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The impact of stronger intellectual property rights on science and technology in developing countries

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Abstract

This paper identifies some effects of the global trend towards stronger protection of intellectual property rights on developing countries, and traces related debates. Pharmaceutics, biodiversity and ethnic knowledge are critical areas of impact. 'Trade-relating' intellectual property might allow developing countries to be compensated, but incentive implementation of optimal compensation in the legislatures seems infeasible. Scientific communities in developing countries are particularly vulnerable to limitations of cooperation and access to information, resulting from stronger intellectual property rights protection, as their efforts to obtain normal science results must be considerable. Consequences of the Bayh-Dole Act and of the patenting of research tools on international scientific cooperation are analysed in this context.

JEL classification: O34, Intellectual property rights, national and international issues; O31, innovation and invention: processes and incentives; O19, international linkages to development; O38, government policy

Keywords: Patents; Development; Access; Intellectual property; Scientific cooperation

1. Introduction

The global trend towards stronger intellectual property rights that has taken place in the past two decades has progressed in different dimensions. Protection has extended from invention to discovery; from mechanical devices to living organisms (Byström et al., 1999; Chakravarthi, 1999); from privately funded research and development to publicly funded scientific and technological results[1]; from information about technology to information about scientific information (David, 2000); from industrial products and technological processes to services and financial and administrative methods (Lerner, 2000), and from 'brick' to 'click' trademarks (Bubert and Büning, 2001). Certain conceptual borders have moved accordingly. Such is the case of the borders between invention and discovery, and between natural and artificial phenomena. Some equilibria have also shifted: research that was usually published is now patented; patenting research has yielded to protection under trade secret (Lerner, 1994); and the world of open science has shrunk in favour of appropriable technology (David, 2000).

Geographically, the trend towards stronger protection of intellectual property rights has extended from developed to developing countries, affecting even pharmaceuticals and medical devices where, for several decades, many developing countries had imposed restrictions on patenting or simply refused to allow it. In some countries where pharmaceutical patents were

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[1] Bayh-Dole Act: Public Law 96-517, 6 (a), 94 Stat. 3015, 3019–3027 (1980).

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previously granted, international firms are now pressing for stronger protection schemes, sometimes involving extraordinary trade secret protection and additional enforcement provisions. Both traditional industrial products and high technology goods have been the target of efforts to strengthen the rights of intellectual property holders.

These legal framework reforms and a rapid evolution of customary government practices have been encouraged by a variety of developments in the economic and political environment of these countries. These include shifts in the international division of labour resulting from the increasing importance of high technology products in trade flows; the rules following the creation of the World Trade Organization (WTO), especially those agreed upon under the Uruguay round; and external pressures connected to the Latin American debt crisis in the 1980s and to financial reform in South East Asian countries in the 1990s (Oh, 2001). A major focus of these pressures has been on South East Asian countries (Maskus, 1997), but their effects have been felt more globally. Even specific national laws of developed countries, like the 1980 Bayh-Dole Act in the United States, allowing universities to appropriate publicly funded research results, have had an impact on the way science is carried out worldwide. The impact is particularly visible in international research collaborations involving academic institutions. At one extreme, specific research contracts in areas such as agriculture are having a wide social impact on developing countries. At the other, the effects of the new intellectual property rights (IPR) environment may be felt by projects linking scientists and teams in high-income countries with their peers in low-income countries, technology transfers, and joint ventures between universities, firms and research labs in these countries. This impact on scientific activities is amplified by the specific manner in which science is carried out in developing countries. As explained below, the effort of developing country scientists to do 'normal science' at the international level resembles in many respects that of 'exploratory research' being done in developed countries, and this makes developing country scientific communities highly sensitive to access limitations.

This paper identifies some actual and potential impacts on developing countries of the trend towards a stronger protection of intellectual property rights, and reviews some of the debates that have taken place in developing countries concerning these changes. It discusses some observations from recent Latin American experience, as illustrative of the new scenario that is emerging in regard to developing countries' participation in international collaborative research in the areas of science and technology.

2. Old debates over IPR in developing countries

Developing countries' policies and academic debate on intellectual property have followed a pendulum-like movement. Soon after the Second World War, a new perspective on the importance of technology in trade and development was created by the work of United Nations programmes (such as the Economic Commission for Latin America) and independent economists from developing countries. These analyses, which centred on technology transfer issues, concluded that developed and developing countries should take a different stance concerning the protection of intellectual property. They often stressed that situations of monopoly and oligopoly in world technology markets prevented developing countries from having fair access to technology (Cruz, 1998).

Some leading economists from industrialised countries argued in the same direction. The works of Edith Penrose, Fritz Machlup and others converged in these policy recommendations. Penrose (1951) maintained that developing countries could not expect any advantage from protecting IPR, for these were concentrated in the hands of residents of developed countries. From the point of view of global welfare, it was argued, industrialised countries would not lose much from the lack of protection in those countries and, overall, welfare would improve with low protection.

In 1970, an analysis of the Chilean experience concluded that "the legal system, in matters related to patents, is, in one way or another, favouring the inhibition of local technological development" (CORFO, 1970, p. 13). Vaitsos (1973) followed Penrose in stressing that the problem with the international intellectual property regime was that patents registered in developing countries were concentrated in the hands of residents of developed countries. He was also aware of monopoly and restrictive practices on the part of foreign patentholders in developing countries. For this author, it was a confusion to equate patent-registration with technology transfers.

Between the 1950s and the middle of the 1980s, developing countries succeeded in maintaining a special status in the international intellectual property system (David, 1993, p. 19). Regional organizations such as the Latin America Free Trade Association (LAFTA), the Andean Pact and others advanced common intellectual property policies along these lines. In 1970, India adopted a patent law with considerable restrictions on patent