
COST OF AIR POLLUTION ON BUSINESS AND ECONOMY

Muskan Goyal, LLM (Amity University, Noida, Uttar Pradesh)

In addition to posing a threat to one's health, air pollution also impedes growth. By causing illness and premature death, air pollution lowers the quality of life. In these nations, incomes are also lower as a result of a lack of productive labor. Air contamination can lastingly affect efficiency and in alternate ways, for instance, by hindering yield development, decreasing agrarian efficiency, and making urban communities less appealing to gifted laborers, along these lines diminishing city seriousness. India, which is primarily dependent on agriculture and accounts for a significant portion of its economy, can suffer significant economic losses if agricultural production is decreased. Lastly, reduced tourism flows can be exacerbated by high levels of air pollution, reduced visibility, and damage to buildings and heritage.

Typology of Air Pollution Costs

There are two kinds of expenses that come with air pollution. The first is market costs or economic costs. These expenses are related with biophysical influences that straightforwardly influence financial action as estimated in the public records and gross domestic product, for example, lower crop yields influencing rural creation. The monetized welfare causes of mortality (premature deaths) and the inutility of illness (pain and suffering) are examples of non-market costs. Non-market costs demonstrate the potentially extremely high social benefits of air pollution control policies, whereas market costs demonstrate the necessity of addressing air pollution policies to avoid adverse economic effects.

Pathways Through Which Pollution Decreases Businesses Profitability

Business productivity, absenteeism, premature death, and crop yields can all be impacted by air pollution. The financial burden will be greater the longer it takes us to clean our air. As a result of air pollution-related employee productivity declines, premature deaths, and absenteeism, India lost approximately 3% of its GDP in 2019. Air pollution is a cost of progress that cannot be avoided because it is frequently regarded as a byproduct of economic expansion.

However, we frequently overlook the significant costs that air pollution has on India's businesses and economic growth.

Combating air pollution is essential for achieving the UN Sustainable Development Goals (SDGs) and creating a better, more sustainable future in both developed and developing nations due to the interconnectedness of our air. This is especially significant for the SDGs connected with wellbeing, supportable urban areas, natural manageability, industrialization, diminishing imbalances, and alleviating the effects of environmental change.

The intensity of the response is limited because traditional belief views air pollution as an inevitable byproduct of economic expansion. In point of fact, air pollution results in annual costs to Indian businesses of approximately 7 lakh crores, or 3% of the country's GDP. Despite being high and ongoing, these costs have gone unnoticed. Lower asset productivity, lower labor productivity, lower footfall, premature mortality, increased healthcare spending, and welfare losses are the six manifestations of the cost of air pollution. Businesses are directly affected by employee productivity, decreased customer traffic, and premature mortality. A study titled *Air Pollution and its Impact on Business – The Silent Pandemic* that was carried out by Geneva-based Dalberg Advisors in collaboration with the Clean Air Fund and the Confederation of Indian Industry (CII) reveals that the impact of air pollution on businesses can be further divided into various pathways.

Labour Productivity (Absenteeism)

Non-attendance is characterized as the labourer's inability to report for work when he is planned to work.¹ If the employer has work for them and the employee is aware of it, the employee is expected to work. Employees become ill or stay home to care for their loved ones, such as children and the elderly, who are more susceptible to air pollution when pollution levels rise. The northern and eastern regions of India, where AQI scores frequently exceed 300, bear 98% of these costs. During times of poor air quality, worker traffic in the Whitefield Business Zone in Bengaluru, for instance, decreases by an average of 12 percent. Absences result in two things:

¹ Ms. J. Pavithra, Magdalene Peter, "A Study On Employee Absenteeism" 116 *IJPAM* 399-405 (2017).

- **Loss to Employers**

Absenteeism has an impact on production goals and increases the workload of inexperienced workers, which results in the rejection of finished products. This raises production costs and reduces profit margins, which all have an impact on industrial growth. In the end, it disrupts the discipline and efficiency of businesses and industries. Businesses and industries are also compelled to maintain a supply of additional workers in case of emergency.

