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Technology, trade and 'urban poor' in a general equilibrium model with segmented domestic factor markets

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ABSTRACT

Drawing on the evidence from Indian provinces, this paper, using a four-sector general equilibrium model with segmented domestic labour and capital markets, proposes that factor-specific technological progress only in the capital-intensive segment of the urban formal sectors may affect the urban informal workers adversely, while a trade induced progress in the vertically integrated skill-intensive formal sector benefits them. The numerical analysis further illuminates the importance of credit-product inter-linkage to channel the impact on urban informal wage. Such analysis also helps to infer the well-being of the urban poor, given its strong association with the trends in informal wages.

1. Introduction

It is well-known that in a developing economy the 'informal sector' hosts a substantial proportion of the workforce in unregistered activities, as the less regulated part of the economy where minimum wage laws and labour regulations are either totally absent or weakly implemented. Such sectors are mainly engaged in producing non-traded items in the economy. These sectors primarily comprise own-account enterprises, and also many subcontract firms (producing various parts and semi-processed components for the formal sector firms). As suggested by many authors (Agenor, 1996; Schneider & Enste, 2000 and the references therein) more than 70% of the workforce is engaged in the informal sector of a developing country (hereafter DC). In South Asian countries such as India, a significant proportion (about 85% in non-agricultural activities of India) of the working population are engaged in the informal sector. On 2010–11, the informal sector accounted for almost 94% of India's workforce (National Sample Survey (NSS) Report No. 549, 2010–11). Such sectors comprise mainly "wage hunters and gatherers" (Breman 1994), who are usually but not always uneducated, with little or no chance of a living wage and can hardly afford to remain unemployed.

One important implication of the 1991 economic reform in India has primarily been the productivity improvement, primarily *capital-using* (i.e. *labour-saving*) in nature, in the organised (formal) manufacturing and service sectors of the urban area; as evidenced in Pattnayak and Thangavelu (2005), Hulten and Srinivasan (1999) and so on. In light of the evidences provided in Hasan (2002), Goldar and Kumari (2003), Topalova (2010) and so on; such productivity surge in the Indian skill-intensive manufacturing or services industries during the liberalised regime has particularly been driven by greater access to the newer varieties of imported inputs from abroad, owing to the lowering of input tariffs. However, following such a technological change in the urban formal sectors, organisation of production between the organised and unorganised (informal) segments of the urban economy should be affected; which would, in turn, impart informal activities, wages and employment. Therefore, benefits of productivity improvement in the formal sectors should have percolated to the bottom of the income group working in the urban

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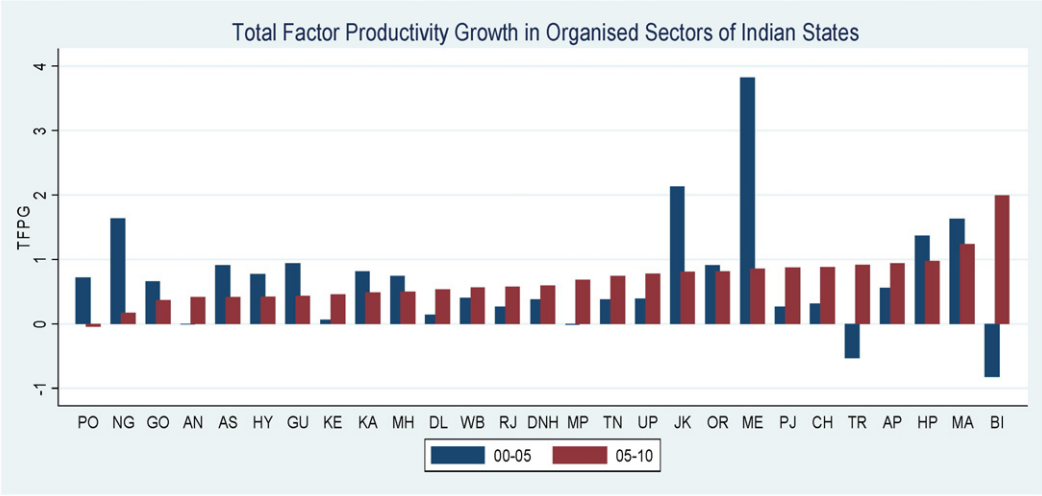

NOTES:

(1) Abbreviations of the name of the provinces:

AN – Andaman & Nikober; AP – Andhra Pradesh; AS – Assam; BI – Bihar; CH – Chandigarh; DL – Delhi; DNH – Dadra-Nagar-Haveli; GO – Goa; GU – Gujrat; HP – Himachal Pradesh; HY – Haryana; JK – Jammu & Kashmir; KA – Karnataka; KE – Kerala; MA – Manipur; ME – Meghalaya; MH – Maharashtra; MP – Madhya Pradesh; NG – Nagaland; OR – Orissa; PJ – Punjab; PO – Pondicherry; RJ – Rajasthan; TN – Tamil Nadu; TR – Tripura; UP – Uttar Pradesh; WB – West Bengal.

(2) The growth is the *annual average rate* of growth.

Source: Author's calculation using Annual Survey of Industries (ASI) survey data, various rounds.

Fig. 1. Annual Rate of Total Factor Productivity Growth in Formal Sectors.

informal sectors. While it is difficult to assess such an impact at the micro level and in terms of various indicators of poverty and human development, by exploring the general equilibrium impact of productivity take-offs in the formal manufacturing sectors on the informal wage and employment, this paper, according to the definition of income poverty (people are poor if they earn abysmally low wages, which is common among the informal sector workers in developing countries like India), serves to draw an inference on the well-being of the 'poor' urban workers working in the informal sectors. This works in the present context because these workers do not have to be necessarily unemployed in order to be considered poor; prevalence of very low market determined wages describes the impoverishment of those people, who are engaged in informal activities. Vertical production linkages within the domestic urban economy as well as international outsourcing (fragmentation) of production in the formal (skill-intensive) sector have been incorporated within an encompassing general equilibrium model (of production and trade) for the urban economy of a developing country like India; while regarding the factor markets, the model not only allows for having formal-informal segmentation in domestic labour markets, but also for having imperfection in the informal sector capital (credit) market to execute this crucial issue.

1.1. Some stylised facts

India experienced productivity surge in the organised urban manufacturing (formal) sectors (covered under the Annual Survey of Industries (ASI) act) over the ten-year period from 2000 to 2010 in almost all the provinces (Fig. 1).[1]

Furthermore, labour productivity in the organised formal sectors has increased fairly evenly across the provinces of India between 1989 and 2010 as revealed in Fig. 2.

However, we observe a sharp increase in real informal wages in the urban areas during this period as observed in the following figure. To construct the variables for urban unorganised informal sector in the context of the sample under consideration, data from various rounds of surveys conducted by 'National Sample Survey Organisation' (NSSO) (1989–2010) of the Government of India for Non-Directory Manufacturing Establishments (NDMEs) (not covered under the ASI act and having strong inter-linkages with the organised sectors) in the urban areas have been utilised in this paper. This paper utilises NSS surveys for 1989–90, 1994–95, 2000–01, 2005–06 and 2010–11 across twenty-seven Indian provinces for this purpose. Detailed construction of variables (including that of the real informal wage) from survey data are available in Appendices II and III.

[1] The survey data on the registered manufacturing industries across 27 major Indian states available from the Annual Survey of Industries (ASI) have been used to compute total factor productivity growth (TFPG) using the growth accounting method for the survey years 2000–01, 2005–06 and 2010–11. Details on the construction of TFPG are available in Appendix II.