INDUSTRIAL POLICY
Its Relevance and Currency

Biswajit Dhar

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Institute for Studies in Industrial Development
4, Institutional Area, Vasant Kunj Phase II, New Delhi - 110 070
Phone: +91 11 2676 4600 / 2689 1111*; Fax:* +91 11 2612 2448
E-mail: info@isid.org.in; *Website:* http://isid.org.in

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Biswajit Dhar[*]

[***Abstract***: *This paper makes an attempt to reflect on the debate on industrial policy, which has seen a revival of sorts in recent years, by analysing the developments in the two most important faces of market-oriented development paradigm viz., the United States and the European Union. Industrial policy, in all its manifestations, is exerting considerable influence on the plans of economic recovery that the Obama Administration has put in place. On its part, the European Union is trying to frame an industrial policy since 2012, after the adoption of the Europe 2020 framework. These developments have seen the emergence of a new narrative on development pathways in the post-crisis world, in which industrial policy initiatives clearly hold the centre-stage. In these two largest economies the state and its agencies have adopted aggressive agendas for defining the development paths, and have, in while so doing, they have influenced the market forces quite considerably. This process could help forge a new relationship between the state and the market, which could provide basis for the emergence of development paradigm of the future.*]

Industrial policy is back in favour – so it seems after it was forced out of the policy makers' tool box after the 'Washington Consensus' became the prescription from the beginning of the 1990s. The strongest revival of industrial policy is in fact taking place in the homeland of free-market orthodoxy. The Obama Administration has taken a slew of initiatives for the revival of the manufacturing sector in the United States and has put this issue high on his political agenda. In his State of the Union Address in 2012, President Obama laid out "a blueprint for an economy that's built to last"[1], an economy whose basis was in getting manufacturing back to the American shores. He went further the following year, when he announced his "first priority is making America a magnet for new jobs and manufacturing".[2]

[*] Professor, Centre for Economic Studies and Planning, School of Social Sciences, Jawaharlal Nehru University (email: bisjit@gmail.com). An earlier version of the paper was presented in the National Conference on 'India's Industrialization: How to overcome the Stagnation?' organised by the ISID, during December 19-21, 2013.

1 The White House (2012), Remarks by the President in State of the Union Address, January 24, Washington DC (accessed from http://www.whitehouse.gov/the-press-office/2012/01/24/remarks-president-state-union-address on 12 November 2013).

2 Remarks by the President in the State of the Union Address, February 12, (accessed from: http://www.whitehouse.gov/the-press-office/2013/02/12/remarks-president-state-union-

contd…

Not too far behind is the European Union, which has positioned industrial policy at the centre of Europe 2020, its growth strategy for the current decade[3]. European Union's proposed industrial policy is a series of programmes built around two objectives: (i) improving the competitiveness of European enterprises in a number of strategic sectors and (ii) enable the small and medium enterprises to overcome the constraints that stymie their growth, which would then provide the impetus of employment growth in the region.

This revival of the support for industrial policy comes on the back of many decades of understanding of the processes through which industries have been established in major economies. There was considerable evidentiary support for the policy framework, and it is hardly surprising, therefore, that industrial policy is emerging as the centre-piece of the economic revival packages adopted by the major economies.

This paper makes a modest attempt to capture the revival of industrial policy in recent years. The paper is in two substantive parts. The first part of the paper provides an overview of the relevance of industrial policy in the development paradigms as has been captured in the literature. The paper shows that the policy is based on strong analytical foundations and it provides effective prescriptions for the manufacturing sector to take roots. The second part of the paper presents the evidence regarding the revival of industrial policy in the two largest economies, the United States and the European Union. As would be clear from the discussion below, policy makers in these two economies have only begun to give shape to industrial policy in their respective countries, and it may be several years before these policies fully manifest themselves.

I. Justification for the Use of Industrial Policy

The theoretical case for the use of industrial policy rests on three planks. These are: (i) to correct market failures that are due to the presence of positive externalities in some sectors; (ii) to intervene in markets that are too "efficient" so that monopolies are needed; and (iii) to overcome coordination failures.

The association of industrial policies with externalities can be traced back to the Marshall's idea that industrial districts give rise to three types of external economies: a pool of skilled labour, the growth of subsidiary industries and a fruitful intercommunication of ideas. In Marshall's view, "so great are the advantages which people following the same skilled trade get from near neighbourhood to one another" that labour pooling becomes a source of stability of an industrial district. "The mysteries of the trade become no mysteries; but are as it were in the air, and children learn many of them unconsciously... if one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas. And presently subsidiary trades grow up in the

address on 12 November 2013).

[3] Commission of the European Communities (2010), Europe 2020: A strategy for smart, sustainable and inclusive growth, Communication from the Commission, COM(2010) 2020 final, Brussels, (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF on 5 November 2013).

neighbourhood, supplying it with implements and materials, organizing its traffic, and in many ways conducing to the economy of its material"[4]. Described thus, Marshallian industrial districts encompass several externalities including knowledge spill-overs within an industry, linkages with the rest of the economy and dynamic economies of scale[5].

The available literature identifies several other sources of positive externalities. Exports could be one of the more prominent sources; for the more firms export, the greater is the rate of learning-by-doing and this would be accompanied by positive spillovers into the domestic economies through information on export opportunities and knowledge of export markets[6]. However, the gains from exports may be stymied because of the sunk costs. Government intervention can obviate this problem by assisting firms to discover new markets and by providing export subsidies. Hausmann and Rodrik have argued, "providing subsidies contingent on exporting can allow policy makers to sort out firms and sectors that are high productivity from those that aren't"[7]. This policy was at the heart of the export promotion policies pursued by the East and South East Asian countries in the 1970s and 1980s[8]. Interestingly, the United States also pursues export promotion through its National Export Strategy, which is implemented by a wide variety of agencies and through a wide range of activities[9]. Included in the same category is the SEZs policy. Supporting the growth of the SEZs would, in fact, help in internalising the externalities, which Marshall had drawn our attention to.

