Södertörns University | Institution of Social Science
Bachelor Thesis 15 ECTS | Economics | Autumn 2013
Program of Development and International Cooperation

Does the Level of Gender Equality in National Parliament have an Impact on Economic Growth?

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ABSTRACT

It is clear that economic growth is achieved by a number of means depending on theoretical affiliation and also that growth rate varies across countries.

The thesis investigates the relationship between economic growth and the proportion of representation by women in national parliament across countries. Women are discriminated at every level in the society based on gender and the thesis analyses the effects on production and growth, based on the fact that half of the population are not given equal opportunities to participate in economic activities. The study is performed through two cross-country regression analyses, divided by low- and high-income countries with secondary data. The variables included are: the proportion of seats represented by women, initial GDP/capita, FDI, level of education, population growth, and terms of trade and level of democracy. The variables are chosen in accordance to growth theories. The findings cannot isolate if a high proportion of female parliamentarians increase growth, but the result indicates that a more gender equal economy operate at a higher production level. Increased proportion of female representation in local parliament should according to theory, increase inclusive incentives and policies for women in the labour force and enrolment in higher education, thus increasing the average level of human capital. Previous studies support the result; gender equality is viewed as “smart economics”.

Keywords: Growth, Gender, Equality, Representation, Human Capital.

ACKNOWLEDGEMENTS

Stockholm, December 12th, 2013

The period dedicated to documentation the thesis has been rather hectic, long and primarily challenging, mostly from a positive perspective. In consequence, it has created an opportunity to test my abilities and level of devotion in my choice of field, development economics.

The foundation of my interest in economics is based at development studies, where the sources for inequality constantly return to the economy and the economic behavior in the world. To be able to connect these subjects and draw conclusions is a success for future interests and personal advancement. I'm satisfied with the choice of subject for the thesis, which has kept me focused and resolute to complete the research in an almost every day, great spirit.

Though my personal determination and interests in successfully completed by writing the thesis, it would have been hard to succeed without the support I've received.

First, I would like to direct gratitude to Stig Blomskog, my mentor who has helped me create a conclusive structure and constructive results throughout the time writing.

Further, I would like to thank the professors responsible for the courses in the program Development and International Cooperation at the University of Södertörn, who sparked my interests in development studies and further that economics has a great explanatory effect on the world situation.

Even though, I would never have succeeded with writing my thesis without the support from my mother, taking time to read my first drafts and giving constructive criticism. Olivia Ernstsson, even though having enough with her own studies, took time helping me the last days of writing with important inputs. Finally I would like to thank my fellow students for a great time writing this thesis in your company, it wouldn't have been as giving without you!

Thank you!

/ *Denise Stolt*

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1. INTRODUCTION

This section presents the link between economic growth and gender equality in governmental representation. Further, the introduction will present the objective and scope of the study and questions for the research being observed.

1.1 Background

Economic growth is thought to push a country forward. Growth is available recourses used in a different manner to produce a more valuable output. Different theories present various solutions and recipes on creating economic growth. There is no consensus if increased technology, labour abilities, savings, education or something additional is the main key. Certain are that economies have succeeded differently in creating economic development, which can be observed by the dissimilarities in living standards across countries.[1] Even if countries adapt the same theories, applying similar solutions to stagnancy problems, differences are still present. That propose that countries are different and there is not only one solution to achieve economic growth. Empirically proved is that improved skills, abilities and knowledge in the labour forces, substantially will intensify production and increase value on output, making the level of education significant for economic growth.[2] Inequality in level and opportunities of education with a clear reference to gender throughout the world is a reality.[3] There is also inconsistency on the labour market, by means of income and attendance based on sex.[4]

It is proven in endogenous growth theory, that policies and institutions shape the economic performance, which is determined by the national government and its interests. Across countries, women ensure around 10-20 % of the seats in the single and lower chamber positions in national parliament and, representing half of the population, the inequity in these numbers speak for themselves.[5] The inclusion of women in national parliament is generally only discussed as an important issue of justice and an act of improved equality in the society.[6] In the Millennium Development Goal number three, the UN member countries agreed to eliminate discrimination against women through promoting gender equality and empowerment. The goals where implemented

