A Comparative Analysis of Employment Intensity of Growth in South Asian Countries

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This study investigates the trends in GDP growth, employment growth and corresponding employment elasticity in South Asian countries during the last two decades. It also investigated the determinants of employment. The study uses the data from the International Labor Organization (ILO) and World Development Indicators of World Bank. The 'point elasticity' method has been applied to estimate employment elasticity trends, while a simple panel regression is utilized to assess the determinants of employment. The results indicate that the GDP growth is not employment elastic in most South Asian countries. The study also shows that South Asian economies are not following the path of structural transformation experienced by many developed countries.

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Introduction

Currently, the creation of productive employment occupies a vital place in developed and developing countries. It is the employment that gives sufficient returns and improves the living standard of the labors (ILO, 2012). Its importance is also highlighted in the 'Sustainable Development Goals' and recently published studies (Islam, 2019; Kumar & Pattanaik, 2020). In this perspective, one cannot ignore the economic growth role. It is the channel that helps to improve the standard of living of the people by increasing their earnings (Khan, 2007). However, it is primarily based on the sources and pattern of growth and how it benefits the society's deprived sections (Islam, 2004).

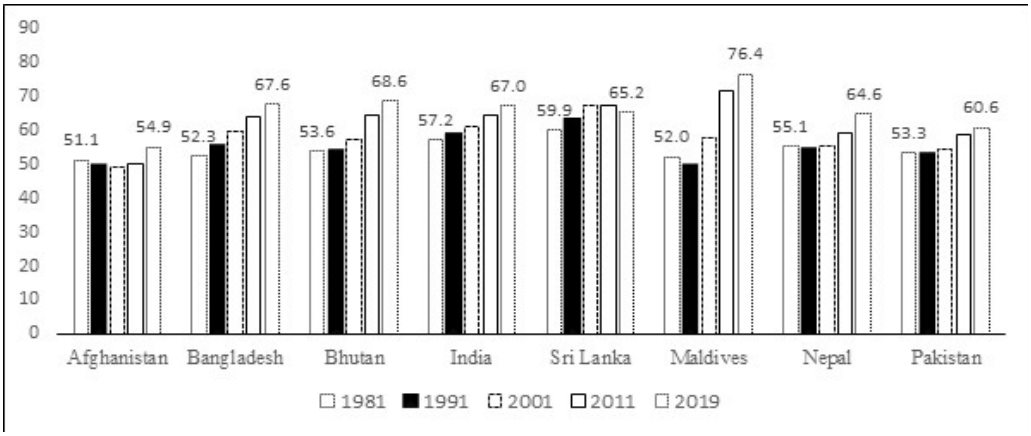
Usually, it is expected that economic growth will generate more employment opportunities with a better income source and

reduce poverty and inequality during the expansion phases (Heintz, 2006). In this context, Adams (2004) observed that a rise (10 per cent) in the country's income would decrease the poverty level (20 to 30 per cent). Some researchers linked economic growth with shifting workers from low productive sectors to high productive sectors (Kuznets, 1973) and a consistent decline in informal jobs (Islam, 2019). It is too helpful in increasing the tax revenue and makes it viable for the government to devote more funds toward social sectors like health and education (Department for International Development, 2008), thereby increasing its employment level. On the other hand, economic growth brings down employment and earnings during the contraction phases. As a result, it reduces the economy's spending due to less money available with people. Therefore, to know the dynamics of economic growth and employment growth, a proper insight into the employment intensity of growth is necessary. Besides, knowledge of the factors impacting employment growth is also essential. It helps the government and the researchers to design appropriate policy for improving the employment growth rate. Notably, for South Asian countries such as India, Pakistan, and Bangladesh, where the population is growing rapidly, it is vital to develop a policy design.

Employment in most South Asian countries is decreasing rapidly, and females suffer the most.

'UN Population Division' projection shows that by 2050 these will become the most populated countries in the world. These are also the countries where more than 60 % of population is in the age group of 15-64, and it has been proliferating since the last few decades (Fig. 1). In addition, the total unemployment rate is too high in some South Asian countries such as Afghanistan, India, Sri Lanka, and the Maldives (Fig. 2). Kapsos (2005) notes that between 1991 and

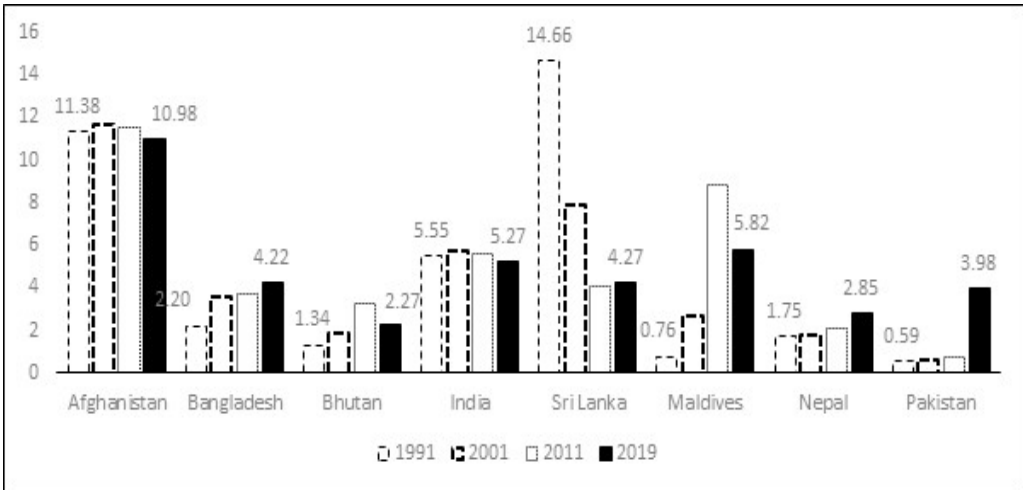
Fig.1 Working-age Population in South Asian Countries (in %)



Source: Estimated from the data obtained from World Development Indicators of World Bank.

