

International Conference on
**ACHIEVING ACCELERATED MANUFACTURING GROWTH:
THE PROMISE AND CHALLENGES**
January 2-3, 2015

A Summary and Key Messages

Conference Organised by
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MIDS would also like to record its appreciation to the British Northern Universities India Forum (BNUIF) led by Prof. V.N. Balasubramanyam who partnered MIDS by contributing to the conference through papers, and active participation in discussions. BNUIF also met the cost of their travel and stay for the conference.

Dr. Subir Gokarn, Director Research, Brookings India and former Deputy Governor of Reserve Bank of India delivered the Key Note Address and participated in the discussions. MIDS would like to record its appreciation of this support.

A large number of scholars, government officials and experts from industry participated in the conference. The organisers of the conference are grateful for their presence and contribution to the deliberations.

BNUIF wishes to record its appreciation to the financial support received from the Universities of Leeds, Huddersfield, Manchester and Lancaster.

The Conference was coordinated by Dr. L. Venkatachalam, Dr. M. Vijayabaskar and Dr. Shashanka Bhide at MIDS with the support of a number of non-academic staff and Ph. D scholars of MIDS under the overall guidance of Prof. K.L. Krishna and Prof. V.N. Balasubramanyam.

This summary of proceedings has been prepared by Dr. Shashanka Bhide, Dr. L. Venkatachalam and Dr. M. Vijayabaskar under the guidance of Prof. K.L. Krishna and Prof. V. N. Balasubramanyam.



Highlights

The international conference "Achieving Accelerated Manufacturing Growth: The Promise and Challenges", held on Jan 2-3, 2015 in Chennai was jointly organised by the Madras Institute of Development Studies (MIDS), Chennai and the British Northern Universities India Forum (BNUIF), United Kingdom. The conference was supported by a grant from the Government of Tamil Nadu.

Speaking in the inaugural session of the conference, Thiru C.V. Sankar, Additional Chief Secretary, Department of Industries and Thiru K. Shanmugam, Principal Secretary, Department of Finance emphasised the need to understand the constraints to the growth of industry in Tamil Nadu, especially in view of the potential for employment generation in the sector. They also drew attention to the successes the state has had in developing its manufacturing sector and the challenges before it. Thiru S. Krishnan, Principal Secretary, Planning & Development and Special Initiatives and Thiru Kumar Jayant, Secretary, Department of Micro, Small and Medium Enterprises participated in the conference providing the perspectives of policy makers to the deliberations.

The academic papers, panel discussion on policies and the presentation of two case studies, besides the observations by senior officials and the key note address have pointed to a number of initiatives that are required to be taken by many stakeholders in achieving the sector's accelerated performance. The suggestions have implications not only for the state of Tamil Nadu but also to other states in the country.

The key observations from the conference are summarised below.

- A comparison of experiences of industrialisation in China and India pointed to the current relevance of Town and Village Enterprises (TVE) for India in many respects. While not all the strategies of China are replicable, ensuring efficient infrastructure, especially that of connectivity or transportation is essential for the growth of manufacturing sector.
- While private sector enterprise operates on the principle of profitability for survival, large investments may be adversely affected by uncertainty over rules of exit. In this regard, well-designed unemployment insurance schemes based on contributions from the employer, employees and the government are essential.
- India's manufacturing sector is characterised by absence of 'mid-sized' firms. There is a need to enable small firms to grow into medium sized ones as benefits to the economy as a whole would be considerable. The policy support to the small firms should be more efficient.

- Skill development requires urgent attention. Upgrading the capacity of educational institutions to impart up-to-date and appropriate skills should receive priority attention of the government and industry.
- Re-skilling is as important as skill development. Institutions and programs that enable re-training of skilled labour are needed.
- Innovations and R&D by the industry is crucial for sustaining the growth of industry. Competitive pressures would induce innovations. However, access to technology from a larger pool of such services should be made available by the initiative of the government.
- Efficiency in the operation of firms is influenced by both factors internal and external to the firms. The external factors include infrastructure services, corruption free efficient administrative services and efficient financial services. Internal factors include quality of entrepreneurship, skills of labour force and scope for growth.
- The work of TWIC in bringing technology solutions for conserving water resources and reducing pollution from textile industry are examples of how technology can address some of the emerging challenges in accelerating growth of manufacturing. However, the damage caused by growth of industry to the environment should be a reminder to have adequate safeguards in place before the damage becomes irreparable.
- Tamil Nadu's long coast line is its natural advantage. It must be harnessed to provide access to trade and help in accelerating its economic growth.
- The state is rightly making efforts to attract global capital to expand and diversify its industrial base. There is a need to constantly assess the factors that may be holding back investments- foreign or domestic- and provide a policy environment that enables investments to take place. Besides the streamlining of procedures and rules affecting businesses simplification of taxation system is also seen to be essential in improving climate for new investments.
- There is a need for regular and systematic dialogue and initiatives to address the constraints faced by the sector. Monitoring the key factors influencing the performance of the industry is a crucial requirement for appropriate responses by the industry and the government.
- A forum for constant engagement between the industry, government and researchers is one important need that was identified in the conference, benefits of which would be far reaching if the feedback to the various agencies leads to appropriate actions.



International Conference on
**"Achieving Accelerated Manufacturing Growth:
The Promise and Challenges"**

January 2-3, 2015

A Summary and Key Messages

The Conference

The Madras Institute of Development Studies (MIDS), Chennai and the British Northern Universities India Forum (BNUIF), United Kingdom jointly organised a two-day International Conference on "Achieving Accelerated Manufacturing Growth: The Promise and Challenges", on Jan 2-3, 2015 in Chennai.

The conference focused on issues relating to the potential for expansion of manufacturing sector in the country, its benefits and challenges before it. The conference participants included scholars from UK and India, government officials of Tamil Nadu and industry. The conference included presentation of 14 papers, nine from within India and five from UK, a panel discussion on policies and presentation of two case studies of initiatives that aim to address the challenges in accelerating manufacturing growth. In this note we provide a summary of the proceedings of the conference in terms of the key messages from the various addresses, papers presented and discussions in various sessions of the conference.

Inaugural Session

Prof. K.L. Krishna, Chairperson, Madras Institute of Development Studies (MIDS), welcoming the participants, acknowledged the financial support and encouragement of the Government of Tamil Nadu to the conference. He also acknowledged the partnership of BNUIF in organizing the conference as the travel and accommodation cost of the international participants was borne by the BNUIF. Prof. Krishna mentioned that Prof. Balasubramanyam, currently Professor Emeritus at the Lancaster University in UK, with a deep interest in economic and social development of India, has been a driving force for the conference.

Prof. Krishna extended special welcome to the senior officials of the Government of Tamil Nadu and appreciated their interest in the theme of the conference. He then requested Thiru C.V. Sankar, Additional Chief Secretary to Government of Tamil Nadu and Principal Secretary, Industries Department to preside over the inaugural session of the conference as the Chief Guest, Thiru K. Shanmugam, Principal Secretary, Finance Department to share his views with the participants in the inaugural session.

He noted that Thiru S. Krishnan, Principal Secretary, Planning Department and Thiru Kumar Jayanth, Secretary, MSME would join the later sessions in the conference and thanked them for their support and encouragement. He welcomed all the important officials and industry specialists and representatives.

Prof. V.N. Balasubramanyam in his opening remarks on behalf of BNUIF, thanked Prof. Krishna and Prof. Shashanka Bhide for the partnership between MIDS and BNUIF in organizing the conference. He noted that there is a lot to understand and learn from the changes that have occurred in the manufacturing sector globally over the recent two decades.



