

## Economic Contribution and Performance of Technology Parks in Punjab: The Case of IT Park Mohali

**Dr. Vikram Chadha**

Professor,  
GNDU,  
ASR

**Gurpreet Kaur**

Research Scholar,  
GNDU,  
ASR

### **Abstract**

Several countries have adopted different strategies, industrial policies, and models for promoting industries by their technological capability. The concept of Technology Park is one of the steps towards the enhancement of industries that include the development of clusters, creates knowledge based industries, promote regional development and also enrich the standard of living of the people. The paper discusses the economic contribution and performance of Technology Parks in Punjab. The study is based on the case of IT Park, located at Mohali district of Punjab. The Correlation Coefficient was applied for finding the relationship between tax incentives benefits given and generated employment opportunities, capital investment and sales of IT products. A significant and highly positive relationship noticed among the mentioned economic components, which mean that the incentives are given to the entrepreneurs for promoting IT Park were more compensated by way of promoting employment opportunities, sales, and capital investment. Further for evaluating the performance of IT Park particularly in generating employment, sales, and productivity, Chi-Square Test was applied. The results revealed that IT Park proved to be a significant trial by the state government for promoting cluster development as well as regional development.

**Keywords:** Economic Contribution, Performance, Technology Parks, Punjab.

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### **Introduction**

Technological Innovation is an important component which endorses productive variations in the quality and quantity of knowledge through the procedure of development and advancement that further facilitate prompt changes in the economy and generate long- term economic growth (Ibrahim.et.al,2008). Investment in technological innovation leads to increase in production that invigorates the economic growth and promote higher living standard. Innovation performs a significant base of economic growth and sustainable development and an essential component for edifying infrastructure and generating employment opportunities. The concept of innovation focuses on technological innovation that includes the diffusion of new products, services, new marketing techniques, advanced approaches to communication and positioning (Aubert, 2005).

In today's competitive world, industries need to exploit new ideas, by empowering new innovation for the development of enterprise, by

introducing high-value added products and services that spur the industrial competitiveness in the global market (Gatti, 2010). Generally, technology and innovations perform a significant function of economic growth and sustainable development to promote industrialization. In this regard, Technology Parks would give a new level to industries by inducing new enterprises, and also create an environment for national and international firms to interact with each other and exchange knowledge and technology for mutual benefits (UNIDO, 2012).

According to International Association of Science Parks, "Technology Park is an organization managed by specialized professionals, whose main aim is to increase the wealth of its community by businesses and knowledge-based institutions. To enable these goals to be met, a technology park stimulates and manages the flow of knowledge and technology amongst universities, R&D institutions, companies and market; it facilitates the creation and growth of innovation-based companies through incubation and spin-off processes, and provides other value-added services together with high-quality space and facilities". Technology Parks are platforms for promoting technology-intensive industries, a measure for generating high-quality job opportunities and an initiative for providing high-quality facilities and services for high-technology industries (UNIDO, 2005). Following are the benefits of such Parks for economic growth in any particular country:

- Creating a world-class physical facilities and preemptive support services for attracting national and multi-national companies that nurture the growth of knowledge-based technology – intensive specific industries;
- Establishing and encouraging new technology-based firms and stimulate the growth of existing firms by expanding and dispersing the technology;
- Increasing growth potential and encourage competitiveness among the SME's by facilitating with various incentives and services for generating technology innovation & employment; and
- Developing a management strategy that enhances linkages between tenants and the firms, research institutions and universities (UNIDO, 2005).

The phenomenon of technology parks was originally conceived with the aim to increase profitability by commercializing the university research and expanding entrepreneurship in the country. The idea became increasingly important, and with the collaboration of American companies and universities, in 1950 the first science park "The Stanford Research Park" in California (Silicon Valley of USA) generated a wave in the economy. Taking inspiration from Silicon Valley, four other projects

including Research Triangle Park came into existence. With the time, an effective role of Technology Park has proved to be successful in attaining the attention of other countries.