2003, South Asian countries have achieved better living standards, reduced poverty rates and rapid overall development due to strong economic growth. However, the countries remain poorest compared to the other regions in this world. Beyer, Chocce and Rama (2019) highlight that employment in most South Asian countries is decreasing rapidly, and females suffer the most.

Fig. 2 Unemployment Rate in South Asian Countries (% of Total Labor Force)



Source: Estimated from the data obtained from World Development Indicators of World Bank.

Moreover, the concern is also increasing on the deteriorating association between economic growth and employment growth in many South Asian countries (Islam, 2019). During the last few years, most South Asian economies have experienced a reasonable growth rate in GDP. However, employment has grown at a meagre rate. It has raised questions about the employment generation capacity of these countries. Hence, it is relevant to analyze the GDP growth, employment growth, and corresponding employment intensity of growth in South Asian countries. It is also significant to identify the determinants of employment growth.

Review of Literature

Theoretically, discussion on the employment intensity of growth had commenced during the sixties, when Okun examined the link between growth and unemployment rate and found that a high economic growth (3 per cent or more) is required to reduce the county's unemployment rate. Since then, several researchers have explored the strength of Okun law for several nations and found heterogeneity in the coefficients (Moosa, 1997; Lee, 2000; Harris and Silverstone, 2001; Christopoulos, 2004; Villaverde and Maza, 2009; Elshamy 2012; Huang & Yeh, 2013; Sadiku, Ibraim & Sadiku,

2015). Previous studies believed that the Okun law is a valuable instrument for policymakers in enhancing aggregate output by lowering the unemployment rate. It is also helpful in projecting and policy-making purposes (Harris & Silverstone, 2001).

Furthermore, several researchers have estimated the employment elasticity of growth for different countries based on this law. For instance, Padalino and Vivarelli (1997) have calculated employment intensity of growth for the G-7 nations; Kapsos (2005) for a panel of 139 countries; Saget (2000) for transition economies; Das, Baten, Rana, and Kheleque (2008) for the manufacturing sector of Bangladesh; Papola and Sahu (2012), Mishra, and Suresh (2014), Kumar and Pattanaik (2020), and Padhi and Panda (2020) for India; Mouelhi and Ghazali (2018), Goaied and Sassi (2015) for Tunisia; Slimane (2015) a panel of 90 developing countries; Ali, Ghazi, and Msadfa (2017) for the manufacturing sector of developing and emerging economies, and Ben-Salha and Zmami (2021) for the GCC countries.

Aforesaid studies assumed that employment intensity of growth has several advantages over Okun law. On the one hand, employment elasticity avoids the measurement problem of the unemployment rate. On the other hand, it estimates employment elasticity separately for sectors, genders, age, education, and regions (Islam, 2004; Pattanaik & Nayak, 2014). Earlier studies also show that labor supply, education and health, inflation rate, wage rate, trade openness, FDI inflows, urbanization, economic structure, and tax policy and labor regulation are the significant factors of employment elasticity of growth (Kapsos, 2005; Crivelli, Furceri & Bernate, 2012; Pattanaik & Nayak, 2014; Mouelhi & Ghazali, 2018; Kamar, Bakardzhieva & Goaied, 2019; Ben-Salha & Zmami, 2021).

Data Source & Methodology

This study is primarily based on secondary data obtained from 'ILOSTAT' and 'World Development Indicators of the World Bank. Employment data are collected from 'ILOSTAT', while GDP data are gathered from the 'World Development Indicators' of the World Bank. Both sources provide country level data. The study period is 2000–2019, which is further split into two sub-periods: pre-financial crisis (2000-2008) and post-financial crisis period (2009-2019).

Employment elasticity is estimated using the "point elasticity" method. This method is like the one applied in previous studies by Pattanaik and Nayak (2013) and Goldar and Aggarwal (2019). This indicator shows the employment creation capacity of the country (Kapsos, 2005). Further, it explains how employment growth and GDP growth inrease simultaneously over the period (Goaied & Sassi, 2016). The value of employment elasticity shows how much GDP growth rate is needed to attain a definite employment level (Kumar & Pattanaik, 2018). It also explains the contribution of employment and labor productivity to GDP growth. A high value of employment elas-

ticity indicates the high impact of GDP growth on employment creation. On the other hand, a low value of employment elasticity is a sign of GDP growth's low influence on employment creation. It is quantitatively estimated as a function of the output growth rate. Therefore, based on this assumption, this study estimated employment elasticity by applying a simple formula given in equation (1).

$$\epsilon = \frac{\Delta\Phi/\Phi}{\Delta\lambda/\lambda} \text{.................}(1)$$

Where € stand for employment elasticity, $\Delta\Phi$ indicate a change in employment, and $\Delta\lambda$ denotes a change in GDP. The estimated employment elasticity suggests the change in employment with a change in GDP in percentage terms.

