

# Trends of Population Growth in the High and Middle Income Countries

<sup>1</sup>Ashwini N., <sup>2</sup>Dr. Indumati S.

<sup>1</sup>Research Scholar, <sup>2</sup>Professor  
Department of Studies in Economics and Cooperation,  
Manasagangothri, University of Mysore, Mysuru.

**Abstract-** The interrelation between population growth and economic growth is disputable. This paper clearly analysis that the historical data to chart the links between population growth, unemployment rate, GDP per capita output, and overall economic growth over the past 70 years. Low population growth in high-income countries is likely to create social and economic problems while high population growth in low-income countries may slow their development. This paper is also observed that the middle income nation's economic of inequality; it appears that the population growth and unemployment may contribute to increased national and global economic inequality.

**Keywords:** Population growth, Economic growth, GDP Per capita, Unemployment

## Introduction

Rapid population growth leads to a country with a young average age. Young populations require creation of new infrastructure including shelter, health care, and schools. If the country has the resources to employ their new labour, the population increase can lead to rapid economic growth. If, on the other hand, the country cannot utilize its workforce productively, then unemployment rises, often leading to civil strife and emigration.

Many industrial economies have birth rates below the level required to replace their existing populations. Low birth rates can lead to a population with a relatively high average age. As populations age, internal consumption declines and any economic growth comes from exporting goods and services. Many industrial countries with slow population growth are also concerned about the burden placed on young workers by the need to care for an aging population. These countries may need to import labour, and the new workers can benefit from utilizing the existing infrastructure and perhaps rekindle growth, which ultimately benefits the country.

Although, it is possible that the effect of population growth on economics development has been enlarged, or that no single generation is declared for countries differing as widely in growth rates, densities and income levels as do today's less developed areas. Clearly there is need for more extensive research on the actual trend and experience of developing countries comparatively to developed countries in the last three decades. Thus, forms the major relative to economic development and growth indicators of selected high and middle income countries during the period of 1951 to 2020.

## Determinants of Rapid Population Growth Between 1951 and 2020

In this section indicates that the trends of rapid population of selected middle income countries (Egypt, India, Morocco, Pakistan and Ukraine) compared to higher income economies or developed countries taken as Australia, Singapore, Switzerland, UK and USA. The fertility rate, birth rate, death rate and mortality rate and life expectancy are the major determinates of rapid population growth rate (Todaro and Smith 2011). Similarly, youth depended ratio young below age 15 has been attributed as one of the leading causes of population growth in developing countries that have high prevalence.

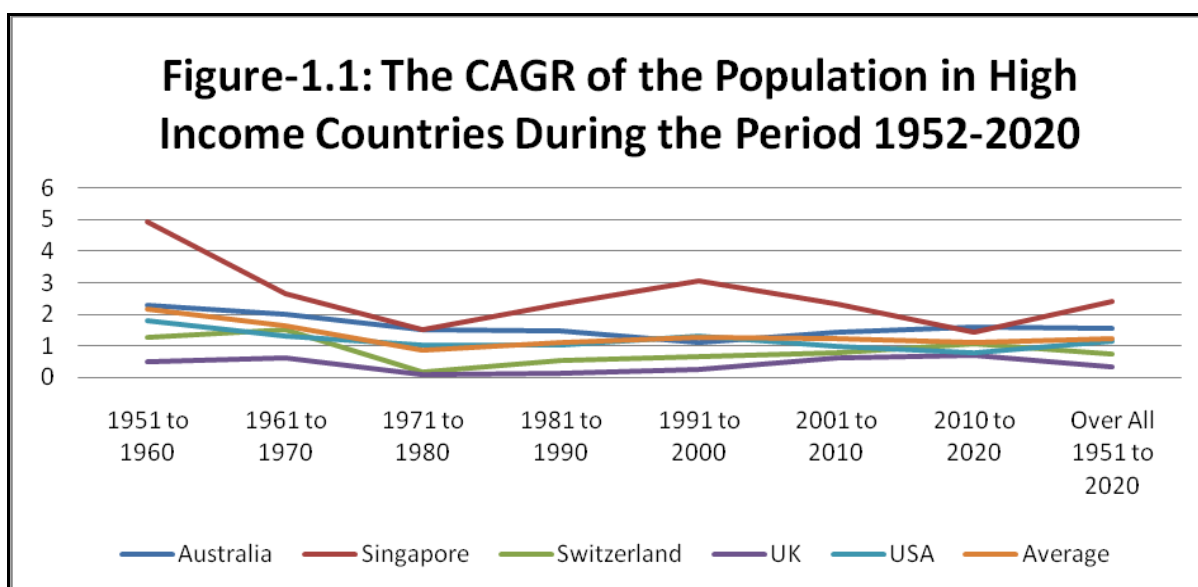
**Table 1.1: The Compound Annual Growth Rate of the Population in High Income Countries during the Period 1952-2020**

