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Labour Force Participation: Does It Really Affect the Economy of the Country?

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Abstract

This paper seeks to look into the extent of impact of Labour Force Participation Rate (LFPR) on the economic performance and the budgetary performance of India, especially between 1991 and 2021, a post-liberalisation era. The aim is to determine whether the changes in the degree of involvement of the working age population contribute greatly to the GDP growth and fiscal indicators in the country. As the Indian economy is experiencing significant structural, technological, and demographic changes in the course of this time, it would be necessary to know the way in which alterations in the labour market are associated with macroeconomic factors and financial sustainability of the government. The research uses descriptive and statistical analysis, especially use of correlation and regression analysis to assess the relationship between the labour participation and GDP growth rate. Through these associations, the study will seek to find out whether the increased labour participation is an appropriate factor to enhancing economic growth and fiscal well-being or other factors like technological advancement, capital accumulation, and policy modifications are more significant. It analyses secondary data based on the trustworthy institutional sources, like World bank, the International Labour Organisation (ILO) and the Union Budget of India. Through the application of statistical measures to this three decades old data, the research intends to give some empirical understanding of evolving dynamics of the Indian economy- especially the relationship between the inputs of labour to the total economic output and the fiscal balance in the government.

Keywords: Participation rate in labour force, Economic growth, Regression, Correlation, Fiscal Balance, India.

Introduction

1. Concept and Importance of Labour Force Participation: -

The ratio of the working-age population in a nation that comprises the percentage of those people engaged in employment or seeking jobs is known as labour force participation. It is one of the most important pointers towards the productive power and social welfare of the economy, as more people are willing and able to invest into working, the higher the prospects of expansion, novelty, and sustainability. The participation of labour force is an important factor in the economic growth and development. With increased number of people joining the labour force, they are able to earn earnings, raise their productivity and contribute towards national output growth. Besides that, labour participation may play significant roles in government revenues and expenditure because workers can pay taxes and get benefits and welfare of people and families.

2. Factors Influencing Labour Force Participation and Its Economic Implications: -

The economic effects of the labour force participation have been an uncertain topic of research and disc-

ussion. The factors that affect the level of participation in the labour force have been studied in many studies as human capital, physical capital, changes in technology, and jobless growth among others. The economic implications of altering the labour participation rates have been analysed by other people including the impact on the GDP growth, productivity and the effect on government budgets and social welfare programmes which is important in determining the overall economic growth and development of a nation.

3. Policy Relevance and Research Perspective: -

The impacts of labour participation in the economy are vital to policymakers and researchers aiming at the promotion of sustainable growth in the economy, alleviation of poverty and inequality and enhance well-being of individuals and families. This area needs an interdisciplinary approach relying on the knowledge of economics, sociology, political science and other spheres to illuminate on the complex dynamics between the labour force participation and economic growth..Simply, labour force participation is defined as the percentage of the working-age demographic that is either employed or actively seeking employment. This aspect greatly influences the economic side as well as the finance of a nation. In this paper, the researcher sets out to discuss the impact of labour force participation on the economy and the budget of the government.

4. Historical Evolution of Labour Force Participation: -

A country's systems of economics, culture, and major global phenomena will all determine the patterns of work. The history of labour force participation speaks to this. In pre-industrial societies, everyone contributed to farming, handicrafts, and domestic work, which meant that participation was practically measurable, albeit informally. Work was organised around households, and men and women contributed in different, though complementary, ways. The fourteenth and nineteenth century Industrial Revolutions were, however, a massive turning point. Industrialisation drew in a massive workforce to the factories and mines, creating a new separation between formal and informal work. Industrial work was exclusively male, women's and children's work were poorly paid, insecure, and tied to the household, and all of this was dismissed, despite the critical role their work played in sustaining family economies.

5. Broader Socio-Economic Role: -

Participation of the labour force is not merely a statistic in terms of employment, but it is a manifestation of the economic state, inclusiveness of the society, and developmental course of a country. As indicated, employment has a direct effect on growth, productivity, generation of revenue, and well being of a country, this makes employment the central point of economic and social balance. The involvement of people within a society has changed over time; it has changed to informal household input on pre-industrial societies as well as formalised and organised labour during the industrial era and subsequently to informal contributions in the contemporary informal economy. This phenomenon requires an interdisciplinary intervention of economics, sociology and the policy. The analysis of labour force participation will enable policy makers, the academia and the society, to deal with barriers to participation and inclusion and, consequently, devise ways of enhancing equitable and sustainable growth. To sum up, labour force participation is a crucial area of study to the economic performance of a country since it is the measure of the level of human potential that is released into the economy. The research on labour participation of the force signifies the latent that exists in society to address the current and upcoming economic challenges. It emphasises the possibilities of work to generate economic growth and social change.

