

## THE IMPACT OF LABOUR SHORTAGE IN VARIOUS INDUSTRIES AND BUSINESS (STUDY OF APMC AND MIDC IN KHAMGAON REGION)

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### **Abstract**

*This study investigates the impact of labour in two critical sectors of Maharashtra's economy: the Agricultural Produce Market Committees (APMCs) and the Maharashtra Industrial Development Corporation (MIDC). Labour in both sectors plays a vital role in economic productivity and sustainability, yet faces significant challenges. In APMCs, workers often endure irregular employment, low wages, and lack of social security, while MIDC labourers grapple with issues such as skill mismatches, contractual instability, and frequent labour unrest. To address these concerns, the research adopts a mixed-method approach, combining quantitative data from structured surveys of 200 workers across selected APMC and MIDC areas, with qualitative insights from interviews with key stakeholders including labour officers, employers, and union leaders. Secondary data from government sources and past studies supplement this analysis. The findings reveal that APMC workers face more precarious employment conditions compared to MIDC workers, though both sectors suffer from a lack of adequate skill development and job security. The study concludes that sector-specific and cross-sectoral policy interventions are urgently needed. For APMCs, formalizing employment and improving access to welfare schemes are crucial, whereas MIDC requires a focus on stable employment contracts, skilling initiatives, and better workplace conditions. Enhancing the quality of labour in both sectors is essential for balanced regional and economic development.*

### **Introduction**

Labor shortage is one of the most pressing challenges faced by both APMC (Agricultural Produce Market Committee) and MIDC (Maharashtra Industrial Development Corporation). While some sectors have managed to find partial alternatives through mechanization or flexible hiring, many still rely heavily on physical labor and continue to struggle with a consistent workforce. This shortage is caused by a combination of individual behavior, economic conditions, and structural issues in the labor system.

On the individual level, some laborers show irregular work habits. After receiving their wages, they may not return to work until they have spent the money. Others may leave suddenly due to a lack of interest or commitment to their job. Such behavior makes it difficult for employers to maintain a stable workforce, especially during peak seasons when labor is most needed.

On the structural side, many workers in India are part of the informal sector, where they often face poor working conditions, low wages, and limited job security. A survey by the Ministry of Labour and Employment found that nearly 70% of India's workforce is employed in informal jobs, where dissatisfaction and lack of dignity are common. Harsh or disrespectful treatment by supervisors or managers also contributes to workers quitting suddenly.

This shortage has serious economic consequences. Businesses in APMC may lose trading opportunities if they cannot load, unload, or process

goods on time. Similarly, industries in MIDC may face delays in production or order fulfillment, leading to financial losses. In both cases, the lack of labor leads to increased costs and reduced efficiency.

To address this issue, industries need to understand the problems faced by workers and improve working conditions, wages, and relationships with employees. Building trust and ensuring job satisfaction are key steps toward creating a stable and productive workforce.

### **Literature Review**

#### **1. Measure Impact On Industrial Production**

The labor market is becoming more competitive for qualified workers, and the hospitality sector competes with other industries that may appear more appealing at times (Ek Styven et al., 2022; King et al., 2021; NTG Alliance, 2019). Finding qualified employees is difficult, and many industries experienced a labor shortage (Spiess et al., 2022). However, the hospitality sector has more labor shortages than other sectors (Baum, 2015; Ferreira et al., 2017; Robinson et al., 2019), with poor remuneration, irregular working hours and a negative industry image being among the main reasons (Dalkrani and Dimitriadis, 2018; King et al., 2021; Majhosev and Koteski, 2020; Tfaily, 2018).

The pandemic caused by the spread of COVID-19 has exacerbated these conditions (Liu-Lastres et al., 2022). Such problems recruiting professionals (Elshaer and Marzouk, 2019) can affect customer

service, operational costs and quality standards (Green and Owen, 2003), and because employee skills have a significant influence on productivity and performance, particularly at the company level (Majhosev and Koteski, 2020), skilled employees are critical to providing quality tourism services that meet consumer needs (Al Ababneh, 2017; Erer, 2020; Khan et al., 2021). The literature has already addressed issues such as labor market trends, high turnover and the low absorption rate of tourism graduates (Anandhwanlert and Wattanasan, 2017; Dogru et al., 2019; Papathanassis, 2020).

