000	20.46*	0.000
lnCSSE	21.78*	0.000	18.51*	0.000
lnRESE	21.98*	0.000	18.63*	0.000
lnCESE	17.70*	0.000	15.67*	0.000
lnRGSE	26.32*	0.000	20.10*	0.000
lnCGSE	18.92*	0.000	12.47*	0.000

Source: Researcher's calculation based on RBI data.

Note: Asterisk, \* represents the 1 % significance level.

• **APPENDIX A: Summary Statistics**

Variables	lnNS DP	lnTSS E	lnTES E	lnTG SE	lnRSS E	lnCSS E	lnRE SE	lnCE SE	lnRG SE	lnCG SE
High-Income States										
Mean	11.07 8	8.151	8.094	8.126	8.063	5.038	7.662	7.053	8.109	5.031
Median	11.01 4	8.029	8.049	8.168	7.934	5.152	7.665	7.037	8.144	4.975
SD.	0.501	0.542	0.494	0.57	0.534	1.124	0.478	0.7	0.571	0.26
Min	10.07 7	7.213	7.07	6.877	7.184	1.119	6.598	0	6.849	4.734
Max	12.04 7	9.164	9.622	9.292	9.102	7.009	8.91	8.406	9.289	6.774
Skewness	0.121	0.251	0.223	-0.254	0.284 4	- 0.272	0.189	-4.015	-0.242	2.046
Kurtosis	1.915	1.796	2.563	2.321	1.823	2.369	2.289	42.47 7	2.329	12.22 4
Observati on	248	248	248	248	248	248	248	248	248	248
Low-Income States										
Mean	10.31 6	7.688	7.536	7.617	7.604	4.81	7.038	6.803	7.598	4.93
Median	10.26 1	7.6	7.428	7.674	7.533	4.948	6.904	6.763	7.609	4.871
SD.	0.495	0.55	0.566	0.443	0.53	1.074	0.577	0.479	0.442	0.443
Min	9.137	6.786	6.342	6.701	6.756	2.38	5.881	5.887	6.694	0
Max	11.24 6	9.01	9.155	8.526	8.88	6.768	8.498	8.153	8.515	5.906
Skewness	-0.119	0.361	0.563	-0.021	0.401	- 0.038	0.559	0.529	0.004	-7.145
Kurtosis	2.553	2.18	2.891	1.985	2.2	1.842	2.77	2.798	1.99	84.05 8
Observati on	186	186	186	186	186	186	186	186	186	186

Source: Researcher's calculation based on RBI data.

• **APPENDIX C: Slope Heterogeneity (SH) Test Results**

		High-Income States	Low-Income States
Models	Statistic	Value	Value
I	Delta_tilda	6.630*	6.650*
	Adjusted Delta_tilda	7.104*	7.126*
II	Delta_tilda	12.987*	4.856*
	Adjusted Delta_tilda	13.915*	5.203*
III	Delta_tilda	9.845*	15.428*
	Adjusted Delta_tilda	10.549*	16.532*
IV	Delta_tilda	7.780*	6.452*
	Adjusted Delta_tilda	8.495*	7.045*

Source: Researcher's calculation based on RBI data.

Notes: \* represents significance level at the 1 % level. Delta\_tilda and Adjusted Delta\_tilda represent the 'simple' and 'mean-variance bias adjusted' slope homogeneity tests, respectively.

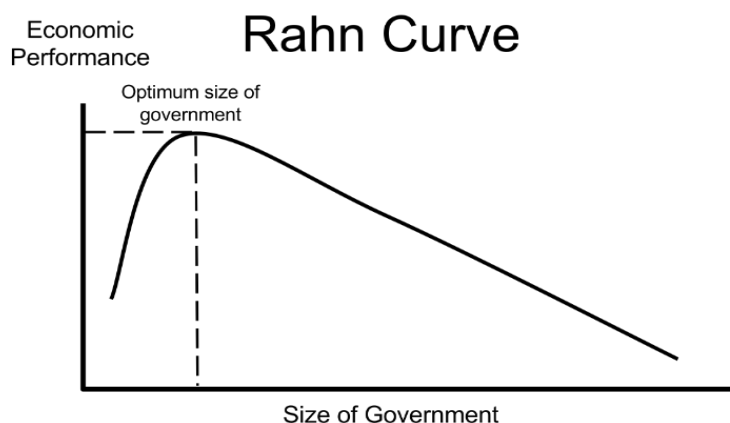
• **APPENDIX D: Panel Unit Root / Integration Test Results**

	High-Income States		Low-Income States	
Variables	I (0)	I (1)	I (0)	I (1)
Cross-Sectionally Augmented Dickey-Fuller				
lnNSDP	(-2.862**	--	(-2.600	(-4.082**
lnTSSE	(-2.621	(-4.422**	(-1.833	(-4.018**
lnTESE	(-2.836	(-4.988**	(-2.486	(-4.261**
lnTGSE	(-2.826	(-3.572**	(-2.903	(-4.662**
lnRSSE	(-2.336	(-4.145**	(-2.065	(-4.333**
lnCSSE	(-2.489	(-4.146**	(-3.455	(-4.201**
lnRESE	(-2.960**	--	(-2.420	(-4.158**
lnCESE	(-2.423	(-4.057**	(-2.602	(-4.361**
lnRGSE	(-2.709	(-3.491**	(-2.787	(-4.718**
lnCGSE	(-2.249	(-3.672**	(-2.488	(-2.878**
Cross-Sectionally Augmented IPS				
lnNSDP	(-2.886**	--	(-3.303**	--
lnTSSE	(-2.852**	--	(-2.722	(-6.206**
lnTESE	(-3.836**	--	(-3.319**	--
lnTGSE	(-2.745	(-5.308**	(-2.880**	--
lnRSSE	(-2.542	(-5.494**	(-2.968**	--
lnCSSE	(-2.843**	--	(-2.876**	--
lnRESE	(-3.635**	--	(-3.237**	--
lnCESE	(-2.697	(-5.296**	(-3.252	--
lnRGSE	(-2.697	(-5.296**	(-2.913**	--
lnCGSE	(-2.697	(-5.068**	(-2.479	(-4.849**

Source: Researcher's calculation based on RBI data.

Notes: \*\* represents 5 % significance level. The integration order I (0) or I (1) shows the level or 1<sup>st</sup> difference. The results are noted at lag one at Schwartz Bayesian Information Criterion (SBIC) with constant and trend deterministic.

• **APPENDIX E: Rahn Curve**



Source: Pepple and Ekpete, 2021

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## Irrigation and Production of Rabi Crops in Udalguri District: An Economic Analysis

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### Abstract:

*The rabi season crops are grown from October and December and harvested from April to June and the crops are important for securing food security and generating income because every year kharif season crops are damaged by flood. Irrigation is one of the most important agricultural inputs for sustaining rabi crops because they are grown during the dry season. Assam heavily relies on agriculture, but unpredictable monsoons damages kharif crops. To counter this, cultivating rabi crops during the dry season is crucial. The Irrigation Department of Assam has implemented various projects to enhance irrigated area. Statistical techniques like Compound Annual Growth Rate (CAGR) and Linear Regression Analysis have been used to examine the data. The present study examined the growth trends of irrigated area and impact of net irrigated area (NIA) on the production of selected rabi crops. In Udalguri district there has been positive growth trend in irrigated areas. The result of the study also reveals that the NIA significantly impacts the production of summer rice and potato, while it has no significant impact on the production of rapeseed and mustard.*

**Keywords** - Rabi crops, CAGR, Linear Regression Analysis, Growth Trends of Irrigated Area, Summer Rice, Potato and Rapeseed & Mustard.

### Introduction

The rabi crops are cultivated in October and November and harvested from April to June, is a vital part of India's farming calendar. Growing rabi crops brings many benefits, such as more ways to earn money, better food security, and helps in rotation crops for better growth. Summer rice, wheat, gram, oats, barley, potatoes, and seeds like mustard etc. are the important rabi crops cultivated in India. Yakubu et al. (2019) found from their study that dry season farming had a positive effect on household food security. Donkoh et al.

(2016) noted that dry season farming has a positive impact on farm income. India gets most of its rain during the four-month monsoon period from June to September. Rabi crops flourish during the dry season, so they need irrigation for best growth. Bhandari (2001) highlights that use of shallow tube well (STW) irrigation has significantly enhance the rice productivity, resource-use efficiency, farm income, and employment opportunities. Marina et al. (2017) found from their study that land irrigation has a positive effect on food production. These study underscore the

importance of irrigation, especially during dry seasons, in mitigating the adverse effects of excessive rainfall and enhancing agricultural productivity.

Assam relies heavily on agriculture, with over 70% of its population depending directly or indirectly on this sector for their livelihoods. Excessive rainfall during kharif season results in water logging and worsens flood situations, leading to considerable damage to kharif crops. To mitigate these losses, cultivating rabi crops becomes crucial during the rabi season. Irrigation is the crucial factor for enhancing productivity and sustainability during the rabi season. Irrigation Department of Assam was formed in 1974 with an objective to increase agricultural production by ensuring timely and adequate irrigation to the field to cultivate high yielding variety seeds. Irrigation Department has adopted various Centrally Funded Projects, State Funded Projects and Institutional Funded Project for the growth of irrigation facility.

### Objectives:

The studied paper is based on following objectives-

1. To study the growth trends of Gross Irrigated Area (GIA), NIA, Irrigation Potential Created (IPC) and Irrigation Potential Utilisation (IPU) and season wise irrigated areas of Udalguri district.
2. To examine the impact of NIA on the production of selected rabi crops of study region.

### Data:

The study is entirely based on secondary data collected from the period 2008-2009 to 2020-21. Among the various rabi crops, summer rice, rape & mustard and potato have been selected as they are the

major rabi crops of Assam. The data have been collected from books, journals, thesis, Statistical Hand Book of Assam, Economic Survey of Assam, District Statistical Hand Book of Udalguri, etc.

**Methodology:** Compound Annual Growth Rate and Simple Linear Regression in SPSS have been used to analyse the data. The results have been represented by tables and economic analysis has been made.

- i. To analyse the growth trends GIA, NIA, IPC and IPU and season wise irrigated areas of the district, the CAGR has been used.
- ii. Simple Linear Regression in SPSS has been used to examine the impact of NIA and production of selected rabi crops.

### Study Area:

Udalguri district in Assam has been selected purposively for study due to its significant irrigated area. Udalguri district was formed on 2004 after the Bodo Accord, it is the 27<sup>th</sup> district of Assam and part of the Bodoland Territorial Autonomous District (BTAD). It shares borders with Bhutan and Arunachal Pradesh to the north, Sonitpur district to the east, Darrang district to the south, and Baksa district to the west. Agriculture is the main economic activity of Udalguri district. 88 per cent population of Udalguri depends on agriculture and allied activities for their livelihood. Farming is challenged by erratic rainfall, monsoon floods, and pre-monsoon dry spells. To mitigate flood-related losses, farmers have turned to cultivating rabi crops during the winter season. The Irrigation Department has initiated various projects to expand irrigation in the district.

## Results and Discussion

### 1. Growth Trends of GIA and NIA (2008-09 to 2020-21):

The Irrigation Department of Assam has embarked on a comprehensive strategy

to bolster irrigation facilities across the state. Table 1 shows the growth trends of GIA and NIA of Udalguri district.

**Table 1: Growth Trends of GIA and NIA (2008-09 to 2020-21)**

Area in Hectares

Year	GIA	Percentage Change in GIA	NIA	Percentage Change in NIA
2008-09	9655		9345	
2009-10	21610	55.32	20820	55.11
2010-11	19030	13.55	17620	18.16
2011-12	27274	30.22	24364	27.68
2012-13	31203	12.59	27830	12.45
2013-14	55232	43.50	26358	5.58
2014-15	50656	9.03	23988	9.87
2015-16	96126	47.30	43467	44.81
2016-17	79796	20.46	61903	29.78
2017-18	142028	43.81	66671	7.15
2018-19	97858	45.13	47758	39.60
2019-20	122385	20.04	59935	20.31
2020-21	103654	18.07	51281	16.87
<b>CAGR</b>	<b>21.87</b>		<b>15.24</b>	

Sources: Chief Engineer, Irrigation Department, Assam. (Estimated by scholar)

Table 1 reveals that there has been fluctuation in the growth trend of GIA of study area during the study period. Annually it has creased by 21.87 per cent. The increase and fluctuation in the growth trends of GIA is due to the implementation of schemes. When the implementation of schemes is large, area has become large and vice-versa. Column no. 4, Table no. 1 reveals that there has been fluctuation on the growth trends of NIA during the study period. Annually, it has increased to 15.24 per cent. There is a gap between the growth trends of GIA and NIA and it is due to damage of irrigation canals, depletion of

water table, delay in restoration/ revival of schemes, present of drought, improper field levelling, lack of field drainage, etc.

### 1. b. Growth Trend of IPC and IPU of Major and Minor Irrigation System of Udalguri:

As irrigation is one of the important agricultural inputs for the rise of agricultural production, the Government of Assam has introduced several major and minor irrigation schemes to increase the irrigated areas in the region. Table 2 highlights the growth trend of IPC and IPU of Major and Minor Irrigation System of Udalguri from 2007-08 to 2020-21.

**Table 2: Growth Trend of IPC and IPU of Major and Minor Irrigation System of Udalguri (2007-08 to 2020-21) (Area in Hectares)**

Year	Udalguri					
	IPC of Major Irrigation System	IPU of Major Irrigation System	Percentage Change of IPC and IPU of Major Irrigation Area	IPC Minor Irrigation System	IPU Minor Irrigation System	Percentage Change of IPC and IPU of Minor Irrigation System
1	2	3	4	5	6	7
2008-09	31100	2810	9.03%	21817	NA	NA
2009-10	31100	9910	31.86%	27598	NA	NA
2010-11	36258	9550	26.33%	29445	NA	NA
2011-12	45258	9100	20.10%	39882	NA	NA
2012-13	45258	5150	11.37%	47475	NA	NA
2013-14	53258	4750	8.91%	49570	22345	45.07%
2014-15	53258	2230	4.18%	56842	22807	40.12%
2015-16	53258	13250	24.87%	65951	33700	51.09%
2016-17	53258	29595	55.56%	75375	47927	63.58%
2017-18	55258	16195	29.30%	85062	53542	62.94%
2018-19	55258	14560	26.34%	89164	33229	37.26%
2019-20	66230	20570	31.05%	89500	39360	43.97%
2020-21	66230	18332	26.47%	72850	33495	45.97%
<b>CAGR</b>	<b>6.50</b>	<b>16.37</b>		<b>7</b>	<b>5.95</b>	

**Sources:** Chief Engineer, Irrigation Department, Assam. (Estimated by scholar)

Table 2 highlights that there is an increase and constant growth trends of IPC of major irrigation system during the study period. The annual growth rate is estimated as 6.50 per cent. There has been fluctuation in the growth trend of IPU of major irrigation and its growth rate is estimated as 16.37 per cent.

IPC of Minor Irrigation System of Udalguri district was at an increasing trend from 2008-09 to 2019-20. Thereafter, there was a slight decline in the area of IPC of Minor Irrigation System. The annual growth rate of IPC of Minor Irrigation System is 7%. The growth trend of IPC of Major

irrigation system is lower than the growth trend of IPC of Minor Irrigation system.

The growth trend in the utilisation of Minor Irrigation System of Udalguri District is larger than Major Irrigation System. The annual growth rate of utilisation of Minor Irrigation System of Udalguri is 5.95% during the study period. Column 4 and column 7 of Table 2 shows that the percentage of utilisation of minor irrigation is more than the major irrigation system.

There is a gap between IPC and IPU in the Udalguri district. Natural calamities, change of river course, damage of canal system, general wear and tear of the schemes, etc. are the factors responsible for

the gap between IPC and IPU of Major and Minor Irrigation System.

### 1. c. Season Wise Growth Trend of Irrigated Area of Udalguri 2007-08 to 2020-21:

In Assam, the government has initiated various schemes aimed at

strengthening irrigation facilities to enable the adoption of multiple cropping systems and enhance agricultural production. Table 3 exhibits the season wise growth trend of irrigated area of Udalguri.

**Table 3: Season Wise Growth Trend of Irrigated Area of Udalguri, 2007-08 to 2020-21**  
(Area in Hectares)

Year	Kharif Season Irrigated Area	Rabi Season Irrigated Area
2007-08	13100	2605
2008-09	9345	310
2009-10	20820	790
2010-11	17620	1410
2011-12	24364	2910
2012-13	27830	3373
2013-14	26358	1258
2014-15	23988	1340
2015-16	43467	4596
2016-17	61903	16874
2017-18	66671	17871
2018-19	47758	1171
2019-20	59935	1295
2020-21	51281	586
<b>CAGR</b>	<b>15.24</b>	<b>5.44</b>

**Sources:** Chief Engineer, Irrigation Department, Assam. Estimated by Scholar

The irrigated area under kharif season and rabi season in Udalguri district showed a fluctuating growth trends during the study period. The annual growth rate of Kharif season irrigated area is 15.24% and rabi season is 5.44% during the study periods. The growth trend of kharif season irrigated area is more than the rabi season irrigated area. During kharif season due to rainfall the density of water, water level and the flow of water in canal increases.

### 2. To examine the impact of NIA on the production of selected rabi crops.

Irrigation is important to grown rabi crops, as they are grown during dry season. The subsequent tables provide the findings concerning the impact of NIA on the production of selected rabi crops by using Linear regression analysis.

#### 2. a. Impact of NIA on the Production of Summer Rice from 2008-09 to 2017-18

The cultivation of summer rice holds significant importance due to the annual flooding that affects winter and autumn rice crops. Hence, cultivating summer rice becomes crucial for ensuring food

security in the region. Typically, the cultivation done before the monsoon needs proper irrigation for its successful

growth. Tables 4, 5, and 6 highlight the impact of NIA on the production of summer rice.

**Table 4: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.819	.671	.630	.1009873
a. Predictors: (Constant), NIA				
b. Dependent Variable: Summer Rice				

Sources: Statistical Handbook, Assam, Estimated by scholar

Table 4 represents the summary model. The R Square value of .671 indicates that approximately 67.1% of the variance in summer rice production is accounted for by the NIA included in the model. The

ANOVA table 5 shows a significant F-statistic of 16.314 with a p- .004 which is less than 0.01. It indicates that NIA significantly predicts summer rice production.

**Table-5: ANOVA**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.166	1	.166	16.314	.004
	Residual	.082	8	.010		
	Total	.248	9			
a. Dependent Variable: Summer Rice						
b. Predictors: (Constant), NIA						

Sources: Statistical Handbook, Assam; Estimated by scholar

**Table- 6: Coefficients**

Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.052	.585		1.798	.110
	NIA	.531	.131	.819	4.039	.004
a. Dependent Variable: Summer Rice						

Sources: Statistical Handbook, Assam; Estimated by scholar

The Sig. = .004 indicates in Table 6 shows that NIA significantly predicts

production of summer rice and one unit of increase in NIA brings about .531 increased of production of summer rice.

**2. b. Impact of NIA on the Production of Rapeseed & Mustard (R & M) from 2008-09 to 2017-18**

Rapeseed and mustard has been sown between September and October and

harvested from February to March. And as it is cultivated during winter, linear regression analysis has been used to examine the impact of NIA on its production.

**Table -7: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.546	.298	.210	.1580860
a. Predictors: (Constant), NIA				
b. Dependent Variable: R & M.				

Sources: Statistical Handbook, Assam; Estimated by scholar

Table no. 7 represents the summary model. The R square value of .210 indicates that NIA has weak influence on the production of rapeseed and Mustard. Table 8 ANOVA indicated that regression model

is not significant for the test because  $p=.105$  and is greater than the  $P=.05$ . The NIA has no significant impact on the production of rapeseed & mustard because it requires less water.

**Table 8 ANOVA**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.085	1	.085	3.390	.103
Residual	.200	8	.025		
Total	.285	9			
a. Dependent Variable: R & M					
b. Predictors: (Constant), NIA					

Sources: Statistical Handbook, Assam; Estimated by scholar

**Table 9 Coefficients**

Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.962	.916		1.050	.324
	NIA	.379	.206	.546	1.841	.103
a. Dependent Variable: R & M						

Sources: Statistical Handbook, Assam; Estimated by scholar

**2. c. Impact of NIA on the Production of Potato from 2008-09 to 2017-18**

Potato is an essential vegetable crop, primarily cultivated during the winter season. The linear regression analysis has

been used to measure the impact of NIA on potato production. Table 10, 11 and 12 highlights the impact of NIA on the production of potato.

**Table- 10: Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.635	.403	.328	.2162152
a. Predictors: (Constant), NIA				
b. Dependent Variable: Potato				

Sources: Statistical Handbook, Assam; Estimated by scholar

Table 10 represents the summary model. The R Square value of .403 indicates that approximately 40.3 % of the variance in potato production is accounted for by the NIA included in the model. The ANOVA

table 11 shows a significant F-statistic of 5.394 with a p value .049 which is slight less than p value 0.05. It indicates that NIA significantly predicts potato production

**Table- 11: ANOVA**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.252	1	.252	5.394	.049
	Residual	.374	8	.047		
	Total	.626	9			
a. Dependent Variable: Potato						
b. Predictors: (Constant), NIA						

Sources: Statistical Handbook, Assam; Estimated by scholar

**Table 12 Coefficients**

Coefficients						
Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.918	1.252		.733	.484
	NIA	.654	.282	.635	2.323	.049
a. Dependent Variable: Potato						

Sources: Statistical Handbook, Assam; Estimated by scholar

The Sig. = .0049 from table 12 indicates that NIA significantly predicts production of potato and one unit of

increase in NIA brings about .654 increased production of potato.

## Conclusion

Irrigation plays a pivotal role in sustaining the growth of rabi crops. Analysis using CAGR reveals a significant increase in several key areas within Udalguri district, including the GIA, NIA, IPC, and IPU of both Major and Minor Irrigation Systems. Moreover, there has been an increase in the irrigated area during both the kharif and rabi seasons. The study also identifies a gap between the IPC and IPU of both Major and Minor Irrigation systems in the study area. This discrepancy might have stemmed from

various factors such as natural calamities, changes in river courses, damage to canal systems, and general wear and tear of the irrigation schemes. Furthermore, Linear Regression analysis indicates that the NIA significantly impacts the production of summer rice and potato, while it has no significant impact on the production of rapeseed and mustard. Through these findings it can be concluded that there is the possibility of the increase of the production of summer rice by expanding irrigation facilities in the study area.

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## Industry 4.0 Leading to Environment Sustainability: Consumer's Choice and Preference in Tech- Enabled Marketplace

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### Abstract:

*Technological advancements like artificial intelligence, machine learning, IoT, cloud computing, block chain, and sensing technology have revolutionized industries and enabled retailers to achieve sustainability objectives. These advancements have also been successful in achieving the Sustainable Development Goals (SDGs). Consumers today are increasingly conscious about the environment and its sustainability, leading to changes in their buying habits. They are increasingly accepting sustainable and eco-friendly products and services, and adhering to global quality standards. However, finding the optimal setting for businesses is challenging. Retailers face difficulties in predicting customer choices, as their psychographic attributes often influence their shopping decisions. Consumers today are tech-friendly and ecologically conscious, aiming to achieve shopping goals while protecting the environment. SDG awareness allows them to buy eco-friendly products and use technology to mitigate ecological consequences. This paper aims to uncover the changing beliefs of consumers towards using technology as a medium for attaining sustainability.*

**Keywords:** Industry 4.0, SDGs, technology, sustainability, consumer psychographics and retailing.

### 1. Introduction

Sustainability is the use of scarce resources to meet the needs of present generations without compromising future generations. The Sustainable Development Goals (SDGs) are 17 schemes that support sustainability, and in retailing, technological intervention and innovation can help achieve these targets. Retailers must align their practices with these goals, communicate them to stakeholders, and balance sustainability with economic growth. Technology, such as AI-enabled forecasting, can help reduce waste and

returns, promoting sustainability. The technology eco-advantage allows retailers to use advanced technology to achieve sustainability goals without jeopardizing profitability. Consumers are increasingly choosing environmentally sustainable products and services, and retailers are using tech-based advantages to encourage sustainable purchases. The cutting-edge technologies of industry 4.0 have transformed consumer lifestyles, affecting their purchasing patterns. Technology-enabled retailing offers a dual advantage of fulfilling SDGs and satisfying consumer needs.