Further, this study employed a simple panel regression model under the pooled OLS, fixed effects, and random effects framework to find out the determinants of employment. It has been explained by gross domestic product (GDP), labor supply represented by working-age population, inflation, FDI, and health represented by life expectancy at birth. The explanatory variables are selected based on the earlier studies conducted by Kapsos (2005), Crivelli, Furceri, and Bernate (2012), Slimane (2015), Ghazali and Mouelhi (2018), Mkhize (2019), and Aggarwal and Goldar (2019). In this study, the following simple regression equation (2) is estimated for this purpose.

$$\text{lnEMP} = B_1 + B_2\text{InGDP}_{2it} + B_3\text{InLS}_{3it} + B_4\text{InINF}_{4it} + B_5\text{InFDI}_{5it} + B_6\text{InLE}_{6it} + U_{it} \text{...}(2)$$

Where *i* stand for the South Asian countries, *t* shows the time period (2000-2019), *lnEMP* represents employment, *lnGDP* shows the gross domestic product, *lnLS* signify labor supply, *lnINF* express inflation, *lnFDI* imply foreign direct investment inflow, *lnLE* shows life expectancy at birth, and U_{it} is the error term.

Employment Intensity of Growth in South Asian Countries

This study explores the employment intensity of growth for 19 years (2000-2019) to determine the process of development in South Asian countries. The result has been presented in Table 1, which shows a considerable disparity in GDP growth, employment growth, and corresponding employment elasticity in South Asian countries. During period III (2000-2019), Maldives has demonstrated the highest employment elasticity (0.82), followed by Pakistan (0.64). It implies that Maldives and Pakistan GDP have a high impact on employment generation. Nepal and Bhutan have shown near to 0.50 employment elasticity, suggesting that a 1 per cent increase in GDP will increase the employment in both economies by 0.50 per cent. Bangladesh, India, Afghanistan, and Sri Lanka have shown less than 0.35 employment elasticity. It means the GDP growth in Bangladesh, India, Afghanistan, and Sri Lanka has less impact on employment generation. During the period I (2000-2008), the employment elasticity is the highest in the Maldives (0.99), followed by Bhutan (0.60), Pakistan (0.55). They have registered high employment elastic-

ity due to increased output and employment growth rates.

On the contrary, the lowest employment elasticity has been seen in Sri Lanka (0.21), followed by India (0.30) and Bangladesh (0.37). The poor employment growth rate may be one reason for the low employment elasticity in these countries during this period. During period-II (2009-2019), most South Asian countries have shown declining employment elasticity trends except for Pakistan and Nepal. It has primarily reduced due to deterioration in the employment growth rate. The employment elasticity in Pakistan and Nepal has increased to 0.73 and 0.52 during this period.

Table 1 GDP Growth, Employment Growth and Employment Elasticity at the Aggregate Level

	Period-I			Period-II			Period-III		
Countries	Emp growth rate	GDP growth rate	Emp elasticity	Emp growth rate	GDP growth rate	Emp elasti-city	Emp growth rate	GDP growth rate	Emp elasti-city
Afghanistan	2.38	5.77	0.41	0.41	6.36	0.06	1.24	6.15	0.20
Bangladesh	2.17	5.82	0.37	2.16	6.74	0.32	2.16	6.35	0.34
Bhutan	5.19	8.72	0.60	1.88	5.98	0.32	3.28	7.13	0.46
India	1.87	6.35	0.30	1.13	6.48	0.17	1.45	6.42	0.23
Maldives	6.58	6.65	0.99	3.42	5.20	0.66	4.75	5.81	0.82
Nepal	1.63	3.77	0.43	2.33	4.53	0.52	2.04	4.21	0.48
Pakistan	2.97	5.37	0.55	2.62	3.58	0.73	2.77	4.34	0.64
Sri Lanka	1.09	5.14	0.21	0.21	5.21	0.04	0.58	5.18	0.11

Notes: (i) Period- I: 2000-2008; Period- II: 2009-2019; and Period- III: 2000-2019.
(ii) GDP growth and employment growth are shown in percentage terms.
Source: Estimated from the data obtained from ILO and World Development Indicators.

Employment Intensity of Agricultural Sector

South Asian countries have shown a slow structural transformation in employment compared to the output. The agriculture contribution in employment is still very high in South Asian countries. Nepal agriculture is contributing around 69.8 per cent in employment, followed by Bhutan (56.4 per cent), India (43.2 per cent), Pakistan (41.4 per cent), Bangladesh (39.7 per cent), and Afghanistan (38.3) (Table 2). However, the GVA contribution of this sector is less than 15 per cent in most of the South Asian countries except Nepal (30.9 per cent), Afghanistan (29.9 per cent), and Pakistan (18.7 per cent).

The employment elasticity of growth, employment growth, and output growth are presented in Table 4. During period III (2000-2019), agriculture employment elasticity was negative in three countries, namely Bangladesh (-0.11), India (-0.08) and Sri Lanka (-0.64), with the GVA growth rate of 3.3, 3.89 and 2.83 per cent and the adverse employment growth rate of -0.43, -0.25 and -1.81 per cent, respectively. Pakistan and Bhutan have shown more than 1 value of employment elas-

ticity, with almost equal GVA and employment growth rates. Afghanistan, Maldives, and Nepal have registered around 0.34, 0.42, and 0.49 values of employment elasticity, with the employment growth rate of 1.24, 0.84, and 1.6 per cent during the same period (Table 3).

During period I (2000-2008), Bhutan's agriculture sector has emerged as a high employment generating sector, followed by Pakistan and Maldives due to increased employment growth rates. Afghanistan, Bangladesh, and Sri Lanka have shown the worst position in the agriculture sector's employment generation. Agriculture employment elasticity in India and Nepal has been found around 0.15 and 0.36, with a GVA growth rate of 2.71 and 3.45 per cent, and the employment growth rate of 0.40 and 1.25 per cent.

