

## A STUDY ON THE IMPACT OF AGGLOMERATION ON SIVAKASI'S OFFSET PRINTING INDUSTRY

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### ABSTRACT

In Sivakasi, the offset printing business is a good illustration of the agglomeration effect. In Sivakasi, the offset printing industry has only existed for eight decades. But in this short time, it has increased to roughly 2700 units and Rs. 1000 crores in value. The offset printing market in Sivakasi, which is currently the second-largest in the world, is widespread across India and even outside of the country. Usually, the supply chain and workplace culture support agglomeration effect hypotheses.

Keywords: Offset printing industry-sustainability development-agglomeration effect of offset printing

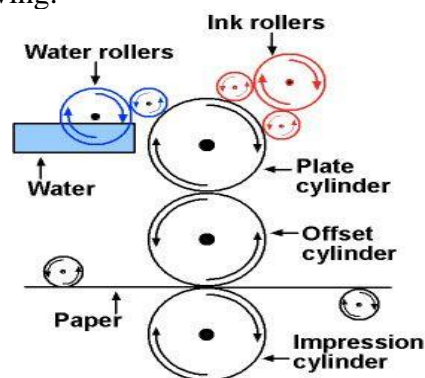
### 1. INTRODUCTION:

Offset printing is one of the most used printing methods today. Technology has reached a state of maturity, and the sector is nearing the end of its life cycle. Offset printing first appeared in the early 1900s. It was known as Litho Offset Printing at the time, thus the term lithography. The term offset refers to the usage of a rubber sheet known as a rubber blanket to which the image is initially transferred before being transferred to paper. The plate was originally constructed of zinc and eventually progressed to aluminium plates. Initially, the plate was coated using a rudimentary method involving egg white and silver nitrate. It later developed to manually cover photosensitive chemicals, and pre-sensitized plates are being used today.

#### 1.1 The Principle of Offset Printing

The balancing between ink and water is the fundamental tenet of offset printing. One must be familiar with the working parts of an offset machine in order to comprehend this. Offset printing's functional components include the following.

- ❖ Plate
- ❖ Blanket
- ❖ Plate Cylinder
- ❖ Blanket Cylinder
- ❖ Impression Cylinder
- ❖ Water Rollers
- ❖ Ink Rollers
- ❖ Water Duct
- ❖ Ink Duct



There are two supporting areas for offset printing, which are considered as part of Offset Printing Industry, viz., Prepress and Post press.

**1.2 Prepress:** carries out the process of transferring the design input for printing to the film or plate that is used for offset printing.

**1.3 Post press:** Carry out the process of completing the sheets produced in an offset press to a useable size and form, which includes surface finishing, cutting, folding, binding, trimming, and so on.

## 2. Sivakasi

Sivakasi is located in the Virudhunagar District in the Indian state of Tamil Nadu. At 9.28' North latitude and 77.48' East longitude, you may find Sivakasi. The settlement spans 6.89 square kilometres.

Offset printing has grown incredibly rapidly in Sivakasi. Sivakasi is a small rural town with less than 1 lakh residents, barely 60% of them are literate. In accordance with the 2001 national census, Sivakasi had a population of 72,170. 50 percent of the population are men. The majority of people are from the working class, with the remainder being primarily from the middle and higher middle classes. Despite this, Sivakasi has overtaken Guttenberg, Germany, which is the initial location where the first printing industry was born in the 14th century, as the second largest concentration of offset printing industry in the world.

According to estimates, Sivakasi has roughly 2700 units of offset presses and related businesses. To get their printing projects completed, people go from all over the nation and the world to Sivakasi. Sivakasi lacked high-quality lodging or dining options until recently. When compared to more developed regions like Coimbatore or Bangalore, the environment's level of hygiene is extremely low.

People still travel there from all over the country, stay there, and do their printing tasks in spite of all these limitations.

## 3. Early development of Industry in Sivakasi:

Sivakasi, with its low rainfall and humidity, is perfect for the production of pyrotechnics, safety matches, and printed goods. Sivakasi's industrial history began in the early 1920s. Five decades later, Sivakasi has developed into the centre of three industries: printing, matches, and fireworks. In Sivakasi, 60% of India's offset printing solutions, 80% of safety matches, and 90% of India's fireworks are manufactured. The first two industries used printing as a supplementary industry. From there, it developed into the second-largest printing centre in the world and the top supplier of print products to the entire world. ([www.sivakasonline.com](http://www.sivakasonline.com), <http://en.wikipedia.org/wiki/Sivakasi>).