Literature review

Studying past research can help understand and can provide a synthesis on how past and recent empirical evidence can lead to variations in labour participation and how it affects macroeconomic outcomes and highlighting channels, policy levers, and gaps for further research

1. Blundell. R. (1995). The Impact of Taxation on the Labour participation and labour supply pg no.7. Afterthoughts on the OECD Jobs Study of Working Paper. The paper is a review of the empirical data concerning the potential impact of taxation on the participation of married women and lone parents in their labour market. It was also of concern in the paper that such things as poverty traps and unemployment traps were still present and also the high levels of effective marginal tax rates brought about by a combination of benefits and taxation will not attract one to enter into work.

2. Bloom. D. E, Canning. D, & Sevilla. J. (2001). Economic Growth and the Demographic Transition pg no. 16. It is a powerful paper by NBER which found the impact of demographic change in economic growth with the main focus laid on the labour-force participation in economic growth. The article continues to be a milestone in the world of literature in its association of labour participation and demographics as well as macro-fiscal results to provide a theoretical body and also provide strong empirical support.

3. Bloom, D. E, Canning. D, & others. (2003). The Demographic Dividend: A New Perspective on the Economic Consequence of Population Change pg no. 11. The authors of the research examined case studies involving the East Asia, Africa and Latin America and found out that an increase in the participation of young adults and women can either result in growth or result in stagnation depending on the quality of governance. The report also added the value of involvement of women in the expansion of the productive foundation of the economy.

4. Aaronson. S, Cajner. T, Fallick. B, Galbis-Reig. F, Smith. C, & Wascher. W. (2014) .Labour Force Participation: recent Developments and Future Prospects pg no. 1.Authors of this research discovered that the aging population appeared to contribute to the decrease to the tune of forty-five percent with additional increases in enrolment in education, uptake of disability insurance among others, in addition to the fact that structural variations also contributed significantly to the subsequent decrease.5. Baerlocher (2021) Female Labor Force Participation and Economic Growth.In her work, Baerlocher made a point to examine the contribution of women participation in economics and fiscal performance through the participation in the labour-force. Through a panel regression involving several countries, the paper also ensued that an increase in the female LFP positively and statistically related to a growth in GDP per head of society, despite the influence of institutional quality and levels of education. The paper has brought in the notion of a gender bonus with female involvement increasing the taxable income pool thus increasing revenues. Nonetheless, it also acknowledged that in certain backgrounds the employment of women is wallowing in low productivity sectors or informal sectors and this limits fiscal proceeds. Notably, the paper has analysed trade-offs in fiscal aspects: strategies designed to encourage female participation, including subsidised childcare, parental leaves, imply initial government spending. Nevertheless, it is compensated in a mid long-term perspective by increased taxation and decreased dependence on state welfare. This paper strengthens that gender equal opportunity labour strategies are not only desirable socially but also economically sound, and long-term returns on growth and financial sustainability.

5 . U.S. Bureau of Labor Statistics (BLS) Projections (2023–24) elaborate. Regarded as one of the most important updates on the state of American labor market operations pg no. 1, the U.S. Bureau of Labor statistics (BLS) projections of the prospects of the American labor market connected to the 202324 make

significant contributions to the ways in which economical growth and fiscal stability might be hindered in the future. The BLS projections only show that the overall expansion in the work force in the United States would be low and would be limited by the aging population, and a decreased recruitment of young generations. The level of participation, which turned high in the late 1990s, remains negatively inclined, especially among the older workers nearing retiring age and youthful workers between the age of 16 and 24, who are becoming more concerned with further studies than the immediate joining of the labor force. The gender aspects equally have at most a role to play although female participation has been steadily increasing over the past decades, the increase rate has slowed down thus producing insignificant changes in the gap between men and women participation.

Research Gap

In understanding labour force participation and its surrounding economy, there are a number of gaps to fill. Though some literature suggests economic growth does indeed stimulate an increase in labour force participation, evidence to support such a causal relationship is mostly absent. Most accounts fail to disentangle the effects and the intrinsic relationship of labour force participation from the other numerous components contributing to economic growth. Along with the effects on the overall economy and the budgets of a state, there is a scant understanding of the influence of labour force participation on government budgets. Most importantly, the influence of rapidly advancing technologies on the dynamics of labour force participation and economic growth is an area that has not received the attention it deserves. More research in this area is imperative.

