

“A Critical Assessment of University Industry Collaborations for South Asian Countries”

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Abstract

Most of the developed countries economic growth and prosperity largely comes from the public investment in technical and innovative research. The thrust on research across the wide spectrum of public utility provides competitive edge to the developed countries in international market over the developing and the least developing countries. It is not that South Asian or other developing countries are not producing world class research but the approach of these countries are still focused on publishing research outcome in the scientific journals which devoid the society from yielding any direct benefits from it. On the other hand, the approach of developed countries is to translate research outcome into marketable products and encourage institutions to secure intellectual property rights on their findings. It is the US who championed in encouraging academic institutions to support and facilitate technological innovation and license it to the industry to derive maximum economic advantages from it through effective University Industry collaboration model. It's high time that South Asian countries should also start leveraging on their research in order to equip them to cater the peculiar needs of the economy and overcome the society's pressing challenges. This article is an attempt to analyze US regulatory mechanisms of University Industry collaboration and its public implication concerns. Later in this article, an assessment has also been made as to what South Asian countries can learn from the celebrated US Bayh Dole experiences without emulating it mutatis mutandis owing to the vast differences in the socio-economic and cultural differences

Introduction

In a knowledge economy, sustained economic development cannot be achieved without scientific innovation.¹ Universities and institutions are critical centrifugal forces in the process of knowledge creation and innovation. These important institutions are increasingly called upon to make direct and substantial contributions to the society and economy to foster innovation and creativity.² Therefore, the role of University Industry collaboration (*hereinafter* U-I) becomes essential in facilitating the knowledge creations. But commissioning U-I collaboration model in

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¹Yanrui Wu, *Innovation And Economic Growth In China*, Discussion Paper 10.10, University of Western Australia Business School, (2010), available at http://www.uwa.edu.au/__data/assets/pdf_file/0004/888448/10-10_Innovation_and_Economic_Growth_in_China.pdf, last seen on 25/04/2015.

² L. Worasinchai and others, *The role of knowledge flow in the Thai GUIN version of the triple helix model*, Electronic Journal of Knowledge Management, 2009, available at www.ejkm.com/issue/download.html?idArticle=182, last seen on 21/04/2015.

knowledge creation and innovation is similar to walking on the tightrope which presents both opportunities and conflict together. Consequently, it's prudent for the South Asian countries to assess and evaluate the needs and purpose of the U-I collaboration critically, in order to minimize the potential conflicts which may occur in future engagements. To accomplish this, the study of United States (*hereinafter*US) Bayh Dole Act becomes crucial, which South Asian countries are blindly importing in their respective jurisdictions without examining its implication on their different economic-cultural and social setup. This present study attemptsto analyze the issues pertaining to University Industry collaborations and long established concerns related to it, while examiningthe US Bayh Dole Act.

Anaylsis of Issues Concerning University Industry Collaboration

IPRRegime in South Asian Context

Knowledge is a public good,³ which plays a significant role in the development of country's innovation culture. To transform the South Asian region into an "emerging research hub with scientific pool and low costs",⁴ knowledge should be free from the clutches of stringent patent regime for facilitating competition through its replications. The modern semiconductors on which the whole computing exists today, also sets off many other innovations triggering worldwide competition.⁵ But the inventors of semiconductor John Bardeen, Walter H. Brattain and William B. Shockley did not receive an iota of financial values from their invention which served a greater social good.⁶

The role of IP framework in regulating the public funded research is crucial for the South Asian countries to achieve their socio economic development. Therefore, the IP framework has to be drafted in a careful and diligent manner so that it does not compromises the technological needs of the South Asian countries. IPRs protection may not be fruitful or best possible option in every situation, especially when social costs outweigh the commercial advantages. Consequently, stricter IPRs regime may hinder the access to knowledge and technologies in South Asia. A holistic approach may be considered by the Universities and Industries while taking in account the economic and social development of the region.⁷ Since, modern science were not encourage and developed by any legal protection⁸, thus, some inventions can clustered in open public

³SendhilMullainathan, *Why a Harvard Professor Has Mixed Feelings When Students Take Jobs in Finance*, The Newyork Times(10/04/2015), available at http://www.nytimes.com/2015/04/12/upshot/why-a-harvard-professor-has-mixed-feelings-when-students-take-jobs-in-finance.html?_r=0&abt=0002&abg=0, last seen on 15/04/2015.