- **Loss to Employees**

Absence lessens the profit of representatives, diminishes their buying power, and adds to their obligation, prompting more family issues, expanded mental pressure, and apprehension about loss of business, at last prompting shortcoming in his work.

Labour Productivity (Presenteeism)

Air pollution has an impact on employees' physical and mental performance. On days when there is a lot of pollution, according to business leaders, employee productivity drops by 8 to 10%. Employees often work long hours to make up for this. As representatives stay at work past 40 hours to compensate for lost efficiency, the expenses remain.

- **Underproductivity**

Representatives keep on working in spite of contamination, in any event, when some medical conditions continue, bringing about lost efficiency in the working environment. Employees who put in extra hours to make up for colleagues who aren't there suffer more.

- **Burnout**

Overwork and declining health are two of the contributing factors to burnout. In the long run, these could increase productivity slumps and absenteeism. They also contribute to individual productivity declines.

- **Employee departure**

Burnout and possibly higher attrition rates are caused by low morale and feelings of being overworked. It costs money for businesses to find, hire, train, and encourage employees to stay

with them.

- **Difficulties in hiring**

In heavily polluted cities, it becomes difficult to attract talent, particularly in white-collar occupations like IT. Employers are forced to either sacrifice the quality of the talent they hire or pay too much for talent.

Consumer Footfall

By lowering consumer spending, air pollution weakens India's position as a major consumer economy. As purchasers diminish outside exercises to restrict contamination, they are spending less and shopper driven businesses are enduring a shot - like the effect of the Coronavirus pandemic. There are fewer online alternatives in sectors with a higher proportion of discretionary shopping, and those where lost time results in lost revenue are hardest hit. Buyers in India are exceptionally delicate to air contamination, bringing about a critical drop in footfall to business sectors during long periods of high air contamination. A study found that pollution is reducing traffic by 5% in the Mumbai Linking Road market zone, one of Mumbai's busiest streets. Generally, the responsiveness of utilization to air still up in the air by three boundaries:

- **The nature of the purchase**

Items that are considered discretionary spending, such as clothing and other leisure-related items, are bound to be predestined than necessities like food.

- **Time-Revenue link**

Some industries are less affected than others by point-in-time effects. For instance, in the event that a buyer ceases from shopping in an eatery in view of air contamination, it is impossible that the buy will be made up. On the other hand, in the event that a shopper ceases from buying a buyer sturdy great, the buy is probably going to be deferred until some other time than a total refusal.

- **Online replacement**

Some product categories, like groceries and clothing, are easier to find online. This takes out

the requirement for individual utilization and decreases in general aversion to air contamination.

Consumer spending decreased the most in the food and clothing categories. Food consumption accounts for 43% of the total consumption that is lost due to air pollution. This is especially troubling for the restaurant business, where 90% of new establishments fail within the first year. Clothing and footwear, which are heavily influenced by impulses, experience nearly twice the impact of other categories. International tourism, which experienced a significant revenue loss as a result of air pollution, also accounts for a significant portion of spending on these products.

Premature Mortality

The Lancet Commission on Contamination and Wellbeing detailed that contamination was liable for 9 million unexpected losses in 2015, making it the world's top natural gamble factor for sickness and sudden passing. Modern forms of pollution, such as air pollution and toxic chemical pollution, have caused 66% more deaths over the past two decades.² This is because of industrialization, unchecked urbanization, population growth, the burning of fossil fuels, and the lack of a sufficient national supply as a result of international chemicals policy.³

Untimely mortality is obliterating our current and future labor force, with kids under one year old contributing 34% of the absolute effect. As a result, citizens are dying earlier from air pollution, resulting in lower economic output.

Lastly, pollution directly causes premature mortality, which affects both the current and future workforce. Men are more affected than women, with a 62% higher risk of premature death from air pollution than women. This is primarily because men are more likely to work in jobs that require them to work outdoors (like construction workers) and in highly polluted indoor environments (like factory workers).