Highlights of the Address by the Chief Guest

Thiru C.V. Sankar, IAS

Additional Chief Secretary, Department of Finance, Government of Tamil Nadu

Expressing his appreciation that MIDS is organizing this very important conference at a critical juncture, Thiru Sankar noted that addressing the goal of higher manufacturing sector growth requires the advice of experienced group of people who have done substantial work in this area. The present conference was very relevant in this context.

Referring to the recent emphasis on 'Make in India' campaign, Thiru Sankar pointed out that there is a need to spell out strategies to encourage manufacturing in India. There are challenges in moving towards this goal. The Reserve Bank of India Governor has recently talked about the changes in international economy and whether we are investing in new technologies in our economy as other leading nations do. Various other developments internationally indicate there is a shift in production to locations closer to the markets or closer to resources such as, markets of Europe and USA or China, and Africa.

Elaborating on the strategies that may be relevant for accelerating manufacturing growth in a state like Tamil Nadu, he pointed to some of the strengths and advantages of the state. Tamil Nadu has along history of manufacturing, architecture, metallurgy and seafaring. The strong capacity of its people to develop institutions which have survived several centuries successfully is also a feature we should take into account.

The state took an early start in establishing industrial estates. Tamil Nadu has made significant contributions to the national politics and policies both before India's independence and in the post-independence period. The Green Revolution is attributed to one of the ministers, the late C. Subramanian, who hailed from Tamil Nadu. There has been a transition from a period of dependence on other states for meeting its food requirements to self-reliance in the sector.

The state also has a vibrant small scale sector with a growing role of the private sector in taking up industrial projects. Auto components, textiles, electronic goods, bio-tech and IT industries have come up in the state. Tamil Nadu always figures among the top three states in the country on many of the economic development indicators. It ranks first in the number of factories, in the number of industrial workers, in the number of micro and small and medium entrepreneurs among India's states. The state also ranks high in social and other economic indicators such as low infant mortality rate, high literacy levels, number of educational institutions for professional degrees. The state had an early lead in the development of health infrastructure. The state experienced a long Dravidian movement during which power shifted to less privileged social groups. We now have a strong program

of social safety net which includes services ranging from Old Age Pension, Noon Meal Programme for school children, Universal PDS, Rural Employment Guarantee and so on.

The state also has a strong media presence and the inputs from various institutions of research also feed into policy making.

There are, however, challenges as the state is now at the cross roads of moving to the next phase of industrial development. Regular employment has become stagnant in recent years while contract labour may be growing which may not be socially desirable. There are also issues of quality of our skilled work force. Employee attrition rates in some of the sectors may be high relative to the experience of developed economies.

Underscoring the importance of the state's industrial development, Thiru Sankar pointed to the number of sector level policies that have been formulated by the state such as the Auto components policy and biotech policy. Highlighting the importance of having different strategies for the short, medium and the long run, he pointed to the goals that the government has set for itself as articulated in the Vision 2023 document of the State Government.

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Highlights of Address

Thiru. K. Shanmugam, IAS

Principal Secretary, Department of Finance, Government of Tamil Nadu

Thiru K. Shanmugam emphasised the points made by the Chief Guest earlier on the factors that made Tamil Nadu a leading manufacturing state in the country. He argued that the state has been an attractive place for manufacturing because of cost advantages it offered. It is, therefore, necessary to see what is happening to this factor and other factors influencing growth of manufacturing sector in the state. He urged the conference to deliberate on what needs to be done to retain Tamil Nadu as an attractive place for manufacturing.

Service sector has been growing faster than the other sectors. But both manufacturing and agriculture play a crucial role in supporting the sustained growth of services in the economy. This has been the case in the case of Tamil Nadu. Balanced growth of different sectors is required to achieve sustained growth.

The growth performance of the economy in the recent years has been uneven. It is surprising that growth performance of industrial sector is showing a cyclical pattern. The fluctuations in output affect the overall economy adversely and a stable growth pattern is necessary.

He cautioned that continuous monitoring of the factors affecting the industry is essential so that corrective policy actions are taken to achieve sustained growth of the sector. He narrated the points made by a textile sector entrepreneur who has been forced to consider shifting his factory outside the state as labour costs are making his enterprise uncompetitive. In the beginning, wage rates made commercial sense to locate the firm in the state but now the situation is changing especially where the markets are very competitive.

Taking another example, Thiru Shanmugam pointed out that manufacturers in Tamil Nadu are not benefitting from the emerging demand for manufactured products. The state is providing consumption subsidies for a number of manufactured products. But most of these goods are imported. He suggested that the inability of domestic firms to compete despite such subsidies needs to be probed.

Besides rising wage rates, no other factor can be said to adversely affect location of industry in the state. Power situation is satisfactory. Large power projects have been implemented recently and there are projects in the pipeline. There is also huge investment

in transmission and distribution network. The state also has adequate human resources.

Thiru Shanmugam pointed to a number of areas where research inputs are required for making better policies:

- Tamil Nadu also has policies that support the MSME sector. It is recognised that there is a need for an anchor firm for the growth of the MSMEs. There are a number of policies to support the sector. It is necessary to analyse the factors that can help sustain growth of the sector.
- When there was significant power shortage, government provided subsidy to old and polluting units to shift from residential areas to contiguous non-residential areas so that there would be better infrastructure for such industries. But the effort was not very successful. It is necessary to understand how such requirements can be met effectively.
- Agro and/or food industries have a lot of potential in the state. It is necessary to understand which of our policies are working and what more needs to be done.
- Manufacturing sector will not succeed if it does not innovate. Innovation is important in a context where cost of manufacturing is expected to go up. Manufacturing should move to high value manufacturing, and the mechanism for this shift needs to be understood.
- The sunrise sectors today are Nano technology related industries and biotech. But what is required to ensure growth of these industries?
- Tamil Nadu has a large sector of windmills generating power. But these windmills were set up long time back. What is the future potential of this sector?

There are a number of areas like this where interactions with the academic research will help in policy making. Presently, there has not been adequate level of such interactions. Systematic information on the constraints and challenges has not been available for policy making. Conference such as the present one is, therefore, very relevant.

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Key Note Address

Dr. Subir Gokarn

Director of Research, Brookings India and former Deputy Governor, RBI

As a backdrop to his presentation, Dr. Gokarn pointed to some of the key points that are likely to shape the growth of manufacturing in the country.

Demographic Dividend

- India has the potential advantage of the now well-known demographic dividend. The share of the young in India's population is high and likely to increase for the next decade or so. Compared with China this is a particularly sharp differentiating factor. China has an ageing population now. Wage rates are rising in China. China is racing against time to accommodate this transition towards a relatively ageing workforce.

Concentration of Global Labour Resources in India and A Few Other Asian Countries

- There is a concentration of global labour resources in 4-5 countries and will remain so over the next 20-40 years. India, Bangladesh, Pakistan, Indonesia and Vietnam are some of the main countries where labour would be available in large volumes. India should benchmark itself against these countries where labour resources would be concentrated. For instance, Indonesia and Vietnam are countries where a young workforce is likely to be a significant factor in making them attractive for manufacturing investments.

India's Anomalous Industry Structure

- India's economic structure has changed with the share of tertiary sector in GDP rising to close to 60 per cent now and agriculture falling to below 20 per cent, a reversal of the situation some 50 years back. However, the pattern with respect to employment is not as sharp. Agriculture continues to accommodate close to 60 per cent of labour force even today. Will this pattern change? China has a much smaller labour force in agriculture.

