SECULAR STAGNATION: AN INTRODUCTION

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ABSTRACT

This paper tries to establish empirical relevance for secular stagnation by analyzing the population change in developed regions and economic growth. The study runs with the details of a sample of 7 developed countries. A high positive relationship exists between population growth in developed regions and world per capita gross national income. Low and middle income countries have to consistently and favorably approach growth rate in population and technological advancement that require more consistent policy level initiatives considering the future falls due to secular stagnation.

Motivation:

Secular stagnation refers to a persistent tendency for a national economy not only to grow slowly but more specifically to find it difficult to use fully its productive potential (Solow, 2014). Recently world economies experience dropping in investment because slower population growth in the advanced world, fewer needs of people and the little modern capital investment being less capital intensive than in the past. Present inequality also lead to channelization of income to the hands of a few, whose capacity to consume is limited. This results in increased savings. Consequently, more savings and lower investment translate into lower growth (Ram Mohan, 2016). Secular stagnation, firstly introduced by Alvin Hansen in the late 1930s, is the low investment demand and low growth due to population growth. Recently, Larry summers alleged the stagnation as the fore for failure of advanced economies to return to pre-crisis growth levels. This paper tries to establish empirical relevance for secular stagnation by analysing the population change in developed regions and economic growth.

Short Review:

Slower growth in potential output from the supply side, resulting from slow productivity growth, slower population growth, declining labor-force participation, reduces the need for capital formation. This again subtracts from aggregate demand and reinforces the decline in productivity growth. In short, secular stagnation is not about just demand or supply but also about the interaction between demand and supply (Gordon, 2015). In the opinion of Summers (2014), much of the related concern arises from the long-run developments and inability of monetary policy to accomplish much more when interest rates have already flattered to their tail end. Lo & Rogoff (2015) argued for significant pockets of private, external and public debt to tackle the secular deficiency in aggregate demand. Four explanations for secular atagnation distinguished by Eichengreen (2015) are a rise in global saving, slow population growth that makes investment less attractive, averse trends in technology and productivity growth, and a decline in the relative price of investment goods. He commented a long view from economic history as the most supportive of the last of these four views. Hein (2015), is on the view that modern capitalist economies are facing aggregate demand constaraints, and the secular stagnation potentially contributes to changes in capacity utilisation.

Empirical Framework:

Although the developmental aspects of nations cited on innumerable platforms including qualitative and quantitative parameters, the well accepted proxies of growth- Gross Domestic Product value and Per Capita National Income are being favourably considered for making international comparisons. The proposition of

the secular stagnation can be conceptually described as follows;

Chart I
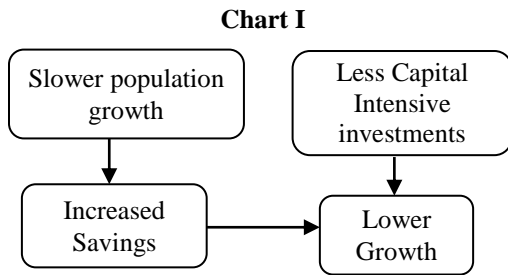
The study runs with the details of a sample of 7 developed countries, which were selected primarily by the motivation of the annex prepared by the Development policy and Analysis Division (DPAD) of the Department of Economic and Social Affairs of the United Nations Secretariat (UN/DESA). We conveniently selected 7 out of the 21 economies based on the World Economic Situation and Prospects (UN, 2014). Analysis of the data confined to a period of 13 years starting from the year 2000.

Empirical Strategy:

Gross Domestic Product of seven developed countries along with incremental population, inflation, Gross National Income Per Capita is analyzed to comment on the empirical establishment of the theory- Secular Stagnation. Carl Pearson's Co efficient of Correlation is used to test the empirical validity of the theory. So the above said variables analyzed to make interpretations. The model runs on certain assumptions; there exists some relationship between certain variables such as population and GDP growth, Per Capita Gross National Income, World GDP and World Per Capita Gross National Income. The study seeks to find out the type and magnitude of relationship between the incremental population in developed regions and growth in rest of the world. In this way, the postulated theory can be ratified.