The second perspective on the use of industrial policy instruments argues that the reliance on market failures to rationalise the use of such instruments "seems to presuppose that the textbook model of competitive markets is essentially sound"[10]. Several authors have argued that markets are unable to provide the necessary incentives for developing skills and human capital or to guide investment decisions needed for structural transformation of developing economies[11]. This situation needs adoption of appropriate measures to

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4 Marshall, Alfred (1974), Principles of Economics, ELBS and Macmillan, London, p. 225.

5 Naude, Wim, "Industrial Policy: Old and New Issues", Working Paper No. 2010/106, World Institute for Development Economics Research, Helsinki, p. 14 (accessed from http://www.wider.unu.edu/publications/working-papers/2010/en_GB/wp2010-106/ on 17 November 2013).

6 Naude, Wim, "Industrial Policy: Old and New Issues", Working Paper No. 2010/106, World Institute for Development Economics Research, Helsinki, p. 13 (accessed from http://www.wider.unu.edu/publications/working-papers/2010/en_GB/wp2010-106/ on 17 November 2013).

7 Hausmann and Rodrik (2002), Economic Development as Self-Discovery, NBER Working Paper 8952 p. 18.

8 Singh details the export promotion policies that were used either by Japan and Korea during their periods of rapid economic growth – the former country from 1950 to 1973 and the latter during the 1960s and the 1970s.

9 GAO, Observations on U.S. and Foreign Countries' Export Promotion Activities.

10 ul Haque, Irfan (2007), Rethinking Industrial Policy, UNCTAD Discussion Paper # 183, April, United Nations, Geneva, p. 7.

11 ul Haque, Irfan (2007), Rethinking Industrial Policy, UNCTAD Discussion Paper # 183, April, United Nations, Geneva, p. 7.

counter the market dynamics to ensure what Amsden referred to as "getting the prices wrong"[12]. In the dynamic East Asian region, the governments had adopted a plethora of policies during their take-off stage, whose explicit objective was to influence the market prices. Some of the more common policy interventions "were subsidized credit to selected industries, low deposit rates and ceilings on borrowing rates to increase profits and retained earnings, protection of domestic import substitutes, subsidies to declining industries, the establishment and financial support of government banks, public investments in applied research, firm and industry-specific export targets, development of export marketing institutions, and wide sharing of information between public and private sectors"[13].

One prominent dimension of the experience of the Republic of Korea in developing an industrial base through selective interventions was that it addressed the issue of market imperfections associated with technological change. Westphal pointed that even though there was an abundant supply of available technology through transactions involving licences, capital goods, direct investment, technical assistance and the like, elements of technology were far from being perfectly tradeable in the sense that purchase was not sufficient for effective possession[14]. Because of the imperfect tradeability of technology, externalities related to technological development can be quite extensive. According to Westphal, additional externalities could result because demonstration effects from an initial entrant's investments in mastering new technology could greatly reduce costs for subsequent, nearby entrants.

Yet another sphere in which policy induced intervention has been long accepted is the process of generation of new knowledge. As Arrow had pointed out, that under uncertainty, a perfectly competitive market can create problems for efficient resource allocation.[15] From a welfare point of view, new knowledge should be available freely to everyone, but this situation leaves the generator of knowledge without any incentives. Under such circumstances, patents and other forms of intellectual property rights have been used to support inventive activity in a free enterprise economy for they can address the problem of incentivising the inventors, but this would be at the cost of "underutilization of the information"[16]. Thus, "[I]ntellectual property ... is a conscious

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12 Amsden, Alice H. (1989), Asia's Next Giant: South Korea and Late Industrialization, Oxford University Press, New York, p. 14.

13 Page, John (1994), "The East Asian Miracle: Four Lessons for Development Policy", NBER Macroeconomics Annual, Vol. 9, pp. 219-269.

14 Westphal, L., 1990. Industrial policy in an export propelled economy: lessons from South Korea's experience, Journal of Economic Perspectives, vol. 4, No. 3; pp. 41-59.

15 Arrow, Kenneth J. (1962), "Economic Welfare and the Allocation of Resources for Invention", in: The Rate and Direction of Inventive Activity: Economic and Social Factors, National Bureau of Economic Research, Special Conference Series, 13, Princeton, p. 609.

16 Arrow, Kenneth J. (1962), "Economic Welfare and the Allocation of Resources for Invention", in: The Rate and Direction of Inventive Activity: Economic and Social Factors, National Bureau of Economic Research, Special Conference Series, 13, Princeton, p. 617.

decision to create scarcity in a type of good in which it is ordinarily absent in order to artificially boost the economic returns to innovation"[17].

Arrow's prognosis was that in a free enterprise economy allocation of resources to inventive activity is not likely to be optimal and that "a downward bias in the amount of resources devoted to inventive activity is very likely"[18]. Strengthening of patents and other forms intellectual property rights and their strict enforcement to reduce spillovers, was prescribed as a key instrument to resolve the two problems that Arrow has alluded to regarding the market for knowledge[19].

Importantly, this argument became the basis for the ratcheting up intellectual property laws ostensibly to grant enhanced rights to the generator of new knowledge through the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) under the World Trade Organization (WTO). It was clear that the dominant economic powers that were instrumental in giving shape to the TRIPS Agreement[20], did not restrict the application of this argument to only their territorial jurisdictions. They ensured that the most stringent standards of intellectual property protection ever to have been developed were incorporated within the multilateral trade rules to be accepted as binding commitments by all WTO member states. With both the breadth and the depth of intellectual property laws having been enhanced, intellectual property laws have emerged as a powerful policy instrument using which, governments in the industrialised countries have use to control the frontiers areas of technology[21].