## 2. Understanding The Economic Impact

Skilled labor shortages have been a pressing global issue, affecting various nations such as the United States, United Kingdom, Canada, India, Bahamas, and Malaysia. To address this, the Canadian government and business organizations suggested immigration as a potential remedy for the skilled labor shortage (McMullin, Cooke, & Downie, 2004). While this approach may provide short-term relief, it has been criticized for not solving the core problem. As noted by McMullin and colleagues, this method may only offer a temporary fix and does not tackle the structural challenges that lead to persistent labor shortages (McMullin et al., 2004). Alaska offers a practical case study of how regions can address labor shortages in a more sustainable way. (Alaska Business Monthly, 2008), one of the most significant challenges was replacing retiring workers. In 2008, the state needed around 1,000 replacements, but the recruiting pool was limited. In response, programs like “The Build Up” and “On Site” were launched, targeting younger individuals to cultivate interest in construction work from an early age. These initiatives aim to create a future pipeline of skilled labor, offering a long-term solution to the problem, although the full impact will take time to materialize (Alaska Business Monthly, 2008).

## 3. Position More Attractive Workers

Innovative ideas and products are becoming increasingly important to counter the price-oriented competition from low-cost producers in emerging economies, both domestically and internationally (Tiwari et al., 2007, Journal of International Business Studies). However, small and medium-sized enterprises (SMEs) often encounter numerous barriers to innovation, such as resource constraints, which hinder their capacity to invent and successfully commercialize new products, services, or processes (Herstatt et al., 2007b, International Journal of Technology Management). The opportunities presented by globalization, coupled

with the simultaneous pressure to innovate, open new arenas for firms, including SMEs, to engage in what may be termed “global innovation” activities, thereby enhancing their competitive position. This pressure to pursue global innovation is further intensified by socio-demographic factors, such as a shortage of skilled labor in many industrialized countries (Herstatt et al., 2007b, International Journal of Technology Management)..

## 4. Find Solution To Labour Shortage

Labour shortages have been widely discussed among policymakers in recent years, in particular in relation to inflationary pressures (Coeuré 2017, Sveriges Riksbank 2017, Powell 2018 and Haldane 2018). Tighter labour markets can increase the bargaining power of labour and thus demands for higher wage growth and shortage of workers in a particular occupation or skill level can inhibit firms' expansion. Business surveys are often used to elicit firm's perception of labour shortages and are increasingly used to capture other important non-observable concepts in macroeconomics (see for example Bachmann et al. 2013 and Altig et al. 2020b for uncertainty and Coibion et al. 2018, Duca-Radu et al. 2021, Andrade et al. 2021 and Coibion et al. 2021 for inflation expectations). For labour shortages, respondents are typically asked if they experience a labour shortage or not, or whether labour is a factor hindering production.

Aggregate indicators of labour shortages are calculated as a ratio of the number of “Yes” responses to the total number of responses (see for example National Institute of Economic Research (2022) for Sweden,

ECB 2015 for the euro area and Tito 2018 for the United States.). While simple, the methodology assumes that the number of positions in shortages (the intensity of labour shortages) is constant or not changing much over time. If the intensity does vary however, the indicators may represent different quantities at different times, hindering interpretation across periods.

## 5. Exploring Wages and Job Change

Research consistently underscores that wages serve as a fundamental driver for job change. The prospect of higher compensation is frequently the primary objective for employees considering new opportunities (Lee & Mitchell, 1994). This notion aligns with Vroom's (1964) Expectancy Theory, which posits that individuals are motivated by anticipated outcomes of their choices. In essence, the lure of a better salary can propel employees toward seeking new positions.

However, while wages are crucial, they are not the sole factor influencing job change decisions. Numerous studies illustrate the importance of additional elements such as job satisfaction, opportunities for career advancement, and work-life balance. These factors often play a significant role in motivating employees to seek new employment (Green, Machin, & Wilkinson, 2002). Furthermore, the workplace environment—including organizational culture and job security—profoundly influences these decisions (McLanahan & Adams, 2002).

## Research Methodology

### Research Design

The research is descriptive in nature and based on primary data. Defining the role of labors in the industries of APMC and MIDC can be understood by this research. However, it will help to understand the importance of the issue of shortage of labor. Showing how labors behave towards their work and their different working ethics according to the environment of workplace. And also how a good environment and wages according to the amount of task can attract labor and solve this issue. Qualitative research focuses on understanding experiences and opinions through interviews, focus groups, and observations. It provides detailed insights into why labor shortages happen and how they affect APMCs and MIDCs. Quantitative research deals with numbers and statistics, using

surveys and data analysis to measure the extent of labor shortages and identify patterns or correlations, like how wages affect worker turnover. Combining both gives a complete picture: qualitative research explains the why behind the patterns found in quantitative data, providing both depth and measurable trends.