Results:

GDP rate and population is negatively correlated in developed economies. A high negative correlation can be seen in the case of UK only. It means that annual GDP growth rate is highly sensitive to minor population increase. An exception can be seen in Germany. It is a nation that may favorably recognizes the quantum increase in population for GDP growth. Most notable matter here is the value of coefficients of correlation are less than -.05. This means that the inverse relationship is not so strong. Although the annual GDP growth rate is a function of innumerable things, the increase in population shall not bring down the GDP growth rate much. Incremental population weakly contribute to the reduction in inflation. This is contradictory to the

presumption of secular stagnation, as growth and investment demands favourable management of consumer prices inflation. However, in developed countries, there is positive high correlation between GDP rate and inflation. So the population growth is predominant factor for developed regions. Here also, UK is an exceptional state. The population growth and GDP rate relationship again strengthened by the case of UK here. In developed regions, a more consistent distribution of income is visible than in the developing ones. The interpretation is made after analysing the strong correlation between population and GNI per capita in developed regions. Ultimately, the population growth in developed regions is a significant factor for increase in Per Capita Gross National Income at world level. In this frame work, the remaining nations represent developing and underdeveloped portion of the world. A high positive relationship exists between population growth in developed regions and world per capita gross national income. The case of USA exemplifies the theory more transparently, as the numerical value of coefficient of correlation is in at most i.e., 0.99. Contribution of developed regions' population towards the growth of world GDP is appreciable as the correlation coefficients support it. In such contribution, UK ranks first, and then USA. In contrast, negative contribution of the population of Germany towards world GDP shall be read with former mentioning related with the incremental population and GDP growth in that country. The percentage increase in population of the developed nations during the study period deviates largely from the average growth rate of world average and also from low and middle income countries (See Table VII). In general, the developed nations' negative movement from the world average definitely benefits for short term period. But the situation must be cautiously overviewed from the view point of the development that takes place in other regions. Low growth of population demands fewer household things, which would, in turn contrast the exports of developing economies and deteriorate the value of currencies of such economies. Number of people consuming value added products of developed regions shall be, thus one of the pre requisite for increasing the value of products and stabilization agent in currency valuations. Recent innovations, in developing regions, are focusing on compact multiple needs of people in single gadget. In this context, Skilling India and Digital India initiatives are mentionable as these focuses on the development of products which are compact, value added and tend to lessen the number of further gadgets or even reduce the quantity of human efforts. An interesting aspect of this situation is that the ventures are supposed to be financed by the few of developed regions. The increased or even idle savings of developed nations will be benefited to developing countries like India for short term. In rough estimate itself, one can understands that,

it will undervalue indigenous savings- thwarting the traditional techniques of monetary authorities of respective regions to arrest the systemic fall in growth, and then resulted in more savings and lower investments. Foreign Direct Investment (FDI), in this sense, is not being seen as merely the benefits of an open economy rather, it is a function of negative growth of population in developed regions. The overseas investment, incepted from lower population growth, seeks larger population growth regions to exploit lower wages, especially at Asia (Sethi, Guisinger, Phelan, & Berg, 2003). These investors are not bothered about the per capita basis but on aggregate size (Akin, 2009). We cannot model the negative growth of population for identifying its bad effects in economic growth, as the negative growth rate is a rare phenomenon even at developed regions.