The agriculture sector of Afghanistan has shown a very high GVA growth rate (6.23 per cent), followed by Bangladesh (3.74 per cent) and India (3.73 per cent) during period I (2000-2008). However, all have failed to speed up the employment growth rate. The resulting employment elasticity in the agriculture sector of Afghanistan and Bangladesh have

Table 2 Share of GVA – Broad Sectors: 2000, 2008 & 2019 (in %)

Countries	Agriculture			Industry			Service		
	2000	2008	2019	2000	2008	2019	2000	2008	2019
Afghanistan	-	32.6	29.9	-	13.3	12.9	-	54.0	57.2
Bangladesh	21.3	18.7	13.6	22.9	26.1	35.0	55.8	55.2	51.3
Bhutan	24.8	15.2	10.8	37.3	47.7	40.5	37.9	37.1	48.7
India	26.1	19.6	14.6	29.4	32.4	30.2	44.49	47.9	55.2
Maldives	10.51	7.5	5.2	6.7	11.4	11.8	82.8	81.1	83.0
Nepal	36.8	35.9	30.9	17.5	16.2	15.3	45.7	47.9	53.8
Pakistan	27.1	21.9	18.7	19.3	21.1	19.7	53.6	56.0	61.5
Sri Lanka	11.8	9.6	7.7	30.2	29.4	29.1	57.9	61.0	63.3

Source: World Development Indicators.

Table 3 Share in Employment – Broad Sectors: 2000, 2008 & 2019 (in %)

Countries	Agriculture			Industry			Service		
	2000	2008	2019	2000	2008	2019	2000	2008	2019
Afghanistan	69.1	59.3	38.3	8.0	12.5	17.8	22.9	28.2	43.9
Bangladesh	64.8	47.7	39.7	10.7	16.0	20.5	24.5	36.3	39.8
Bhutan	65.4	62.0	56.4	7.0	6.7	9.8	27.7	31.4	33.8
India	59.7	53.1	43.2	16.3	21.0	24.9	24.1	25.9	31.9
Maldives	18.3	14.1	8.90	24.1	21.7	18.5	57.5	64.2	72.6
Nepal	75.7	73.4	69.8	10.1	11.2	13.1	14.2	15.4	17.1
Pakistan	42.7	44.7	41.4	20.9	20.1	23.7	36.4	35.2	35.0
Sri Lanka	40.7	33.3	25.7	23.9	26.0	28.3	35.5	40.7	46.0

Source: ILO Database.

been found very low. In the case of India, Sri Lanka, and the Maldives, it has been found negative. Pakistan and Nepal have maintained high employment elasticity due to almost equal employment and GVA growth rates.

Table 4 GDP Growth, Employment Growth and Employment Elasticity of the Agriculture Sector

	Period-I			Period-II			Period-III		
Countries	Emp growth rate	GDP growth rate	Emp elasticity	Emp growth rate	GDP growth rate	Emp elasti-city	Emp growth rate	GDP growth rate	Emp elasti-city
Afghanistan	2.38	-1.18	-2.02	0.41	6.23	0.07	1.24	3.61	0.34
Bangladesh	-1.66	4.09	-0.4	0.46	3.74	0.12	-0.43	3.89	-0.11
Bhutan	4.49	2.20	2.04	1.04	2.72	0.38	2.49	2.5	1.00
India	0.40	2.71	0.15	-0.73	3.73	-0.20	-0.25	3.3	-0.08
Maldives	3.14	2.36	1.33	-0.83	1.79	-0.46	0.84	2.03	0.42
Nepal	1.25	3.45	0.36	1.86	3.11	0.60	1.6	3.25	0.49
Pakistan	3.57	2.6	1.37	1.92	2.14	0.90	2.61	2.33	1.12
Sri Lanka	-1.40	2.45	-0.57	-2.12	3.11	-0.68	-1.81	2.83	-0.64

Notes: (i) Period- I: 2000-2008; Period- II: 2009-2019; and Period- III: 2000-2019.
(ii) GDP growth and employment growth are shown in percentage terms.
Source: Estimated from the data obtained from ILO and World Development Indicators.

Employment Intensity of Industrial Sector

The industrial sector contributes a high GDP and employment share as the economy progresses and becomes a high employment generating sector. It also helps in shifting surplus labor from agriculture. Over the period, South Asian countries have achieved reasonable industrial growth but have failed to become industrial hubs. During the last 19 years, Bangladesh (12.1 per cent) and Maldives (5.1 per cent) have shown the highest increment in the GVA of the industrial sector. In contrast, India (0.8 per cent), Sri Lanka (-1.1 per cent), and Nepal (-2.2 per cent) have shown the worst performance in the GVA of the industrial sector (Table 2). In terms of employment, Bangladesh (9.8 per cent), Afghanistan (9.8 per cent), and India (8.6 per cent) have revealed the most significant increase in the share of the industrial sector during the study period. On the other hand, the lowest and negative increment has been found in Nepal (2.8 per cent), Pakistan (2.8 per cent) and Maldives (-5.4 per cent) during the same period (Table 3).

Over the period, South Asian countries have achieved reasonable industrial growth but have failed to become industrial hubs.