[1] Robert. J. Barro 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. Cambridge: NBER. pp.70-71
[2] David. N. Weil. 2013. *Economic growth*, 3. ed, Pearson Education Limited, Harlow. p.428
[3] Stephan Klasen. 2004. *Gender-related indicators of well-being*, United Nations University, World Institute for Development Economics Research, Helsinki. Available at: http://www.wider.unu.edu/publications/working-papers/discussion-papers/2004/en_GB/dp2005-005/_files/78091738033882164/default/dp2004-005.pdf [Accessed 15/11-13]
[4] The World Bank. 2013. *Women, Buisness and the Law 2014.* International Bank for Reconstruction and Development/The World Bank, 1818 H Street NW Washington DC 20433. Available at: http://wbl.worldbank.org/~/media/FPDKM/WBL/Documents/Reports/2014/Women-Business-and-the-Law-2014-Key-Findings.pdf [Accessed 3/12-13]
[5] Jayasuriya. S. Dinuk & Paul. J. Burke. 2013. *Female parliamentarians and economic growth: evidence from a large panel*. Applied Economics Letters, Vol. 20:3. pp.304-307. Available at: http://dx.doi.org/10.1080/13504851.2012.697113 [Accessed 30/10-13]
[6] Sharmista Self & Richard Grabowski. 2009. *Gender Development, Institutions and Level of Economic Development.* Review of Development Economics. Vol.13(2). pp.319–332. Available at: http://web.ebscohost.com.till.biblextern.sh.se/ehost/pdfviewer/pdfviewer?sid=df1891ed-88c0-4625a19d23a2f59d05c0%40sessionmgr114&vid=4&hid=128 [Accessed 1/12-13]

in 2000. 14 years later, some improvements have been attained, but goal number three is far from achieved. Education is not only viewed as an important instrument to create economic growth but also to empower women and men. There are differences in parents' means to send children to school, where girls are those who suffer from being excluded from schooling or second level education. Gender equality in primary education has been reached, but inequality is increasing at all other levels of schooling, which reduce women's abilities to achieve empowerment in relation to men. Barriers that restrict progress in gender equality are thought to be continuously present within poverty. This prevents older girls to continue their education and forces them to maintain in domestic chores, constraining women to achieve secure livelihoods and take part in economic development.[7]

In the report "Women, Business and the Law 2014" it is stated that women is not only discriminated by norms and culture, but more intensely by laws, keeping half the population outside the economic field. Growth and development issues are generally addressed to low income countries, but gender equality and the participation from women is an issue present in economies at all income levels. Even though many discriminating laws has been removed during the last decade, almost 90% of the 143 countries covered by the report has at least one remaining unequal law, restricting women to fully participate. In 15 economies, the husband can decide whether the woman is allowed to participate in the labour force, preventing the women to earn a living and to lose control over their own decision-making. The study also covers the inclusion of women as labour force from a more dynamic perspective. Some sectors totally ban or restrict women from fully participate, such as mining and manufacturing, sectors that usually represents high-income earnings. Income inequality continues by creating gender bars hampering women accessing these occupations. This also has a negative impact on companies' competiveness in these sectors, when half of the potential labour is continuously halved and the probability of having the right employee decreases proportionally with that amount.[8]

The rate of change and improvement varies across continents and countries, as the Middle East, South East Asia and North Africa has the most stagnant rate of progress in gender equality, these are also areas where the presence of low-level income is great. This is the real world situation year 2014, countries viewed as more developed and having a higher level of income is seen as more equal.

Empirical evidence concludes that even at a high level of female participation in the economic arena, within high-income countries, the amount of women in decision-making is still low. Only 6 economies have established quotas for women on boards for publicly listed companies and 12 countries have quotas for women in national parliament. Women are not a group in minority, they

[7] The UN. 2013. *The Millenium Goals.* The United Nations. Available at: http://www.un.org/millenniumgoals/gender.shtml [Accessed 4/12-13]
[8] The World Bank. 2013. *Women, Buisness and the Law 2014.* International Bank for Reconstruction and Development/The World Bank, 1818 H Street NW Washington DC 20433. Available at: http://wbl.worldbank.org/~/media/FPDKM/WBL/Documents/Reports/2014/Women-Business-and-the-Law-2014-Key-Findings.pdf [Accessed 3/12-13]

represent half of the population and also their interests.[9] Consequently it is relevant to study if there are economic incentives and gains from including women in political decision, rather than righteousness and discrimination being the argument for inclusion. What is the economic outcome and risks when part of the population is less engaged in production due to various barriers based on sex?

