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Make-in-India & Higher Education Policy : the Way Forward

KEYWORDS: PPP, FDI, GER, EDB, TOT, JV

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ABSTRACT

The Make-in-India campaign is a significant initiative to align India's manufacturing sector into the Global Value Chain by encouraging Public Private Partnership (PPP), Foreign Direct Investment (FDI) inflow, Joint Ventures (JV) and improving Ease in Doing Business (EDB). Higher education will play a critical role in realizing this significant initiative as it would scale up Research, Quality and Global connect with top quality foreign universities. The paper takes a kaleidoscopic overview of government's higher education policy and its impact in augmenting Gross Enrolment Ratio (GER) & Quality. While tracing India's technological options to build manufacturing base through Transfer of Technology (TOT) as the predominant mode, the paper laments the lack of growth in indigenous R&D, Quality of research publication and patents granted. It identifies major policy initiatives like FDI, Industry-Academia collaboration, PPP and Allocation adequacy as the way forward

Introduction:

The regime change in India is witnessing a paradigm shift in government's approach towards dismantling institutions like Planning Commission and India's yen to become more market friendly so that it becomes the preferred destination for foreign investors & NRIs through Make-in-India campaign. This quaint campaign seeks to integrate India's manufacturing sector into global manufacturing value chain. A more liberal Foreign Direct Investment (FDI) ethos, vibrant Joint Venture (JV) & Public Private Partnership (PPP) and greater Ease of Doing Business are the sub texts of this euphoria. Higher education will play the role of force multiplier to realize this mission as it will improve the skill quotient, pave the way for research, quicker technology absorption, and provide an ideal platform for global connect with top class universities.

The policy pronouncements by the government so far, starting with the Kothari Commission (1966) and the various commissions thereafter, have implored the government to increase allocation to education significantly & to improve the quality of our college and university education particularly in Science & Technology (S&T). However, the policy pronouncements so far have neither been backed up by adequate resource allocation nor is new policy pronouncement forth coming to kick start the process of Public Private Partnership and foreign university collaboration through FDI inflow. The Indians still yearn for foreign universities as preferred destination for their childrens' education. The dismantling of the Planning Commission, which has been making significant through flagship programmes like RUSA & TEQIP for quality improvement in state and government's rejection of the Knowledge Commission's Report (2009) on the need for an independent regulatory authority for education supplanting UGC has further dampened the momentum for quality high education.

The objectives of the study:

a. An overview of policy evolution in higher education

b. Impact of various governmental and private sector initiatives on Access and Quality

c. Technology options, Make-in-Indian policy and Higher Education Policy

d. Major policy reorientation required to realize the objectives of Higher Self Reliance & Resurgent India in manufacturing.

AN OVERVIEW OF POLICY EVOLUTION IN HIGHER EDUCATION

Policy Evolution in Higher Education

The following table brings out the major recommendations of the Kothari Commission (1966) and the National Education Policy (1986) and revised National Education Policy (1992).

- Kothari Commission (1966): Improve productivity; treat science as a basic component in education and improve research in S&T

- NPE (1986): Greater role in reinforcing integrative character of research, advanced study and international aspects of education and cultural development

- NPE (1992): Facilitate inter regional mobility by providing equal access to every Indian. In R&D, S&T special measures will be taken to establish network arrangement between different institutions in the country to pool their resources.

It would be seen from the above that special emphasis was led by the educational policies to foster education in science and technology and encourage research. There is virtually a limbo in India's educational policy since then.

The HRD minister's announcement that a new educational policy will be unveiled next year has from their exacerbated the policy prevarication. Three committees, who have addressed the issue of quality since 2000, have made the following recommendations.

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Ambani Birla Report (2000)
Ambani-Birla envisioned creation of a knowledge based society, which will induce competitiveness while fostering cooperation. The report championed the principle of use-pay policy supported by loan schemes and financial grants for economically backward section. It strongly recommended legislation for new private universities in the field of science and technology, management and finance area. The report pitched for foreign direct investment while limiting into Science, Technology and Research. Moreover excessive regulations was sought to be dispensed with while emphasizing that the government should play the role of a facilitator.

Knowledge Commission (2009)
Some of the striking features of the Knowledge Commission are to spur growth of private and foreign universities and reduce role of the state. The commission recommends expansion of the number of universities to 1500 in the country, and establishment of 50 national universities by government or by private sponsoring bodies to be set up by Society or Trust or though Section 25 of Companies Act. The commission strongly recommends reduced role of the UGC and instead purposed establishment of an independent regulatory authority for higher education (IRAHE) and an addition 1.5% of GDP to be allocated for higher education. The Commission recommended autonomy for the universities in terms of student fee levels, and commercial use of university facilities with the government providing land and private sector bringing in investment with a profit orientation.