After the success of Technology Parks in the western region, the countries from Asia-Pacific for accelerating their economy by utilizing their scientific and technological capacity have shown their interest in the development of Technology Parks. Other countries like France, United Kingdom, Belgium, Japan, Korea, Taiwan, China, India etc. have adopted the concept of Technology Parks with the intention to lift the local economy and regional development, encouraging cooperation and flow of knowledge among firms within and outside the country and academies, creating job opportunities, generating innovation and attracting foreign investment (Mangrio, 2013).

In the year 1990, India also took initiative by developing Software Technology Park in the country and with the success of software industry, the central government motivates to set its focus on technology parks in sectors like biotech, food, textile other than software by introducing several schemes for the same in different regions of the country (Vaidyanathan, 2008). Taking inspiration from other states and following the strategy of technological dynamism, encouragement to entrepreneurship, giving a new look to industries the state of Punjab also took initiative for the development of Technology Parks. In order to speed up economic growth and upgrading the productivity of IT sector, the government of Punjab has inducted development of IT Park in SAS Nagar (Mohali) city. The present study aims at analyzing the growth, economic contribution and performance of IT Park Mohali. The study is divided into three sections. The section I, studies the characteristics of IT Park through its business activities, growth trends of various economic components. Section II, deals to find the economic contribution of IT Park in Punjab Economy and Section III tests the performance of IT Park Mohali.

#### **Data and Methodology:**

For this study, the primary data was collected through a survey of IT Park located in Mohali district of Punjab. The selection of IT Park has based on the reason that IT Park was the first initiative by the state government in Information Technology Sector. Though one of the centers of STPI is also located in Mohali but it was an initiative the central government. There were total thirty-nine firms located in IT Park of Punjab, out of which thirty-five (89%) firms have shown their interest in providing information. Similar kind of response rate has found in studies of Research Park UK(21 firms) and Technology Parks of Malaysia (22 firms) (Malairaja and Zawdie, (2008); Vedovello (1997)). The designed questionnaire tried to find the information about their business activities, their market (domestic oriented,

export-oriented or both), growth trend of firms in terms of units, employment capital investment, production, and sale. The data was collected for the period of 2008 to 2014.

To estimate the growth in variables over time, the growth rate has been estimated using semi-log linear relationship. In order to study the pattern, compound growth rates have been used. For doing so, we estimate the exponential relation:

$$Y_t = ab^t e^{\mu t}$$

Transforming the equation in linear form:

$$\log Y_t = \log a + t \log b + \mu t$$

$\log Y_t$  = value of dependent variable, whose growth rate is to be computed.

$t$  = trend/time variable.

$\mu$  = stochastic disturbance term a & b are constant.

From the estimated value of regression co-efficient 'b' the compound growth rate was calculated as follows:

$$r = \text{antilog}(b-1) * 100$$

Where,

r = compound growth rate, b = estimated value of the ordinary least square (OLS).

The Correlation Coefficient Analysis has been used for testing the relationship between tax incentives offered to the units located and economic receipts generated in the form of promoting capital investment, sales and employment opportunities, For this the hypothesis was set:

**H0**= No Correlation between tax incentives and economic receipts of IT Park.

**H1**= Correlation between tax incentives and economic receipts of IT Park.

The hypothesis was test at 5 percent level of significance.

Further for testing the performance of IT Park, information was gathered regarding growth trends of firms after they were start operating in IT Park. Sale, Employment and Productivity were used as the indicators of growth. On the basis of firm level data ordinal series has been generated in the form of whether it increases decreases or same and the Chi-Square Test was used for testing the performance. For preparing three-way tables, Chi-Square is defined as:

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

Where O= Observed Frequency, E= Expected Frequency

This calculated value of Chi-Square was compared to the tabulated value of Chi-Square at (c-1) (r-1) d.f, and results were interpreted accordingly.

### Section I: Characteristics of IT Park:

Punjab, which saw its re-organization as a state in 1966, continued to remain basically an agricultural state, with a much less developed manufacturing sector. After partition, most of the skilled labor in leather; sports goods and textile sectors, went to Pakistan; while most entrepreneurs and managers shifted to India. But Punjab, being a land-locked state could not exploit trade opportunities and hence to stimulate its manufacturing. That's why manufacturing in Punjab mainly remained small scale and that too in few traditional low-value-added industries like wood products; rubber and plastics; hosiery and woolen textiles; cycle and sewing machine parts etc. Some engineering goods like hand tools and machine tools and steel manufacturers did emerge; but due to anachronistic techniques and lack of state support and assured markets, these industries could not develop on its own, resulting in their minuscule contribution to the state domestic product (Chadha and Kaur, 2015).

