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Sanjaya Lall: The Scholar and the Policy Advisor

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Abstract: This paper presents Sanjaya Lall's biography with a focus on his major scholarly and policy works. It identifies Lall's globally recognized contributions in the fields of multinationals and development, industrial policy, technological capabilities and methodologies on international competitiveness. Dissatisfied with mainstream neoclassical theory Lall used empirical evidence to build the evolutionary alternative to construct theory and provide policy advice to governments.

Keywords: Sanjaya Lall, multinationals, industrial policy, technology, competitiveness

JEL classifications: O14, O19, O32, O38, O47

1. Introduction

Sanjaya Lall's scholarly credentials was evident early in his life when he won a gold medal in Patna in 1960, and the St. John's College Prize for achieving a first class honours degree at Oxford University in 1963. A prolific development economist, he eventually published 33 books and hundreds of internationally acclaimed articles. In Lall, Oxford University had a truly world class scholar who championed intensely the logic behind why some economies enjoyed higher learning and innovation capabilities than others. To Lall (1992) technological capability building was the driver of export competitiveness and growth and hence the path developing economies must take to achieve development. Driven by an epistemological conviction that theory must be defined by evidence, Lall (1994, 1996) fought an often lonely crusade against the ideologues peddling uncritically, on the one hand neoliberalism and on the other hand, populism. Dissatisfied with mainstream economic theory, Lall (1992, 2001a) increasingly went to the field to seek empirical ammunition to make sense of the alternative theoretical vision he began to construct to understand the complex problems of development. Apart from enduring silly insults, Lall was less scathing on the partisan populists only because they neither had the power nor the network to influence development policy.

Lall (1973) had originally made a name in the field of multinationals and developing economies, articulating some of the best explications of

circumstances when linkages will take place and how crowding out can be avoided at host-sites. However, because a number of development pillars interlocked and often influenced the process collectively, Lall (1996) began to research and publish on trade and competitiveness, globalization and its economic consequences, industrial policy and industrialization, and innovation and technological capabilities. Although all the above have very much been at the heart of the research many of us have and are still doing, I believe it is in the last area that Lall (1992) made most of his illuminating contributions to the world of knowledge. Lall (2001a) found that globalization affected economies differently, benefiting those that enjoyed the technological capabilities (both endowed and created) and draining those that failed to engender them. He was particularly concerned for the Sub-Saharan African economies where increased economic integration into the world economy was affecting them negatively.

He had become increasingly concerned with the neoliberal siege on development economics, what I have begun to call the "economics-less mathematics syndrome". While he recognized the important contributions mathematics was making in economics, he was concerned over the impact of mathematical economists who neither had the understanding nor the feel for development economics. Consequently, Lall gradually led a team of young scholars that made incisive inroads into measuring technological capabilities, distinguishing different levels of capabilities as firms negotiated the daunting currents of competition to move from price-based to product-based competition. The pursuit of novelty and rigour brought him popularity among his admirers, and grudging respect from his critics.[2]

His commitment to assist less developed economies led him to participate in the preparation of policy reports, which gave him the opportunity to influence policy teams – particularly the United Nations Industrial Development Organization (UNIDO) and United Nations Conference for Trade and Development (UNCTAD) – as well as in the preparation of numerous national policy blueprints. His reluctance to succumb to orthodox thinking is demonstrated by his refusal to serve the World Bank beyond the periods 1965-68 and 1981-82. In UNCTAD and UNIDO, Lall found two global organizations, which shared many of his core views. He constructed taxonomies to add strength to the analysis and conclusions to the teams he led in the publication of the *World Investment Report*. It was unfortunate that some of his own peers mistakenly turned against him for undertaking work with these organizations. Although saddened that some of his friends were critical of him, Lall remained committed to assisting these organizations for the benefit of bringing economic change to the developing economies. He often said that it is the potential influence his policy work carried rather than the organization he served that was important. He would often say that it is

everyone's duty to at least make an attempt to change the way these global organizations carried out development advocacy.