A third perspective supporting the use of industrial policies stems from the view that coordination externalities can affect industrialisation efforts, especially in developing countries. This view argues that in order to be viable, industrialisation processes must involve simultaneous investments that are undertaken in related industries. According to Rosenstein-Rodan, "[C]omplementarity of different industries provides the most important

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17 Lemley, Mark A. (2004), Property, Intellectual Property, and Free Riding, Working Paper No. 291, John M. Olin Program in Law and Economics, Stanford Law School

18 Arrow, Kenneth J. (1962), "Economic Welfare and the Allocation of Resources for Invention", in: The Rate and Direction of Inventive Activity: Economic and Social Factors, National Bureau of Economic Research, Special Conference Series, 13, Princeton, p. 617.

19 Katz, Michael L., Janusz A. Ordover, Franklin Fisher and Richard Schmalensee (1990), "R and D Cooperation and Competition", Brookings Papers on Economic Activity. Microeconomics, Vol. 1990, pp. 137-203.

20 Sell, Susan (1999), Multinational Corporations as Agents of Change: The globalization of intellectual property rights, in A.C. Cutler, V. Haufler and T. Porter (eds.), Private Authority and International Affairs. State University of New York Press, pp. 169-197.

21 The Office of United States Trade Representative conducts yearly review (since 1989) of intellectual property laws prevailing in other countries using the powers given by the Omnibus Foreign Trade and Competitiveness Act of 1988. 'Special 301' provisions of this Act authorises the USTR to annually identify 'priority foreign countries' whose failure to protect intellectual property is the most onerous and has the greatest adverse impact on United States products and which are not making significant progress in providing adequate and effective protection of intellectual property rights.

set of arguments in favour of a large-scale planned industrialisation"[22]. Scitovsky argued that "profits in a market economy are a bad guide to economic optimum as far as investment and industrial expansion are concerned; and they are worse, the more decentralized and differentiated the economy"[23]. His view was that in such a situation "a system of communications is needed to enable each person who makes economic decisions to learn about the economic decisions of others and coordinate his decisions with theirs"[24]. In a market economy, prices are the only signalling device, which can, in his view, can help in coordinating current production decisions, but are ineffective guide as to what the future investment decisions should be. Scitovsky surmised that these circumstamces, "... there is need either for centralized investment planning or for some additional communication system to supplement the pricing system as a signaling device"[25]. More recently, Murphy and others (1989) echoed above mentioned views, "a programme that encourages industrialization in many sectors simultaneously can substantially boost income and welfare, even when investment in any one sector appears unprofitable".

Rodrik makes a departure from the justifications for industrial policy based on market failures while suggesting that "developing societies need to embed private initiative in a framework of public action that encourages restructuring, diversification, and technological dynamism beyond what market forces on their own would generate"[26]. Central to Rodrik's approach is strategic collaboration between the private sector and government, with a view to revealing the obstacles and devising appropriate measures for removing them. Thus, the policy framework proposed by Rodrik is a discovery process – one where the firms and governments learn about the underlying costs and opportunities, and engage in strategic coordination. The virtues of such a partnership are increasingly being understood, as public-private partnership has been adopted as the guiding spirit by most economies.

Diversification of economic activities provides the much needed fillip to economic development. While past generations of economists have argued in favour of developing countries diversifying away from primary production and into manufacturing, more recently some analysts have argued that countries develop by latching onto high-productivity goods. However, as pointed out by Rodrik, two key externalities, i.e., information externalities and coordination externalities, can pose serious impediments to

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22 Rosenstein-Rodan, P.N. (1943), "Problems of Industrialisation of Eastern and South-Eastern Europe", The Economic Journal, Vol. 53, No. 210/211, p. 205.

23 Scitovsky, Tibor (1954), "Concepts of External Economies", Journal of Political Economy, Vol. 62, No. 2, pp. 149-50.

24 Scitovsky, Tibor (1954), "Concepts of External Economies", Journal of Political Economy, Vol. 62, No. 2, p. 150.

25 Scitovsky, Tibor (1954), "Concepts of External Economies", Journal of Political Economy, Vol. 62, No. 2, p. 150.

26 Rodrik, Dani (2004), "Industrial Policy for the Twenty-First Century", Faculty Research Working Papers Series RWP04-047, John F. Kennedy School of Government (accessed from: https://research.hks.harvard.edu/publications/getFile.aspx?Id=146 on 10 November 2013).

the process of diversification. Therefore, diversification is unlikely to take place without directed governmental action.

Information externalities need particular attention in most developing countries, as they play a critical role in the creation of an enabling environment for diversification of the production systems in these countries. Overcoming this constraint would essentially help entrepreneurs to experiment with new product lines. In other words, they would indulge in a process that Hausmann and Rodrik (2003) called "self-discovery".[27]

Small and medium-sized enterprises (SMEs) would be the major beneficiaries of this process of "self-discovery", since in both these sectors the majority of producers find themselves trapped in production patterns that are economically less viable. Typically, information externalities that restrict self-discovery need to be addressed through subsidized investments in new and non-traditional industries. Yet, while most analysts insist that the support for these enterprises should be narrowly focused so as to provide incentives only to the first movers, the reality in most developing countries may warrant a different approach. In these countries, State support for meeting information externalities would have to be maintained for some time in order to allow the benefits to flow in an effective manner. Such an approach would be necessary, in the author's view, because of the preponderance of the micro-production units in agriculture and the SME sector – the two sectors that would feel the effects of information externalities the most in developing countries. Thus, if SME sector enterprises are to diversify their operations, a number of such enterprises must be able to prove that shifting into new production lines will bring in a continuous flow of returns. In other words, they would need to demonstrate that the benefits that accrue from diversification are more than mere windfalls. While governments must provide support in a sustained manner, in order to allow "diversification" so as to ensure a spread effect, they must be wary of the pitfalls of over-commitment to this process.

II. The Neo-classical Challenge to Industrial Policy

This role of the state in the making of industrial policy came in for severe questioning by the neo-classical orthodoxy from the 1980s. The trigger for this affront was provided by the economic crisis that had enveloped the Latin American region during this period. Commentators were quick to point out that given the series of omissions and commissions that the governments and their agencies had committed, an economic system that relied on impulses from the government would inevitably fail[28]. In addition, it was the assumption of government failure that was used to justify the policy package that the multilateral financial institutions had put together while extending structural adjustment loans to the crisis-ridden developing countries. Thus, the so-called Washington Consensus produced a

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[27] Hausmann, Ricardo and Dani Rodrik (2002), Economic Development as Self-Discovery, NBER Working Paper #8952 (accessed from http://www.nber.org/papers/w8952 on 10 November 2013).

