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Contemporary Concerns Study

THE RELATIONSHIP BETWEEN DEMOGRAPHICS AND GROWTH

Guide

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INTRODUCTION

AGE STRUCTURE AND ECONOMIC DEVELOPMENT

The debate whether population growth is advantageous or detrimental to economic development has been put to rest through various studies which disprove a high correlation between the two. Attention needs to be focused on the age structure of the population (the distribution of different age groups in the population of a country). Coupled with policy decisions, the economic development driven by demographic transition can have significant effects on a country's economic development.

The economic performance of a country can be assessed by its effectiveness in resource management and productivity measures. And because people's productivity and need for resources vary distinctly across various stages in life, age structure can tilt the scales in one direction or the other. A large share of resources of a country can be consumed by a higher share of very young (through investment in health and education) or elderly population (through need for healthcare and retirement income). In contrast, a country sees increased productivity when a higher proportion of its population is within the working ages. However working ages are policy dependent, so are productivity of working population. The fact that all countries go through a transition in age structure which is again a cyclic process makes the study interesting as correct policy decisions taken at an appropriate time can help countries reap the benefit of a "demographic dividend". But to enable this, it is imperative to understand how this demographic transition occurs, and through which channels it manifests itself.

DEMOGRAPHIC TRANSITION

PHASE 1

The developing regions of the world has been witnessing a decline in mortality rates due to improvements in medicines and public health. This leads to increasing life expectancies and hence in population growth. However, the mortality declines has a greater impact on the mortality of children and infants than on the elderly. As a result, the average population grows younger.

Declining mortality is succeeded by declining fertility rates. People realize the advantages of having smaller families, lesser number of children in ensuring higher survival and longer life expectancy. With urbanization placing greater emphasis on a skilled workforce, there are

higher investments in education for fewer children which lead to an increasing number of educated women. This leads to higher participation of women in the workforce and lesser incentive for them to spend time in raising children.

These two causes jointly cause first phase of demographic transition. However, there is a time lag between the first and the second cause of population growth. The population growth happen in spurts and it takes 50 to 100 years to evolve into some significant effect before the population growth structure settles down.

What however matters here is not the growth in population per se, but the growth in the fraction of "economically active" population.

PHASE 2

The developed regions of the world are witnessing this phase. Once the declining fertility covers up for the lagging effect, natural population growth rates exhibit a declining trend. In some cases. the trajectory of decline is quite sharp. The proportion of elderly dependents continue to increase. Subsequently, the fraction of the working age population reduces. Thus there is a change in the composition of population as depicted by the breakup of elderly and working age population. As an effect of this, the country witnesses decline in human capital which reduces productivity. The ability to care for elderly population decreases due to the preceding trend of nuclear families. There are burgeoning healthcare needs and costs and increasing pressure on pension and social insurance systems.

BEHAVIOUR OF DEMOGRAPHIC INDICATORS ACROSS GEOGRAPHIES

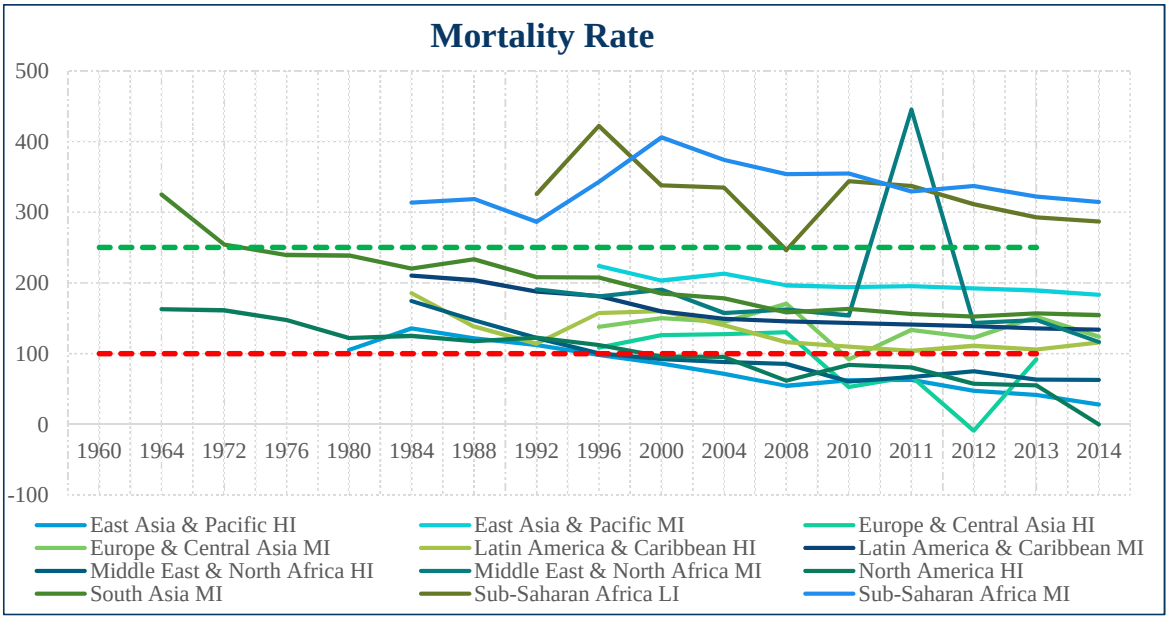
While the concept of demographic transition essentially identifies the reasons for population growth and fall, and also broadly discusses the effects it might have on different economic indicators, these variables behave differently based on the level of development the country is in, the state of public policy in the country and speed at which the transition happens. Below, we see the trends displayed by the characteristic variables of demographic transition for different geographies clustered together based on their income groups. The disparities in trends are indicative of the differential progress of different countries through the demographic transition.

Process Followed: The graphs below contains data for 136 countries clustered together by region followed by income groups. An average of the indicators weighed upon GDP at

Purchasing Power Parity has been taken to arrive at the trend lines for each region and income group.

MORTALITY RATE

Over a period of 60-70 years, each country has tried to come closer to its goal of reducing mortality rates. However the pace of improvement of developing regions of the world has lagged
well behind developed regions.

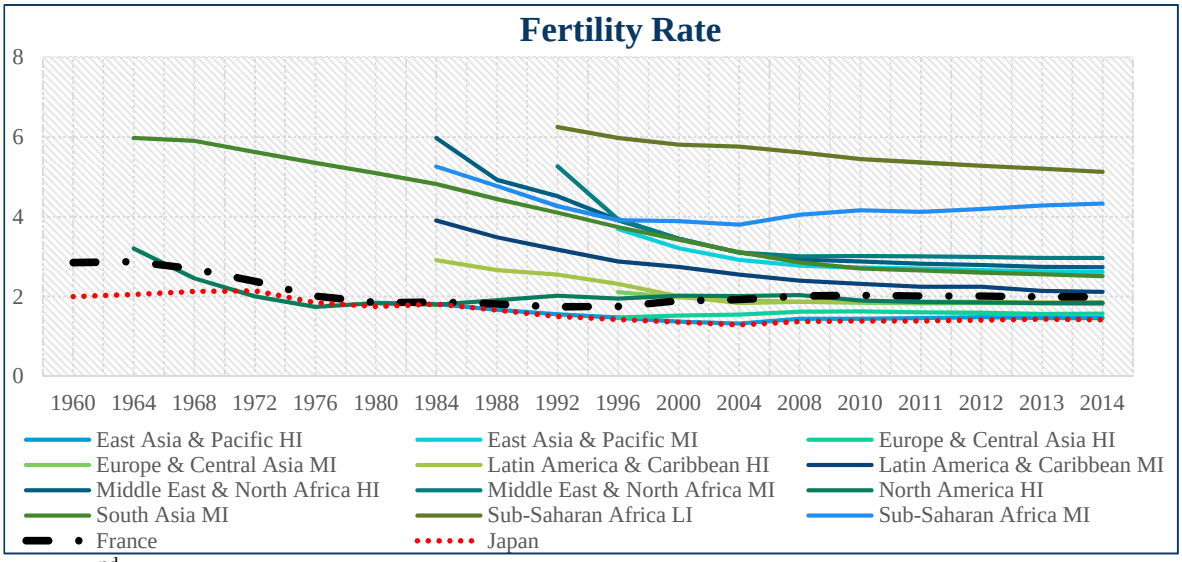


As indicated by the graph above, most of the high income regions - Europe & Central Asia, North America, East Asia & Pacific, and Middle East & North America have lowered their mortality rates below 60 for every 1000 people. Sub-Saharan Africa, one of the least developed regions, continues to have high levels of mortality.