In this introductory essay I shall identify what, in my opinion, were the prime scholarly and policy contributions of Lall. The rest of the essay is organized as follows. Section two discusses the work Lall originally examined, i.e. the role of multinational corporations in the developing economies. Sections three, four and five discuss industrial policy, technological capabilities and alternative measures of competitiveness. Section six presents the conclusions.

2. Multinationals and Development

Sanjaya Lall's first novel contribution came in the field of multinationals. Taking a partisan but epistemologically sound view Lall looked at the potential multinationals have in assisting developing economies. After identifying a range of malpractices Lall began to concentrate on the circumstances under which multinationals can play a beneficial role at host sites. Among his several publications on multinationals, four important ones are discussed in this section.

The first set of outstanding publications of Lall (1973, 1974, 1979) came early in the form of pioneering work on transfer pricing by multinational enterprises, based especially on an empirical investigation of corporations operating in the pharmaceutical industry. It showed how multinationals could use intra-firm creative pricing and accounting mechanisms to siphon out, and invisibly repatriate, profits from their overseas enterprises. At around the same time Vaitsos (1974) was also analyzing similar practices by multinationals.[3] Because of the weaker bargaining position of developing economies, Rasiah (1995) utilized this information to argue that host governments can actually use it as a carrot in their negotiating kit to attract multinationals. Where production is wholly or mostly exported such inducements may be the only attraction for multinationals to relocate production in least developed countries. The alternative net loss for such host governments will be negative as the taxes forgone from transfer pricing are borne by parent and subsidiary firms facing high corporate taxes elsewhere.

In the second contribution on multinationals, Lall and Streeten (1977) presented one of the most comprehensive reviews of how host governments can use multinationals for their own development. Targeted at seeking benefits for the developing economies the book discussed the positive (including crowding in) as well as the negative (including crowding out) linkages associated with efforts host governments can take to reduce the costs and raise the benefits of their participation. Despite outlining several opportunities to appropriate benefits Lall and Streeten argued that political strife, missing

institutions and poor infrastructure left most developing economies at the mercy of foreign multinationals.

In the third contribution on multinationals, Lall and Siddarthan (1982) using the same critical mind and a robust methodology found that foreign multinationals in the United States relocated their operations to take advantage of protection and other government instruments to participate in industries where they can take appropriate monopolistic advantages. The empirical evidence produced by Lall and Siddhartan (1982) did not support the overriding argument about the conduct of United States multinationals relocating abroad, that firms relocate operations abroad to take advantage of firm-specific advantages such as the intangible assets of high technology, marketing and skills (see Dunning, 1979). Indeed, the evidence supported Hymer's (1960) contention that firms become multinationals to take advantage of oligopolistic advantages.

In his fourth contribution, Lall drew on the eclectic framework of Dunning (1974, 1979) to examine the drivers of the internationalization of production by Indian multinationals. Placing the focus on domestic capability building through learning Lall showed evidence of Indian multinationals relocating production operations abroad to take advantage of their firm-specific advantages developed through protection at home. Although the emphasis was on India, it can be argued that the initial surge in learning and domestic capability building in Korea and Taiwan was also nurtured behind protection – undertaken selectively and with quick switching from import-substitution to export-orientation (Amsden, 1989; Kim, 1997; Fransman, 1985; Rasiah and Lin, 2005).

Through long interactions with him it is my understanding that Sanjaya Lall began to enter broader fields of economics following his search for development solutions for the developing economies. Attempts to understand the relevance of multinationals to developing economies then turned his attention to the broader issues of industrial policy and industrialization. Lall was to argue that the role of multinationals in economics must be subsumed and understood in the context of development policy in the developing economies.