Punjab needs structural transformation led by the interdependence of investment and technological progress enhances the importance of industries. For structural transformation in the economy, Punjab took initiatives of building up specialized Technology Parks for different industries for stimulating the industrial growth for increasing capital investment, diversifying as well as generating employment opportunities for skilled and trained workers, attracting foreign direct investment in the state, encouraging entrepreneurship and transforming the low value added industries into high value-added industries (Chadha and Kaur, 2015).

For the sustained development of the economy of Punjab and giving more emphasis to the development of IT sector, the state government has requisite conducive investment environment to fuel entrepreneurship through the process of innovation. In order to speed up economic growth and upgrading the productivity of IT sector, the government of Punjab has inducted development of IT Park in SAS Nagar (Mohali) city. The Park is mainly located in Sector 67 of the city and is spread over 15 acres of land. Mohali has risen to become IT hub of the state with major technology-based companies like KMG Infotech, IDS Infotech, Seasia Consulting etc. (Punjab Infotech, 2014).

Further, this park provides facilities for 24 x7 uninterrupted power supply to various IT companies, through industrial power feeder. The IT Park has designed for promoting IT business, increasing competitiveness among IT firms and attracting foreign investment for cultivating economy of Punjab. The IT Park in this state is developed according to the availability of required infrastructure, public utilities, facilities of training, support services for entrepreneurs and tenants, for generating productive ground for the growth of industries. At present, there are around 35 companies located in this Park.

The Technological changes in the process of industrialization are considered as an effective step towards the development of industrial characteristics. These characteristics include the structure of product composition and area of specialization. The area of specialization of the firms is classified in the product, services and both product and services. Table 1 reflects that in the initial period the maximum share of the firms was in the product development

activities, yet later this share tumbles to 25.72 percent only and by the year 2014 huge firms were in service activities and other firms roughly half were involved in the specialization of the product only and product as well as services. The low capital requirements and marketing skills would be the major reason behind this float towards the service activities.

**Table 1, Area of Specialization of Operational Firms (%)**

Area	2008	2009	2010	2011	2012	2013	2014
Product	41.67	38.51	27.78	24.15	26.48	25.72	25.72
Services	33.33	38.51	33.33	48.27	44.11	45.71	45.71
Product & Services	25.00	23.08	38.89	27.58	29.41	28.57	28.57
Total	100	100	100	100	100	100	100

Source: Data Generated from Field Survey of IT-Technology Park, Mohali.

The firms in IT Park perform in a different mode of activities like offshore, onshore or both, depending upon the area of specialization and other capabilities of the firm. From table 2, it is observed that throughout the study period about 62.85 percent of the trade has been done onshore and rest offshore

and both offshore and onshore. The industrial policies do not differentiate among the firms in terms of their activities. Under such circumstances, most of the firms have resort to onshore activities, which require relatively less investment.

**Table 2, Distribution of Activities of Firms (%)**

Year	2008	2009	2010	2011	2012	2013	2014
Onshore	58.33	50	52.63	66.66	66.66	62.85	62.85
Offshore	16.66	21.42	15.78	10	9.09	11.42	11.42
Onshore and Offshore	25	28.57	31.57	23.33	24.24	25.71	25.71
Total	100	100	100	100	100	100	100

Source: Data Generated from Field Survey of IT-Technology Park, Mohali.