⁴C.H. Unnikrishnan, *Proposed patent Bill is flawed, say experts*, Livemint(21/09/2009), available at <http://www.livemint.com/Home-Page/N9qJgLMFmzDto66c3mP72K/Proposed-patent-Bill-is-flawed-say-experts.html>, last seen on 18/03/2015.

⁵Supra 3

⁶Supra 3

⁷Anthony D. So and others, *Is Bayh-Dole Good for Developing Countries?Lessons from the US Experience*, 6, PLoS Biology, 2008, available at http://scholarship.law.duke.edu/faculty_scholarship/2286, last seen on 16/4/2015.

⁸PraneshPrakash and Sunil Abraham, *Does India need its own Bayh-Dole?*, The Indian Express(24/04/2009), available at <http://archive.indianexpress.com/news/does-india-need-its-own-bayhdoles-450560/>, last seen on 19/04/2015.

domains, scientific commons or pools and collective management of IPRs can be created (bundle of socially useful technologies) to obtain the greater good through inventions⁹. The summary of the above discussion is that, Universities or Institutions should use IPRs protection judiciously and sparingly to serve greater public utility or good.

Applied V/S Basic Research Debate

The applied v/s basic research is a classical debate on the issue of the U-I collaboration. It has been consistently argued by many scholars that the commercialization motives of the Universities can dramatically shift the academic research from basic towards applied research.¹⁰ Some scholars also claimed that too much emphasis on the applied research will erode the well-established tradition of open science.¹¹ Many commentators accept that the U-I collaboration enhances the competitiveness of a country but the growing involvement of industries may be pernicious to the academic activities. There is an apprehension that engagement of Industry in academics will put unnecessary limitations on the utilization of openly accessible knowledge.

The policy of commercializing the knowledge of University through Industry partnership may sacrifice the long term advantages of developing scientific inquiry and investigation for short term commercial benefits. Further, U-I collaboration constrains the academic freedom as research focus shifts from the basic research towards applied areas.¹² However, beneficial the U-I collaborations are, Universities should not withdraw or neglect the basic research for the sake of producing application research which are building blocks to the any knowledge stream.¹³ Moreover, Universities basic research opens new knowledge frontiers, which can have long lasting spill-over effects on other disciplines.¹⁴

Cultural Divide

The cultural gap between the U-I collaborations of two distinct entities can hinder the success of collaborations because these two entities have different cultural practices, value system,

⁹ Supra 7

¹⁰David C. Mowery and Bhaven N. Sampat, *The Bayh-Dole Act of 1980 and University–Industry Technology Transfer: A Model for Other OECD Governments?*, 30, *Journal of Technology Transfer*, 2004, available at <http://hdl.handle.net/2027.42/43108>, last seen on 21/04/2015.

¹¹Tina K. Stephen, *Asian Initiatives on Bayh-Dole, with Special Reference to India: How Do We Make it More "Asian?"*, 10, *Chicago Kent Journal of Intellectual Property*, 2010, available at <http://scholarship.kentlaw.iit.edu/ckjip/vol10/iss1/3>, last seen on 16/04/2015.

¹² Markus Perkmann and Kathryn Walsh, *The two faces of collaboration: impacts of university industry relations on public research*, (Paper to be presented at the Summer Conference, 2009), available at <http://www2.druid.dk/conferences/viewpaper.php?id=5886&cf=32>, last seen on 16/03/2015.

¹³Motohashi Kazuyuki and Muramatsu Shingo, *Examining the University Industry Collaboration Policy in Japan: Patent analysis*, Trade and Industry Discussion Paper Series 11-E-008, The Research Institute of Economy (2011), available at <http://www.rieti.go.jp/jp/publications/dp/11e008.pdf>, last seen on 15/04/2015.

¹⁴Ibid 3

objectives to fulfill and functions to perform at different time scales.¹⁵ On one hand, Industries give importance to the confidentiality of the research results and try to get protection of the research at the earliest possible opportunity so that they can acquire competitive advantages in the market by excluding other from utilization. Universities, on the other hand, exercise culture of openness by prohibiting the confidentiality on the outcome of the research.¹⁶ Thus, in the U-I collaborations, Universities and Industries both have to calibrate the requirements of each other through finding common grounds for developing reconciliatory approaches on secrecy, confidentiality and openness.

