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A Case Study of Innovation and Economic Growth in India

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Abstract

Objective of this research is to find out the function of innovation in the financial increase of India. Research Methodology- This lookup defines innovation that consists of each manufacturing of progressive items and services, and the revolutionary system of producing items and services. World Bank's information financial institution is the important source of this study. Time collection facts have been used to learn about the variables. In this find out about to recognize the monetary growth, GDP increase Rate, GDP per capita boom Rate, and for Innovation R&D Expenditure, Education Spending rate, and Patent purposes variables have been used. Conclusions- According to the end result as Indian economic system will develop monetary it will minimize the R&D Exp, it will limit the training spending, it will limit the FDI, and it will additionally limit the no of patent purposes filed in India. This bad correlation raises the questions to the coverage maker. These questions additionally open the door of future lookup in this field.

Keywords- Innovation, Economic growth.

INTRODUCTION:

The current records looks to exhibit us that innovation is one of the most vital elements for monetary growth. History explains us that financial boom was once continually a intention for human beings, for a society and for a nation. The ride of invention from wheel to web demonstrates how people are thriving in the direction of innovating new goods, new services, and new manufacturing manner as well. Innovation of new merchandise or manufacturing methods is fundamental to a country's long-term monetary boom and greater preferred of living. Today developed nations spending on lookup and improvement is greater than the growing and underdeveloped countries. That's the one of the predominant using pressure that makes developed nations greater developed and chief countries, compere to the different international locations these are the follower countries. To turn out to be a chief country, lengthy time period sustainable monetary boom is one of the most favored intention for any country. A us of a can obtain this aim with the aid of growing the output of the country. GDP is the size of a international locations output in a given duration of time commonly it is one year.

There is some controversy about GDP as a dimension of financial boom however nonetheless this paper acknowledges that GDP is a size of the financial growth. In order to extend the GDP there are two ways: (1) via growing the no. of inputs that we use into the manufacturing process. (2) By growing the productiveness of inputs. Productivity can be elevated by using innovating new merchandise or by means of innovating new manufacturing processes. Essentially what Abramowitz did used to be to measure the increase in the output of the American economic system between 1870 and 1950.

Then he measured the increase in inputs (of capital and labor) over the identical time period. He then made what had been idea to be life like assumptions about how tons a increase in a unit of labor and how a lot a increase in a unit of capital need to add to the output of the economy. It grew to become out that the measured increase of inputs (i.e., in capital and labor) between 1870 and 1950 may want to solely account for about 15% of the true boom in the output of the economy. In a statistical sense, then, there used to be an unexplained residual of no much less than eighty five percent (Nathan Rosenberg, OECD, 2004)

This lookup paper pursuits to analyze the position of innovation in financial boom of India. It is challenging to measure the innovation however there are some variable that can provide an explanation for the innovation of a us of a like no. of patents, technological advance, spending in education. This lookup paper explains innovation by using inspecting no. of Patents software crammed in the time period, spending on education, and R&D spending. Because no. of. Patents filed helps innovation development, and maintain an economic system in the direction of innovating and growing productiveness and gain lengthy time period monetary growth. Also, if a usa spending on training AND spending ON R&D will increase it will extend the labor productiveness ultimately. This lookup paper supposed to make some coverage advice that can assist lengthy time period sustainable increase of India.

A alternatively new factor which has no longer been dealt with in depth in economics literature is the function of technical requirements for financial growth, even though the significance of technological things to do as an fundamental determinant of the financial overall performance of industrialized economies is normally stated today. In contrast, the function of the patent device in financial boom obtained larger attention, starting with Nordhaus (1969). Blind, K., & Jungmittag, A. (2008).) Ortiz-Villajos, J. M. (2009). Performed a quantitative evaluation on the relationship between science and monetary improvement of over twenty international locations from the opening of the nineteenth century until the stop of the twentieth century. He located a excessive correlation between patents and per capita earnings and approves the advantageous impact of technological innovation on financial development to be seen. Ortiz- Villajos, J. M. (2009).