Objectives of the Study

1. To check whether there is a relationship between labour force participation and economic growth.
2. To identify which factors influence labour force participation and economic growth.
3. To examine the statistical relationship between labour force participation and economic growth
4. To examine how advanced and modern technology can affect labour force participation

Research Question

Does labour force participation affect the economy and budget of a country?

Research Methodology

The research methodology used in this study is descriptive analysis since it aims at investigation of the relationship between labour force participation **(**LFPR has been used as the metric variable representing labour force participation in this study and is the independent variable), the economy (GDP Growth Rate has been taken as the metric variable representing economy on this study and is the dependent variable). The descriptive approach is the right one as it emphasises on providing a factual and methodical description of prevailing trends without tampering with variables. They are based on secondary data to achieve this because the research uses documents that are credible including government economic surveys, the World Bank, the international labour organisation (ILO) and the reserve bank of India (RBI).The approach assists in establishing the relationship between the changes in the overall economy and budgetary results and the changes in the labour force participation. Overall, the descriptive approach gives an easy, objective, and clear understanding of the impact of the degree of labour participation on the economic performance of a country without the use of intricate econometric or experiment methods.Two

key statistical tools i.e correlation analysis and simple linear regression were used to evaluate the relationship between Labour Force Participation Rate (LFPR) and GDP growth in India.

Hypothesis

1. Null Hypothesis (H_0): Labour force participation has no significant effect on the economy (GDP growth)

2.Alternative Hypothesis (H_1): Labour force participation has a significant effect on the economy (GDP growth)

Data Visualisation and Model

The table below shows the percentage labour force participation from 1991 – 2021 in India

Year	LFPR (%)
1991	57.916
1992	57.950
1993	57.986
1994	58.022
1995	58.063
1996	58.395
1997	58.729
1998	59.065
1999	59.404
2000	59.743
2001	60.079
2002	59.923
2003	59.765
2004	59.606
2005	59.445
2006	59.289
2007	58.345
2008	57.418
2009	56.511
2010	55.628
2011	54.766
2012	54.131
2013	53.509
2014	53.372
2015	53.218
2016	53.044
2017	52.864
2018	52.681
2019	52.487
2020	52.285

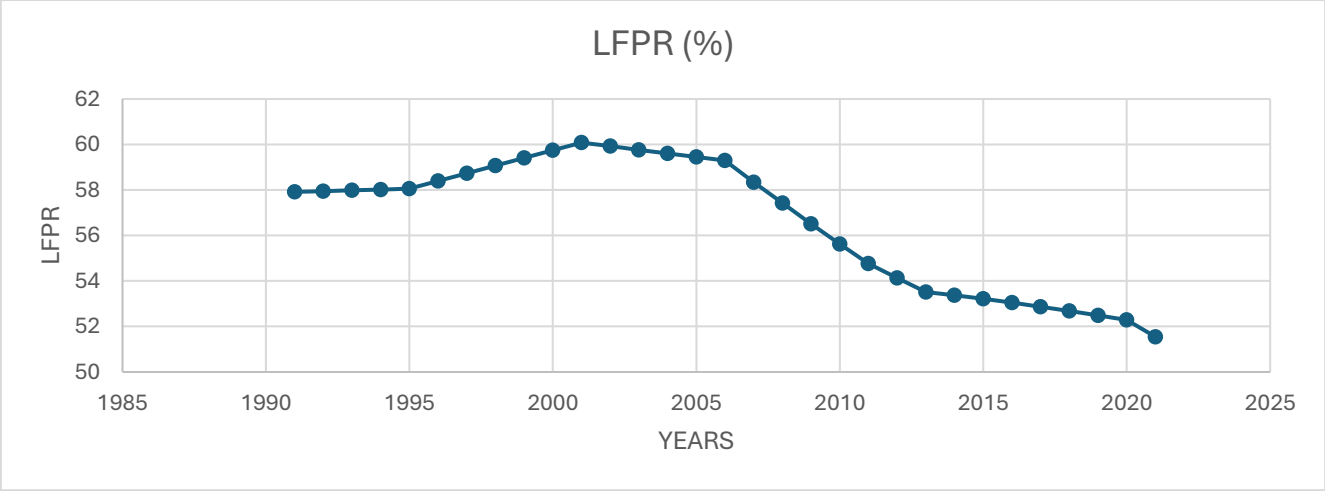
2021	51.547

Table: 1.1 Labour Force Participation Rate

Source: World Bank (modelled ILO estimate)