3. Industrial Policy

Although the role of government intervention in stimulating industrial development has long been advocated by other scholars (Smith, 1776; Young, 1928; Kaldor, 1960; Abramowitz, 1956, Gerschenkron, 1962; Johnson, 1982; Amsden, 1989; Amsden and Chu, 2003; Wade, 1990; Chang, 2003; Reinert, 2007), Sanjaya Lall made important contributions to this debate from a structuralist perspective. Treading more carefully than Johnson

(1982), Amsden (1989), Wade (1990), Chang (2003) and Reinert (2007), Lall (1996) argued persuasively for selective interventions to promote industrialization in the developing economies. Like his confidantes and friends Lall began to distance himself from equilibrium economics as he attempted to build prescriptive theory to construct policy relevant recommendations for developing economies.[4]

Lall (1996; 2001a) was among the earliest scholars to distinguish divergence of cases in explaining successful industrialization experiences. Lall (1996) argued that each of the East Asian tigers pursued different paths and different strategies, with Korea and Taiwan favouring local firms when Singapore enjoyed high levels of foreign investment in manufacturing. Whereas Korean industrialization was led by large *chaebols*, Taiwanese expansion was spearheaded by smaller firms.

Lall recognized the problems of government failure from the evidence of the African, Asian and Latin American economies and therefore argued that selective rather than extensive interventions are necessary to promote industrialization. Among the earliest critiques to appear on the World Bank's (1993) East Asian miracle study, Lall (1994) attacked its attempt to portray selective interventions as being market augmenting and the use of selective data to support neoliberal prescriptions. Lall (1995) also provided evidence of the failure of market-friendly structural adjustment policies in Africa arguing that the best adjuster, Ghana, was riddled with stagnation and little diversification in manufactured exports.[5] Hence, despite recognizing the dangers of government failure, Lall (1996) underlined that selective interventions in markets are necessary to stimulate economic development and structural change.

Refusing to be a dogmatic ideologue and in his quest to establish a reasonable framework to examine as well as promote economic development Sanjaya Lall constructed alternative methodologies to strengthen the evolutionary case for supporting selective interventions. Combining inductive and deductive research Lall developed a number of simple typologies to examine development. Because he identified technology as the key path to economic development, technological capabilities became his prime focus.

4. Technological Capabilities

Sanjaya Lall departed from Marshall's (1890) logic of costless synergies arising from technological spillovers arguing that economic agents actively invest and pursue technological capability building. Lall (1987, 2001a) recognized the need to connect the micro- firm-level capabilities with the macro- and meso-levels and hence even discussed incentive structures at the national level and how instruments can be used by governments to correct

market failure. Lall's friend, Katz (2006) has also been working extensively on the role of micro-macro interactions in learning and innovation processes.

Drawing on the evolutionary logic of Nelson and Winter (1982), Nelson (2008) and Freeman (1989), and the taxonomies and trajectories articulated by Dosi (1982) and Pavitt (1984), Lall (1992) pioneered a typology of capabilities using incentives, capabilities and institutions.[6] After testing for its empirical validity in his usual way, Lall (1992) concluded that interventions, carefully and selectively applied, are necessary for industrial success. Using a similar framework (though the paper was published much earlier), Lall (1983) showed evidence that technological effort among Indian firms was largely directed at assimilating and adapting foreign technologies with little focused on R&D operations. Lall (1992) was to argue that multinationals were more likely to transfer the innovation rather than the innovation process to host sites.

Lall also used the concept as well as the development channels of technological capabilities – e.g. arms-length transactions, and active learning and innovation – for poor economies to move up the development ladder. Taking a cue from Young (1928), Schumpeter (1934), Kaldor (1960) and Robinson (1962), Lall (1992) dismissed the use of the neoclassical production function to estimate spillovers and instead pioneered the technological capability framework. Following Kaldor (1960), Singh (1998) had argued convincingly that the total factor productivity computations by Solow (1956) were a poor proxy for technical progress because of the problems of not accounting for embodied technology in capital and replacement capital. For the same reasons, Rasiah (1992, 1994) had identified technological capabilities from screening semiconductor and textile firms but did not translate them into a typology of taxonomies and trajectories as Lall (1992) had done.

