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Impact Of Technological Changes on Labor Laws

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INTRODUCTION –

Industry is not an end in itself. Its raison d'être can serve society and the consumer's needs. Therefore, the industry depends on the consumer, and the consumer depends on the industry. The industry relies on technology, capital, the worker, the entrepreneur, management, the consumer, and society. Therefore, workers and employers depend on industry and the cooperation each gives to the other. One cannot prosper at the cost of the other if industry rather than the individual is to grow.

It must be remembered that when India became independent, it heavily depended on Britain and other European countries or countries like Japan for articles of daily consumption; even pins, clips, pencils and biscuits were being imported. Since then, in the decades after the advent of Independence, we have diversified our production to an incredible extent. There is hardly anything that we do not, or cannot, manufacture today. We can use the most modern or sophisticated technologies where they are available to us. There are Indian entrepreneurs and managers and concerns whose skills are comparable to those of entrepreneurs and managers anywhere in the world.

Indian labor laws are considered highly regulated and rigid compared to other countries. The labor laws of India originated and expressed the socio-political views of leaders such as Nehru from the pre-1947 independence movement struggle. These laws were expanded partly after debates in Constituent Assemblies and from international conventions and recommendations such as those of the International Labor Organisation.

The current mosaic of Indian laws on employment is thus a combination of India's history during its colonial heritage, India's experiments with socialism, critical human rights and the conventions and standards that have emerged from the United Nations. The laws cover the right to work of one's choice, proper against discrimination, prohibition of child labor, fair and humane work conditions, social security, protection of wages, redress of grievances, correct to organise and form trade unions, collective bargaining and participation in management. The intensity of these laws has been criticised as the cause of low employment growth, large unorganised sectors, underground economy and low per capita income. These have led many to demand reforms for labor market flexibility in India. India has over 50 principal Acts and numerous laws regulating employers in industrial relations, employee unions, and who, how and when enterprises can employ or terminate employees. Many of these laws survived British colonial times, while some were enacted after India's independence from Britain.

Criticism was also made in a 2007 article in The Economist that finds India to have the most restrictive labor laws in any major world economy. India's private sector, including its organised manufacturing sector, employs about 10 million Indians. Manufacturing firms need to obtain government permission to lay off workers from factories, and this permission is usually denied if they have more than 100 staff. This partly explains why most Indian firms are small: 87 per cent of employment in India's organised manufacturing sector is in firms with fewer than ten employees, compared with only 5 per cent in China. Small Indian firms cannot reap economies of scale or exploit the latest technology, and so they suffer from lower productivity than if they scaled up, employed more people, and were much bigger companies. This disabled people Indian firms' ability to rapidly expand or adjust to changes in the global economy, both during the early opportunity phase and during economic change.

Brief Review of Recent Studies on Shifts in Labor Demand

In recent years, there has been a widening of the wage differential between low-skilled and high-skilled workers (Bound and Johnson (1992)). This has occurred despite a significant increase in highly educated workers. One explanation for this increase in the "rate of return" on investment in education is skill-biased technological change (Nelson and Phelps (1966) and Welch (1970)). This hypothesis maintains that technological changes enhance the value of education because greater knowledge or skill enables firms to implement new technologies more effectively. Bartel and Lichtenberg (1987) modify this theory by asserting that the comparative advantage of highly educated workers in implementing new technologies arises from their ability to solve problems and adapt to change in the work environment. These models predict that technical change is biased or non-neutral concerning labor, with disproportionate effects on different classes of workers. Trade and outsourcing are also alleged to have increased the earnings gap. According to this view, cheap imports (produced by low-skilled workers) will reduce the wages of low-skilled workers.

Outsourcing is hypothesised to exacerbate further compositional changes in the workforce that favour highly educated workers since companies engage in this activity, at least in part, to exploit wage differentials between developed and developing countries or between the manufacturing and service sectors.