The table indicates the pattern in the labor force participation rate (LFPR) 1991 to 2021. Until the early years of 1990s, the LFPR was between 57 and 58 percent, which gradually rose to a high of 60 percent in 2001. Following this the rate started decreasing steadily and dropping to 59% in 2002-2005 and progressively going down until late 2000s when it fell to 55%. The negative trend continued until the 2010s, when it levelled off at around 53 percent between 2013 and 2017 and dropped a little to 52 percent between 2018 and 2020. Some small recovery occurred in 2021 to 53%. In general, the figures suggest that the labor force participation increased steadily but gradually in the 1990s, which was succeeded by the reduction in the next 20 years, which is probably due to demographic factors, economic factors as well as changes in labor market.

Figure: 1.1



Source World Bank (modelled ILO estimate)

The table below shows the GDP Growth Rate of India from 1991 to 2021.

Year	GDP Growth Rate (%)
1991	1.1
1992	5.5
1993	4.8
1994	6.7
1995	7.6
1996	7.5
1997	4.0
1998	6.2
1999	8.8
2000	3.8
2001	4.8
2002	3.8

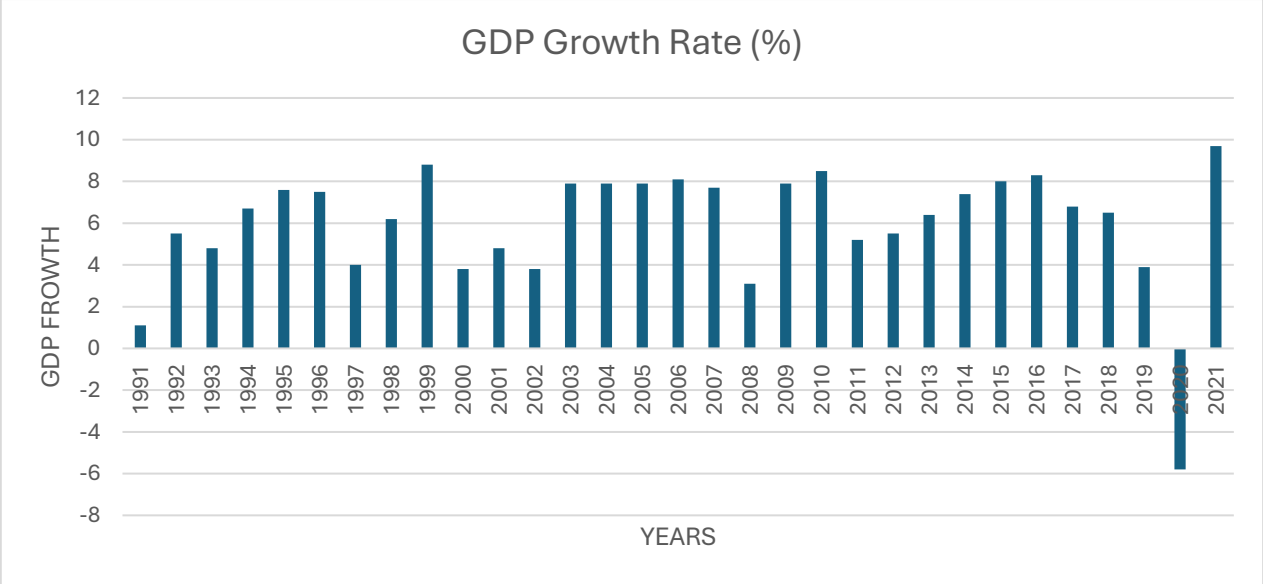
2003	7.9
2004	7.9
2005	7.9
2006	8.1
2007	7.7
2008	3.1
2009	7.9
2010	8.5
2011	5.2
2012	5.5
2013	6.4
2014	7.4
2015	8.0
2016	8.3
2017	6.8
2018	6.5
2019	3.9
2020	-5.8
2021	9.7

Table: 1.2 GDP Growth Rate

Source: World Bank (modelled ILO estimate)

The initial years of 1990s showed great economic reforms in India which came with a rise of GDP growth rates to massive levels of 8.8 percent in 1999. Global Financial Crisis Impact The world economic downturn of 2008 resulted in a trough of 3.1% growth, which was very quickly regained. The pandemic of 2020 developed a slump by 5.8 with a great recovery in 2021 of 9.7

Figure: 1.2



Source: World Bank (modelled ILO estimate)