Narayan Murthy Report (2012)
The areas identified by the Narayan Murthy report are quality deficiency, quantity mismatch and funding gaps. The recommendations are for autonomy in finance, regulatory, academic and administrative aspects, fiscal incentives to encourage investment and attracting funding, enabling environment for free movement of faculty and students to promote collaboration with world class institutions abroad, freedom to accredit- with global accreditation agencies to put Indian institutions on par with the and best. It proposes enhancing research focused-through dedicated funding for research sponsored doctoral programs, setting up centre of excellences in the form of technology parks, developing new knowledge clusters & up-gradation of 75 top of the class universities, with investment ranging from Rs.175 to Rs.200 crore per university. The committee has recommended creation of 20 world class universities with investment of Rs.500crore per university and the targeted outcome is the creation of 20 new national knowledge clusters through the public private partnership. The estimated investment for the 5 year plan is of Rs.40000 crore with government corporate partnership and creation of a council for industry and higher education collaboration as a nodal agency.

IMPACT OF VARIOUS GOVERNMENTAL AND PRIVATE SECTOR INITIATIVES ON ACCESS AND QUALITY
With the entry of the private sector into university education; particularly in engineering and management degree courses, higher education has witnessed significant improvement in enrolment from about 10.8% in 2000 to 16.7% in 2012. The 12th plan aims at catching up with China's GER by 2017 by improving access to 25% of population.

The trend of GER since 2005-2006 is graphically depicted as under

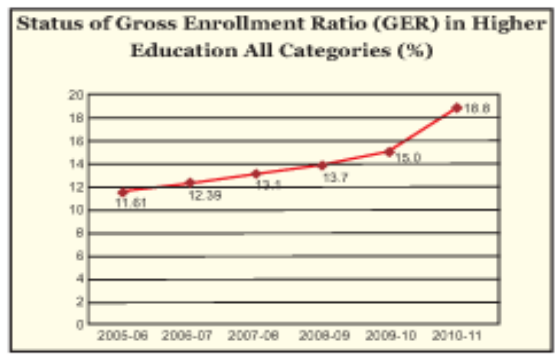

Figure-1: Status of Gross Enrollment Ratio in Higher Education all Categories
Source: Selected Educational Statistics-2005-06; Statistics of Higher and Technical Education -2006-07, 2007-08, 2008 09 (Provisional) & 2009-10 (Provisional), All Indian Survey on Higher Education-2010-11 (Provisional)

Trends in Research & Patents Globally
The following table provides a global comparison of India with countries like South Korea, China and USA in terms of quality of research institutions, industry collaboration and patents granted.

Table-1: Global Competitive Index

Country	Quality of Research Institutions	Industry Collaboration	PCT Patents Granted (Million)
USA	5.8	5.6	137.9
South Korea	4.9	4.7	161.1
China	4.2	4.4	6.5
India	4.4	3.8	1.2

It would be seen from the above that we are significantly lagging behind countries like South Korea which has been investing significantly in research and development and has become a major global manufacturing hub for automotives, electronics and ship building.

India's universities (including the elite ones like IIT and IIMs) have not been able to be anywhere in the top pecking order of global universities. The reasons are not far to seek. Inadequate allocation to research and development by government, poor participation of the industry in the academic curriculum of the university and lack of synergy between the academicians and the industry has resulted in very poor patenting of products and quality research papers compared to countries like USA and China as the following tables will reveals

Table-2: Education Sector: Publication Trends

Year	India		China		USA	
	Publication	Highly Cited Article	Publication	Highly Cited Article	Publication	Highly Cited Article
2001	15522	103	25730	174	150817	2894
2011	36456	191	122672	980	184253	3137

Source: YuXie Chunni Zhang et al at National Academy of Sciences, 2014

TECHNOLOGY OPTIONS, MAKE-IN-INDIAN POLICY AND HIGHER EDUCATION POLICY
It would be useful to put in perspective the policy ap-

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proach to build the knowledge base in this country after independence. When the Britishers left India, India neither carried a legacy of good infrastructure base nor did it inherit many good research institutes. Pandit Nehru opted for the Technology Transfer (TOT) route and invested in strategic programmes like Atomic energy and Space and setup laboratories under CSIR & DST. However, the allocation to R&D has been significantly low compared to the levels at which the developed countries have been spending. This has affected our human resource capability in terms of low Human Development Index (HDI) as the following table would show.