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The likely signs of labor demand elasticities are similarly unambiguous regarding technological factors. The literature on skill-biased technological change suggests that increases in computers, R&D, and openness, especially in advanced industrial nations such as the U.S., will likely reduce the demand for less educated workers.
The impacts on labor composition follow our earlier discussion of the relative effects of trade, technology, and outsourcing on different educational categories. An increase in each external factor leads to cost savings for less educated workers, which is greatest for workers with just a high school diploma. On the other hand, trade and technical change stimulate increased demand for workers in at least some colleges. This finding is consistent with the observed dramatic shifts in employment away from lower-skilled labor categories in U.S. manufacturing.
Robert Hall, in commenting on Sachs and Shatz [1994] (p. 75), stated that "both the strength and the weakness of the hypothesis of biased technical change is that it can explain any pattern of change in relative wages". The spirit of Hall's comment is that it is difficult, based on existing empirical methodologies, to discriminate among alternative theories regarding wage and employment structure shifts.[1] We believe that one way to address Hall's concern is to explore interactions among the various potential causes and consequences of changes in labor demand. This is a critical issue in assessing the impact of technology and trade on employment and labor composition.
We find that technology has a stronger impact on shifts in labor composition in favour of highly educated workers than trade or outsourcing. An increase in investment in computers and R&D simultaneously reduces the demand for workers without a college degree and increases the demand for workers with at least some college. These results are consistent with several recent studies of skill-biased technological change, which attribute a greater role to technology than trade in explaining wage and employment structure changes. The effects of computers and R&D, our proxies for technology, do not appear to differ substantially. Trade also has a negative impact on the demand for less educated workers, but it is not associated with an increase in demand for more educated workers. Outsourcing appears to have a relatively small negative impact on demand across all education levels, with the strongest effects on workers with less than a college degree.

Adjustment Of Workers to Technological Changes: The U.S.A. Perspective –
In the USA, training and other techniques to facilitate workforce adjustments are expected to be employed extensively during the 1980's. Collective bargaining contracts contain provisions that ease the impact of new technology on employees. The contract contains general provisions regarding layoff, seniority, retirement & supplementary unemployment benefits that could be applied to job displacement resulting from technological changes. In 1984, workers of automobile, USA, were paid benefit and wages if they were displaced by new technology or parts outsourcing.
Training to provide workers with the skill required to operate new technology is a major step. The production process links output to capital and labor inputs in an optimal way that determines the organisation of work conditions, with possible implications for the labor contract. The conventional wisdom is that recent technological change requires more versatility in its operation. Also, there is an increase in capital intensity that employs less low-skilled operating labor and more highly-skilled maintenance and repair work. The development of information technology tends to substitute routine work with capital[2] that requires more prompt availability of the specialised employee. The present trend of just-in-time production and holding lean inventories at every stage of the production process in some industries can be viewed as a result of a technological change that needs a high degree of flexibility[3]. But technology may not be the only determinant of economic decisions. The theory of negotiation usually pertains to wage bargaining for the sake of simplicity. Still, wage can be considered in the same way as a hedonic price, where job characteristics enter as components of work quality. This perspective is consistent with the neoclassical theory of labor supply and its emphasis on utility maximisation under constraints, which is not limited to the wage per se but also considers the disutility of work. The scope of bargaining should cover more attributes of the employment relationship than the wage and the number of hours worked. Labor bargaining is to be considered as a bundle of negotiations about both the characteristics of a job and its price.
As regards the French employment contract, the scope of an individual contract is circumscribed by the protective role of laws and collective labor agreements. These characteristics are probably more marked in the case of France, compared to the UK, for instance, due to the weight of state intervention and the regulation of the labor market. A French specificity of collective bargaining is the possibility for the state to impose the agreement on every firm in the sector, even those that have not signed the industry-wide agreement. As a result, nearly all French employees are covered by a collective agreement. The technological context is captured by two variables linked to the degree of desired flexibility: the type of job (combination of the hierarchical class and the job function) and the nature of the industry (industry-wide collective agreement or sector). Economists have long been interested in the effect of

[1] Paul, C. J. M., & Siegel, D. S. (2001). The Impacts of Technology, Trade and Outsourcing on Employment and Labor Composition. The Scandinavian Journal of Economics. https://doi.org/10.1111/1467-9442.00243
[2] Autor et al., 2003
[3] Brown et al., 1998, for instance, mention this reason as one cause for the individualisation of contracts.

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technological change on the labor market. Technological change influences the skill acquisition of young workers, and the industry wage structure. Technological change is also likely to affect the relationship between education and training. In general, more educated workers receive more training, either because human capital is an input in the production of new human capital or because individuals who are better "learners" invest more in both schooling and training. At higher rates of technological change, however, the training gap between the more and less educated narrows. In addition, we find that the proportion of individuals receiving training increases, and firms are more likely to train individuals who have not received training in the prior period rather than those who were previously trained. Previous studies have found positive correlations between technological change and industry wages[4] and between technological change and the ratio of the earnings of more educated relative to less educated workers.

