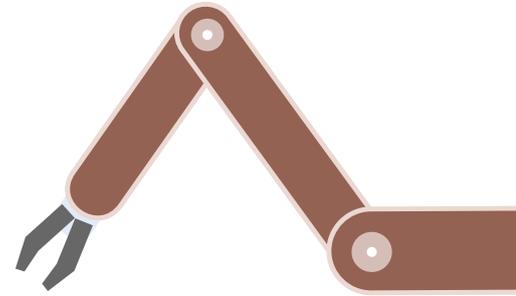
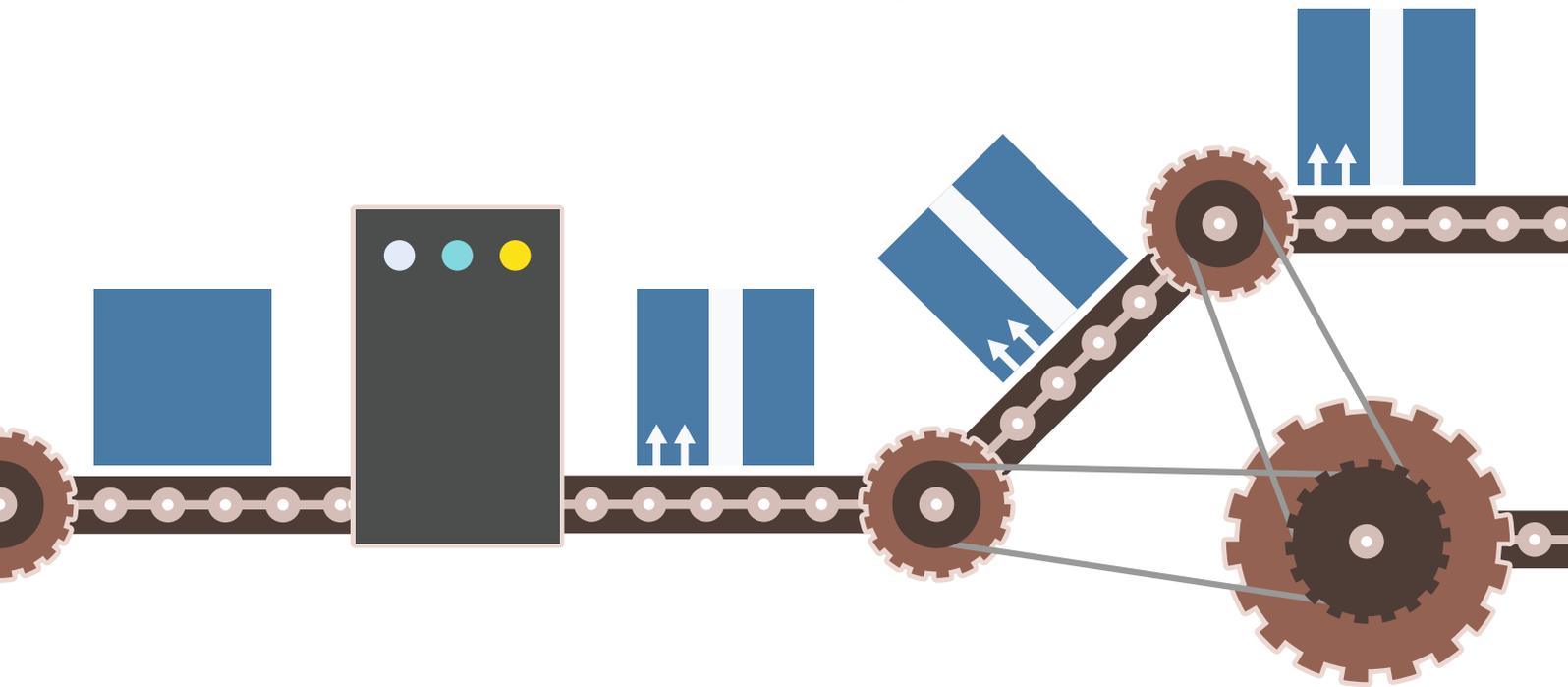