[28] Krueger, A.O. (1990), "Government failures in development", The Journal of Economic Perspectives, vol. 4, No. 3; pp. 9-23.

system of economic governance that sought to reduce the role of governments by encouraging larger play of market forces, which were complemented by a trade liberalisation agenda. This framework was uniformly prescribed for all developing countries undertaking economic reform programmes during the 1980s and 1990s. Curiously, John Williamson, widely considered as the originator of this framework, observed that the policy package was originally presented as a summary of what most people in Washington believed Latin America (not all countries) ought to be undertaking as of 1989 (not at all times) [29].

The prescription to change the policy orientation was effectively made by the World Bank in the World Development Report of 1991. The key message that was made in the Report was "that it is better not to ask governments to manage development in detail"[30]. According to this view, interventions by the government that retard competition and interfere with prices can be counterproductive. The role of the state was seen as larger than merely standing in for markets if they fail to work well. It had a definitive role in defining and protecting property rights, providing effective legal, judicial, and regulatory systems, improving the efficiency of the civil service, and protecting the environment.

The most expansive criticism of industrial policy, which overshadowed the discourse on this issue in the 1990s, was triggered by the World Bank publication, the East Asian Miracle. The Bank tried to establish that the policy interventions made by the East Asian countries to promote industrialization was neither efficient, nor did it bring about significant changes in the structure of industry in these economies, using a scattered set of evidence to prove its point.

In the first instance, the study focused on Korea and Singapore, the two countries, which in its view, had witnessed considerable efforts being made by the government to shift from labour intensive to capital and technology intensive industries. The study concluded that despite Korean government's extensive efforts, the relatively labour-intensive textiles and garments sector was nearly three times bigger than international norms[31] predicted in 1980.[32] Further, the Bank argued that Korea "merely maintained the international norm in chemicals, a heavily promoted sector, while the other heavily promoted sectors, namely, basic metals and metal products and machinery, achieved only modest improvements"[33]. In case of Singapore, the textile sector went from twice its predicted size as per the

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29 Williamson, J., (2002), "Did the Washington Consensus fail?" Peterson Institute for International Economics, Washington, D.C. (accessed from http://www.iie.com/publications/papers /paper.cfm?ResearchID=488 on 12 July 2014).

30 World Bank (2001), World Development Report 1991: The Challenge of Development, New York, p. 4.

31 Based on the international norms for economies with similar incomes would predict.

32 World Bank (1993), The East Asian Miracle: Economic Growth and Public Policy, Oxford University Press, New York, p. 312-13.

33 World Bank (1993), The East Asian Miracle: Economic Growth and Public Policy, Oxford University Press, New York, p. 313.

international norms in 1973 to eleven times in 1989. During this period, "metal products and machinery declined from twelve to five times its predicted size"[34].

A second test of the impact of industrial policy on the structure of the industry attempted for five East Asian countries[35] on the basis of the factor proportions theory (better known as the Hecksher-Ohlin-Samuelson theory), yielded results that were unable to prove conclusively that the capital intensive sectors did not benefit from policy interventions. Yet, the authors of the study concluded that "despite government intentions, the manufacturing sector seems to have evolved roughly in accord with neoclassical expectations; industrial growth was largely market conforming"[36].

Expectedly therefore, the study gave a clear direction to the developing countries thus: "the fact that interventions were an element of some East Asian economies' success does not mean that they should be attempted everywhere, nor should it be taken as an excuse to postpone needed market-oriented reform[37]. The most succinct comments about this study were made by Sanjaya Lall, when he observed that the "final lessons of East Asia drawn by the study for the rest of the developing world [were] tame and partisan ... and that its conclusions reflected "neither theory nor evidence"[38].

The neo-classical orthodoxy started showing signs of change from the middle of the previous decade. What began as admissions of mistake of the policies that argued in favour of "the magic of the market" and the pursuit of a reform agenda whose underpinnings were the "big bang" and "shock treatment", moved unmistakably towards inclusion of industrial policy instruments in the toolkit of the policy makers.

III. Return of Industrial Policy

Over the past few years, and especially since the economic downturn post-2008, industrial policy instruments have been used in a wide variety of countries. Leading this trend are the United States and the European Union. Several countries in Latin America and South Africa are also not far behind in re-focusing on their industrial base.

Essential elements of an industrial policy in the United States

In the aftermath of the economic downturn, the Obama Administration unveiled an extensive programme for the revival of the manufacturing sector by putting a proactive government in a critical position so as to respond to the market failures discussed above.

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34 World Bank (1993), The East Asian Miracle: Economic Growth and Public Policy, Oxford University Press, New York, p. 313.

35 Korea, Hong Kong, Taiwan, Singapore and Japan.

36 World Bank (1993), The East Asian Miracle: Economic Growth and Public Policy, Oxford University Press, New York, p. 315.

37 World Bank (1993), The East Asian Miracle: Economic Growth and Public Policy, Oxford University Press, New York, p. 26.

38 Lall, Sanjaya (1994), "The East Asian Miracle: Does the Bell Toll for Industrial Strategy?" World Development, Vol. 22, No. 4, p. 652.

The Administration's programme, which is likely to evolve over the next several years, has clearly identified a number of critical areas that hold the key to strengthening the domestic manufacturing sector. Thus, employment generation, skill development and innovation, not to speak of the essential infrastructure and energy, have become an integral part of the programme initiated by the Obama Administration for industrial revival in the United States[39]. In the following discussion, we would highlight the ways in which the Congress has supported the growth of United States manufacturing.