Exchange Rate and Inflation Policies

- Real effective exchange rate has been one of the factors influencing production patterns. An undervalued exchange rate makes exports possible and imports more expensive to domestic consumers either in consumption or as inputs in production. But we can't rely exclusively on an undervalued exchange rate to achieve competitiveness. This only works if all other policies are also contributing to competitiveness. If we undervalue the rupee without changing anything else, it will have large inflationary impacts without necessarily achieving more than a marginal impact on competitiveness. The effort should also be to keep inflation rate low.

Dr. Gokarn then spoke about India's hard choices in promoting manufacturing.

Challenges in the Labour Market

- Taking up the challenges in the case of labour, he noted that labour resource is abundant for us. However, now there are issues relating to rising costs. Wage rates are rising. But the data on wage rates should be corrected for skill content of labour. Safety nets should be ensured for labour. Implications of the new set of labour law reforms in Rajasthan will require to be examined.
- The Industrial Disputes Act is at the core of our industrial labour regulations. As per this Act, employers bear all the cost of unemployment insurance. This is not a viable safety net. Globally, the employer, employee and the government bear these costs. We need to move to this framework. Rajasthan's reforms are in this direction.
- There has been a sharp increase in the wage rates in the country, especially in rural areas. It is a positive development from the wage earner's perspective, but the implications for firms in manufacturing are different.

Skills Problem

- Then there is the 'skills problem'. Skills become obsolete over time. There is a need for continuous re-skilling programs.

Industrial Financing

- Financing of industries is also evolving. How risks are managed in the intermediation of finance is becoming important. As requirements of capital increase, keeping cost of capital low is an important consideration. Availability of international capital becomes linked to macroeconomic considerations such as rate of inflation in the country.

Land for Manufacturing Activity

- Another challenge for the manufacturing sector or industry in general is the availability of land. The land bill that is in place has led to overvaluation of land. The land market is distorted and therefore, the land prices for industry and infrastructure linked to the market would make land very expensive for the industry. How will this affect rate of return on investment?

Contract Enforcement

- There is also the issue of security of contracts. Issues relating to contract enforcement affect investments. The case of Singur land acquisition provides an important experience to understand how significant are issues of land and contracts.

Infrastructure Issues

- Infrastructure constraints have been well articulated before. There are a few distinct issues relating to infrastructure in the country. First, infrastructure is unevenly distributed across the country; second there are issues relating to the pricing of infrastructure services; third, infrastructure is a network, with the efficiency of one sector depending on the efficiency of another sector.
 - The point about 'network' nature of infrastructure is illustrated by the need to have road or rail connectivity to the ports. In the absence of it, ports will remain disabled. While thermal power generation capacity may be developed, unless fuel linkages are adequate, the generation capacity would remain only partially utilized to the extent that fuel is available. Such disjointed planning has led to spillover effects of failed infrastructure projects on the banking sector.
 - That China has managed to build large infrastructure necessary for a fast growing economy is a hope and also a worry. Hope because there may be lessons for India. Worry because, are the lessons not replicable? If we consider roads, ports and electricity we see a big gap in what China has accomplished and what we have achieved. In the case of railways we may be close. In the case of air transport, India may have done better. However, the under-achievement in the power sector is what is affecting India's performance in manufacturing.

Taxation Related Challenges

- There are taxation related challenges for manufacturing. The GST is the right tax framework for the economy. It would reduce cost of taxation on the tax payers. Uniform tax rates across states would provide relief on compliance. He pointed out that EU is a federation of 27 countries but a common market for all the members. However, India is a sovereign country with 27 states but a fragmented market for the producers.
 - Manufacturing requires adequate scale to be competitive. If the tax system is negative for scale then manufacturing will not grow. MSMEs cannot be the sole drivers of manufacturing. They fit into a supply chain. The auto sector is an example: it has grown remarkably as the manufacturers have achieved scale economies and the auto parts sector has also managed to grow rapidly.
 - Consumer durables production has also grown quickly. Television sets today cost less than what they did in 1993. They are far more efficient. Scale matters.

Some Aspects of Regulatory Framework

- There are also political consequences as firms take advantage of rules of entry and exit into sectors. The consequences may help or hinder the growth of the industry.

Regulatory framework for competitive markets has to be in place to enable growth that is sustainable in a competitive market.

Some Caveats

- Technological change is irreversible and all technological progress is labour saving in nature. There may be some indirect benefits of such technological progress, as it improves productivity and leads to demand for new products. But the manufacturing sector will need to be responsive to such opportunities.
- There are concerns regarding the political problems faced by the Indian IT firms in the US market. The challenge of relocation of industry retaining its competitive advantages will be significant in this scenario.
- The nature of manufacturing today is fundamentally different with high levels of skill intensity. There is also the challenge of 'jobsolescence' as occupations become obsolete and reskilling becomes imperative. The need for a new skills-jobs framework to plan for these developments is critical.

Summarising, Dr. Gokarn emphasized that,

- There is no question that manufacturing should be a vital part of our growth strategy
- There is no magic wand that will make manufacturing grow fast
- Suitable exchange rate policy is needed. East Asia aligned micro policies with its macro-economic policies. China too has a unitary tax regime across the country.
- The policy of special economic zones in Malaysia and China insulated inefficiencies in the rest of the economy and triggered exports.
- Importantly, the question as to whether manufacturing can provide more employment needs to be looked into in this changing context.

The addresses by Thiru C.V. Sankar, Thiru K. Shanmugam and Dr. Subir Gokarn set the tone for the conference.



Key messages from the various papers in the technical sessions, presentations and discussion

We describe below some of the key messages from the various papers, presentations and discussion.

1. Potential for faster expansion of the manufacturing sector in the country

Share of manufacturing in GDP remains a low of 15-17 per cent in India. The share is much higher in China and countries in Southeast Asia. The rising share of youth in the population and projected large share of workforce in the total population over the next two decades provide a supply side push for growth of the economy, including manufacturing. Experts have noted that about a quarter of the projected increase in the global population aged 15-64 years between 2010 and 2040 will occur in India. The working-age ratio in the country is set to rise from about 64 per cent currently to 69 per cent in 2040, reflecting the addition of over 300 million working-age adults. This would make India- by an order of magnitude-the largest single positive contributor to the global workforce over the next three decades.

The ageing population in China and the likely shift there from manufacturing to services point to opportunities that might open up for India's manufacturing. India's own domestic demand is expected to remain strong for manufactured goods. The scope for expansion of manufacturing sector is, thus, significant driven by both domestic and global demand. However, the expansion will have to come from a more competitive market environment, requiring rapid adaptation to new technologies and innovations leading to new products and designs.

Development of the economies of Tamil Nadu and Kerala point to the differences in development patterns: while Kerala followed essentially a policy of investments in education and health and benefitted from the remittances of its labour force that migrated abroad, Tamil Nadu followed a 'classical model' of development in which industrialisation played a major role in transforming its economy from a primarily agrarian to its present industrial and service sector dominated features. This highlights the need to understand institutions and policy trajectories in shaping variations in development of the manufacturing sector and hence the importance of paying attention to regional variations in the context and strategies in policy design.

2. Enhancement of Employment Potential of Manufacturing

The pattern of manufacturing growth experienced in India, especially since the economic reforms of the 1990s, has been one of higher capital intensity than greater labour intensity. Technological changes have also been 'labour saving'. These factors make generation of

employment by manufacturing growth alone less likely. But at the same time, growth of modern manufacturing sector would be based on more productive use of labour, raising income levels and producing both backward and forward employment linkages.