FERTILITY RATE

As explained by the theory of demographic transition, reduction in mortality rates are followed by the reduction in fertility rates owing to reasons mentioned previously. However, unlike mortality rates, which although on a path of decline, exhibit digressions from the trend in certain years owing to externalities (famine, ebola etc.); fertility rates exhibit a steady trend. The primary indication of developing regions of the world trying to catch up with progress

(advantages of maintaining small families) manifests itself through fertility rates. This is why we see the developing regions display a steep downwards trend where fertility rates drop drastically and then gradually stabilizes. Low and middle income regions of Sub-Saharan Africa still have high fertility rates compared to the rest of the world.



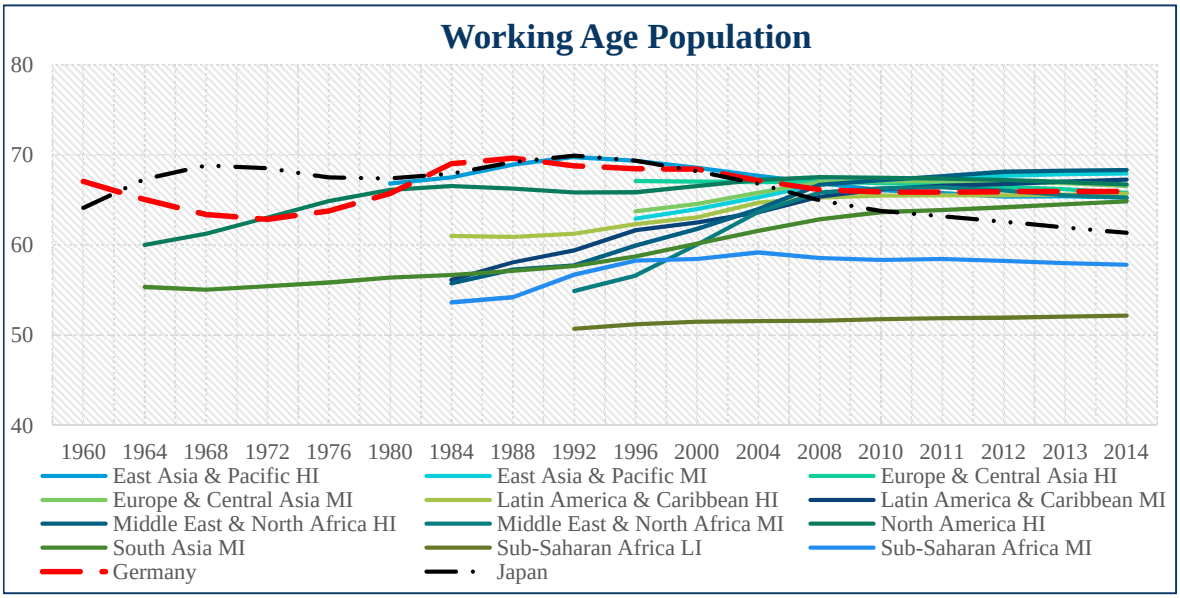
In the 2nd phase of demographic transition, low fertility rates with higher life expectancy tampers with the age structure of the population, gradually leading to a population with lower share people in the labour force. One thing that is of interest here, is that France exhibits a significant increase in fertility rates even which is different from the pattern displayed by the developed economies. The policies that enabled this would be interesting to study.

WORKING AGE POPULATION & DEPENDENCY RATIO

With a rise in working age population, the average age of the countries in Phase 1 of Demographic transition goes down. As a result, the dependency ratio declines with a decreasing number of people who require economic support. A lower dependency ratio is ideal for economic growth. It means that there are more people in the workforce who contribute to national productivity and there are more investments directed towards growth initiatives rather than consumption

Here it is important to note that increase in working age population is followed by a decline in dependency ratio. However, with increased life expectancy, the workforce crosses retirement and therefore must be supported. Even with an increase in total population, the working age population shrinks with an upward pressure on dependency ratio. This is what is reflected in

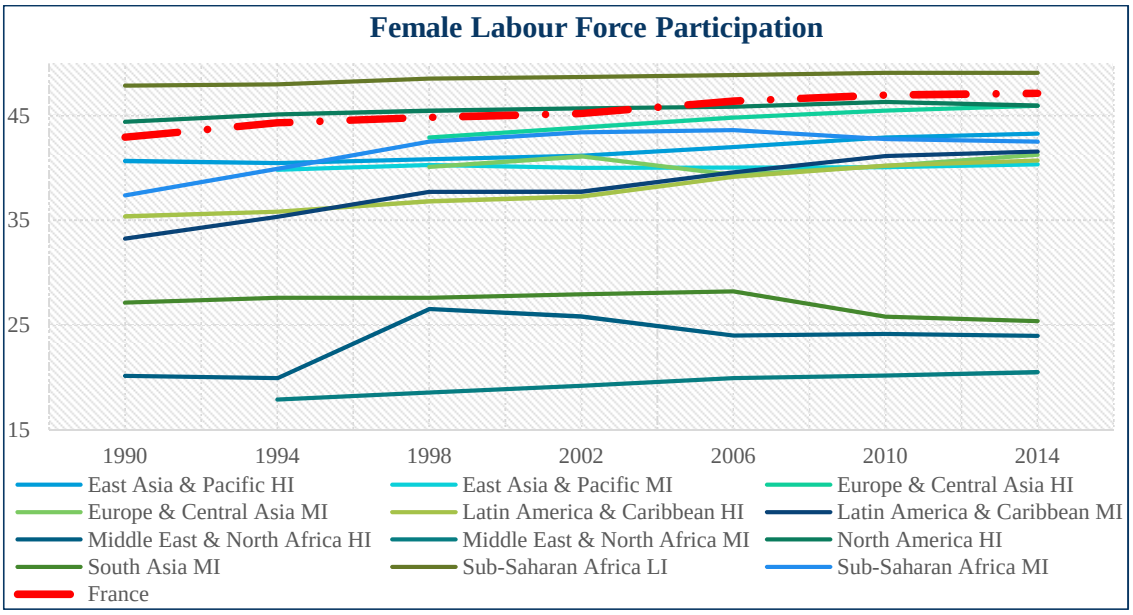
ageing demography such as Germany and Japan which exhibit a rising trend in dependency ratio.



FEMALE LABOUR FORCE PARTICIPATION

Since 1990, labour force participation of women has seen a steady upward trend. The increased participation of women in the work force has enabled shrinking the gender gaps in labour force participation rates. While this adds to the productivity boom of a country, in the developed industrialised economies, the female labour force participation bears a strong correlation to the decline in fertility rates. As per an UN report, "In several transition economies, the economic participation of women has actually been falling, especially in the 1980s but there has been a clear decline in fertility rates especially in the 1990s, most to below replacement."[i].

France however poses an exceptional case. In this graph, we see a greater speed of increase in the female labour force participation for France compared to other High Income Countries in Europe and Central Asia. At the same time, France also exhibits an increase in fertility rates which defies the trend displayed by most other countries



DEMOGRAPHIC TRANSITION LEADING TO ECONOMIC PERFORMANCE

There are channels through which economic performance manifests itself. The trends in the population growth phase reverse in the population wane phase.