The Great Indian Productivity Myth



by Dr. Shelja Jose Kuruvilla and Satyashri Mohanty



An average American woman has coffee machines, toasters, microwaves, dishwashers, vacuum cleaners, and a plethora of other equipment to enable her chores. On an average, she probably spends 10 hours a week on these. An Indian housewife living in a metropolitan city, on the other hand, takes the help of multiple domestic workers. In her household different people spend approximately 50 hours a week on various household chores. If we were to measure productivity (in terms of output per labor hour), we would find that an Indian housewife is far less 'productive' than the American housewife. Is this comparison a matter of concern that requires intervention? Commonsensically speaking, not many Indian housewives would even worry about this gap in productivity.

However when it comes to the manufacturing sector, Indian managers have always found reports on low productivity of Indian manufacturing workers compelling and convincing. During visits abroad, when they visit a factory in the U.S. or Germany and see very few workers manning machines while their own shop floors have many more workers, they feel a strong urge to take steps to improve 'productivity' back home!

A recent study by a well-respected consulting group has gone on at length, laying the blame for poor performance of India's manufacturing sector on the poor quality of its labour force! The contention is that India has poor labor productivity compared to countries like the U.S., Germany, or France, and, therefore, unless India improves its people, the manufacturing sector cannot strengthen. It has proposed a people-focused agenda so that Indian manufacturing can surge ahead of its global peers.

It is true that the level of GDP per worker and GDP per hour worked in India is well below that of these nations; this is known as the productivity gap. Some progress is being made over the years to reduce the gap, but it is still huge. But is this gap a point of concern, or are we just comparing apples to oranges?

A brief perusal of literature on the topic reveals that there is neither consensus as to the meaning nor a universally accepted measure of labor productivity. But in general, productivity signifies the measurement of how an individual entity (e.g., an individual, firm, industry, or a whole nation) uses its resources to produce output from labor input. This measure, if used to compare nations, inherently assumes that all other factors of production involved are comparable. This is obviously not likely.

Analysis of wages and productivity add a different perspective. Compensation and labor productivity are positively correlated ($r=0.89$ for a set of randomly selected countries according to research @vector, Refer to Figure 1). This means that when wages go up, the industry is incentivized to increase automation and invest in technology to substitute for expensive labor. While technology does not eliminate labor, it substantially brings headcount down. This, in turn, improves labor productivity, as calculated as a function of output and number of employees in the workforce or number of hours of employment.