Year	Australia	Singapore	Switzerland	UK	USA
1952	8409930	1050623	4750785	50270594	150607243
1953	8623929	1097973	4811811	50495112	152997126
1954	8818442	1150400	4875429	50727791	155532933
1955	9010793	1207527	4939025	50963942	158264507
1956	9214341	1268803	5002437	51194939	161135244
1957	9427948	1333629	5066313	51432426	164049660

1958	9642382	1400989	5131147	51688275	167053211
1959	9854340	1469469	5196915	51961620	170140276
1960	10068492	1536263	5262814	52248492	173220096
<b>CAGR</b>	<b>2.27</b>	<b>4.93</b>	<b>1.29</b>	<b>0.48</b>	<b>1.78</b>
1961	10286089	1598883	5342069	52548638	176200155
1962	10501509	1656560	5445722	52862633	179064555
1963	10711751	1710373	5567856	53184465	181884987
1964	10920308	1761966	5686212	53517881	184615020
1965	11136142	1811832	5780489	53866526	187210178
1966	11361242	1859942	5855124	54217189	189603879
1967	11587076	1905927	5922654	54555477	191772232
1968	11809682	1949268	5993040	54868704	193785613
1969	12034907	1989457	6065779	55155376	195795065
1970	12296882	2026639	6128743	55413310	197977032
<b>CAGR</b>	<b>1.99</b>	<b>2.66</b>	<b>1.52</b>	<b>0.6</b>	<b>1.29</b>
1971	12619072	2061714	6177245	55648863	200365195
1972	12963059	2096432	6218696	55861128	202824882
1973	13269153	2131943	6260741	56033283	205153690
1974	13509005	2167419	6303244	56152574	207277041
1975	13704520	2201039	6328948	56222416	209289089
1976	13879438	2232230	6327186	56254617	211274175
1977	14039430	2262176	6307059	56258305	213327321
1978	14195750	2292451	6288146	56249613	215529621
1979	14356569	2324549	6285516	56250254	217927319
1980	14527554	2360736	6298275	56277417	220494857
<b>CAGR</b>	<b>1.49</b>	<b>1.49</b>	<b>0.17</b>	<b>0.11</b>	<b>1.04</b>
<b>Year</b>	<b>Australia</b>	<b>Singapore</b>	<b>Switzerland</b>	<b>UK</b>	<b>USA</b>
1981	14718967	2403560	6322332	56329109	223085714
1982	14934940	2453223	6354588	56390769	225598481
1983	15160524	2507905	6387688	56449197	228015130
1984	15376999	2565454	6416938	56506666	230385887
1985	15582745	2625046	6443229	56570970	232767475
1986	15792486	2686697	6471600	56644402	235141748
1987	16019077	2750154	6505935	56730425	237504044
1988	16265817	2814991	6546884	56833626	239884588
1989	16527247	2880313	6594444	56951690	242365025
1990	16790165	2949469	6650191	57079730	245108547
<b>CAGR</b>	<b>1.45</b>	<b>2.31</b>	<b>0.54</b>	<b>0.14</b>	<b>1.04</b>
1991	17038559	3029507	6717765	57215332	248199338
1992	17260531	3123687	6793422	57359712	251606420
1993	17455034	3227661	6868231	57505386	255171760
1994	17633173	3333658	6933613	57647534	258742894
1995	17813338	3438873	6988652	57787909	262237966
1996	18006783	3544797	7033175	57931617	265639497
1997	18208365	3652142	7064995	58086383	269013447
1998	18407921	3759615	7088303	58255702	272404934
1999	18604270	3864474	7112472	58441240	275804012
2000	18806841	3962125	7144159	58641189	279138384
<b>CAGR</b>	<b>1.09</b>	<b>3.06</b>	<b>0.67</b>	<b>0.27</b>	<b>1.32</b>
2001	19022333	4047140	7182887	58859087	282350209
2002	19247317	4117244	7227647	59099250	285406433
2003	19474329	4174848	7277204	59365835	288310188
2004	19699966	4224536	7329453	59667113	291135986
2005	19931929	4280484	7380105	60009797	293966792
2006	20187939	4367207	7428199	60394431	296847884