1. LABOUR SUPPLY & PRODUCTIVITY- In any economy, the consumption (economic needs) and savings (economic contributions) of people change over their life cycle. The young and the elderly are considered to be net consumers whereas the working age population are considered to be net producers. Larger proportion of people between 20-64 increases the working age population and lowers the dependency between dependents to non-dependents. The entry of women into the workforce with an increased education level increases labour market productivity. Labour supply is positively impacted by an increase in working age population and this boosts the supply-side and in turn leads to a higher potential output. However, the status of employment of workers is a cause of concern here as the non-employment of extra workers will have no effect on productivity.[ii]

2. SAVINGS & INVESTMENT- There is a strain on Government resources for higher investment in health and education when the major population of the country is young. Although this is essential investment, availability of avenues for employment generation determine its effectiveness. As the working age population increases the fiscal balances improve due to higher savings rates. However, how these savings are put to use determines how adversely budgets will be affected. Population ageing brings with it the need to increase

spending on health care, pensions and long term residential care. Working-age people are productive and also have the ability to save. Increase in longevity contribute to higher savings as people are encouraged to invest more anticipating a longer consumption period post retirement, promoting increased wealth accumulation and thus economic growth. As a result, Per Capita GDP is expected to increase in this period. Subsequently, as this populations ages, and enters the age bracket of 65 years and above, the economic activity comes down and there is a decline in savings rate. Medical expenses and old age care form a major share of their consumption expenditure. The growth in per capita GDP is expected to decline in this period. The skewed population structure introduces difficulty in consolidating the private and public pension systems. The burden of longer a benefit period has to be shouldered by a shrinking base of working population through lower tax revenues.[iii]

Gross Savings Percentage & Working Age Population Percentage

Region & Income Group (No. of countries)	Countries with Strong Positive correlation	Countries with Weak Positive correlation	Countries with Weak Negative correlation	Countries with Strong Negative correlation
East Asia & Pacific HI (7)	**1**	4	2	0
East Asia & Pacific MI (11)	**1**	7	3	0
Europe & Central Asia HI (27)	**2**	15	8	2
Europe & Central Asia MI (14)	**1**	6	5	2
Latin America & Caribbean HI (7)	**0**	4	2	1
Latin America & Caribbean MI (14)	**1**	7	5	1
Middle East & North Africa HI (6)	**0**	3	3	0
Middle East & North Africa MI (7)	**1**	3	3	1
North America HI (3)	**1**	1	1	0
South Asia MI (4)	**2**	1	1	0
Sub-Saharan Africa LI (14)	**1**	5	7	1
Sub-Saharan Africa LMI (11)	**0**	3	6	2
Total countries	**11**	**59**	**46**	**10**

3. HUMAN CAPITAL- Longer life expectancy affect the fundamental outlook of people towards their lives. There is a visible shift in the attitude of people about the role of family, women, education, and work culture. The demographic dividend can be experienced in the

form of deep-rooted cultural changes where people become more valuable. Educational investment fosters productivity at work, and consequently results in people commanding higher salaries, and enjoying better standards of living. Although, education pushes back the age when men and women enter the workforce, the increased productivity makes up for it. The population above the age of 65, although not a part of the formal workforce, are rich in human capital and can thus contribute effectively to the productivity of other generations by sharing their knowledge and experience. The dependency ratios reflect the trade-off between net producers and net consumers in the economy. There are four metrics that can be considered in this regard—(a) Child Dependency Ratio; (ii) Old Population Dependency Ratio; (iii) Overall Dependency ratio and (iv)Ratio of working age population to non-working-age population (between 15 & 64 years of age).[iv]

4. MIGRATION- Higher population growth rates create a pressure for an efficient redistribution of labour and this can be seen through the rate of migration. In an earlier era, host countries have benefited from the inflow of migrants through contributions in terms of skills and labour power. However, migration sets a contrary purpose where the population of younger workers move from rapidly growing countries to those which are ageing. Although this is beneficial for sending countries as outmigration reduces the stress on available resources and lets those remaining behind exploit available job opportunities and help the country benefit from the higher levels of human capital and savings when former emigrants return, it is quite the opposite for host countries. As a result, host countries create policy barriers to prevent entry of immigrants and reduce cases of return migration.

   There is another aspect that revolves around the inter-regional and rural-to-urban migration that have important economic and social implications for a nation. Internal migration caused different societies to urbanize at different rates and resulted in an intra-country redistribution of labour force aligned to economic incentives. However, once a country reaches a certain stage of development, incentives for rural-to-urban migration can create a situation of highly non-uniform development.[v]

POLICY ENVIRONMENT

The mechanisms discussed above are highly dependent on the policy environment in place. A certain level of flexibility in the labour markets is imperative to benefit from the growing number of adults. The macroeconomic policies should encourage availability of savings mechanisms and a well-developed domestic financial market to channelize these savings

towards constructive investments. Although, demographic transition through its cultural changes creates conditions for people to invest more in the likes of health and education resulting in greater economic benefits, it wouldn't be as effective without a supporting ecosystem. This is where the Government of a country needs to step in and create provisions for access to high quality health and education. An economy needs to benefit from its demographic opportunities and counter the trade-offs between greater productivity and reduced fertility.

As for countries facing population ageing, flexibility in age of retirement through removal of tax disincentives associated with crossing the legal working age would ease the pressures on the fiscal constraints of a shrinking work force. Development of cost-effective healthcare packages is an area where alignment is needed to the changing demographic patterns. Shift of long term care from institutional care to self-supporting home care is also on the cards.

The critical policy areas include

- Public health
- Education
- Immigration
- Policies that incentivise labour participation - female labour participation policies retirement age, openness to trade, skilling and employment generation, industrial and urbanization policies.

COUNTRY SPECIFIC ANALYSIS

After analyzing the correlation and trend data, we have identified some countries/ regions which were not following general trends. Among these countries, we've decided to focus on three countries namely: **Germany, Japan and France**. The objective is to understand which causal parameter has more impact on channel parameters and the final impact on output parameters due to change in channel parameters. In the process, we also see policies taken by the respective countries which have impacted these parameters.

We define causal parameters as the variables which can be directly changed by policy measures. Channel parameters are the intermediaries which are impacted by causal parameters and which would in turn affect the final output parameters of economic growth which we need to study. The trend of change in all the parameters would be due to the impact of their absolute value in past and the parameters impacting them.

Causal parameters which we have included in our studies are: health expenditure, pension spending, fertility rate, inward migration, retirement age, female population growth and trade (import and export) regulations. Based on the data availability, we could use only health expenditure, pension spending, female population growth and fertility rate in our statistical analysis.

Primary channel parameters which we have included are: life expectancy, dependency ratio and female labour participation. Primary channel parameters link causal parameters to secondary channel parameters. Secondary channel parameters identified are capital formation and labour productivity. GDP is the output parameter which aims to measure economic development.

Parameter relations were established as mentioned in the table:

We tested these relations for Germany, Japan and France. The result obtained is discussed. Significance level of 0.05 is taken for all cases.

Parameter Classification		*Parameter*	*Established function*	*Tested function*
Primary Channel Parameter	1	Life expectancy	fn [Health expenditure, Pension Spending]	Fn [Health expenditure, Pension Spending]
	2	Dependency ratio	fn [Life expectancy, Retirement age, Fertility rate, Inward migration]	fn [Life expectancy, Fertility rate]
	3	Female labor participation	fn [Fertility rate, Female population/total population]	fn [Fertility rate, Female population/total population]
Secondary Channel Parameter	4	Labor productivity	fn [Working age population, Female labor participation, Literacy Rate]	fn [Working age population, Female labor participation]
	5	Gross Capital Formation	fn [Gross Savings, Dependency Ratio]	fn [Gross Savings, Dependency Ratio]
Output Parameter	6	GDP	fn [Labor productivity, Gross capital formation, Net export, Net import]	fn [Labor productivity, Gross capital formation]

GERMANY

POLICY TIMELINE

POLICY MEASURES IN PUBLIC HEALTH[vi]

1883 -1975

- National social health insurance scheme adopted by Germany. Blue collared workers included under this scheme which covered around 5%-10% of the German population.
- Over the years, social health insurance was extended to different sectors in phases such as transport workers, commercial office workers, forestry workers, domestic servants,

civil servants, the unemployed, partially employed, self-employed, students and disabled people.