## 2. Objectives of the study:

- 2.1. To understand the role of technology in driving consumers towards environmental sustainability.
- 2.2. To synthesis SDG's (9<sup>th</sup> and 12<sup>th</sup>) and environmental sustainability in retailing.
- 2.3. To study the impact of industry 4.0 technologies on environmental sustainability.
- 2.4. To propose a tech- enabled for achieving environmental sustainability in retail settings.

## 3. Literature Review

Industry revolution or industry 4.0 carries the potential of providing innovative solutions for combating global challenges. The cutting edge technologies associated with industry 4.0 when implemented for attaining sustainability drive optimal

results. Streamlining the technologies with green initiatives globally, SDGs can be implemented successfully (Berawi, 2019).

### 3.1. Sustainable Development Goals (SDG's)

The United Nations Sustainable Development Goals (SDGs) aim to combat global environmental, social, and economic issues by 2030. These goals are closely related to the theme of achieving sustainability in retailing with technology. SDG 9 and 12 focus on building resilient infrastructure, promoting inclusive and sustainable industrialization, and fostering innovation. SDG 9 focuses on building quality, reliable, and resilient infrastructure for economic development, ensuring human well-being, and providing equal access to resources and financial services.

**Table 1: The Sustainable Development Goals**

1.	End poverty in all its forms everywhere
2.	End hunger, achieve food security and improved nutrition, and promote sustainable agriculture
3.	Ensure healthy lives and promote well-being for all at all ages
4.	Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
5.	Achieve gender equality and empower all women and girls
6.	Ensure availability and sustainable management of water and sanitation for all
7.	Ensure access to affordable, reliable, sustainable, and modern energy for all
8.	Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all
9.	<b>Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation</b>
10.	Reduce inequality within and among countries
11.	Make cities and human settlements inclusive, safe, resilient, and sustainable
12.	<b>Ensure sustainable consumption and production patterns</b>
13.	Take urgent action to combat climate change and its impacts
14.	Conserve and sustainably use the oceans, seas, and marine resources for sustainable development
15.	Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and

	halt biodiversity loss
16.	Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable, and inclusive institutions at all levels
17.	Strengthen the means of implementation and revitalize the global partnership for sustainable development

(Source: United Nations, 2015).

Strategies for achieving sustainable industrialization include promoting eco-friendly technology, increasing resource use efficiency, and providing financial services to those in need. Infrastructure development in developing countries is ensured through dedicated research and investment in the latest technological know-how.

SDG 12 focuses on responsible consumption and production, ensuring sustainable consumption and production patterns worldwide. It focuses on optimal resource utilization, reducing wastage during production activities, and sustainable supply chain management. Consumers are educated about sustainable consumption patterns, making environmentally conscious purchasing decisions through product certifications and eco-friendly packaging. SDG 12 also promotes a circular economy by product recycling and encouraging consumers to return or recycle products they no longer need. Digital technologies play a vital role in managing congestion, risks, and environmental impacts in cities and communities, contributing to sustainable cities and communities.

### 3.2. Industry 4.0:

Industry 4.0 focuses on environmentally friendly technologies and the integration of Sustainable Development Goals (SDGs) can lead to positive environmental outcomes and sustainability. The 9th SDG focuses on building resilient

infrastructure, promoting sustainable industrialization, and fostering innovation. The 3R's of sustainability are adopted, including reducing waste, reusing resources, and recycling products. The circular economy, which involves producing goods that can be remanufactured and reused multiple times before disposal, is another aspect of sustainability. Retailers, as bridges between producers and consumers, can adopt sustainable practices to benefit society.

Sustainability-focused choices are now a priority for both consumers and retailers. Consumers are becoming more concerned about environmental and social issues, leading to opportunities for retailers to yield profits while benefiting consumers without damaging the environment. Retail giants like IKEA, Walmart, and Patagonia have taken significant steps towards environmental sustainability, revamping supply chain operations and adopting eco-friendly approaches.

The COVID-19 pandemic has accelerated this transformation, with consumers becoming more concerned about health, economic, and social well-being issues. As a result, sustainability has become a key driver in consumer choice, leading to increased reliance on technology as a last resort. If embedded in a positive manner, technology can ensure environmental sustainability. Some in-store

retail technologies adopted by retailers in Industry 4.0 include:

**3.2.1 Boots (A British health and beauty retailer)** have adopted a practice of rewarding the consumers on returning the used product packaging. The consumer needs to register themselves to Scan2Recycle website and scan their used empty packages at the in-store collection point. As the total amount of empties reaches a total of 5, they are rewarded with loyalty points worth £2.50 for every five deposited items.

**3.2.2 Morrisons and Co-op (UK based grocers)** have also initiated the practice of recycling the second- hand electronic items like mobile phones, tablets, smart watches. The consumers need to register on Spring's website and add the items they need recycle and select a point to drop it. Every customer is given a unique QR code and on activating the payment is processed and deposited straight to the recipient's bank account.

**3.2.3 Costa Coffee** has launched a 6-month reusable coffee cup scheme called 'BURT', which entails borrow, use, reuse, take-back. Customers deposit £5 at the store, scan a QR code at the base, and the cup is linked to their personal account. Austella, a tech agency, tracks the cup's usage. When deposited back, the cup is automatically delinked, washed, and presented to the next customer.

The system of scan and re-cycle and scan and re-use connects customers with sustainability, involving them in the process and allowing them to contribute to a good cause, satisfying their need for participation in a good cause (Han, 2021).

### 3.3. Sustainability in Retailing

Sustainability in retail has been accelerated by technology-driven behavioral changes, particularly in the context of Industry 4.0. Consumers are increasingly aware of the use of technology and adopt environmentally-sound attitudes. Governments and retailers are working to influence their purchase preferences and environmental consciousness. This study focuses on the active participation of consumers and retailers in sustainable practices in retail. Technology can be used to fulfil these criterias, making consumers feel more empowered and influencing their environmental protection.

The paper aligns with SDG 9th and 12th, as technological innovation in the retail sector, particularly through the implementation of the circular economy, justifies these practices. Innovative practices in retailing provide more research opportunities for academics and researchers. The practical implications of these researches also have managerial implications. Innovation and sustainability cannot be limited to in-store technology but can be integrated throughout the retailer's supply chain. Retailers can drive positive consumer behavior by offering eco-friendly products. Technology related to Industry 4.0 is driving retail sustainability in the context of SDG 9th and 12th.

#### 3.3.1 Supply Chain Optimization:

Data analytics is a powerful tool that helps retailers analyze large amounts of data to gain insights into consumer buying preferences and forecast future preferences (Hung et al., 2020). Accurate predictions based on consumer choices and related information enable precise demand forecasting, optimizing inventory

management and reducing waste (Kashyap et al., 2022). IoT (Internet of Things) solutions, equipped with sensors, enable real-time tracking of products within the supply chain, ensuring transparency and visibility. They also monitor stock levels in real-time, preventing overstocking or understocking and minimizing wastage. IoT sensors also track expiry dates and conditions of perishable goods, ensuring their availability within specified timeframes, contributing to responsible consumption. Investment in IoT-led technology ensures better resource allocation, reduces inefficiencies, and promotes sustainable practices. Overall, data analytics and IoT-based solutions are essential for retailers to stay competitive and meet the needs of their customers.

### 3.3.2 Enhancing Customer Experiences:

AI-powered personalization systems analyze large amounts of consumer data to provide personalized offers (Kumar et al., 2019), fostering innovation in retail practices and promoting environmentally friendly products. These systems use chatbots and recommendation systems to curate information and make it easily accessible to consumers. AI-driven consumer insights also enable retailers to produce and offer environmentally friendly products, educating consumers towards sustainable choices and ensuring responsible consumption decisions. Accurate personalized offerings makes product's utilization effective, improving its life span (Bjørlo et al., 2021).

IoT-enabled devices like smart shelves and sensing technology like beacons enable personalized in-store experiences and promotions, making it easier for consumers to find sustainable yet suitable products(Tan

& Sidhu, 2022). Predictive capabilities analyze consumer choices, reducing downtime and resource waste. This unique shopping experience enhances sustainability and provides real-time information on environmental impact, promoting responsible consumption choices(Srivastava & Bag, 2023). It provides an indulging shopping experience to the consumers which unique and enhances sustainability equally. All the required detail concerning its impact on the environment it available in real- time which promotes responsible consumption choices (Sabu & Sreekumar, 2023) (SDG 12). Retailers can also gather valuable data on foot traffic and customer preferences, enhancing the shopping experience. IoT sensors can track product performance and usage patterns, enabling businesses to design more sustainable products. Overall, AI-powered personalization and IoT-enabled devices are crucial for enhancing customer engagement and promoting sustainable practices in the retail industry.

## 5. Conclusion and managerial implication

Sustainability in retail has been accelerated by technology, particularly in the context of Industry 4.0, which has driven digitalization and increased consumer dependence on technology. Technology is present in every aspect of life, including shopping, and when incorporated with sustainability assumptions, it can lead to positive results. Consumers are becoming more aware of the environment and are more committed to acting responsibly towards it. This research focuses on the involvement of consumers in ensuring sustainability in retailing through technology medium, which can significantly affect their shopping choices and

preferences. Likewise, it is expected to have a transformational influence on the manner in which a consumer protects the environment through sustainability (Berawi, 2019).

The paper focuses on the 9th and 12th Sustainable Development Goals (SDGs) related to infrastructure, sustainable industrialization, innovation, and sustainable production and consumption patterns. Technology-based innovation in retailing, particularly the implementation of the circular economy, justifies these practices. Innovative practices in retailing provide more research opportunities for academicians and researchers (Grewal, Gauri, Roggeveen, & Sethuraman, 2021).

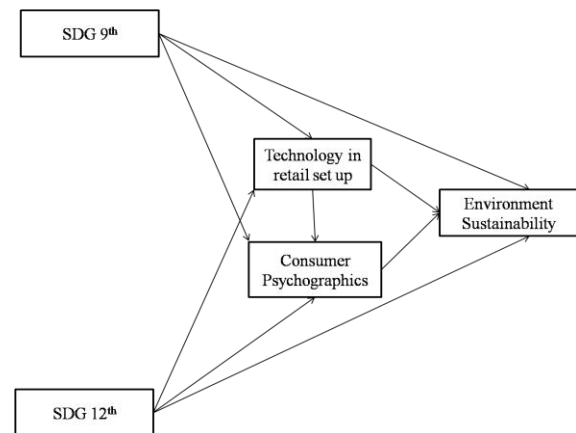
Retail practitioners can apply the results of this research in real-world settings to help market players act environmentally sensitive and ensure sustainability. Innovation and sustainability cannot be limited to in-store technology but can be built within the entire supply chain of the retailer. Retailers can drive positive responses from consumers by providing opportunities to ensure sustainability and developing a sense of empowerment within them. This fosters a sense of belongingness and loyalty towards the retailer.

## 6. Conceptual model:

For researcher and practitioners, a conceptual model is prepared linking 9<sup>th</sup> and 12<sup>th</sup> SDG, Retail technology and Consumer's Psychographics and environment sustainability in retail setting.

This study has majorly highlighted the impact of technology on consumer's choice and a collective impact in achieving environment sustainability.

**Fig1. Environment Sustainability in Retail Settings**



Industry 4.0 is making world digital, consumer's purchase preference is strongly influenced by existing technologies. Sustainable Development Goals (SDGs) showcase a path to attain environmental sustainability. Both retailers and consumers can utilize industry 4.0's technological disruption for achieving sustainability. SDG 9<sup>th</sup> and SDG 12<sup>th</sup> were found to be best suited in retail settings. Keeping sustainability as a prime concern, retail infrastructure can be equipped with latest technological breakthroughs to achieve innovation along with reaping profit and competitive advantage. SDG's and technology (utilized for achieving sustainability) collectively forms consumer's psychographics in retail set up that helps in attaining environmental sustainability. All the elements carry a profound impact on the psychology of consumers making them environmentally conscious. They ultimately affect consumer's shopping preferences and are motivated towards making sustainable choices. The model is conceptual in nature. A relationship between the different elements of the study is being established which can be further investigated in future studies.

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## Evaluating the Impact of GST on Indirect Tax Revenue and Tax Efficiency in North-Eastern India

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### Abstract:

*Along with the vision of One Nation, One Tax, the implementation of GST was designed to enhance revenue collection. Objective of this paper is to explore whether indirect tax revenue has raised for 8 north-eastern states, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and Assam post GST roll out and to examine tax effort (efficiency) of these states. The study has used data from GST Network (GSTN) database for the pre-GST period (FY 2012-13 to 30th June 2017) and post-GST period (1st July 2017-18 to FY 2023-24). To fulfil the objectives, the study has used the variables like Indirect tax revenue, its year-on-year growth rate, Indirect tax revenue as a percentage of GSDP, monthly compliances. The results of the study demonstrate that revenue collection has increased following the enactment of GST, and tax effort has improved over the period since the GST rollout. These findings will assist in shaping future policy decisions and enhancing the tax administration of the states.*

**Keywords:** GST, Gross State Domestic Product (GSDP), Tax effort (efficiency)

### Introduction:

On 1st July 2017, Goods and Services Tax Act, 2017 was rolled out all over India and India as a country transformed into 'One Nation One Tax'. 28 States and 8 Union Territories have been integrated through one thread of GST. GST has subsumed various central taxes and state taxes to avoid cascading effect and allow seamless flow of ITC at each stage of transaction in the supply chain from one corner of country to other. So, GST is not only comprehensive tax but also allows smooth and transparent functioning of supply chain spread across India. Apparently, it is observed that enactment of GST has raised revenue of the country. A considerable part of indirect taxes is subsumed in Central GST and State level

GST. In the case of states, their major source of income is SGST. Minor upheaval in collection may suffer states' public finance and expenditures. Hence, GST revenue collection needs in-depth assessment for fiscal management of union and states.

This paper has attempted to explore whether indirect tax revenue has raised for 8 North-Eastern states, Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and Assam post GST roll out and to examine tax effort (efficiency) of these states.

Given the data available in the public domain, this paper has calibrated Indirect tax revenue, its year-on-year growth rate, indirect tax revenue as a percentage of GSDP for period from FY

2012-13 to FY 2023-24 and tax effort (efficiency) based on compliance for period from 1ST July 2017-18 to FY 2023-24. For the period FY 2012-13 to 2017-18 (up to 30 June 2017), state-wise revenue subsumed in GST is considered to match with the data post-GST regime (from 1 July 2017 state GST collection including Integrated GST settlement). In the next section, a comprehensive review of literature specific to state-specific studies in India is presented. In section 3, data source and methodology of the study and in section 4, data analysis and data interpretation are discussed. In section 5, conclusion is presented. To my knowledge, there is no study which review GST revenue and tax effort (efficiency) of north-eastern states based on parameters discussed above and therefore, the present paper fills the gap in literature.

### Literature Review:

Tax collection depends on tax capacity and tax effort (or efficiency) of a country or state. Being consumption-based tax, tax capacity of state in GST depends on consumption base of a state, scale of economy and structure of economy. Given tax capacity, tax collection varies across states due to differences in tax efficiency (tax effort).

Estimation of tax efficiency has always been an area of research in public finance both from cross-country and within a country from sub-national perspective. Methodologies in estimation of tax efficiency have evolved from income approach, representative tax system (RTS) approach, regression approach to stochastic frontier analysis (SFA). Indicators of tax base or tax capacity for particular tax or

taxes and tax efficiency (or tax effort) vary across these approaches. For example, in income approach national (or subnational) income is taken as the tax base and the ratio of tax collection to national (or subnational) income as the tax effort. Mukherjee (2019) found that for the period 2001–2002 to 2015–2016, tax (comprehensive VAT) capacity of states is a function of the scale of economic activity (measured by GSDP) and of the structural composition of the economy.

Though, Gross State Domestic Product (GSDP) may not be the only indicator for tax base, ratio of GST to GSDP and year-on-year growth rate may indicate whether revenue has increased post GST period in comparison with pre-GST period.

Extant literature (Zaki, 1992; Bird et al., 2008; Botlhole, 2010; Pessino and Fenochietto, 2013) has attempted to estimate tax effort and taxable capacity using different socio-economic factors such as corruption, voice and accountability.

Finally, Pessino and Fenochietto (2013) identified per capita GDP, the composition of the economy, the degree of openness of an economy, the ratio of public debt to GDP, the level of education of a country, and institutional factors such as corruption and governance.

The existing papers typically examine the tax capacity of states or countries by considering various empirical economic and socio-economic factors. However, this paper diverges from that approach by focusing specifically on reviewing the indirect tax collections before and after the GST rollout, using growth rate, the ratio of indirect taxes to

GSDP in the eight North-Eastern states. This review covers an extensive 11-year period from 2012-13 to 2023-24, providing a unique and valuable contribution to the literature on indirect taxes. This comprehensive analysis fills a gap in existing research, offering insights that have not been previously explored in the context of the North-Eastern states.

The tax effort of states can be viewed as a self-help process whereby efforts are made to mobilize additional revenues as the economy grows and taxable capacity expands. Tax effort may be enhanced by the introduction of new taxes, changes in the rates and bases of existing taxes, and improvement in tax administration and collection.

Apart from this, tax effort can be utilised by improving tax compliance, broadening tax base, and by providing robust technology platform.

In this paper, tax efficiency will be calibrated and gauged with respect to tax compliances, and tax base. After scrutiny of many research papers, it is observed that this is gap in literature.

#### **Data Source and Research Methodology:**

Data for the present paper were obtained from website of Goods and Services Network (GSTN) and website of Ministry of Statistics and Program Implementation, Govt. of India. The period under study is 2012-13 to 2023-24. 8 North-Eastern States are considered for this study. Those are Sikkim, Arunachal Pradesh, Nagaland, Manipur, Mizoram, Tripura, Meghalaya, and Assam.

For each state, the indirect taxes subsumed under GST for the period from

2012-13 to 2017-18 (up to June 30, 2017) are considered on a year-wise basis. This approach allows for a precise comparison with data from the post-GST regime, starting from July 1, 2017. Year-wise State GST (SGST) collections, including Integrated GST (IGST) settlements, are considered from July 1, 2017, to 2024.

Study employed following variables, year wise indirect tax collections and Year wise GSDP of states. Year-on-year growth rate of indirect taxes, Indirect tax revenue as a percentage of GSDP (Indirect tax collection to GSDP Ratio) is quantified for all states and compared for each state with pre-GST period and post GST enactment period. GST was enacted on July 1, 2017. GSDP is available for FY 2017-18 and not quarterly (April, May June 2017). Hence first quarter (April, May, and June) of FY 2017-18 is considered in post GST roll out period. Comparisons are explained by bar chart and line graphs.

Tax efficiency has been assessed by considering compliances such as monthly return GSTR 3B for period from FY July 1, 2017- 18 to FY 2021-22. Monthly percentage of GSTR 3B filed by due date is averaged out per year for each state. Line graph is plotted to assess efficiency of compliances.

Further, number of suppliers who has issued E-way bills are quantified for each year. Line graph is plotted to assess efficiency of compliances.

Number of registrations on closing of 2017-18 and 2023-24 are compared state wise and percentage rise at the end of FY 2023-24 over 2017-18 is measured. This is explained in bar chart and line graph.

## DATA INTERPRETATION AND ANALYSIS:

**Table-1**

Indirect Taxes (Cr.) from FY 2012-13 to FY 2023-24								
FY	Sikkim	Arunachal	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
12-13	194.40	*	195.51	263.71	109.10	572.88	379.27	4467.12
13-14	253.21	*	178.43	386.57	135.56	628.20	309.89	4878.21
14-15	220.12	*	215.94	432.78	148.90	667.90	448.26	5244.91
15-16	245.45	256.03	256.10	347.06	188.91	788.73	636.17	5985.50
16-17	263.50	*	303.67	499.05	210.17	842.16	587.21	6970.97
17-18	240.70	213.00	243.03	396.95	216.42	578.80	347.99	5777.18
18-19	367.42	558.65	427.86	286.80	423.67	849.45	701.87	7428.05
19-20	471.76	791.98	602.66	638.19	524.41	994.38	883.31	8521.45
20-21	412.63	840.44	639.51	838.84	525.29	982.94	770.76	8038.17
21-22	632.05	1125.77	823.99	833.34	719.39	1222.82	1090.33	10152.09
22-23	825.44	1612.15	949.42	1111.69	882.49	1417.14	1454.13	12277.54
23-24	958.38	1925.59	1071.13	1418.72	976.66	1604.44	1734.18	14869.12

\*Figures for Arunachal Pradesh are not available for FY 12-13, 13-14, 14-15 and 16-17.

**Figure-1**

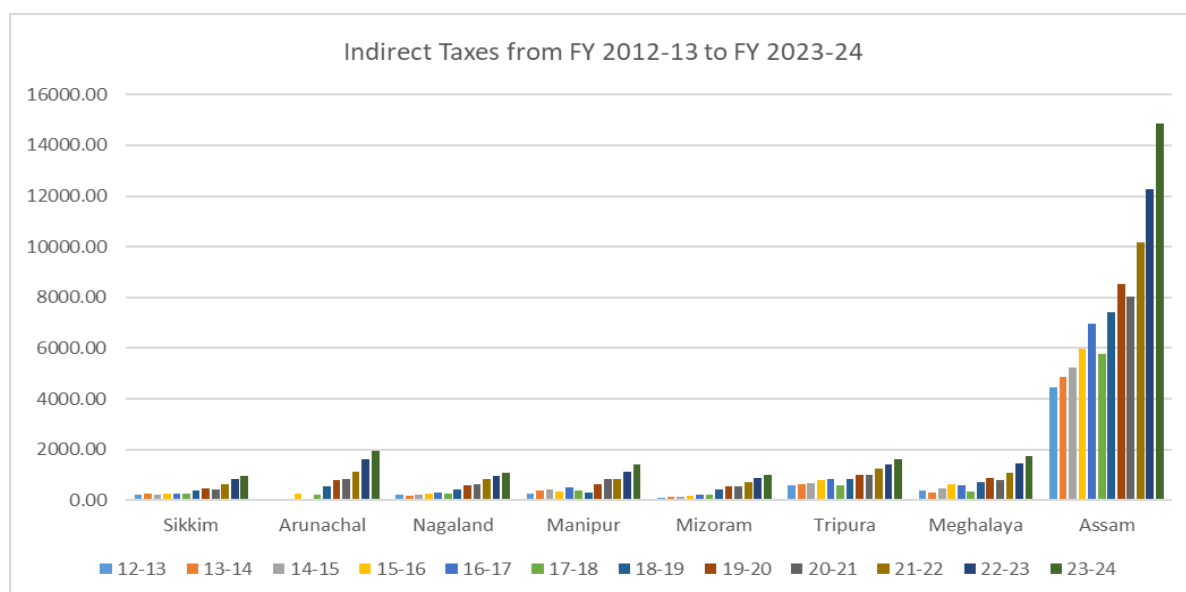


Table-1 provides a year-wise breakdown of indirect tax revenues (in crore) for the eight North-Eastern states from FY 2012-13 to FY 2023-24. The data indicates a steady growth in revenue collections both before and after the introduction of GST. This trend is further illustrated in the accompanying bar chart (Figure-1). Table-2 provides year-wise

Indirect Taxes Growth Rate from FY 2013-14 to FY 2023-24.

However, during the GST implementation year of FY 2017-18, Sikkim, Nagaland, Manipur, Tripura, Meghalaya, and Assam experienced a decline in revenue collections. In the subsequent years, FY 2018-19 and FY

2019-20, all states except Manipur saw a return to positive growth rates. Manipur continued to experience negative growth in FY 2018-19.

The COVID-19 pandemic impacted revenue collections in FY 2020-21, with Sikkim, Tripura, Meghalaya, and Assam

recording negative growth rates. Despite these challenges, there was a rebound in the following years. During FY 2021-22, all states showed positive growth rates except for Manipur, which had a slight decrease in tax collections, with a negative growth rate of 0.65%.

