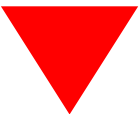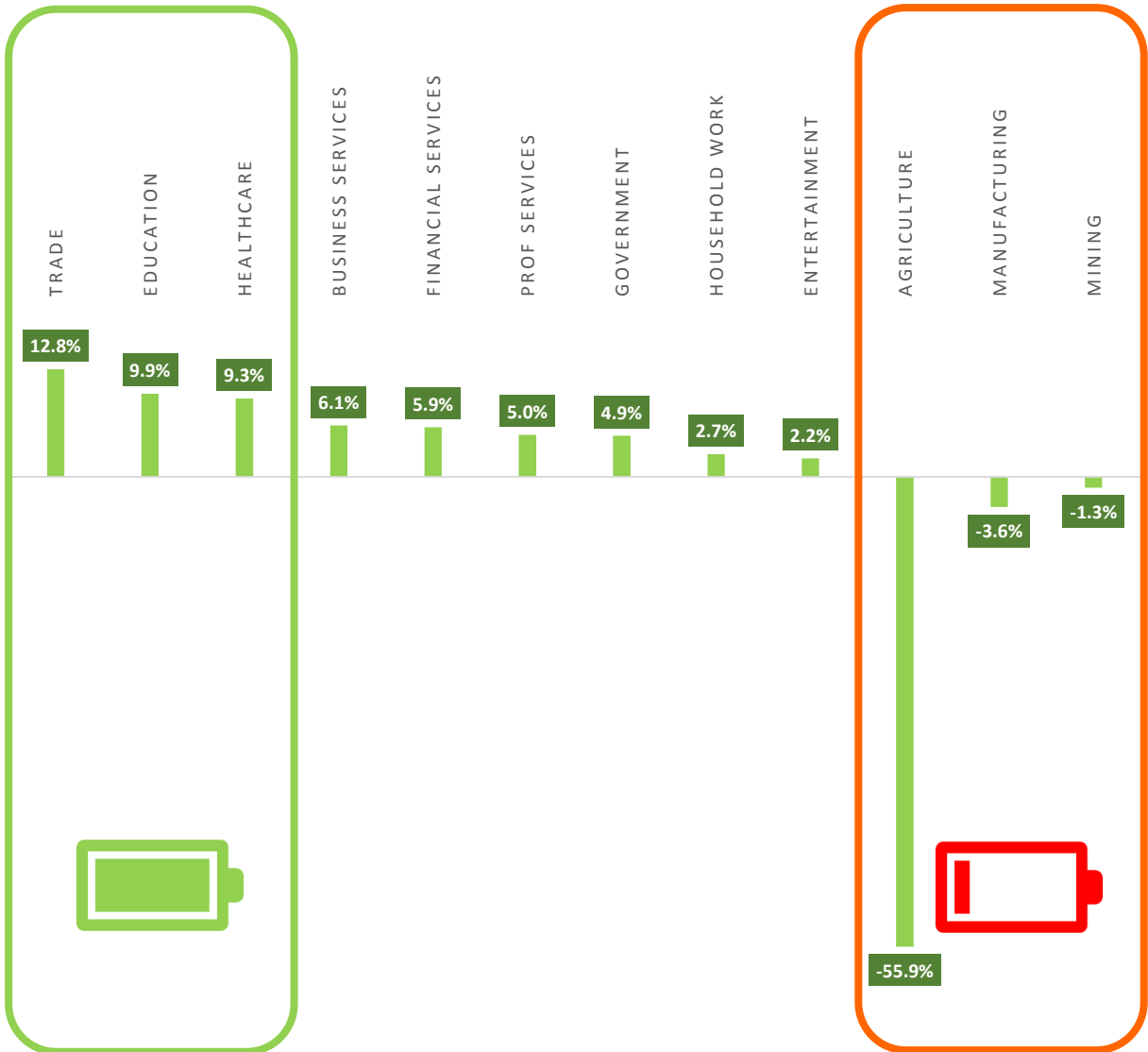# ARTIFICIAL INTELLIGENCE

J O B S

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OR

Artificial Intelligence, or the idea that computer systems can perform functions typically associated with the human mind, has gone from futuristic speculation to present-day reality. One of the hot topics today is whether AI will kill jobs. Quoting from SocialMediaToday, AI, as a technology, is still in its infancy, and it's much more likely to increase jobs in the near future. Let's look at this from an Indian job market perspective.

CONTRIBUTION CHANGE

TRADE **12.8%**

EDUCATION **9.9%**

HEALTHCARE **9.3%**

BUSINESS SERVICES **6.1%**

FINANCIAL SERVICES **5.9%**

PROF SERVICES **5.0%**

GOVERNMENT **4.9%**

HOUSEHOLD WORK **2.7%**

ENTERTAINMENT **2.2%**

AGRICULTURE **-55.9%**

MANUFACTURING **-3.6%**

MINING **-1.3%**

History shows that technology has created large employment and sector shifts, but also creates new jobs. Above is a snapshot from a US Bureau of Labour Statistics report on change in contribution of sector-wise employment in 2015 versus 1850. The drop in contribution of Agriculture, Manufacturing and Mining sectors, has been offset by the Trade, Education & Healthcare segments.

T R E N D

Below are the UN estimates (all figs in millions) for South Asia region. I have considered these figs as broadly indicative of India's trend. Being a young country, with 30 mn lower population addition during 2010-2030 compared to the previous 20 years, the addition to the available labor pool is likely to be higher by 34 million. With 96.1% employment (198 mn out of 206 mn) during the previous 20 years, assuming constant rate of employment, India will need 231 mn jobs during 2010-2030, which is 33 mn more jobs compared to the previous 20 years.