1911

- The Reich Insurance Code is established as the umbrella law for integrating pension, health and accidental insurance.

1989

- Healthcare Reform Act introduced to cut down spiralling healthcare costs and also to finance some selected improvements to benefits.

1993

- Health Care Structure act is introduced which imposes budgets to physician, dental, hospital and pharmaceuticals.

1995

- Statutory long term care insurance is introduced to provide healthcare to the elderly.

1996

- Policy measure taken to allow citizens to choose among the different sickness fund options.

2007

- Act to Strengthen Competition in Statutory Health Insurance, which entered into force in 2007, health insurance funds are required by statute to invest in workplace health promotion.

POLICY MEASURES IN EDUCATION

Germany, is a country which has already achieved a 99% literacy rate, Most of the educational institutions are funded by the Government through public budgets. With view of demographic changes, and emerging need for skilled workers, education has been made the top priority on the agenda. There has been an increase in fiscal spending with more stress on vocational training. Lifelong Learning Strategy adopted to support learning for citizens of all ages.

POLICY MEASURES IN IMMIGRATION[vii]

2000

- A citizenship Act introduced which recognized the "law of blood" as well as the "law of soil.
- Green Card Law introduced to attract more skilled foreigners to Germany – mostly focussed on IT specialists.

2005

- The Green Card scheme was scrapped due to the indecisiveness of the German Government on how attract highly skilled foreigners and how to force them to leave when the contract expires.
- Introduction of an Immigration Act that defined three types of legal residence permits (i) Permit of Stay (ii) Settlement Permit (iii) Residence permit to retain the best skilled talent in Germany and at the same time, deal with the challenges mentioned above.

2008

- Bilateral agreements signed to allow partner countries to send in seasonal workers.

2009

- Policies to allow dependants who came to Germany for family-unification to seek employment opportunities.

POLICY MEASURES IN INCENTIVIZING LABOR PARTICIPATION[viii]

1973

Introduction of flexible retirement age from 63.

1976

- Policies directed towards increasing fertility rates (east Germany).
- With the earning same as that before leave, maternity leave extended to 26 weeks from 18 weeks.
- For mothers raising more than 1 child, paid leave was offered even beyond basic maternity.
- Leave at monthly salary for 1 year post the birth of second and following child.
- Newly wedded couple got interest free loans and loan amount redeemed post child birth.
- Birth grants raised phenomenally.
- With additional child, family allowance increased ascendingly.
- Full day care provided to children from 1-3 years of age.
- Working hours were reduced for women.

- Additional schemes for single mother.

1984

- Introduction of state subsidies for early retirement age from 58.
- Maternity leave increased from 1 year to 1.5 years for third child with monthly salary payment.

1992

- Decision to standardize pension age to 65. Deductions for retirement before 65.

1996 onwards

- Several acts to raise the standard pension age of various pension types.

2000 onwards

- Increased emphasis to promote volunteer work of older people.

2005

- "Perspective 50plus – Employment Pacts for Older Workers in the Regions": many employment pacts were released serially.
- Acts to raise labour market participation rates of older workers.

2006

- Introduction of anonymous resume which focused only on skills and capabilities.
- WeGebAU was introduced to offer vocational training with certification to low skill labors and workforce above the age of 45.

2007

- 2007 Statutory Pension Age Adjustment Act.
- Retirement age threshold was raised to be eligible for retirement pension schemes.
- Workforce inclusion of candidates having serious disabilities.
- Eligibility for wage guarantees was extended.

2008

- Policy on prevention of widespread use of pre-retirement practices.

2009

- The 2009 Act to Restructure Civil Service Law: Increment of retirement age of public sector employees along with private sector employees to be established progressively from 2012.
- Overhaul of the The Federal Civil Servants Remuneration Act.

REGRESSION ANALYSIS

Regression 1:

Life Expectancy	Coefficients	P-value
Intercept	63.50393296	1.22084E-13
Social Expenditure as a % of GDP	0.555784924	0.003959213

Considering two components of social expenditure: Healthcare expenditure and pension expenditure, given that Germany has the oldest health insurance policy and in current era, health insurance has been made compulsory for all the citizens, the emphasis on health has always been strong. Hence healthcare expenditure has a strong effect on life expectancy in Germany. Considering pension structure were generous in 1984, after which it started adopting constraints like increase in retirement age, the pension spending is not contributing sufficiently to the life expectancy. Thus social expenditure shows a positive and significant contribution to life expectancy on the foundation of well-established healthcare policies and optimal spending.

Regression 2:

Dependency ratio	Coefficients	P-value
Intercept	71.47494251	0.000378795
Life Expectancy	-0.353361114	0.115828621
Fertility Rate	3.437701988	0.079607936

Neither life expectancy nor fertility rate is significantly correlated to the dependency ratio at 0.05 level of significance. Taking level of significance as 0.1 fertility rate becomes significant. Negative co-efficient of life expectancy is a surprising result. Given that fertility rate has positive coefficient with dependency ratio, it can be said that falling fertility rate and falling dependency ratio is not the result of decrease in number of younger dependents, but it is the impact of female force participation which decreases the dependency ratio. Female force participation has dual (both cause and effect) relation with fertility rate.

Regression 3:

Female labor participation	Coefficients	P-value
Intercept	357.4006626	1.10141E-10
Fertility Rate	4.946090837	0.082695767
Female Population (%)	-6.25813766	4.16347E-10

At 0.1 level of significance, both fertility rate and female population are significant for female labour force participation. Taking a more restrictive value of significance of 0.05 make female population as the sole significant variable for female labor participation, which has an instinctive acceptance.

Regression 4:

Labor productivity	Coefficients	P-value
Intercept	-129.4217228	0.036126861
Female Participation (%)	3.735743647	2.94373E-08
Working age Population (%)	0.251418806	0.666874387

From this regression, we can conclude that age structure is not as important in labor productivity as female participation in the labor force. Though age structure is an important parameter which defines the amount of workforce available, the efficiency is brought to the system by increasing female participation which also implies that human capital should be increasing with female participation.

Regression 5:

Gross capital formation	Coefficients	P-value
Intercept	18.23923449	6.67496E-07
Dependency Ratio	0.166777489	0.008594798
Gross savings	-7.30493E-12	2.63798E-09

Though significant, the coefficients of dependency ratio and gross savings have the opposite sign than intuitively suggested.

Regression 6:

GDP	Coefficients	P-value
Intercept	-3.82878E+12	0.000332396
Labor Productivity	1.07802E+11	1.5838E-16

Gross Capital Formation	44677616812	0.120539445

The regression suggests that labor productivity has a great impact on GDP given its coefficient and significance. Gross capital formation which has higher p-value turns out to be insignificant. Thus we can say that female population which leads to female labor force participation leads to increase in labor productivity which in turns impact GDP in case of Germany.

JAPAN

POLICY TIMELINE

POLICY MEASURES IN PUBLIC HEALTH

1961

- Universal Coverage (Health Insurance) was established. Participation in the same was made compulsory and subsidies to municipal NHI funds was increased to 30%. Japan followed incremental approach in the context of establishing health insurance.

1983

- Introduction of Health Services Law for the Aged.

2000

Introduction of Long-term Care Insurance for the Elderly.

POLICY MEASURES IN EDUCATION

1960

- Higher education was expanded based on the demand from economic growth after war recovery. With expectations of better quality of higher studies, cost of the same increased. Post 1960 period observed turbulence in education where certain campuses were even disrupted by many violent student riot. This was the result of underlying ideological differences, dissatisfaction with university system and movement against Vietnam War.

1969

- University Control Law was declared in 1969 which regulated founding of new universities, employees' salaries and school curriculum. It followed with standard nationwide entrance examination and public aid for education. Still the education system placed high emphasis on Japanese ideology wherein education was respected and moral

development formed an inherent purpose of education. Meritocracy was imbibed in the system under centralized education.