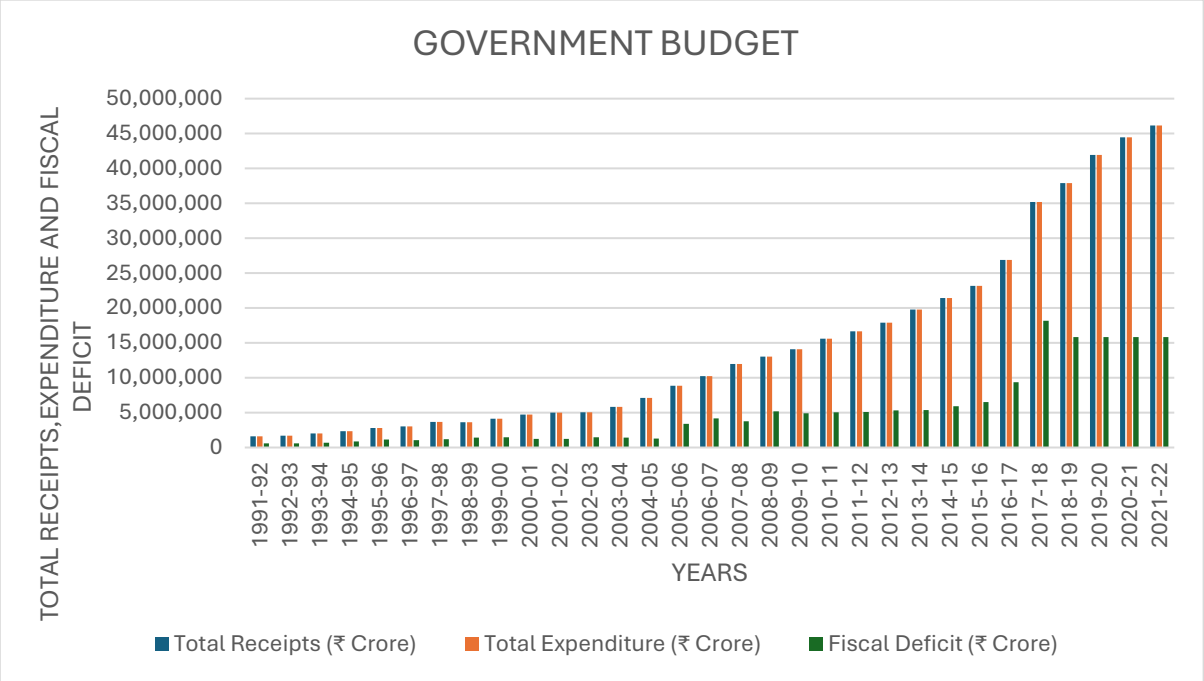
The table below shows the Government Budget of India from 1991 to 2021.

Year	Total Receipts (₹ Crore)	Total Expenditure (₹ Crore)	Fiscal Deficit (₹ Crore)	BudgetBalance (₹ Crore)
1991-92	1,597,780	2,174,820	577,040	-577,040
1992-93	1,684,680	2,287,110	602,430	-602,430
1993-94	2,010,070	2,677,400	667,330	-667,330
1994-95	2,320,680	3,210,050	889,370	-889,370
1995-96	2,793,660	3,927,150	1,133,490	-1,133,490
1996-97	3,037,380	4,084,550	1,047,170	-1,047,170
1997-98	3,644,360	4,832,520	1,188,160	-1,188,160
1998-99	3,624,530	5,034,080	1,409,550	-1,409,550
1999-00	4,141,620	5,592,340	1,450,720	-1,450,720
2000-01	4,713,680	5,946,400	1,232,720	-1,232,720
2001-02	4,976,820	6,228,840	1,252,020	-1,252,020
2002-03	5,061,230	6,525,580	1,464,350	-1,464,350
2003-04	5,833,870	7,259,600	1,425,730	-1,425,730
2004-05	7,126,710	8,395,830	1,269,120	-1,269,120
2005-06	8,839,560	12,209,480	3,369,920	-3,369,920
2006-07	10,244,870	14,429,690	4,184,820	-4,184,820
2007-08	11,973,280	15,709,190	3,735,910	-3,735,910
2008-09	13,043,650	18,203,550	5,159,900	-5,159,900
2009-10	14,103,720	19,005,620	4,901,900	-4,901,900
2010-11	15,594,470	20,623,050	5,028,580	-5,028,580
2011-12	16,636,730	21,744,980	5,107,250	-5,107,250
2012-13	17,907,830	23,235,740	5,327,910	-5,327,910
2013-14	19,751,940	25,108,120	5,356,180	-5,356,180
2014-15	21,419,730	27,330,350	5,910,620	-5,910,620
2015-16	23,151,130	29,645,310	6,494,180	-6,494,180
2016-17	26,863,300	36,199,810	9,336,510	-9,336,510
2017-18	35,170,240	53,353,150	18,182,910	-18,182,910
2018-19	37,912,579	53,757,789	15,845,210	-15,845,210
2019-20	41,947,800	57,792,010	15,845,210	-15,845,210
2020-21	44,443,000	60,288,210	15,845,210	-15,845,210
2021-22	46,147,140	61,992,350	15,845,210	-15,845,210

Table:1.3 Government Budget of India

Source: Union Budget of India and Open Budgets India.