The Information Technology Parks are extremely dynamic by nature and hold tremendous opportunity for further expansion of software industry as per developing interest and growing demand of the world. The firms operating in IT Parks perform major two types of activities that include product development activities and commercial activities. Table3, explicate the different activities of the firms. The maximum number of firms is involved in the activities of developing software for smartphones furthermore in web designing. The activities of the IT Park are not only

constrained to these activities but also extended to other zones like employment enhancement programming, bioresearch, biopharmaceuticals, wireless communication, healthcare, and finance. Some of the firms are involved in commercial activities that provide consultancy in the area of medical, law, marketing, upgrading the business and so forth. Probably, there are very fewer numbers of firms that have demonstrated their enthusiasm for clinical diagnostics and biopharmaceuticals, however despite this, they have opportunities to develop.

**Table 3, Number of Operating Units that involve in Different Activities in IT Park**

Activities	No. of Companies
<b>Product Development Activities</b>	
Mobile/Android/Smart Phones	8
Web Designing/Development	7

Employment Enhancement Programming	1
Health Care	3
Finance	3
Biopharmaceuticals	2
Networking	2
Wireless Communication	2
Bio-Research/Life Sciences/Molecular & Clinical Diagnostic	1
Telecommunication	1
System Software	2
<b>Commercial Activities</b>	
Finance	2
Legal	1
Marketing	2
IT Assessments	2
Consultancy	
a)Biopharmaceutical	1
b)Medical	4
c)Wireless Communication	3
d)Laptop Accessories	2
e)Business Solutions	2

**Source:** Data Generated from Field Survey of IT-Technology Park, Mohali

Technological innovation is viewed as a fundamental strategy for balanced improvement in products and creating new innovations and moreover plays a significant role in creating the employment opportunities for the youth. Table 4 represents the distribution of employees in the male and female category. In the beginning of IT Park, there were only

1170 employees out of which 277 and 893 were female and male representatives respectively. With the expansion of a number of firms in the IT Park the employment grew and reached to 3447 that include 2350 number of employees of males and 1097 of females.

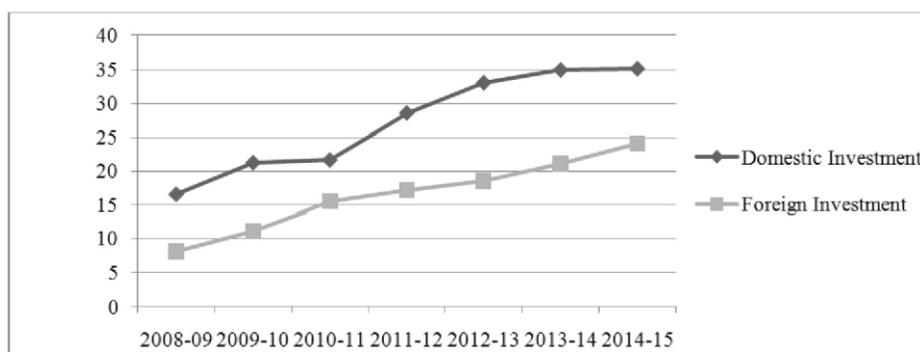
**Table 4, Gender Distribution of Employees in IT Park**

Year	Male	Female	Total
2008	277	893	1170
2009	321	1111	1432
2010	463	1451	1914
2011	900	2147	3047
2012	968	2165	3133
2013	994	2252	3246
2014	1097	2350	3447

**Source:** Data Generated from Field Survey of IT-Technology Park, Mohali.

Another dimension of the structure of IT Park is the investment that has been examined on the basis of the share of investment through domestic and foreign companies. Fig. shows that in the initial period the share of investment of domestic entrepreneurs is rising but at the low rate. In the year 2010, a fall in domestic investment has been observed, because in this year most of the firms operating in the service

sector and these firms required low capital investment as compared to product development firms. Further throughout the study period, the share of domestic investment is more as compared to foreign investment. This may be due to reluctance on the part of entrepreneurs outside the count.

**Fig.1, Growth of Foreign Investment and Domestic Investment in IT Park (Rs. Crores)**

Source: Data Generated from Field Survey of IT-Technology Park, Mohali.

Table 5, reveals the growth of economic components of IT Park. The IT Park Mohali starts performing in the year 2008 with only twelve firms. With the addition in the age of IT Park, the number of firms increased to thirty-five till the year 2014. Further the other components of production, sale, employment also grew substantially throughout the study period, Nevertheless by the year 2014, the growth of units,

employment, capital investment, production and sale exacerbated to 9.07, 8.69, 7.01, 11.40 and 8.8 percent respectively. This growth of IT Park may be due to the clusters benefits and also the better quality of infrastructure available in IT Park. Monck et al (1988) found that the growth of economic components also depends on upon the age of organization.