1.2 Study Objective

The thesis aims to investigate whether there is a significant relationship between economic growth and the proportion of seats represented by women in national parliament across countries or not. The representation of women is a descriptive indicator and variable in the study for gender equality in the society. Women represent a group that in different forms are discriminated because of their sex. Being half of the population in a society, women are not given the same opportunity to participate in decision-making and in the economic arena as men. The exclusion of women has effects on an economy's performance and production. Economic performance and development are in each country founded on the population's different knowledge, abilities and decision-making. The thesis will examine what effect discrimination and inequality for a majority of the population have on a country's economic situation and development, based on the argument that not including all labour force and its human differences is ineffective.[10] Education and knowledge is an important input in production; the thesis will evaluate how it is conducted and how different opportunities in schooling between men and women effect production. Education and the well-functioning of institutions is empirically proved to affect the empowerment of women, the study will include these two factors in the analysis as explanatory forces for the representation of women in national parliament.[11]

The reason to variety in standards of living and the creation of growth will be presented and examined through economic theory. Gender inequality is an issue exceeding different levels of income and it is relevant to include as many countries as possible with various living standards to find explanations for the rate of progress in gender development. This will be realized by performing a regression analysis, define determinants and effects on economic growth, where the target is to identify if empowering women holds significant explanatory influence for economic growth. Further to conclude and investigate is if there are economic incentives for a country to invest in gender equal representation.

[9] ibid.
[10] Lewin, Peter. 2011. *Capital in Disequilibrium - The Role of Capital in a Changing World*. Alabama: Ludvig von Mises University.
[11] ibid.

1.3 Research Question

Does the proportion of women in national parliament have an impact on economic growth within a country?

1.4 Scope of the Study

The study will be performed by two cross-country regressions, divided into Low Income and High Income Countries. The dividing of the two groups is completed by the measurement GNI (Gross national income), used by The World Bank, where I have grouped low-income countries and low-middle income countries into one group. The other group is constructed by three levels of income, middle, high-middle and high-income.[12] The reason to perform two regressions analysis is to avoid the problem when pooling many different countries together, in order of the effects not to revoke each other. The values used in the regression analysis are average values from the 10-year period in between 2003-2012. The choice of having a time period of 10 years is based on that changes in economic growth and growth in real GDP/capita is slow, so creating an average value of 10 years will not have an important influence on the result.[13] The independent variable that will be tested is the percentage of female parliamentarians in the national government and if a greater proportion of women have an impact on a country's economic growth.

The purpose is to study different countries and continents with various economic situations to enable a dynamic analyse to occur. The issue of representation and gender is worldwide, certain countries with a high level of income and growth might have a low proportion of women in the government due to cultural and religious aspects. While other countries viewed as poor with a low level of growth might have a greater proportion of women, which makes it relevant to include as many countries as possible in the thesis.

There will limitations of countries included in the regression depending on lack of updated data. This will not have an effect on the outcome of the regression since these countries are geographically and economically small and also minor in numbers related to the included ones.

[12] The World Bank. 2013. *Dividing the countries by GNI*. Available at: http://data.worldbank.org/country [Accessed 1/12-13]
[13] Wendy Carlin & David Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. New York: Oxford University Press. pp.498-502

2. PREVIOUS STUDIES

A large panel data set, performed to analyse the effect on economic growth from the proportion of representation by women in national parliament was conducted in 2013, providing the field with evidence that there is a significant positive correlation. The authors conclude that countries in the Middle East and Pacific would gain the most of including more women in decision-making processes and by doing so, annually increase the growth rate in GDP/capita for each increased percentage point of female represents with an average of 0,16 %. Allegedly, gender equal parliaments are more likely to invest in women's education and inclusive gender policies, creating the same possibilities for men and women to participate in a country's economic performance. [14]