The priorities set by the Obama Administration were mirrored in the legislative actions that the United States Congress has been involved in during the past few years. The essentials of the Administration's thrust to encourage the manufacturing sector were captured in the "Make it in America" agenda that was spelt out by the Democratic Party through a series of legislations[40]. During 2010-12, President Obama signed a number of "Make It in America" legislations, aimed at serving four broad sets of objectives: (i) to provide direct support to the manufacturing sector to help it grow; (ii) to provide enhanced funding to the country's innovation system and to enable the patent system to protect the inventions more efficiently, (iii) to provide opportunities for job growth, and (iv) to promote American exports[41].

Two bills were enacted to provide the initial thrust to revitalise American manufacturing; one that would make it cheaper for the producers based in the United States to import raw materials and intermediates[42] and the other for improving infrastructure to support manufacturing, spur economic growth, and create jobs[43].

In order to promote innovation and to thus provide the technological edge to the American economy, three legislations were enacted. While two of these legislations were enacted to make the United States Patent and Trademark Office more efficient[44], the third and the

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39 In his State of the Union Address in 2012, President Obama pointed out that the "blueprint for an economy that's built to last ... begins with American manufacturing". For details, see, White House (2012), "Remarks by the President in State of the Union Address", January 12, (accessed from http://www.whitehouse.gov/the-press-office/2012/01/24/remarks-president-state-union-address on 22 November 2013).

40 World Trade Online (2010), "House Approves Trade Deficit Commission Bill as Part of Manufacturing Agenda", 30 July (accessed from http://insidetrade.com/Inside-United States-Trade/Inside-U.S.-Trade-07/30/2010/house-approves-trade-deficit-commission-bill-as-part-of-manufacturing-agenda/menu-id-710.html on 12 April 2014).

41 In his State of the Union Address in 2010, President Obama had set a new goal, to double the exports over the next five years. To meet this goal, he announced the launch of a "National Export Initiative that will help farmers and small businesses increase their exports". For details, see White House (2010), Remarks by the President in State of the Union Address, 27 January (accessed from http://www.whitehouse.gov/photos-and-video/video/2010-state-union-address#transcript on 12 November 2013).

42 "U.S. Manufacturing Enhancement Act", Public Law 111–227, 111th Congress (accessed from: http://www.gpo.gov/fdsys/pkg/PLAW-111publ227/pdf/PLAW-111publ227.pdf on 12 April 2014).

43 Moving Ahead for Progress in the 21st Century (MAP-21) was enacted in 2012.

44 "Leahy-Smith America Invents Act", Public Law 112–29, 112th Congress (accessed from:

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most significant was to encourage the "small businesses to explore their technological potential and provides the incentive to profit from its commercialization"[45]. Two multi-agency programmes[46], the Small Business Innovation Research (SBIR) and the Small Business Technology Transfer (STTR), were reauthorized by the Congress through which additional funding has been provided until 2017[47]. Each of the participating agencies having budget for extramural research or research and development in excess of $100 million, is required to increase its support to innovations carried out by small business, from 2.5% of its budget in 2012 to 3.2% in 2017. A second and a much larger legislative initiative for increasing federal funding for research and innovation took the form of reauthorisation of the America COMPETES Act of 2007[48].

The use of subsidies for promoting R&D activities has been an intensely debated issue, particularly in light of the disputes in the WTO in which the two largest manufacturers of commercial airlines, Boeing and Airbus, were found to have benefited from the largesse received from their respective governments[49]. While the legality of R&D subsidies will be known only after these two cases are finally settled, commentators have pointed to another dimension of unfair advantage that programmes such as the SBIR gives rise to[50]. The ability of the United States to provide R&D subsidies keeps them ahead of the technology race, a position that they are able to maintain by using the provisions of the WTO Agreement on TRIPS, which offers their inventors substantially enhanced level of protection for their patented inventions.

While outlining his "blueprint for an economy that's built to last – an economy built on American manufacturing", President Obama underlined that the manufacturing sector

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http://www.uspto.gov/sites/default/files/aia_implementation/20110916-pub-l112-29.pdf on 12 April 2014).

45 "The SBIR Program" (accessed from http://www.sbir.gov/about/about-sbir on 12 April 2014).

46 Twelve Departments of the Government and its agencies support the two programmes.

47 The reauthorization of the two programmes was done under the National Defense Authorization Act for Fiscal Year 2012. For details see, "National Defense Authorization Act for Fiscal Year 2012", Public Law 112–81, 112th Congress (accessed from http://www.gpo.gov/fdsys/pkg/PLAW-112publ81/pdf/PLAW-112publ81.pdf on 12 April 2014).

48 "America COMPETES Reauthorization Act of 2010", Public Law 111–358, 111th Congress (accessed from: http://www.gpo.gov/fdsys/pkg/PLAW-111publ358/pdf/PLAW-111publ358.pdf on 12 April 2014).

49 For details, see, WTO (2004), European Communities and Certain Member States — Measures Affecting Trade in Large Civil Aircraft (Complainant: United States), DS316, 16 October and WTO (2004), United States — Measures Affecting Trade in Large Civil Aircraft (Complainant: European Communities), DS317, 16 October. The two parties filed a second set of complaints in 2005-06. See, WTO (2005), United States — Measures Affecting Trade in Large Civil Aircraft — Second Complaint (Complainant: European Communities), DS353, 27 June, and WTO (2006), European Communities and Certain Member States — Measures Affecting Trade in Large Civil Aircraft (Second Complaint) (Complainant: United States), DS347, 21 January.

50 Block, Fred (2010), United States Industrial Policies, R&D, And The WTO's Definition Of Non-Actionable Subsidies, Intellectual Property Watch, 23 December (accessed from: http://www.ip-watch.org/2010/12/23/us-industrial-policies-rd-and-the-wto%E2%80%99s-definition-of-non-actionable-subsidies/ on 15 April 2014).

must "create new jobs here in America, discourage outsourcing, and encourage insourcing".[51] In 2010, Small Business Jobs Act was adopted[52], which was labelled as the most significant piece of small business legislation in over a decade. The legislation offered to the small businesses a mix of enhanced access to subsidised loans, export credit and tax reliefs to help them create additional jobs.