In 1922, Mr. P. Ayya Nadar and Mr. A. Shanmuga Nadar travelled to Calcutta to study the craft of making safety matches. The South India Lucifer Match Industry was founded the next year, which was the birth of the modern industrial Sivakasi, which has become the country of India's main supplier of safety matches, fireworks, and printing.

The business titans of the North were drawn to Sivakasi as a result of the numerous units that these Sivakasi entrepreneurs created. The quantity increased gradually. Currently, a sizable cluster of printing businesses and related businesses has developed in Sivakasi, which helps to provide consumers with high-quality and affordable printing solutions.

Since its founding in 1948, the Sivakasi Master Printers Association has grown to include roughly 600 units as members. The Sivakasi Master Printers Association has roughly 600 members, according to Mr. Ashokan, an office holder for the organisation, and an additional 1200 offset press units that are not members. The supporting industry, which includes Pre press and Post press, employs roughly 900 units.

## 4. Agglomeration Effect

Agglomeration economies are the savings, cost saves, and other advantages brought about by the geographical grouping of people and/or activities.

The following three types of agglomeration impacts are often distinguished:

- ❖ Effects of population agglomeration on infrastructure, labour markets, and quality of life

- ❖ The "industrial climate" that results from the concentration of industrial activity has agglomeration consequences (with both positive and negative effects).
- ❖ Consequences of the concentration of certain activities that benefit specialised facilities, labour pools, career training, political lobbying, etc.

Agglomeration economies, in general, refer to savings or advantages gained from the clustering of activities that are external to the "firm" and therefore part of "external economies." Localization economies are benefits that result from local access to a specialised work force or the specialised reputation of a locality (to which some but possibly not all of these specialised activities contribute). Agglomeration economies are benefits (cost reductions) resulting from the concentration of the same or similar activities.

Following are some examples of the advantages of agglomeration that Michael Porter has described:

- ❖ When there is a significant industrial presence in a region, the supply of some elements (such as individuals with industry-specific training) will grow since they are more likely to earn better returns and experience fewer job losses.
- ❖ Upstream businesses, or those who provide intermediate inputs, will also invest in the region for the same reasons. They will also want to cut back on expenses such as transit, tariffs, inter-firm communications, stocks, etc.
- ❖ Downstream businesses (those that utilise our industry's product as an input) will also invest in the area. This results in further savings of the sort described in the preceding section.
- ❖ There may be a direct benefit to placing near your competitors: it may allow you to gather technical information through "spillovers."

## 5. Effect of Agglomeration in Sivakasi

### 5.1 Work Culture

Sivakasi is well-known for its skilled offset workers. Almost everyone is aware of what happens in an offset press. Many have worked in offset press. As a result, there is no shortage of labour. The salary structure and employment policies are consistent. The workforce is mobile. However, this has no effect on the seamless process. The departing employee is instantly replaced by another qualified worker. Likewise, the departing employee is readily reappointed.

### 5.2 High degree of Specialization

The Sivakasi Offset Printing Industry has a high degree of expertise. Most medium and small-scale offset plants will simply have printing machines. Many offset printing plants in Sivakasi outsource even crucial in-house supporting services like paper cutting and plate fabrication. Postpress services are also mainly outsourced.

There are around 200 machines that exclusively conduct paper trimming. Many units just make plates, while others merely laminate printed sheets.

## 6. Innovation, Technology & Workmanship

### 6.1 Repairs and Maintenance:

The majority of the machinery at Sivakasi's offset presses is imported. However, the machinery is serviced by local mechanics. They are capable of not only repairing and keeping the equipment in top operating order, but also of producing numerous parts of the complicated foreign machinery. The craftsmanship in these sections is likewise exceptional.

### 6.2 Homemade Printing Inks:

Making printing inks is another industry. While printers in other regions of India and the rest of the globe rely on branded inks, ink needs in Sivakasi are primarily met by local companies. There are several units with internal ink producing capabilities. There are

several facilities that exclusively grind ink. The components and pigments are mixed on-site by printers, who then transmit the mixture to the grinding facilities.

### 6.3 Film Making:

Another industry where Sivakasi offset printers had an advantage over offset printers in other regions of India for a long time was filmmaking. Modern-day guys existed who have extraordinary skill and were capable of performing astounding manual stunts when it came to filmmaking. The invention of Image Setters, which can create 4-color films by digitally modifying the pictures to achieve flawless colour separations and other gimmicks, and IT-based technical advancements, ultimately beat them. Numerous experts in the film industry operated their own businesses on their own or worked part-time jobs serving a variety of clients.