1980

- Massive education reforms took place which targeted both, social and learning aspects of education and focused on:
    - Development of lifelong learning system and reduction of importance of educational background.
    - Making higher education diversified.
    - Improvising elementary and secondary education.
    - Evolving as per international standard and refining the teachers' qualities
    - Acclimatizing to the information age.
    - Reviewing the administration and finance of education.

2008

- Introduction of Health Care Program for the Elderly aged 75 and over.

POLICY MEASURES IN IMMIGRATION

1979

- Post approval of "International Covenant on Economics, Social and Cultural Rights", Japan became more flexible to acceptance of foreign residents.

1982 -1989

- The 1981 Immigration Control and Refugee Recognition Act was passed. Immigration rules were still strict but certain foreign settlers were accepted and provided citizen's rights.

1989

- Appreciation of Yen attracted foreign workers to Japan. Japan incurred a large inflow of foreign residents. Strict immigration was observed but with 3 loopholes:
    - Japanese descendants from Latin American countries like Brazil and Peru were allowed to enter Japan workforce (front door).
    - Trainees and technical interns from Asian countries like China entered Japan workforce. As trainees were exploited as low-wage labourers, most of them received status of technical interns for 3 years (side door). They were required to go back to their country of origin within 3 years.

- Irregulars from countries like China, South Korea and Philippines come to work as unskilled workers (back door).

2010

- Refugee pilot project was started by Government of Japan which allowed 30 refugees annually from Myanmar.

2012

- After abolishment of Alien Registration Act, registration and database system was founded with the intention of emphasizing integration policy and inhibiting irregular citizens. For residents who have rights to stay for more than 3 months (mid to long term residents), a different 'residence card' was given.

POLICY MEASURES IN INCENTIVIZING LABOR PARTICIPATION

1970 onwards

- Individual performance started getting acceptance for determining wages in Japan, where until this time, compensation system was more based on seniority. Rewards were linked to application of skills which were important to the organization.
- Retirement age was mandatorily moved up to 60, which made organization cautious about managing the balance of wage and age, especially with the younger workforce.

2004

- Public pension reform has been successful to some extent in lessening the inequality between generations in the public pension system and diminishing support of household savings rate supported by the pension scheme.
- Implementation of HRM system which is based on long-term training of employees by internal rotation and high collaboration among employees is still in place by many Japanese companies. Also, employers have recruited new graduates externally along with presence of highly experienced employees indicates their focus on long term perspectives, which focusses on integrating senior workers in the firm along with satiating the career aims of younger workforce. But today, new recruits do not prefer spending their entire career in one firm. Therefore, they generally don't aspire for long-term benefits, like the retirement allowance and the salary increment during the future phase of their career that are characteristics of Japanese HRM.[ix]

2013

- Retirement age would increase 4 months every year, starting with 60 years in 2013 to 65 years in 2025.[x]
- Employers have to keep all willing workers on their payroll until they are 65 years old. Senior employees have to compete with the younger workforce and gain skills required until the end of their pre-retirement age.
- Access to pension have also changed which forces employees to work till their retirement age. Thus, Wage cure redesigning across all the age group of employees is crucial. Along with that suitable career development schemes and skills training need to be enforced.

REGRESSION ANALYSIS

Regression 1:

Life Expectancy	Coefficients	P-value
Intercept	74.24112034	9.31583E-25
Health Spending	0.884839221	3.20483E-09
Pension Spending	0.034371199	0.309403994

In Japan, during 1970s, liberal public pension was initiated. Owing to reforms in pension scheme from 2004 onwards which changed the structure of pension thereby increasing the contribution from the individuals and decreasing the intergenerational inequity, pension spends have reduced. Old age pension as of now is barely sufficient to meet minimum requirements. But owing to growing life expectancy which is creating increasing fiscal burden, further reduction in pension benefits are on the horizon. In such scenario, pension spending has minor impact on life expectancy but the effect other way round is strong, i.e. life expectancy has major impact on pension spending. Thus the co-efficient obtained for pension spending has a low value and is insignificant.

Health Insurance scheme has been one of the initiative which was laid down at appropriate time in the history of Japan. In 1983, Health service laws were launched for aged, followed by introduction of Healthcare program for aged in 2008. This shows the importance of health benefits in the total social spending and its grander impact. Thus it has a strong and significant co-efficient when regressed against life expectancy.

Regression 2:

Due to high value of Significance F (0.2), the regression analysis of dependency ratio against life expectancy and fertility rate is insignificant.

Regression 3:

Female labor participation	Coefficients	P-value
Intercept	-130.598376	1.9193E-06
Fertility Rate	4.364361136	0.176360954
Female Population	2.77944E-06	3.46931E-11

As a general trend, with decreasing fertility rate, female labor participation increases as working women tend to prolong/avoid child birth or increase the span between two successive child births. Same argument holds true for Japan as well owing to its changing living pattern. In the given regression, surprisingly the co-efficient of fertility rate is positive but it is not significant.

But the correlation with female population is significant which shows that the inclination of to work is high for most of the women.

Regression 4:

Labor productivity	Coefficients	P-value
Intercept	-31.90084425	0.000217223
Female Participation	1.384923661	3.5817E-25
Working Age Population	-0.163867675	0.073691637

Japan has cultural preference of following seniority based promotion. Even though today the approach adopted has deviated towards meritocracy based promotion, the previous approach is still followed at many organizations. According to regression results, decreasing working age population would decrease labor productivity. This is actually an impact of increasing median working age, which precedes decreasing working age population. Though insignificant at predefined 0.05 level of significance, the regression is significant with working age population with 0.10 level of significance.

Female participation in the workforce holds positive correlation for large number of countries. In this regression also, for Japan, the co-efficient of female labor participation is high and significant.

Regression 5:

Gross capital formation	Coefficients	P-value
Intercept	-29480379941	0.9271403
Dependency Ratio	2415864156	0.597055902
Gross Saving	0.77909404	0.001267176

In Japan, owing to contracting pension benefits and changing culture to nuclear families, the preference to save has stayed at high level. An additional reason for the same is the long deflationary environment prevailing in the nation which prevents investment and spending activities, which decreases imports. This results into capital formation as shown by regression results as well. As dependency ratio increases, there are two opposite happenings: Savings increases and spending also increases. Thus determining the the coefficient of dependency ratio is not significant.

Regression 6:

GDP	Coefficients	P-value
Intercept	-1.61887E+12	1.01391E-15
Labor Productivity	1.10796E+11	1.36386E-16
Gross Capital Formation	2.204843861	2.46306E-16

For Japan, from 6 regressions, both labor productivity and gross capital formation are positively and significantly related to GDP in Japan. Labor productivity is in turn affected by female labor participation and increasing median age of working population. Female labor participation is more a function of female population than fertility rate. This renders any efforts to increase fertility rate in Japan ineffectual. Gross capital formation is again a function of dependency ratio and gross savings.

FRANCE

POLICY TIMELINE

POLICY MEASURES IN PUBLIC HEALTH[xi]

1991

- General Social Contribution was introduced to enlarge the social security financing base.

1994

- Agreement signed by the Government with the pharmaceutical industry for price revision of drugs if consumption exceeded a fixed level.

1995

- Introduction of Juppe Plan which focused on:
    - New role of French parliament in regulation of health expenditure.
    - Establishment of regional hospital agencies.
    - Greater extension of health insurance coverage to French residents.
    - Improvement in the quality of treatment.
    - Experimentation on new and better ways of delivering care.

1996

- Created an individual dependency allowance for the frail and elderly.

1999

- Introduction of Pharmacists' right to substitute branded drugs with generic drugs.

2000

- Introduction of the Universal Health Coverage Act which provided two fundamental rights – Right to a health insurance and right to free coverage for the disadvantaged.