2007	20489863	4498159	7481783	60816039	299779722
2008	20848577	4662747	7551734	61268842	302730469
2009	21246531	4837454	7638199	61748735	305650115
2010	21642644	5004232	7731709	62248523	308463263
<b>CAGR</b>	<b>1.42</b>	<b>2.33</b>	<b>0.79</b>	<b>0.63</b>	<b>0.99</b>
2011	22012365	5151879	7822607	62763260	311190496
2012	22368490	5275313	7909718	63285043	313903591
2013	22732695	5380135	7998362	63799129	316634365
2014	23103543	5476521	8090632	64294843	319353484
2015	23467199	5566192	8185963	64766722	322005635
2016	23828505	5644151	8280807	65217690	324617313
2017	24202090	5708813	8368772	65648124	327203068
2018	24588422	5763652	8446340	66051000	329713822
2019	24975578	5815143	8513903	66425485	332083646
2020	25335484	5863604	8576212	66757042	334133904
<b>CAGR</b>	<b>1.58</b>	<b>1.42</b>	<b>1.05</b>	<b>0.69</b>	<b>0.8</b>
<b>Over All CAGR</b>	<b>1.54</b>	<b>2.41</b>	<b>0.75</b>	<b>0.35</b>	<b>1.16</b>

Source: Calculation is based on data collected UN.



The table 1.1 revealed that the decadal compound annual growth rate of the size of population for the high income countries during period of 1952-2020. In the first period 1952 to 1960 Singapore has been recorded growth rate of 4.69 per cent. And also over all the periods of 1952 to 2020 the Singapore's population has been rapid growing at 2.41 per cent, because of throughout its history, Singapore has benefited from the large inward flows of FDI from global investors, financial institutions and multinational corporations (MNCs) due to its highly attractive investment climate along with a stable and conducive political environment throughout its modern years.

Concurrently, the United Kingdom decadal compound annual growth rate has been declined at 0.35 per cent; it is the age-specific fertility rates have declined throughout, with the sharpest decrease being among the 15-19 year olds. Though age at marriage has risen during the same period, the more important reason for the decline appears to be that women have made a deliberate choice to have fewer children. Therefore the feature of an ecosystem that restricts a population's size and many scientists think Earth has a maximum carrying capacity of 9 billion to 10 billion people. Despite that the population is very essential and this has to enhanced.