Analysis of United States Regulatory Framework on University Industry Collaborations

Objective of US Bayh Dole Act

The Bayh Dole Act has been regarded as the most inspired “piece of legislation to be enacted in America over the past half-century” and is “the Magna Carta for university technology transfer”.¹⁷ It was introduced in the US Congress with the intent to promote private sector and commercialize the public funded research and development by allowing the Universities to retain ownership over its generated products and processes.¹⁸ In other words, the Bayh Dole was passed with noble intent and objectives to promote the utilization of inventions by collaborating it with commercial entities.¹⁹ The idea behind this legislation was to commercially utilize the untapped valuable technological research developed by the Universities for the growth and development of the economy.²⁰ In summary, the Bayh Dole Act provides a legal framework for the transfer of public funded research, developed by the Universities which was drawing dust because of red-tapism,²¹ to the commercial production units for its utilization²² so that the results of the government funded research results can be reached to the consumers.

¹⁵Lawrence Dooley and David Kirk, *University-industry collaboration Grafting the entrepreneurial paradigm onto academic structures*, 10, European Journal of Innovation Management, 2007, available at <http://www.emeraldinsight.com/doi/full/10.1108/14601060710776734>, last seen on accessed 22/04/2015.

¹⁶ Steve Eisner, *Negotiating and Managing University/ Industry Collaborative Space Science: An Academic Perspective*, 2009, available at https://doresearch.stanford.edu/sites/default/files/documents/EC_ACINegotiatingSpaceScienceCollaborations.pdf, last seen on 13/04/2015.

¹⁷Ann Weibaecher, *Lost In Translation? The Promises and Pitfalls of Enacting U.S. Bayh-Dole Style Legislation in India*, 14, Public Interest Law Reporter, 2009, available at <http://lawcommons.luc.edu/pilr/vol14/iss2/8/>, last seen on 25/02/2015.

¹⁸Wendy H. Schacht, ‘The Bayh-Dole Act: Selected Issues in Patent Policy and the Commercialization of Technology’ Congressional Research Service 7-5700, US Congress (2012), available at <https://fas.org/sgp/crs/misc/RL32076.pdf>, last seen on 01/04/2015.

¹⁹Lorelei Ritchie de Larena. *The Price of Progress: Are Universities Adding to the Cost*, 44, Houston Law Review, 2006, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=917367, last seen on 10/03/2015.

²⁰Supra 13, at 9

²¹Gene Quinn, *Bayh-Dole: A Success Beyond Wildest Dreams*, IPWatchDog, available at <http://www.ipwatchdog.com/2013/09/15/bayh-dole-a-success-beyond-wildest-dreams/id=45171/>, last seen on 19/04/2015.

²²*The Bayh-Dole Act A Guide to the Law and Implementing Regulations*, Council of Government Relations, 1999, available at www.cogr.edu/viewDoc.cfm?DocID=151744, last seen on 09/03/2015.

The main purpose of the Bayh Dole Act was to create and manage the academic inventions.²³ The major success of the Bayh Dole Act was that it provided ownership of the invention to be retained by Universities that developed it. This arrangement allowed the Universities to have an elbow room to negotiate the terms and conditions of the licenses on their own.²⁴ Even though the Universities are authorized to grant licenses but still in exceptional circumstances, government can retain the title of the patents in a nonexclusive, nontransferable manner, which is irrevocable to protect the public interests.²⁵ Besides that, in cases of non-usage of the invention, government can grant the license to any third parties in the public interests.²⁶ Under the Bayh Dole Act, the government also has the power to withhold the patent granted to the industries if the matter is related to the national security, nuclear programmes or if the industries do not have the principle place of business in US.²⁷