Labour market reforms are also seen as a key to improving employment potential for manufacturing. The growth of manufacturing seen in the post reforms era of early 1990s has come from expansion of output in the organised sector of manufacturing and it has also contributed to generation of employment at a greater pace than the unorganised sector. The organised manufacturing, typically, is more capital intensive and generates less employment than the unorganised and small scale firms relative to the value of output. Even the employment generated in the organised sector is seen to be more of contract labour rather than regular employment. This raises the question of quality of employment generated.

The labour market regulations that place rigid restrictions on downsizing their workforce and exit of firms discourage large firms from investing in labour intensive technologies or sectors. They also discourage them from investing in skill development of their labour force. On the other hand, smaller firms are discouraged to expand their scale and employ more because they would then be subject to more rigid labour laws. This has given rise to the 'missing middle' phenomenon in Indian manufacturing: with far too many small scale firms, some large firms but very few medium scale firms unlike the pattern seen in China or Southeastern economies where the medium sized firms are significant in the firm size spectrum. Medium sized firms in these countries participate in global supply chains and generate output growth and employment unlike the situation in India. However, size alone is not the issue, but the factor intensity of production process which does not generate employment is the problem in this context. The unveiling labour market reforms in Rajasthan are to be watched with interest for their implementation and impact.

Development of skills and re-skilling will become far more important in the emerging competitive and technologically dynamic environment. Old skills will become obsolescent. We need to have an effective skill development program. Information on skilled human resources in the country is extremely weak. Information on technical professionals is necessary to understand the progress on our skill development initiatives.

It was also seen that India's manufacturing sector is highly spatially concentrated. While this may provide some economies of agglomeration, it may pose problems when efforts are made to geographically diffuse skills of the labour force. It would, therefore, be necessary to examine the locational aspects of Indian industry.

More open trade regime, such as the formation of trading blocks, is expected to encourage growth of more labour intensive sectors in India.

Initial, exploratory analysis also suggested that 'High Value Manufacturing' sectors, or the sectors with high skill- high capital intensity features are not necessarily less labour intensive. In addition, they also show higher productivity than all manufacturing sectors put together- in the ASI sector. In other words, the push for 'HVM' sectors in the economy may not lead to any further deterioration in the 'employment generation potential' of manufacturing. Given the likely benefits from the spill-over effects of HVM sectors on the rest of manufacturing in terms of technology, skills and requirement of ancillary industries, the sector requires more rigorous analysis.

The emergence of global value chains presents an opportunity and a challenge. Entry into such value chains requires the firms to be internationally competitive. The pre- and post-manufacturing services play an important role in the effective participation of firms in the global value chains. Such linkages do generate employment but overall employment effects will depend on how competitive Indian firms would be internationally. One suggested strategy was to strengthen value chains in the domestic market so that firms will achieve greater competitiveness and help them upgrade into global markets.

3. External factors influencing expansion of India's manufacturing sector

The external factors keep changing in terms of policies, technology and mobility of both capital and labour. At present the global demand conditions are depressed and a strong recovery would generate higher demand for the sector.

FDI into India has increased significantly in recent years. However, a significant amount of such inflows may not be in green field projects but in acquisition of equity in the existing projects. FDI is seen as a source of new technology and access to markets. Export oriented FDI is, therefore, important for India. The depressed demand conditions in the North American and European economies, and Japan and low return on financial investments have raised attractiveness of Indian markets for foreign investors. Indian firms are also investing abroad to acquire technology and access to resources and markets. Policies that provide freer access to markets and flow of goods and services are likely to strengthen as the recovery in global demand takes place.

The emergence of global supply chains is an important factor influencing development of manufacturing sector across countries. There is a possibility that India may be skipped by global production networks if its firms are not competitive despite the advantages of its large pool of labour resources. Improving competitiveness of Indian firms by improving infrastructure and innovations would be key to bringing Indian firms into global supply chains and sustain it through a process of upgrading skills, technology and infrastructure.

4. Constraints in the expansion of the manufacturing sector

There are a number of well-articulated constraints on the expansion of manufacturing sector in the country. For instance, one of the constraints is infrastructure deficit- indicating inadequate supply of power and transportation facilities in the required quantity and quality, natural resources such as water supply and land needed to set up the plants and factories, skilled labour, efficient set of regulations and administrative services- captured in the phrase- 'ease of doing business'.

The papers presented in the conference emphasise that experience of power supply constraints by firms varies by size of firms: the larger firms may be able to manage the power supply shortage better than smaller firms in some situations and may be the other way round depending on the sector they are engaged with.

An important point made in one of the papers suggests that improved infrastructure- power supply in particular- may have led to output growth of manufacturing industry by expansion of production, while its impact on technical inefficiency- i.e, how far the firms operate below their potential- may not have reduced. While the findings may have to be explored further, they point to the need for awareness on the part of firms to be more open to opportunities to improve productivity.

Absence of medium sized firms in manufacturing was commented on by a number of papers in the conference. The implications of this lacuna is felt in the difficulty India's manufacturing sector to be a part of the global value chains, thus, depriving them of access to technology, investment and other positive spillover effects. Medium sized firms may also be able to have greater capacity to innovate, employ more skilled labour and be effective in establishing more sustainable links with the larger firms than the very small firms. The experience of China and Korea was particularly cited in this regard.

The reason for the absence of medium sized firms was seen mainly in the regulatory framework governing the industry. The small firms remain relatively free from labour regulations, they also get certain benefits in terms of access to industrial infrastructure and possibility of capital subsidies and such benefits may not be available once the small firms grow in size. There are, thus, disincentives for the small firms to grow.

Labour regulations were noted as a significant barrier to industrial growth, more particularly manufacturing growth. While some relaxation in regulations in the form of freedom to employ labour on contractual terms rather than as regular employees was used by the industry to expand employment, this route to employment generation has the disadvantage of unavailability of certain benefits to contract workers which may not be available to regular workers. The need for unemployment insurance was seen as an important safety net which should be considered while removing the barriers to employment implicit in the regulations.

It was also noted that wage rates are rising fast making a number of industries non-competitive in terms of their costs as compared to other locations. This was particularly the case in Tamil Nadu. While attention was drawn by the commentators that we should be looking at efficiency wage rather than the nominal wage rates, it was clear that when higher wage rates were a factor in the relocation of factories to other locations, this factor has to be addressed by the industry and policy makers by encouraging and adopting innovative practices to improve productivity of labour.

Inadequately skilled labour was cited as another factor inhibiting the growth of manufacturing. It is seen that small firms tend to employ labour with low level of skills and unless the firms expand, they will not be able to provide employment to skilled labour and therefore not able to take up more competitive production techniques. Industry itself may not invest in the skills of its employees as the skilled employees may have better jobs available elsewhere. Upgrading of educational institutions imparting technical skills is a challenge for the sector. In the longer run, without adequate investments in health and education, the demographic advantage may not turn out to be so.

Land and water are cited as increasingly scarce and expensive. Competing demands for these scarce natural resources require that choices be made keeping in view these competing demands and more particularly the externality effects of such choices. For instance, adverse impact of industrial activity on environmental resources such as rivers, ground water, air and fertility of soil were extremely worrisome. Adequate planning and safeguards are needed to protect the natural resources for future generations.

5. Addressing the challenges

Manufacturing has been a critical sector in any economy catering to a variety of needs of modern human life. The quantum and composition of goods produced in a country are a result of a large number of factors influenced by resource endowments, regulations affecting the industry, infrastructure, finance, administration and supporting macroeconomic conditions. An important factor that will drive the economy in the coming two decades is the demographic dividend or a transition in which the share of workforce in the population in the country will be at a remarkably high level, thus expanding the productive capacity of the economy.