**Table-2**

Indirect Taxes Growth Rate from FY 2013-14 to FY 2023-24								
FY	Sikkim	Arunachal	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
13-14	30.25		-8.74	46.59	24.26	9.66	-18.29	9.20
14-15	-13.07		21.02	11.95	9.84	6.32	44.65	7.52
15-16	11.51		18.60	-19.81	26.87	18.09	41.92	14.12
16-17	7.35		18.57	43.79	11.25	6.77	-7.70	16.46
17-18	-8.65		-19.97	-20.46	2.97	-31.27	-40.74	-17.13
18-19	52.65	162.28	76.05	-27.75	95.76	46.76	101.69	28.58
19-20	28.40	41.77	40.85	122.52	23.78	17.06	25.85	14.72
20-21	-12.53	6.12	6.11	31.44	0.17	-1.15	-12.74	-5.67
21-22	53.17	33.95	28.85	-0.65	36.95	24.40	41.46	26.30
22-23	30.60	43.20	15.22	33.40	22.67	15.89	33.37	20.94
23-24	16.11	19.44	12.82	27.62	10.67	13.22	19.26	21.11

**Table-3**

(Indirect Taxes/GSDP)*100								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
12-13	1.58		1.38	1.92	1.30	2.64	2.76	2.85
13-14	1.83		1.07	2.39	1.32	2.45	1.92	2.74
14-15	1.43		1.17	2.39	1.10	2.26	2.47	2.68
15-16	1.36	1.38	1.31	1.78	1.25	2.19	3.26	2.63
16-17	1.27		1.40	2.34	1.22	2.13	2.76	2.74
17-18	0.93	0.95	1.00	1.54	1.12	1.32	1.18	2.04
18-19	1.29	2.21	1.61	1.05	1.93	1.70	2.18	2.40
19-20	1.50	2.64	2.03	2.14	2.10	1.84	2.54	2.46
20-21	1.25	2.75	2.14	2.82	2.20	1.84	2.28	2.37
21-22	1.68	3.24	2.65	2.28	2.59	1.95	2.81	2.47
22-23	1.93	4.07	2.66			1.95	3.41	2.49

Table-3 presents the ratio of indirect tax collections to GSDP for all states from FY 2012-13 to FY 2021-22.

**Table-4**

Average of Indirect Taxes to GSDP ratio for Pre-GST and post GST period								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
2012-13 to 2016-17	1.49	1.38	1.27	2.16	1.24	2.34	2.63	2.73
2017-18 to 2022-23	1.43	2.64	2.02	1.96	1.99	1.77	2.40	2.37
% Rise	-4.15	91.44	59.04	-9.18	60.36	-24.40	-8.83	-13.11

Table-4 compares the average ratios for the pre-GST and post-GST periods.

For Sikkim, the percentage ratio of indirect tax collection to GSDP ranged between 1% and 2% during the pre-GST period. This ratio dropped to 0.93% in FY 2017-18, the year GST was introduced. It showed a gradual increase in FY 2018-19 and FY 2019-20. Due to the impact of COVID-19, the ratio fell to 1.25% in FY 2020-21. However, it rebounded to 1.93% in FY 2021-22. However, there is marginal decline by 4.15% in post GST average ratio.

In the case of Arunachal Pradesh, revenue data for the pre-GST period is only available for FY 2015-16, where the ratio was 1.38%. This figure is used as an indicator for the pre-GST period. The ratio decreased to 0.95% in FY 2017-18 but increased significantly to 2.21% in FY 2018-19 and reached 4.07% in FY 2022-23.

Nagaland and Mizoram had average pre-GST ratios of 1.27% and 1.24%, respectively. Post-GST, from FY 2017-18 to FY 2022-23, these ratios increased to 2.02% and 1.99%, respectively. This represents a percentage increase of 59.04% for Nagaland and 60.36% for Mizoram.

Conversely, Manipur, Tripura, Meghalaya, and Assam experienced declines in their post-GST average ratios, with decreases of 9.18%, 24.40%, 8.83%, and 13.11%, respectively.

Overall, out of the eight states, three—Arunachal Pradesh, Nagaland, and Mizoram—showed significant increases in their GST to GSDP ratios, each exceeding 50%. In contrast, Sikkim, Manipur, Tripura, Meghalaya, and Assam experienced declines in their ratios during the post-GST period.

GSTR-3B is a monthly return that must be filed by taxpayers registered under the Goods and Services Tax (GST) system in India. Table-5 shows the percentage of GSTR-3B returns filed by the due date. In FY 2017-18, the compliance percentage was below 50% for all states except Sikkim, which had a compliance rate of 51.39%. Over the years, it appears that the tax administrations of the respective states have significantly improved their tax efficiency, with compliance rates rising above 60% for all states. Notably, Tripura has seen a compliance rise exceeding 70%.

**Table-5**

Percentage of GSTR-3B filed by due date								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
17-18	51.39%	25.90%	23.04%	25.03%	32.73%	44.82%	35.30%	35.55%
18-19	52.06%	32.54%	35.29%	34.49%	42.88%	56.37%	50.92%	40.13%
19-20	50.37%	34.16%	40.79%	37.09%	46.02%	57.22%	51.12%	42.96%
20-21	45.52%	37.91%	40.74%	29.75%	42.14%	50.47%	47.41%	41.14%
21-22	53.59%	48.09%	52.82%	40.47%	53.97%	61.19%	52.52%	53.43%
22-23	62.89%	53.06%	63.87%	53.93%	61.34%	73.23%	61.94%	65.59%

**Figure-2**

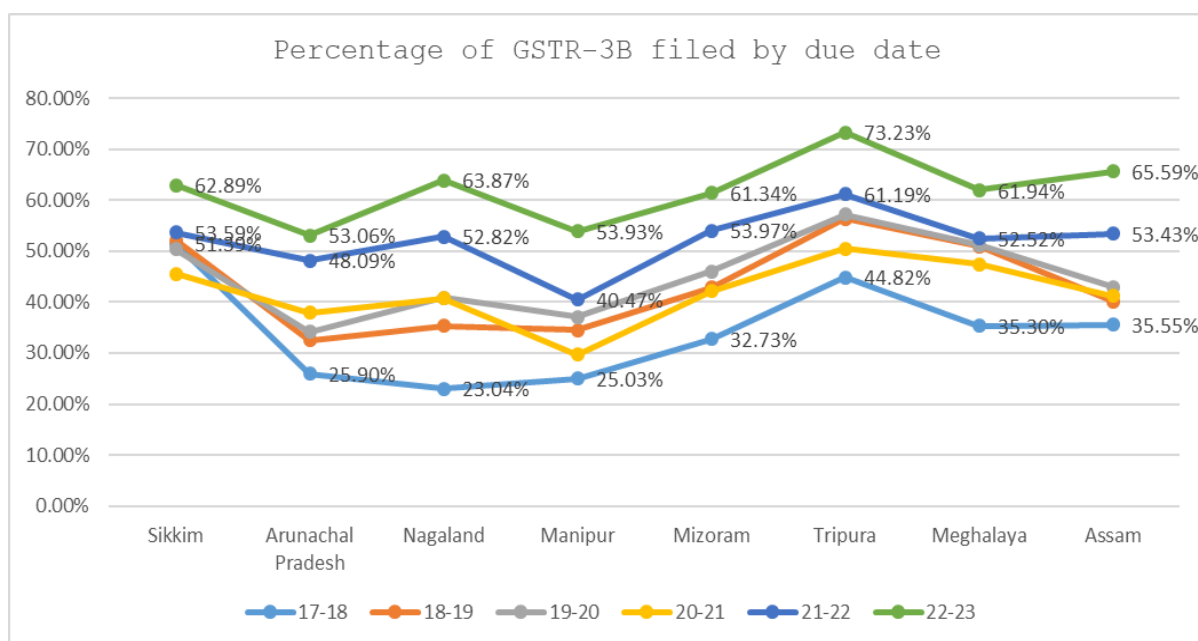


Figure-2, a line graph, clearly illustrates that the compliance rate for FY 2022-23 surpasses those of all previous fiscal years.

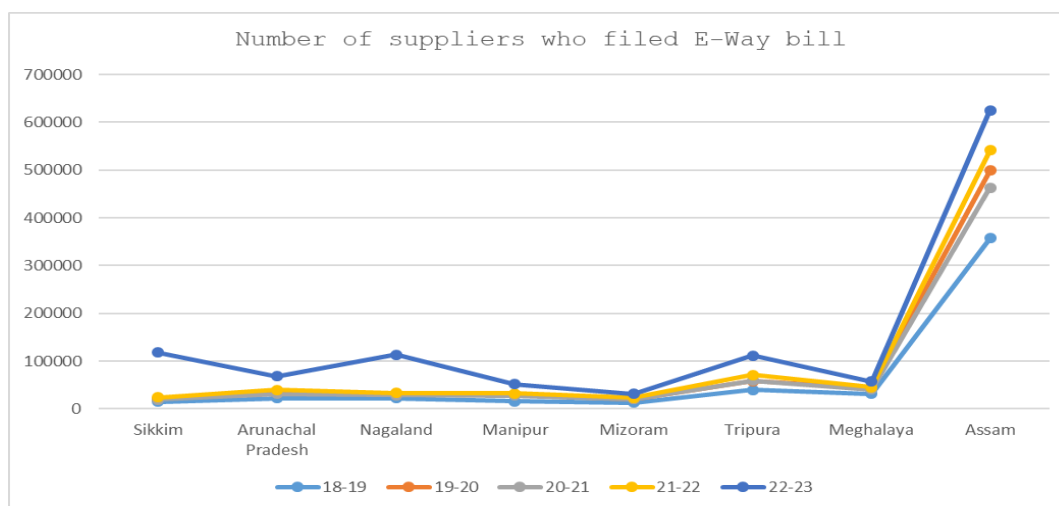
E-Way bill system is for GST registered person / enrolled transporter for generating the way bill (a document to be carried by the person in charge of conveyance) electronically on commencement of movement of goods exceeding the value of Rs. 50,000 in relation to supply or for reasons other than supply or due to inward supply from an unregistered person.

Table-6 presents the number of suppliers who filed E-Way bills from FY 2018-19 to FY 2022-23 for eight North-Eastern states.

**Table-6**

Number of suppliers who filed E-Way bill								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
18-19	15347	22161	22045	16147	13469	39575	31218	357674
19-20	21249	33236	30724	29551	20394	58452	44515	499168
20-21	19631	31839	28709	28044	20706	59131	40495	463496
21-22	23770	39464	33578	32883	22990	71305	45223	541102
22-23	117885	67909	113447	51586	31689	111950	57555	625158
% Rise for 22-23 over 18-19	768.13	306.43	514.62	319.48	235.27	282.88	184.36	174.78

**Figure-3**



The accompanying line graph (figure-3) highlights that compliance in FY 2022-23 surpasses all previous fiscal years.

For Arunachal Pradesh, Manipur, Mizoram, Tripura, Meghalaya, and Assam, the number of suppliers filing E-Way bills increased significantly by 306.43%, 319.48%, 235.27%, 282.88%, 184.36%, and 174.78%, respectively. Sikkim and

Nagaland saw exceptionally high increases of 768.13% and 514.62%, respectively.

Table-7 calculates the percentage increase in the number of registrations by the end of FY 2023-24 compared to the end of FY 2017-18. Sikkim has experienced the highest rise, with a 106.52% increase. Mizoram, Arunachal Pradesh, Meghalaya, and Tripura have also seen significant

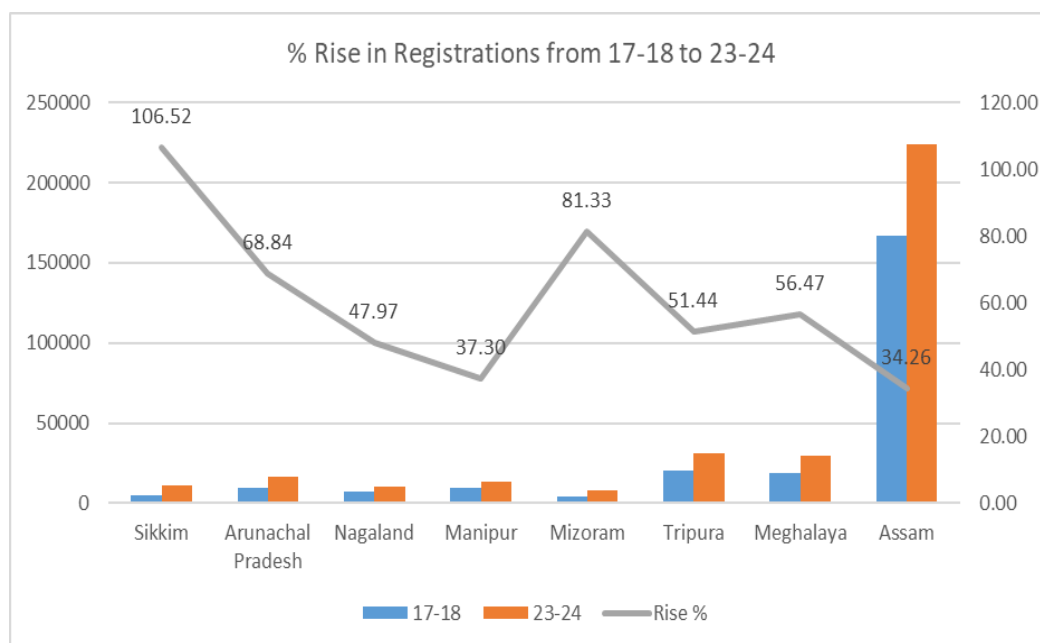
growth in registrations, each with an increase of over 50%. Nagaland, Manipur, and Assam have recorded notable increases

in registrations, ranging between 30% and 50%.

**Table-7**

% Rise in Registrations from 17-18 to 23-24								
FY	Sikkim	Arunachal Pradesh	Nagaland	Manipur	Mizoram	Tripura	Meghalaya	Assam
17-18	5233	9937	6925	9719	4253	20350	19015	167075
23-24	10807	16778	10247	13344	7712	30818	29753	224315
Rise %	106.52	68.84	47.97	37.30	81.33	51.44	56.47	34.26

**Figure-4**



This data is illustrated in Figure-4, which includes both a bar chart and a line graph to visualize the changes.

### Conclusion:

In conclusion, the analysis of indirect tax data for the eight North-Eastern states from FY 2012-13 to FY 2023-24 shows significant trends and patterns:

#### 1. Revenue Growth and GST Impact:

Revenue collections have generally increased over the period, despite initial

declines in FY 2017-18 when GST was introduced. Most states rebounded with positive growth in subsequent years, though the COVID-19 pandemic caused temporary setbacks in FY 2020-21.

**2. GSDP Ratios:** The ratio of indirect tax collections to GSDP has varied, with significant increases observed in states like Arunachal Pradesh, Nagaland, and Mizoram post-GST. However, some states such as Sikkim, Manipur, Tripura, Meghalaya, and Assam saw decreases in

this ratio. It is important to note that GSDP, being a macroeconomic variable, depends heavily on the economic scale and structure of each state. States with larger economies or more robust economic activities tend to generate higher GSDP, which can influence the ratio of tax collections.

**3. Compliance Improvements:** GSTR-3B filing compliance has improved across all states, with rates rising above 60% by FY 2022-23, and Tripura exceeding 70%. This improvement suggests enhanced tax administration efficiency.

**4. E-Way Bill Filings:** There has been a substantial increase in the number of

suppliers filing E-Way bills, particularly in Sikkim and Nagaland, indicating greater adherence to compliance requirements.

**5. Registration Increases:** The number of registrations has surged, with Sikkim showing the highest increase at 106.52%. Other states also recorded significant growth, reflecting broader participation in the GST system.

Overall, the North-Eastern states have shown considerable progress in tax collection, compliance, and registration under the GST regime, highlighting the positive impact of improved tax efficiency in tax administration.

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## Analysing E-Governance Adoption in The Digital Era: A Study

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### Abstract:

*In the awakening of the digital revolution, governments worldwide have increasingly leveraged digital technologies to enhance service delivery through e-governance initiatives. This research endeavors to delve into the multifaceted implications of digital transformation on the adoption of e-governance services. By employing a comprehensive analysis framework encompassing technological and socio-economic dimensions, this study aims to detect the influencing factors on the adoption of e-governance services amidst digital transformation, such as effort expectancy, facilitating conditions, performance expectancy, social influence, and trust. Drawing upon a blend of quantitative methodology using a structured survey instrument, data from 80 samples were collected from citizens across the Goa, India to analyze the relationship between these factors and the adoption of e-governance services. Statistical techniques SPSS and PLS-SEM using smart PLS were employed to analyze the data. This study offers intuitions for policymakers, practitioners, and stakeholders to navigate the complexities of e-governance adoption in an increasingly digitalized world.*

**Keywords:** Adoption, Digital Transformation, Digital Revolution, E-Governance Services, and Technology.

### Introduction:

The digital Revolution undeniably influences industrial, economic, and governance paradigms. The digitalization of governance in the digital age reshapes the dynamics between government and citizens. E-governance emerges as the prevailing term to encapsulate this digital transformation. Information and Communication Technologies (ICT) lies at the nucleus of this transformative shift across all societal sectors; gradual adaptation occurs, including within

governments, governance structures, and public administrations. Prefacing with an "e-" has become the customary approach to encapsulate such transformations encompassing digitization (Dunleavy, P. 2005). E-governance is the prevailing term for denoting this digital transformation. The driving forces behind the development of e-governance encompass both pulling and pushing factors. (Moon, Welch, & Wong, 2005).

In this context, e-governance emerges as a comprehensive concept that

summarizes the relationship among citizens, government, and public and private actors, notably within digitalization and novelty in the public sector (Rahman et al.; A. E., 2016). Digital transformation in e-governance has a specific impact on factors influencing citizens' adoption of services. The digital revolution has meaningfully changed how governments interact with citizens and deliver public services. E-governance initiatives have emerged to leverage digital technologies to enhance governance processes. However, the successful adoption of e-governance

services depends on various factors, including citizens' perceptions of Effort Expectancy, Facilitating Conditions, Performance Expectancy, Social Influence, and Trust. This paper aims to quantitatively assess the impact of these determinants on adopting e-governance services amidst the digital transformation.

### Literature Review

Earlier studies on e-governance adoption have mainly used models and adoption theories, as illustrated in Table 1.

**Table 1**

Sr. No.	Model/Theory	Factors used	Sources
1.	Technology Acceptance Model (TAM)	Perceived ease of use and Perceived usefulness,	Davis et al. (1989), Devis (1989).
2.	Extended Technology Acceptance Model (TAM2)	Image Perceived usefulness Perceived ease of use Job relevance Result demonstrability Subjective norm	Venkatesh and Davis (2000), Moore and Benbasat (1991), Rogers (1995), Davis et al. (1989), Devis (1989), Fishbein and Ajzen (1975).
3.	Theory of Planned Behavior (TPB)	Subjective Norm, Attitude, Perceived behavioral control	Fishbein and Ajzen (1975) Ajzen (1991)
4.	Diffusion of Innovation (DOI)	Compatibility, Relative advantage, Complexity, Trialability.	Moore and Benbasat (1991), Rogers (1995)
5.	Theory of Reasoned Action (TRA)	Attitude, Subjective Norm.	Fishbein and Ajzen (1975)
6.	Unified Theory of Acceptance and Use of Technology (UTAUT)	Effort Expectancy, Facilitating Conditions, Performance Expectancy, Social Influence.	Venkatesh et al. (2003) Venkatesh et al. (2003).

From the existing literature, all the models /theories have been used to examine the e-governance adoption. Moreover, only a few studies, such as (Carter & Schaupp, 2009; Yeow & Loo, 2009; Schaupp et al., 2010), have validated the UTAUT model in the e-governance area. Though earlier studies have used specific constructs, the proposed model was formulated by selecting the most suitable measures from the UTAUT measures originally introduced by Venkatesh et al. in 2003. These have been utilized in prior research and were adapted to incorporate trust as a variable in the current study.

## Hypothesis Formulation

### *Effort Expectancy-Adoption*

Effort Expectancy (EE) is the simplicity of using a system (Davis et al., 1989). It is an individual's comfort level in adopting technology, and the perceived ease of use of e-governance platforms has been found to influence adoption behavior (Venkatesh et al., 2003). This concept encompasses user-friendliness and complexity (Venkatesh et al., 2012). Thus, the hypothesis is proposed as:

H1: Effort Expectancy has a significant effect on the adoption of e-governance services.

### *Facilitating Conditions-Adoption*

Facilitating Conditions (FC) is the degree to which an individual perceives the availability of technical and organizational infrastructure to support the utilization of a system (Venkatesh et al., 2003). Additionally, the association between facilitating conditions and behavioral intention in e-governance adoption studies has been examined across a number of

studies (e.g., Carter et al., 2012; Schaupp et al., 2010), revealing a significant influence on an individual's intention to engage with a system. Thus, the hypothesis is proposed as:

H2: Facilitating Conditions has a significant effect on the adoption of e-governance services.

### *Performance Expectancy-Adoption*

Performance expectancy (PE) is the degree to which an individual believes that using the system will assist in accomplishing improvements in job performance (Venkatesh et al., 2003). It is an individual's perception of how much a system would enhance work efficiency (Venkatesh et al., 2012). Several studies have shown that performance expectancy significantly influences adopting e-governance services (Lallmahomed et al., 2017). Hence, the hypothesis proposed is:

H3: Performance Expectancy has a significant effect on the adoption of e-governance services.

### *Social Influence-Adoption*

Social influence (SI) is the degree to which an individual perceives that he or she should use a system (Venkatesh et al., 2003). It encompassing the outcome of peers, family, and community on adoption behavior, has been acknowledged as a key determinant (Venkatesh et al., 2003). Chiu et al. 2012 identified that it was a significant element of users' attitudes across varied levels of internet experience and different age groups. Thus, the hypothesis proposed is:

H4: Social Influence has significant effect on the adoption of e-governance services.

## Trust-Adoption

Trust, representing citizens' confidence in the reliability and security of e-governance systems which plays a crucial part in shaping adoption decisions (Rana et al., 2019). Thus, the hypothesis proposed is:

H5: Trust has a significant effect on the adoption of e-governance services

## Research Methodology

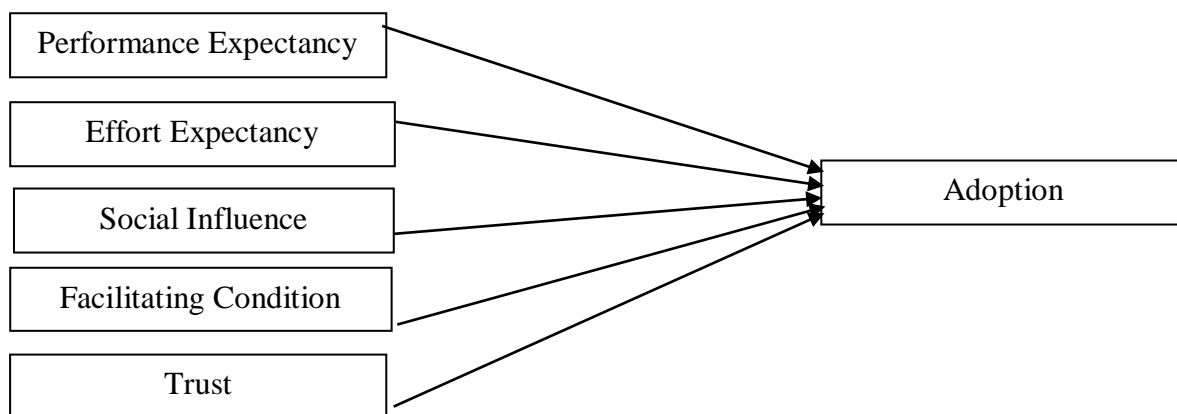
The study used a quantitative research design, utilizing a structured questionnaire comprised of six constructs with 36 items, as indicated in Table 2. As stated, the measurements for the constructs were adapted from scales that have already validated and then modified for present study. A 7-point Likert scale is used to capture respondents' perceptions towards each factor, with 1 denoting '*strongly disagree*' and 7 denoting '*strongly agree*.'