Table-3: HDI, Inequality & R&D Expenditure

Country	HDI	R&D Expenditure
USA	0.914	2.9
Germany	0.911	2.8
Japan	0.89	3.4
Korea	0.891	3.7
Brazil	0.744	1.2
China	0.719	1.7
India	0.586	0.8

Source: HDR-2014

Importance of Research, Innovation & Total Factor Productivity

Post World War, USA witnessed unprecedented boom in its economic prosperity largely due improvement in factor productivity propounded by Robert Solow and innovation highlighted by Joseph Schumpeter. The private corporate sector also made handsome allocation for fostering research activities in the universities. MIT, Harvard are testimony to this knowledge explosion. The erstwhile USSR also invested heavily in Space Research and Defence programmes and university education and laboratories.

Table-4: Sources of Growth in China

Parameter	1953-1978	1979-1994
Output Growth	5.8	9.3
Capital Input Growth	6.2	7.7
Labour Input Growth	2.5	2.7
TFP Growth	1.1	3.9
Contribution of Production	18.0	41.6

Source: A.P. Thirlwall - Economics of Development-Theory and Evidence

On the other hand, India opted for technology transfer; particularly from USSR in 1960s through a series of license arrangement for manufacturing aircrafts, submarines and tanks. The steel sector, power sector and heavy engineering also witnessed significant technological collaboration with countries like Germany & Britain. However technology transfer has not helped the process of Know-Why. The defence sector provides a tell tale example of such technology dependence on our foreign collaboration with our import dependence as high as 70% since 1980s. This is despite the recommendation of a Self Reliance Committee headed by Dr. APJ Abdul Kalam to improve our Self Reliance Index (SRI) from 30% in 1995 to 70% by 2005.

It would be worthwhile to mention countries like China invested heavily in education and went for massive collaboration with USA in 1970s. This has impacted its Total Factor Productivity (TFP) significantly as the following table show to buttress the remarkable growth story of China after liberalization.

India is caught in a technology deficit trap the factor productivity of our labour force in particular, is low compared to the manufacturing power houses like Japan, South Korea and China. In key defence technology like propulsion, sensors, and weapons our dependence for major weapon systems and platforms from foreign supplier is almost total.

Given such a dismal scenario, the present governments resolve to promote "Make in India" strategy and Make in India the preferred destination for OEMs and design houses is commendable. There are generally three options for Emerging Market Economies (EMEs) like India to catch up with the developed viz. Import Technology (BUY), Buy Technology and Make-in-India (BUY & MAKE & In house R&D & Make (MAKE). The Make-in-India, campaign on the other hand, puts emphasis on creating congenial environment for Joint Ventures, FDI inflow by improve Ease of Doing Business Index in India so that India's labour arbitrage and skilled personnel become potent partners with reputed Original Equipment manufacturers (OEMs) and design houses.

For this campaign, to have credible results, higher education has to play a pivotal role as indigenous talent with high skill sets would be the key to build synergy with foreign partners. The experience in India has been that in many technology transfer programmes technology absorption has been in ordinately slow due to low level of skills. Though we have a large number of military aircraft manufacturing programmes, none of the engineering colleges in India has a course in aerospace engineering. In terms of design capability also our indigenous capability is rather rudimentary. We would therefore need to pay special attention to high skilling and improve our design capability for producing niche components and subsystems.

MAJOR POLICY REORIENTATION REQUIRED TO REALIZE THE OBJECTIVES OF HIGHER SELF RELIANCE & RESURGENT INDIA IN MANUFACTURING

FDI in Higher Education

FDI will play a very important role is fostering viable JV & MOUs with the top quality education institutions globally. Suhag and Rani (2013) have brought out that FDI in higher education will bring in quality programmes from foreign universities of repute and will improve our market orientation. Given the fact that only 0.8% of FDI has been received in the education sector so far there is a need to encourage inflow of FDI and clear the cobwebs which UGC & AICTE put to deter such collaboration.

Regulatory Mechanism

The Yashpal Committee (2009) have strongly recommended for establishment of an autonomous overarching National Commission for Higher Education and Research for prescribing standards of academic quality and defining policies for advancement of knowledge in higher educational institutions. There is a near unanimity in view that existing regulatory control by UGC, created under Act of 1956 is not lending itself to quality improvement flexibility in charging fees, offering reasonable remuneration to teachers & finalization of curriculum of either public or private universities. Arvind Panagariya (2012) makes a powerful plea against such frustrating control mechanism of UGC and recommends privatization to bring in quality improvement. There is a dissonance in the approach of the UGC and Knowledge Commission. While the UGC is pitching for greater inclusivity and improving GER, the Knowledge Commission aims at exclusivity and augment a framework for encouraging private players and foreign collaboration.