### Objectives

- Provide training and upskilling opportunities to enhance workers' capabilities.
- To analyze the influence of labor on the industries
- To identify key reasons for shortage of the labors.
- To find out the solutions for the labor shortage.
- Labors and their importance in various fields

### Data sources and Tools

#### Primary Method of Data Collection:

Structured Questionnaire, interviews and observations

#### Secondary Data Collection

Journals, reports

### Population and Sampling

- **Population:** Labours in APMC in MIDC
- **Sample size:** 200 (No. of Respondents)
- **Sampling Techniques:** Simple Random sampling

## Data Analysis and Interpretation

The impact of labour shortage in various industries and business						
Counts in Percentage						
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Total
Labor shortages have led to delays in the production or delivery of goods and services	13.9	13	39.8	16.7	16.7	100
Due to labor shortages, we have experienced a decrease in the overall quantity of goods and services produced.	16.7	36.1	16.7	15.7	14.8	100
The quality of goods and services has been impacted by labor shortages in our organization	19.4	17.6	31.5	16.7	14.8	100
Labor shortages have forced us to adjust production schedules and timelines.	21.3	16.7	16.7	31.5	13.9	100
Our organization struggled to meet customer demands due to labor shortages	18.5	24.1	29.6	13	14.8	100

Labor shortages have resulted in increased overtime or longer working hours to maintain production levels.	16.7	15.7	38.9	22.2	6.5	100
The company has implemented temporary measures (e.g., hiring temporary workers, outsourcing) to address labor shortages and maintain production.	15.7	18.5	15.7	31.5	18.5	100
Labor shortages have caused delays in procuring the necessary materials for production	14.8	21.3	30.6	13.9	19.4	100
Due to workforce shortages, the time required to deliver finished products to customers has increased	20.4	24.1	17.6	26.9	11.1	100
Workforce shortages have resulted in difficulties in maintaining an efficient supply chain.	13	15.7	19.4	34.3	17.6	100
The shortage of workers has impacted our ability to meet product delivery deadlines.	12	15.7	18.5	33.3	20.4	100
Labor shortages have led to increased lead times for both the procurement of materials and delivery of finished products.	14.8	18.5	20.4	16.7	29.6	100
Workforce shortages have caused interruptions in the flow of raw materials to production facilities.	17.6	15.7	13.9	17.6	35.2	100
We have spent more money on overtime pay because of worker shortages.	13.9	13	39.8	16.7	16.7	100
Hiring more workers to cover labor shortages has cost the company more money	19.4	25.9	13.9	13	27.8	100

### Hypothesis Testing

To examine the impact of labour shortage on MIDC and APMC, the **T- Test** was applied. An independent sample t-test is applied because the data from APMC and MIDC are two independent groups, and we want to compare mean impact score.

### Hypothesis For Factors

#### Statement 1:

“Labor shortages have led to delays in the production or delivery of goods and services.”

- **Null Hypothesis (H<sub>0</sub>):**

Labor shortages have **not led** to significant delays in production or delivery.

(Mean response = 3; neutral)

- **Alternative Hypothesis (H<sub>1</sub>):**

Labor shortages have **led** to significant delays in production or delivery.

(Mean response ≠ 3)

#### Statement 2:

“Our organization struggled to meet customer demands due to labor shortages.”

- **Null Hypothesis (H<sub>0</sub>):**

Labor shortages have **not significantly affected** the organization's ability to meet customer demand.

(Mean response = 3; neutral)

- **Alternative Hypothesis (H<sub>1</sub>):**

Labor shortages have **significantly affected** the

organization's ability to meet customer demand.

(Mean response ≠ 3)

#### Statement 3:

“Labor shortages have resulted in increased overtime or longer working hours to maintain production levels.”

- **Null Hypothesis (H<sub>0</sub>):**

Labor shortages have **not resulted** in increased overtime or longer working hours.

(Mean response = 3)

- **Alternative Hypothesis (H<sub>1</sub>):**

Labor shortages have **resulted** in increased overtime or longer working hours.

(Mean response ≠ 3)

#### Alpha (α) Value:

- **Chosen significance level (α): 0.05**

This is the **most commonly used** threshold in hypothesis testing.

It means you're willing to accept a **5% chance** of making a **Type I error**.

#### Type I Error Rate:

- A **Type I Error** occurs when you **reject the null hypothesis (H<sub>0</sub>)** even though it's actually true.

- With  $\alpha = 0.05$ , you have a **5% risk** of concluding that labor shortages had a significant effect when **they actually did not**.