2004

Introduction of the Public Health Act which defined five-year plans for public health, identified priority areas in health and created five national plans dealing with cancer, addiction, environment & health, Quality of life for chronically ill patients, and healthcare for patients with rare diseases to achieve these ends.

2007

A new insurance scheme was proposed for financing long term care was proposed which is still yet to be implemented due to financial constraints.

POLICY MEASURES IN EDUCATION[xii]

The French education system recognises the duty of the state in providing free, compulsory and secular education at all levels.

1881

- The Ferry Reform brought in free primary education which was made compulsory for children between ages 6 to 14.
- Religion classes were abolished.

1959

- Compulsory attendance was extended up to children aged 16.

1961

- Secondary education was made accessible for children from 11 years of age.

1980 onwards

- Priority education zones were established to provide more support to schools.

2005 onwards

- Education was made a national priority and uniformity in the quality of knowledge and skills imparted to students were stressed upon.

POLICY MEASURES IN IMMIGRATION

1945 -1974

- Post the 2nd World War France encouraged immigration to make up for labour shortage. As a result, migrants from all over Europe, Africa and Latin America took refuge in France.

1974 onwards

- France faced economic crisis and encouraged the immigrants to settle in France with families and granted them French Citizenship. [xiii]

1998 onwards

- The French Immigration Act was introduced in 1998 which focussed on integration of immigrants into the French Culture. The Act provides a choice to the children of foreign nationals to take up French Citizenship when they reach adulthood (Prerequisite: Residence in France for at least 5 years post the age of 11).[xiv] The aim was to target the young on areas of employment, education and social cohesion. [xv]

POLICY MEASURES IN INCENTIVIZING LABOR PARTICIPATION

1939 onwards

- "Code de la famille" introduced which was a pro-natalist policy and encouraged offered the following incentives:[xvi]
    - Cash incentives, family allowances and extended maternity leaves for couples having a third child.
    - Preference in three bedroom flat allocations, discounts on public transport for three child families.
    - Nursing mothers encouraged take weekly day off or work part-time.
    - Support provided to working mothers through child development policies such as development of subsidised care in nurseries and crèches.
    - Banned sale of contraceptives which was revoked in 1967 to prevent spread of STDs.

2009[xvii]

- Introduction of Social scheme to aid in finding employment. Reduction in minimum cost of labour and shifting of tax burden.
- Creation of a Competition Authority and easing of restrictions on price competitions and setting up of new stores.

2010

- The minimum retirement age was extended to 62, as long as 41 years of work was completed. The normal age of retirement was extended to 67. Retirement up to the age of 70 was permitted.[xviii]

REGRESSION ANALYSIS

Regression 1:

Life Expectancy	Coefficients	P-value
Intercept	55.30023775	1.36467E-09
Health Spending	2.549081246	0.019756348
Pension Spending	-0.161124409	0.837254048

As compared to Germany and Japan, France has lower value of intercept and significantly high value of co-efficient of health spending which suggests that the population relies heavily on public services. Thus to increase life expectancy in France, health spending has played a major

role. At the same time pension spending has a low co-efficient (surprisingly negative) and is insignificant.

Regression 2:

Dependency Ratio	Coefficients	P-value
Intercept	43.94517019	7.26713E-06
Life Expectancy	-0.048037873	0.619201294
Fertility Rate	7.427553227	4.72752E-10

Dependency ratio has a lower intercept as compared to Germany and relatively high co-efficient of fertility rate which suggests that the change in fertility rate has impacted dependency ratio to large extent.

Regression 3:

Female labor participation	Coefficients	P-value
Intercept	-491.8841185	2.62958E-10
Fertility Rate	-1.852493442	0.123132664
Female Population	10.57861158	1.02318E-10

Female labor participation is not influenced by fertility rate, owing to numerous schemes supporting child bearing and raising with paid leave. But it is highly impacted by the female population in the country, the co-efficient being higher than that observed for other countries.

Regression 4:

Labor productivity	Coefficients	P-value
Intercept	-121.5384224	0.056407965
Female Participation	4.241893781	4.66107E-10
Working Age Population	-0.287815282	0.674579151

The only significant factor contributing to labor productivity significantly is female participation. It is similar to that observed for Germany and Japan. As this is a repeated observation, a great emphasis should be placed on female labor participation to increase labor productivity.

Regression 5:

Gross capital formation	Coefficients	P-value
Intercept	-2.05287E+11	0.02238112
Dependency Ratio	3480795333	0.035625234
Gross Saving	1.067401508	5.35754E-34

France have higher co-efficient of both, dependency ratio and gross savings as compared to Germany and Japan, both these factor being significant for gross capital formation.

Regression 6:

GDP	Coefficients	P-value
Intercept	-3.54608E+11	2.34761E-06
Labor Productivity	13656810918	7.31515E-07
Gross Capital Formation	3.669984987	6.09228E-27

Both, labor productivity and gross capital formation are significant for GDP in France, the co-efficient of both being higher as compared to other counties, which suggests that the change in any of these would bring greater change in GDP of France.

In a nutshell, in France, health spending is a significant factor affecting life expectancy, which is not a significant factor for dependency ratio, whereas fertility rate is. Female population effects female participation, which in turn effects labor productivity, which along with gross capital formation leads to GDP growth. Gross capital formation is impacted by both dependency ratio (a function of fertility rate) and gross savings. France is an economy in which a change in policy measures has potential to bring about great changes given by the high co-efficient of both: input parameters when regressed with channel parameter and channel parameters when regressed with output parameters.

INCOME WISE REGRESSION

We've segregated countries into five income brackets: High income, Upper Middle income, Middle income, Lower Middle income and Low income. For each of these countries regression similar to that done for Germany, Japan and France is carried out to determine if findings of these two countries are reflected across the globe or not and to what extent it is reflected.

As labor productivity data is not available, GDP is regressed against primary channel parameters: Female Participation (%) t_0, Working age Population (%) and secondary channel parameter Gross Capital Formation t_1 directly and simultaneously.

LOW INCOME COUNTRIES

Regression 1:

Dependency Ratio	Coefficients	P-value
Intercept	-0.078110481	0.963237482
Dependency Ratio t_0	0.968397851	4.52511E-35
Fertility Rate	0.533967886	0.106613589
Life Expectancy	-0.005320187	0.879742045

Dependency ratio is neither influenced by fertility rate change nor by life expectancy significantly and has large path dependency with previous year's dependency ratio.

Regression 2:

Gross Capital Formation	Coefficients	P-value
Intercept	219.2094189	0.018410463
Gross Capital Formation t_0	0.24107537	0.359913494
Dependency Ratio t_1	-2.354674764	0.014068748
Gross savings	0.771518084	0.038448718

Gross capital formation is not significantly influenced by the previous year's output, and it is significantly related to gross savings and dependency ratio. Also, decreasing dependency ratio would lead to great increment in gross capital formation.

Regression 3:

Female Participation (%)	Coefficients	P-value
Intercept	28.00336307	0.246221336
Fertility Rate	0.092509265	0.452117724
Female Population (%)	-0.571276187	0.259560863
Female Participation (%) t_0	1.005733551	2.2545E-07

Female Participation is neither influenced by fertility rate change nor by female population significantly and has large path dependency with previous year's female participation.

Regression 4:

GDP	Coefficients	P-value
Intercept	-2.6859E+12	0.03263112
GDP t_0	0.786461766	1.21536E-05
Female Participation (%) t_0	28051464446	0.1031405
Gross Capital Formation t_1	2120481708	0.382705076
Working age Population (%)	26176928533	0.317951064

Strong influence of channel parameters is not observed in low income countries significantly.

LOWER MIDDLE INCOME COUNTRIES

Regression 1:

Dependency Ratio	Coefficients	P-value
Intercept	8.895536722	0.000191427
Fertility Rate	0.431231758	0.066159705
Life Expectancy	-0.091456796	0.003608796
Dependency Ratio t_0	0.921359306	3.67297E-52

Life expectancy has started having significant influence on dependency ratio in lower middle income countries which was not prevalent in low income countries.