Impacts of Bayh Dole Act

The proponents of U-I collaborations believe that the pre-eminent position which the US holds in technology is attributable to the U-I collaboration.²⁸ Therefore, the purpose of U-I collaboration to incentivize the academic researchers for exploiting their ideas should be nurtured as it is a goose that lays golden eggs.²⁹ However, critics of U-I collaboration model vehemently assert that there is no conclusive evidence suggesting the quantum of advancement brought to the US economic growth as what has been generally claimed by its supporters.³⁰ Moreover, critics also pointed out that the essence of U-I collaboration to drive the economic development is misplaced and overly stated as most of the economic contributions comes through the free dissemination of knowledge and discoveries.³¹ Instead of invigorating the innovation through U-I interactions, this whole system has become an automated machine of generating licenses of inventions as it has only simplified the inert bureaucratic producers³² from the quagmire web of laws which controls the ownerships³³. It only eases the cumbersome process of petition to retain the title of the public funded research.³⁴ Moreover, some observers went on to say that, to hold U-I collaborations is the only best way to transfer technology to the

²³Vicki Loise and Ashley J. Stevens, *The Bayh-Dole Act Turns 30*, 2, Science Translational Medicine, 2010, available at http://www.bu.edu/otd/files/2011/02/The_Bayh-Dole_Act_Turns_30.pdf, last seen on 22/04/2015.

²⁴Ibid

²⁵Supra 18, at 7

²⁶Supra 23, at 186

²⁷Supra 18, at 7

²⁸*Innovation's golden goose*, The Economist, available at <http://www.economist.com/node/1476653>, last seen on 12/04/2015.

²⁹ Ibid

³⁰Shamnad Basheer and Shouvik Guha, *Outsourcing 'Bayh Dole' to India: Lost in Transplantation*, 23, Columbia Journal of Asian Law, 2010, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1546403, last seen on 12/04/2015.

³¹ Supra 7, at 2082

³²Supra 11, at 5

³³ Samuel Loewenberg, *Bayh-Dole Act: A model for promoting research translation?*, 3, Molecular Oncology, 2009, available at <http://www.sciencedirect.com/science/article/pii/S1574789108001555>, last seen on 19/03/2015.

³⁴Bhaven N. Sampat, *Patenting and US academic research in the 20th century: The world before and after Bayh-Dole*, 35, Research Policy, 2006, available at <http://www.sciencedirect.com/science/article/pii/S0048733306000692>, last seen on 16/04/2015.

Universities which is a myopic viewpoint and any attempt to bring legislation on this is a regressive policy.³⁵ The policy which was enacted to give effect to develop a culture of innovation, created the culture of profit booking trumping the scientific inquiry.³⁶

It's not that U-I linkages are devoid of merits as they bring forth the opportunities to work closely on common and shared research programs or agenda. The collaboration also helps researchers of the Universities to get access to the state of art facilities, equipment and occasion to familiarize with the constraints of the industries in adapting the research.³⁷

Concerns and Conflicts

It is widely accepted that the Bayh Dole Act has played a major role in the development of industrial society and has been the driving force for the growth of US economy.³⁸ This kind of progress is unimaginable without the commercialization of the innovative technological knowledge. Therefore, the underline objective of designing this uniform policy was to transform the Universities inventions into marketable products and process.³⁹ Additionally, the Bayh Dole Act encourages cooperative and collaborative relationships among academia, government and industry to closely work together, generate new knowledge to contribute in the technological advancement of US.⁴⁰ Though this scheme of Bayh Dole Act undoubtedly offers US to derive the leaps and bounds benefits with minimal costs,⁴¹ even so, this densely interwoven and structured scheme has to face the scathing criticism from several scholars. The main criticism faced by the Bayh Dole Act is that it has fundamentally digressed the Universities from the pursuits of imparting, acquisition and dissemination of knowledge and has become the corporate research laboratory.⁴² Thus, Bayh Dole Act is only promoting the interests of commercial concerns at the expense of encumbering future research and development.⁴³

Some observer submitted that, although, the Bayh Dole Act was only instrumental in intensifying the patenting of the research and licensing, it was not a revolutionary idea in itself, since, the cooperation between U-I collaboration was a regular phenomenon even before the introduction of Bayh Dole Act⁴⁴ albeit the commercialization of the inventions and new

³⁵Supra 8

³⁶Supra 33, at 91

³⁷ Jamal Nazrul Islam, Haradhan Kumar Mohajan and Rajib Datta, *Organizational models in university-industry collaboration: international perspective*, 3, International Journal of Economics and Research, 2012, available at <http://mpira.ub.uni-muenchen.de/50700/>, last seen on 03/04/2015.