He additionally observed regressions between the time collection of patent purposes in Spain between 1826 and 1985 and some financial variables point out in comparable trend that there is a tremendous correlation between each variables, specifically between patents and Gross Fixed Capital Formation.

However, it is hard to measure the innovation and its impact on the monetary growth. But no of patent rights and improved lookup and improvement spending can provide an explanation for the financial increase of the country. Bronwyn H. Hall, (2005) mentioned in his paper that has set up a number of records about adjustments in the patenting conduct of U.S. companies all through the past twenty years, some greater exactly and robustly than others. First, there is clear to the right-hand aspect variables. 15 proof of a structural shift to a greater boom charge in standard patenting in the United States between 1983 and 1984, one that is pushed for the most phase by means of U.S. firms, however with some contribution from Asia and Europe. Second, this shift is generally accounted for by way of corporations in the electrical and computing technological know-how sectors, though patenting by means of U.S. inventors has risen in all science classes. Although R&D has additionally accelerated in this sector, this can't give an explanation for the measurement of the extend in patenting.

Chen, M. X., & Iyigun, M. (2011) explored the hyperlink between the most beneficial patent size and monetary boom and locate that the equilibrium funding in technological know-how improvement and therefore the predicted fee of technological growth showcase an inverted U-shape relationship with appreciate to the prison patent length. Chu, A. C. (2010) analyzed the results of patent coverage on increase and inequality; it developed a quality-ladder mannequin with wealth heterogeneity and elastic labor supply. The mannequin predicts that strengthening patent safety will increase (a) monetary boom through stimulating spending on lookup and improvement and (b) earnings inequality via elevating the return on assets. The boom of output relies upon no longer solely on productiveness growth, however additionally component accumulation. Some increase accounting research show that increase in bodily capital money owed for a giant share of the boom in output, even in developed countries.

OBJECTIVE OF THE STUDY

- To search the role of innovation in the economic growth of India.

RESEARCH METHODOLOGY

This Research is examining the impact of innovation on financial boom of India. Time body of this paper is 15 years information from 1996 to 2011. The time framework for this evaluation is the decade of the 1990s. Because from an financial factor of view, this yr represents the upward shove of the so-called "New Economy". Equally, the Canadian authorities (2002) describe the "New Economy" as "an Economy that is producing or intensively the use of progressive or new technologies."6 From this definition, one can without problems see that the significance of innovation in monetary increase of a country.

It was once tough to locate the facts earlier than the chosen time body due to the fact of lack of the resources. World Bank information financial institution as the main supply of this lookup paper. Some variables had to drop off from this find out about due to the fact of lack of records these variables are spending on infrastructure, spending on technological develop and capital accumulation. To measure the increase of India, main variables are in this find out about are GDP boom price and Per capita GDP increase rate. R&D spending as a share of GDP, spending on training as a% of GNI, and no. of patents software filed are the variables to measure the effort of India and the impact of that effort on financial boom of India. This paper makes use of the NO. Of patents utility filed variable to find out about the boom of innovation in India. Tabel-1 represents all the variables used in the find out about and their explanation.

TABLE NO 1: THE VARIABLES USED IN THE MODEL

Indicator	Explanation
GDP Growth	Annual percentage growth rate of GDP based on constant local currency.
GDP Per Capita Growth	Annual percentage growth rate of GDP per capita based on constant local currency.
R&D Expenditure:	Expenditures for research and development are current and capital expenditures (both public and private)
FDI	Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP.
Education expenditure (% of GNI)	Education expenditure refers to the current operating expenditures in education, including wages and salaries and excluding capital investments in buildings and equipment.
Unemployment	Unemployment refers to the share of the labor force that is without work but available for and seeking employment.