GVA growth, employment growth and resultant employment elasticities of the industrial sector show significant variation during the whole period and subperiods. Over the entire period, Nepal has

shown the highest industrial employment elasticity (0.98) with 3.47 and 3.55 per cent employment and GVA growth rates. On the contrary, Afghanistan has revealed the lowest employment elasticity (0.16) in the industrial sector, with 1.24 and 7.81 per cent employment and GVA growth rates (Table 5).

Nepal (1.04), Bangladesh (0.84), and India (0.67) have shown high industrial employment elasticity during period I. The reason for high employment elasticity in Nepal may be almost equal employment (2.88 per cent) and output (2.77 per cent) growth rates. Bangladesh and India may have achieved high industrial employment elasticity due to increased employment in industrial growth compared to labor productivity. The rest of the South Asian countries have experienced low industrial employment elasticity (0.21 to 0.45) due to the slow employment growth rate (Table 5)

Most South Asian countries have experienced declining industrial employment elasticity trends during period II (2009-2019) except Bhutan and Pakistan. The deteriorating employment growth could be the one cause for falling industrial employment elasticity in the South Asian countries during this period. It indicates that most of the industrial growth in South Asian countries is driven by labor productivity. Bhutan and Pakistan have shown growing trends in the value of industrial employment elasticity due to increased employment growth rates (Table 5)

Table 5 GDP Growth, Employment Growth and Employment Elasticity of the Industrial Sector

	Period-I			Period-II			Period-III		
Countries	Emp growth rate	GDP growth rate	Emp elasticity	Emp growth rate	GDP growth rate	Emp elasti-city	Emp growth rate	GDP growth rate	Emp elasti-city
Afghanistan	2.38	11.3	0.21	0.41	5.90	0.07	1.24	7.81	0.16
Bangladesh	7.45	8.84	0.84	4.50	9.00	0.50	5.74	8.77	0.65
Bhutan	4.75	12.6	0.38	6.04	4.46	1.35	5.50	7.89	0.70
India	5.12	7.69	0.67	2.72	5.81	0.47	3.73	6.60	0.57
Maldives	5.18	13.45	0.39	1.92	6.25	0.31	3.30	9.28	0.36
Nepal	2.88	2.77	1.04	3.90	4.11	0.95	3.47	3.55	0.98
Pakistan	2.47	7.23	0.34	4.17	2.57	1.62	3.46	4.54	0.76
Sri Lanka	2.17	4.79	0.45	0.99	5.11	0.19	1.49	4.98	0.30

Notes: (i) Period- I: 2000-2008; Period- II: 2009-2019; and Period- III: 2000-2019.
(ii) GDP growth and employment growth are shown in percentage terms.
Source: Estimated from the data obtained from ILO and World Development Indicators.

Employment Intensity of Service Sector

The service sector plays a dominant role in increasing overall production, employment, globalization, and market integration (Pattanaik & Nayak, 2011). It is well established in the literature that as people's income goes up, demand for food items fall and demand for manufacturing and service-

related things increases. As a result, resources shift away from agriculture to industry and service-related activities. Currently, the service sector contributes more than 50 per cent of the GDP in most South Asian countries. Maldives, Sri Lanka, and Pakistan's service sector contribute around 83, 63.3 and 61.5 per cent share in their respective GDPs. It is only Bhutan where the service sector contributes less than 50 per cent to its GDP (Table 2). However, this sector accounts for less than 47 per cent of the total employment in most South Asian countries. The Maldives is the only country where the service sector contributes a high employment share (72.6 per cent) in aggregate employment. It is only Nepal where the service sector's employment share is less than 20 per cent of the total employment (Table 3). It means that Nepal is purely an agricultire-based economy.

The estimated output growth, employment growth and employment elasticity of the service sector in South Asian countries for the whole period and sub-periods are displayed in Table 6. During period III (2000-2019), 5 out of 8 countries have shown 0.50 or more of employment elasticity in the service sector due to high output and employment growth rates. These countries are the Maldives, Bangladesh, Nepal, Bhutan, and Pakistan. During the same period, India, Sri Lanka, and Afghanistan have shown less than 0.40 of employment elasticity in this sector due to the poor employment growth rate performance. In the period I (2000-2008), Bangladesh (1.30), Maldives (1.19), Bhutan (0.82) and Nepal (0.61) have shown higher employment elasticities in the service sector with the employment growth of 7.40, 8.06, 6.87 and 2.69 per cent and GDP growth of 5.68, 6.79, 8.38 and 4.41 per cent respectively. It indicates that service growth in these countries increased primarily by labor productivity. The service sector employment elasticity in Sri Lanka, Pakistan, India, and Afghanistan have been found around 0.49,0.43, 0.39 and 0.20 with less than 3 per cent employment growth rate and more than 5 per cent output growth rate.

Service growth in these countries has increased primarily by labor productivity.

In period II (2009-2019), service sector employment elasticity has dropped in most countries except India and Pakistan, and the highest fall has been noted in Bangladesh, Bhutan, and the Maldives. It might have declined due to the sluggish employment growth rate. Pakistan has shown significant improvement in the service sector employment elasticity, from 0.43 to 0.58. In contrast, India service sector employment elasticity remains the same during this period.