Regression 2:

Gross Capital Formation	Coefficients	P-value
Intercept	-18.01403822	0.000182606
Dependency Ratio	0.180479556	1.39879E-05
Gross savings	0.640780519	2.9076E-10
Gross Capital Formation t_0	0.58321171	5.36677E-11

Gross Capital formation have path dependency with previous output and relation with dependency ratio and gross savings.

Regression 3:

Female Participation (%)	Coefficients	P-value
Intercept	-504.6951433	0.023970692
Fertility Rate	-0.330312831	0.143596869
Female Population (%)	10.3336816	0.02374962

Female Participation (%) t_0	0.955292928	2.95547E-11

Fertility rate does not impact female participation but female population have started impacting the same.

Regression 4:

GDP	Coefficients	P-value
Intercept	-96.70753265	0.0019129
Female Participation (%)	2.041697893	0.006913624
Gross Capital Formation	0.189725112	0.229773016
Working age Population (%)	0.482333904	0.023209097
GDP t_0	0.015944073	0.938631566

GDP is related to Female participation which is a function of fertility rate and female population. Working age population structure also impacts the GDP output which wasn't observed in low income countries.

UPPER MIDDLE INCOME COUNTRIES

Regression 1:

Dependency Ratio	Coefficients	P-value
Intercept	5.939791233	0.02027259
Fertility Rate	0.699376492	0.000263902
Life Expectancy	-0.056500118	0.063329461
Dependency Ratio t_0	0.918864901	4.77909E-57

Life expectancy is no more a significant factor contributing to dependency ratio as opposite to low and lower middle income countries. Fertility rate has increasing influence and previous value of dependency ratio has decreasing influence on current dependency ratio as income increases from low income to upper middle income countries.

Regression 2:

Gross Capital Formation	Coefficients	P-value
Intercept	1.341153521	0.714286799
Dependency Ratio	0.01136392	0.666651359

Gross savings	0.431890749	0.000351702
Gross Capital Formation t_0	0.505612199	5.24969E-05

Here, a close association between Gross capital formation and gross savings is observed. Dependency ratio does not influence gross capital formation contrary to what was observed in Lower Middle Income and Low Income countries.

Regression 3:

Female Participation (%)	Coefficients	P-value
Intercept	-317.4175114	0.000403347
Fertility Rate	-0.062456991	0.397691804
Female Population (%)	6.564218923	0.000389027
Female Participation (%) t_0	0.816350042	1.85282E-09

As observed in case of lower middle income countries, for upper middle income countries also, female population and initial female labor participation are significant for current female labor participation. The co-efficient of initial female participation is decreasing with increasing income from low to upper middle income countries.

Regression 4:

GDP	Coefficients	P-value
Intercept	-278.8334069	0.092310723
Female Participation (%)	6.343212756	0.10374847
Working age Population (%)	-0.071454821	0.732352283
Gross Capital Formation	0.688336972	0.099070849
GDP t_0	0.06769328	0.759855918

Significant factors for GDP could not be obtained for upper middle income countries at significance level of 0.05. Influence of female labor participation has become stronger as compared to lower middle income countries. Additionally, gross capital formation is also a significant factor, which was not the case in low middle income country.

HIGH INCOME COUNTRIES

Regression 1:

Dependency Ratio	Coefficients	P-value

Intercept	-13.35214753	3.44944E-08
Fertility Rate	0.160796661	1.9988E-11
Life Expectancy	1.146109954	1.04646E-09
Dependency Ratio t_0	0.981674912	1.72113E-46

All the three factors chosen: fertility rate, life expectancy and initial dependency ratio are significant for dependency ratio. The co-efficient of fertility rate is minimum for high income countries which was increasing until upper middle income countries. Life expectancy has a positive co-efficient, which means that most of the high income countries have growing elderly population and is in second phase of demographic transition. Highest path dependency in dependency ratio is observed in high income countries owing to the maximum value of coefficient obtained.

Regression 2:

Gross Capital Formation	Coefficients	P-value
Intercept	-5.02932981	0.007260414
Dependency Ratio	0.039837371	0.409345681
Gross savings	0.701046008	2.4072E-09
Gross Capital Formation t_0	0.444893153	7.14654E-07

As observed in middle and upper middle income countries, gross savings and previous gross capital formation has significant impact on current capital formation. According to the trend observed, previous gross capital formation value has moderately decreasing co-efficient with increasing income, but gross savings observed results as higher impact as opposed to decreasing impact with rising income.

Regression 3:

Female Participation (%)	Coefficients	P-value
Intercept	-1.42109E-14	0.66233702
Fertility Rate	-1.26888E-15	0.211371416
Female Population (%)	1.12236E-16	0.831866462
Female Participation (%) t_0	1	2.7595E-306

Neither fertility rate nor female population have significant impact on female participation. According to regression results, the value of female participation depends only on its previous value and it changes negligibly. According to what is observed in case of Germany and Japan,

both high income countries, female population is a significant factor for female participation. Hence it can be concluded that high income countries which are not observing higher cultural transition have comparatively stable female participation and vice versa is true for those observing cultural change. Cultural changes in Germany is assumed to be emerging from rising immigrant population and in Japan from its internal changes.

Regression 4:

GDP	Coefficients	P-value
Intercept	91.69234958	0.102041541
Female Participation (%)	3.867460023	0.001803809
Working age Population (%)	-4.461365646	0.005908757
Gross Capital Formation	1.922570952	4.15499E-05
GDP t_0	-0.496619449	0.018378972

Though the impact of female labor participation on GDP is strong and significant for high income countries as well, the impact is lesser owing to lower value of co-efficient as compared to other middle income and upper middle income countries but higher than low and lower middle income countries. Gross capital formation has highest impact on GDP in high income countries as compared to all others. Surprising results have been obtained for working age population and previous GDP value as the co-efficient is negative for both of these. Explanation for both of these could be higher impact of global business cycles on these countries, and hence there is a noise in this regression.

INFERENCES FROM REGRESSION

Dependency ratio: As we start from low income countries, there is minor impact of any parameters until a country moves to lower middle income strata. Thereafter, increasing life expectancy leads to decrease in dependency ratio. Moving a stratum above to upper middle income, fertility rate starts impacting dependency ratio, both being positively correlated. This impact is increasing till upper middle income and minute in case of high income countries.

Gross Capital Formation: In case of poor countries, decreasing dependency ratio leads to great impact in increasing gross capital formation. But this impact is observed only till lower middle income countries and thereafter dependency ratio becomes insignificant. Gross savings have been significant for all income levels, the impact decreasing with rising income level and

then a shoot up for high income country co-efficient is observed. Previous value of gross capital formation is significant for all except low income countries and the impact is decreasing with increasing income level.

Female Participation: As opposed to many other findings, fertility rate does not impact female participation significantly for country in any income strata. However, change in female population as a percentage of entire population has significant impact for countries from lower middle to high income strata, with decreasing intensity with increasing income. Path dependency on previous female participation is also strong for all countries barring low income countries.

GDP: Female labor participation is the strongest and significant (except low income countries) factor impacting GDP. The impact rises till the middle income strata is reached and then it decreases. Working age population has strongest impact for lower middle income countries which decreases with increasing income level.

GENERAL INFERENCES

We started our study with the assumption that population growth does not explain economic development fully and attention needs to be focused on the age structure of the population. In the course of our study we tried to analyze the various demographic factors that have an effect on the economic development by channels such as labor productivity and gross capital formation. We have also studied the effect of parameters such as life expectancy, dependency ratio, female labor participation, fertility rate etc. leading in turn to economic development. Based on our analysis, we have derived a few general inferences.

- Social expenditure through well-established healthcare policies have a significant effect on life expectancy.
- Age structure does not contribute as much to labor productivity as female labor force participation does, which in turn impacts the GDP of the country. This brings out the importance of utilizing the untapped labor force in the demographic mix.
- Female labor force participation reduces the dependency ratio (less pressure on existing resources). This also however, leads to a lowering of fertility rate. Female force participation has dual (both cause and effect) relation with fertility rate.

