ISSN (Online): 2455-3662
EPRA International Journal of Multidisciplinary Research (IJMR) - Peer Reviewed Journal
Volume: 10| Issue: 11| November 2024|| Journal DOI: 10.36713/epra2013 || SJIF Impact Factor 2024: 8.402|| ISI Value: 1.188

INDUSTRIAL DEVELOPMENT PATTERNS IN ASSAM: A QUANTITATIVE ANALYSIS

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ABSTRACT

Development is a multidimensional process that advances social, cultural, and political aspects in addition to improving the economic outlook. Even so, around 70% of India's labour force is still employed in the primary sector. The gross domestic product (GDP) of the nation was historically dominated by the primary sector before independence. But, even though most workers still depend on it for their living, its share of GDP has decreased over time. The industrial sector in Assam has been expanding gradually over time. A state's overall development depends on advancements in its primary, secondary, and service sectors. Given the growing contributions of the secondary and service industries, it is imperative to assess their development over the years. The development of any state necessitates growth across all three sectors: primary, secondary, and service. With the contributions of the secondary and service sectors steadily increasing over time, it is essential to evaluate their progress. This study focuses on analyzing the growth of Assam's industrial sector, utilizing indices to measure the level of development.

KEYWORDS: *Primary sector, secondary sector, service sector, Gross domestic product, industrial sector, indices.*

INTRODUCTION

The development of a country relies on sustained progress over time. This growth not only strengthens the economic framework but also uplifts social, cultural, and political dimensions. India, being primarily an agrarian economy, has seen steady advancements over the years, with a large portion of its workforce still employed in agriculture and allied activities—approximately 70 percent of the total working population. Before independence, the primary sector significantly contributed to the country's gross domestic product (GDP) due to the high proportion of workers engaged in agriculture. However, over time, its share in GDP declined, even though the majority of the workforce remained concentrated in this sector (Bhushan, 2021). With the introduction of the New Economic Policy (NEP) in 1991, the secondary and service sectors experienced notable growth. Today, the service sector accounts for about 60 percent of the GDP, the secondary sector for 23 percent, and the primary sector for just 17 percent (Datt & Mahajan,2018). This shift highlights the growing significance of the secondary and service sectors in India's economy compared to the primary sector. Assam, one of the Northeastern states of India, reflects a similar trend. While the majority of the workforce in Assam remains engaged in the primary sector, its contribution to the Net State Domestic Product has been declining in recent years. Conversely, the contributions of the secondary and service sectors have been steadily increasing, despite a smaller proportion of the workforce being employed in these sectors compared to the primary sector. This paper aims to examine the development of the secondary sector in Assam by analyzing the available data related to this sector.

LITERATURE REVIEW

Numerous studies have examined various aspects of industrial development in India. Some notable examples include works by Omar et al. (2009), Mishra (2012), Sahoo and Sethi (2012), Daveshwar (2014), Saikia (2014), Gautam and Yadav (2017), Elizabethrani (2019), Yasin (2019), and Dey and Datta (2020), among others. A review of the literature reveals that while some studies focus on India as a whole and others on specific states, relatively few have assessed industrial development in Assam. Therefore, this paper aims to address this gap by examining the current state of industrial development in Assam.

OBJECTIVES

1. To evaluate the levels of industrial development during the period from 2011 to 2019.
2. To analyse if any relationship exists between industrial development and economic development.

RESEARCH QUESTIONS

1. Has the industrial sector in Assam experienced any development over the years?
2. Is there a relationship between industrial development and economic development?

DATA AND METHODOLOGY

The study was carried out using data from 2010-11 to 2018-19, obtained from various secondary sources such as the Statistical Handbook of Assam (various issues), Nedfi databank, Indiastat, economic surveys, and others.

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METHOD OF ANALYSIS

The composite development index was constructed using the Wroclaw Taxonomic Method, which was developed by Florek et al. (1952). In 1967, this method was proposed to UNESCO as a tool for ranking and comparing the development of countries. It has been applied in studies by Arief (1982), Khan & Islam (1990), Ohlan (2013), Bhattacharjee & Patowary (2019). The Wroclaw method used in this study is outlined below.