An important consideration for policies will also be the more competitive global environment for trade and investment. Labour, capital and technology are mobile across national borders and will move to locations where the policies are conducive and comparative advantages are present.

Panel Discussion, Case Studies and Key Lessons from the Conference

In the previous sections, we have enumerated a number of constraints to the accelerated expansion of India's manufacturing sector. The academic papers, panel discussion on policies and the presentation of two case studies, besides the observations by senior officials and the key note address have pointed to a number of initiatives that are required by many stakeholders in the sector's performance. The suggestions have implications not only for the state of Tamil Nadu but also to other states in the country.

- A lively discussion on a comparison of experiences of industrialisation in China and India pointed to the current relevance of Town and Village Enterprises (TVE) for India in many respects. While these enterprises enjoyed a great deal of flexibility in their operations, they were held accountable for their performance. These enterprises received subsidies in setting up industrial units but were not supported further when they failed to perform. The Chinese industrialisation was also helped by two other critical policies: excellent transportation and other infrastructure for industry and absence of rigid labour regulations. When the agricultural sector released huge amounts of labour, migration of this labour to industrial employment was facilitated by transportation infrastructure and expansion of industries facilitated absorption of the labour force. While not all this experience is replicable, ensuring efficient infrastructure, especially that of connectivity or transportation is essential for the growth of manufacturing sector.
- While private sector enterprise operates on the principle of profitability for survival, large investments may be adversely affected by uncertainty over rules of exit. In this regard, well designed unemployment insurance schemes based on contributions from the employer, employees and the government are essential. Some of the labour reforms proposed in states like Rajasthan and also at the national level need to be examined and considered.
- The discussion on labour regulations also has relevance to growth of small firms. However, labour regulations are not the only barriers to the growth of small firms. The policy support to the small firms should be more efficient. Delivery of subsidies, for instance, takes long delays, subverting their original objective. Financing is another issue faced by the small firms. Although small firms are expected to get credit under the priority sector lending facility of banks, the cost of credit for small firms may be higher than for the large firms. Streamlining of policy support to the SMEs is necessary for dynamising this segment of the industry.
- Skill development requires urgent attention. The presentation by Saint Gobain on its program of 'Learn while you Earn' points to one model that can be adopted by

other industries/sectors also. Essentially, upgrading the capacity of educational institutions to impart up-to-date and appropriate skills should receive priority attention of the government and industry.

- Re-skilling is as important as skill development. Institutions and programs that enable re-training of skilled labour are needed.
- Innovations and R&D by the industry is crucial for sustaining the growth of industry. Competitive pressures should be made to induce innovations. However, access to technology from a larger pool of such services should be made available by the initiative of the government.
- Efficiency in the operation of firms needs to improve to make them competitive. Efficiency is influenced by both factors internal and external to the firms. The external factors include infrastructure services, corruption free efficient administrative services and efficient financial services. Internal factors include quality of entrepreneurship, skills of labour force and scope for growth.
- Initiatives of industry and the government are necessary for sustainable growth of industry. The work of TWIC in bringing technology solutions for conserving water resources and reducing pollution from textile industry are examples of how technology can address some of the emerging challenges in accelerating growth of manufacturing. However, the damage caused by growth of industry to the environment should be a reminder to have adequate safeguards in place before the damage becomes irreparable. It is necessary to have effective common effluent treatment facilities with adequate last mile safeguards to protect our environment especially when the industrial units are small. In the case of large plants, necessary safeguards for environmental protection require regular attention.
- Tamil Nadu's long coast line is its natural advantage. It must be harnessed to provide access to trade. Andhra Pradesh is moving ahead in exploiting its coastal access. Tamil Nadu should also examine how to utilize this resource to help in accelerating its economic growth.
- The state is rightly making efforts to attract global capital to expand and diversify its industrial base. There was a view that policies should also make the environment for investments by domestic industry equally attractive. In other words, there is a need to constantly assess the factors that may be holding back domestic investments and provide a policy environment that enables investments to take place. The simplification of taxation system was also seen to be essential in improving climate for new investments.

The deliberations of the conference on the many factors and issues influencing the growth of manufacturing have pointed to the need for regular and systematic dialogue and initiatives to address the constraints faced by the sector. Decisions would have to be taken keeping in view the overall implications to the economy and in the context of changing dynamics of policies within the country and in international markets. The interactions, therefore, have to be broad-based and also specific to the major sectors. Monitoring the key factors influencing the performance of the industry is a crucial requirement for appropriate responses by the industry and the government.

A forum for constant engagement between the industry, government and researchers is one important need that was identified in the conference, benefits of which would be far reaching if the feedback to the various agencies leads to appropriate actions.



Annexure 1: The Program

International Conference on
**"Achieving Accelerated Manufacturing Growth:
The Promise and Challenges"**

January 2-3, 2015

Organised by
MIDS and BNUIF in Chennai

Day 1: January 2, 2015

Inaugural Session
(1030-11.30am)

- Welcome Remarks **K.L. Krishna**, Chairman, MIDS
- Remarks on the Conference **V. Balasubramanyam**, British Northern Universities India Forum, UK
- Address by Session Chair and Chief Guest **C.V. Sankar**, Additional Chief Secretary, Industries Department, GoTN
- Address by **K. Shanmugam**, Principal Secretary, Department of Finance, GoTN
- Keynote Address by **Subir Gokarn**, Director of Research, Brookings India, New Delhi
- Vote of Thanks **Shashanka Bhide**, Director, MIDS

Technical Session -I
Perspectives on Accelerating Manufacturing Growth
(12.00pm- 1.30 pm)

Chair **V.N. Balasubramanyam**, University of Lancaster, UK

Paper-1 ***Prospects and Constraints of Manufacturing Growth in India***
by **Sandip Sarkar**, Institute of Human Development, New Delhi

Paper-2 ***High Value Manufacturing***
by **Rajat Kathuria** and **Mansi Kedia**, ICRIER, New Delhi

Invited discussants **Sunil Mani**, Centre for Development Studies, Trivandrum and Jessica Seddon, Okapi, Chennai

Q & A and final comments by Chair

Technical Session -II
Learning from India-China Comparisons
(2.15 pm - 3.15 pm)

- Chair **V.N. Pandit**, Former Vice Chancellor, Sri Sathya Sai Institute of Higher Learning
- Paper-3 *A Comparative Analysis of India and China's Manufacturing Sectors*
by **V.N. Balasubramanyam**, Lancaster University and Yingqi Wei, Leeds Business School, UK
- Invited
discussant **KPKalirajan**, Australian National University, Canberra.
- Q&A and final comments by Chair

Technical Session -III
Regional Perspectives on Manufacturing Growth
(3.15 pm - 4.35 pm)

- Chair **Paul P. Appasamy**, Honorary Professor, Madras School of Economics (MSE)
- Paper -4 *Dilemmas of Regional Industrial Policies: The Case of Tamil Nadu*
by **Suresh Babu**, Indian Institute of Technology, Chennai and **M. Vijayabaskar**, MIDS, Chennai
- Paper -5 *Kerala and Tamil Nadu: Differing Pathways to Development*
by **Ahalya Balasubramanyam** and **V.N. Balasubramanyam**, Lancaster University, UK
- Invited
discussant **M.R. Narayana**, Institute for Social and Economic Change, Bangalore
- Q & A and final comments by Chair

Technical Session -IV
Labour Markets and Manufacturing Growth
(4.45 pm - 6.00 pm)