(a) The Buy America Provisions

One of the most enduring pieces of legislations, ostensibly enacted to introduce the local content rules immediately after the onset of the "great depression", was the Buy American Act of 1933. The stated objective of the Act was to protect domestic businesses and labour by providing a required preference for American goods in direct government purchases. According to one commentator, the Buy American Act "is of perennial interest to Congress, which has periodically enacted or considered measures to expand the scope of domestic preferences in federal procurements or, more rarely, to narrow it."[53] The two more recent additions to the "Buy American" provisions were made by the Obama Administration. These are the American Recovery and Reinvestment Act of 2009 (better known as the Stimulus or the Recovery Act) and the Ike Skelton National Defense Authorization Act for FY2011.

Buy American Act imposes restrictions on the acquisition of foreign goods by federal agencies through the stipulation that "[O]nly unmanufactured articles, materials, and supplies that have been mined or produced in the United States, and only manufactured articles, materials, and supplies that have been manufactured in the United States substantially all from articles, materials, or supplies mined, produced, or manufactured in the United States, shall be purchased for public use". Additionally, the law provides that every contract for the construction, alteration, or repair of any public building or public work in the United States shall contain a provision that in the performance of the work, the contractor, subcontractors, material men, or suppliers shall use only, (i) unmanufactured articles, materials, and supplies that have been mined or produced in the United States; and (ii) articles, materials, and supplies manufactured in the United States use substantially all articles, materials, or supplies mined, produced, or manufactured in the United States.

The law establishes a price preference for "domestic end products and construction materials". The Federal Acquisition Regulation (FAR), which sets out the guidelines for the

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51 White House (2012), Blueprint for an America Built to Last, 24 January, (accessed from: http://www.whitehouse.gov/sites/default/files/blueprint_for_an_america_built_to_last.pdf on 15 April 2014)

52 "Small Business Jobs Act of 2010", Public Law 111–240, 111th Congress (accessed from: http://www.gpo.gov/fdsys/pkg/PLAW-111publ240/pdf/PLAW-111publ240.pdf on 15 April 2014)

53 Manuel, Kate M. (2013), "The Buy American Act in Brief: Preferences for "Domestic" Supplies and Construction Materials in Federal Procurements", Congressional Research Service Report # R43140, July 9 (accessed from: http://mspbwatcharchive.files.wordpress.com/2013/10/the-buy-american-act-in-brief-preferences-for-domestic-supplies-and-construction-materials-in-federal-procurem-ents-july-9-2013.pdf on 15 April 2014)

implementation of the Buy American Act, requires that, when an offer of a domestic end product is not the low offer, the procuring agency must add a certain percentage of the low offer's price (inclusive of duty) to that offer before determining which offer is the lowest priced or one providing the "best value" to the government. The price preference margin enjoyed by the domestic supplier can be 6%, in cases where the lowest domestic offer is from a large business, and 12%, when the lowest domestic offer is from a small business. For Department of Defense procurements, the price preference can be 50%. Agencies can provide even higher price preference margins by regulation.

As mentioned above, manufactured products are considered domestic if they have been manufactured in the United States from components, "substantially all" of which have been mined, produced, or manufactured in the United States. The term "substantially all" is defined in the Act to mean that the cost of foreign components does not exceed 50% of the cost of all components. Judicial and other tribunals have given another interpretation of the term "substantially all". They have considered whether there were "substantial changes in physical character" of the product[54], whether separate manufacturing stages were involved or whether there was one continuous process[55], and whether the article was completed in the form required by the government[56].

Thus, recent legislations have pushed the Buy American agenda, and have thereby provided a significant protected space to the domestic producers. The most significant of these recent legislations is the American Recovery and Reinvestment Act (ARRA) of 2009, whose Buy American provisions do not allow the use of funds made available under the Act in a "project for the construction, alteration, maintenance, or repair of a public building or public work unless all of the iron, steel, and manufactured goods used in the project are produced in the United States."[57] These provisions have been enforced by several

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[54] The General Accountability Office examines the manufacturing process to ensure that it consists of two distinct phases. The first of these "manufactures" a domestic component from the foreign sourced material and the other then "manufactures" the end product that is distinguishable from the component. The key consideration is whether these phases cause the material to undergo substantial changes in its physical character. See, United States Government Accountability Office (2005), City Chemical LLC, B-2961352.05-1 CPD, 120, June 17 (accessed from: http://www.gao.gov/decisions/bidpro/2961352.pdf). See also, Gourley, Alan W.H., John E. McCarthy, Jr. and Adelicia R.Cliffe (2004), "Federal Restrictions on Participation by Foreign Investors in Defense and Other Government Contracts", in J. Eugene Marans, Manual of foreign investment in the United States, Volume 1, Thomson/West, (accessed from: http://www.crowell.com/documents/DOCASSOCFKTYPE_ARTICLES_453.pdf on 20 June 2014)

[55] Decision of the Comptroller General of the United States, 27 September, 1976 (accessed from: http://www.gao.gov/assets/400/397866.pdf on 25 June 2014)

[56] Manuel, Kate M. (2013), "The Buy American Act in Brief: Preferences for "Domestic" Supplies and Construction Materials in Federal Procurements", Congressional Research Service Report # R43140, July 9 (accessed from: 10 July 2014)

[57] "American Recovery and Reinvestment Act of 2009", H.R. 1, Section 1605 (accessed from: http://www.gpo.gov/fdsys/pkg/BILLS-111hr1enr/pdf/BILLS-111hr1enr.pdf on 12 November 2013).

important federal agencies, which include Federal Airport Authority (FAA), Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), National Railroad Passenger Corporation (AMTRAK) and Federal Transit Administration (FTA)[58,59].

The Ike Skelton National Defense Authorization Act for Fiscal Year 2011, the law authorising defence spending, provided that each contract awarded by the United States Department of Defense includes a provision requiring the photovoltaic devices provided under the contract to comply with the Buy American Act[60]. The contracts covered under the legislation include energy savings performance contracts, utility service contracts, land leases, and private housing contracts, to the extent that such contracts result in ownership of photovoltaic devices by the Department of Defense.