To analyze the relation between monetary boom and innovation in one mannequin has been used the place the established variable is the GDP increase rate. The others variables have been protected in the evaluation as impartial variables. GDP Growth: GDP increase charge is the actual increase charge of gross home merchandise from one yr to the different in India's economy. This is a right proxy variable for financial increase of an economy in a given duration of time.

GDP Per Capita Growth: GDP per capita increase is the dimension of an economies general of living. There need to be fantastic correlation between GDP increase price and GDP per capita increase fee however as in India populace is developing unexpectedly it is vital to reflect on consideration on each to measure proper monetary boom of the economy.

R&D Expenditure: The dimension of R&D expenditure as a share of GDP is a proxy for the depth of the R&D in an economy. A greater fee of this variable suggests higher subject to kingdom related to the technological development. This indicator, must be substantial and positive, as it is "an engine" of financial and innovation increase of an economy. Education expenditure (% of GNI): Education expenditure (% of GNI) is a proxy variable for innovation in the economy. As spending on training will increase it will increase the training degree in the economic system that leads toward extra innovation.

Unemployment: Unemployment is considered a manipulate variable in this model, assumed to be drastically and inversely correlated with each financial increase and innovation. The degree of the overseas direct funding in GDP is a proxy for the hobby of overseas traders of a state. A excessive cost suggests a secure economic system that can furnish a favorable enterprise environment. We count on that this indicator is additionally notably and immediately correlated with the two structured variables.

The descriptive data of these variables for India for the length 1996-2011 can be observed in the Table two This desk indicates the descriptive data of the variables used in the mannequin to analyze the relationship between monetary boom and innovation.

Descriptive Statistics	Variables					
	GDP growth	R&D Exp	Education	FDI	Unemployment	GDP per capita growth
Mean	7.03	0.75	3.49	1.35	4.03	5.30
Standard Error	0.57	0.01	0.13	0.21	0.07	0.58
Median	7.70	0.74	3.30	0.97	4.04	5.80
Standard Deviation	2.31	0.06	0.53	0.87	0.28	2.35
Sample Variance	5.35	0.00	0.28	0.76	0.08	5.56
Kurtosis	-1.46	-0.85	-1.17	1.01	-0.49	-1.43
Skewness	-0.28	-0.27	0.55	1.23	-0.56	-0.23
Range	6.45	0.21	1.51	3.08	0.90	6.73
Sum	112.50	12.01	55.89	21.72	64.50	84.81

TABLE NO 2: VARIABLES DESCRIPTIVE STATISTICS

SOURCE:DATAFROMDATABASE:WORLDDEVELOPMENTINDICATORSWORLDBANK)

The R (.99) explains that there are robust high quality correlation between structured variable (GDP increase rate) and different unbiased variables used in the analysis. Lower P cost suggests the value of the model. However poor coefficients of the R&D Exp, Education, FDI, and Patent purposes are surprising. That potential if the Indian economy's monetary boom fee will expand it will reduce the R&D Exp, it will reduce the schooling spending, it will minimize the FDI, and it will minimize the no of patent functions filed in India. That looks unrealistic. All the above 4 variables supposed to be positive. I am accepting this mannequin due to the fact lower P fee capacity mannequin is significant. However this paper raises many questions.

CONCLUSIONS

Innovation is a key of a nations financial increase and allocating cash toward lookup and improvement and schooling can beautify lengthy time period sustainable financial increase of India. India can be a chief county as a substitute of a follower united states of America by means of growing the innovation. To attain this aim fundamental focal point ought to be greater training spending and R&D spending that will extend the productiveness of India in

future. But this lookup paper model's end result is now not as expected. Result explains that India's boom is now not pushed through innovation as it is the case for many developed economies. According to the end result as Indian economic system will develop monetary it will limit the R&D Exp, it will limit the schooling spending, it will reduce the FDI, and it will additionally minimize the no of patent purposes filed in India. That raises the query is this financial increase will be sustainable or simply a momentary phenomenon.

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