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Unfortunately the new government has not accepted the recommendation of the Knowledge Commission; and instead aims at tweaking the functioning of UGC.

Research and Development

Research and higher education are complementary to each other. According to HDR-2014 the expenditure on R&D in the field of Science & Technology as a percentage of Gross Domestic Product was 0.8% in the year 2012-2013 in India. However developed countries like Korea (3.7%), Japan (3.4%), USA (2.9%) and Germany (2.8%) spend substantially higher amount compared to India. The position on HDI, Income Inequality and R&D expenditure has been brought out in the following table which clearly brings out the need to invest more in research and innovation so that both the Human Development Index can improve substantially and income inequality reduced.

Table-5: HDI, Inequality & R&D Expenditure

Country	HDI	GINI Coefficient	R&D Expenditure
USA	0.914	0.40	2.9
Germany	0.911	0.28	2.8
Japan	0.89	-	3.4
Korea	0.891	-	3.7
Brazil	0.744	0.54	1.2
China	0.719	0.42	1.7
India	0.586	0.34	0.8

Source: Human Development Report 2014

Public Private Partnership (PPP)

Infrastructure has been highlighted as the thrust area for development and employment generation as it is the key link between the primary, secondary and tertiary sector. The Deepak Parekh Committee (2007) had recommended that infrastructure funding/GDP should be increased from 5% to 9% and PPP model is most suitable for fund generation. In economic infrastructure India has witnessed significant growth in civil aviation, power projects, container terminals through special purpose vehicle (SPV) and variability gap funding. Several key initiatives like setting up of India Infrastructure Finance Company 2006, India Infrastructure Project Development Fund 2008 and Infrastructure Debt Fund 2012 with equity of 2 billion dollar have been taken. The 12th plan has set up a target of spending nearly 1 trillion dollar with 50:50 public private partnerships. Sadly in India PPP in social infrastructure is not getting the requisite attention of the planners as it deserves. It would worthwhile to draw experience of other countries like Sweden, Germany, Singapore & China where the PPP model has worked wonders. Germany, public commitment to take most risks has encouraged many small private enterprises to participate in the PPP model. Such models have important lessons for India. The key component is political will.

Allocation

It may be recalled that Dr. Kothari had recommended way back in 1964 that the government should spend atleast 6% of its Gross Domestic Product on education. However in over 45 years we have been able to achieve around half its target. The Knowledge Commission under Sam Pitroda (2009) recommended an increase of atleast 1.5% of GDP for higher education. Colclough and Lewin (1993) in a seminal study have worked out a methodology for calculating investment requirement to finance universal primary education in India. Their study shows that around 3.1% of GDP needs to be allocated to universalize primary education as against around 1.5% earmarked by government. In this connection a global comparison reveals that the allocation we make towards education is abysmally low reflecting our poor HDI, GER & Mean Year of Schooling.

Table-6: GER, HDI & Public Expenditure % on Education

Country	GNI	HDI	GER	Mean Year of Schooling	Public Expenditure as % of GDP
USA	52308	0.914	95%	12.6	5.6
UK	35002	0.892	61%	12.3	5.6
Germany	43409	0.91	57%	12.9	5.1
Japan	36747	0.89	60%	11.3	5.6
France	36629	0.88	51%	11.1	3.8
Russia	22617	0.778	75%	11.7	5.9
Korea	30345	0.89	100%	11.8	4.1
China	4477	0.79	35%	7.5	3.7
India	5150	0.586	23%	4.4	3.3

Source: HDR -2014

Concluding Thoughts

As has been brought out in the foregoing, for Make-in-India campaign to gain credible momentum the higher education policy framework has to encourage establishment of world class universities and build appropriate design capability amongst the pass-outs of our engineering colleges. For this to happen we need to abdicate the present policy opacity viz. whether the government would take the initiative or it should be left to the private sector. The dominant role in higher education has to be played by the government initiative investing significantly in public education (6% of GDP at best) and remove the cobwebs in the FDI policy being put by regulatory bodies to foster partnership with reputed foreign universities. At present, but for a few elite universities, the State universities languish seriously in terms of infrastructure, teacher and research capability deficit. Mr. Narayan Murthy, the leading light of India's IT resurgence has rightly observed that while we have scaled up in terms of quantity in education sector we have not put enough effort in the quality dimension. The challenge for India is therefore, to have compact political commitment to action by making adequate allocation, handhold the stakeholders to build private and public-partnership. As John Maynard Keynes said "Difficulty lies not so much in introducing new ideas but in replacing old ones". He could not have been more prescient in the Indian context.

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