Employment Growth at the Sub-Sectoral Level

Table 7 presents the results of employment growth for the total period, 2000-2019. It shows that in Afghanistan, financial and insurance activities (16.74 per cent), real estate; business and administrative activities (11.60 per cent); construction (10.67) and transport, stor-

Table 6 GDP Growth, Employment Growth and Employment Elasticity of the Services Sector

Countries	Period-I			Period-II			Period-III		
	Emp growth rate	GDP growth rate	Emp elasticity	Emp growth rate	GDP growth rate	Emp elasti-city	Emp growth rate	GDP growth rate	Emp elasti-city
Afghanistan	2.38	11.83	0.20	0.41	6.92	0.06	1.24	8.65	0.14
Bangladesh	7.40	5.68	1.30	3.04	6.04	0.50	4.88	5.89	0.83
Bhutan	6.87	8.38	0.82	2.65	8.70	0.31	4.43	8.56	0.52
India	2.85	7.33	0.39	3.05	7.84	0.39	2.97	7.63	0.39
Maldives	8.06	6.79	1.19	4.60	5.41	0.85	6.05	5.99	1.01
Nepal	2.69	4.41	0.61	3.27	5.62	0.58	3.03	5.11	0.59
Pakistan	2.55	5.96	0.43	2.57	4.47	0.58	2.56	5.09	0.50
Sri Lanka	2.86	5.82	0.49	1.34	5.57	0.24	1.98	5.67	0.35

Notes: (i) Period- I: 2000-2008; Period- II: 2009-2019; and Period- III: 2000-2019.
(ii) GDP growth and employment growth are shown in percentage terms.
Source: Estimated from the data obtained from ILO and World Development Indicators.

age, and communication (9.35 per cent) have shown the highest employment growth rate. Employment growth in Bangladesh is mainly driven by real estate, business, and administrative activities (10.84 per cent), construction (7.79 per cent), education (6.97 per cent), and other services (6.18 per cent).

Table 7 The Average Annual Growth Rate of Employment in Sub-sectors: 2000-2019

Sub-sectors/Countries	Afghani-stan	Bangla-desh	Bhutan	India	Maldi-ves	Nepal	Pakist-An	Sri – Lanka
Agriculture; forestry and fishing	1.24	-0.43	2.49	-0.25	0.84	1.60	2.61	-1.81
Mining and quarrying	5.22	-3.30	16.29	1.28	0.62	2.66	8.25	-2.02
Manufacturing	7.73	5.55	7.43	1.81	1.87	2.39	3.15	1.36
Utilities	6.35	1.15	1.88	5.56	8.39	3.54	3.96	2.23
Construction	10.67	7.79	6.68	6.81	5.81	4.83	4.17	2.45
Wholesale and retail trade	6.35	3.40	7.16	2.12	6.14	2.57	3.30	2.38
Transport; storage and communication	9.35	5.62	6.53	4.12	8.32	3.73	3.53	2.77
Accommodation and food service activities	7.42	5.66	4.61	4.53	5.89	3.61	5.59	4.34
Financial and insurance activities	16.74	3.66	6.99	6.34	10.02	6.08	5.45	5.15
Real estate; business and administrative activities	11.60	10.84	10.34	8.32	8.99	5.90	6.94	7.80
Public administration and defence; compulsory social security	8.55	5.12	2.76	-0.56	4.18	2.57	0.49	-0.22
Education	8.99	6.97	2.08	3.40	6.64	2.79	0.70	0.22
Human health and social work activities	8.43	6.08	11.01	3.08	6.76	2.74	1.17	0.28
Other services	8.85	6.17	2.15	2.39	4.38	2.68	1.22	2.51

Note: (i) employment growth is shown in percentage terms.
Source: Estimated from the data obtained from the ILO database.

In Bhutan, mining and quarrying (16.29 per cent), human health and social work activities (11.01 per cent), real estate, business, and administrative activities (10.34 per cent), and manufacturing (7.43 per cent) have shown the maximum employment growth rates. Real estate, business, and administrative activities (8.32 per cent), construction (6.81 per cent), financial and insurance activities (6.35 per cent), and utilities (5.56 per cent) are the best performing sector in India employment growth rate.

In the Maldives, financial and insurance activities (10.02 per cent), real estate; business and administrative activities (8.99 per cent), utilities (8.39 per cent), and transport; storage and communication (8.32 per cent) are best performing sectors in the employment growth. In Nepal, Pakistan, and Sri Lanka highest employment growth has been experienced by financial and insurance activities (6.08 per cent), mining and quarrying (8.25 per cent) and real estate; business and administrative activities (7.80 per cent), respectively.

Determinants of Employment

The estimated results of pooled, fixed, and random effects models are shown in Table 8. This study utilizes F-test to choose the best models among the fixed effects and the pooled OLS. The F-test has shown a p-value of 0.0000, which led to a decision that the fixed effects model is more relevant than pooled OLS. The Hausman test is applied to find the best model between the fixed effects and the random-effects models. This test has shown a p-value of 0.0000, which indicates that the fixed effects model is more appropriate. Breusch Pagan/Lagrange multiplier is used to find out the best model between pooled and random effects. It has shown a p-value of 0.0000, and it suggests the superiority of the random model over the pooled model. Therefore, based on F-test, Hausman test, and Breusch Pagan/Lagrange multiplier test, it is concluded that the fixed effects model is the more relevant, and hence results are interpreted based on this model.

For every 1 per cent change in GDP, average employment in South Asian countries would decline by 0.082 percentage point.