³⁸Supra 18, at 15

³⁹Supra 18, at 2

⁴⁰ Supra 18, at 4

⁴¹Supra 23, at 186

⁴² Janet Rae-Dupree, *When Academia Puts Profit Ahead of Wonder*, The Newyork Times (06/09/2008) <http://www.nytimes.com/2008/09/07/technology/07unbox.html?pagewanted=all&_r=0> accessed 4 February 2015

⁴³Supra 19, at 6

⁴⁴ David C. Mowery and others, *Ivory Tower and Industrial Innovation: University Industry Technology Transfer before and after the Bayh Dole Act*, (Stanford University Press, 2004)

technologies remains quite low.⁴⁵ The Bayh Dole Act has only systemized the whole mechanism which brings more uniformity and clarity in the U-I partnership.⁴⁶ Many commentators also argued that the Bayh Dole Act was only a catalyst in the increasing patenting activities, otherwise patenting and licensing would have been carried out even without the enactment of Bayh Dole Act, especially in those Universities and institutions which have a broad research base.⁴⁷ Moreover, the impact of Bayh Dole in propelling innovations is mostly concentrated in the life sciences and bio-medical sectors and the commercially significant advancement in other sectors comes from the basic science researches.⁴⁸ So, the portrayal of Bayh Dole Act as a catalyst in furthering the innovation culture in US and its economic contribution⁴⁹ is a mere exaggeration.⁵⁰ In late 1980's US has started IPRs as having enhanced economic value therefore, in that series Bayh Dole Act was only a policy shift and nothing else.⁵¹

In the contemporary world, Universities play a key role in reinvigorating the economy but imposing strict restriction on intellectual scientific inquiry for the sake of attracting significant investment will unnecessarily diminish the social returns of the public funded research.⁵² As far as getting a competitive edge in the global market is concerned, some observers have argued that by putting the findings of the Universities research in public domain or licensing at nominal price can generate knowledge spillovers.⁵³ The knowledge spillovers are in itself enough to precipitate the competition for the extensive application of the research.⁵⁴ However, supporters of the Bayh Dole Act have emphatically argued that those who are questioning the usefulness and viability of the Bayh Dole Act should take a look at the contributions of Bayh Dole Act to the US economy.⁵⁵ Bayh Dole Act has generated \$836 billion from 1996 to 2012 to US GDP and supported 3 million jobs from 1996 to 2012. Besides that, more than 8,778 companies have been established to develop the products from research of Universities R&D, since 1980. Even in the fiscal year 2013, more than 800 start-up companies were formed to utilize the Universities

⁴⁵ *Research and Innovation Issues in University-Industry Relations*, WIPO Background Information Document, World Intellectual Property Organization, 2002, available at <http://www.wipo.int/export/sites/www/sme/en/documents/pdf/fp6.pdf>, last seen on 16/04/2015.

⁴⁶ Supra 44

⁴⁷ David C. Mowery, *The Effects of the Bayh-Dole Act on U.S. University Research and Technology Transfer: An Analysis of Data from Columbia University, the University of California and Stanford University*, 30, *Research Policy*, 2001, available at <http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.23.7017>, last seen on 05/04/2015.

⁴⁸ Supra 10, at 116

⁴⁹ Supra 10

⁵⁰ Karthy Nair and Balu Nair, *Protection and Utilisation of Public Funded Intellectual Property Bill 2008 – A Critical Analysis of the Indian Bayh-Dole Act*, 2, *NUJS Law Review*, 2009, available at <http://nujlawreview.org/wp-content/uploads/2015/02/karthy.pdf>, last seen on 06/03/2015.

⁵¹ Supra 47, at 16

⁵² Supra 47, at 30

⁵³ Debarshi Dasgupta, *Whose Test Tube Babies?* Outlook, available at <http://www.outlookindia.com/article/whose-test-tube-babies/237865>, last seen on 21/04/2015.