- Gross capital formation is dependent on dependency ratio and gross savings depends on income level, the effect of which remains almost stable impact for lower to upper middle income countries. The impact is high for rich countries which brings out the effect of the ageing demographics.

CASE STUDIES FROM SOUTH EAST ASIA

South-East Asia is a diverse region with a mix of several very powerful and at the same time least-developed countries. In this section, we explore how a few of these countries in South East Asia are reforming their educational, health and labour market policies to match up with increasing demands of globalization.

THAILAND

Thailand is the second largest economy of South East Asia with a GDP of US$366 billion. The World Bank recognises Thailand as "one of the greatest development stories" in social and development indicators[xix], backed by the fact that it upgraded to an upper-middle income country in 2011 within a decade. Thailand entered the phase of an "ageing society" around 2005.[1] [xx]

Most of the health services in Thailand is delivered by the public sector. 99.5% of the Thai Citizens have health protection coverage under the Universal Health Care (UHC) reforms introduced in 2001. Thailand was one of the few lower-middle income countries to do so at that time.[xxi] It proactively aids health promotion programmes by financing it through alcohol and tobacco tax. As a result, Thailand has seen a steady decrease in mortality rates and increase in GDP per capita.[xxii]

Thailand has addressed low access to education by the National Education Act, 1999 whereby 12 years of free public schooling is guaranteed to all Thai Citizens along with 2 years of free pre-schooling as per the 2005 amendment. However, much needs to be done to remove disparities between urban and rural regions and also raise the quality of education and developing advance skills for better employability in the labour markets.[xxiii]

The role of women is substantial in Thailand's workforce. Unlike Sub-Saharan Africa, where women form a major part of the agricultural workforce, Thai women are able to find productive employment in other sectors of the economy as they have lagged only slightly behind men in

their educational achievements. However, the Thailand labour market has experienced a reversal around 2010, whereby employment is shifting back to agriculture and the unorganized sector, accounted for by a declining share of jobs in services. This is at a time when Thailand faces skill and labour shortages due to ageing demographics and inadequate educational qualifications of the workforce.

VIETNAM

Vietnam is treated as a development success story by the World Bank with its move into the lower middle income bracket by 2015 within a quarter of a century from being one of the poorest in the world. It is one of the fastest growing countries with a GDP of US$175 billion and growing at an average of 5.5% since the 1990s.

Vietnam introduced Health insurance in 1992 and extended it over a 20 year period by incrementally increasing the reach, expanding the scope of the benefit package and also reducing the citizen contribution. The coverage has been extended to nearly 70% of the Vietnamese population with targets to increase it up to 80% by 2020. However, the state still finds it difficult to cope with the inadequate capacity of its health system under further pressure due to its ageing population, and emerging burden of infectious and non-communicable diseases. There are disparities in the health status between regions and socio-economic groups.[xxiv]

Education is a national priority in Vietnam. Since 1975 Vietnam tried to ape the educational model of Soviet Union but that failed to create an impact due to a huge gap in the levels of development of the two countries. Hence, the Vietnamese education system went through a series of reforms of educational thoughts, and focussed on attracting foreign investment in this area. Vietnam was successful at improving literacy levels to around 97% and widening the reach of higher education. However, here too, there are impediments in terms of the quality of education, employability and the development of training mechanisms for teachers.[xxv]

Vietnam witnesses large increases in its population from 1997-2007 and consequently there was a pressure on the labour market. Although employment gains and improved labour productivity has been visible, there has been a downward trend in employment to population ratios with youth remaining longer in school and adults taking retirement earlier.[xxvi] The female labour force participation rate in Vietnam is around 72%, which is pretty high. However, the gender pay gap is widening in Vietnam in contrast with most other countries which highlights

the disparities in education, training, employment and promotion opportunities.[xxvii] Women in Vietnam also retire at 55, five years earlier than their male counterparts.

AREAS OF POLICY CONSIDERATION

We have seen that policy profiles and nature of demographic transition vary widely in all the countries studied to warrant any generalization. Moreover data insufficiency makes our study only exploratory. We guess a comparative research employing MDS and MSS design may be a more productive future research strategy. However our country specific studies of Germany, Japan and France on the one hand and case studies of South East Asian countries highlight the significance of critical policy areas that have been deployed for dealing with stages of demographic transition for economic development. These are public health, education and policies that incentivise labour participation - female labour participation policies retirement age, openness to trade, skilling and employment generation, industrial and urbanization policies. While each country has to adjust each policy component to its given stage of demographic transition judiciously the policy areas remain important across stages of demographic transition.

APPENDIX

LOW INCOME COUNTRIES

Region	Country
East Asia & Pacific	Korea, Dem. People's Rep.
Latin America & Caribbean	Haiti
South Asia	Afghanistan
	Nepal
Sub-Saharan Africa	Burundi
	Benin
	Burkina Faso
	Central African Republic
	Congo, Dem. Rep.
	Comoros
	Eritrea
	Ethiopia
	Guinea
	Gambia, The
	Guinea-Bissau

	Liberia
	Madagascar
	Mali
	Mozambique
	Malawi
	Niger
	Rwanda
	Senegal
	Sierra Leone
	Somalia
	South Sudan
	Chad
	Togo
	Tanzania
	Uganda
	Zimbabwe

LOWER MIDDLE INCOME COUNTRIES

Region	Country
East Asia & Pacific	Micronesia, Fed. Sts.
	Indonesia
	Cambodia
	Kiribati
	Lao PDR
	Myanmar
	Mongolia
	Philippines
	Papua New Guinea
	Solomon Islands
	Timor-Leste
	Tonga
	Vietnam
	Vanuatu
	Samoa
Europe & Central Asia	Armenia
	Kyrgyz Republic
	Kosovo
	Moldova
	Tajikistan
	Ukraine
	Uzbekistan

UPPER MIDDLE INCOME COUNTRIES

Region	Country
East Asia & Pacific	American Samoa

	China
	Fiji
	Marshall Islands
	Malaysia
	Palau
	Thailand
	Tuvalu
Europe & Central Asia	Albania
	Azerbaijan
	Bulgaria
	Bosnia and Herzegovina
	Belarus
	Georgia
	Kazakhstan
	Macedonia, FYR
	Montenegro
	Romania
	Russian Federation
	Serbia
	Turkmenistan
	Turkey
Latin America & Caribbean	Belize
	Brazil
	Colombia
	Costa Rica
	Cuba
	Dominica
	Dominican Republic
	Ecuador
	Grenada
	Guyana
	Jamaica
	St. Lucia
	Mexico
	Panama
	Peru
	Paraguay
	Suriname
	St. Vincent and the Grenadines
	Venezuela, RB
Middle East & North Africa	Algeria
	Iran, Islamic Rep.
	Iraq
	Jordan
	Lebanon
	Libya
South Asia	Maldives

Sub-Saharan Africa	Angola
	Botswana
	Gabon
	Equatorial Guinea
	Mauritius
	Namibia
	South Africa

HIGH INCOME COUNTRIES

Region	Country
East Asia & Pacific	Australia
	Brunei Darussalam
	Guam
	Hong Kong SAR, China
	Japan
	Korea, Rep.
	Macao SAR, China
	Northern Mariana Islands
	New Caledonia
	Nauru
	New Zealand
	French Polynesia
	Singapore
Europe & Central Asia	Andorra
	Austria
	Belgium
	Switzerland
	Channel Islands
	Cyprus
	Czech Republic
	Germany
	Denmark
	Spain
	Estonia
	Finland
	France
	Faroe Islands
	United Kingdom
	Gibraltar
	Greece
	Greenland
	Croatia
	Hungary
	Isle of Man
	Ireland
	Iceland

	Italy
	Liechtenstein
	Lithuania
	Luxembourg
	Latvia
	Monaco
	Netherlands
	Norway
	Poland
	Portugal
	San Marino
	Slovak Republic
	Slovenia
	Sweden

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