Rasiah (2009a) criticized Krugman's (1994) claim that the East Asian economies had grown through perspiration rather than inspiration, as well as Young's (1994) argument that over the period 1970-85, growth in Taiwan (1.5%), South Korea (1.4%) and Singapore (0.1%) were driven by factor inputs rather than technical change. Rasiah (2009a) questioned the lack of common sense in Young's (1994: 970) estimations, which showed the highest TFP annual average growth rates over 1970-85, enjoyed by Egypt (3.5%), Pakistan (3.0%), Botswana (2.9%) and Congo (2.8%) when the two technologically most advanced nations of the United States (0.4%) and Japan (1.2%) recorded such low rates.[7] If indeed this totally false proposition made any sense then Young and Krugman should have made Egypt, Pakistan, Botswana and Congo as models for other countries to follow! Lall's work was to stimulate considerable improvements and adaptations to specific typologies engineered to examine technological learning and innovation in steel, textile, garment, automotive, engineering, food processing and electronics firms (Wignaraja, 2002, 2008; Figueiredo, 2002, 2003; Rasiah, 2003, 2004, 2006, 2007).[8]

In addition to firm-level capabilities, which were examined largely on the basis of effort, Lall also assessed technological capabilities on the basis of export structure. In one of his early works, Lall (1980) ripped apart the neoliberal theory of technical change for neglecting the possibilities of technological progress in less developed economies. He produced evidence to show that a number of semi-industrialized less developed economies were experiencing rapid technological change (mainly adaptive) and were even showing an ability to compete in international markets involving the sale of technology for a wide range of industrial activities. Scattered data on five types of commercial technology exports – turnkey projects, consultancy, direct investment, licensing, training – showed that India, Brazil, Argentina, Mexico, Korea, Taiwan and Hong Kong succeeded in selling different types of expertise to other less developed countries. Interestingly, he identified India to have the most diverse and sophisticated technology exports, because it has protected domestic 'learning' in the broadest spectrum of industrial manufacturing, especially capital goods. Other countries such as Brazil, he argued, show greater industrial output but lesser technological capability because they have not protected 'learning' against massive incursions by foreign enterprises. Lall (1980) also argued in this paper that the comparative advantage of less developed countries in exporting technology is greatest where the pace of change is slow, where large R&D expenditures are not required and where detailed engineering capability is crucial in transferring technology.

Lall (1999) subsequently provided evidence to support his assertion that the technological structure of export matters for growth. He contended that learning and path dependence mean that structures are difficult to change as technologies evolve and that upgrading cannot be achieved simply by trade liberalization. Lall argued that countries need to upgrade domestic skills and technology and attract sophisticated foreign direct investment (FDI) to synergize their export structures. Because India's exports until the mid-1990s were not focused on the rising export share industries in global exports and the domestic capabilities were weak, Lall (1999) felt that Indian exports cannot be sustained in the long run.

Lall (1998a) recognized that developing countries are rapidly increasing their shares of manufactured trade, not just in labour-intensive products, but also in capital- and skill-intensive ones; their shares are rising particularly rapidly in the high-technology area. While this is the broad experience, Lall found that manufactured exports remain highly concentrated with a few countries dominating all forms of export. Within the successful exporting countries, there are significant differences in the 'technology content' of exports. This evidence led Lall to reject neoliberal trade theories calling instead for a focus on learning, scale economies, increasing returns, and agglomeration as determinants of comparative advantage.

Lall (1998b) also examined technological and organizational change using a framework consisting of national capabilities and their development in the emerging economies of Asia and found significant differences in them all with some engaging at the technology frontier while others at the fringes. Lall called for a greater focus on investment in upgrading and deepening of capability, which may not occur easily in the face of market failures. The evidence led Lall to conclude that there was no single optimum path to the technology frontier.