Technology And Labor In India –
Research and Technological Development in the handloom sector got a fillip during the second five-year plan time. The production increased to 1900 million yards in 1960-61. The looms in the co-operative sector almost doubled from less than 7 lakhs in 1953 to over 13 lakhs by the middle of 1960. The Third Plan focussed on higher production through fuller employment and improved technology. It saw a liberal credit regime, a supply of improved appliances and other support services. The Fifth Plan saw the introduction of special schemes for the handloom industry, including integrated handloom development projects. The Sixth Plan witnessed an approach based on vertical and horizontal integration of programmes in the light of the Industrial Policy Statement of 1980. It saw, inter alia, emphasis on the augmented supply of hank yarn to weavers and the modernisation of looms. The Seventh Plan (1985-90) period was guided by the Textile Policy of 1985. The thrust was on co-relativisation, development of Central/State Government Corporations, loom modernisation, raw material linkage and technological upgradation. But only on 30 August 2000, after almost ten years, the Prime Minister announced a comprehensive package for small-scale industries and the tiny sector to support this sector in areas of technology, etc.

Productivity in the Iron and Steel Industry: The factors affecting production and productivity are labor, material, technology and capital. Productivity can be improved by introducing new and better technologies and using appropriate tools, equipment and methods. Still, the workforce is the most important factor for improving productivity. High productivity is necessary for the survival of the industry. In this sector, PSUs and TISCO establishments have been attempting to improve productivity by motivating their workforce in various ways. In an attempt to improve the skills, the workforce is regularly trained in standard operating practices, talked about task and target systems and above all, made aware of the advantages of productivity. The public and private-sector establishments lay stress on productivity, focusing on cost consciousness and cost control, efficient use of raw materials.

Agriculture: Agriculture was considered the engine of growth in the USA in the early stages. In our country, areas requiring special policies and programmes include the agro-based food processing industry, cash crops of medicinal plants, floriculture, aqua-culture, poultry, horticulture, natural resource management, farm management, technological improvements, biotechnology, multidimensional research, development of agriculture financing network, development of markets, etc. There is an urgent need for a vocational training network for agricultural workers. The overall agricultural improvement will and can create many jobs in the primary and secondary allied sectors. The improvement in agriculture would generate jobs in agricultural machinery production, fertilizer distribution and marketing, construction, food processing, and other small-scale industries.

Construction: Construction is an age-old activity using traditional methods, techniques and materials. However, today's construction activity is not altogether traditional. High rise buildings, complex design, heavy reliance on concrete and new materials, vertical transportations, pressure to complete building projects quickly etc., demand innovative work methods, new construction techniques, mechanisation of transportation and material handling systems and better quality workmanship. At the same time, there are constraints on the modernisation of construction activity. These constraints are inherent in the technology itself, and others exist due to the social linkages of technology. Technological upgradation of the construction process, improvements in the social standing of the workforce and economic size of the firm must move hand in hand if efficiency and productivity are to be improved. A contractor must hire highly skilled labor and pay better wages if he desires to mechanise construction operations. And as mechanisation calls for the use of equipment, the contractor needs to have financial resources to buy such equipment and the technical personnel in the firm to handle it.

Bangle industry of Firozabad: The glass bangle industry of Firozabad in Uttar Pradesh is a technically backward industry, employing obsolete technology, involving primitive glass melting techniques. The working conditions in most

[4] W. T. Dickens and L. F. Katz, "Inter-Industry Wage Differences and Industry Characteristics," in *Unemployment and the Structure of Labor Market*, K. Lang and J. Leonard, eds. New York: Basil Blackwell, 1987

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of the units in the industry are inhuman. The bangle industry, as it is operated now, poses serious health hazards to workers. Temperatures inside the factory are extremely high and very often cause burn injuries. Coal is mostly used as fuel in the furnaces, resulting in serious health problems. Thus, it is necessary to improve its production technology and work environment and to train and equip workers with the higher skills required.[5]

Policies Relating to Labor

The first Labor Commission in 1969 did not deal much with technology and labor but provided a basis rather than a background about this. The second Labor Commission, 2002, touched many areas of labor in light of the significance of technology. The resolution of the Government of India that announced the appointment of the second Labor Commission itself identified some factors as the emerging economic environment: the globalisation of the economy and liberalisation of trade and industry; the rapid changes in technology and their consequences and ramifications; the effects that these changes were likely to have on the nature and structure of industry, on methods and places of production, on employment and the skills necessary to retain employability and mobility; and the responses that are necessary to acquire and retain economic efficiency and international competitiveness. Competitiveness depends on technology, credit, inputs, managerial skills and labor contribution.