Column 2 of Table 8 presents the results of the fixed-effects model. Considering this model, lnGDP has shown a negative impact on employment with a significance level of 1 per cent, implying that for every 1 per cent change in GDP, average employment in South Asian countries would decline by 0.082 percentage point. This study considers the working-age population as a proxy for labor supply (lnLS). It has shown a positive impact on employment in South Asian countries with a 1 per cent level of significance. It supports the previous findings that the higher the labor supply, the more the employment growth rate (Kapsos, 2005; Pattanaik & Nayak, 2014). lnINF has shown a positive impact on employment, but it is not statistically significant. Therefore, it gives little evidence about inflation and employment

relationship in the selected countries. lnFDI has shown a negative association with employment in South Asian countries at 10 per cent level of significance indicating that, with a 1 per cent increase in FDI, employment in these countries would decrease by 0.4 percentage point. Life expectancy at birth (lnLE) is considered a proxy for health. The regression results for (lnLE) under the fixed effects model showed a positive and statistically significant impact on employment in the South Asian countries. It implies that the higher the health care facilities more will be employment growth. It is believed that a healthy worker goes into the productive workforce and becomes a solid contributor to the economy.

Table 8 Factor Coefficients of Employment in South Asian Countries

Variables	Pooled	Fixed effects	Random effects
	(1)	(2)	(3)
lnGDP	0.051	-0.082	0.128
	(0.001) ***	(0.000) ***	(0.000) ***
lnLS	0.952	0.607	0.825
	(0.000) ***	(0.000) ***	(0.000) ***
lnINF	0.001	0.004	0.014
	(0.924)	(0.190)	(0.004) ***
lnFDI	-0.015	-0.004	-0.005
	(0.017) ***	(0.072) *	(0.231)
lnLE	-1.304	2.631	-0.308
	(0.000) ***	(0.000) ***	(0.117)
R-squared	0.99	within = 0.978	within = 0.944
		between = 0.979	between =0.997
		overall = 0.975	overall = 0.996
F-statistics	F (5,138) =28731.38	F (5,131) = 1199.71	Chi-square = 4874.55
Prob > F	0.0000	0.0000	Prob > chi2 = 0.0000
N	144	144	144
F-Test	F (7, 131) = 231.36 (Prob > F = 0.0000)		
Hausman Test	chi2(5) = 366.74		
	Prob>chi2 = 0.0000		
LM Test	chibar2(01) = 187.34		
	Prob > chibar2 = 0.0000		

Note: (1) Figures in parentheses are the *P*-values
(2) * **significant at 1 percent, ** significant at 5 percent, *significant at 10 percent.
Source: Own computations.

Summary & Conclusion

In this paper, the employment elasticity of growth in South Asian countries has been examined from 2000 to 2019. The sources of economic growth have also been discussed for the same period. Adopting the point elasticity method, employment elasticity has been calculated, and a panel regression model has been used to arrive at the determinants of employment growth.

The analysis reveals that GDP growth and employment growth are not

growing in the same direction. The GDP growth is not employment elastic in nature in all the South Asian countries. Further, the sector-wise analysis reveals that the structural transformation of employment growth is not following the structural transformation of economic growth. The agricultural sector still holds a significant share in employment in all the South Asian countries despite its decreasing share in GVA. Nevertheless, in some countries like Pakistan and Bhutan, agriculture growth is employment elastic in nature. In the industrial and service sectors, growth has not been employment elastic in nature. At the sub-sectoral level, real estate, business and administrative, human health and social work, financial and insurance, and mining and quarrying are the best performing sectors in employment growth in most South Asian countries.

Further, panel regression has strengthened the point that GDP growth and FDI are not beneficial for employment in these countries. However, better health conditions have positively impacted employment.

Overall, it is concluded that in South Asian countries, the economic growth has not translated into employment generation. Policymakers should undertake serious policy interventions in this regard, they can target labor-intensive industries, small scale and medium industries, and vocational education and training. In addition, respective governments can launch various employment generating programs, particularly for unskilled labor.

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References

Adams Jr, R. H. (2004), "Economic Growth, Inequality and Poverty: Estimating the Growth Elasticity of Poverty", *World Development*, 32(12): 1989-2014.

Aggarwal, S. C. & Goldar, B. (2019), "Structure and Growth of Employment: Evidence from India KLEMS Data", *Indian Growth and Development Review*, 12(2): 202-28.

Ali, A. A., Ghazi, T. & Msadfa, Y. (2018), Manufacturing Employment Elasticity and Its Drivers in Developing and Emerging Countries: Focus on Sub-Saharan Africa, OCP Policy Centre, Morocco.

Beyer, R. C. M., Chocce Falla, M. A. & Rama, M. G. (2019), "Employment in South Asia: A New Dataset", *Indian Growth and Development Review*, 12(2): 153-81.

Ben-Salha, O. & Zmami, M. (2021), "The Effect of Economic Growth on Employment in GCC Countries", *Scientific Annals of Economics and Business*, 68 (1): 1-17

Christopoulos, D. K. (2004), "The Relationship Between Output and Unemployment: Evidence from Greek Regions", *Papers in Regional Science*, 83(3): 611-20.

Crivelli, E., Furceri, D. & Bernate, J. T. (2012), Can Policies Affect Employment Intensity of Growth? A Cross-country Analysis (Working Paper No. 218), International Monetary Fund, Washington, DC.

Das, S., Baten, M. A., Rana, M. M. & Kheleque, M. A. (2008), "Analysis of the Growth of Manufacturing Industries in Bangladesh", *South Asia Economic Journal*, 9(1): 85-108.

DFID, G. (2008), Growth: Building Jobs and Prosperity in Developing Countries, London: Department for International Development.

Elshamy, H. (2013), "The Relationship Between Unemployment and Output in Egypt", *Procedia-Social and Behavioral Sciences*, 81: 22-26.