The study focuses on items to measure Effort Expectancy, Facilitating Conditions, Performance Expectancy, Social Influence, Trust, and the adoption of e-governance services. Data were collected from 80 participants across the Goa, India. The data are analyzed using statistical techniques such as SPSS.26 and SEM-PLS using smart PLS.4 to assess the relationship between these factors and e-governance adoption.

## Proposed Research Model

The study employs the research methodology recommended by Y.K. Dwivedi et al. 2017 to examine and validate the association between dependent and independent variables. Figure 1 presents the proposed associations between the constructs of the model.

**Figure 1 Proposed Research Model**



**Table 2 Measurement Items**

Constructs	Code	Items	Source
Performance Expectancy (PE)	PE 1	1. E-governance services allows me to accomplish tasks more quickly.	Venkatesh, Thong, & Xu. (2012). Rana, N.P., Dwivedi, Y.K., Williams, M.D. and Weerakkody, V. (2016),
	PE2	2.E-governance services help me to avoid existing bureaucracy.	
	PE3	3.E-governance services provide better citizen' satisfaction by integrating various government agencies' systems.	
	PE4	4.Using e-governance services increases my efficiency towards job.	
	PE5	5.I find e-governance services useful in daily life.	
Effort Expectancy (EE)	EE1	1.My interaction with e-governance services is clear and understandable.	Venkatesh, Thong, & Xu. (2012).
	EE2	2. I find e-governance services are easy to use.	
	EE3	3. It became skilful at using e-governance services	
	EE4	4.Learning to operate e-governance services is easy for me.	
	EE5	5. It reduces effort, cost, and time for availing services.	
Facilitating Conditions (FC)	FC1	1. E-governance website is efficient for availing e-governance services.	Venkatesh, Thong, & Xu. (2012).
	FC2	2. Instruction manuals on how to use e-governance website and its services are available.	
	FC3	3.Government departments promotes the use of e-governance services among the public.	
	FC4	4.It reduces the need for personal visits.	
	FC5	5.The facilitating centers such as banks, government organizations and common service centers are useful availing e-gov. service	
Social Influence (SI)	SI1	1.Individuals who are vital to me think I should use e-governance services.	Venkatesh, Thong, & Xu. (2012).
	SI2	2.Individuals started using e-governance service website for availing most of the e-governance services.	
	SI3	3.Individuals whose opinions I value would prefer me to use e-governance services.	
	SI4	4. Individuals who I value in my society influence me to use e-governance services.	
	SI5	5. Suggestions from other people influence me to use e-governance services.	
	SI6	6. Individuals who influence me think that I should use e-governance services.	
	T1	1. The website is more trustworthy than physical government offices in providing services.	Collier and Bienstock
	T2	2. The government takes complete responsibility	

Trust(T)		for any insecurity during interaction/transaction at the website.	(2006), Kim (2010), Shareef et al. (2009), Shareef et al. (2011)
	T3	3. The legal and technological policies of the site adequately protect me from problems I faced while availing the services	
	T4	4. The Government can be reliable in carrying out online transactions faithfully.	
	T5	5. I trust our government to keep my best interests in mind.	
	T6	6. Own data provided for confirmation is used only for its purposes.	
Adoption	AD1	1. I would use the e-governance service website for any information related to e-governance services in future.	Venkatesh, Thong, & Xu. (2012). Sharma, S. K. (2015).
	AD2	2. I would use the e-governance service website to avail all the e-governance services.	
	AD3	3. I would use the e-governance service website to interact with the government officials.	
	AD4	4. I would use the e-governance service website to register my complaints/grievances.	

Table 3. Demographic Profile

Sr. No.	Demographic	Variables	Frequency	Percentage	Cumulative Percentage
1	Location	Municipal	49	61.3	61.3
		Panchayat	31	38.8	100.0
		<b>Total</b>	<b>80</b>	<b>100.0</b>	
2	Age	15-30 years	15	18.8	18.8
		31-45 years	27	33.8	52.5
		46-60 years	33	41.3	93.8
		Above 61 years	5	6.3	100.0
		<b>Total</b>	<b>80</b>	<b>100.0</b>	
3	Gender	Male	36	45	45
		Female	44	55	100
		Other	Nil	--	--
		<b>Total</b>	<b>80</b>	<b>100</b>	
4	Educational Qualification	Upto Higher Secondary	5	6.3	21.3
		Graduate	32	40	50.0
		Post Graduate	21	26.3	72.5
		Professional	22	27.5	100.0
		<b>Total</b>	<b>80</b>	<b>100</b>	
5.	Annual Family Income	Upto Rs 500,000	8	10	10
		Rs.500,001 - 10,00,000	19	23.8	33.8
		Rs.10,00,001- 15,00,000	32	40	73.8
		Above Rs.15,00,000	21	26.3	100.0

Table 3 reveals an analysis of the demographic profile, indicating location distribution, with 61.3% in municipal area and 38.8% in panchayat. with respect to gender distribution, 45% of the respondents are male as against this 55% were female. Additionally, most respondents fell within the age group of 41-60 years. Having 41.3%. in terms of educational qualification, professional constituted the largest group (27.5%), followed by post graduate (26.3%). In the case of annual family income, the respondents rate ranges from bracket up to Rs. 500,000 (10%) to Rs. 10,00,001 to 15,00,000 (40%).

### Data Analysis and Results

Using SPSS 26.0, data analysis was performed, and the data were successfully validated for normality where the values of skewness and kurtosis were found within limits, and hence the dataset was established to be normally distributed. Furthermore, data were imported in SEM smart PLS.4 for validation of common

method bias(CMB) and multicollinearity. The dataset explained 26.07% of the variance using Herman's single-factor test for measuring common method bias. Since the value is below 50%, the dataset was confirmed to be absence of CMB. The constructs' variance inflation factor(VIF) was between 1 and 3, indicating that the data lacks multicollinearity (Hair et al., 2019).

### Internal Consistency Reliability

Table 4 indicates the internal consistency reliability of factors included in the measurement scale, which is examined with the support of Cronbach alpha. The recommended value of the Cronbach alpha for all the selected factors in the scale should be greater than 0.7 (Hair et al 2019).

**Table 4 Internal Consistency Reliability**

Constructs	Cronbach's Alpha
Adoption	0.894
Effort Expectancy	0.903
Facilitating Conditions	0.892
Performance Expectancy	0.871
Social Influence	0.913
Trust	0.879

The internal consistency reliability is estimated factor wise and indicates the correlation among the items measuring the factor. The Cronbach alpha of the included factors in the scale are reported in the table:4. It is concluded that the responses received against the factors influencing the e-Governance services included in the measurement scale satisfied the criteria of internal consistency reliability.

### Measurement Model

The measurement model examines two distinct forms of construct validation, namely convergent validity and discriminant validity.

The convergent validity is tested using the three criteria namely construct loadings, composite reliability and average variance extracted (AVE) estimates. The convergent validity is said to be satisfied if the construct loadings of the items and composite reliability should be greater than 0.7 and AVE should be 0.5 (Hair et al 2019). The measurement scale analysed the results depicted in table 5, which shows that the factor loadings, and the composite reliability values are more than 0.70 and the AVE values are within the threshold limit of 0.50.

TABLE 5 CONVERGENT VALIDITY

Constructs	Items	Factor Loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)
<b>Adoption (AD)</b>	AD 1	0.866	0.894	0.679
	AD 2	0.887		
	AD 3	0.909		
	AD 4	0.839		
<b>Effort Expectancy (EE)</b>	EE1	0.795	0.902	0.651
	EE 2	0.930		
	EE3	0.935		
	EE4	0.927		
	EE5	0.765		
<b>Facilitating Conditions(FC)</b>	FC1	0.877	0.89	0.621
	FC 2	0.839		
	FC 3	0.826		
	FC4	0.721		
	FC5	0.506		
<b>Performance Expectancy (PE)</b>	PE1	0.629	0.873	0.583
	PE2	0.913		
	PE3	0.941		
	PE4	0.92		
	PE5	0.926		
<b>Social Influence (SI)</b>	SI	0.699	0.911	0.633
	SI2	0.839		
	SI3	0.79		
	SI4	0.825		
	SI5	0.813		
	SI6	0.651		
<b>Trust (T)</b>	T1	0.647	0.884	0.57
	T2	0.771		
	T3	0.82		
	T4	0.852		
	T5	0.848		
	T6	0.870		

The discriminant validity is examined with the help of two different criteria, namely Heterotrait- Monotrait (HTMT) ratio and Fornell Larcker criteria. The HTMT ratio is estimated for each pair of factors and indicates the ratio of the correlation between items of different constructs to the correlation between the items of the same

constructs. The HTMT ratio for each pair of constructs is likely to be less than 0.85 (Kline,2011) or it can vary up to 0.90 (Gold et al., 2001). As shown in table 5, in order to ensure the discriminant validity, the recorded values lie within the provided threshold of 0.85. Meanwhile, the Fornell larker criteria compare the AVE square root

of each factor included in the scale to its correlation with remaining constructs. It is expected that the square root of the AVE of each factor must be bigger than its correlation with the remaining factors in the measurement model. Table 6 indicates that

the AVE square root values are more significant when reading diagonally than the correlation of the constructs. Consequently, the requirements of the measurement model have been satisfied (Fornell & Larcker, 1981).

**Table 6 Discriminant Validity: Heterotrait- Monotrait (HTMT) Ratio**

	Adoption	Effort expectancy	Facilitating condition	Performance expectancy	Social influence
Effort expectancy	0.633				
Facilitating condition	0.586	0.416			
Performance expectancy	0.698	0.562	0.603		
Social influence	0.664	0.424	0.344	0.586	
Trust	0.653	0.449	0.291	0.573	0.752

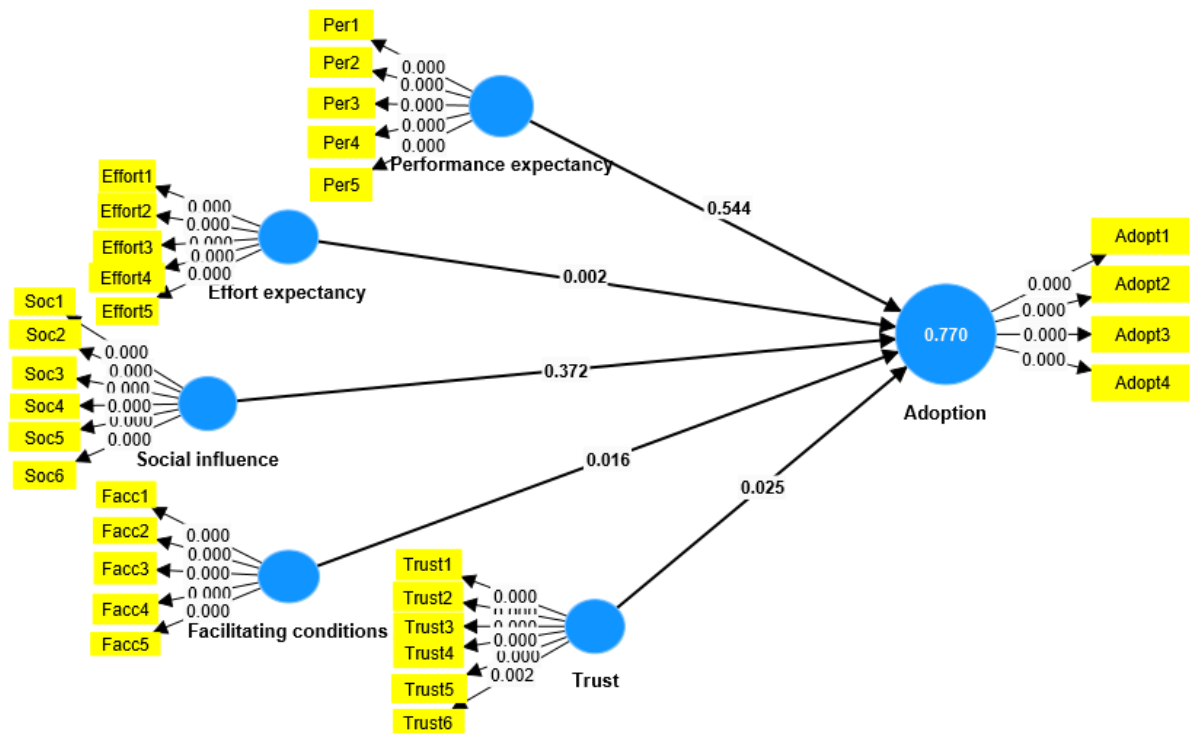
**Table 7 Discriminant Validity: Fornell Larcker Criterion**

	Adoption	Effort expectancy	Facilitating condition	Performance expectancy	Social influence	Trust
Adoption	0.824					
Effort Expectancy	0.638	0.807				
facilitating Conditions	0.591	0.418	0.788			
Performance Expectancy	0.697	0.56	0.605	0.761		
Social Influence	0.669	0.801	0.345	0.585	0.796	
Trust	0.651	0.456	0.285	0.751	0.751	0.755

### Structural Model

The structural model involves analysing the coefficient of determination ( $R^2$ ) and path coefficient results of structural model which is considered to the most significant

criteria for the model's validation. The  $R^2$  is the total variance that which the change in the dependent variable brought on by the independent variable. In the present study the  $R^2$  percentage is 77 percent.



**Table 8 Hypotheses Testing**

	Path Coefficient	Standard deviation (STDEV)	T statistics	P values	2.5%	97.5%
Effort Expectancy -> Adoption	0.339	0.109	3.094	0.002	0.116	0.546
Facilitating conditions -> Adoption	0.253	0.105	2.400	0.016	0.043	0.456
Performance expectancy -> Adoption	0.061	0.1	0.606	0.544	-0.144	0.252
Social influence -> Adoption	0.089	0.1	0.894	0.372	-0.113	0.279
Trust -> Adoption	0.239	0.107	2.242	0.025	0.02	0.44

## Results

The findings of the SEM analysis supported the hypothesis that H1: *Effort Expectancy significantly influences the Adoption of e-governance services* (path coefficient=0.339, t stats=3.094), H2: *Facilitating Conditions significantly influences the Adoption of e-governance services* (path coefficient=0.253, t stats=2.400), H5: *Trust significantly*

*influences the Adoption of e-governance services* (path coefficient=0.239, t stats=2.242), The path coefficient indicating the impact of effort expectancy on the adoption of e-governance services is found positive and statistically significant, thereby indicating the significant positive influence of effort expectancy on adoption of e-governance services. Whereas, H3:

*Performance Expectancy has no significant impact on the Adoption of e-governance services* (path coefficient=0.061, t stats=0.606) as well as H4: *Social Influence has no significant impact on the Adoption of e-governance services* (path coefficient=0.061, t stats=0.606).

## Discussion

Preliminary analysis (Measurement model) reveals significant correlations between Effort Expectancy, Facilitating Conditions, Performance Expectancy, Social Influence, and Trust, with the adoption of e-governance services. Regression analysis (Structural model) demonstrates that these determinants collectively explain the proportion of the variance in e-governance adoption. Specifically, Effort Expectancy, Facilitating Conditions and Trust emerge as the most influential factors, whereas, Performance Expectancy and Social Influence does not have significant impact on adoption of e-governance services. These findings underscore the importance of addressing these determinants to promote the adoption of e-governance services. By improving Effort Expectancy, Performance Expectancy, Trust, Social Influence, and Facilitating Conditions, governments can foster the adoption of e-governance services and realize the transformative potential of the digital revolution in governance.

## Conclusion

This study quantitatively assesses the impact of Effort Expectancy, Facilitating Conditions, Performance Expectancy, Social Influence and Trust on the adoption of e-governance services amidst the digital transformation. By elucidating the relationship between these factors and e-governance adoption, this research

contributes to the factors shaping citizen engagement with digital governance platforms. The outcomes provide valuable visions for policymakers and practitioners to inform evidence-based strategies for promoting e-governance adoption and enhancing governance outcomes in the digital age.

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## A Comprehensive Examination of Economic Crime in India

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### Abstract:

*Crime rates can rise for a number of causes. A portion of the population turns to illegal activities in order to support themselves when there is extreme inequality in the distribution of wealth and income, as well as unequal access to educational opportunities. The emergence and surge of economic crime in various Indian states could be explained by a number of macroeconomic variables, including per capita net state domestic product (which measures the states' economic health), the percentage of the population living below the poverty line (which measures the extent of poverty), the unemployment rate, and estimates of monthly per capita expenditure from the Lorenz ratio (which measures the degree of inequality). This research attempts to identify the elements that genuinely contribute to the incidence of economic crime in various Indian states throughout a range of time periods by conducting an empirical examination of these determinants. Findings suggest that the population living below the poverty line has a negative impact on the per capita incidence of economic crime in India, whereas the per capita net state domestic product has a large positive impact.*

**Keywords:** *Economic crime, Poverty, Unemployment, Inequality.*

### Introduction:

There is a strong link, according to a number of social scientists and economists, between the prevalence of crime and unemployment and poverty. It has frequently been observed that many people are compelled to look for work in the shadowy and illegal industries after failing to find employment and/or as a result of poor income levels.

An offense is defined as a criminal conduct or offense that is punishable by law and about which a police or magistrate complaint may be filed. Financial crime, or economic crime, is the term used to

describe unlawful activities carried out by an individual or group of individuals with the intention of gaining a financial or professional benefit. Gaining money is the main motivation behind these kinds of crimes. Economic crime is seen to do significant harm to society. This is due to the fact that it not only has an impact on democratic institutions but also jeopardizes state treasure by reducing funding for the execution of public initiatives. Even when economic crime might not be violent in and of itself, it might have violent consequences.

## Literature Review

The body of research on the relationship between crime and economic consequences is extensive. (Ehrlich, 1973: 521–565) looked at the relationship between crime and defense (collective law enforcement) and found that there was a direct link between income disparity and property crimes.

(Mauro, 1995: 681–712) discovered that political instability, bureaucracy, ineffective courts, and corruption hindered investment and growth.

(Goel and Nelson, 1998: 107–120) used both supply-side and demand-side incentives to study how the size of the government affects public official corruption. They have attempted to identify the kinds of government operations that might serve to discourage the misuse of public office, and they have calculated the correlation between the prevalence of corruption and the size of the federal government overall.

(Machin and Meghir, 2004: 958–979) examined how these financial incentives affect crime rates, concentrating on how wages at the bottom of the wage distribution fluctuate. Using data on police forces in England and Wales from 1975 to 1996, the authors discovered that a (relative) decline in low-wage workers' earnings correlates with an increase in crime rates. Empirical findings demonstrated a robust correlation between the low-wage labour sector and the crime rate.

The hypothesis examined in this paper — that is, that the implementation of an anti-money laundering policy deters potential criminals from engaging in illicit behaviour and so lowers the crime rate — was empirically explored by (Ferwerda,

2009: 903–929). International collaboration was the most significant policy action taken for lowering crime; other measures included the institutional framework, the function of legislation, and the private sector's law enforcement responsibilities.

(Liu and Lin, 2012: 163–186) examined the function of government auditing in reducing corruption using panel data from Chinese provinces between 1999 and 2008 and found a negative correlation between the post-audit rectification effort and the province's degree of corruption.

The research that we have previously evaluated primarily addressed the concerns surrounding the economic repercussions of corruption generally, and there is a great deal of room to investigate related issues in this field. There were none that we could find in the literature on economic crimes. By examining the factors that contribute to economic crime in general in India, this study closes this gap in the literature.

## Data and Methodology

Data from India's National Crime Records Bureau (NCRB) is used in this study to examine various economic crimes committed by Indian states. The Reserve Bank of India's Handbook of Statistics on Indian States provides information on macroeconomic factors such as per capita net state domestic product, the percentage of the population living in poverty, and the unemployment rate. The Databook Planning Commission (2014) provides information on monthly per capita expenditure estimates based on the Lorenz ratio.

Here, we have tried to empirically examine the impact of 'per capita net state domestic product at constant prices (in

rupees)', 'population below poverty line (in %)' based on Mixed Reference Period consumption, 'rate of unemployment (per 1000)' based on Usual Status and 'Lorenz ratio estimates of monthly per capita expenditure' based on Mixed Reference Period on incidence of crime in case of 'economic crime'.

Due to paucity of data, period of our panel study is discrete, viz. 2004, 2009 and 2011. We have used annual data of 28 Indian states – Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand and West Bengal, thereby amounting to 84 number of observations for these three points of time.

#### • Economic Crime

The variables that we have used in this section are described below:

*ecocrime\_pc* → per capita incidence of economic crime

*nsdp\_pc* → per capita net state domestic product at constant prices (in rupees)

*pov* → population below poverty line (in %)

*unemp* → rate of unemployment (per 1000)

*lorenz* → Lorenz ratio estimates of monthly per capita expenditure

Descriptive statistics are first obtained for each and every variable. The characteristics of the variables being studied are briefly summarized via descriptive statistics. They are employed to

provide manageable quantitative descriptions. It would be difficult to understand what the data is revealing if we only presented our raw data, which is why descriptive statistics are crucial.

Panel regression is then performed. Enough observations are provided by panel data, which leads to increased sample variability, decreased collinearity, increased degrees of freedom, and more precise model parameter inference. Compared to a single cross-section or time series data, these models are more effective at capturing the complexity of human behaviour.

Models using panel data are more adept at capturing the heterogeneity present in every single unit. The panel data structure implies that the cross-sectional units — individuals, businesses, governments, or nations — are diverse. When these heterogeneous effects are present in empirical modeling, disregarding them produces biased and ineffective conclusions.

Cross-sectional models are not suitable for capturing behavioural dynamics since they are limited to determining the behaviour pattern at a specific time. Comparing changes in the behaviour of various economic agents is also impossible using time series data, which restricts itself to a single unit and offers information over a period of time. However, it becomes reasonably simple to assess the changes in the behavioural pattern using the data because panel data sets provide time series on each cross-sectional unit in a group.

In order to denote both individuals and time observations, panel data often refers to groups with the subscript  $i$  and time as the subscript  $t$ . For example, a

panel data observation  $y_{it}$  is observed for all individuals  $i = 1, 2, \dots, N$  across all time periods  $t = 1, 2, \dots, T$ .

Let us consider a simple linear model:

$$y_{it} = \alpha + \beta x_{it} + \epsilon_{it}$$

The representation above is a homogenous model:

- The constant,  $\alpha$ , is the same across groups and time.

$$y_{it} = \beta_0 + \beta_1 x_{it} + u_{it}$$

$$u_{it} = \mu_i + \epsilon_{it}$$

$$y_{it} = \beta_0 + \mu_i + \beta_1 x_{it} + \epsilon_{it}$$

The one-way random effect panel data model includes unobservable time-specific or individual-specific effects, which act like individual-specific stochastic error terms. It assumes that these effects are uncorrelated with the observed characteristics,  $x_{it}$ . It does not result in biased OLS estimates of coefficients but does lead to inefficient parameters and incorrect standard inference tools.

$$y_{it} = \beta_0 + \beta_1 x_{it} + u_{it}$$

$$u_{it} = \mu_i + \epsilon_{it}$$

$$y_{it} = \beta_0 + \mu_i + \beta_1 x_{it} + \epsilon_{it}$$

The distinguishing feature of the random effect model is that  $\mu_i$  does not have a true value but rather follows a random distribution with parameters that

- The coefficient,  $\beta$ , is constant across groups and time.
- Any differences across groups enter the model only through the error term,  $\epsilon_{it}$ .

The one-way fixed effect panel data model includes unobservable time-specific or individual-specific effects. These effects capture omitted variables. It assumes that individual-specific effects are correlated with the observed characteristics,  $x_{it}$ . Pooled Ordinary Least Squares (OLS) estimates for data generated by this process will be inconsistent.

we want to estimate. The random effect term,  $\mu_i$  is uncorrelated with  $x_{it}$  and pooled OLS estimates of the model parameters will not be biased. It affects the covariance structure of the error component, implying that typical inference tools, such as the t-statistic, will not yield accurate results and pooled OLS estimates of the model parameters will be wasteful. Feasible Generalized Least Squares (FGLS) should be used to estimate the random effect model. The error structure — one that takes into consideration the error terms unique to each individual — can be added to the model by using FGLS.