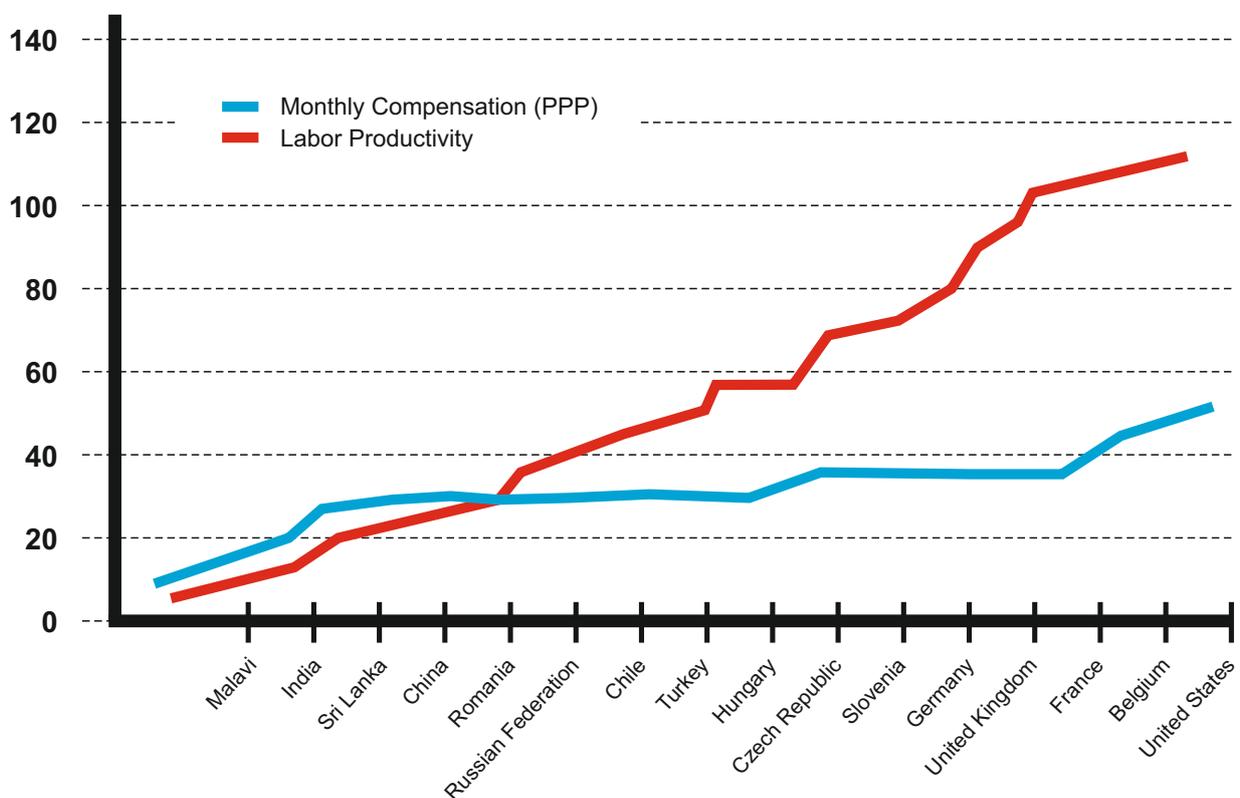


Figure 1: Labor productivity and monthly wages (source: research@vector)

Workers with gizmos will, therefore, always be able to give more output than those without. Does this mean that organizations should actually go ahead and automate for improved productivity?

Firms, as we all agree, do not exist to reduce manpower. Firms aim to maximize profits. They should use the factors of production that do this job effectively for the lowest possible cost. Adopting automation with the primary purpose of reducing headcount can, at times, lead to very high running and capital costs when the same job could have been done with cheaper manual labor. So, output per unit of labor does not reveal the economic strength of a firm. Used in isolation, it is an erroneous measure that suffers from the problem of both false positives and false negatives.

Therefore, since the objective of organizations is to make money, a better measure would be to measure productivity as value added (sales – material costs) per unit of wage bill. This measure highlights how effectively a manufacturing company is using the wage bill to convert raw material expenses into value added. This measure also implies that labor productivity cannot be observed by looking at shop floors, but by analyzing balance sheets of companies.

When manufacturing companies in the West and their productivity are compared along the measure of value added per labor dollar/euro/rupee paradigm (refer to Table 1), a different picture emerges. It is obvious that the productivity of Indian companies is comparable or better than that of their Western counterparts. Looking at the data, sweeping conclusions cannot be made for 'poor productivity' for the entire nation. The labor productivity argument is not about economies; it is about individual organizations. There are comparable good and bad apples on both sides of the hemisphere. One needs to dive to the organizational level to draw actionable conclusions about improving labor productivity.

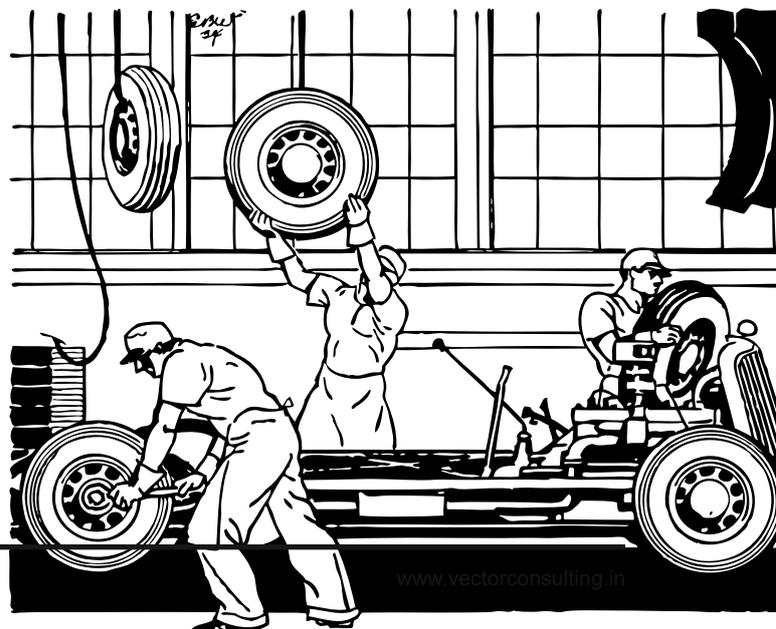
Table 1: Productivity scores (based on value added) of few Indian and Western companies (year 2012)