**Table 5, Trends in Growth of IT Park, Mohali**

Year	Units	Employment	Capital Investment	Production	Sale
2008-09	12	1170	24.35	28.01	27.36
2009-10	14	1432	31.72	28.24	28.2
2010-11	19	1914	37.91	42.01	40.91
2011-12	30	3047	47.19	54.00	44.41
2012-13	33	3133	55	74.41	72.99
2013-14	35	3246	58.45	89.09	87.83
2014-15	35	3447	61.41	109.59	108.45
CAGR	9.07	8.69	7.01	11.40	8.8

Source: Data Generated from Field Survey of IT-Technology Park, Mohali.

## Section II: Economic Contribution of IT Park

### The Revenue foregone by the State Government due to Incentives Given to IT Park:

IT units refers to the companies that involve in the activities of IT software design & development, software maintenance, the operation of software systems, database management, maintenance of computer networks and telecommunication, network services and administration, business outsourcing or providing Information Technology Services through digital communication, remote digital office services etc. The Punjab Government announced its incentive-based industrial Policy 2013. The industrial policy focuses on three points: incentives, simplifying procedures, and facilitation. The major incentives introduced for IT Parks are:

- In the foremost step to make S.A.S Nagar and Amritsar as IT hubs of the state, the government has announced incentives including 80 percent exemption from VAT, releasing 24-hour power and exemption from payment of electricity duty, exemption from stamp duty and property tax. The units can avail these incentives for 10 years. (Government of Punjab, 2013).
- On all IT products 80 percent exemption on CST for 10 years.
- On the purchase of machinery and equipment within the state, paid VAT to be reimbursed to the units.
- Maximum cumulative quantum of all the incentives will be limited to 80 percent of fixed capital investment.

- With the maximum cost of Rs 1 Lakh for domestic patent and Rs. 5 Lakh for the international patent, the government will compensate up to 50 percent of the cost.

Technology Parks are the best institutional mechanism that promotes technology intensive, knowledge-based SME's with enormous potential to grow and also construct growth path for other sectors (Unido, 2012). By offering tax incentives like sales tax, exemption from stamp duty, electricity duty for the benefits of firms performing in IT

Park the government encourages the entrepreneurship. Different types of tax revenue foregone are:

#### Sale Tax Benefits Offered:

Table 6, below represents the tax revenue foregone due to sales tax benefits offered. The sale of IT products through IT Park is hovering throughout the study period so as the sale tax. Thus the total sale tax revenue foregone for the study period is Rs. 82.03 Crores.

**Table 6, Tax Revenue Foregone due to Sales Tax Benefits Offered (in Crores)**

Year	Sale	Tax Rate (%)	Sale Tax
2009-10	28.2	0.2	5.64
2010-11	40.91	0.2	8.18
2011-12	44.41	0.2	8.88
2012-13	72.99	0.2	14.59
2013-14	87.83	0.2	17.56
2014-15	108.45	0.2	21.69
Total	410.15	1.4	82.03

**Source:** Data Generated from Field Survey of IT-Technology Park, Mohali.

#### Income Tax Benefits Offered:

Table 7, below represents the tax revenue foregone due to income tax benefits offered. The net profit of IT products

through IT Park is increasing throughout the study period so as the income tax. Thus the total income tax revenue foregone for the study period is Rs. 42.17 Crores.

**Table 7, Tax Revenue Foregone due to Income Tax Benefits Offered (in Crores)**

Year	Net Profit	Tax Rate (%)	Income Tax
2009-10	4.73	0.309	1.46
2010-11	17.76	0.309	5.48
2011-12	21.47	0.309	6.63
2012-13	16.33	0.309	5.04
2013-14	27.76	0.309	8.57
2014-15	48.52	0.309	14.99
Total	136.57	1.854	42.17

**Source:** Data Generated from Field Survey of IT-Technology Park, Mohali.

#### Capital Subsidy Benefits Offered:

Table 8, below represents the revenue foregone due to capital benefits offered. With the growth of IT Park and

offered capital subsidy, the capital investment shows the tremendous growth. Thus the total revenue foregone for the study period is Rs.87.48 Crores.