### 6.4 Plate Making:

Like in the case of film production, Sivakasi offset printers have created their own technique for plate making. They created and are widely utilised in Sivakasi the techniques for coating, regrinding, and recycling old plates. Because of this, the cost of manufacture is quite low. In order to reduce costs, printers in other regions of India have adopted several of similar strategies.

### 6.5 Printing:

Sivakasi Offset The quality of printing is less well-known for printers than for mass manufacturing. There are several businesses that have concentrated on producing high-quality printing. However, they come at a steep price. Nobody, however, can match Sivakasi's rates, speed, and efficiency in the field of mass printing. Textbooks, calendars, and other items are examples. The printing systems differ from printers in other regions of the world in a number of specific ways. Sivakasi printers employ straightforward procedures that are cheaper and produce output more quickly than printers in other locations that use expensive chemicals.

### 6.6 Post press:

Sivakasi offset printers might excel in post-press, which is another area where quality control would be king. Speed, quality, and affordability are also Sivakasi's guiding principles here. The Postpress units have created several simple and successful techniques of their own for quick and affordable production.

In Sivakasi, offset printing has expanded quite quickly. Less than 1 lakh people call Sivakasi home, and just 60% of them are literate. The national census of 2001 determined that Sivakasi had a population of 72,170. Men make up half of the population. The bulk of the population belongs to the working class, with the remaining population being predominantly middle- and upper-class. Despite this, Sivakasi now boasts the second-highest concentration of the offset printing industry in the world, surpassing Guttenberg, Germany, which is where the first printing business was founded in the 14th century.

Despite these restrictions, individuals continue to fly there from throughout the nation, stay there, and do their printing business.

### 6.7 Raw Materials

The greatest deals on printing supplies may be found in Sivakasi. Due to the increasing demand, there is a fierce rivalry among providers due to the high concentration of paper suppliers and raw materials. Sivakasi is now the cheapest place to buy prints.

## 7. A Common Brand is a sivakasi:

Since the 1970s, Sivakasi has been widely acknowledged as the greatest location for offset printing services in both India and overseas.

The concentration of the industry has lead to heavy convergence of customers to Sivakasi. The reasons for this are

- ❖ Large capacity ensures on-time completion;
- ❖ Efficiency in quick and high-quality completion;

- ❖ Affordability when compared to other sources
- ❖ Skilled project management gained through extensive experience

Many clients just go to Sivakasi. The print agents find them as soon as they arrive in Sivakasi and agree on delivery times and prices. Other than getting there, the consumer has no difficulties. He may relax knowing that the completed work will be sent out on time.

### 7.1 Economies of Scale

The agglomeration gives the sector a sizable capacity for raw materials and consumables. As a result, there is a massive concentration of stock at Sivakasi. Large economies of scale have resulted from this. At Sivakasi, you can get raw materials like paper, ink, plates, etc. for dirt cheap.

### 8. An Analysis of the level of Agglomeration Effect in Sivakasi

Based on the widely acknowledged impacts of agglomeration, the amount of agglomeration in the Sivakasi Offset Printing Industry is evaluated in the following table.

Established Agglomeration effects	Sivakasi experience	Rating
Geographical concentration of people and/or activities	2 <sup>nd</sup> Largest Concentration of Offset Presses in the world	V. High
Benefits or advantages (savings, cost reductions, etc.) Resulting from the spatial clustering of activities and/or people	Low raw material and labour cost	High
Agglomeration effects associated with the agglomeration of population and the resulting infrastructure facilities, labor pool and quality of life.	High supply of trained labour at low cost, congenial work culture	High
Agglomeration effects resulting from the clustering of industrial activities giving rise to an "industrial climate" (with positive and negative effects).	Positive effects: Efficient and low cost work output Negative effect: some fail to observe quality/quantity/child labour/industrial congestion.	High
Effects which result from the agglomeration of specific activities which favor specialized facilities, labor pools, vocational training, political lobbies etc.	Specialized facilities, labour pools, and apprenticeship training available	High
Localization economies i.e. Agglomeration economies (benefits, cost reductions) resulting from the concentration of the same or similar activities.	Local access to specialized work force or the specialized reputation of the locality	High
Industrialization economies i.e. agglomeration economies ( benefits, savings, cost reductions) resulting from the spatial concentration of industrial activities	Benefits, savings, cost reductions from their joint utilization of local industrial infrastructure	High
Economies of scale i.e. the reduction in unit (or average) costs with increasing output levels resulting from both the effects of spreading of fixed costs and increasing returns to scale due to the Learning curve effects.	Available in the form of reduction in raw material price due to high demand and large quantity consumption  Professional work force due to	Medium