Asset Productivity

Productivity and the lifespan of various assets and infrastructure have decreased as a result of

² Landrigan PJ, Fuller R, Acosta NJR, et al. "The Lancet Commission on pollution and health" 391 *Lancet* 462–512 (2018).

³ Ibid

the deteriorating air quality. Has it impacted the actual resources, yet it has likewise caused a misfortune in farming yields. When IT systems fail more quickly and solar panels produce less electricity, asset productivity suffers.

Solar energy providers and businesses that rely on solar energy to generate power are ultimately harmed when air pollution prevents sunlight from reaching solar panels, which in turn reduces the efficiency with which those panels produce energy. Customers may be even less likely to choose solar panels for home power generation as a result of this.

Alternately, pollutants like sulfur dioxide (SO₂) accelerate the deterioration of electronic circuits, decrease the efficiency and durability of IT equipment, and increase the frequency with which businesses must replace it.

Air pollution is both a cause and is caused by the agriculture industry. Ammonia emissions, which react chemically in the air, are primarily caused by fertilizers used in crop fields, for instance. Additionally, these pollutants remain on plant surfaces, reducing the amount of sunlight that reaches crops, stifling their growth, resulting in a 5-12% decrease in agricultural yields and associated economic losses across the agricultural and food value chain. Additionally, these pollutants harm the human body, reducing human life span.

Acid rain is the result of pollutant compound emissions like sulfur dioxide and nitrogen oxide, which corrode machinery, infrastructure, and historical landmarks. As a result, the tourism industry suffers and repair and renovation costs rise more frequently. The efficiency of transport vehicles is likewise decreased by brown haze actuated lower perceivability, expanding time defers in transport and planned operations subordinate ventures.

Impact of Air Pollution on Businesses and Various Sectors

India is facing a serious problem with air pollution. India has become the fifth most polluted nation in the world over the past ten years and is home to 21 of the top 30 most polluted cities worldwide. While the public authority has set out on aggressive medicinal activities, for example, sending off the Public Clean Air Program and focusing on a 20-30% decrease in PM_{2.5} contamination by 2024, the air contamination talk in India and all over the planet is moving this way center around the effect on general wellbeing. India is currently experiencing a pollution pandemic. Based on weighted average PM_{2.5} concentration values, India ranked

fifth out of 98 countries in the 2019 World Air Quality Report, following Bangladesh, Pakistan, Mongolia, and Afghanistan. With PM2.5 levels nearly ten times the WHO target, New Delhi has the worst air quality of any city in the world. PM2.5 levels have remained alarmingly high for the beyond five years. The impact on various economic sectors and the nation's capital has been negative in light of these worrying statistics. The country's IT sector, the tourism industry, and the country's major metropolitan areas are among the various sectors affected by this crisis.

IT Sector

India's IT sector is a strong representation of the country's emerging service sector and a key engine driving the growth agenda. The Dalberg examination of driving IT organizations' yearly assertions expresses that presenteeism's monetary effect is 5x that of truancy. This is because, even when air pollution reaches dangerous levels, many employees are unable to take time off because of financial or other constraints. Presenteeism, on the other hand, is a passive effect that affects all working employees and will become more apparent over time. Additionally, the IT industry's stringent performance timelines are impacted by productivity losses as well as difficulties in recruitment and retention. The hidden costs of employee retention and attrition, which may only become apparent in the long run, add to these short-term effects.

Tourism

Not only does the tourism industry in India contribute to the country's economic growth and employment, but it also shows how appealing India's cities are to tourists from all over the world. Air pollution has two effects on tourism: Tourists either decide not to travel or have a less enjoyable travel experience. People are moving away from India's major cities, such as Delhi and Kolkata, and Northern tourist destinations, such as Agra and Varanasi, as a result of air pollution, and toward cleaner destinations, either domestically or internationally. Businesses are becoming more aware, even though tourists and leisure travelers are the most vulnerable; Some companies only use hotels that have air purifiers in every room and keep the air quality and hygiene levels clean. Due to reputational risks, these effects put India's economy at risk of significant short-term losses and longer-term loss of competitiveness.