Figure: 1.3



Source: Union Budget of India and Open Budgets India.

Results

Now let's analyse the the relationship between labour force particular rate and GDP growth with the statistical tool of correlation.

	LFPR (%)	GDP Growth (%)
LFPR (%)	1	
GDP Growth (%)	0.0851267	1

Table:1.4 Statistical Tool of Correlation

Source: Based on Excel

The correlation coefficient between the labour force participation rate (LFPR) and GDP growth is 0.085, which is remarkably close to zero. This indicates that there is no linear relationship between LFPR and GDP growth (keep in mind that it includes data of post liberalisation era where technology played more prominent role). In practical terms, changes in LFPR do not appear to be associated with changes in GDP growth, suggesting that other factors play a larger role in influencing GDP growth (once again keep in that this study is based on the data of post liberalisation era).

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.085126652							
R Square	0.007246547							

Adjusted R Square	-0.026986331							
Standard Error	2.988663364							
Observations	31							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	1.890783037	1.890783037	0.211683836	0.648881962			
Residual	29	259.0311524	8.932108705					
Total	30	260.9219355						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.033039633	10.77392541	0.095883 31	0.924272782	-21.00211198	23.06819125	-21.00211198	23.06819125
LFPR (%)	0.087441315	0.190052169	0.460091117	0.648881962	-0.301259014	0.476141644	-0.301259014	0.476141644

Table: 1.5 Statistical Tool of Regression

Source: Based on Excel

In this study, this relation between the two variables is further examined and validated by applying the statistical tool of regression, accounting for thirty years of data from 1991-2021. The results of the regression analysis are displayed in Table 1.5

From the given regression analysis, the following can be inferred:

Multiple R = 0.08513

This measures the strength and direction of the linear relationship between the two variables, ranging from –1 to +1. A value of 0.085 indicates a very weak positive relationship between LFPR and GDP growth.

R Square = 0.00725

This shows how well the data fit the regression model. It indicates that only 0.72% of the variation in GDP growth is explained by changes in LFPR, meaning the model has very low explanatory power.

Standard Error = 2.99

This represents the average distance that the observed values fall from the regression line. A value near 3 indicates a poor fit between the model and actual data.

F-statistic = 0.2117, Significance F = 0.6489

Since the significance (p-value) is much greater than 0.05, the model is not statistically significant. This means changes in LFPR do not meaningfully explain changes in GDP growth.

Coefficients:

- Intercept = 1.033
- LFPR = 0.0874

This means that for every 1 percentage point increase in LFPR, India's GDP growth rate increases by about 0.087 percentage points on average, holding other factors constant.

p-value (for LFPR) = 0.6489

Since this p-value is much higher than 0.05, we fail to reject the null hypothesis, concluding that LFPR does not have a statistically significant effect on GDP growth during 1991–2021.

Findings

A. LFPR & GDP Trend Findings

1. The LFPR of India had been rising steadily between 1991 and 2001 to almost 60.
2. Since 2001, LFPR has been on the downward slope to approximately 52% in 2021.
3. This decrease was not consistent; it levelled between 201317 and have decreased once more.
4. LFPR showed slight improvement with recovery in 2021, a result of twenty years of downward trend.
5. The growth in GDP, 19912021 was very volatile, and in some years, there was a growth above 8%.
6. Unlike the 2008 crisis and the 2020 pandemic, significant external shocks had the effect of contracting the GDP dramatically.
7. There is no observable correlation or comparable movement between trends of LFPR and GDP growth.

B. Results in Statistical Relationship.

1. The positive correlation between LFPR and GDP growth is significant with a value of 0.085 which is almost zero.
2. The poor correlation exhibits that there is no linear relationship between labour participation and the economic growth.
3. It is determined that LFPR can only account 0.72 percent of GDP variation (R 2 = 0.007).
4. The regression line is not statistically significant (p-value\0.648).
5. The LFPR coefficient (0.0874) shows that the influence on the GDP growth is so minor and insignificant.
6. Null hypothesis (LFPR does not significantly influence the growth of GDP) cannot be disproved.
7. The data does not correspond to the alternative hypothesis (LFPR has a strong influence on the GDP growth).

