Labor supply factors and impact on economic growth	Quantity of labor = Labor force × Avg. working hours         Labor Force : number of working age people available to work (both employed and unemployed)         Labor Supplies Factors         1. Demographics :         - Younger population → higher potential growth         - Low / Declining fertility rates → Decline labor force → reduce growth         2. Labor force participation : Increase as more women enter workforce         Labor force participation =         Labor force participation =         Morking age population         3. Immigration : potential sources of continued economic growth for developed countries as a solution for declining labor force         4. Average working hours         - General downward trend, due to legislation         - Wealth effect : induce individuals to take more leaves         - High tax rates on labor income         - Increase part-time and temporary work
capital, human capital and technological development on economic growth	<ul> <li>In Numar Capital is knowledge and skills of individuals</li> <li>Investment via education / work experience → increase productivity and economic growth</li> <li>External spillover effect : Worker innovate → used by society to create greater efficiencies for the economy</li> <li>Physical capital includes ICT capital (Infrastructure, Computers and Telecommunication) and non-ICT (machinery, transportation and non-residential construction)</li> <li>Positive correation between investment and GDP growth rate</li> <li>Inconsistent with capital deepening, due to : <ul> <li>+ Many countries have low capital to labor ratio</li> <li>+ Capital investment may influence technology progress → economic growth</li> </ul> </li> <li>3. Techological development : includes investment in both physical and human capital</li> <li>Developed countries rely on technological progress for growth → spend more on R&amp;D</li> <li>Less developed countries ofte copy from developed countries → spend less on R&amp;D</li> </ul> <li>4. Public infrastructure : public roads, bridges, municipal facilities <ul> <li>Complement private investment → Increae productivity</li> </ul> </li>
Classical growth theory	$\uparrow$ in capital / technology progress → income per capital increases above a subsistence level → $\uparrow$ in populaton growth → Diminishing marginal return to labor → $\downarrow$ productivity → GDP per capita back to subsistence level Subsistence level : minimum income needed to maintain life Conclusion : growth in real GDP is not permanent
Neoclassical growth theory	Focus on estimating economy's LT sustainable growth rate At equilibrium : - Output-to-capital is constant - Labor-to-capital and output per capita grow at equilibrium growth in the Sustainable growth rate of output are $(p_1)$ $(g_2 = \frac{\theta}{1 - \alpha})$ Sustainable growth rate of output are $(p_1)$ $(g_2 = \frac{\theta}{1 - \alpha})$ Sustainable growth rate of output $(g_1 = 0)$ $(g_2 = \frac{\theta}{1 - \alpha})$ (In nair): $\theta = \text{growth rate in technology}$ $\Delta t = \text{growth of labor}$ Under neoclassical growth theory : - Capital deepening affects level of output, but not growth rate in the long run (Capital deepening temporary increase growth rate, but growth rate will revert back to sustainabl level if not technological progress) - Economy growth rate move toward equilibrium, regardless of initial capital to labor ratio / level of technology - In equilibrium, only growth rate of technology and labor's share of total output affect productivity - In equilibrium, marginal product of capital dolabor's share of total output affect productivity - In equilibrium, raise economic growth - Increase savings only temporary raise economic growth - Increase savings only temporary raise economic growth - Increase savings countries (lower level of capital per worker) are impacted less by diminishing marginal productivity of capital $\rightarrow$ higher growth rate compaed to developed countries
Endogeneous growth theory	Investment in physical and human capital → technological progress → enhance productivity of both labor and capital No equilibrium growth rate : Increase investment → increase growth rate Increase R&D investment → benefit to entire economy Constant returns to capital → increase savings lead to increase in growth rate
Convergence hypothesis	Absolute convergence : less developed countries will achieve equal living standards over time Conditional convergence : convergence in living standards for countries with same savings rates, population growth rates and production functions only - Less developed countries' growth rate is higher until they catch up → stabilise to same steady growth rate as developed countries Club convergence : separate countries into clubs (with similar saving rates, financial markets, property rights, health and educational services, etc.). Countries can join the club by making appropriate institutional changes. Countries that are not part of the club cannot achieve that club's standard of living
Rationale for incentives to private investment in technology and knowledge	$\uparrow$ expenditure that provide both benefits to the company and society (R&D) $\rightarrow$ permanently increase economies growth Many R&D projects have low expected return $\rightarrow$ not enough to compensate firms for the riskiness of the investment $\rightarrow$ Sub-obtimal (too low) R&D investment Government incentives that subsidise R&D investment $\rightarrow$ increase investment on R&D to optimal level