The extensive use of the "Buy American" provisions in recent years, reinforced since the implementation of the Recovery Act, provided a substantial basis for the revival of the manufacturing sector in the United States. The United States Administration has continuously expanded the coverage of areas under these provisions, even though there are serious doubts regarding their status given the WTO rules. The WTO Agreement on Trade Related Investment Measures (TRIMS) does not allow the member countries to give preferences to local sourcing over imports, but the United States has persisted with its policy of promoting local suppliers.

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58 The Buy American provisions may be waived under two substantive conditions. First, the FAR lists out five exceptions: (1) the procurement of domestic goods or the use of domestic construction materials would be inconsistent with the public interest; (2) domestic end products or construction materials are unavailable; (3) the contracting officer determines that the costs of domestic end products or construction materials would be unreasonable; (4) the agency is procuring information technology that is a commercial item; or (5) the goods are acquired specifically for commissary resale. See, 48 C.F.R. §25.103, pp. 6-7 (accessed from: http://www.gpo.gov/fdsys/pkg/CFR-2007-title48-vol1/pdf/CFR-2007-title48-vol1-sec25-103.pdf on 10 July 2014)
Secondly, acquisitions from a 'designated country', which include signatories to the Government Procurement Agreement (GPA) of the WTO, a country with which United States has a free trade agreement, a least developed country, and members of the Caribbean Basin Initiative. For details, see 48 C.F.R. §25.003, pp. 526-27 (accessed from: http://www.gpo.gov/fdsys/pkg/CFR-2010-title48-vol1/pdf/CFR-2010-title48-vol1-sec25-003.pdf on 10 July 2013)

59 The United States President has the authority to bar procurement from 'designated countries' in order to" encourage additional countries to become parties to the Agreement [GPA] and to provide appropriate reciprocal competitive government procurement opportunities to United States product and suppliers of such products ..." For details see, 19 U.S.C. §2512(a), p. 550 (accessed from: http://www.gpo.gov/fdsys/pkg/USCODE-1995-title19/pdf/USCODE-1995-title19-chap13-subchapI-sec2512.pdf on 10 July 2014)

60 U.S. Government Printing Office (2010), Ike Skelton National Defense Authorization Act for Fiscal Year 2011, Committee on Armed Services, House of Representatives, Public Law 111–383, December, Sec. 846, p. 153 (accessed from: http://www.gpo.gov/fdsys/pkg/CPRT-111HPRT63160/pdf/CPRT-111HPRT63160.pdf on 10 July 2014)

Industrial Policy of European Union

During the past decade, members of the European Union (European Union) have taken a series of initiatives that give expression to their interest in industrial policy. In 2005, a communication European Commission (EC) unveiled a comprehensive industrial policy framework for the first time by re-focussing on the growth and employment[61]. This exercise involved "screening of the competitiveness of 27 individual sectors of manufacturing industry and the construction industry" in order to "determine to what extent their performance is or could be influenced by the instruments of industrial policy".[62]

The adoption of Europe 2020 strategy saw the adoption of a four-pronged approach for the industrial development of the European Union members, which included 'An Integrated Industrial Policy for the Globalisation Era', 'Innovation Union', 'A digital agenda for Europe' and 'New Skills for New Jobs'[63]. Industrial policy was seen as a fulcrum that would put the "European Union economy on a dynamic growth path strengthening European Union competitiveness, providing growth and jobs, and enabling the transition to a low-carbon and resource-efficient economy".[64] The approach identified two broad components of industrial policy: (i) policies that have an impact on the cost, price and innovative competitiveness of industry and individual sectors, such as standardisation or innovation policies, or sectoral policies targeting e.g. the innovation performance of individual sectors, and (ii) other policy measures such as transport, energy, environmental or social, consumer-protection policies, single-market policy and even trade policies that can have an important influence on the cost, price and innovative competitiveness of industry.

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61 Commission of the European Communities (2005), Implementing the Community Lisbon Programme: A policy framework to strengthen European Union manufacturing - towards a more integrated approach for industrial policy, COM(2005) 474 final, Brussels (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0474:FIN:en:PDF on 25 November 2013).

62 Commission of the European Communities (2005), Implementing the Community Lisbon Programme: A policy framework to strengthen European Union manufacturing - towards a more integrated approach for industrial policy, COM(2005) 474 final, Brussels, p. 6 (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2005:0474:FIN:en:PDF on 25 November 2013).

63 Commission of the European Communities (2010), Europe 2020: A strategy for smart, sustainable and inclusive growth, Communication from the Commission, COM(2010) 2020 final, Brussels, pp. 5-6, (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF on 27 November 2013).

64 Commission of the European Communities (2010), An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2010) 614, Brussels (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0614:FIN:EN:PDF on 27 November 2013).

Several areas of policy intervention were identified, which included policies for improving framework conditions for industry, developing a new innovation policy that subsumed skill development, strengthening the single market by focusing on infrastructure and adoption of standards and sector-specific approaches in areas like space, clean and energy efficient technologies, healthcare, environmental goods and technologies, and sectors that are more amenable to creation of value-chains.