**Table 8, Revenue Foregone due to Capital Subsidy Offered (Rs. Crores)**

Year	Capital Investment	Capital Subsidy (%)	Total Capital Subsidy
2009-10	31.72	0.3	9.51
2010-11	37.91	0.3	11.37
2011-12	47.19	0.3	14.15
2012-13	55	0.3	16.5
2013-14	58.45	0.3	17.53
2014-15	61.41	0.3	18.42
Total	291.68	1.8	87.48

Source: Data Generated from Field Survey of IT-Technology Park, Mohali.

**Value Added Tax Benefits Offered:**

Table 9, below represents the tax revenue foregone due to VAT benefits offered. The production of IT products through

IT Park is increasing throughout the study period so as the paid VAT. Thus the total tax revenue foregone for the study period is Rs. 77.75 Crores.

**Table 9, Tax Revenue Foregone due to VAT Benefits Offered (Rs. Crores)**

Year	Production	VAT (%)	Tax Paid
2009-10	28.24	0.2	5.64
2010-11	42.01	0.2	8.40
2011-12	45.57	0.2	9.11
2012-13	74.41	0.2	14.88
2013-14	89.09	0.2	17.81
2014-15	109.59	0.2	21.91
Total	388.91	1.2	77.75

Source: Data Generated from Field Survey of IT-Technology Park, Mohali.

For the promotion of Technology Parks in the state, various incentives have been offered in different industrial policies of Punjab. Table 10, below represents the total tax revenue foregone by the government due to incentives offered to IT Park Mohali. The observation of the table shows that due to tax incentives the foregone tax revenue has increased from Rs. 22.25 crores to Rs. 283.94 crores. The highest tax

revenue foregone for the capital subsidy incentives given to the firms located in IT Park amounted to Rs. 87.48 crores and lowest from income tax incentive that was Rs. 42.17 crores. Though VAT is reimbursed by the government to the firms but the revenue generated from VAT was Rs. 77.75 before reimbursement.

**Table 10, Total Tax Revenue Foregone by the Government due to Incentives to IT Park (Rs.Crores)**

Year	Sale Tax	Income Tax	Total Capital Subsidy	Tax Paid	Total
2009-10	5.64	1.46	9.51	5.64	22.25
2010-11	8.18	5.48	11.37	8.40	33.43
2011-12	8.88	6.63	14.15	9.11	38.77
2012-13	14.59	5.04	16.5	14.88	51.01
2013-14	17.56	8.57	17.53	17.81	61.47
2014-15	21.69	14.99	18.42	21.91	77.01
Total	76.54	42.17	87.48	77.75	283.94

Source: Data Generated from Field Survey of IT-Technology Park, Mohali

**Relationship between Tax Incentives Offered and Economic Receipts from IT Park:**

The Government of India and State Government of Punjab have offered various incentives, in order to encourage Technology Parks in State. Due to such tax incentives, they were losing their revenues. The firms in IT Park mitigate the revenue loss by generating employment opportunities, the sale of IT products and capital investment. For analyzing the relationship between tax incentives offered to promote IT Park with economic receipt of IT Park in the form of promoting sales, generating investments and creating employment opportunities, the Correlation Coefficient was conducted on the study on the mentioned economic

components. The analysis of the table shows that there is positive and high correlation and also the p-value (0.015, 0.014 and 0.01) is less than the 5percent level of significance, which leads to the conclusion that there is a significant relationship between the tax incentive offered and economic receipt of IT Park in the form of promoting employment, sale of IT Products and capital investment. Thus the null hypothesis is rejected. Nidheesh (2014), in its study related to Special Economic Zones has found a high correlation between tax incentives and economic contribution of SEZ and suggest that the Government should provide more tax incentives for encouraging growth.