Ultimately, following the execution of the panel data models with fixed effect and random effect, we turn our focus to the Hausman test to select the better model between the two. One way to refer to the Hausman test is as a model misspecification test. The Hausman test can assist us in selecting between the fixed effect model and the random effect model in panel data analysis. Random effect is the favoured model, according to the null hypothesis. The idea that the model is fixed effect is the alternative hypothesis. Essentially, the tests try to see if there is a

correlation between the unique errors and the regressors in the model. The null hypothesis is that there is no correlation between the two.

### Descriptive Statistics:

**Table 1: Descriptive Statistics**

<i>Variable</i>	<i>Mean</i>	<i>Standard Deviation</i>
ecocrime_pc	0.0000715	0.0000446
nsdp_pc	46028.48	36058.93
pov	25.71095	12.80943
unemp	80.52381	75.53767
lorenz	0.3111155	0.0584561

The results of the descriptive statistics for the variables under investigation are summarized in Table 1. One way to quantify variability is via the standard deviation. It is a measurement of the variation in values within a set of data.

During the sampling period, the average per capita incidence of economic crime (ecocrime\_pc) in 28 Indian states is 0.0000715. In this case, the standard deviation is 0.0000446. During the sampling period, the average per capita net state domestic product at constant prices (nsdp\_pc) for 28 Indian states is Rs. 46028.48, with a standard deviation of Rs. 36058.93. The states' economic situation is indicated by this variable.

Over the course of the sample period, the average percentage of people living below the poverty line (pov) in 28 Indian states is 25.71995%. Comparably, during the sampling period, the average percentage of people living over the poverty line in 28 Indian states is 74.28905%. In this case, the standard deviation is 12.80943%. This variable shows the level of poverty among state residents. During the sampling period, the average rate of unemployment (unemp) for the states under consideration is 80.52381 per 1000. In this case, the standard deviation is 75.53767 per 1000. This variable shows the unemployment rate in each state for members of the labour force.

Over the course of the sample period, the average Lorenz ratio estimates of monthly per capita expenditure (lorenz) across 28 Indian states is 0.3111155. In this case, the standard deviation is 0.0584561. The degree of inequality between the Indian states is shown by this variable.

### Results and Discussion

Once the nature of the variables of interest has been established, we attempt to estimate the model that focuses on economic crime, which is notationally represented as follows:

$$ecocrime\_pc_{it} = \tau_0 + \varphi_i + \tau_1 nsdp\_pc_{it} + \tau_2 pov_{it} + \tau_3 unemp_{it} + \tau_4 lorenz_{it} + \omega_{it}$$

$\tau_0, \tau_1, \tau_2, \tau_3, \tau_4$ : parameters to be estimated

$\omega_{it}$ : random white-noise error term, which is stochastic in nature

$\varphi_i$ : unobserved heterogeneous factor

$ecocrime\_pc_{it}$ : per capita incidence of economic crime

$nsdp\_pc_{it}$ : per capita net state domestic product at constant prices (in rupees)

$pov_{it}$ : population below poverty line (in %)

*unemp<sub>it</sub>*: rate of unemployment (per 1000)

*lorenz<sub>it</sub>*: Lorenz ratio estimates of monthly per capita expenditure

We can obtain a sense of how these parameters impact the dependent variable (*ecocrime<sub>pcit</sub>*) by estimating the model mentioned above. We have first used a fixed effect panel model for this. Following is the regression outcome that the fixed effect model yielded:

**Table 2: Regression Result of Fixed Effect Model for 'ecocrime<sub>pc</sub>'**

<i>ecocrime<sub>pc</sub></i>	<i>coefficient</i>	<i>t-statistic</i>	<i>p-value</i>
<i>nsdp<sub>pc</sub></i>	2.45e-10	2.82	0.007
<i>Pov</i>	-6.93e-07	-1.92	0.061
<i>Unemp</i>	-8.16e-09	-0.14	0.885
<i>Lorenz</i>	0.0000767	0.92	0.363
<i>Constant</i>	0.0000548	1.99	0.052

Here, the dependent variable is 'ecocrime<sub>pc</sub>' and the independent variables are 'nsdp<sub>pc</sub>', 'pov', 'unemp' and 'lorenz'. We want to estimate the impact of 'per capita net state domestic product at constant prices', 'population below poverty line', 'rate of unemployment' and 'Lorenz ratio estimates of monthly per capita expenditure' on 'per capita incidence of economic crime' in Indian states. Our null hypotheses are:

$$\tau_0 = 0, \tau_1 = 0, \tau_2 = 0,$$

$$\tau_3 = 0, \tau_4 = 0;$$

against the alternatives:

$$\tau_0 \neq 0, \tau_1 \neq 0, \tau_2 \neq 0,$$

$$\tau_3 \neq 0, \tau_4 \neq 0.$$

It is evident from the results (Table 2) that the probability value for "nsdp<sub>pc</sub>" is less than 0.1 at the 10% level of significance, less than 0.05 at the 5% level of significance, and even less than 0.01 at the 1% level of significance. This suggests that the variable is statistically significant at all significance levels (1%, 5%, and 10%), leading to the acceptance of the alternative hypothesis and the rejection of the null hypothesis. Now that we are aware of the substantial correlation between "nsdp<sub>pc</sub>" and "ecocrime<sub>pc</sub>," we can turn our attention to the coefficient's value. Here, we observe that the two have a positive relationship. This indicates that in Indian states, the incidence of economic crime increases (declines) by 2.45e-10 units per capita for every unit of per capita net state domestic product that grows or falls.

Likewise, it is also evident that the probability value for "pov" is less than 0.1 at the 10% level of significance, less than 0.05 at the 5% level of significance, and larger than 0.01 at the 1% level of significance. At the 1% and 5% levels of significance, the variable is statistically inconsequential, but at the 10% level of significance, it is statistically significant. As a result, the alternative hypothesis is accepted at a 10% level and the null hypothesis is rejected. Now that we are aware of the substantial correlation between "pov" and "ecocrime<sub>pc</sub>," we can turn our attention to the coefficient's value. Here, we observe that the two have a bad relationship. This suggests that in Indian states, the per capita incidence of economic crime rises or falls by 6.93e-07 units for every unit of population living below the poverty line.

Additionally, it is evident that the probability value for "unemp" is higher than 0.01 at the 1%, 0.05 at the 5%, and even higher than 0.1 at the 10% levels of significance. This suggests that the variable is statistically insignificant at all significance levels (1%, 5%, and 10%), leading to the acceptance of the null hypothesis and the rejection of the alternative hypothesis. This indicates that in Indian states, there is no discernible correlation between the rate of unemployment and the incidence of economic crime per capita.

Once more, the probability value for "lorenz" is larger than 0.01 at the 1%, 0.05 at the 5%, and even greater than 0.1 at the 10% significance levels. This suggests that the variable is statistically insignificant at all significance levels (1%, 5%, and 10%), leading to the acceptance of the null hypothesis and the rejection of the alternative hypothesis. This indicates that the estimates of monthly per capita expenditure obtained from the Lorenz ratio and the per capita incidence of economic crime in Indian states do not significantly correlate.

Ultimately, the constant term is statistically significant at the 5% and 10% levels of significance because the probability value is found to be less than or equal to 0.05 and less than 0.1, respectively, but statistically insignificant at the 1% level of significance because the probability value is greater than 0.01. As a result, at the 5% and 10% levels, the alternative hypothesis is accepted and the null hypothesis is rejected.

The random effect panel model was then conducted. The following is the

regression outcome that the random effect model yielded:

**Table 3: Regression Result of Random Effect Model for 'ecocrime\_pc'**

<i>ecocrime_pc</i>	<i>coefficient</i>	<i>z-statistic</i>	<i>p-value</i>
<i>nsdp_pc</i>	2.37e-10	2.88	0.004
<i>Pov</i>	-7.26e-07	-2.28	0.023
<i>Unemp</i>	-2.53e-08	-0.52	0.601
<i>Lorenz</i>	0.0001004	1.43	0.152
<i>Constant</i>	0.0000501	2.06	0.040

It is evident from the results (Table 3) that the probability value for "nsdp\_pc" is less than 0.1 at the 10% level of significance, less than 0.05 at the 5% level of significance, and even less than 0.01 at the 1% level of significance. This suggests that the variable is statistically significant at all significance levels (1%, 5%, and 10%), leading to the acceptance of the alternative hypothesis and the rejection of the null hypothesis. Now that we are aware of the substantial correlation between "nsdp\_pc" and "ecocrime\_pc," we can turn our attention to the coefficient's value. Here, we observe that the two have a positive relationship. This indicates that in Indian states, the incidence of economic crime increases (declines) by 2.37e-10 units per capita for every unit of per capita net state domestic product that rises or falls. This shows that as states' economies have improved, people's disposable income has increased and they are willing to take risks and commit financial crimes to increase their earnings by a small amount.

At the 1% level of significance, the probability value for "pov" is also larger than 0.01, but it is less than 0.1 at the 10% level of significance and even less than

0.05 at the 5% level of significance. This indicates that while the variable is statistically significant at the 5% and 10% levels of significance, it is statistically insignificant at the 1% level. As a result, at both the 5% and 10% thresholds, the alternative hypothesis is accepted and the null hypothesis is rejected. Now that we are aware of the substantial correlation between "pov" and "ecocrime\_pc," we can turn our attention to the coefficient's value. Here, we observe that the two have a bad relationship. This suggests that in Indian states, the per capita incidence of economic crime rises or falls by  $7.26e-07$  units for every unit of population living below the poverty line. This suggests that the haves rather than the have-nots in a state are essentially responsible for the per capita incidence of economic crime. Put another way, economic crime is essentially white-collar crime that is committed by the rich.

Additionally, it is evident that the probability value for "unemp" is higher than 0.01 at the 1%, 0.05 at the 5%, and even higher than 0.1 at the 10% levels of significance. This suggests that the variable is statistically insignificant at all significance levels (1%, 5%, and 10%), leading to the acceptance of the null hypothesis and the rejection of the alternative hypothesis. This indicates that in Indian states, there is no discernible correlation between the rate of unemployment and the incidence of economic crime per capita. Put another way, the per capita incidence of economic crime is unaffected by changes in the unemployment rates of the Indian states.

Once more, the probability value for "lorenz" is larger than 0.01 at the 1%, 0.05 at the 5%, and even greater than 0.1 at the

10% significance levels. This suggests that the variable is statistically insignificant at all significance levels (1%, 5%, and 10%), leading to the acceptance of the null hypothesis and the rejection of the alternative hypothesis. This indicates that the estimates of monthly per capita expenditure obtained from the Lorenz ratio and the per capita incidence of economic crime in Indian states do not significantly correlate. Stated differently, this suggests that the degree of disparity among the Indian states is not related to the prevalence of economic crime per capita.

Ultimately, the constant term is statistically significant at the 5% and 10% levels of significance since the probability value is less than 0.05 and 0.1, respectively, but statistically insignificant at the 1% level of significance because it is bigger than 0.01. As a result, at the 5% and 10% levels, the alternative hypothesis is accepted and the null hypothesis is rejected.

We have performed the Hausman test to determine which of the two fixed effect and random effect models is the most suited.

The probability value, as determined by the results, is 0.7715, which is higher than 0.01 at the 1% level of significance, greater than 0.05 at the 5% level of significance, and somewhat higher than 0.1 at the 10% level of significance. This indicates that it is not statistically significant at the 1%, 5%, or 10% levels. As a result, the alternative hypothesis is always rejected and the null hypothesis is always accepted. Thus, we can say that the random effect panel model is the proper model that might be considered fit in this particular situation. For empirical analysis,

the results shown above (Table 3) have been taken into consideration.

### Conclusion

Based on empirical evidence, it may be said that the incidence of economic crime increases (declines) by  $2.37e-10$  units per capita for every unit of per capita net state domestic product that rises or falls. Subsequently, the per capita incidence of economic crime rises (falls) by  $7.26e-07$  units for every unit of population below the poverty level. Furthermore, there is no discernible link between the per capita incidence of economic crime and the unemployment rate. Lastly, estimates of monthly per capita expenditure using the Lorenz ratio and the incidence of economic crime per capita do not significantly correlate.

In summary, we can say that the population living below the poverty line has a negative impact on the per capita incidence of economic crime in India, whereas the per capita net state domestic product has a large positive impact.

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## Gender-Based Inequalities in Shadow Education Participation at Secondary Education Level in Haryana: An Analysis

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### **Abstract:**

*This study, on the basis of a comprehensive primary survey, investigates whether gender constitutes an important variable while parents make choice of shadow educational options for their offspring at secondary education level in Haryana (India). The findings of the study exhibit that a sizable proportion (i.e. 43.93 per cent) of the sampled students under the study accessed to shadow education in 2018–19, and the existence of the shadow education at such a level has led to reproduce profoundly the issue of gender-based inequalities. Thus, while 56.52 per cent of the male students were attending the private tuitions, the corresponding figure for their female counterparts was 33.71 per cent. Besides, an analysis of household spending on secondary education in Haryana also exhibited a strong pro-male gender bias at the household level.*

**Key words:** shadow education, forms of tuition providers, gender, region, type of school, household expenditure.

### **Introduction :**

Globally, shadow education (or “private tutoring”) is demanded to enhance the academic performance of the students pursuing formal education (Baker et al. 2001). Studies (Bray 2006; Bray et al., 2014) view this form of parallel education as way to generate and reproduce socio-economic inequalities, given that it leads to create unequal educational opportunities as it is more affordable for socio-economically better-off households. Private tutoring is not a new phenomenon in India: a significant proportion of students at each stage of schooling took private tutoring even in 1986/ 87 (Azam, 2016). However, the extent of private tutoring is continuously increasing after the introduction of neo-liberal reforms in 1991, which is known to profoundly impacted socio-economic

inequalities in the country. In such a situation, it becomes important to examine the extent of shadow education at state as well as national level. Besides, there is another bigger issue: due to interplay between several socio-cultural norms and economic hardships, the female gender faces various discriminations at household level. Thus, it becomes imperative to examine the extent of gender inequalities in access of shadow education and spending patterns of households at secondary level of education.

Given the aforesaid background, the present study examines magnitude of shadow education at secondary education level and its iniquitous outcomes in terms of regional and gender inequalities in the state of Haryana. As a matter of fact, the parents

in patriarchal societies like India tend to treat their sons and daughters differently, and this issue is deep-rooted in states like Haryana. In this study we are particularly concerned about knowing whether gender is an important variable while parents make choice of coaching options at secondary level. Besides, the extent of private cost/ household expenditure on shadow education at secondary education level across the two genders is examined at rural and urban level.

In the rest of the paper, while section II focuses on reviewing the previous literature, section III precisely deals with data sources and methodology. Moreover, Section IV focuses on access to private tuitions and gender disparities, whereas Section V deals with costs of shadow education, and inequality upshots thereof. The final section presents the summary and conclusions of the study

### Review of literature :

Given the exponential rise of private tuition providers in education marketplace during neo-liberal economic reforms era, the phenomenon of ‘shadow education’ is increasingly becoming a major area of interest in national and international contexts. Various scholars have examined the prevalence of shadow education and its determinants around the globe. For instance, Giavrimis et al. (1998) investigated the phenomenon of shadow education in Greece, focusing on the differences between formal and shadow education and the reasons for its existence. The primary survey demonstrates that most shadow education schools have well prepared students for the exams. Therefore, majority of families prefer to give money from their savings for their child’s success. Similarly,

Hultberg et al. (2021) predicted that higher levels of academic readiness and aptitude, as well as higher household education levels and current wealth, will increase demand for private tutoring. An additional finding was that higher expected returns to private tutoring increase demand for tutoring services.

Studies investigated the socio-economic determinants of shadow education at various educational levels like income level of the household, geographical location, parental education, fewer siblings, gender of the student social stratification etc. For example, Pallegedara and Khondoker (2018) analysed the decision to take private tutoring and the associated tutoring expenses by households in Bangladesh and showed that households with higher purchasing power are spending more on private tuition, emphasizing the unequal access to private tuition. A study by Tansel and Bircan (2006) using household expenditure survey conducted in Turkey found that households who send their children to private coaching spent 1-15 per cent of their incomes on average. In addition, Dang (2007) found that private tutoring in Vietnam is a necessity in the household budget for both primary students and lower secondary students. Similarly, in the context of India, Azam (2016) provided a comparative picture of incidence and cost of private tutoring at different stages of schooling over the last two decades in India. The demand for private tutoring is inelastic at each stage of schooling, which implies that private tutoring is a necessary good in the household consumption basket. Furthermore, students from urban areas, private schools, and from better economic backgrounds are more likely to take private tutoring.

As a matter of fact, there have been seen several gender disparities in educational attainments in terms of literacy rate, gross enrolment ratio, dropout rates and school choice and in access of shadow education at various education levels at national as well as international level. Nath (2008) analyzed the trends, socio-economic disparities and cost in private supplementary tutoring and its impact on learning achievements among primary students in Bangladesh. The study noted the prevalence of the gender discrimination against the rural girls. The study further found that Kindergartens and the secondary school-attached primary sections, where the children of well-off families enrolled, were more likely to have private tutor compared to the students of non-formal schools and the madrsas where the children of relatively poorer families enrolled.

Choudhury et al. (2021), using the latest National Sample Survey (NSS) education round data and two-step Heckman selection equation, examined the patterns and determinants of demand and cost of private coaching in higher education in India. The results show that not only is pro-male gender discrimination in existence; there is also caste inequality in the demand for and cost of private coaching, with a higher marginal effect among poor households. The differential effect of 'institution type' is also revealed in household investment on private coaching between the rich and poor, wherein rich students attending private coaching spend 2.4% more than their poor counterparts. The study establishes that the market for shadow education, which by its very nature, is highly selective and delivers the service largely to the students of socially and economically well-off families. The study

provides a rationale to consider the dynamics of inequalities in access to private coaching while devising educational policies for making higher education egalitarian.

Although, the phenomenon of shadow education and household expenditure thereon as well as the social and gender inequalities have vastly been examined in previous studies, most of these studies focused on either primary or higher level of education. There is gap in literature examining the shadow education at secondary education level and its impact on gender inequity. Besides, most of the previous studies have merely used quantitative data for examining the dynamics of social inequalities, there is gap in literature to examine these phenomena by combining quantitative statistics with qualitative data. The present study intends to fill such gaps in literature.

### **Objectives, data sources and methodology**

The major objectives of the study are:

1. To examine the magnitude and patterns of shadow education at secondary level in Haryana (India) under the market-driven dispensation.
2. To study the financial burden of such coaching patterns on households.
3. To analyse the scenario and impact of the said institutional stratification in reproduction of gender inequalities.

The study is primarily based on the primary data collected from the 300 sampled households (180 Rural and 120 Urban) through a semi-structured interview schedule (i.e. comprising of quantitative and qualitative dimensions). The sampled

households were chosen using the Multistage Stratified Random Sampling from three districts of Haryana, viz. Fatehabad, Kurukshetra and Rohtak. These districts were selected using literacy rate as a criterion (i.e. dividing all the districts in the state into lower, medium and higher literacy rates strata). The data has been collected for 428 students studied in secondary education. The study examines the data in absolute and relative terms using the methods of percentages and ratios, and makes the analysis in comparative-descriptive manner. Moreover, qualitative information pertaining to various important aspects related to secondary education, its

commercialization and inequity has also been collected from various school teachers, principals and other administrators using personal interview method as well as focus group discussion (FGD) method.

### Access to Shadow education: Levels and Patterns

Table 1 presents the distribution of students accessing shadow education at sub levels of secondary education in Haryana by region and gender. Overall, 43.93 per cent out of 428 students have access of shadow education in the state in 2018-19 at secondary education level.

**Table 1: Students' Participation in Shadow Education in Haryana by region and type of educational institute, 2018-19**

Classes	Sector	Educational Institute Type			
		State-owned	Private Aided	Private Unaided	All Schools
Higher Secondary Level	Rural	25.00	20.00	55.88	39.44
	Urban	45.83	28.57	46.27	44.90
	Persons	30.68	23.53	51.11	41.67
Intermediate Level	Rural	43.64	50.00	47.62	45.71
	Urban	51.52	66.67	38.64	45.78
	Persons	46.59	57.14	43.02	45.74
Overall Level (Classes: IX-XII)	Rural	33.61	33.33	52.73	42.11
	Urban	49.12	46.15	43.24	45.30
	Persons	38.64	38.71	47.96	43.46

Source: Author's calculations based on the field survey

Further, 38.64 per cent of the government school student accessing the shadow education while the corresponding figures for private aided and unaided school students were 38.71 and 48.96 per cent respectively at secondary education level. Besides, it has been found that the extent of shadow education is comparatively more at intermediate level vis-à-vis higher

secondary level. The rise of shadow education in Indian educational market and elsewhere is largely being questioned particularly from the perspective of gender and other forms of inequalities (Zhang and Xie, 2106; Byun et al., 2108; Mitra and Sarkar, 2019 and Choudhary et al., 2021).

**Table 2: Students' Participation in Shadow Education in Haryana by gender, region, type of school and Sub-levels of Secondary Education, 2018-19**

Students' Gender	Educational Institute Type	Higher Secondary Level			Intermediate Level		
		Rural	Urban	Persons	Rural	Urban	Persons
Boys	State-owned	27.27	66.67	40.32	66.67	68.75	67.86
	Private Aided	28.57	25.00	27.27	25.00	100.00	57.14
	Private unaided	66.67	56.76	60.94	56.76	40.00	50.88
	All Schools	46.84	56.60	48.91	56.60	56.41	56.52
Girls	State-owned	22.58	25.00	26.32	25.00	35.29	31.03
	Private Aided	NA	33.33	42.86	33.33	33.33	33.33
	Private unaided	41.38	33.33	41.30	33.33	37.50	35.19
	All Schools	30.16	31.11	33.64	31.11	36.36	33.71

Source: Author's calculations based on the field survey

Table 2 exhibits the privatisation of secondary education has led to reproduce gender-based inequalities. Therefore, while 56.52 per cent of the male students were attending the private tuitions, the corresponding figure for their female counterparts was 33.71 per cent and the same patterns are observed at higher secondary education. The pro-male gender discrimination exists in rural as well as urban areas. However, such differences are of lower measure at the intermediate stage.

### **Private Expenditure On Shadow Education: Levels and Patterns**

Shadow education is in existence on both ends i.e. demand side and supply side. The household and students who create demand for shadow education can be considered as the consumers. Moreover, it also came to the fore that the shadow education providers are into the business in the state to earn profits. In such a situation, it could be expected that the households in

the state must be paying substantial amounts of money to access shadow education at secondary education level. In such settings, it would be interesting to examine the comparative picture of household expenditure on shadow education secondary level in Haryana.

An analysis of data from table 3 establishes that per student per annum household expenditure on shadow education in Haryana is ₹4,695 at secondary education level. However, the amount spend at higher secondary level is ₹3,851 while the corresponding amount for intermediate level is ₹5,611. It implies that the household bear 1.47 times higher financial burden to send their wards for private tuitions at intermediate level vis-à-vis higher secondary level. During the primary survey it is found that household prefer relatively higher cost coaching options at intermediate level of secondary education vis-à-vis higher secondary level. The table also

reveals that this expenditure is of higher order at urban level vis-à-vis rural counterparts across three diverse type of schools and sub-levels of secondary education.