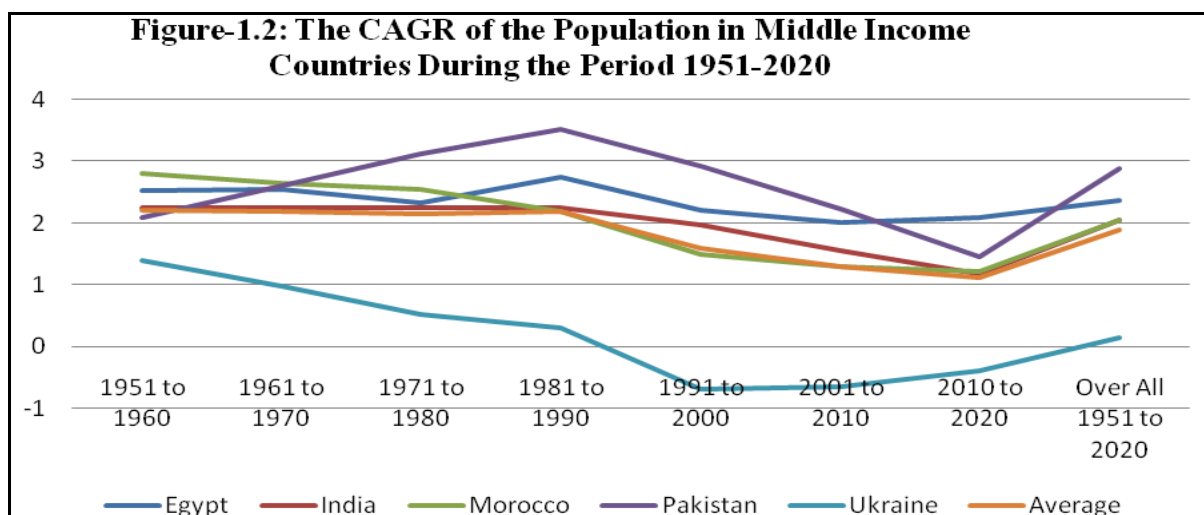
**Table 1.2: The Compound Annual Growth Rate of the Population in Middle Income Countries during the Period 1951-2020**

Year	Egypt	India	Morocco	Pakistan	Ukraine
1951	21606363	364922360	9188594	38215785	37783286
1952	22108164	372997188	9438849	38816777	38271725
1953	22659254	381227705	9696704	39488228	38768511
1954	23241217	389731406	9963626	40224090	39287994
1955	23841701	398577992	10242168	41023128	39836510
1956	24453498	407656597	10531688	41884995	40398805
1957	25078378	416935399	10831987	42808511	40977535
1958	25700968	426295763	11138237	43794993	41559369
1959	26345761	435900352	11452433	44843639	42154895
1960	27034499	445954579	11769774	45954226	42767251
<b>CAGR</b>	<b>2.53</b>	<b>2.25</b>	<b>2.80</b>	<b>2.08</b>	<b>1.39</b>
1961	27747867	456351876	12081713	47060915	43365219
1962	28485022	467024193	12404757	48161841	43924755
1963	29245936	477933619	12726686	49325050	44445903
1964	30026648	489059309	13044254	50552592	44941406
1965	30818469	500114346	13381880	51841626	45387091
1966	31613132	510992617	13738502	53199414	45809120
1967	32408414	521987069	14109755	54629793	46235370
1968	33204629	533431909	14490077	56124743	46635196
1969	33995955	545314670	14876982	57676805	46990889
1970	34781986	557501301	15274351	59290872	47279086
<b>CAGR</b>	<b>2.55</b>	<b>2.24</b>	<b>2.64</b>	<b>2.61</b>	<b>0.97</b>
1971	35555969	569999178	15677300	60878781	47597756
1972	36330768	582837973	16081438	62509565	47974187
1973	37120776	596107483	16489452	64285624	48301548
1974	37930374	609721951	16902383	66149169	48602694
1975	38775584	623524219	17325325	68126999	48892187
1976	39649050	637451448	17756516	70230923	49144535
1977	40577356	651685628	18206472	72451105	49357430
1978	41576636	666267760	18679859	74789330	49536615
1979	42632458	681248383	19167661	77407341	49739734
1980	43748556	696828385	19678444	80624057	49973920
<b>CAGR</b>	<b>2.32</b>	<b>2.25</b>	<b>2.54</b>	<b>3.13</b>	<b>0.53</b>
1981	44899573	712869298	20208260	84270202	50188922
1982	46088647	729169466	20746765	87828198	50373636
1983	47353665	745826546	21287381	91080372	50563952
1984	48676443	762895156	21817271	94003867	50758846
1985	50035843	780242084	22335077	97121552	50917399
1986	51424313	797878993	22824446	100618523	51076740
1987	52841319	815716125	23279935	104251093	51236432
1988	54298446	833729681	23720590	107967838	51372371
1989	55765843	852012673	24148104	111670386	51494543
1990	57214630	870452165	24570814	115414069	51589817
<b>CAGR</b>	<b>2.75</b>	<b>2.25</b>	<b>2.19</b>	<b>3.52</b>	<b>0.31</b>