	vast experience	High
When there is a large industry presence in an area, it will increase the supply of specific factors (eg workers with industry- specific training) since they will tend to get higher returns and less risk of losing employment.	Workers pool	High
At the same time, <i>upstream</i> firms (i.e. Those who supply intermediate inputs) will invest in the area for the same reasons. They will also wish to save on transport costs, tariffs, inter-firm communication costs, inventories, etc.	Paper dealers, Transporters	High
At the same time, <i>downstream</i> firms (i.e. Those use our industry's product as an input) will also invest in the area. This cause additional savings of the type listed in the previous item.	Print agents,	High
Finally, attracted by the good set of specific factors, upstream and downstream firms, producers in related industries will also invest. This will trigger subsequent rounds of investments.	About 2500 printing/supporting units of different sizes	V. High
There may be a direct benefit of locating near your rivals: it may allow you to obtain technical knowledge through "spillovers."	Flow of different techniques through voluntary disclosure or worker migrations	High

## 9. SWOT Analysis

Sivakasi Offset Printing Industry has a long and prosperous history, however it is currently going through a natural crisis related to the lifecycle's mature stage. The industry's current state is indicated by the following SWOT analysis.

### SWOT Analysis for Sivakasi Offset Printing Industry

<p><b><u>Strength</u></b></p> <ul style="list-style-type: none"> <li>❖ Established brand</li> <li>❖ Established industrial facilities</li> <li>❖ Abundant labour pool</li> <li>❖ Abundant demand</li> <li>❖ Favorable Social culture</li> <li>❖ Favorable weather</li> <li>❖ Cost leadership</li> <li>❖ Large capacity</li> </ul>	<p><b><u>Weakness</u></b></p> <ul style="list-style-type: none"> <li>❖ Many units fail to deliver agreed material at right quality and quantity</li> <li>❖ Distance from mainstream</li> <li>❖ Obsolete technology</li> <li>❖ Lack of infrastructure for stay and hospitality</li> <li>❖ Low hygiene</li> </ul>
<p><b><u>Opportunity</u></b></p> <ul style="list-style-type: none"> <li>❖ Still considered as the best source for offset printing</li> <li>❖ Sustaining habitual demand</li> <li>Capacity to handle large quantity</li> </ul>	<p><b><u>Threat</u></b></p> <ul style="list-style-type: none"> <li>❖ Development of printing facilities in outside markets like Kerala, Karnataka etc.</li> <li>❖ Increased transportation costs</li> <li>❖ Overall reduction in demand for offset printing</li> <li>Competitive price and quality in local sources</li> </ul>

## ❖ Technology change due to items

A comprehensive investigation makes it clear that the Sivakasi Offset Printing Industry is struggling. However, with their strong entrepreneurial skills, they may overcome this problem and lengthen the lifetime through the advancement of technology and ongoing active marketing.

### 10. Conclusion

The Sivakasi Offset Printing Industry may be used as an example of the Agglomeration Effect since it complies with the Identified Effects of Agglomeration. The Sivakasi experience well demonstrates the notion that spatial concentration, as opposed to the isolation of certain sectors, has a number of benefits, including:

1. Creation of higher demand
  - ❖ Reduced customer search expenses
  - ❖ More alternatives in the same location
  - ❖ Concentration of large capacity
2. Increase in the efficiency of individuals units
  - ❖ Competition leads to innovation
  - ❖ Spreading of technology
  - ❖ More availability of out-sources
3. Advantages on the Labour front
  - ❖ More job opportunities attract labour
  - ❖ Better facility for training
4. Economies of scale
  - ❖ Concentration of supply sources
  - ❖ Experience curve effect

In order to create the agglomeration effect with deliberate efforts, the government and NGOs should promote the concentration of enterprises through industrial parks and similar special economic zones. In light of the government's policies on industrial clusters and Special Economic Zones, this becomes even more pertinent (SEZs).

### 11. Scope for Further Studies

There is room for additional in-depth research on the elements that contributed to the remarkable growth of the offset printing industry in Sivakasi. It will provide more insight on how clusters are formed as well as the institutional mechanisms that enabled Sivakasi to develop from a very small beginning to what it is now. The government is promoting new industrial clusters and SEZs, and the lessons learned from the Sivakasi experience will undoubtedly be helpful in creating mechanisms for mutual support and sustainability among them.

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