Unlike in the United States, where that state has assumed a more activist role, the new industrial of the European Union relies more on the regulatory aspects. This is hardly surprising given the nature of economic integration that the European Union has seen. It is, however, clear from the strategy adopted for industrial revival since 2010 that the collective decision making abilities of the member states of the European Union would play a more determining role. Thus, the new policies seek to improve the business environment especially for SMEs through new initiatives to support competitiveness of these enterprises, such as access to "eco-markets and eco-innovation", and cooperation between enterprises and internationalisation, and to find new and innovative solutions to ensure that businesses, especially the SMEs, have access to finance when financial market have continued to remain risk averse. Emphasis has been laid on new and innovative funding options, "including schemes co-funded by European Union Regional Policy and the Common Agricultural Policy for the agri-food sector, in order to ensure efficient and effective financial support to help align public funding and incentive mechanisms with the strategic targets of the European Union."[65]

The European Union adopted a model for innovation, through the 'Innovation Union', aimed at promoting the wide and timely deployment, take-up and commercialisation of competitive key enabling technologies. The idea was to re-focus R&D and innovation policy on the challenges facing our society, such as climate change, energy and resource efficiency, health and demographic change. This programme identified a number of critical areas in which the EC is to contribute, including through the launch 'European Innovation Partnerships' between the European Union and national levels to speed up the development and deployment of the technologies needed to meet the identified challenges. Further, it was decided to strengthen and develop the role of European Union instruments to support innovation (e.g. structural funds, rural development funds and R&D framework programme), including through closer work with the European Investment Bank and streamline administrative procedures to facilitate access to funding, particularly for SMEs and to also bring in innovative incentive mechanisms linked to the carbon market, namely for fast-movers[66].

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[65] Commission of the European Communities (2010), An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2010) 614, Brussels, p. 7, (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:0614:FIN:EN:PDF on 27 November 2013)

[66] Commission of the European Communities (2010), Europe 2020: A strategy for smart, sustainable and inclusive growth, Communication from the Commission, COM(2010) 2020 final,

contd…

Given that clusters and networks are increasingly been recognised for their contribution to industrial competitiveness and innovation by bringing together resources and expertise, and promoting cooperation among businesses, public authorities and universities, European Union's industrial policy seeks to overcome existing market failures and funding gaps through the regional, national and European Union cluster policies. The objective is to achieve a critical mass for R&D and innovation, skills, funding, the cross-fertilisation of ideas and entrepreneurial initiatives through local clusters that are connected Europe-wide.

The role of public policies has been emphasised in the area of skill development, in particular, close coordination between national, regional and local governments with a strong involvement of the social partners. This strategy also proposed close coordination between the public sector and industrial partners in education and training policies.

More recently, the European policy makers seem to be favouring a more pro-active role for themselves to push their industrial policy agenda forward. This was apparent from the mid-term review of the industrial policy conducted in 2012. Thus, the proposal has been made for European Union to "provide the right framework conditions to stimulate new investments, speed up the adoption of new technologies, and boost resource efficiency", which include, "technical regulations and Internal Market rules, as well as accompanying measures such as infrastructure and R&D/innovation projects"[67].

The most significant departure in approach of the European Union members towards industrial policy that the mid-term review brought forth was the enhanced role of the public sector in providing / facilitating access to funds. In a new approach, "Public sector support to facilitate access to capital to industry", the European Union proposes the use of public funding to "facilitate the transition from technological development to the industrial and market exploitation of new technologies". It is argued that the "expansion of the risk-sharing financing facility will help lower risks for high-growth potential companies"[68]. This approach dovetails with another publicly funded initiative 'Cohesion Policy', which provides support in the form of grants and revolving financial instruments for an integrated approach to address the needs of SMEs, including for vocational training and entrepreneurship, covering all phases of business creation and development. At a part of

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Brussels, pp. 12-13, (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2010:2020:FIN:EN:PDF on 20 November 2013).

67 Commission of the European Communities (2012), A Stronger European Industry for Growth and Economic Recovery, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2012) 582 final, Brussels, p. 6, (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0582:FIN:EN:PDF on 25 November 2013).

68 Commission of the European Communities (2012), A Stronger European Industry for Growth and Economic Recovery, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, COM(2012) 582 final, Brussels, p. 23, (accessed from: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2012:0582:FIN:EN:PDF on 25 November 2013).

this initiative, both the EC and national governments would work towards facilitating access to capital markets for SMEs[69].

IV.By Way of Conclusions

This paper was an attempt to reflect on the debate on industrial policy, which has seen a revival of sorts in recent years. Although the use of industrial policy was discouraged in the phase when the 'Washington Consensus' exerted a hegemonic influence over the governments, especially in the developing countries, there are distinct signs that this policy has made a comeback with the support of those that had denounced it.

Industrial policy, in all its manifestations, is exerting considerable influence on the plans of economic recovery that the Obama Administration has put in place. The activist government has adopted a wide variety of instruments to ensure that President Obama's target of making the United States a manufacturing hub is realised in the near future. The important feature of the industrial policy instruments is that the United States policy makers are not looking at short-term outcomes; their sights seem to be fixed on a longer term sustainable growth of the manufacturing sector.

The European Union members have been discussing about the ways of reviving the industrial sector in the member states for nearly a decade. However, an industrial policy is being put in place since 2012, after the adoption of the Europe 2020 framework. The nature of the economic union has not allowed Brussels to be very proactive in its approach, especially in recent years when the European Union has faced economic uncertainties, but some of the recent policies that the member states have agreed to, indicates that the collective will of the member states will play an important role in shaping future European industries.

These developments have seen the emergence of a new narrative on development pathways in the post-crisis world, in which industrial policy initiatives clearly hold the centre-stage. In two of the largest economies that we discussed in this paper, the state and its agencies have adopted aggressive agendas for defining the development paths, and have, in while so doing, they have influenced the market forces quite considerably. This process could help forge a new relationship between the state and the market, which could provide basis for the emergence of development paradigm of the future.

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[69] In December 2013, The European Parliament and the Council of the European Union adopted established a programme for the Competitiveness of Enterprises and small and medium-sized enterprises (COSME). The new programme is designed to "address market failures which affect the competitiveness of the Union economy on a global scale and which undermine the capacity of enterprises, particularly SMEs, to compete with their counterparts in other parts of the world". For details see, Official Journal of the European Union (2013), Regulation (European Union) No 1287/2013 of the European Parliament and of the Council of 11 December 2013 (accessed from: http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1287&from=EN on 15 November 2013).

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ISID

Institute for Studies in Industrial Development

4, Institutional Area Phase II, Vasant Kunj, New Delhi - 110 070

Phone: +91 11 2676 4600 / 2689 1111; Fax: +91 11 2612 2448

E-mail: info@isid.org.in; Website: http://isid.org.in