

INDIAN ECONOMIC INNOVATIONS-Ancient Period

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Overview

The major economic innovations across the centuries of Indian history pertain to a mixture of objects and systems. They include smaller, more sophisticated tools, a system of weights, writing, manufacture of iron tools, uniform coinage, new banking methods and the expansion of maritime trade. The significant contribution of Indians to contemporary digital technologies is also well-known.

Prehistory

Tool factories Stones used for tools appear to have been quarried at certain ‘factory’ sites, especially in the Deccan during the Palaeolithic period (c.1,000,000-40,000 BCE) At Isampur (c. 500,000 BCE) in modern-day Karnataka, for example, archaeologists have identified four adjacent sites (each about 300-400 sq miles), where a large cache of these early stone tools were found. The tools were probably made from the large limestone slabs and blocks in the area.

Smaller tools The gradual transition from the Palaeolithic to the Mesolithic Age (c. 40,000-7000 BCE) in India is marked by the slow diminution in the size of stone tools. The unwieldy ‘core-tools’ (such as hand-axes and cleavers) of the Palaeolithic were gradually replaced by smaller ‘flake-tools’. From the widespread presence of stone fragments (about 5 cm in width), scientists conclude that the larger stones were chipped and shaped by smaller stones. Most of these new, smaller tools were made of flint and quartzite, which were harder and more easily worked than other types of stone. The new technology of reducing large stones to these smaller, more efficient tools, such as knives and sickles, then enabled hunter-gatherers to forage more effectively.

Indus Valley Civilisation

Plough The earliest evidence of a ploughed field was discovered at Kalingban, an Indus Valley civilisation (c. 3000-1500 BCE) in modern-day Rajasthan. The field is dated to about 2800 BCE. The use of a wooden plough increased agricultural production, which enabled the larger populations and spread of urbanism that defined the IVC.

Weights Economic transactions in the Indus Valley civilisation were facilitated by the use of standardised system of weights. At Harappa, six differently sized cubes have been found that conform to the binary weight system used in all excavated settlements. The smallest weight less than 1 gram and the most common weight is approximately 13.7 grams, which is in the 16th ratio. In the heavier weights, there is a decimal increase where the largest is 100 times the weight of the 16th ratio in the binary system.

These weights may have been used for trade and taxation collection.

Dockyard Another innovation during this early period was building a large dockyard at Lothal, on the west coast of India, which would have facilitated maritime trade to the Near East. At Lothal, burnt bricks were used to construct a basin with walls over 200 meters long on the east and west sides, and about 35 meters long on the north and south sides. A sluice-gate and a spill channel were used to regulate the water level.

Indo-Aryan Civilisation

Iron-making Early Indo-Aryans may have possessed iron objects, but they did not introduce this critical technology to India. Instead, as part of their assimilation, they learned to make iron from the indigenous populations. By about 800 BCE, iron was used to make a variety of objects, including needles, nails, hooks, heavy axes, knives, arrow heads, tongs and clamps. The discovery of clay furnaces at many sites in north India indicates the spread of the ability to make iron objects. Most furnaces are of the open type that used bellows. Some of them are large-scale and capable of making heavy tools, such as axes. Very little research has been done to identify the source of the iron ore, but most scholars believe that it came from the Himalayan foothills.

Influence of iron The emergence of iron technology, especially heavy axes, literally changed the face of India by enabling large-scale forest clearance in the Gangetic plain. This clearance, in turn, facilitated the production of considerable food production, which sustained the large populations that led to a shift from tribe to chiefdom. For this reason, it is no exaggeration to say that iron-making was the most important development in ancient India.

Coinage Another innovation in the field of metallurgy during this period was the appearance of India's first minted coins (as opposed to shells or beads used as barter). These early coins, which were first used in the Gangetic plain around 500 BCE, were made from silver bars. They were then punched and stamped with a symbol, such as an animal or the swastika. By the end of the period, coinage and increased political centralisation enabled a more complex economy.

Classical Period

Guilds An innovation that stimulated the economy in this period was the appearance of mercantile guilds. Various texts and inscriptions (dating from about 200 BCE-200 CE) mention 75 different occupations that could form guilds, including potters, metal-workers, goldsmiths, weavers and carpenters. Operating as early banks, these associations of merchants pioneered the use of money (silver and copper coins), some of which they issued themselves. They also established early banking methods, such as investments and endowments.

Currency and trade The modernising urban economy that flourished under the Mauryas (c. 321-185 BCE) developed even further under the Guptas (320-c. 550 CE). The Mauryan state instituted a single currency across India to facilitate trade, while the Gupta rulers improved roads and extended trade routes so that even interior areas had access to commercial centres and seaports. This sophisticated transport system enabled the Gupta rulers to collect land tax and import duties.

Writing The key factors contributing to the success of the Mauryan Empire—expanding urbanism, rise of mercantile classes, guilds, improved trade networks and improved banking methods—were themselves largely due to the appearance of writing. The earlier Indus script disappeared about 1500 BCE, and more than a millennium passed before writing once again appeared in India. Archaeologists working in Sri Lanka have found Brahmi inscriptions (in the Prakrit language) on pottery dated to 450-350 BCE. However, these are single letters only. A more extensive use of the Brahmi script was to write the edicts of King Ashoka, inscribed on rocks and stone pillars between 250-232 BCE. A few of these imperial proclamations were written in another script (Kharosthi), but it was used only in northwest India and died out about 200 CE. Brahmi, however, went on to become the parent of all other Indian scripts (except the Persian-Arabic script used to write Urdu). Brahmi itself is probably derived from a Semitic or Mesopotamian script, although that history is still debated.