**Table 3: Private expenditure on shadow education at secondary education level in Haryana by Type of educational Institution**

Classes	Sector	Educational Institute Type			
		State-owned	Private Aided	Private Unaided	All Schools
Higher Secondary Level	Rural	1063	3500	3897	3073
	Urban	1500	5750	5968	4841
	Persons	1241	4625	4828	3851
Intermediate Level	Rural	3446	5750	7510	5331
	Urban	2853	6000	9394	6111
	Persons	3200	5875	8376	5676
Overall Secondary (Classes:IX-XII)	Rural	2493	5000	5143	4115
	Urban	2321	5917	7181	5429
	Persons	2422	5458	6066	4695

Source: Author's calculations based on the field survey

**Table 4: Private expenditure on shadow education at secondary education level in Haryana by Type of educational Institution and Students' Gender**

Students' Gender	Educational Institute Type	Higher Secondary Level			Intermediate Level		
		Rural	Urban	Persons	Rural	Urban	Persons
Boys	State-owned	1156	1538	1335	3688	3109	3452
	Private Aided	3500	6205	5166	7000	7333	7250
	Private unaided	4327	10000	5667	8546	11250	9576
	All Schools	3511	5087	4216	5903	6645	6217
Girls	State-owned	943	1400	1080	2963	2383	2714
	Private Aided	NA	1500	1500	5333	2000	4500
	Private unaided	2967	5470	4105	5586	7744	6800
	All Schools	2221	4314	3109	4378	5375	4847

Source: Author's calculations based on the field survey

The close perusal of data reveal that the urban students enrolled in private aided and unaided schools spend a sizeable amount on shadow education at intermediate level of secondary education and similar patterns are observable at higher

secondary education. Besides, it is also imperative to examine the gender inequalities in household expenditure on shadow education at secondary education level. Table 4 exhibits that a pronounced level of pro-male gender bias exists in household expenditure on secondary education in Haryana. The households, on an average, incur ₹4,216 and ₹6,127 annually on their male children respectively for higher and intermediate levels, while the corresponding figures for their female counterparts are ₹3,109 and ₹4,847 respectively. This indicates that such expenditure is higher for male children by 1.36 and 1.26 times respectively for higher and intermediate classes. There are sizeable variabilities in household expenditure on shadow education in urban vis-à-vis rural areas across the male and female gender. As a matter of fact, the household in urban areas spend ₹10,000 and ₹11,250 vis-à-vis their counterparts ₹5,450 and ₹7,744 at higher secondary and intermediate level of secondary education. Moreover, the rural household also prefer relatively more expensive coaching options for male as compared to female counterparts across the three diverse type of schools and sub-levels of secondary education.

### Conclusion:

The findings of the study exhibit that 43.93 per cent of the sampled students under the study accessed to shadow education in 2018–19, while the corresponding figures across the three types of institutions were varying. Thus, 38.71 and 48.96% of students in private aided and unaided schools received shadow education, compared to 38.64 of students in government schools. Shadow education has led to reproduce profoundly the issue of

gender-based inequalities, as 56.52 per cent of the male students were attending the private tuitions, while the corresponding figure for their female counterparts was 33.71 per cent. Gender imbalance in access to shadow education stems from some parents purposefully choosing private tuition for their sons over their girls due to budget limitations in the home. The analysis of the data further established that households in the state ₹4,695 year per student on shadow education at the secondary level, whereas the same amount for intermediate level was ₹5,611 and the corresponding figure for the higher secondary level were ₹3,851. It suggests that the household spent 1.47 times more money to send their children to private school at the intermediate level than at the higher secondary level. Analysis of household spending on secondary education in Haryana exhibits a strong pro-male gender bias, whereby the expenditure on the male offspring is ₹4,216 and ₹6,127 at the higher and intermediate levels, whereas it ₹3,109 and ₹4,847 respectively on their female counterparts.

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## Management of Non-Performing Assets of Public Sector Bank in India: Identification, Magnitude, Causation and Resolving

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### Abstract:

*The banking sector in India experienced significant transformation post-independence, notably with the nationalization of major banks in 1969 aimed at enhancing credit to priority sectors. This led to substantial growth, with public sector banks (PSBs) holding 70% of banking resources by 2017. However, the global financial crisis of 2008 led to a sharp increase in Non-Performing Assets (NPAs), where principal and interest on loans are overdue. NPAs in India were classified into substandard, doubtful, and loss assets by the RBI, escalating to 9.3% of total loans by 2017. Factors contributing to NPAs include both macroeconomic conditions like global crises and internal factors such as poor bank management and aggressive credit policies. The paper discusses legal measures such as the Insolvency and Bankruptcy Code 2016, and remedial measures including privatization, governance reforms, and enhancing RBI regulations to resolve NPAs. Further suggestions include improving recovery strategies, staff training, and stricter loan appraisal mechanisms. Effective management of NPAs is crucial for the stability and progress of India's banking system and economy.*

**Keywords:** Non-Performing Assets (NPAs), Public Sector Banks, Insolvency and Bankruptcy Code, Banking Reforms, Loan Recovery, Credit Appraisal.

### Introduction:

The banking and finance sector was much weak prior to the Independence. During the Great Depression and also world war period there was a spate for bank failure in India. Reserve Bank of India was worried to check the loss to depositors. In 1964 RBI has established a deposit Insurance Corporation to check the losses to the banks. This has given a little stability to banking and financial sector in India. This resulted in the growth of banking and financial sector. But this growth was generating concentration of wealth in the

hands of few industrial houses and banks door for credit were not properly open for the small entrepreneurs for this purpose in 1969 that time prime minister Mrs. Indira Gandhi has nationalized 14 commercial banks and subsequently nationalized 20 banks. And after that there is tremendous growth in banking sector and efforts were made to enhance the disbursement of credit to priority and non-priority sectors.

In the year 1991. Indian Economy was opened for globalization and banks became more cautious in sanctioning loans and advances on account of piling NPAs

(Non-performing Assets) Bank credit in India as a proportion of GDP has increased to 27 percent in 2000 and by 2015 it has increased to 52 percent of GDP. During this period private sector investment has increased from 24 percent to 33 percent of GDP. The public sector banks constitute over 70 percent of banking system and are in a state of crises. The NPAS have piled up and presently stand at 10 percent of total assets and stressed assets stand at 12 percent of total asset of banks.

### Meaning of NPAs:

An asset is classified as NPA (Non performing asset) if due in the form of principal and interest is not paid by the borrower for a period of 90 days. A non performing asset shall be a loan or an advance where –

1. Interest or principal remain overdue for a period of 90 days in respect of term loan.
2. The account of overdraft/cash credit remain out of order for 90 days.
3. A bill purchased or discounted remain overdue for 90 days or more.
4. An advance granted for agricultural purpose remains overdue for payment interest or principal for period of two harvest seasons.
5. Crop loan granted for short duration remain unpaid for installment for period exceeding two harvest seasons.
6. A long-term duration crop loan remains unpaid for once crops seasons.
7. For other loans any amount remains unpaid for 90 days or more.

8. Other credit facilities if repayment is not made as per terms became non performing.
9. However, RBI suggested that a bank cannot book interest on accrual basis.

### Classification of NPA:

For the purpose of classification assets are classified on the basis of the strength and on the type of collateral securities into following categories.

- a) Substantial assets – These are assets which remained NPAS a period not less than or equal to 12 months.
- b) Doubtful assets- which is likely to remain NPAS for a period not less than or equal to 12 months.
- c) Loss assets- they are the assets identified by bank auditors or by RBI inspectors as loss asset for which there is no security or there is considerable erosion in the realizable value of security.

### Extent of NPAs in Indian Banking System:

The NPAS in the Indian Economy stands at Rs. 10.35 Crores. About 85 percent of those NPAS are from loans and advances of public sector banks (2018) for example the NPAS of state bank of India are worth Rs. 2.23 lakhs crores.

The growth of NPAs and return on Assets are shown in following table:

**Table -1**

Year	2008	2010	2012	2014	2016	2017
NPAS as percent of total loans	2.3%	2.5%	2.9%	3.8%	7.5%	9.3%
Return on Assets in percent	1.1%	1.0%	1.1%	0.8%	0.4%	0.4%

The above table shows that during the decade time from 2008 to 2017 the NPAS have grown to 4 times in terms of percentage however the growth in term of values looks exorbitant. The rate of return on the Assets is coming down (became NPAS do not yield any return) resulted in the decrease of profitability of banks.

### **Etiology of the rise of NPAs:**

There are two sets of factors leading of rise in NPAs. One is external and another is internal. Among external leading factor is decrease is global commodity prices which resulted in slowing down of exports, while internal factors are intrinsic to the Indian Banking Sector.

Most of NPAS belong to the loans granted in 2000 at this time economy was blooming and business outlook was very positive. At this time large corporate were granted loans for the projects based on extrapolation of their recent growth and performance. With the loans being available more easily than before, corporate, grew highly leveled, implying that most financing was through external borrowing rather than internal promoters' equity. It was well till 2007 but when in 2008 there were global financial crises, the economic growth stagnated, result was decreased in the repayment capacity of these corporate decreased. This contributed what is now knows as India's Twin Balance Sheet problem, where both the banking sector (that gives loan) and corporate sector (that takes and has to repay these loans) have under financial stress.

Moreover, the practice of ever greening of loans doers by the banks to the projects who were under performing were given fresh loan to pay off their interest has

added to the more NPAS. It is unfortunate to tell here that, recently these have been frauds of high magnitude that have also contributes to rising of NPAS. Earlier they were small but now these frauds have been increasing and there have been number of instances of high-profile fraudster being penalized.

### **Determinates of NPAS of commercial Banks in India:**

The various factors Causing and determining NPAs are divided into two broad categories macroeconomic determinants, which influence all banks without any distinction and (b) banks specific factors which affect different banks differently.

**a. Macro-Economic Factors** - It was found that the relationship between weakening of macro-environment and failure of banks was positive in US and it was pointed out by brown bridge. But growth of Real GDP (RGDP) and NPA is inverse. Therefore, as slowdown of economic activity results in increase NPAS. Similarly, the inflation and NPAS is found to be inverse. An inflation in economy with heavy import restrictions, would lead to high profits for business enterprises, because of fact that wages and costs of raw material don't rise immediately and consequently there is windfall rise in profit earning would boost loan repayment ability and hence NPA would decrease other macro-economic factors constitute political interference competition among different banks, natural calamities etc. Among these factors political interference is worst in case of Indian Banks. Many businesses corporate get this advantage and the high-level officers were pressurized by politicians either to grant loans without

proper securities or to corporate having doubtful repayment capacity. The competition among the different banks also resulted in capacity and resulted in the piling of NPAS with banks. Moreover, Indians Natural environment is volatile and is exposed to risks of monsoon. This results in fluctuation of agricultural production which results in the losses to agriculturists making their loans defaulted. Other calamities like earthquake, plant diseases etc. also contribute in losses by natural calamities and results in non-repayment of loans.

**b. Bank specific and internal factors:** The bank specific factors include rapid credit growth, poor bank management and aggressive credit policies with eagerness increase market share, results in a growth in bad credit and NPA. This can be attributed to deliberate reformation of lowering of credit standards, reflect a risk-taking behavior on the part of bank management. Moreover, failures to enforce high levels of bank efficiency and aggressiveness to enlarge to share of business results in increasing ratios of NPAS to loans.

Another specific factor is connection between cost efficiency and NPAS found as strong evidence of bad management as a reason for rise in NPAS. Similarly, the banks with larger credit deposit ratios had higher NPAS. It was also found that rapid Credit Growth, bank Size, capital and market power were all directly associated with rising NPAS. Moreover, increase in the operating cost also contribute to increase in NPAS. However, spending more for loan recovery results in reduction of NPAS.

Other internal factors which are also positively associated with the NPAS. They

are first one is appraisal system of utilization and repayment of loan is appraisal story and therefore inefficient on the part of borrowers to utilize the loan in proper way and misdirection of funds leads to rise in NPAs. Secondly the irrational system of sanctioning of loans, leads to sanctioning of bad quality. Of loans which have inherent tendency to poor repayment system, certainly results higher accumulation of NPAS. The third factor, that can be attributed to the increase of NPAS is delegation of power for sanctioning loans to incompetent persons. Where loans are not properly appraised and get results into the NPAS. Fourthly, the improper scrutiny of various information given by the borrower is genesis of the loan becoming a default and result to the rise in NPAS. Fifthly, the pressure of over optimistic targets of credit expansion, results in reckless sanction of loans with risky repayment capacity leads to genesis of NPAS. Sixthly, the non-follow up of recovery also leads to increasing of NPAS. Lastly the banks face the shortage of technical staff for scrutiny of information and pre-sanction verification as well as personal visits to the borrowers to pursue them for recovery of loans.

These two sets of factors operate with combinations and permutations and lead to increase in NPAS of banks

### **Measures to solve the problems of growing NPAs:**

The measures that can be taken to resolve and present NPAS are of two categories. Firstly, are regulatory means legal measures and secondly the remedial measures for banks prescribed and regulated by RBI for internal restructuring of stressed assets.

**a. Legal Measures:** It was in the form of enactment of insolvency and Bankruptcy Code 2016 (IBC), which provide 180 days recovery process for insolvent accounts, where borrowers are unable to pay their dues. Under IBC the creditors of these insolvent accounts, pressured over by an insolvency professional decide whether to restructure the loan or to sell the defaulters assets to recover the outstanding amount. If a timely decision is not arrived at, then defaulters' assets are liquidated under IBC. The proceedings under IBC are handled by Debt Recovery Tribunal for personal insolvencies and for corporate insolvencies National Company Law Tribunal (NCLT) adjudicate the matter.

**b. Remedial Measures:** The remedial measures have a very vast scope than legal measures, where, different options are discussed when our banking system was beleaguered with non-performing assets (NPAs). RBI in its financial stability report of Dec. 2017 stated that NPAs stand at 10. Percent of all assets, while stressed assets at 128 percent and related frauds, amount to INR 612.6 billion in the last five years. It resulted in failure of integrity and competence of banking system which get plagued with NPAs. Over this issue a round table, seminar was organized in early 2018 at Mumbai where Dy. Governor of RBI, along with representation of bankers, corporate, IMF, Financial Journalist and academics key issues discussed were privatization, improving governance regulatory system and reengineering of banking practices. These issues discussed are summarized below:

**c. Privatization:** - Nationalization of banks, at is was called the "original sin" was considered necessary in 1969 by that time Prime Minister Indira Gandhi was

undertaken as collusion between industry and finance. South Korea was another example where banks are state owned but are disciplined under Chaebols rather than capitulating to political pressure. But in India Public Sector Banks (PSBs) led to a financial deepening in the country, because it has umbilical cord connecting them to politicians and bureaucrats, which in turn stems from ownership structure of PSBs. The Nationalization has led to various inefficiencies in the banks such as (a) weak powered boards (b) Muted incentives to senior management to effect organizational changes (c) Continual bureaucratic madding resulting to systemic risks (d) External vigilance enforcement causing paralyzed decision making and also resulting to frauds and corruption (e) Various opacities, and (f) Distribution in human Resource Management etc. to overcome these insufficiencies the various options for privatizing PSB can be tried as below

- (i) Creating a Holding Company Structure for banks (P.J. Nayak Committee) where government shareholding will be divested below 52 percent and a bank holding company (BHC) to create to monitor bank issued a professional level
- (ii) Creating a sovereign wealth fund where proceed of privatization will be consolidated and shall be managed professionally.
- (iii) Preparing a separate entity which may be government owned and controlled for all agricultural and social sector lending and corporate lending to be privatized.
- (iv) Recapitalization and Governance reforms can enhance the market valuation of PSBs and should lead to a path for privatization.

- (v) Single Big Banks: - India may have single big bank mimicking life Insurance Corporation mode for PSBs. But there is possibility of getting it affected by too-big-to-fail syndrome.
- (vi) Creating “Bad Bank”- The idea of this bank is where the NPAs of all PSBs may be transferred in it and PSBs balance sheet can be cleared. But this action likely to create more complexities.

Thus, it appears that privatization is not a panacea.

### **b) Governance Reforms:**

The reforms those are suggest to improve governance

- i) Nayak Committee suggested that the selection of bank chairperson on should not be controlled by Ministry of Finance, but it has not digested to bureaucrats.
- ii) PSBs should have severe identity and have such a restructuring that they will operate as commercial banks and shall have a coherent business strategy or vision and shall make best use of public money.
- iii) The term of chairperson must be synchronized with the period make them able to implement constructive charges as policy.
- iv) Chairman’s salary package must have incentives with the professional decisions they bring to materialize. This will attract professional talents to banking sector.
- v) Penalize wrongdoer in materialistic way and not the taken or nominal way but to create a deterrence have reformatory influence.

- vi) Sharpen the credit appraisal and monitoring to diagnose the defects capital, business purpose and character.

### **c) Improvement in RBI governance and regulations:**

The RBI is trying best to Central PSBs. But following improvement are need in its efforts.

- i) The RBI may work on line of bank of England by subsidiarization its prudential regulatory and supervision functions. But the recognition that lost synergies from such separation contributed to global financial crisis demands caution.
- ii) The RBI to be given supervisory capacity to conduct forensic audits and this must be strengthened with human as well as technological resources.
- iii) RBI regulations have permitted bank to “evergreen” credit but in effect it delays the recognition and also the resolution of NPAs. So, RBI regulations must take away incentives of banks to kick the can down the road and “extend and pretend”. Therefore, it is needed to recapitalization of PSBs which is to can be carried out with reforms.

### **d) Reengineering of banking systems:**

Our present banking system needs to be reengineering by following measures-

- i) There is need for creation of vibrant secondary market for NPAs is crucial. The lack of transparency in price of the assets is holding this back. The reason is lack of autonomy to PSB and fear of vigilance action.
- ii) The internal and concurrent audit system of banks become old and needs to be strengthened.

- iii) There is need for better market intelligence, fund flow and financial analysis to diagnose willful defaults for banks.
- iv) The maker-checker systems require human intervention and are therefore, prone to capture and corruption. Therefore, to prevent financial frauds there is need for Artificial Intelligence. For this core banking system (CBS) needs to be linked with Financial Technology.
- v) For good quality of financial information, the traditional means like speaking to people in industry, suppliers and customers should be valued and used time to time in combination with artificial intelligence.
- e) **Other Measures:** To solve the problem of non-performing Assets following additional measures can also be suggested.
  - i) There should be regular training programmes on credit and NPAs management for executives.
  - ii) Banks should organize recovery camps to reduce levels of NPAs.
  - iii) Bank officials should organize periodical visits to borrowers' business places.
  - iv) Bank should develop a good quality, Credit Approval and Risk Management Mechanism by improving documentation system. They should sanction the loans with prudential norms to avoid additions to NPAs.
  - v) Banks should develop a monitoring and audit system to the assets which have potential to become NPAs.
  - vi) Banks to take help of Lok Adalats and Debt Recovery Tribunals to decide on NPAs of Rs. 10 lakhs and above.
  - vii) Banks to find out whether loans are used for original purpose they have taken and are not misdirect for their use.
  - viii) There should be a special committee to be constituted to assess NPAs.
  - ix) An appropriate SWOT analysis should be done for enterprises before disbursement of the advances.
  - x) The banking staff to be educated on basis principles of banking i.e. safety, liquidity and profitability. This will enable them to take prudent decisions.
  - xi) Banks should take care that assets pledged or hypothecated are fully insured to safeguard the interest of banks.
  - xii) Banks to organize recovery competitions for their branches. Similarly, to they should reward regular preparers and penalize with defaulters.

### Conclusions:

The strength of the economy is closely related to the reliability of its banking system. The problem of NPAs can be achieved only with appropriate credit appraisal and risk management mechanism. It is very important for the bank to keep the level of NPAs as low as possible. Because NPA is a kind of barrier in the success of a bank which affects its performance. For this purpose, banks in their loan appraisal procedure should pay special attention to macroeconomic forecast made by domestic agencies to maintain stability of banking system. To prevent or minimize adverse impact of NPAs on economy, banks should strengthen the loan appraisal procedure and recovery measures.

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## Multidimensional Poverty Index: A Comparative Analysis of the Indian states

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### Abstract:

*This research paper is an attempt to understand and analysed the different facet of poverty. The present paper delves into the multidimensional poverty index (MPI) published by NITI Aayog in its report for the years 2015-2016 and 2019-2021, The NITI Aayog has used the data of NFHS 4 and NFHS 5 for calculating MPI. The paper highlights the disparities in MPI across Indian states over the two periods. It indicates that the general decline in MPI at national level, with the reduction in Headcount Ratio from 24.85% to 14.96% and the MPI almost reduced half from 0.117 to 0.066. Despite this national progress, considerable interregional disparities persist. Bihar has consistently recorded the highest MPI, whereas Kerala maintained the lowest level of MPI across the India. At another side Bihar showed significant improvement in MPI during the period, contrasting with states like Kerala, Lakshadweep, Punjab, and Puducherry which lagged in MPI reduction. The paper underscores the need for targeted policies addressing the diverse nature of poverty across Indian states.*

**Keywords:** MPI, Headcount ratio, Intensity ratio

### Introduction:

Poverty has been conventionally measured through income but this approach failed to capture the multidimensional nature of poverty. The term Multidimensional poverty is more than mere measurement of income, it includes other factors such as health, education, and standard of living. This approach of poverty provides a more holistic understanding of poverty. Through understanding multiple facets of poverty, policymakers could develop more specific policies to target the root causes of poverty and improved the well-being of affected one. Multidimensional poverty (MPI) is more specific way to understand the deprivation of an individuals and

communities. Multidimensional approach of poverty acknowledges that poverty cannot be homogeneous it is diverse concept. Different individuals may have different nature of deprivations, and it is necessary to measure the combinations of diversity. Multidimensional approach of poverty, capture the complexities of deprivation. This helps to understand the problem of poverty in true sense and enable to develop more comprehensive and inclusive policies to alleviate poverty. Additionally, the multidimensional approach of poverty identifies the different capabilities and functioning an individuals and communities has, even at similar levels of resources. This highlights more specific

challenges an individual face to achieve decent standard of living.

This paper study the Multidimensional poverty index published by NITI Aayog and comparatively analysed the data of two different periods 2015–2016 and 2019-2021 based on NFHS 4 and NFHS 5. The objective of the paper is to identify the disparities in the Multidimensional poverty across states of India during two different periods, i.e. 2015–16 and 2019-2021. In addition, this paper attempted to inquired the change in MPI's in absolute terms. The headcount ratio (H), and poverty intensity (A) in to the same periods across the states of India. The final section explains absolute change in MPI indicators across the states.

#### Data and Method:

This study uses the secondary data. The data of India's MPI for the year 2015–2016 and 2019-21 is obtained from the report named India's National Multidimensional Poverty Index: A progress review 2023 published by NITI Aayog in 2023. The NITI Aayog uses Alkire–Foster (A–F) Method developed by UNDP and OPHI (Oxford Poverty & Human Development Initiatives). A-F Method has many technical and practical advantages which made it suitable for the measurement of non-monetary poverty estimation. MPI of the year 2015-16 is based on NFHS-4 dataset collected in the year 2015– 16, MPI of 2019–21 uses the NFHS-5 collected during 2019-21.

As per the UNDP HDR 2015 and 2019 MPI for the year 20015–2016 and 2019-2021 are calculated MPI using three dimensions i.e. health, education, and standard of living. MPI indicators reflects Sustainable Development Goals (SDGs).

The Headcount Ratio (H) is determined the multidimensionally poor population in proportion with the total population. Headcount Ratio (H) is one indicator use to determine the MPI. H denotes the Percentage of multidimensionally poor population.

$$H = \frac{q}{n} * 100$$

Where, q implies number of multidimensional poor and n implies total population.

To calculate MPI the second index used along with the Headcount Ratio is Intensity of poverty (A) The intensity of poverty shows the percentage of deprived population suffered from multidimensionally poverty. It is expressed in percentage.

$$A = \frac{1}{q} \sum_{i=1}^q ci(k)$$

The Multidimensional Poverty Index (MPI) is calculated by multiplying both indices, the Headcount Ration (H) and Intensity of poverty (A). Hence, the MPI is calculated as.

$$MPI = H * A$$

#### Multidimensional Poverty in India:

**Table:1 Multidimensional Poverty Index in India**

Year	Headcount Ratio (H)	Intensity (A)	MPI (H x A)
2015-16	24.85%	47.14%	0.117
2019-21	14.96%	44.39%	0.066

**Source:** India's National Multidimensional Poverty Index A progress review 2023, NITI Aayog

The table 1 states that the MPI during NFHS-4 and NFHS-5 have been falling in almost all the states in India,

Headcount and Intensity index of poverty in the year 20015- 20016 and 2019- 2021 has maintained good progress. Headcount ratio has dropped down from 24.85 percent in 2015-2016 to 24.85 percent in 2019-2021. The MPI score has dropped more than halved during this period from 0.117 to 0.066. There is no significance changed in intensity of poverty. It reduced from 47.14 percent to 44.39 percent. This is a serious concern for policy makers. Though there is significant reduction in to MPI at national level, Large interregional disparities have been observed across the sates in India.