Measuring the Level of Development

Let,$[X_{ij}]$ be the data matrix giving the values of the variables of i_{th} state and the j_{th} indicator where i=1,2,….,n(no. of States) and j=1,2,3…,k(no. of indicators). Since the units of measurement of the variables considered are not uniform, for combined analysis $[X_{ij}]$ is transformed to the matrix of standardized indicators $[Z_{ij}]$ as follows:

$$[Z_{ij}]=\frac{Xij-\overline{Xj}}{sj}$$

Where $\overline{Xj}$ = mean of the jth indicator and sj = the standard deviation of the jth indicators.

From [Zij], identify the optimal value of each indicator. The optimal value will be either the maximum or minimum value, depending on how the indicator impacts the level of development. For instance, an increase in literacy rate would have a positive effect on development, whereas higher population density might negatively impact development. For obtaining the level of development (C_i) of the ith state, first calculate the square root of the deviations of the individual value of a transformed variate from the best value. In other words, we calculate P_{ij} as:

$$P_{ij} =(Z_{iJ}-Z_{0J})^2$$

Where, Z_{0J} =optimal value.

For each i and j, Pattern of Development (C_i) is given by

$$C_i = \left[\left[\sum_{i=1}^{k} Pij/(CV)j\right]\right]^{1/2}$$

Where, (CV)j = coefficient of variation of Xij for jth indicators.

Therefore, Composite index of development is given by

$$D_i=C_i/C$$

Where, $C= \bar{C}+3s_i$

Where $\bar{C}$= mean of C_i and s_i = standard deviation of C_i.

The closer the value of Di is to 0, the more developed the state is, while a value closer to 1 indicates a less developed state.

The study selects the following indicators to assess industrial development: number of factories, number of workers employed, working capital, net income, functioning units, area under industrial estates, number of registered factories, and the index of industrial production. To evaluate the level of economic development, the chosen indicators are: per capita net State domestic product, literacy rate, and infant mortality rate. To determine if there is any relationship between industrial sector development and economic growth, a simple regression analysis is conducted.

FINDINGS AND DISCUSSION

Industrial development in Assam has advanced over the years, as shown below using the indicators outlined in the methodology section. Table 1 presents the industrial development indices for the period 2011-2019.

Table 1: Industrial Development in Assam from 2010-11 to 2018-19

Year	Industrial Development Index
2010-11	0.89
2011-12	0.78
2012-13	0.77
2013-14	0.72
2014-15	0.69
2015-16	0.65
2016-17	0.64
2017-18	0.61
2018-19	0.57

Source: Author's Computations

The table above clearly demonstrates the progress in industrial development in Assam over the years. The index value ranges from 0.89 to 0.57, indicating noticeable development in the industrial sector over time.

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Table 2: Economic Development in Assam from 2010-11 to 2018-19

Year	Economic Development Index
2010-11	0.81
2011-12	0.80
2012-13	0.77
2013-14	0.75
2014-15	0.73
2015-16	0.69
2016-17	0.68
2017-18	0.62
2018-19	0.60

Source: Author's Computations

Table 2 illustrates the development occurring from 2010-11 to 2018-19, showing a gradual increase from 0.81 to 0.60. This indicates slow progress over the 10 years.

To examine whether a relationship exists between industrial development and economic development, a simple regression analysis is conducted, the results of which are presented in Table 3 below.

Table 3: Industrial Development and Economic Development in Assam

Regression Statistics						
Multiple R	0.44					
R Square	0.25					
Adjusted R Square	0.04					
Standard Error	0.22					
Observation	8					
	Co-efficient	Standard Error	t Stat	P value	Lower 95%	Upper 95%
Intercept	0.76	0.30	2.218	0.072	0.121	1.755
Index	0.55	0.32	1.012	0.410	2.011	0.821

Source: Author's Computations

The regression results show a low R-Square value, with the industrial development index having a positive coefficient of 0.51. This indicates that there is a positive relationship between industrial development and economic development in Assam.

CONCLUSIONS

The analysis indicates that both industrial and economic development have been improving over the years. The study also reveals a positive relationship between economic and industrial development in Assam. Therefore, a greater focus on industrial development in the state is essential. Effective governance can significantly contribute to the continued progress and development of Assam.

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