⁵⁴ Supra 47, at 10

⁵⁵ Supra 21

research which is reflection of its success.⁵⁶ Nevertheless, the independence of Universities and Institutions to share knowledge, techniques, findings and results freely have been inhibited for the sake of promoting collaboration between academia and industry and maintaining competitive edge in the market.⁵⁷ The importance and relevance of Bayh Dole in creating employment and economic development is unquestionable.⁵⁸ Though the creation of new and improved products and services give rise to entire fleet of small and medium scale industries⁵⁹, it also opens the Pandora box of numerous conflict of interests issues, diverting the attention of the Universities from its core objectives while giving excessive emphasis on Industries immediate needs rather than basic research which cannot be ignored altogether.⁶⁰

These concerns are not without any merit, especially when the estrange voices are coming from the very same people who are being incentivize and entrusted with research and development of inventions.⁶¹ The public interests implications safeguards should be expressly specified into U-I collaboration policy to desist any brazen commercialization of Universities research. The unintended public consequences of the U-I collaborations polices if addressed properly and adequately may herald the most constructive collaborations of 21st century.

Learning for South Asian Countries

It is noteworthy that at the time of the US Bayh Dole Act enactment, few US Universities were already producing good amount of research but were generally dumped at the darkest corner of the libraries and laboratories.⁶² It is interesting that even before the enactment of Bayh Dole Act, some Universities and Institutions were commercializing the inventions.⁶³ The concern of unused public funded research brewed in the minds of the legislators and for utilizing the untapped scientific research so as to make it available to the public, led the US Government to adopt the U-I collaboration policy.

In the light of US situation prevalent before the adoption of Bayh Dole Act, it becomes necessary to examine whether this kind of policy alone can galvanize the innovation environment in South Asian countries, especially when either handful of institutions are engaged in research or only few institutions in the whole region have adequate infrastructure and facilities to conduct

⁵⁶Gene Quinn, *Flawed survey erroneously concludes patent licensing does not contribute to innovation*, IPWatchDog, available at <http://www.ipwatchdog.com/2015/02/22/flawed-survey-erroneously-concludes-patent-licensing-does-not-contribute-to-innovation/id=54985/>, last seen on 22/04/2015.

⁵⁷Supra 42

⁵⁸David Winwood, *The Importance of Patents and Academic Technology Transfer*, IP WatchDog, available at <http://www.ipwatchdog.com/2015/03/26/the-importance-of-patents-and-academic-technology-transfer/id=56081/>, last seen on 22/04/2015

⁵⁹ Ibid

⁶⁰Supra 18, at 13

⁶¹Supra 33

⁶²Supra 11, at 12

⁶³Supra 11, at 5

sophisticated high end research.⁶⁴ Moreover, the apprehension that the interference of industry in educational pursuits and abdication of educational responsibilities will severely impact the scientific integrity is being repeatedly raised.⁶⁵ The concern that the culture of secrecy attached with the U-I collaboration to protect industry's commercial interests will certainly delay the publication of its results and outcomes,⁶⁶ may severely impact the long term scientific progress and innovation pursuits.⁶⁷ In this context, the moot question arises that whether the South Asian countries require any such policy in current situation or is it the right time to have such policy.⁶⁸

The Bayh Dole Act is certainly helping US industries by giving competitive advantages to the economy but given the widespread inefficient vagaries and scarce resources, South Asian countries should be extremely cautious and careful in adopting any U-I collaboration policy. South Asian countries should also take into account the criticism leveled against US Bayh Dole Act before formulating the U-I collaboration policies, in order to minimize its unintended consequence on other areas of public interests. Besides that, to prevent U-I collaboration from becoming stumbling block for future innovation, it's indispensable to incorporate the suggestions of various stakeholders of U-I collaboration policy.⁶⁹ These many small steps along with others recommendations, if considered by the South Asian countries can go in a long way to address the anxieties of public interests and welfare which may emerge from the U-I collaborations.⁷⁰

To compete in the intense competitive world market, South Asian countries as a matter of policy should encourage and promote creativity in their respective countries.⁷¹ For that, South Asian countries should also protect the R&D results by developing a broad and liberal IP framework. But at the same time, this protection should not deny any stakeholder's legitimate rights to access that research products or process in the larger public well-being.⁷² South Asian countries should rigorously examine merits and demerits of the US Bayh Dole Act in order to reconcile the competing social costs and commercial interests. To distribute the fruits of public funded research findings and outcomes to the society at large, the emerging economies of South Asia should minimally exercise the option of granting exclusive licenses, rather emphasis should be given on granting non-exclusive licenses to the interested parties for its wider dissemination.