### State wise pattern of poverty in 20015-2016 and 2019-21

Table 2 reveals that among all the states in India Bihar has highest MPI 0.265 during 2015-16 followed by Jharkhand, Uttar Pradesh, Madhya Pradesh, Aasam and Meghalaya due to Lack of educational facilities, scarcity of physical infrastructure for industrial sector, high unemployment, burden of population on the resources are the main reasons behind the of the high incidence of MPI in these states. The Kerala has lowest MPI with value 0.003 in 2015-16. Kerala was the lowest in MPI across all the states in India. After Kerala Puduchchery, Lakshadweep, Goa were having lowest MPI.

**Table 2- State wise MPI, Headcount Ratio (H) and Intensity (A) in 20015-2016 and 2019- 2021**

State	NFHS-4 (2015-16)			NFHS-5 (2019-21)			Absolute Change		
	Headco unt Ratio	Intensity	MPI	Headc ount Ratio	Intensi ty	MPI	Headco unt Ratio	Intensity	MPI
Andhra Pradesh	11.77%	43.28%	0.051	6.06%	41.12%	0.025	-5.71%	-2.16%	-0.026
Arunachal Pradesh	24.23%	47.25%	0.115	13.76%	43.04%	0.059	-10.47%	-4.21%	-0.056
Assam	32.65%	47.88%	0.156	19.35%	44.41%	0.086	-13.30%	-3.47%	-0.07
Bihar	51.89%	51.01%	0.265	33.76%	47.40%	0.16	-18.13%	-3.61%	-0.105
Chhattisgarh	29.90%	44.64%	0.133	16.37%	42.61%	0.07	-13.53%	-2.03%	-0.063
Goa	3.76%	40.13%	0.015	0.84%	38.69%	0.003	-2.92%	-1.44%	-0.012
Gujarat	18.47%	44.97%	0.083	11.66%	43.25%	0.05	-6.81%	-1.72%	-0.033
Haryana	11.88%	44.40%	0.053	7.07%	43.34%	0.031	-4.81%	-1.06%	-0.022
Himachal Pradesh	7.59%	39.44%	0.03	4.93%	40.22%	0.02	-2.66%	0.78%	-0.01
Jharkhand	42.10%	47.92%	0.202	28.81%	45.59%	0.131	-13.29%	-2.33%	-0.071
Karnataka	12.77%	42.76%	0.055	7.58%	41.21%	0.031	-5.19%	-1.55%	-0.024
Kerala	0.70%	38.99%	0.003	0.55%	36.92%	0.002	-0.15%	-2.07%	-0.001
Madhya Pradesh	36.57%	47.25%	0.173	20.63%	43.70%	0.09	-15.94%	-3.55%	-0.083
Maharashtra	14.80%	43.76%	0.065	7.81%	41.77%	0.033	-6.99%	-1.99%	-0.032

Manipur	16.96%	44.61%	0.076	8.10%	41.91%	0.034	-8.86%	-2.70%	-0.042
Meghalaya	32.54%	48.08%	0.156	27.79%	48.01%	0.133	-4.75%	-0.07%	-0.023
Mizoram	9.78%	47.42%	0.046	5.30%	45.62%	0.024	-4.48%	-1.80%	-0.022
Nagaland	25.16%	46.29%	0.116	15.43%	42.61%	0.066	-9.73%	-3.68%	-0.05
Odisha	29.34%	46.42%	0.136	15.68%	44.50%	0.07	-13.66%	-1.92%	-0.066
Punjab	5.57%	43.74%	0.024	4.75%	41.22%	0.02	-0.82%	-2.52%	-0.004
Rajasthan	28.86%	47.34%	0.137	15.31%	42.70%	0.065	-13.55%	-4.64%	-0.072
Sikkim	3.82%	41.20%	0.016	2.60%	41.02%	0.011	-1.22%	-0.18%	-0.005
Tamil Nadu	4.76%	39.97%	0.019	2.20%	38.70%	0.009	-2.56%	-1.27%	-0.01
Telangana	13.18%	43.29%	0.057	5.88%	40.85%	0.024	-7.30%	-2.44%	-0.033
Tripura	16.62%	45.03%	0.075	13.11%	42.68%	0.056	-3.51%	-2.35%	-0.019
Uttar Pradesh	37.68%	47.60%	0.179	22.93%	44.83%	0.103	-14.75%	-2.77%	-0.076
Uttarakhand	17.67%	44.35%	0.078	9.67%	41.99%	0.041	-8.00%	-2.36%	-0.037
West Bengal	21.29%	45.50%	0.097	11.89%	42.35%	0.05	-9.40%	-3.15%	-0.047
Andaman & Nicobar Islands	4.29%	40.50%	0.017	2.30%	40.62%	0.009	-1.99%	0.12%	-0.008
Chandigarh	5.97%	43.39%	0.026	3.52%	47.41%	0.017	-2.45%	4.02%	-0.009
Dadra & Nagar Haveli & Daman & Diu	19.58%	44.23%	0.087	9.21%	42.15%	0.039	-10.37%	-2.08%	-0.048
Delhi	4.44%	43.92%	0.02	3.43%	41.99%	0.014	-1.01%	-1.93%	-0.006
Jammu & Kashmir	12.56%	44.17%	0.055	4.80%	42.11%	0.02	-7.76%	-2.06%	-0.035
Ladakh	12.70%	40.37%	0.051	3.53%	41.20%	0.015	-9.17%	0.83%	-0.036
Lakshadweep	1.82%	35.80%	0.007	1.11%	36.47%	0.004	-0.71%	0.67%	-0.003
Puducherry	1.71%	38.55%	0.007	0.85%	38.03%	0.003	-0.86%	-0.52%	-0.004

Source: India's National Multidimensional Poverty Index A progress review 2023, NITI Aayog

Table 2 shows that during the years 2015–2016, 9 out of the 36 states and UTs has highest level of MPI exceeded the national value of 0.117 and during 2019-21 8 out of 36 states and UTs has highest MPI compare to the national level 0.066 of the same period. States like Aasam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Meghalaya, Odisha, Uttar Pradesh having lowest level of MPI compare to national level during both NFHS-4 and NFHS-5 except Rajasthan. Rajasthan MPI got improved NFHS-5 and not fall below national level. All these states having

lowest MPI are primarily located in India's central and eastern regions. Table 2 further reveals that the Bihar is the only states having highest MPI which is greater than the high MPI category (0.212 and above) during 2015-16. Seven states Arunachal Pradesh, Aasam, Chhattisgarh, Meghalaya, Nagaland, Odisha and Rajasthan fall within the MPI's moderate category (considering range between 0.108 to 0.159). While fifteen states fall under lowest MPI category (less than 0.054). Kerala having the lowest MPI value of 0.003 recognised as the states having lowest MPI in India.

While studying the pattern of the Headcount ratio during the 2015-16. Bihar (51.89 %) has the highest headcount ratio. The states like Bihar, Aasam, Chhattisgarh, Jharkhand, Madhya Pradesh, Meghalaya, Nagaland, Odisha, Rajasthan, Uttar Pradesh surpassed the national headcount ratio 24.85 percent. In contrary Kerala (0.70 %) has lowest headcount ration during the period. In contrary Kerala (0.70%) had lowest headcount ratio among all the states during 2015-16.

According to intensity data given in to table 2. Bihar (51.01 %) shows the highest intensity during the 2015-16. Nine states had high intensity than the National average intensity 47.14 percent. The states like Arunachal Pradesh. Bihar, Aasam, Jharkhand, Madhya Pradesh, Meghalaya, Mizoram, Rajasthan and Uttar Pradesh surpassed the national intensity index. These states are almost similar to the states having highest headcount ration. In contrary the states and UTs like Lakshdweep (35.85%), Puducherry (38.55%) Himachal Pradesh (38.49%), Kerala (38.99 %) has lowest intensity during 2015-16.

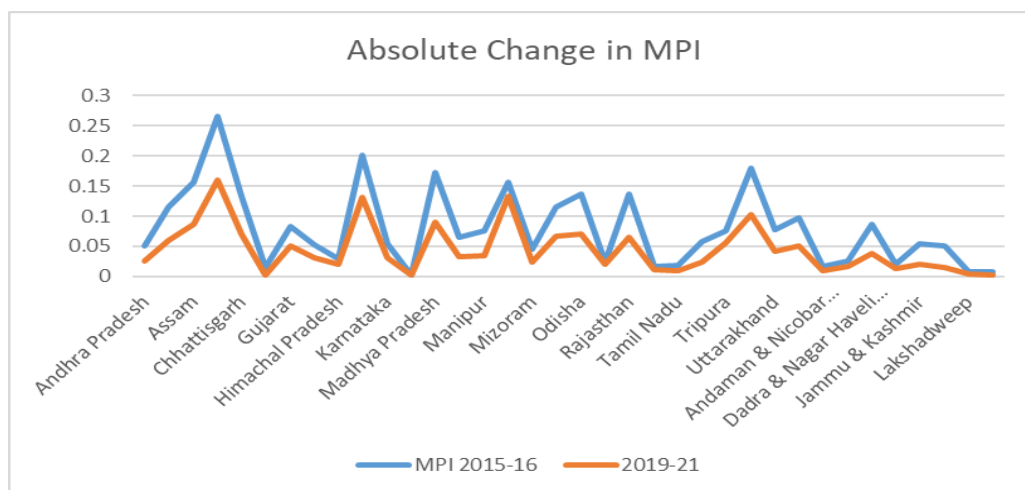
While analysing the state wise pattern of Multidimensional poverty during 2019-21 it is observed the regional disparities in the MPI, headcount ratio and intensity across the states. According to the data in table 2, Bihar had highest MPI (0.16) and Kerala had the lowest MPI (0.002) in India. After the Bihar states like Meghalaya (0.133) and Jharkhand (0.131) had faced high level of multidimensional

poverty these states fall under the moderate level poverty (considering range between 0.108 to 0.159 MPI). During 2019-21 total 24 states fall under the lowest MPI category (below 0.054) whereas during 2015-16 only 15 states fall under the lowest MPI category (below 0.054). This shows a commendable improvement by the states in terms of Multidimensional poverty. Comparing with the national level score during the same period it is observed that 9 states had greater MPI than the national MPI (0.066). The states have crossed the national MPI threshold were Bihar, Meghalaya, Jharkhand, Uttar Pradesh, Madhya Pradesh, Aasam, Chhattisgarh, Odisha, and Nagaland. It should be noted that the Kerala remain as the lowest MPI states in India during both 2015-16 and 2019-21.

#### **Absolute change in MPI across the Indian states between 2015-16 to 2019-21**

Several states like Arunachal Pradesh, Aasam, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Nagaland, Odisha, Rajasthan, Uttar Pradesh have made significant advancement in MPI on the other side the states and UTs like Kerala, Lakshadweep, Punjab, Puducherry, Sikkim has the lowest reduction in MPI as a result we can conclude that the countries with the higher poverty incidence could achieved substantial reduction in MPI compare to the countries with the lowest MPI.

Graph-1



After calculating the absolute change in MPI of the 2015-16 and 2019-21 it is observed that Bihar (0.105) could achieved significant improvement in MPI. Followed by Madhya Pradesh (0.83), Uttar Pradesh (0.76) and Rajasthan (0.72). While states like Kerala, Lakshadweep, Punjab and Puducherry could not gain much in terms of MPI reduction during the NFHS-4 and NFHS-5.

### Conclusion:

The paper underscores the importance of multidimensional poverty approach to understanding poverty, It is beyond mere income parameter to it includes health, education, and living standards. The analyses based on the MPI data from NITI Aayog for 2015-2016 and 2019-2021 highlight an overall reduction in multidimensional poverty across India. Despite the positive trend in MPI, there exist disparities among the states, with Bihar registered the highest MPI value in NFHS-4 (2015-16) and NFHS-5 (2019-21) saw the fastest reduction in MPI value in absolute terms at the same time Kerala the lowest in MPI saw slowest reduction in MPI. States like Bihar, Madhya Pradesh,

and Uttar Pradesh have shown notable progress in reducing MPI, while others like Kerala, Lakshadweep, Punjab, and Puducherry have made comparatively slower advancements. These findings emphasize the importance of targeted and region-specific policy interventions to address the multifaceted nature of poverty. It is imperative for policymakers to recognize and act upon these disparities to ensure inclusive development and improve the overall well-being of the population across all states in India.

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## Tourism Economy in Maharashtra

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### Abstract:

*The tourism vertical is quite extensive. It consists of six sectors, making it one of the most diverse industries. These sectors are transportation, accommodation, food and beverage, travel agencies, and attractions. This article attempt to take a closer look of the Maharashtra's Tourism sectors, their size, and their economic impact. Maharashtra, a state in western India, boasts diverse landscapes, historical sites, and vibrant culture. Tourism plays a crucial role in Maharashtra's economy, contributing to revenue generation, job creation, and infrastructure development. Maharashtra is home to bustling cities like Mumbai, serene hill stations like Lonavala, ancient caves of Ajanta and Ellora, and pristine beaches along the Konkan coast. The state attracts both domestic and international tourists. The trend in tourist arrivals has been positive over the years. State Government has made efforts to enhance tourist infrastructure, including integrated facilities and basic amenities.*

**Key words** – Tourism sector, Employment.

### Introduction:

Maharashtra tourism a diverse Indian state officers a rich tapestry of experience its vibrant urban hubs to serene natural wonders, Maharashtra Caters to wide range of travelers. Its busting metropolis boasts historical landmarks, cultural festivals. The state's pictures landscape feature Cush hills. Pristine beaches and wildlife sanctuaries, making it a heaven for nature.

Tourism industry and government agencies with existing infrastructure and private investment, tourism could generate numerous job opportunities. Maharashtra government Department through DCFL has outlined a 20 years' sustainable tourism development plan. Phasing of investing for development of categories into private and public sector. Hotels and Resorts of private

sector and MTDC, its revenue generating projects. Western region including Kokan and Sambhajinagar Priority for tourism Maharashtra tourism accounts for only 3.95% of total arrivals in Indian.

The history of tourism in Maharashtra is fascinating and multifaceted. Let's explore its journey through time:

**Early Beginnings:** The roots of tourism in Maharashtra can be traced back to the times of the Silk Route. This region served as a strategic trade link between different parts of India and the rest of the world.

The development of ports under various dynasties made it a hub for trade and cultural exchange, inadvertently laying the groundwork for tourism.

**Colonial Impact:** During the colonial era, Maharashtra witnessed significant changes due to British influence. Mumbai (then Bombay) emerged as a major port city, attracting traders, explorers, and travelers. The city's architectural heritage, including landmarks like the Gateway of India and Chhatrapati Shivaji Terminus, became tourist attractions.

**Post-Independence Growth:** After India gained independence, tourism activity gained momentum. Maharashtra's rich history, diverse landscapes, and cultural heritage drew visitors from across the country. Pune, with its forts, shrines, and historical significance, played a central role in Maharashtra's tourism story.

**Modern Developments:** Maharashtra's tourism capital, Aurangabad, became a gateway to the Ajanta and Ellora Caves, both UNESCO World Heritage Sites. Nashik, known as the "Wine Capital of India," offers vineyards, hiking trails, and religious sites like the Trimbakeshwar Temple. Mumbai, with its cosmopolitan vibe, continues to attract tourists for its beaches, temples, and vibrant culture.

### Current Tourism Trends:

In 2021, Maharashtra was the second most visited state by foreigners and the fifth most visited state by domestic tourists in India. The state's blend of history, nature, and urban experiences continues to captivate travelers.

Maharashtra tourism holds immense growth potential, thanks to its robust infrastructure and diverse attractions. While the state boasts a rich historical and cultural heritage, these facets have been

underexplored by both the tourism industry and government agencies. With existing infrastructure and private investments, tourism could generate numerous job opportunities. However, the lack of comprehensive planning and coordination among various government departments has hindered progress. The Maharashtra government, through DCEL, has outlined a 20-year sustainable tourism development plan that prioritizes private sector involvement, environmental considerations, and socio-economic factors, fostering an integrated approach among concerned. The land of alluring bio-diversity, diverse climate and varying topography, Maharashtra continues to be a delight for the aficionados of eco-tourism. The state receives adequate rainfall throughout the year resulting in the growth of lush greenery evenly throughout the state. As a result, a significant group of critically endangered birds and animals get the safest rescue in its wildest regions. To promote this boon of nature without affecting the eco-system or natural habitats of endangered species, the Government of Maharashtra has divided its wildlife spots into various relatively less crowded wildlife reserves such as Melghat Tiger Reserve, Bor Wildlife Sanctuary or Umred – Kharandla Sanctuary. These wildlife reserves even have enlisted their names among the best place to see tigers in India. Thus, for the nature lovers, Maharashtra appears to be a treasure trove of fascinating natural grandeurs. Tourism is a socio-economic phenomenon comprising of the activities and experiences of tourists and visitors away from their home. Tourism industry in Maharashtra has a great potential for growth, given the availability of basic infrastructure. Maharashtra has a

rich historical and cultural heritage, which has been under-explored by the tourism industry and the government agencies. This paper analyses the crucial role played by the tourism sector in the economic development of Maharashtra. The paper highlights the tourism policy of the state, assesses the impact of tourism development, identifies specific tourist centres and suggest certain policy measures for the development of tourism activity.

**Accommodation Projects**  
Accommodation facilities play a very important role in development of tourism at any destination. Almost 50% of the total expenditure of tourists per day goes for accommodation at tourist locations. Accommodation projects are amongst the first revenue-generating projects to come up at tourist destinations. The required additional accommodation facility at tourist destination is directly proportional to the number of tourist arrivals staying at that destination. Out of the total investment of Rs 433.54 Cr, for revenue generating projects, almost 48.21% would be in projects providing accommodation facilities tourists. The accommodation projects include Beach resorts, Budget Accommodation, Non Star Luxury Hotels and Star Hotels. Other Revenue Generating Projects Revenue generating projects suggested at different locations depend on the target market of tourists expected to visit that destination. Projects like Amusement parks and convention centers would not be feasible at remote locations and hence should be located near major cities and business hubs. At exclusive tourist destinations away from major cities, less capital intensive, small-scale projects such as water sports, mall road and shopping centres etc are suggested.

### **National tourism policy:**

Tourism policy was announced for the first time in Nov. 1982. The measures suggested in the policy included Granting export industry status to tourism, adopting a selective approach for developing tourist circuits, inviting private sector participation and Utilization of national heritage for attracting tourists. The policy recognized the importance of international tourism in earning foreign exchange and accorded high priority to its development. The policy recognized that facilities provided are minimal for the large number of domestic tourists who travel on pilgrimage or as tourists for other motivations and the need to substantially improve and expand facilities for domestic tourists. A national action plan for tourism was drawn up in May 1992. The objectives of the action plan included Socio economic development of areas, increasing employment opportunities, Developing domestic tourism especially for the budget category, Preservation of national heritage and environment, Development of international tourism and optimization of foreign exchange earnings, Diversification of tourism product and Increase in India's share in world tourism. The strategies for achieving the objectives outlined Improvement of tourism infrastructure, developing areas on a selective basis for integrated growth along with marketing of destinations to ensure optimal use of existing infrastructure, Restructuring and strengthening the institutions for development of human resources and Evolving a suitable policy for increasing foreign tourist arrivals and foreign exchange earnings. Tourism was declared as a priority sector for foreign investment in July 1991. A new national tourism policy

has been drafted to keep pace with the developments taking place around the world and under consideration of the Government of India. The national tourism policy 2002 includes provisions like facilitating the development of a dynamic private sector in tourism, promoting eco-tourism and rural tourism, facilitating domestic tourism by promoting amenities and facilities for budget tourist, giving greater stress to development of pilgrimage centers and integrated development of identified tourist destinations with the involvement of all the infrastructural departments, states and the private sector. Study Report on Preparation of 20 Years Perspective Plan for Dalal Mott MacDonald Development of Sustainable Tourism in Joint Director

### **Key Features of the New Tourism Policy:**

Harness the direct and multiplier effects of tourism for employment generation, economic development and providing impetus to rural tourism. Focus on domestic tourism as a major driver of tourism growth Position India as a global brand to take advantage of the burgeoning global travel and trade and the vast untapped potential of Indian destinations. Private sector is acknowledged as a critical player in tourism growth with government acting as a pro-active facilitator and catalyst Integrated development of identified tourist destinations with the involvement of all the infrastructural departments/State govts and the private sector. In relation to the development of products that are related to special interests of the target market, the product development strategy in the Tourism Policy 2002 suggests the following Expansion of cultural tourism leveraging on India's 22

World Heritage sites. Development of beach and coastal tourism in the states of Goa, North Karnataka and Kerala. Development of Cochin and Andaman-Nicobar Islands as international cruise destinations. Promote India's unmatched variety of traditional cuisines internationally and encourage Indian entrepreneurs to establish Indian ethnic cuisine restaurants across the world. Active promotion of village tourism to reap socio-economic benefits in the regions of North East, Uttaranchal, Rajasthan, Ladakh, Kutch, Chattisgarh and the plantation regions. Integrate National parks and major wild life sanctuaries into the main tourism product through Interpretation centres, visitor management systems and promoting elephant and tiger as 'brands' of Indian Wildlife Tourism. Promote adventure tourism in the 'Himalayas' through products such as white water and great river rafting. Regulations and certification of tour operators in this field should be introduced. A world-class international convention Centre should be constructed in Mumbai to promote business tourism. Promote dedicated shopping centers such as Dilli Haat and Shilpagram along with dissemination of information about shopping in India to tourists. Reintroduce "Festivals of India" program in top 12 future markets for India starting with annual programs in UK and USA. Promote eco and health tourism. Six new circuits to be developed for tourism were announced in the 2002-03 budget by the finance minister. The selection is specially aimed at attracting tourists from Japan, Korea, Thailand, Indonesia and other far eastern countries.

**Table-1 District wise most visited tourist places in Maharashtra**

Sr.No.	District	Domestic Visitors	Foreign visitors
1	Ahmadnagar	12921487	7884
2	Mumbai	28691854	1677446
3	Pune	8779119	787553
4	Thane	1600831	8549
5	Solapur	4113127	70
6	Aurangabad	7604421	117712
7	Nagpur	4013137	9754

District wise domestic tourist visitors of Mumbai are the largest, Mumbai harbors various beaches, Gateway of India, Heritage sculptures Bollywood which are the special attractions.

Shirdi is a religious tourist place of Ahmednagar District. This place frequented even by various foreigners.

According to the data complain by the federation of Hotel & Restaurant total numbers of approved hotels of various categories is 242 with total rooms amounting to 13854.

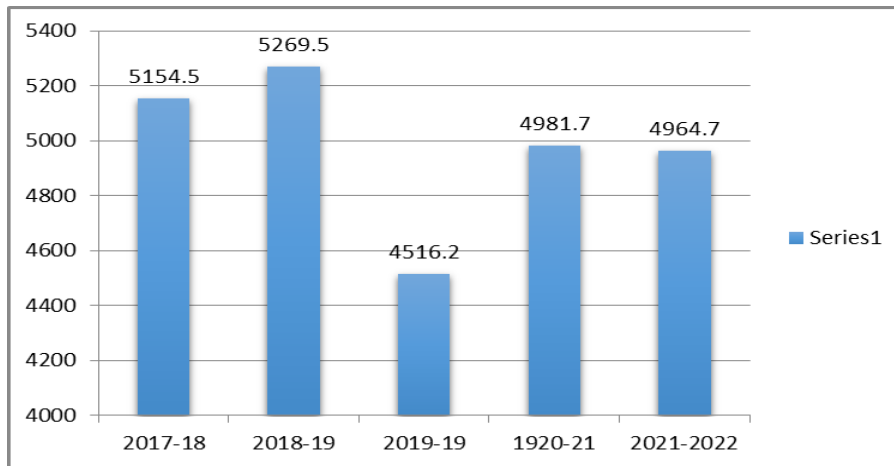
In this periods MSRDC has proposed development of Maharashtra hill station the Government of Maharashtra has approved the project and in addition to the road development and basic infrastructure at various tourist destinations. The government of Maharashtra has declared entire.