Lall and Teubal (1998) used a multi-level framework that takes account of national, strategic and specific policies to promote industrial and technological development with the flexibility of engaging both markets and government. Using evidence from East Asia, Lall and Teubal (1998) argued that industrial and technological change cannot be left entirely to market forces.

Lall (2000) subsequently mapped out manufactured export patterns of developing countries until the 1990s, using a new and detailed classification by technological levels arguing that export structures, being path-dependent and difficult to change, have important implications for growth and development. Low-technology products (which have the least beneficial learning and spillover effects) tend to grow the slowest, and technology-intensive products (which have the most beneficial effects) the fastest in world trade. East Asia dominated the category of developing countries, with 70 per cent of total manufactured exports, with its increasing role over time. Lall showed that concentration degrees by national exports have been high and rising. The technological specialization of different regions and the leading exporters have also varied greatly, as do the strategies used to achieve competitiveness. The evidence again undermined neoliberal trade theory that assumed that greater dispersal of exports and economic convergence would accompany trade liberalization. Instead, Lall used the evidence to support selective intervention to promote learning and catch up rather than trade liberalization.

Borrowing from the work of Gereffi (2002) and Gereffi, Humphrey and Sturgeon (2005), Lall began to use the value chain methodology to examine the effects of production fragmentation.[9] Helleiner (1973) had discussed the decomposition of manufacturing and its positive implications for spreading development through the relocation of labour-intensive stages in the developing economies. However, unlike typical neoliberal assessments Lall (2000) was concerned over how selective intervention could help poor economies use such windows of opportunity to upgrade and move up value chains. He argued that governments should organize effective industrial policies – at the national, regional and specific levels – to provide the 'sticky spaces' necessary to engender technological catch up 'slippery slopes'. It is because of the failure of governments to provide the necessary policy environment for the development of technological capabilities, Lall

and Pietrobelli (2002) argued that the Sub-Saharan African countries have continued to lose from the globalization process.

Integrating the works of Lall (2000), Best (2001), and Gereffi, Humphrey, Sturgeon (2005), a number of scholars began to refine the concept of clustering to incorporate developmental and entrepreneurial dimensions. Pietrobelli and Rabelloti (2007) show evidence of the evolution of domestic capabilities in Latin America through clustering by integrating global and local dimensions. Using empirical evidence from Brazil, Cambodia, India, Indonesia, Laos, Malaysia and Myanmar, Rasiah (2007, 2009b, 2009c) developed the systemic quad to connect the four pillars of basic infrastructure, high tech infrastructure, network cohesion and global integration to offer developing economies a policy framework for promoting regional development and entrepreneurial synergies.

The focus on technological capabilities and industrial policy attracted criticisms over whether they could be sustained – *a la* the problems Krugman (1994) raised when throwing cold water at the East Asian miracle – and hence competitiveness increasingly became a major issue in Lall's scholarship. He had earlier looked at monopolistic practices of multinationals and how they could hinder competitiveness. Unconvinced with mainstream measures, Lall began to develop his own measures of competitiveness to which the next section turns attention to.

5. Alternative Measures of Competitiveness

Lall (2001b) provided a devastating critique of mainstream approaches to examine competitiveness before developing alternative measures himself. He lamented that developing countries' policy makers worry about national competitiveness and closely watch indices ranking international competitive performance but yet existing measures provide little clue about actual competitiveness. The disappointment with mainstream measures led Lall to pioneer alternative measures of competitiveness at the national level.

In the first measure, Lall supplied the *World Investment Report* (*WIR*) (UNCTAD, 2004, 2005, 2006) a methodology for estimating the potential rather than only actual foreign direct investment inflows to different countries, regions and continents. He tried to understand the reasons why some countries with strong endowments did not enjoy the commensurate rates of FDI inflows with strong policy implications. The methodology allowed an assessment of market and government failures giving room for prescriptive policy formulations.