**Table 11, Relationship between Tax Incentives Offered and Economic Receipts from IT Park**

Particulars	Tax	Capital Investment	Employment	Sale
Pearson Correlation	1	0.89	0.90	0.97
Sig. (2-tailed)		0.015	0.014	0.001
N	6	6	6	6

Source: Computed from the Data Collected through Field Survey.

**Section III: Performance of IT Park, Mohali**

The IT Park, Mohali is the cluster of firms and Firm's performance in IT Park as a cluster represents the performance of IT Park. Khomiakova (2008), performing in clusters creates competition and opportunities that help the involved firms to grow and perform better and fully utilize the available resources in the Technology Park. The Table below reveals the performances of IT park with the help of performing firms in the Park and found that majority of the firms in technology parks reported that their employment has increased during the study period especially for the year 2009 to 2012 and decrease from the year 2013 to 2014. The similar type of increment has been observed for sale. There was not any increment in the number of firms from year 2013 to 2014, that became a cause for the fall in employment growth. This reveals that a number of units have played a significant role in the performance of IT Park. On the other

hand, the observed values have shown relatively more profound consequence on productivity as compared to sale and employment throughout the study period. the firms has shown increase in employment, sale and productivity and this increment is highly significant for year 2009 to 2013, as the calculated value of Chi Square was 28.44, 14.64, 35.31, 40.51 and 48.76 respectively which was greater than the tabulated value of Chi-Square (13.27) at 1 percent level of significance at 4 d.f and for the year 2014 the calculated value of Chi Square was 10.19 which was greater the tabulated value of Chi-Square (9.49) at 5 percent level of significance at 4 d.f. Hence we conclude that IT Park Performs significantly in Punjab. Monck,et.al(1998) has also use various measures to check the performance of firms and conclude that the performance of firms depends upon the age of Technology Parks.

**Table 12, Performance of IT Park, Mohali**

For Year 2009				For Year 2010			
Indicators	Increase	Decrease	same	Indicators	Increase	Decrease	same
Employment	9	5	0	Employment	17	2	0
Sale	6	7	1	Sale	10	9	0
Productivity	9	5	0	Productivity	11	7	1

For Year 2011				For Year 2012			
Indicators	Increase	Decrease	same	Indicators	Increase	Decrease	same
Employment	29	1	0	Employment	31	0	2
Sale	23	7	0	Sale	14	17	2
Productivity	16	11	3	Productivity	19	11	3

For Year 2013				For Year 2014			
Indicators	Increase	Decrease	same	Indicators	Increase	Decrease	same
Employment	21	14	0	Employment	21	14	0
Sale	15	20	0	Sale	17	18	2
Productivity	23	8	4	Productivity	25	6	4

**Source:** Computed from the Data Collected through Field Survey.

### Results:

Year	2009	2010	2011	2012	2013	2014
No. of Units	14	19	30	33	35	35
Chi-Square	28.44	14.64	35.31	40.51	48.76	10.19
Tabulated Value	13.27	13.27	13.27	13.27	13.27	9.48
Sig.	1%	1%	1%	1%	1%	5%

**Note:** The results are significant as the calculated values are greater than the tabulated values.

### Policy Implications and Concluding Remarks:

- Technology and innovations perform a significant function of economic growth and sustainable development to promote manufacturing. In this regard, Technology Parks would give a new level to the manufacturing sector in creating educated employment in the economy (Chadha, 2003). Technology Parks has been acknowledged as a congregation of problems and solutions that are intimately linked with intending for sustainable development in low and medium income countries. It is considered as an essential component for edifying infrastructure and generating opportunities and also acts as a funnel for policy makers in achieving the errands for sustainable development. The following policy implications are suggested for better performance of IT Park:
- The study found that IT Park is developed in the very small area. For encouraging the entrepreneurship in state and creating job opportunities for the youth, the government needs to develop large technology parks. The government should also promote such type of technological transformation in other sectors like biotechnology, textile etc.
- The government should create close contiguity with universities and R&D organizations for promoting technology parks in the region.

- As the tax incentives have a positive relationship with economic receipts of IT Park, the government should introduce more incentives in its industrial policies for cheering technology parks.

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