- Chair **S. Krishnan**, Principal Secretary, Department of Planning and Development, GoTN.
- Paper -6 Infrastructural Development and Firm Efficiency in India (1999-2007)
by **NehaHui** and **Uma Kambhambati**, Reading University, UK
- Paper -7 Labour reforms and manufacturing growth
by **Anwarul Hoda** and **Durgesh Kumar Rai**, ICRIER, New Delhi
- Invited
discussants **K.R. Shanmugam**, MSE and **Vijay Bhalaki**, Athena Infonomics, Chennai
- Q & A and final comments by Chair

Technical Session -V
Trade Policy Impact on Manufacturing Sector
(9.30 am - 11.00 am)

Chair **Yingqi Wei**, Leeds Business School, UK

Paper -8 ***Issues Related to Trade Policies***
by **Rajesh Chadha**, NCAER, New Delhi

Paper -9 ***Estimating Linkages of India into Global Value Chains (GVCs) using Input-Output Tables***
by **Neha Gupta**, IIT Delhi

Invited
discussants **B N Goldar**, IEG, Delhi and
N. S. Siddharthan, MSE, Chennai

Q & A and final comments by Chair

Technical Session -VI
Panel Discussion and Case Studies

Panel discussion: ***Policies for Accelerating Manufacturing Growth***

Chair **Mr. Kumar Jayant**, Secretary, Department of Micro Small and Medium Enterprises, GoTN

Presentations
by the Panel **M. Velmurugan**, Guidance Bureau, TIDCO

Rajesh Chadha, NCAER

K. Saraswathi, MCCI

S. Viswanathan, Industrial Economist

Q & A and final comments by Chair

Case Studies on ***Challenges in Manufacturing***

Chair **S. Viswanathan**, Publisher, Industrial Economist

Presentations
by **A.L. Ramakrishnan**, Consultant, TWIC on Sustainable Use of Water and

M. Pugalenth, Saint- Gobain, on Learn While You Earn Program of Education and Skill Development

Q & A and Final Comments by Chair

Technical Session -VII
Global Capital and Markets
(2.15pm - 3.45pm)

Chair **K L Krishna**, MIDS

Paper -10 ***Manufacturing and Trade Liberalisation of India: Continuing the Debate***
by **Sayantana Dastidar**, Huddersfield University, UK

Paper -11 ***FDI and the Indian Economy***
by **Yi Su**, Harbin Engineering University, China and
Changang Wang, Bradford University, UK

Invited

Discussants **Subash**, IIT, Chennai and **Chalapati Rao**, ISID, New Delhi

Q & A and final comments by Chair

Technical Session -VIII
Sectoral Perspectives, Employment and Environment
(4.00pm - 5.30pm)

Chair : **S. Janakarajan**, MIDS

Paper -12 ***Technology Import, R&D Spillover and Export: A Study of Automobile Sector in India***
by **Santosh Kumar Sahu**, MSE, Chennai and **K. Narayanan**, IIT, Mumbai

Paper 13 ***Employment Growth in India's Organised Manufacturing: Trends and Determinants***
by **B.N. Goldar**, IEG, Delhi and **Maitri Ghosh**, Bethune College, Kolkata

Paper -14 ***Environmental Implications of Manufacturing Sector: A Case Study of Textile Manufacturing in Tiruppur, Tamil Nadu***
by **L. Venkatachalam**, MIDS, Chennai

Q&A and final comments by Chair

Concluding Session

Closing

Remarks by **K.L. Krishna**, **V.N. Balasubramanyam** and **Shashanka Bhide**



Annexure 2: Profile of Speakers, Discussants and Session Chairs

Suresh Babu M, Associate Professor of Economics, Dept. of Humanities and Social Sciences, Indian Institute of Technology Madras, Chennai. Areas of Research Interest include Applied Macroeconomics, Industrial Economics, Trade and Development. His Forthcoming book titled - "What and How do Indian Firms Innovate?" - jointly with K K Subrahmanian is published by Macmillan. He has published and presented papers in several National and International seminars. He has also written columns for Financial Express. He has worked on research Projects related to Monitoring Sarva Siksha Abhayan in Tamil Nadu and Trade Liberalisation and Employment.

Ahalya Balasubramanyam is at the Department of Management School, Lancaster. She has published a number of articles on India's Software Industry.

V.N. Balasubramanyam, Professor of Development Economics, Emeritus, in the Department of Economics, Management School, Lancaster is with British Northern Universities India Forum (BNUIF) a research partnership between economists, social scientists and management experts at the University of Leeds, the University of Lancaster and the University of Manchester. He was educated at the University of Mysore, Chicago University and the University of Illinois. He specialises in international trade, international investment and economic development. He has published widely. His current research is on foreign investment, the Diaspora and Development.

Vijay Bhalaki is Director at Athena Infonomics. He is in charge of strategy & business development. He specializes in strategic and transaction advisory. His research interests include sustainable finance for infrastructure, energy, skill development and policy. He is a Chartered Accountant and holds a Master's in Economics from the National University of Singapore and Loyola College, University of Madras.

Shashanka Bhide, Director, MIDS has worked as a Senior Research Counsellor at National Council of Applied Economic Research, New Delhi during the period 2004-2014 and in various other research positions during the period 1982- 2004. He was a Professor and Head of the RBI unit at Institute of Social and Economic Change in Bangalore during 2003-04 while on leave from NCAER. Trained as an agricultural economist he has interests in a variety of applied economics areas such as macroeconomic modelling, infrastructure, agriculture and rural development.

Rajesh Chadha is a Senior Fellow specialising in international trade, foreign direct investment, agricultural markets and competition and regulatory reforms. He is also the Managing Editor of Margin; NCAER's flagship journal. He has more than 38 years' experience teaching and in research, both at NCAER and the University of Delhi. He has been a Visiting Scholar at the Universities of Michigan and Melbourne. He has completed research projects sponsored by the governments of India, Australia and Britain and various international organisations.

Sayantana Dastidar, Research Assistant - Strategy, Marketing and Economics, Quantitative Analysis Research Group, University of Huddersfield. He joined University of Huddersfield as a Research Assistant in October 2014. He obtained his bachelors and masters degrees in Economics from the University of Sussex. Currently, he is completing a PhD in Economics at University of Dundee where he has also worked as a Teaching Assistant from 2010-2014. He was shortlisted for a student-led teaching award called the Most Inspirational Teaching Award for his teaching in the academic year 2013-14. He has also worked as an intern at the Asian Development Bank (Manila) during the summer of 2013.

Subir Gokarn serves as the director of research for Brookings India in New Delhi. Previously, he was the deputy governor of the Reserve Bank of India, where he oversaw monetary policy, research, financial markets, communications and deposit insurance and represented the Reserve Bank at the G-20 Deputies' forum. He contributes a fortnightly column on current economic issues to the Business Standard, which he had done for 13 years before joining the Reserve Bank of India. He has regularly participated in committees and other activities of industry associations, academic institutions, government agencies and civil society organisations.

B.N.Goldar is currently ICSSR National Fellow at Institute of Economic Growth in Delhi where he previously served as Professor and Head, V.K.R.V.Rao Centre for Studies in Globalisation. He has served on a number of official committees, including membership of the National Statistical Commission. He is currently the Chairman of Standing Committee on Industrial Statistics and Working Group for introducing Producer Price Index in India.

Neha Gupta, Ph. D. Scholar, IIT Delhi.