Year	Egypt	India	Morocco	Pakistan	Ukraine
1991	58611032	888941756	24988083	119203569	51672817
1992	59989142	907574049	25400676	122375179	51785154
1993	61382200	926351297	25806777	125546615	51778418
1994	62775847	945261958	26201551	129245139	51487372
1995	64166908	964279129	26599048	133117476	51061265

1996	65565195	983281218	26999093	137234810	50616105
1997	66993728	1002335230	27397118	141330267	50169353
1998	68446011	1021434576	27791825	145476106	49745874
1999	69907887	1040500054	28176997	149694462	49320119
2000	71371371	1059633675	28554415	154369924	48879755
<b>CAGR</b>	<b>2.21</b>	<b>1.97</b>	<b>1.49</b>	<b>2.93</b>	<b>-0.68</b>
2001	72854261	1078970907	28930097	159217727	48414534
2002	74393759	1098313039	29301817	163262807	47976537
2003	75963322	1117415123	29661270	166876680	47605643
2004	77522427	1136264583	30033125	170648620	47261961
2005	79075310	1154638713	30431902	174372098	46912610
2006	80629670	1172373788	30833022	178069984	46592556
2007	82218755	1189691809	31232633	181924521	46313068
2008	83844783	1206734806	31634992	185931955	46062937
2009	85501064	1223640160	32042877	190123222	45863884
2010	87252413	1240613620	32464865	194454498	45683020
<b>CAGR</b>	<b>2.01</b>	<b>1.56</b>	<b>1.29</b>	<b>2.22</b>	<b>-0.65</b>
2011	89200054	1257621191	32903699	198602738	45516134
2012	91240376	1274487215	33352169	202205861	45406226
2013	93377890	1291132063	33803527	205337562	45307099
2014	95592324	1307246509	34248603	208251628	45148075
2015	97723799	1322866505	34680458	210969298	44982564
2016	99784030	1338636340	35107264	213524840	44833569
2017	101789386	1354195680	35528115	216379655	44657257
2018	103740765	1369003306	35927511	219731479	44446954
2019	105618671	1383112050	36304408	223293280	44211094
2020	107465134	1396387127	36688772	227196741	43909666
<b>CAGR</b>	<b>2.10</b>	<b>1.17</b>	<b>1.22</b>	<b>1.45</b>	<b>-0.39</b>
<b>OVER ALL CAGR</b>	<b>2.38</b>	<b>2.05</b>	<b>2.05</b>	<b>2.88</b>	<b>0.15</b>

Source: Calculation is based on data collected UN.



The performance of compound annual growth rate of population size for the middle income countries are presented in Table 1.2. The Pakistan population has been rapid grown during the period 1981 to 1990 at 3.52 per cent. And also over all the periods from 1951 to 2020 the CAGR of about 2.88 per cent. During the periods 1991 to 2000 and 2001 to 2010 the Ukrain population has been negative growing about -0.68 per cent, -0.65 per cent and -0.39 per cent respectively. Ukraine's population loss is exacerbated by civilian and military casualties and refugees fleeing the country. The most optimal thing that outside countries can do is give the Ukrainian migrants the means to safely return home and contribute to Ukraine's reconstruction process.

As per UN estimates, World population grew at annual rate of 1.23 per cent during 2000-2010 with developing countries like India registering a higher growth rate. The same table indicates that the since 1951 to 2020

periods the India population size has been rapidly grown at 2.05 per cent. It is now estimated that India will overtake china as the most populous country by 2025-30.

**Table 1.3: The Decadal Compound Annual Growth Rate of the Unemployment rate for the Selected Groups during the Period 1952-2020**

	Name of the Countries	1991 to 2000	2001 to 2010	2010 to 2020	Over All 1951 to 2020
<b>High Income Countries</b>	Australia	-5.37	-3.36	0.88	-2.16
	Singapore	4.93	-1.43	-0.41	0.88
	Switzerland	2.85	4.13	0.39	1.98
	UK	-6.34	5.40	-8.57	-2.00
	USA	-6.78	5.53	-6.32	-0.07
	<b>Average</b>	<b>-2.14</b>	<b>2.05</b>	<b>-2.81</b>	<b>-0.27</b>
<b>Middle Income Countries</b>	Egypt	-2.24	-1.77	-5.15	0.48
	India	1.73	0.38	0.07	0.56
	Morocco	0.79	-3.71	1.23	-1.61
	Pakistan	-1.24	-1.75	19.62	7.69
	Ukraine	29.5	-3.86	2.09	3.39
	<b>Average</b>	<b>5.71</b>	<b>-2.14</b>	<b>3.57</b>	<b>2.10</b>