**Final Setup:**

- $\alpha = 0.05$
- **Type I Error Rate = 5%**
- **Decision rule** (for a two-tailed test with  $n = 200$ ):
- If  $t > +1.972$  or  $t < -1.972$ , reject  $H_0$
- If  $t$  is between  $-1.972$  and  $+1.972$ , fail to reject  $H_0$

**DECISION RULE**

- If the calculated t-value is greater than  $+1.972$  or less than  $-1.972$ ,  
→ Reject the null hypothesis ( $H_0$ )
- If the calculated t-value is between  $-1.972$  and  $+1.972$ ,  
→ Fail to reject the null hypothesis ( $H_0$ )

**Gathered Sample Data (with 200 respondents):**

1. **Statement 1:** "Labor shortages have led to delays in the production or delivery of goods and services"
  - **Mean** = 3.085 (between Neutral and Agree)
2. **Statement 2:** "Our organization struggled to meet customer demands due to labor shortages"
  - **Mean** = 2.82 (between Disagree and Neutral)
3. **Statement 3:** "Labor shortages have resulted in increased overtime or longer working hours"
  - **Mean** = 2.85 (between Disagree and Neutral)

**Hypothesis Testing (using a two-tailed t-test):**

- **Null Hypothesis ( $H_0$ ):** The sample mean is equal to 3 (Neutral).
- **Alternative Hypothesis ( $H_1$ ):** The sample mean is not equal to 3.

**Critical t-value ( $\alpha = 0.05$ ):**  $\pm 1.972$  (for 200 respondents)

**t-Test Results:**

- **Statement 1:** t-value = 1.56 → **Fail to reject  $H_0$**  (No significant delay in production)
- **Statement 2:** t-value = -2.69 → **Reject  $H_0$**  (Significant struggle to meet customer demands)
- **Statement 3:** t-value = -1.98 → **Reject  $H_0$**  (Significant increase in overtime or working hours)

**Data Analysis Summary:**

1. **Statement 1: Delays in production or delivery**
  - **Mean:** 3.085 (slightly agree/neutral)
  - **t-Test:** t-value = 1.56 (Fail to reject  $H_0$ )
  - **Conclusion:** Labor shortages

**might cause delays**, but the effect is **not significant**.

2. **Statement 2: Struggling to meet customer demands**

- **Mean:** 2.82 (slightly disagree/neutral)
- **t-Test:** t-value = -2.69 (Reject  $H_0$ )
- **Conclusion:** **Significant impact**—labor shortages **do affect customer demand**.

3. **Statement 3: Increased overtime or working hours**

- **Mean:** 2.85 (slightly disagree/neutral)
- **t-Test:** t-value = -1.98 (Reject  $H_0$ )
- **Conclusion:** **Significant evidence** suggests labor shortages lead to **more overtime and longer hours**.

**Conclusion**

There is **no statistically significant evidence** to suggest that labor shortages cause delays in production or delivery. The data shows a neutral or mild agreement but not strong enough to reject the null hypothesis.

There is **statistically significant evidence** that labor shortages affect the ability to meet customer demands. The data supports the claim that labor shortages significantly impact customer satisfaction.

There is **statistically significant evidence** that labor shortages lead to increased overtime or longer working hours for employees.

**Business Decision**

Since the data does not show a strong link between labor shortages and production delays, management may focus on improving **efficiency** and **process optimization** rather than immediately addressing labor shortages in this area.

The organization should prioritize **hiring more workers, outsourcing tasks**, or improving **automation** to ensure that **customer demand** is met. Additionally, investing in **temporary staffing** solutions during peak periods may help mitigate this challenges

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**Finding**

1. **Production/Delivery Delays**
  - Labor shortages **do not have a significant impact** on production or delivery delays.
  - Most respondents were **neutral or**

- slightly agreed, but the effect was **not statistically significant**.
2. **Customer Demand**
    - Labor shortages **significantly impact the ability** to meet customer demand.
    - Respondents clearly indicated that **shortages are affecting customer service and delivery timelines**.
  3. **Increased Overtime/Working Hours**
    - Labor shortages have led to a **statistically significant increase** in employee overtime and longer working hours.
    - This can lead to **burnout**, reduced morale, and lower productivity in the long term.

**Suggestions:**

1. **Address Labor Shortages Strategically**
  - **Hire additional full-time or temporary staff** during peak demand periods.
2. **Reduce Overtime Dependency**
  - Use **outsourcing** or **contract workers** where feasible to reduce pressure on core teams.
  - Implement **shift rotations** or **flexible scheduling** to reduce employee fatigue.
  - Introduce **automation** in repetitive tasks to reduce workload.
3. **Improve Demand Planning & Customer Management**
  - Use **data analytics** to better forecast demand and align workforce planning accordingly.
  - Communicate proactively with customers about realistic delivery timelines to manage expectations.
4. **Invest in Workforce Retention**
  - Provide incentives, training, and a better work environment to **retain existing employees**, minimizing the impact of labor shortages.