Sindhudurg district as Tourism distirct Tourist circuits in Maharashtra including those in western ghats and central regions as well as the Nagpur and Ajanta Ellora Circuits in the Northern and eastern zones respectively. Encompass various inter connected destinations.

**Table-2 Tourism Investment Plant year wise**

Category	2017-18	2018-19	2019-19	1920-21	2021-2022
Accommodation	2347.1	2462.7	1668.9	1434.8	3303.9
Tourism projects	1224.5	1224.0	1224.5	1224.5	238.4
Tour Infrastructure	170.0	170.0	170.0	10.0	10.0
Basic Infrastructure	0.0	0.0	0.0	0.0	0.0
Promotion	960.8	960.8	960.8	960.8	960.8
HRM	133.1	133.1	133.1	133.1	133.1
TM & A	92.6	92.6	92.6	92.6	92.6
Others	225.7	225.7	225.7	225.7	225.7
<b>Total</b>	<b>5154.5</b>	<b>5269.5</b>	<b>4516.2</b>	<b>4981.7</b>	<b>4964.7</b>

**Graph-1 Maharashtra Tourism Total Investment year wise**

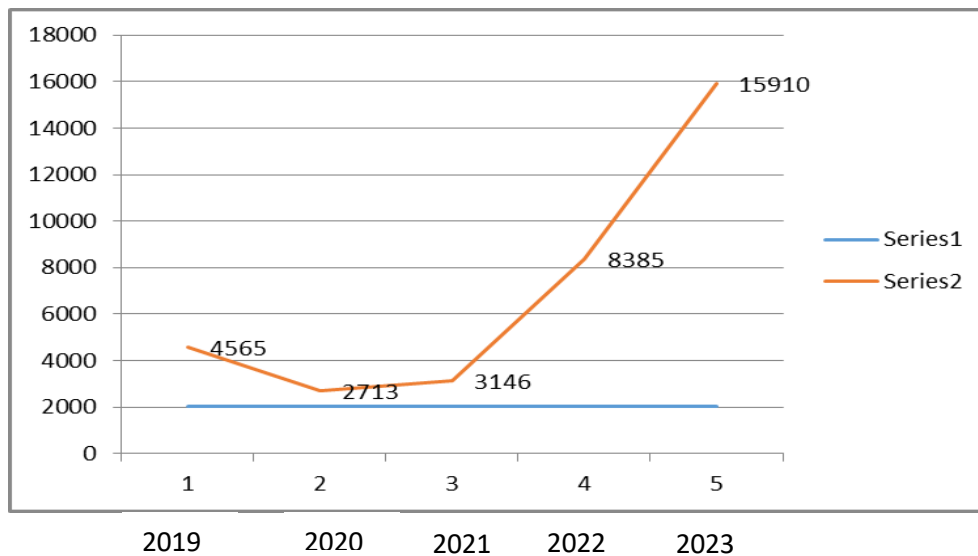


### Tourism and Employment

The travel and tourism sector in India provided employment to nearly 40 million people in financial year 2022. Number of direct and indirect jobs in the travel and tourism sector. Last five years from 2019-20 near about 75 million people got job in tourism. In the corona tourism

employment got decreased. Travel and tourism are two of the largest industries in India. Trade and Restaurants accounts 16% Share in GDP and tourism sector generators employment 12.36% The special features of the employments that women have more jobs.

**Graph-2 Maharashtra tourism statistics and growth Economical Analysis**



Maharashtra revenue expenditure development economic general tourism data was reported 15910. This government data increase from the previous year.

According above tourism decreasing pandemic period 2020. In CEIC reported by RBI and public finance

### Findings and Conclusion:

- 25% of the total domestic visitors to the state visited Mumbai during the study period.
- 79% of the foreign tourists / visitors to the state of Maharashtra visited Mumbai. The next favorite is Pune (14%).
- 36% of the domestic overnight visitors/ tourists to the state of Maharashtra belong to the state of Andhra Pradesh. 11% of domestic overnight visitors are from Gujarat. This data is from the accommodation survey.
- 16% of the foreign overnight tourists / visitors are from the USA, while 13% are from United Kingdom. This data is from the accommodation survey.
- The most visited destination is Juhu Beach in Mumbai.
- Amongst packaged components, majority of people had opted for
- Travel + accommodation. Domestic visitors spend more on accommodation than anything else.

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**-ग्रंथ परिचय-****“रुपयाचा प्रश्न: त्याचा उगम आणि त्याचे निराकरण”****(“The Problem of the Rupee: Its Origin and Its Solution”)****लेखक – डॉ. बी. आर. आंबेडकर**

(प्रथम प्रकाशन - January 1, 1923 by P. S. King &amp; son, ltd.)

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डॉ. बी. आर. आंबेडकर लिखित "द प्रॉब्लेम ऑफ द रुपी: इट्स ओरिजिन अँड इट्स सोल्युशन" या ग्रंथाला शंभर वर्षे पूर्ण झाल्याबद्दल या ग्रंथाचा परिचय सादर करतांना आनंद होत आहे. 1923 मध्ये प्रथम प्रकाशित झालेला हा ग्रंथ भारतीय आर्थिक विचारांच्या इतिहासात एक महत्त्वपूर्ण टप्पा मानला जातो. हा ग्रंथ म्हणजे केवळ अर्थशास्त्रावरील पुस्तक नाही तर वसाहतवादी भारतातील आर्थिक इतिहास आणि धोरणांचे सखोल संशोधन आहे. हे मौलिक साहित्य, ब्रिटिश राजवटीत भारतीय चलन व्यवस्थेचे सखोल व चिकित्सक विवेचन प्रदान करते आणि तत्कालीन आर्थिक आव्हानांवर विचारपूर्वक उपाय सुचवते. तत्कालीन रुपयाच्या समस्येचे मूलगामी विश्लेषण प्रदान करणारे हे पुस्तक अर्थशास्त्र, वसाहतवादी इतिहास आणि धोरण निर्मितीमध्ये स्वारस्य असलेल्या प्रत्येकासाठी वाचनीय आहे. डॉ. बी. आर. आंबेडकरांच्या आर्थिक दूरदृष्टीमुळे आणि स्पष्ट विचारसरणीमुळे हा ग्रंथ आजही तितकाच प्रासंगिक आणि महत्त्वाचा आहे.

**ऐतिहासिक संदर्भ आणि पार्श्वभूमी**

डॉ. आंबेडकरांच्या या मौलिक कृतीचे महत्त्व समजून घेण्यासाठी 20 व्या शतकाच्या सुरुवातीच्या भारताच्या ऐतिहासिक संदर्भाचा आढावा घेणे आवश्यक आहे. भारत जेव्हा ब्रिटिश वसाहतवादी राजवटीखाली होता तेव्हा भारताची अर्थव्यवस्था ब्रिटिश साम्राज्याच्या गरजा आणि धोरणांमुळे खूप प्रभावित झाली होती. 1898 मध्ये चांदीच्या मानकावरून सोन्याच्या विनिमय मानकात संक्रमण होऊन, चलनप्रणाली प्रवाही अवस्थेत

होती. प्रामुख्याने चांदीचे चढ-उतार मूल्य आणि वसाहती आर्थिक धोरणांद्वारे लादलेल्या ताठरपणामुळे हे संक्रमण महत्त्वपूर्ण अस्थिरतेने चिन्हांकित होते. या आर्थिक गोंधळाच्या पार्श्वभूमीवर उदयास आलेला हा ग्रंथ आहे. या अस्थिरतेची कारणे आणि भारतीय अर्थव्यवस्थेवर होणारे विपरीत परिणाम हे पुस्तक बारकाईने तपासते. आंबेडकरांचा दृष्टीकोन विश्लेषणात्मक आणि अनुभवजन्य असा दुहेरी आहे, आपल्या युक्तिवादांचे समर्थन करण्यासाठी त्यांनी विविध ऐतिहासिक तथ्यांचा उपयोग केलेला आहे.

**ग्रंथ रचना आणि सामग्री**

हे पुस्तक एकूण सात प्रकरणांमध्ये विभागले गेले असून त्याची पृष्ठसंख्या ३०९ आहे, प्रत्येक प्रकरण रुपयाच्या समस्येच्या वेगळ्या पैलूंवर लक्ष केंद्रित करते. आंबेडकर भारतातील चलनाच्या ऐतिहासिक उत्क्रांतीचा मागोवा घेऊन सुरुवात करतात, ब्रिटिश वसाहती काळापूर्वीच्या विविध चलन प्रणालींचे सर्वसमावेशक विहंगावलोकन प्रदान करतात. हा ऐतिहासिक दृष्टीकोन महत्त्वाचा आहे कारण तो रुपयाच्या संकटाला कारणीभूत असलेल्या जटिल गतिशीलतेला समजून घेण्यासाठी पार्श्वभूमी तयार करतो.

आंबेडकरांच्या विश्लेषणातील प्रमुख बलस्थान म्हणजे चांदी मानकापासून सोने विनिमय मानकापर्यंतच्या संक्रमणाचे तपशीलवार परीक्षण होय. ते वसाहतवादी अधिकाऱ्यांच्या निर्णय प्रक्रियेचे टीकात्मक मूल्यांकन करतात आणि अंमलात आणलेल्या धोरणांच्या उणिवा ठळकपणे मांडतात. आंबेडकरांनी असा युक्तिवाद केला की, सुवर्ण विनिमय मानकावरून

स्विच करणे चुकीचे होते आणि ते चुकीच्या पद्धतीने अंमलात आणले गेले, ज्यामुळे भारतीय अर्थव्यवस्थेवर त्याचे गंभीर आर्थिक परिणाम झाले.

### मौद्रिक व्यवस्था आणि सुवर्ण मानक

#### (Monetary Systems and Gold Standards)

भारतात अस्तित्वात असलेल्या विविध चलन प्रणालींचे परीक्षण करून आंबेडकर त्यांचे विश्लेषण सुरू करतात. ते भारतीय रुपयाच्या इतिहासाचा व त्याच्या उत्क्रांतीचा चांदीवर आधारित चलनापासून ते सोन्याच्या मानकांशी अंतिम संबंधापर्यंतचा आढावा घेतात. आंबेडकरांनी द्विधातू (चांदी आणि सोने) मानकावरून सोने-विनिमय मानकाकडे जाण्याच्या ब्रिटिश निर्णयावर टीका केली, व त्याचे भारतीय अर्थव्यवस्थेवर होणारे दुष्परिणाम अधोरेखित केले.

आंबेडकरांच्या पुस्तकातील एक मध्यवर्ती युक्तिवाद असा आहे की सोने-विनिमय मानकाचा अवलंब केल्याने, जेथे रुपयाचे मूल्य सोन्यामध्ये परावर्तित केले जात होते परंतु चलन स्वतःच सोन्यामध्ये थेट पूर्तता करता येत नव्हते, ज्यामुळे गंभीर आर्थिक अस्थिरता निर्माण झाली. सोन्याच्या जागतिक बाजारातील चढउतार आणि ब्रिटिश सरकारच्या धोरणांमुळे व या व्यवस्थेमुळे भारत कसा असुरक्षित झाला हे त्यांनी स्पष्ट केले. आंबेडकरांनी या व्यवस्थेच्या परिणामांचे बारकाईने विश्लेषण केले आणि भारतीय लोकसंख्येची क्रयशक्ती कशी कमी झाली आणि महागाई कशी वाढली हे दाखवून दिले.

### ब्रिटिश वसाहतवादी धोरणांची समीक्षा

ब्रिटिश वसाहतवादी आर्थिक धोरणांवर आंबेडकरांची टीका कठोर आणि पुष्टीकारक आहे. त्यांनी असा युक्तिवाद केला की ब्रिटिश प्रशासनाचा मुख्य हेतू भारताच्या आर्थिक कल्याणाच्या खर्चावर ब्रिटिश अर्थव्यवस्थेच्या हिताची सेवा करणे हा होता. भारतीय कच्च्या मालाची निर्यात आणि ब्रिटिश उत्पादित वस्तूंची आयात सुलभ करण्यासाठी वसाहतवादी आर्थिक धोरणे कशी आखण्यात आली होती, त्यामुळे भारताच्या आर्थिक विकासासाठी हानीकारक असा कायमचा व्यापार असमतोल कसा निर्माण झाला, हे आंबेडकरांनी स्पष्ट केले.

आंबेडकरांनी ठळकपणे मांडलेल्या महत्वाच्या मुद्द्यांपैकी एक म्हणजे ब्रिटिश अधिकाऱ्यांनी विनिमय दरांमध्ये केलेली फेरफार होय. त्यांनी दाखवून दिले की, ब्रिटिश सरकारने भारतीय निर्यातदारांचे नुकसान करून ब्रिटिश निर्यातदारांच्या फायद्यासाठी जाणूनबुजून जादा मूल्याचा रुपया कसा राखला. आंबेडकरांच्या मते, यामुळे भारतीय उद्योग आणि कृषी क्षेत्रे खुंटली, ज्यामुळे व्यापक गरिबी आणि आर्थिक स्थैर्य निर्माण झाले.

### चलन अवमूल्यनाची समस्या

आंबेडकरांच्या विश्लेषणाचा आणखी एक महत्वाचा पैलू म्हणजे त्यांनी चलन अवमूल्यनाच्या समस्येवर केलेली चर्चा होय. ब्रिटिश अधिकाऱ्यांनी वेळोवेळी केलेल्या रुपयाच्या अवमूल्यनाचा भारतीय अर्थव्यवस्थेवर विध्वंसक परिणाम झाला असे त्यांचे म्हणणे आहे. अवमूल्यन आणि व्यापार असमतोल कमी करण्याचे उद्दिष्ट असताना अनेकदा जीवनावश्यक वस्तूंच्या किमती वाढल्या होत्या. ज्यामुळे भारतीय लोकसंख्येला भेडसावणाऱ्या आर्थिक अडचणी वाढल्या.

चलनाचे अवमूल्यन आणि त्याचा चलनवाढीवर होणाऱ्या परिणामाबाबत आंबेडकरांची अंतर्दृष्टी विशेष उल्लेखनीय आहे. अवमूल्यनामुळे रुपयाची क्रयशक्ती कशी कमी होते आणि वास्तविक वेतनात घसरण कशी होते याचे ते तपशीलवार परीक्षण करतात. त्यांनी असा युक्तिवाद केला की, वसाहतवादी आर्थिक व्यवस्थेतील अंतर्निहित असमानता अधोरेखित करून, समाजातील गरीब घटकांवर अधिक विषमतापूर्वक परिणाम होतो.

### सैद्धांतिक अंतर्दृष्टी

चलन व्यवस्थेच्या कार्यप्रणालीबद्दल डॉ. आंबेडकरांची सैद्धांतिक अंतर्दृष्टी सखोल आणि त्यांच्या काळाच्या पुढे जाणारी आहे. त्यांनी चलन मूल्यांकनाची तांत्रिकता, सोन्याच्या साठ्याची भूमिका, आंतरराष्ट्रीय व्यापार आणि भांडवली प्रवाह यासारख्या बाह्य घटकांच्या प्रभावाचा अभ्यास केला. त्यांचे विश्लेषण जागतिक अर्थव्यवस्थेच्या परस्परसंबंधांचे आणि भारतासारख्या वसाहतवादी अर्थव्यवस्थेच्या असुरक्षिततेचे सखोल आकलन प्रकट करते.

डॉ. आंबेडकरांच्या कार्यातील सर्वात महत्त्वपूर्ण योगदान म्हणजे सुवर्ण विनिमय मानकावरील टीका होय. त्यांनी असे निदर्शनास आणले की, ही प्रणाली मूळतःच सदोष होती कारण ती सोन्याचा मोठा साठा राखण्यावर अवलंबून होती, जी मर्यादित संसाधने असलेल्या भारतासारख्या देशासाठी व्यवहार्य नव्हती. आंबेडकर सोन्याच्या विनिमय मानकामुळे होणाऱ्या चलनवाढीच्या दबावाच्या प्रतिकूल परिणामांवरही भर देतात, ज्यामुळे आर्थिक वृद्धी खुंटली आणि गरिबी वाढली.

### धोरण व शिफारशी

डॉ. आंबेडकरांच्या धोरणात्मक शिफारशी कदाचित पुस्तकाचा सर्वात प्रभावशाली भाग आहे. ते एका व्यवस्थापित चलन व्यवस्थेची वकिली करतात, ज्यामुळे चलनविषयक धोरणात अधिक लवचिकता आणि भारताच्या आर्थिक वास्तवाशी उत्तम संरेखन होऊ शकेल. त्यांनी केंद्रीय बँकेच्या स्थापनेचा प्रस्ताव मांडला, ही कल्पना 1935 मध्ये रिझर्व्ह बँक ऑफ इंडियाच्या निर्मितीनंतर साकार झाली. डॉ. आंबेडकरांची केंद्रीय बँकेची कल्पना ही एक स्थिर आणि स्वायत्त मौद्रिक संस्था निर्माण करणे होती. जी देशाचे चलनविषयक धोरण प्रभावीपणे आणि स्वतंत्रपणे व्यवस्थापित करू शकेल. त्यामुळे वसाहतवादी हितसंबंध जोपासल्या जाणार नाही.

केंद्रीय बँक व्यतिरिक्त, आंबेडकरानी रुपयाला स्थिर करण्यासाठी इतर अनेक उपाय सुचविले आहेत. यामध्ये चलन निर्माण करण्यामधील सुधारणा, विनिमय दरांचे चांगले नियमन, आर्थिक वृद्धी आणि विकासाला प्रोत्साहन देणारी धोरणे यांचा समावेश आहे. त्यांच्या शिफारशींमधून रुपयाच्या समस्येच्या मूळ कारणांना दूर करण्यासाठी संरचनात्मक सुधारणांच्या गरजेचे सखोल आकलन दिसून येते.

### प्रासंगिकता

"द प्रॉब्लेम ऑफ द रुपी" ची प्रासंगिकता त्याच्या तत्कालीन ऐतिहासिक संदर्भाच्या पलीकडे आहे. डॉ. आंबेडकरांचे विश्लेषण आणि शिफारशींना विकसनशील देशांमधील चलनविषयक धोरण आणि आर्थिक व्यवस्थापनासाठी कायम महत्त्व आहे. कठोर

चलनप्रणाली आणि धोरण-निर्मितीमध्ये लवचिकता आणि स्वायत्ततेची वकिली याबद्दलची त्यांची टीका समकालीन आर्थिक विचारांशी जुळते.

शिवाय, आंबेडकरांचे कार्य हे त्यांच्या अचाट बुद्धिमत्तेचे आणि तत्कालीन महत्त्वाच्या समस्यांचे निराकरण करण्याच्या वचनबद्धतेचा पुरावा आहे. सामाजिक सुधारणा आणि राजकारणातील त्यांच्या अजोड कार्यकर्तृत्वामुळे आर्थिक विचारातील त्यांचे योगदान अनेकदा झाकोळले जाते. तथापि, "द प्रॉब्लेम ऑफ द रुपी" हा ग्रंथ त्यांच्या अर्थशास्त्रीय ज्ञानाचा आवाका आणि गुंतागुंतीच्या आर्थिक समस्यांशी तितक्याच कठोरतेने आणि उत्कटतेने सामील होण्याची क्षमता अधोरेखित करते.

### समीक्षा आणि प्रभाव

जेव्हा "द प्रॉब्लेम ऑफ द रुपी" प्रथम प्रकाशित झाले, तेव्हा त्याला विद्वान आणि धोरणकर्त्यांकडून मोठ्या प्रमाणात प्रशंसा मिळाली. तथापि, तत्कालीन राजकीय गतिमानता आणि ब्रिटिश आर्थिक धोरणांच्या व्यापक वर्चस्वामुळे त्याचा प्रभाव काहीसा झाकोळला गेला. असे असूनही, या पुस्तकाला भारतीय आर्थिक चिंतनात मूलभूत साहित्य म्हणून गेल्या काही वर्षांत मान्यता मिळाली आहे.

समकालीन अर्थशास्त्रज्ञ आणि इतिहासकारांनी आंबेडकरांच्या कार्याची पुनरावृत्ती करून सध्याच्या आर्थिक आव्हानांच्या संदर्भात त्याची प्रासंगिकता अधोरेखित केली आहे. व्यवस्थापित चलन प्रणाली आणि केंद्रीय बँकिंगवर असणारा या पुस्तकाचा भर आधुनिक आर्थिक धोरणाच्या चर्चामध्ये प्रतिध्वनीत होतांना दिसातो. शिवाय, आर्थिक स्वायत्तता आणि स्वावलंबनाची आंबेडकरांची हाक वसाहतोत्तर आर्थिक विकासाच्या संदर्भात समर्पक राहते.

"द प्रॉब्लेम ऑफ द रुपी" हे केवळ त्याच्या कठोर विश्लेषणासाठीच नाही तर त्याच्या चिरस्थायी प्रासंगिकतेसाठी देखील भारतीय आर्थिक चिंतनातील एक ऐतिहासिक कृती आहे. वसाहतवादी आर्थिक धोरणांच्या त्रुटींबद्दल आंबेडकरांची अंतर्दृष्टी आणि मौद्रिक सार्वभौमत्त्वासाठी त्यांचे समर्थन आजही प्रतिध्वनित होते, कारण राष्ट्रे जागतिक वित्तीय

प्रणालींच्या गुंतागुंतीशी झुंजत आहेत आणि त्यांचे आर्थिक स्वातंत्र्य मिळवू इच्छित आहेत.

डॉ. आंबेडकरांचे कार्य अर्थशास्त्र आणि सामाजिक न्यायाच्या छेदनबिंदूवर प्रकाश टाकते. त्यांचे विश्लेषण केवळ आर्थिक सिद्धांताच्या पलीकडेच जात नाही तर, आर्थिक धोरणांच्या मानवी प्रभावावर देखील जोर देते. चलनाचे अवमूल्यन आणि चलनवाढ यांचा गरीबांवर कसा परिणाम होतो यावर लक्ष केंद्रित करून, आंबेडकर आर्थिक निर्णयांच्या व्यापक सामाजिक परिणामांकडे लक्ष वेधतात. या ग्रंथातील त्यांचे विचार सर्वसमावेशक आणि न्याय्य समाजाच्या त्यांच्या दृष्टीचा पुरावा आहे.

### समारोप

डॉ. बी. आर. आंबेडकर यांचा हा ग्रंथ ऐतिहासिक आणि राजकीय संदर्भांच्या सखोल आकलनासह प्रभावी आर्थिक विश्लेषण प्रदान करतो. आंबेडकरांचे रुपयाच्या समस्येचे परीक्षण सर्वसमावेशक आणि अंतर्दृष्टीपूर्ण आहे, जे आर्थिक धोरण आणि व्यवस्थापनासाठी मौल्यवान धडे देतात. स्थिर आणि स्वायत्त चलन व्यवस्थेच्या त्यांच्या दृष्टीचा भारताच्या आर्थिक परिदृश्यावर कायमस्वरूपी प्रभाव पडला आहे आणि जगभरातील अर्थशास्त्रज्ञ आणि धोरणकर्त्यांना प्रेरणा देत आहे. डॉ. आंबेडकरांची ही साहित्यकृती त्यांचे बौद्धिक तेज आणि त्यांच्या काळातील गंभीर समस्या सोडवण्याच्या त्यांच्या बांधिलकीचा पुरावा आहे. आर्थिक साहित्यात "द प्रॉब्लेम ऑफ द रुपी" हा एक महत्वाचा ठेवा आहे, जो मौद्रिक व्यवस्थेतील गुंतागुंत आणि वसाहती संदर्भात आर्थिक विकासाच्या आव्हानांबद्दल सखोल अंतर्दृष्टी देतो. "रुपयाचा प्रश्न" या

ग्रंथाच्या शताब्दी वर्षाच्या निमित्ताने, आपण त्यांच्या विचारांवर पुनर्विचार करण्याची आणि त्यांच्या आर्थिक दृष्टिकोनाचे महत्त्व नव्याने अधोरेखित करण्याची संधी घेतली पाहिजे.

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