**Source:** Calculation is based on data collected UN (World Bank)

Table 1.3 reveals that the compound Annual Growth Rate under unemployment rate for the high income and middle income countries during the period of 1991 to 2020. The unemployment rate high income countries average CAGR about -0.27 per cent during period of 1991 to 2020. And also middle income countries the average unemployment rate is CAGR at 2.10 per cent. The same periods, India's unemployment rate has been grown about 0.56 per cent. But, the Pakistan unemployment rate has rapidly grown at 19.62 per cent during the period 2010 to 2020. Therefore, the factors such as rapid population growth, a lack of quality education, economic instability, and insufficient job opportunities contribute to the high unemployment rate. The consequences of unemployment include poverty, social unrest, increased crime rates, and a decline in overall economic growth.

**Table 1.4: The Decadal Compound Annual Growth Rate of the GDP Per Capita rate for the High Income Countries During the Period 1991 to 2020(GDP Per Capita in US \$)**

Year	Australia	Singapore	Switzerland	UK	USA
1991	18861	14502	39544	19901	24342
1992	18625	16136	40714	20487	25419
1993	17700	18290	39237	18389	26387
1994	18130	21553	43092	19709	27695
1995	20447	24914	50114	23202	28691
1996	22020	26234	48093	24440	29968
1997	23645	26376	41584	26781	31459
1998	21478	21829	42681	28298	32854
1999	20699	21796	41696	28787	34515
2000	21854	23852	38865	28291	36330
<b>CAGR</b>	<b>2.39</b>	<b>5.05</b>	<b>0.17</b>	<b>5.40</b>	<b>4.50</b>
2001	19682	21700	39639	27887	37134
2002	20291	22160	42459	30080	37998
2003	23706	23730	49336	34479	39490
2004	30820	27609	54659	40391	41725
2005	34462	29961	56243	42132	44123
2006	36571	33769	59011	44537	46302
2007	41024	39433	64989	50435	48050
2008	49679	40007	74175	47430	48570
2009	42810	38927	71568	38821	47195
2010	52134	47237	76531	39693	48651
<b>CAGR</b>	<b>11.94</b>	<b>9.35</b>	<b>7.66</b>	<b>4.51</b>	<b>3.36</b>
2011	62596	53890	90477	42151	50066



2012	68045	55546	85836	42486	51784
2013	68159	56967	87304	43449	53291
2014	62513	57563	88725	47448	55124
2015	56710	55647	83806	45071	56763
2016	49876	56860	82153	41146	57867
2017	53936	61151	82254	40621	59908
2018	57208	66859	85217	43306	62823
2019	54941	65831	84122	42747	65120
2020	51720	60729	85656	40319	63531
<b>CAGR</b>	<b>-2.79</b>	<b>2.00</b>	<b>-0.61</b>	<b>-0.56</b>	<b>2.98</b>
<b>Over All CAGR</b>	<b>5.23</b>	<b>5.27</b>	<b>3.43</b>	<b>3.05</b>	<b>3.41</b>

**Source:** Calculation is based on data collected UN (World Bank)

The performance of decadal CAGR for the GDP Per Capita from the high and middle income countries is shown in Table 1.4. The GDP per capita under high income countries like Australia and Singapore were highest growing at 5.23 and 5.27 per cent respectively during the period 1991 to 2020. Australia constituted highest grown at 11.94 per cent during the period 2001 to 2010. Despite that the same Australia GDP per capita constituted negative grown at -2.79 per cent during the period 2010 to 2020. The overall performance of GDP per capita like Switzerland, UK and USA have been grown at the rate of 3.43, 3.05 and 3.41 per cent respectively.