| Productivity (Value added* / Wage bill) | Ford | Porche | Volkswagen | Tata Motors | Ashok Leyland | M&M |
|---|------|--------|------------|-------------|---------------|-------|
| | 7.85 | 10.64 | 4.14 | 19.70 | 5.9 | 10.18 |

*Value added = Sales – Cost of purchased goods and services

Source: Research@Vector

A review of the history of manufacturing in the 20th century reveals two watershed events. Henry Ford's assembly line techniques led to an 800% jump in productivity. Later, Toyota Production System demonstrated another 200% jump in productivity, as compared to peers in the U.S. and other places. Both manufacturing techniques used flow techniques. Ford used self-imposed space limitation to improve speed of inventory movement in an environment wherein a single finished product (Model T) was produced in large volumes, whereas Taichi Ohno used the Kanban cards along with production leveling techniques to improve speed of inventory in an environment of wide variety and low volumes.



Both geniuses proved that, in terms of labor productivity, pull-based techniques of manufacturing score higher than push techniques. Surprisingly, even when Toyota's productivity jumped up in Toyota, way above the American auto giants, it took American car makers many years to wake up and realize that it was because the Japanese were using a much better manufacturing technique. Until that time, they too used to credit nation-related factors like the attitude of Japanese workers and unfair trade practices to explain the increasing gap.

Despite the proven merits of Ford's and Ohno's pull-based manufacturing systems, more than 90% of Indian manufacturing firms continue to rely on push techniques of production. Manufacturers acknowledge the irrefutable and severe flaws of push techniques – significant capacity loss, and skew in production. Yet, they haven't been able to copy the superior pull techniques of TPS or even of the Ford system because of the systems' limiting conditions for applicability. The Ford system demands focus on a single model, while the TPS prescribes levelling for both volumes and models across time periods regardless of actual demand fluctuation. Not many manufacturing companies, irrespective of sector, can sustain a levelling technique unaffected by the fluctuating model mix demand pattern in the market nor can they afford to restrict their portfolio to a single product. As companies are unable to fulfil the boundary conditions of the pull techniques, they end up implementing what is convenient, at times with disastrous consequences.

One needs a practical pull-based manufacturing method in an environment of wide variety and fluctuating demand, which does not demand rigid model mix levelling across time buckets. The Theory of Constraints approach of self-imposed restriction of constant work in progress (WIP) in the entire production line with material release signals tied to the daily gap in stipulated WIP norm is more realistic and less stringent. Here, capacity-based levelling is used only to plan the sequence of orders to be released on the shop floor; the actual release is based on daily gaps in stipulated WIP norms. The pull method also takes away the need to follow a monthly or weekly planning system and breaks the skew in output. Many companies in India have been able to improve their productivity by a factor of 2-3 by using the flow techniques of TOC with the same labor force and same levels of automation.

Beyond the gizmos, how one works (read how manufacturing systems work) with a given set of resources decides one's productivity. The urban Indian housewife understands this much better intuitively; not many of them will give up their maids in exchange for more equipment as long as wages are affordable.

Vector Consulting Group (www.vectorconsulting.in) is the leader of 'Theory of Constraints' consulting in India. Vector has been working closely with some of the well known FMCG, Engineering Goods, Custom Manufacturing and Auto Components companies to improve their overall profitability through supply chain effectiveness.