We have already referred to the impact that technological advances are having on unemployment, on places and conditions of work, and on the skills that will be necessary to acquire and retain eligibility for employment and mobility in employment. The future will require concurrent training in multiple skills and constantly updating and upgrading skills. A commensurate programme of technical education and the transmission of technical skills will, therefore, have to be visualised.

In fact, the history of the Industrial Revolution and the subsequent growth of trade unionism show the benefits that have accrued from the intervention of the State to both sides, and to society itself. In the initial days of industrialism, the State protected machinery and capital from irate workers who had been dispossessed of their means of production and livelihood. In later days, the State protected factory workers from inhuman and barbarous conditions of work and the compulsions that led to the distress sale of labor power. The State protected the right of the workers to form associations or unions to protect themselves against cruelty, below subsistence-level wages, and exploitation. Whether society would have been able to reap the benefits of technology if the State had not intervened to protect the entrepreneur and the employees or wage earners and to create and maintain a climate conducive to investment and economic activity is a moot question that is worth pondering over.

The ultimate objective of economic policy should be to provide security of income or freedom from wanting to provide for several contingencies such as sickness, old age, technological unemployment, etc. The globalisation that we see today has been triggered by modern technology. History testifies to the fact that a mix of motives has fuelled the growth of technology. It also shows that the use to which technology is being put, has been influenced by a variety of motives and objectives. Knowledge of the technique of splitting the atom has led to beneficial uses as well as to holocausts and fear for the survival of humanity. Knowledge of propulsion techniques has been used to launch spaceships that explore outer space and launch satellites that can provide bases for 'Star Wars.' Technology has been used to concentrate power and bolster regimes of terror. It has also shown the possibilities of universalising, or near universalising, access to knowledge and, therefore, power, and the possibilities of a vast increase in accountability, transparency and participation in decision-making.

Now India has engineers, technicians, physicists and scientists of the highest calibre, so much so that we stand third in the world for the number of trained scientific personnel. It is not the absence of men and women of this calibre that has prevented the growth of our economy. It is true that we have lost many of these highly competent persons because of the 'brain drain' to countries in the West. We do not have to list the factors that have promoted this 'brain drain' and caused severe loss of our human resources to other countries. It is common knowledge that the absence of facilities for advanced research and training and tempting opportunities that combine monetary benefits with job satisfaction and social recognition has caused this 'brain drain' and kept it going. Our governments, business houses, and institutes of higher learning and research have been unable to counteract this phenomenon, materially affecting this drain's speed.

Technology And Indian Labor Law–

The list of laws relating to labor seems to be growing. Yet it is not clear why one needs so many laws if the basic idea of all these laws is to provide safe and humane working conditions, health and safety both at the workplace and outside, and welfare too, both at the workplace and outside. It may be that with respect to safety, the dispensation may have to be different for different work situations, but surely, this does not call for separate laws. The safety requirements and precautions, including protective equipment, can be suitably incorporated in manuals, drawn up by experts well versed in the technology that is used, in the nature of activities carried out by an establishment, in its effect on work situations and on human beings who work at these places and so on. Working conditions and welfare issues account for a big part of the labor laws. Broadly, these laws can be classified into two groups, one dealing with specific activities, such as

[5] research study conducted by the Centre for Operations Research and Training in 1998

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Factories Act 1948, Mines Act 1952, Building and Other Construction Workers Act 1996, Plantations Labor Act 1951, Beedi and Cigar Workers (Conditions and Employment) Act 1966, Motor Transport Workers Act 1961, Shops and Establishments Act and so on; the other relating to activities across the board, as for example Contract Labor Dangerous Machines (Regulation) Act, 1983, Inter-State Migrant Workmen Act 1979, and so on.

CONCLUSION

It is highly unlikely that Indian labor laws will ever change where firms can hire and fire freely. Most of the Labor Laws that we have today are relevant only to the organised sector. Furthermore, the laws in the statute book that relate to some sectors of the unorganised sector are too inadequate to give protection or welfare to the vast majority of workers in the unorganised sector. The sector is vast and varied. Over 90% of our labor force works in this sector. The employments in which they are engaged vary from the most unskilled jobs, like stone breaking or collecting minor forest produce, to sophisticated jobs in software technology or info systems. Indian firms have the technology and the intellectual capital to compete with countries like the U.S.A. & China in the global market scenario. However, this seems a classic case where our democracy is losing to the Non-democratic China. We do reforms when we are pushed against the wall, just like the opening up of the economy in 1991. We need to be proactive and not always democratic in making laws that will yield results for future generations. Thus, the nation has an obligation towards the working population to be receptive to developing skills and better technology, and there should be an umbrella act to devise schemes and programmes for the same, considering the pace of technological change.