CHANGE IN:	1990 - 2010	2010 - 2030	
POPULATION	397	367	
LABOUR FORCE	206	240	
EMPLOYMENT	198		

India is currently witnessing two simultaneous trends in agriculture and urbanization. Inspite of the determined pursuit of agricultural self-sufficiency, the farmers face a host of challenges, poor irrigation facilities in drought-prone areas, over-indebtedness, faulty market infrastructure that fails the crop grower when it comes to pricing and – last but not the least – stagnant farmer incomes. With one of the lowest farmer landholding of 0.15 hectares versus the global average of 5.5 hectares, the focus is shifting from increasing the farm output to improving farmers' incomes. More profitable farmers will invest in **mechanised** techniques that use resources more efficiently, building a kind of virtuous circle.

According to research institute Oxford Economics, all the top 10 fastest-growing cities by GDP between 2019 and 2035 will be in India. 200 Million people are expected to move from rural areas to the country's urban centers in the next 15 years. This will bring focus to core aspects of the quality of life in cities - Jobs, Cost of living, Safety, Time, Health, Environment and Connectedness. While all these happen, the focus will be on strengthening sustainability and **resource productivity**.

What both these trends suggest is that the way manufacturing became the alternate source of employment 50 years back and service industry emerged as the third sector of employment 25 years back, newer occupation categories will emerge as mass driver of low-skill or middle-skills jobs going forward.

Building the Workforce of the Future

Five key trends are taking shape across the world with the aim of building workforce of the future:
a) Retraining the existing employees to raise their skill capacities
b) Redeployment of workers with specific skills to make better use of the skill capacity
c) Hiring people with required skill sets
d) Contracting workers from staffing agencies to deploy skills brought in from outside the organization
e) Releasing employees from companies in industries that are not growing very rapidly and in which automation can substitute for labor in a significant way.

Looking Across the Great Wall

China believes that AI could add 0.8 to 1.4 percentage points to GDP growth annually, depending upon the speed of adoption. Therefore, five priorities of China's AI strategy are: building a robust data ecosystem, spurring adoption of AI within traditional industries, establishing an ethical & legal consensus among the Chinese citizens, strengthening the pipeline of specialised AI talent and ensuring that education & training systems are upto the challenge.

The last two points in the Chinese model refer to training the manpower to be future ready which can prove to be easier said than done, considering the challenges associated with the existing manpower. This is where India has an edge with more than 50% of the population under the age of 27 and therefore easier to achieve the training/ re-training done with a more mouldable workforce. The setting up of the Center for the Fourth Industrial Revolution India in Mumbai by the World Economic Forum is a major step in this direction.

Now, let's look at the occupation-wise growth in employment growth in India over 15 years estimated by McKinsey in the era of growing automation. Interestingly, Care Providers and Teachers will be huge growth occupations, similar to what has happened during the last 165 years (refer 1850 vs 2015 table).

EMPLOYMENT GROWTH - 15 YEARS

Occupation	Growth
Care providers	242%
Teachers	208%
Technology Professionals	129%
Builders	117%
Managers & Executives	75%
Creatives	58%
Customer interaction	46%
Professionals	46%
Office Support	21%
Predictable Physical Work	15%
Unpredictable physical work	9%

What the McKinsey study mentioned above suggests is that jobs will exist and even grow but the big challenge will be on how people will adapt to the transition. There will be lot of low-skill kind of jobs in sectors such as construction or landscape gardening. Similarly, operating vehicles or stocking and packaging products are more susceptible to automation than are assisting patients in a hospital or some types of cleaning. However, there will be a multitude of factors impacting the transition. People don't have the skills. People don't have the means to figure out where the job demand lies. They are unable to actually physically relocate to where they need to work so that they can apply their skills.

According to the World Economic Forum, 85% of 2030's jobs don't exist today. For example, each job loss due to automation will lead to five new jobs, requiring different skill sets. Even in the current situation, there's an ever ongoing transition. Apprenticeship system or internship models still exist where an on-job training allows people to move seamlessly and become part of the workforce. This will also create a pool of freelancers that will shift the workforce composition. These freelancers will be specialists, instead of generalists in the currently prevailing scenario.

The speed of the technological change is coinciding with the two emerging trends in India that I'd highlighted in the beginning – mechanisation in agriculture and focus on resource productivity in the newly urbanized cities.

Role of Rising Mechanization in Agriculture

Greater mechanization in agriculture coincides with growth in general mechanics and installation & repair workers. And the higher productivity will lead to more demand for transportation, more requirement of storage & agricultural produce processing industries and therefore higher requirement of builders for the industrial facilities & warehousing facilities. All these leading to higher employment with more automation within each of these related industries.

Role of Rapid Urbanization

Faster urbanization will mean more people required in the Care, Education and Builders occupations, not just in the high skilled categories but in the low skilled ones too. With greater urbanization, there will be a shift in people's spending pattern, with a greater increase in spending on healthcare and other personalised services. This will create significant new demand for a range of occupations, including doctors, nurses, and health technicians but also personal-care aides and nursing assistants. This is inline with the occupation-wise employment growth prediction of McKinsey (refer earlier barchart).

Personalised services aside, action taken to bridge infrastructure gaps and overcome housing shortages will create significant additional labor demand in the newly urbanized geographies. These jobs include architects, engineers, electricians, carpenters and other skilled workers as well as construction workers.

CONCLUSION

Both the above broad trends lead to rising incomes and thus increased demand for leisure and recreation, and that is the opportunity for growth of the Creatives category, involving artists, performers and entertainers.

Thus, I believe that automation will add jobs, atleast in India.

Request if someone could share how different is the AI strategy execution by China versus the Indian model.