In the second measure, Lall developed an industrial scoreboard using trade data and a taxonomy of technological sophistication for UNIDO (2004, 2005; see also Lall and Albaladejo, 2004; Lall, Albaladejo and Zhang, 2004)

which showed changes in export competitiveness of different countries, regions and continents. Recognizing that the dataset used did not allow the differentiation of exports by technology vertically, Lall was careful to stress the importance of examining individual economies historically using more detailed information.

Although Lall's measures of competitiveness have been questioned by many scholars he readily accepted sensible criticisms and was always refining and addressing the flaws. It is unfortunate that he had little time to rework these instruments to more robust levels, which I believe he would have had he the time to seek data on the basis of technological levels (by knowledge intensities and value addition) by industries and by more detailed disaggregated data on capital flows.

6. Conclusions

It can be seen that Lall had theorized, constructed methodologies and examined some of the most crucial pillars of material development with a focus on technological capability building, which as identified by Marx (1967), Schumpeter (1934) and Nelson and Winter (1982), has been the vehicle driving long term economic growth.

Partisan to the needs of developing economies but with no dogma Lall was able to straddle freely and creatively to devise alternative frameworks to examine problems of development. Although his simple, humble and intimate personality expanded his empire of admirers and friends he remained grounded to the real world, always looking at alternative views to see if they made better sense than the existing ones. His contributions to the topic of technology in development economics should place him as one of the all time heavyweights in the field.

The world has lost one of its most potent creators of knowledge. Friends will now miss the constant traffic of emails and conversations from such a lively, cheerful and engaging scholar. Fortunately for us Lall's inspiring works and the hundreds of prodigies he mentored unselfishly will now carry the torch of development economics for many decades to come. The essays that follow in this issue, which is only one of the many platforms created to honour him, is testimony to the respect he holds in the fraternity of serious scholarship and development policy.

Notes

1. I first read Sanjaya Lall's works in 1982 as an undergraduate student at Universiti Sains Malaysia, Penang. Sanjaya Lall invited me to join his research project in 1994 from when we enjoyed a long and intimate friendship that was also very spontaneous and interactive. He communicated with me twice the day before

his tragic death. My own students found him to be an exceptional person. For someone so busy, prolific and famous he would respond to their questions with such promptness and kindness. His passing away has left a big void in my scholarly and personal life.

2. Despite Sanjaya Lall's disinterest in religions and God he was always fair and kind when dealing with both the professional and non-professional issues.
3. Interestingly Lall (1975) reviewed this work for *World Development*.
4. Amartya Sen, Richard Nelson, Ajit Singh, Chris Freeman, Jorge Katz, Linsu Kim, Larry Westphal, Alice Amsden, Eric Reinert, Michael Best, Ashwani Saith, John Mathews, Francisco Sercovich, Carl Dahlman, Adrian Wood, Constantine Vaitsos and Morris Teubal were some of the names Lall often spoke of in high esteem over their courage to question equilibrium economics.
5. Lall often discussed with me how corrupt and inflexible the Indian government has been on a number of issues but he always maintained that the government was still the prime actor to engender the conditions for industrialization in the developing economies.
6. Lall often spoke to me about his admiration of Richard Nelson's work, which he thought was so logical and grounded on the real world.
7. See Nelson and Pack (1999), Felipe (2003) and Rodrik (1997) for incisive critiques of the East Asian growth controversy created by the TFP methodology.
8. Lall personally encouraged Paulo Figieuredo, Carlo Pietrobelli, Slavo Radosevich, Rajneesh Narula, Ganeshan Wignaraja and me to expand the methodological framework of technological capabilities that he had initiated.
9. Impressed with Gereffi's framework on global value chains Lall recommended him to both the United Nations Industrial Development Organization (UNIDO) and Asian Development Bank (ADB) in 2001 to supply background papers on value chains and industrial development in the developing world.

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