**Table 1.5: The Decadal Compound Annual Growth Rate of the GDP Per Capita rate for the Middle Income Countries during the Period 1991 to 2020(GDP Per Capita in US \$)**

Year	Egypt	India	Morocco	Pakistan	Ukraine
1991	637.90	368.75	1219.43	346.67	1487.50
1992	697.73	303.85	1282.58	382.75	1417.94
1993	758.83	317.56	1317.33	399.47	1258.14
1994	826.72	301.50	1217.43	412.68	1012.10
1995	937.54	346.23	1348.54	404.61	935.96
1996	1031.49	373.63	1455.95	455.51	872.71
1997	1170.81	399.58	1585.72	461.40	991.24
1998	1239.35	414.90	1416.90	441.75	835.24
1999	1297.58	412.51	1658.47	427.51	635.76
2000	1398.86	440.96	1627.14	420.68	658.34
<b>CAGR</b>	<b>9.52</b>	<b>3.71</b>	<b>3.47</b>	<b>2.13</b>	<b>-8.76</b>
2001	1327.10	442.03	1492.38	531.31	807.80
2002	1144.53	449.91	1500.36	499.22	911.91
2003	1056.94	468.84	1590.49	489.43	1087.79
2004	1016.25	543.84	1936.09	549.87	1416.60
2005	1133.11	624.11	2177.80	631.47	1894.46
2006	1332.34	710.51	2237.58	688.50	2391.32
2007	1586.47	802.01	2433.21	770.84	3197.93
2008	1941.90	1022.73	2751.42	837.63	4066.53
2009	2212.22	993.50	3180.17	914.73	2639.38
2010	2509.77	1096.64	3118.14	884.44	3078.42
<b>CAGR</b>	<b>9.44</b>	<b>12.15</b>	<b>9.75</b>	<b>7.94</b>	<b>19.03</b>
2011	2645.62	1350.64	3067.85	911.09	3704.84
2012	3059.14	1449.60	3302.45	1075.45	4004.79
2013	3088.89	1434.02	3164.01	1109.68	4187.74
2014	3196.86	1438.06	3377.64	1126.04	3104.65
2015	3370.38	1559.86	3430.54	1173.39	2124.66
2016	3331.61	1590.17	3139.23	1282.44	2187.73
2017	2439.97	1714.28	3132.95	1468.82	2638.33
2018	2531.20	1957.97	3288.50	1567.64	3096.56
2019	3017.26	1974.38	3492.67	1620.74	3661.46
2020	3571.56	2050.16	3498.58	1437.17	3751.74
<b>CAGR</b>	<b>0.48</b>	<b>4.98</b>	<b>0.88</b>	<b>5.98</b>	<b>-1.49</b>

<b>Over All CAGR</b>	<b>5.89</b>	<b>7.69</b>	<b>4.37</b>	<b>5.67</b>	<b>5.65</b>
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**Source:** Calculation is based on data collected UN (World Bank)

The performance of GDP Per capita in middle income countries has been presented in the Table 1.5 clearly indicates that the Decadal CAGR has been 5.89, 7.69, 4.37, 5.67 and 5.65 respectively for the countries like, Egypt, India, Morocco, Pakistan and Ukraine during the period of 1991 to 2020. And also India has shown the CAGR for the GDP per capita has been positive where income grown at the rate of 12.15 per cent during the period of 2001 to 2010, at the same time the Ukraine has been rapidly grown at the rate of 19.03 per cent. But, remaining two decades like 1991 to 2000 and 2010 to 2020 the Ukraine has been negatively grown at the rate of -8.76 and -1.46 per cent respectively.

The better performance of the middle income countries are very much needed for the focus on the employment generation, infrastructure and control the good number of population. The analysis of the data clearly reveals that the decadal CAGR for the middle income countries it is positive for the GDP Per capita income i.e., Egypt, India, Morocco, Pakistan and Ukraine.

### Conclusion

Finally the identifying and using potential sources of fiscal leeway will be critical if middle income nations hope to accelerate SDG progress in middle income countries. Safeguarding the most vulnerable segments of their population and reducing inequalities, while expanding economic opportunity by greening growth can happen with the right policy and investment mix. But Middle income nations need more capital options beyond the way all this was defined decades ago.

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