C. Economic Structural Results.

1. The growth after the liberalisation in India is being propelled not by the number of labour but by technology, the productivity and capital.

2. Robots and technology and inventions have boosted productivity without the requirement of additional labor.
3. India has the problem of jobless growth, whereby the GDP has been increasing without corresponding increase in employment.
4. The workforce size has become less significant compared to the quality of workers (skills, education, adaptability).
5. Strong human capital economies have better ability to harness technology which results in growth of GDP without the impact of LFPR.
6. The irrational modernisation of physical capital machinery and infrastructure and digital networks has increased productivity without raising labour utilisation.

D. Labour Force Composition and Gender based changes

1. The reduced labour force participation among the women has contributed significantly to the decreased LFPR in India.
2. The household duties and socio-cultural requirements deny women the opportunity to engage in paid labor.
3. Inadequate childcare provisions, maternity leaves, and secure transportation decreases the number of females joining the workforce.
4. Increasing industries since 1991 (IT, finance, formal services) require more skill, which women and rural people do not have.
5. A significant percentage of female labour is underpaid and untallyed, and this makes labour statistics underrepresent their input and conceals possible labour supply.

Factors affecting GDP growth

1. Technological Progress and Innovation: -

Technology has come to dominate the GDP growth in the world today more than the magnitude of the labour force. Inasmuch as increased labour force will add to the economic activity, technological innovation is the one that in fact multiplies the productivity and increases output. The economy of our days has ceased to be entirely reliant on human labour, and currently it is rather dependent on high equipments, automation, AI, and digitalisation in creating more through less.

The advancement in technology allows industries to become more efficient, the cost of production decreases, and the scale is increased at the pace that cannot be achieved through human labour. Indicatively, it is possible to have one robot-equipped factory of the same type to manufacture what used to be done by hundreds of employees. Such a change implies that GDP may keep increasing even when the labour participation is at stagnation or decreasing i.e. such as jobless growth.

Those countries where innovation, research and development and digital infrastructure are heavily invested have a quicker and more sustainable growth in the economy compared to those where labour growth is mainly used. In simple terms, technology is no longer a mere factor of support, but it is the driver of growth and labour is no longer a core issue in production like it used to be.

2. Human Capital (Education, Skills, and Productivity): -

Although the rate of GDP growth is not governed by anyone but technology, the effectiveness with which technology is used is determined by the human capital. Nowadays, the economy is not driven by the number of workers, but rather by their quality, such as education, technical expertise, creativity and how they cope with a new innovation. An exceptionally talented workforce is able to handle hi-tech

technologies and create new ideas and find solutions to complex issues which would immediately increase productivity and domestic output.

The economies of those countries making investments in education, vocational training, and lifelong development of skills have a more rapid development due to the ability to use and advance new technologies by their employees. Conversely, countries that have the few but highly skilled labour forces can easily stay behind, because technology is secretly taking over routine jobs at a faster rate than their workers are re-skilling themselves.

Therefore, although technology makes the use of the massive quantities of manual labour unnecessary, it also focuses more on the presence of more skilled and knowledgeable labour force capable of innovating and controlling technological infrastructure. This renders human capital as one of the major complements of technology not in a quantitative manner but in the productiveness of knowledge and flexibility that it offers to the economy.

3. Physical Capital (Infrastructure, Machinery, and Investment): -

Technology and human capital are based on physical capital. It comprises of infrastructure, like roads and power supply, communication systems, factories and machinery, some of which are required to conduct large scale production and economy. But, in the contemporary economy, the existence of physical capital is not relevant only but its technological progress, and even efficiency.

In the past, the GDP growth greatly relied on the construction of additional factories or hiring of more employees. However, nowadays, automation, robotics and intelligent infrastructure allow the same factories to generate a significantly greater amount of output using much less labor. This implies that GDP may increase without the need to have an increasing labour force provided the infrastructure and equipment in the country are modern, digital and efficient.

An equitable investment in modern capital in the form of fast logistics, digital networks and renewable energy infrastructure increases output and permits quicker, cleaner and smarter to grow economically. The nations that make investments in technologically advanced physical capital have sustained growth as this type of asset enhances both the impacts of innovation and skilled labour.