Ghazali, M. & Mouelhi, R. (2018), "The Employment Intensity of Growth: Evidence from Tunisia", *Journal of Economic Development*, 43(3): 85-117.

Glewwe, P. & Jacoby, H. G. (2004), "Economic Growth and the Demand for Education: Is There a Wealth Effect?" *Journal of Development Economics*, 74(1): 33-51.

Goaied, M. & Sassi, S. (2015), "Trade Liberalization and Employment Intensity of Sectoral Output Growth: Lessons from Tunisia", *The Economic and Labor Relations Review*, 26(2): 261-75.

Harris, R. & Silverstone, B. 2001. 'Testing for asymmetry in Okun's Law: A Cross-country Comparison', *Economics Bulletin*, 5(2): 1-13.

Heintz, J. (2006), Globalization, Economic Policy and Employment: Poverty and Gender Implications. Employment Strategy Paper, No. 6, Employment Policy Unit, Employment Strategy Department, International Labor Organization, Geneva.

Huang, H. C. & Lin, S. C. (2006), "A Flexible Nonlinear Inference to Okun's Relationship", *Applied Economics Letters*, 13(5): 325-31.

Islam, R. (2004), The Nexus of Economic Growth, Employment and Poverty Reduction: An Empirical Analysis. Issues in Employment and Poverty Reduction: Discussion Paper, No. 14, International Labor Organization, Geneva.

Islam, R. (2019), Labor Market Outcomes and Inclusive Development: Experiences of South Asian Countries, in R. P. Mamgain, (Ed.). Growth, Disparities and Inclusive Development in India, Perspectives from the Indian State of Uttar Pradesh. Springer, Singapore.

International Labor Office (ILO), (2012), Understanding Deficits of Productive Employment and Setting Targets: A Methodological Guide, Geneva: ILO.

Kamar, B., Bakardzhieva, D. & Goaied, M. (2019), "Effects of Pro-growth Policies on Employment: Evidence of Regional Disparities", *Applied Economics*, 51(40): 4337-67.

Kapsos, S. (2005), The Employment Intensity of Growth: Trends and Macroeconomic Determinants, Employment Strategy Papers, No. 12, International Labor Organization, Geneva.

Khan, A. R. (2012), "Employment in Sub-Saharan Africa: Lessons To Be Learnt from the East Asian Experience", in A. Noman, K. Botchwey, H. Stein, and J.E. Stiglitz (Eds.). Good Growth and Governance in Africa: Rethinking Development Strategies. New York: Oxford University Press.

Kumar, S. & Pattanaik, F. (2018), "Employment Intensity of Food Products and Processing Industry in India", *Small Enterprises Development, Management & Extension (Sedme) Journal,* 45(2): 47-71.

Kumar, S. & Pattanaik, F. (2020), "Regional Disparities in Employment Intensity of Indian Industries: A State-level Analysis", *Emerging Economy Studies*, 6(1): 23-38.

Kuznets, S. (1973), "Modern Economic Growth: Findings and Reflections", *The American Economic Review*, 63(3): 247-58.

Lee, J. (2000), "The Robustness of Okun's Law: Evidence from OECD Countries", *Journal of Macroeconomics*, 22(2): 331-56.

Misra, S. & Suresh, A. K. (2014), Estimating Employment Elasticity of Growth for the Indian Economy (Working paper No. 06). Retrieved from https://www.rbi.org.in/SCRIPTs/PublicationsView.aspx?id=15763

Mkhize, N. I. (2019), "The Sectoral Employment Intensity of Growth in South Africa", *Southern African Business Review*, 23(1): 1-24.

Moosa, I. A. (1997), "A Cross-country Comparison of Okun's Coefficient", *Journal of Comparative Economics*, 24(3): 335-56.

Padalino, S. & Vivarelli, M. (1997), "The Employment Intensity of Growth in the G-7 Countries", *International Labor Review*, 136(2): 199–213.

Padhi, B. & Panda, S. (2020), "Employment and Economic Growth Dynamics in Odisha, India", *Journal of Public Affairs*, e2168.

Papola, T. S. & Sahu, P. P. (2012), Growth and Structure of Employment in India, Institute for Studies in Industrial Development, New Delhi.

Pattanaik, F. & Nayak, N. C. (2013), "Trends and Forecasting of Employment Intensity of Growth in India", *Journal of the Asia Pacific Economy*, 18(3): 438-59.

Pattanaik, F. & Nayak, N. C. (2014), "Macroeconomic Determinants of Employment Intensity of Growth in India", *Margin: The Journal of Applied Economic Research*, *8*(2): 137-54.

Sadiku, M., Ibraimi, A. & Sadiku, L. (2015), "Econometric Estimation of the Relationship Between Unemployment Rate and Economic Growth of FYR of Macedonia", *Procedia Economics and Finance*, 19(1) :69-81

Saget, C. (2000), Can the Level of Employment Be Explained by GDP Growth in Transition Countries (Theory versus the Quality of Data), ILO Development Policy Group, *Geneva*.

Sassi, S. & Goaied, M. (2016), "Long term Employment Intensity of Sectoral Output Growth in Tunisia", *International Labor Review*, 155(2): 253-63.

Slimane, S. B. (2015), "The Relationship Between Growth and Employment Intensity: Evidence for Developing Countries", *Asian Economic and Financial Review*, *5*(4): 680-92.

Villaverde, J. & Maza, A. (2009), "The Robustness of Okun's Law in Spain, 1980–2004: Regional Evidence", *Journal of Policy Modeling*, 31(2): 289-97.