S. Janakarajan is the formerly Professor and formerly Officiating Director of Madras Institute of Development Studies. He was the Visiting Professor at the Queen Elizabeth House, University of Oxford, U.K, 1995-96 and Post-Doctoral Fellow, Cornell University. He has worked extensively with particular reference to surface and groundwater management, problems of water market, water rights and water laws, implications of rural -urban, and urban and peri-urban water markets, competing demand for water and water pollution and the issue of water governance, groundwater and electricity nexus. His forthcoming book, edited jointly with Maria Saleth and L. Venkatachalam, Published by SAGE is titled "Indian Economy in Transition: Issues, Prospects and Concerns: Essays in Honour of Professor C.T.Kutien". He has published widely nationally and internationally.

Kumar Jayant, IAS, Secretary to Government, Department of Micro, Small and Medium Enterprises (MSME). Previously He was the Commissioner Food Safety, Office of the Commissioner of Indian Medicines & Homoeopathy, Arumbakkam, Anna Nagar, Chennai.

Kaliappa Kalirajan is an applied economist and policy analyst. He is Professor of Economics Australian National University, Canberra. Before joining the Crawford School, he was a Professor of International Economics at the Foundation for Advanced Studies on International Development (FASID) and the National Graduate Institute for Policy Studies (GRIPS) in Tokyo. His areas of major interests include macroeconomic and trade policies and reform, poverty reduction, and sources of growth. His work on the stochastic frontier production function methodology has given him international recognition. He has been a consultant to different national and international organisations.

Uma Kambhampati is Professor in Economics at the University of Reading, where she is also Head of Department and a Director of the Centre for Institutional Performance. Her research interests over the years have included applied industrial economics, household microeconometrics and development economics. In particular she has worked on child labour and schooling in India, the competitiveness and productivity of firms in developing countries, particularly in India and individual life satisfaction, well-being, education and employment in emerging markets. She has been involved in projects funded by the Department for International Development, International Labour Organisation, British Academy and the Nuffield Foundation.

Mansi Kedia is a Research Associate at ICRIER. Her area of research covers trade, investment and telecommunication policy. She has published papers/reports on the impact of information technology and telecommunication policies in India. Her ongoing research covers the future of high value manufacturing in India and estimating the impact of mobile applications on employment and growth. She has a background in management consulting and financial services with four years of experience in the private sector. She received her B.Sc. in Economics from St. Xavier's, Kolkata, and a MBA from the Indian School of Business, Hyderabad. She is currently pursuing her PhD at the Indian Institute of Foreign Trade, New Delhi.

K. L. Krishna is currently Chairperson, Madras Institute of Development Studies and also Former Professor, Centre for Development Economics, Delhi School of Economics. His field of specialisation includes Econometrics - (Methodology and Applications) Industrial Economics, Economics of Productivity, Regional Inequality & Empirics of Trade. He has served in many Administrative and Other positions including Director at Delhi School of Economics. His Research Work has been widely published in National and Inter-National Journals. Number of Ph D and M Phil Thesis has been submitted under his supervision.

S. Krishnan is Principal Secretary, Department of Planning and Development, Government of Tamil Nadu and OSD Fourteenth Finance Commission and Special Initiatives (Full Additional Charge). He is also Member of the Board of Directors at Chennai Metro Rail Limited (CMRL).

Sunil Mani is Member, Committee of Direction and Professor at Centre for Development Studies, Trivandrum. His areas of specialisation include Technological innovation and R&D and Intellectual Property Rights, Industry studies: Manufacturing and Services, Industrial Policy: role of state in industrialisation- public sector enterprises, Comparative studies of countries (BRICS) with respect to innovation. He has been Visiting Professor, University of Toulouse Le Mirail, Toulouse, France, Visiting Faculty, Indian Institute of Management-Calcutta and Indian Institute of Management, Ahmedabad. His last book co-authored with Richard Nelson is titled. "TRIPS Compliance, National

Patent Regimes and Innovation, Evidence and Experience from Developing Countries, Cheltenham, UK and Northampton, Mass, USA".

M.R. Narayana, Professor of Economics, Centre for Economic Studies and Policy (CESP), Institute for Social and Economic Change. He has done Ph.D. in Economics from University of Tsukuba, Japan. His area of Specialisation includes Macroeconomics; Urban and Regional Economics; Applied Quantitative methods; Economics of Education Finance; Economics of Information technology and telecom services. His books include "Estimation of Public and Private Investment and Consumption of Goods and Services in Karnataka State".

V.N. Pandit, Former Vice Chancellor and Former Professor at Department of Economics, Sri Sathya Sai Institute of Higher Learning, Anantapur and Former Professor at Delhi School of Economics, Delhi University.

M. Pugalenti, Saint- Gobain, Team Leader & HR Head for Glass Business Chennai.

Durgesh Kumar Rai is Research Associate at ICRIER. He holds M.Phil in Economics and pursuing his PhD from Jawaharlal Nehru University (JNU), New Delhi. At ICRIER he has worked on a number of important projects like India-EU Broad Based Trade and Investment Agreement, India-Turkey FTA, India-Korea Economic Relations, ICRIER-SPF Japan Studies Project. Currently, he is working on Regional Production Networks and Asian Economic Integration. His areas of research interest include Global Trade, Regional Economic Integration and Cooperation, Multilateralism vs. Regionalism, IT-ITES Sector, Trade in Services, Migration, and Economics of Education.

Santosh Kumar Sahu is now an Assistant Professor in Madras School of Economics, Chennai. His research interests include, Industrial Economics, Energy Economics and Economics of Climate Change. His current research is focusing on Technology Sourcing and Energy Intensity, CO2 Emission and Firm Heterogeneity and Energy Intensity and Firm Performance. He is teaching subjects like Multinational Enterprises and Industrial Policy Econometric Methods.

K. Saraswathi, Secretary General, Madras Chamber of Commerce & Industry (MCCI). Previously, she served as the British Deputy High Commission, TANSTIA FNF Service Centre, Bharat Overseas Bank Ltd.

Sandip Sarkar is Professor at the Institute for Human Development, New Delhi. Previously, he has worked in several research Institutes like Institute of Economic Growth and Institute for Studies in Industrial Development. His main area of research is poverty, labour and livelihood in agriculture and non-agricultural sectors in which he has worked over two decades. He has been extensively involved in several large research projects funded by reputed national and international agencies. He is the coordinator of the IHD Data Centre on Labour Markets and Human Development.

Jessica Seddon is a Senior Fellow at the IIT Madras, Centre for Technology and Policy and the Founder and Managing Director of Okapi. Her research and consulting focus on the interaction of institutions with the information technology and their joint effect on group behavior. She has worked in development social science and institutional design for a over a decade and a half, with employers and clients ranging from the World Bank and Inter-American Development Bank Research departments to a start-up university in Bangalore and national government committees in India. Dr. Seddon earned her Ph.D. from Stanford University Graduate School of Business and her B.A. from Harvard University.

C.V. Sankar, IAS, is currently Additional Chief Secretary, Industries Department, and Government of Tamil Nadu. He will also function as the Chairman, TN Cements Corporation Ltd. He has served in many Administrative and Other positions including Secretary, Rural Development Department. He has also done Masters in Business Administration (MBA). He is Chairman of State Industries Promotion Corporation of Tamil Nadu Ltd. (SIPCOT).

K. Shanmugam, IAS, Principal Secretary, Finance Department, Government of Tamil Nadu. He is on the Board of Directors, Chennai Metro Rail Limited. Members of the Council for Higher Education by the Tamil Nadu State Council for Higher Education (TANSCH) Act. and on the Board of Management, Ex-officio Member, Tamil Nadu Veterinary and Animal Sciences University (TANUVAS).