The Bayh Dole Act has made enormous contribution to the society and economy of US. The contributions in the area of life sciences, pharmaceuticals, food processing, software engineering,

⁶⁴LathaJishnu, *Does India need a Bayh Dole Act?* Business Standard (9/7/2008), available at http://www.business-standard.com/article/opinion/latha-jishnu-does-india-need-a-bayh-dole-act-108070901030_1.html/, last seen on 11/04/2015.

⁶⁵Supra 18, at 18

⁶⁶Supra 23, at 190

⁶⁷Supra 18

⁶⁸Supra 4

⁶⁹Supra 4

⁷⁰Supra 4

⁷¹ShamnadBasheer, *Mysterious Indian "Bayh Dole" Bill*, Spicy IP Blog, available at <http://spicyip.com/2008/07/mysterious-indian-bayh-dole-bill.html>, last seen on 01/02/2015.

⁷² Ibid

health and security are immeasurable. The development of world's best cutting edge research was unthinkable and unimaginable without the contribution of the US Universities research and contribution.⁷³ And the Bayh Dole Act has helped the Universities in realizing it. However, given the peculiar state of affairs in South Asia, countries should institutionalize various safeguards and safety valve mechanisms to prevent Universities from transforming into commercial entities.

Although, US Bayh Dole Act is a comprehensive piece of legislation to look upon but South Asian countries should refrain from blindly emulating it in its present form given the socio-economic and cultural realities of their respective countries. Indeed, Bayh Dole Act was enacted to facilitate the protection of public funded research accomplished by US Universities and Institutes.⁷⁴ But, it was envisaged in a different cultural context and societal needs therefore, before transplanting this Act into domestic legal systems it must be necessarily modified to construct optimal regulatory U-I collaborations regime suitable to the needs of South Asian countries respective society and economy.⁷⁵

The South Asian countries continuous and robust economic growth in the past decades has changed their mindset to orient the economy's outlook from import to an export based economy. The blind emulation of Bayh-Dole Act by South Asian countries may not automatically facilitate technology transfer and spur scientific innovation, as anticipated.⁷⁶ Rather, to borrow the policy instruments of the US higher education system, in all likelihood may prove to be inefficient and ineffectual.⁷⁷ The scholars have explained that the emulation of Bayh Dole Act is likely to have modest success in developing countries due to the underlying contextual differences between the US higher education system and the imitating countries.⁷⁸

When the economic impacts of the U-I collaboration are still questionable and the apprehension that Universities' mission to disseminate the research findings to public, may become subservient to commercial interests,⁷⁹ South Asian countries should assess the viability, relevance and appropriateness of the U-I collaboration before adopting it in their distinct socio-economic and cultural context.⁸⁰ Even afterwards, if South Asian countries, deems it fit to have U-I collaboration policy to compete with global standards, U-I collaboration, in that case should institutionalize various public safeguards and measures in its policy so that public funded research can be conducted and managed in the interests of public welfare. Alternatively, to protect the public interests, South Asian countries can adopt a more evolved Bayh Dole type

⁷³Supra21

⁷⁴Supra30, at 272

⁷⁵Supra30, at 272

⁷⁶Supra 7, at 2082

⁷⁷Supra64

⁷⁸Supra 10

⁷⁹Supra64

⁸⁰Jaidar Vega Jurado, Ignacio Fernández de Lucio and Ronald HuancaLópez, *University-industry relations in Bolivia: implications for university transformations in Latin America*, 56, Higher Education, 2008, available at <http://link.springer.com/article/10.1007%2Fs10734-007-9098-9>, last seen on 20/04/2015.

legislative policy which encourages and promotes open source research and grant non-exclusive licenses as a matter of policy.⁸¹

Conclusion

U-I collaborations are important instruments in fostering the overall economic and social development of South Asian countries. To combat pressing challenges of globalization in the different areas of economy and society, U-I collaborations are imperative and desirable, especially for South Asian countries which are far behind in the index of technological development. It is the scheme of U-I collaborations that to a great extent reduce the technological gap between South Asian countries and developed countries, thereby providing excellent opportunities to efficiently exploit the research, lying in the laboratory or library. But the whole collaboration processes should not undermine the well founded legitimate concerns which may jeopardize the public interests. For diffusion of innovation, South Asian countries can draw lessons from the experiences of the US Bayh Dole Act. However, countries should be wary of blindly emulating as it was enacted to cater different socio-cultural needs and requirements.

⁸¹Supra 53