Suggestions:

Useful government expenditure shall to be raised to offset the demand problem. In Indian context, innovations that lead to the expenditure of the rich are recommendable. In distant future the developed economies will seek for better aggregates, possibly the Least Developed Nations. Cardiac reason of secular stagnation is lessened population in developed regions along with technological advancements. Ostensibly, these two things take place largely in developed regions, whereas the victims often are the poor. As specified, the sole dependence on augmenting the expenditure of the rich in developing region will not produce sufficient platform for competing the secular stagnation. Alternatives must be developed lest the coming decades will be a witness for a stringent competition among developed economies for predating the emerging aggregates. Negative growth of population and technological advancements are unavoidable and even timely inputs for overall growth in the world. But the problem rests with the international inconsistency in such variables. Low and middle income countries have to consistently and favorably approach growth rate in population and technological advancement that require more consistent policy level initiatives considering the future falls due to secular stagnation.

Conclusion:

The crisis itself may be a second order effect; the main problem was inadequate demand from private sector for decades (Keen, 2014). That inadequate demand is in some way related with the lower growth in population. In Indian context, the potential malice of secular stagnation has been rarely discussed. As pointed out earlier, the problem capably intents to change the levels of skill manipulation initiatives and entrepreneurial development in India. Eichengreen (2015) offered a model of how lower labour

productivity growth should affect interest rates. Thus the problem, which incepted from population change, encroaches to interest rate change in emerging nations. It also extends to unavoidable and unfavourable initiation from the indigenous monetary authorities.

Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of their country of origin. The values shown are midyear estimates.

Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified.

GNI per capita based on purchasing power parity (PPP). PPP GNI is gross national income (GNI) converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GNI as a U.S. dollar has in the United States. GNI is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. Data are in current international dollars based on the 2011 ICP round. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.

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Table I

Annual GDP Growth Rate							
Year	Australia	France	Germany	Canada	Japan	UK	US
2000	3.872	3.875	2.985	5.123	2.257	3.769	4.089
2001	1.929	1.954	1.695	1.688	0.355	2.665	0.977
2002	3.863	1.118	0.011	2.802	0.290	2.452	1.787
2003	3.079	0.820	-0.721	1.925	1.685	4.300	2.808
2004	4.157	2.786	1.181	3.139	2.361	2.454	3.788
2005	3.216	1.608	0.707	3.163	1.303	2.807	3.346
2006	2.991	2.375	3.710	2.622	1.693	3.042	2.666
2007	3.760	2.361	3.270	2.008	2.192	2.556	1.773
2008	3.702	0.195	1.052	1.175	-1.042	-0.332	-0.260
2009	1.732	-2.941	-5.638	-2.711	-5.527	-4.311	-2.804
2010	1.962	1.966	4.091	3.374	4.652	1.911	2.528
2011	2.321	2.079	3.590	2.528	-0.453	1.645	1.602
2012	3.728	0.334	0.376	1.709	1.754	0.659	2.317

Source: World Bank

Table II

	Australia	France	Germany	Canada	Japan	UK	US
Population							
2000	19153000	60911057	82211508	30769700	126843000	58892514	282162411
2001	19413000	61355725	82349925	31081900	127149000	59119673	284968955
2002	19651400	61803229	82488495	31362000	127445000	59370479	287625193
2003	19895400	62242474	82534176	31676000	127718000	59647577	290107933
2004	20127400	62702121	82516260	31995000	127761000	59987905	292805298
2005	20394800	63176246	82469422	32312000	127773000	60401206	295516599
2006	20697900	63617975	82376451	32570505	127854000	60846820	298379912
2007	20827600	64012572	82266372	32887928	128001000	61322463	301231207
2008	21249200	64371099	82110097	33245773	128063000	61806995	304093966
2009	21691700	64702921	81902307	33628571	128047000	62276270	306771529
2010	22031800	65023142	81776930	34005274	128070000	62766365	309326295
2011	22340000	65343588	81797673	34342780	127817277	63258918	311582564
2012	22728300	65649570	80425823	34752128	127561489	63700300	313873685