Metropolitan Cities

Delhi

The nation's capital, Delhi, faces an expected 275 days of undesirable air, with a 6x ascent in respiratory meds deals during the unfortunate air quality days. In addition, this has had a significant direct impact, with approximately 11,310 premature deaths caused by air pollution in Delhi in 2019 and a loss of 12.2 million working days due to absenteeism caused by air pollution. Due to the higher turnover rate and difficulty adjusting to the air quality, migrant workers are forced to consider moving back to their home towns or cities, which have comparatively cleaner air.

The Dalberg analysis indicates that Delhi is one of India's most polluted cities and suffers a disproportionate economic loss of USD 5.6 billion, or approximately 5.8% of the city's GDP. This loss is greater than Mumbai's combined impact of USD 2.1 billion. Bengaluru (\$0.5 billion), and Chennai (\$0.38 billion). Presenteeism accounts for 2.5 billion of these 5.6 billion, consumer foot traffic accounts for 1.6 billion, premature mortality accounts for 1.2 billion, and absenteeism accounts for 0.4 billion.

As a hub for travel to other North Indian attractions, Delhi is an essential component of India's tourism industry. In the short term, tourists are unable to enjoy Delhi's numerous attractions due to air pollution. Low perceivability and wellbeing gambles decrease the allure of open air attractions, for example Red Fort and Qutub Minar. With the high-value foreign tourist market, this causes reputational damage that is difficult to repair over the long term.

Gurugram

Gurugram is the second largest IT and flourishing finance hub in India, attracting top-notch talent from all over the country. It is known as the North's startup capital. The competitiveness of Gurugram is based on three factors, each of which is influenced by air pollution. These are:

Attractiveness as a hub for services

Gurgaon is very appealing as a hub for services. However, the impact of air pollution on the productivity of workers in Gurugram makes them less likely to stay and work there. Therefore,

the question that arises is how Gurugram's service industry will attract the best talent when employees are unable to perform to their full potential due to poor air quality.

Competence as a medical tourism hub

Gurugram is now India's top medical tourism hub, attracting patients from all over the world thanks to its expanding luxury healthcare sector. However, vulnerable patients are discouraged from seeking treatment in Gurugram due to the severe short-term health effects of air pollution. In the short term, the elderly and people with heart or lung conditions are disproportionately affected by air pollution, making Gurugram less appealing to international patients choosing destinations for long-term treatment. Medical tourists' contributions to other tourism-dependent industries, such as hotels, aviation, and so on, are impacted by this.

Kolkata

The most micro, small, and medium-sized enterprises (MSMEs) in India are found in Kolkata, which makes a significant contribution to the economy of the city as a whole. In any case, air contamination makes shoppers leave less, prompting misfortunes for customer confronting MSMEs, especially clothing producers. Additionally, Kolkata is the state's hub for the steel industry, employing a significant portion of the city's casual workers. West Bengal is India's fifth-largest producer of steel. But air pollution hurts businesses because it makes workers less productive.

Kolkata is a key component in all trade between East and Northeast India because of its strategic location and its infrastructure, which includes road, rail, air, and port. However, during the winter months, when there is a lot of pollution, air pollution can be a big threat to Kolkata's growth as the gateway to the east. On low visibility days, up to 30 flights a day (13 percent of the total) are delayed in Kolkata. Low perceivability because of air contamination and haze creates critical setbacks for delivery and freight taking care of at Kolkata's essential business port. As a result of the significant delays in goods transportation in Kolkata, businesses run the risk of losing sales because of increased logistical costs and lower customer satisfaction.

Conclusion

As a result, it is evident that air pollution has three distinct effects on businesses. These are

- (a) the open door cost of lost work efficiency (for example because of higher non-attendance),
- (b) loss of income because of decreased client traffic and
- (c) the open door cost of untimely mortality from air contamination.

These expenses contrast both in force and in their immediate effect on organizations. Businesses need to begin including air pollution on the expense side of their profit statements. India needs the backing and backing of organizations to address this head-on. In the long run, efforts made through CSR can assist businesses in balancing the issue of decreasing air quality.