K. R. Shanmugam is Professor at Madras School of Economics (MSE). His Area of Interest: include Public Finance, Macroeconomic models, Applied Econometrics, Finance, Economics of Human Resources, Production Economics.

He has published and presented papers in several National and International Journals. He had been Council Member of The Indian Econometric Society. He has held several administrative and other positions which include Member, Board of Studies: Dept. of Humanities & Social Sciences, Anna University and Member, Working Group on Macroeconomic Issues and Financial Resources, State Planning Commission, Tamil Nadu.

N. S. Siddharthan, is an Hon. Professor of Economics, Madras School of Economics and Member Secretary and Hon. Director, Forum for Global Knowledge Sharing. His current research interests are, Technology and Globalisation, International Economics, Multinational Corporations and Industrial Organisation. He has published widely in national as well as international journals.

M Velmurugan, IES, Executive Vice Chairman, Guidance Bureau, Tamil Nadu industrial Guidance and Export Promotion Bureau, TIDCO.

L. Venkatachalam is an Associate Professor in Madras Institute of Development Studies, Chennai. His research and include Environmental Economics, Behavioural Economics, and Economic Theory. He was the Visiting Fellow of University of British Columbia, Canada, Cornell University, United States of America and Overseas Development Group, University of East Anglia, United Kingdom. He was the Fulbright-Nehru Senior Research Fellow, Department of Agricultural and Resource Economics, University of California. His last published book was titled "Environment, Sustainable Development and Human Well-Being". He has several publications in national and international journals.

M Vijayabaskar, is Assistant Professor at Madras Institute of Development Studies. His research interest includes Globalisation and Labour Markets, Political Economy of Regional Development and Rural-Urban Interactions, Political Economy of Small firm based Industrialisation, Technological Change and Regional Development, Governance and Power in Value Chains. He has been Charles Wallace Visiting Fellow in Contemporary Indian Studies at School of Oriental and African Studies, London. He is a Member, Indian Society of Labour Economics. He has published and presented papers in several National and International seminars.

S. Viswanathan with over 50 years of experience in journalism is the Editor & Publisher, Industrial Economist, a business magazine, launched in 1968.

Changang Wang is a Senior Lecturer in International Business, at Bradford University School of Management. He received his PhD in Economics from Aston Business School. He has worked in the Manchester University Economics Department and University of Surrey School of Management. His main research is in the areas of foreign direct investment, international trade, Economic development, and international business. He has worked for a DFID funded project 'From Economic to Political Crisis: Policy-Based lending in the Middle East and North Africa' and participated in the research project 'Dynamic Threshold of Absorptive Capacity and International Technological Spillovers: a Case Study of China' sponsored by Chinese Natural Science Foundation. His research has been published in a number of academic journals, including British Journal of Management, Cambridge Journal of Economics, Journal of International Business Studies and the World Development. At Bradford, he teaches Global Business Environment and Econometrics and Business Forecasting.

Yingqi Wei before joining Leeds Business School in December 2013, Wei had held a chair position at the University of York since July 2008. Her main research areas of interest are foreign direct investment (FDI), international trade and economic development, with a focus on the determinants and impact of inward FDI in China and the internationalisation of Chinese multinationals. She has published in various journals including Journal of International Business Studies, Journal of Business Research, Management International Review, Regional Studies and Cambridge Journal of Economics. Wei has taught a range of subjects at various levels, including International Business, Foreign Direct Investment, Economics, Economies of China and India, Emerging Economies, Mathematical Economics, Statistics, and Econometrics.



Annexure 3: List of Participants

**International Conference on
"Achieving Accelerated Manufacturing Growth: The Promise and Challenges"
January 2-3, 2015 organised by MIDS and BNUIF in Chennai**

1. Kripa Ananthpur, Assistant Professor, MIDS, Chennai
2. Paul P. Appasamy, Honorary Professor, Madras School of Economics, Chennai
3. Suresh Babu, IIT, Chennai
4. A. N. Girish Babu, Senior Correspondent, Business Standard
5. V. Balasubramaniam, Lancaster University, UK
6. Ahalya Balasubramaniam, Univ. of Lancaster, UK
7. J. Balamurugan, Student MIDS, Chennai
8. Vijay Bhalaki, Athena Infonomics, Chennai
9. Arun Bharathy, Student, MIDS, Chennai
10. Shashanka Bhide, Director, MIDS
11. Rajesh Chadha, NCAER, New Delhi
12. Amrita Chatterjee, Lecturer, MSE
13. Karen Coelho, Assistant Professor, MIDS
14. Sayantan Dastidar, Huddersfield University, UK
15. E. Deepa, Student, MIDS, Chennai
16. V. Vasanthi Devi, Member, Governing Council, MIDS, Chennai
17. R. Ekambaram, Additional Director, Department of Industries and commerce, GoTN.
18. B. Elangovan, General Manager (Projects), TIDCL
19. G. Elayaraja, Student, MIDS, Chennai
20. Anantha Kumar Giri, Associate Professor, MIDS
21. Subir Gokarn, Director of Research, Brookings India, New Delhi
22. B. N. Goldar, ICSSR National Fellow, IEG, Delhi
23. Neha Gupta, IIT, Delhi
24. Abhash Kumar Hota, Student, MIDS, Chennai
25. S. Janakarajan, Professor (Retd), MIDS
26. Kumar Jayant, Secretary, Department of Micro Small and Medium Enterprises, GoTN
27. D. Jayaraj, Professor, MIDS
28. K. P. Kalirajan, Australian National University, Canberra, Australia
29. Uma Kambhambati, Reading University
30. Mansi Kedia, ICRIER, New Delhi
31. Sai Kripa, Student, MIDS, Chennai
32. K. L. Krishna, Chairperson, MIDS
33. S. Krishnan, Principal Secretary, Department of Planning & Development and Special Initiatives, GoTN.
34. R. Saravana Kumar, Student, MIDS, Chennai

35. C. Lakshmanan, Assistant Professor, MIDS
36. Sunil Mani, Professor, CDS, Trivandrum
37. Andrew Michael, Student, MIDS, Chennai
38. S. Mukherjee, Asstt. Professor, MSE
39. M. R. Narayana, Director, ISEC, Bangalore
40. K. Sankara Pandi, Student, MIDS, Chennai
41. V. N. Pandit, Former Vice Chancellor, Sri Sathya Sai Institute of Higher Learning
42. Ranjana Pathi, Honey Comb Global
43. Bibhuti Bhusan Pradhan, Student, MIDS, Chennai
44. M. Pugalenth, Saint-Gobain, Chennai
45. Durgesh Kumar Rai, ICRIER, New Delhi
46. S. Ramachandran, Regional Joint Director, Department of Industries and commerce, GoTN.
47. A. L. Ramakrishnan, Consultant, TWIC
48. Chalapati Rao, ISID, New Delhi
49. Santosh Kumar Sahu, MSE, Chennai
50. K. Saraswathi, Secretary General, MCCI
51. Sandip Sarkar, Institute of Human Development, New Delhi
52. Jessica Seddon, Okapi, Chennai
53. C. V. Sankar, Additional Chief Secretary, Industries Department, GoTN
54. K. R. Shanmugam, Director, Madras School of Economics
55. K. Shanmugam, Principal Secretary, Department of Finance, GoTN
56. M. G. Shanthi, SIPCOT
57. N. S. Siddharthan, Honorary Professor, MSE, Chennai
58. Aparajay Kumar Singh, Student, MIDS, Chennai
59. K. Sivasubramanian, Assistant Professor, MIDS, Chennai
60. Subash, IIT, Chennai
61. S. Subramanian, ICSSR National Research Fellow at MIDS, Chennai
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