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A firm-level analysis of the vulnerability of the Bangladeshi pharmaceutical industry to the TRIPS Agreement: Implications for R&D capability and technology transfer

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Abstract

This study measures the different types of vulnerability experienced by Bangladeshi pharmaceutical firms since 2005, consequent upon the Agreement on Trade Related Intellectual Property Rights (TRIPS) of the World Trade Organisation (WTO). We find that that R&D-related vulnerability was the highest in the pharmaceutical sector in Bangladesh. Cluster analysis supports this proposition as 79.8% of the sampled firms had below average levels of innovativeness. We argue that the TRIPS transition period (which began in 2005 and is to end in 2015) has not been used effectively used by Bangladesh, the most technologically advanced LDC to create a strong technological platform for the pharmaceutical industry. Also, the expected process of transfer of technology has not taken place. We recommend that the post-TRIPS industrial policy for the pharmaceutical industry in Bangladesh should be designed and delivered with a key focus to improve the R&D and innovation capabilities of the domestic firms. Moreover, the WTO must evaluate the current mechanisms underpinning developed countries-LDCs technology transfer.

Keywords: **TRIPS; patent regime; vulnerability; Research and development; innovation; technology transfer**

1. Introduction

The Agreement on Trade Related Intellectual Property Rights (TRIPS) of the World Trade Organisation (WTO) has provided special consideration to the least developed countries (LDCs), including Bangladesh, by allowing an extended transition period for 10 years (beginning from 2005). Nevertheless, they are obliged to implement a strict patent regime on the 1 January 2016. As mentioned in the TRIPS Preamble as well as in Article 66.2, the WTO has also instructed its developed country members to transfer technology to LDCs enabling them 'to create a sound a viable technological base'. Interestingly, many scholars are apprehensive of the implementation of Article 66.2 and are critical of the effectiveness of the current monitoring mechanism of the WTO. They believe that the treaty will rather thwart the growth of the pharmaceutical industry in many countries (Correa 2007; Chaudhuri 2007; Danzon 2007; Artz et al. 2010; Abbott 2011; Moon 2011).

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Under a protective regulatory regime, the Bangladeshi pharmaceutical industry has made considerable progress since 1982. Over 95% of the local demand for medicines is met by domestic firms and medicines are exported to about 80 countries (BAPI Annual Report 2012). It is argued that in the context of an integrated global economy, the implementation of this multilateral trade-related treaty in developing countries in 2005 has since then had the potential to affect the growth of the pharmaceutical industry in LDCs (the spillover effects of stronger IP protection) (Yu 2009; Abbott 2012).

In this study, we have measured the different types of vulnerability facing Bangladeshi firms to the TRIPS Agreement since 2005 to see which type of vulnerability (negative impact) is the most important and warrants immediate intervention. A cluster analysis has helped us to identify two clusters of firms based on their degree of different types of vulnerability. We have found that the cluster of firms with a higher degree of vulnerability to the TRIPS Agreement has a lower level of innovativeness and vice versa. Thus, our findings, in addition to providing key insights into how the post-TRIPS industrial policy for the pharmaceutical industry in Bangladesh should be designed and delivered, also have important implications for other LDCs. Moreover, these findings can be used by the WTO to evaluate the current mechanism related to developed countries-LDCs technology transfer, and to review its TRIPS-related considerations for LDCs.

2. Theoretical framework

2.1. The Post TRIPS-regulatory transition and innovation

The TRIPS Agreement does not only involve regime shifting, but it has also triggered firm level changes in technical expertise and innovation to maintain competitiveness. According to Van Den Bergh (2007), evolutionary economics view of technical change is the most appropriate theoretical framework for the study of transitions and innovations. In the evolutionary economics, firm level innovation efforts involving changes in routine activities and the observed path dependency are studied concurrently (Coombs & Hull 1998). 'Path dependency' means that in the absence of a supportive technological regime, in response to unfavourable changes in the surrounding environment, a firm's change in routine (adaptation strategy) is based on its own path and history. Therefore, a firm's future technological change or dynamic capability depends on its past technological change, and the firm level technological change is cumulative in nature (Nelson & Winter 2002). Therefore, it is important to know that in the absence of any supportive technological regime, what adaptive strategies Bangladeshi pharmaceutical firms are adopting through bringing necessary changes in their routine in the areas where they are more vulnerable, and what sort of innovative efforts have individual firms begun, which will be augmented in the future to comply with the TRIPS Agreement.

2.2. Measuring the post-TRIPS vulnerability of pharmaceutical firms

Although, in the economics literature, the TRIPS Agreement has been widely viewed as a source of uncertainty for the developing world (Danzon 2007; Abbott 2011; Yu 2011; Sampath 2012), there is no available empirical literature on measuring the vulnerability of an industrial sector in a LDC setting facing such a major regulatory change. Also, the quantification of vulnerability is a challenging task. However, the climate change literature is useful in understanding the methodological techniques used to measure vulnerability. Heltberg and Bonch-Osmolovskiy (2011) view vulnerability is 'a function of the risks, exposure and sensitivity to risks, and adaptive capacity' (p.5). As outlined by McCarthy et al. (2001), 'exposure' can be considered as a direct hazard or stressor, and 'sensitivity' refers to the degree of response to the hazard. Thus, the potential impact depends on exposure and sensitivity. McCarthy et al. (2001, p.8) have defined