Source: World Bank

Table III

Correlation Matrix							
	Australia	**France**	**Germany**	**Canada**	**Japan**	**UK**	**US**
GDP Rate/Population	-0.303	-0.431	0.054	-0.384	-0.176	-0.563	-0.378
Population/Inflation	-0.471	-0.093	-0.126	-0.425	0.346	0.865	-0.240
GDP Rate/Inflation	-0.019	0.460	0.569	0.694	0.202	-0.369	0.549
Population/GNI per capita	0.990	0.984	-0.745	0.956	0.723	0.826	0.972
Population/World GNI	0.985	0.991	-0.731	0.991	0.667	0.992	0.994
Population/World GDP	0.980	0.984	-0.727	0.986	0.651	0.988	0.988

Source: World Bank

Table IV

Inflation, consumer prices (annual %)							
Year	**Australia**	**France**	**Germany**	**Canada**	**Japan**	**UK**	**US**
2000	4.475	1.699	1.471	2.719	-0.653	0.785	3.377
2001	4.381	1.630	1.984	2.525	-0.803	1.236	2.826
2002	3.003	1.917	1.421	2.258	-1.311	1.256	1.586
2003	2.771	2.109	1.034	2.759	0.168	1.363	2.270
2004	2.344	2.135	1.666	1.857	-0.008	1.345	2.677
2005	2.669	1.736	1.547	2.214	-0.273	2.050	3.393
2006	3.538	1.684	1.577	2.002	0.241	2.334	3.226
2007	2.332	1.488	2.298	2.138	0.058	2.321	2.853
2008	4.353	2.814	2.628	2.370	1.373	3.613	3.839
2009	1.820	0.088	0.313	0.299	-1.347	2.166	-0.356
2010	2.845	1.530	1.104	1.777	-0.720	3.286	1.640
2011	3.389	2.117	2.075	2.912	-0.283	4.484	3.157
2012	1.763	1.956	2.008	1.516	-0.033	2.822	2.069

Source: World Bank

Table V

GNI per capita, PPP (current international $)							
Year	**Australia**	**France**	**Germany**	**Canada**	**Japan**	**UK**	**US**
2000	25570	26470	26420	28310	26270	27500	36580
2001	26620	27910	27440	29090	27000	28950	37460
2002	27910	28790	28060	29850	27680	30440	38330
2003	28850	28440	29070	31220	28400	31680	39910
2004	30420	29460	30890	32860	29920	33670	42230
2005	31360	30910	32460	35230	31150	35320	44620
2006	32990	32940	35320	37220	32700	37210	46660
2007	34930	34750	37350	38650	34440	37780	48480
2008	35960	35890	38850	39500	34620	37820	48970
2009	38790	35430	37960	38030	32740	36350	47490
2010	37570	36600	40390	39280	34650	36320	49040
2011	40030	38180	43160	40570	35380	36970	50600
2012	41700	37910	44670	41270	36730	37270	52220

Source: World Bank

Table VI

Year	World GNI per capita	GDP (current US$)
2000	7769.761	33227328366004.30
2001	8047.155	33032864604369.80
2002	8307.304	34317422710816.60
2003	8701.278	38539724364925.00
2004	9306.996	43421365629051.50
2005	9943.545	46975273460934.30
2006	10790.872	50890620225304.80

Year	World GNI per capita	GDP (current US$)
2007	11566.926	57345798219740.10
2008	12080.583	62878208408425.80
2009	12053.946	59560637394174.30
2010	12691.488	65237804618726.40
2011	13339.635	72128610060105.50
2012	13877.980	73521154778174.10

Source: World Bank

Table VII

Country	Mean Percentage Increase in population	Deviation from World population growth	Deviation from LMY Countries population growth
Australia	1.44	0.24	0.09
France	0.63	-0.57	-0.72
Germany	-0.18	-1.38	-1.53
Canada	1.02	-0.18	-0.33
Japan	0.05	-1.15	-1.3
UK	0.66	-0.54	-0.69
US	0.89	-0.31	-2.24
World	1.2	0	-0.15
LMY	1.35	0.15	0

Source: World Bank, LMY stands for Low and Middle Income.

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