4. Jobless Growth Phenomenon: -

Jobless growth is the situation when GDP of the country rises without considering the proportional rise of the employment. It became especially widespread in recent decades as the technological progress becomes rapid and is done automatically. As the economy expands due to increased productivity and efficiency, the number of jobs created fails to match in the same manner i.e. output increases, and jobs remain stagnant or even reduced.

The primary cause of this trend is the fact that technology has begun to substitute the traditional forms of labour. The machines, robots and AI systems have the capability of doing the work at a lesser cost, more accurately and faster than human beings could do. Consequently, companies are able to increase the production without the need of employing more workers. And as an example, automated factories, internet banking, and online shops, etc. all serve as growth drivers to the GDP and need much fewer workers than the more traditional labour-heavy ones.

This is a definite change: innovation and productivity are more important in the modern world in order to drive economic growth rather than increasing labour. Jobless growth is associated with numerous social and economic problems in those countries, including the increased level of inequality and increased unemployment, despite a favourable GDP figure. Thus, the contemporary strategists are concerned not only with raising their GDP, but with establishing inclusive growth.

5. Falling Female Labour Force Participation Rate (FLFPR): -

One of the most striking trends in India's labour market since 1991 has been the persistent decline in female labour force participation, even during periods of strong economic growth. This decline is driven by a combination of socio-cultural, economic, and structural factors that continue to restrict women's access to paid employment. Social norms and gender expectations in many parts of India still view women primarily as caregivers and homemakers, discouraging them from formal employment, especially after marriage or childbirth.

Safety concerns and the absence of adequate childcare and maternity support further limit women's participation in the labour market. The lack of safe public transport and flexible working conditions disproportionately affects women in both rural and urban areas. Additionally, India's pattern of growth since liberalization has been dominated by capital- and technology-intensive sectors, such as information technology and finance, which demand higher education and specialized skills. As a result, many women, particularly in rural or less-educated populations, have not been able to access the new opportunities generated by economic reforms.

Furthermore, as household incomes have risen over time, some women have voluntarily withdrawn from the labour force due to the "income effect," where families perceive women's paid work, particularly in manual or informal jobs, as unnecessary or socially undesirable. Many women also engage in unpaid domestic and care work, which is not captured in labour statistics, resulting in an underestimation of their economic contribution. Consequently, the decline in female labour participation represents a structural challenge for India's growth model, highlighting the need for gender-sensitive policies, better childcare facilities, and more inclusive job creation to fully utilize the country's demographic potential.

Conclusion

Labour force participation rate (LFPR) also has a significant role in economic growth of a country as it creates jobs, increases output, and determines the amount of output. Nonetheless, according to the results of the current study correlating and conducting the linear regression test between LFPR and the GDP growth in India, it is clear that the correlation between the variables is weak and statistically insignificant. The value of the correlation coefficient at 0.085, and the R2 at 0.007 obviously shows that fluctuations in the labour force participation do not play a significant role in variation in GDP growth.

Therefore, this study does not disapprove the null hypothesis (H_0) that labour force participation does not significantly affect GDP growth and neither does it approve the alternative hypothesis (H_1) that the two are significantly related. Regression results indicate that a marginal upward change in LFPR might cause a slight upward change in GDP growth, but the effect is not statistically significant. This means that, labour participation has not played a major role in the economic development of India but other macroeconomic factors like technology, capital formation and structural reform have contributed a lot in the growth of this economy.

The analysis therefore provides response to the main research question since it confirms the fact that India has experienced more technology- and capital-based growth pattern since its liberalisation and resulted in what economists commonly refer to as jobless growth. Even though the LFPR has a significant role of inclusive and equitable development, its direct effect of quantitative GDP growth has dwindled with time. In order to accomplish sustainable developments, the policymakers must not only work on the rise of labour participation but also increase the productivity, education, and level of skills of the working population.

Scope for Future Research

The analysis can be extended further in future research by including other variables which can help in explaining GDP growth fluctuations as including capital investment, index of productivity, human development, and level of technological innovation. Encouraging further analysis of gender-based and sectoral labour participation patterns would bring further understanding into the composition structure of the Indian workforce also.

A deeper study using more rigorous econometric instruments, like the multiple regression model, time series analysis, or panel data analysis would better assess the causal relationship of LFPR on GDP growth. Furthermore, it would be more beneficial to expand the dataset to 2021 or later to include the post-pandemic adjustment in the labour market and its economic consequences.

Lastly, policy-based studies may examine how Indian demographic advantage can be turned into a source of growth through labour market reforms, education and skilling programs. The enhancement of quality and inclusiveness of the employment process and technological adjustment would guarantee a more moderate and sustainable upward trend of the Indian economy.

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