There are numerous of studies performed concerning gender inequality and the connection with economic growth, with various conclusions around the issue. A great amount of the findings concerns education and if the enrolment of women in school has an effect on economic growth. Barro is viewed as a most influential economist; in a cross-country study he concludes and defines the determinants of economic growth. Throughout the study he detects that there are far more determinants effecting economic growth than the basic neoclassical ones, such as technological progress. He highlights the importance of well-functioning institutions and legal systems that are obtained by a responsible government. The mechanics on economic development is as he concludes, augmented by improved education, higher life expectancy, lower fertility rate, less government spending, protection of the rule of law, low inflation rates and improved terms of trade. Although the factors stimulating economic growth are endogenously given, there is significant correlation with conditional convergence theory; countries with an initial low level of GDP/capita grow faster, which is supported by exogenous growth theory. Other findings in the study indicate that education for women seemingly not to have a significant positive impact on economic growth, while education for men does. The reasoning is that investment in education for women lowers other negative effects on growth, such as fertility rates. These indirect effects, from education women can be analysed as positive outcomes on growth, but there isn't any direct correlations with economic development that argues for a more equal distribution of education. There has been criticism for the method used when performing the study, which is pooling countries together, when the process is generalizing the world and not taking factors as culture, economic system and institutions into account. Barro approaches this with the attitude that this method is used to enable an empirical analysis to take place at all and that it is relevant to analyse without those factors interfering with the result.[15]

[14] Dinuk & Burke. 2013. *Female parliamentarians and economic growth: evidence from a large panel*.
[15] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. pp.70-71

Other studies on the subject conclude that there is significant positive result from investing in education for women concerning the effect on human capital, which increases with higher attainment in schooling. Another cross-country regression performed by Stephan Klasen indicates evidence that inequality in education reduces economic growth based on four criteria's. These are; the presence of inequality decreases the average level of human capital in a country; wages are generally lower; there is no presence of positive externalities from educating women to be passed on to their children, since it is empirically proved to be more likely that such knowledge is to be passed on by the mother rather than the father; and indirect externalities like declining fertility rates, decreased population growth and poverty reduction that positively effects economic growth will not appear.[16]

This reasoning is supported by Dollar and Gatti that argues that underinvestment in women is a market failure, which will result in slower growth rates and stagnant wages. The study is performed with a panel data set with fixed effects by measuring inequality through different gender indicators, such as education and fertility rates. They argue that the result Barro concludes doesn't take the endogeneity into account when describing growth due to the method of pooling, which their research overcomes. Findings conclude that an increasing amount of women who achieves their years in secondary school has a small but positive correlation with GDP/capita growth. This is according to decreased fertility rates, therefore reduction in population growth and increased average levels of human capital, through investments in education and health reforms. It is not efficient to underinvest in women since it restrict the growth of human capital. The researchers also find that there is a convex relationship between income and female attainment in school. The rapid change occurs when the country has reached a common level of income and not in countries with lower income levels.[17]

To enable an increased amount of women involved in economic activities within a country, the route has to be through policies, institutions and laws concerning women's rights. This according to a report that The World Bank published in 2013, which states that the government have an important role to include and to get women to participate in the economy, particularly through law-reforms. The findings are numerous and inequality is present across countries due to discriminating laws keeping women from fully participating in the economy. When having an insufficient labour force there is an association with a higher income inequality in the economy. The report also highlights the importance of a descriptive representative government to operate for women's interest in policy making and reforms aiming to an equal society. There is statistical evidence that countries with a gender quota in the parliament have higher labour force participation of women and a higher

[16] Klasen. 2004. *Gender-related indicators of well-being*.
[17] David Dollar & Roberta Gatti. 1999. *Gender Inequality, Income, and Growth: Are Good Times Good for Women?* The World Bank Development Research Group/Poverty Reduction and Economic Management Network. Available at: http://darp.lse.ac.uk/frankweb/courses/EC501/DG.pdf [Accessed 1/11-13]

enrolment of girls in school. Concluding result from the study, changes in policies and laws enables women to participate in the economic progress, which is considered "smart economics".[18]

In the study "Gender Development, Institutions and Level of Economic Development" the authors emphasises the difference amongst levels of gender equality between countries with different income, where low economic development is related to greater inequality. But concludes that economic development is not the only dependent influential factor of gender progress, the operation of institutions and government is equally significant. What is important to be aware of is that culture and religion seems to have a significant importance to what extent a well-functioning and efficient government can implement changes, thus the presence of malleable institutions limits gender equality progress.[19]

There is a continuing discussion if the degree of democratic freedom could increase the number of represented women in parliament. Empirical studies conclude that this is not the case and in some circumstances a higher level of democracy has an opposite effect. In a study performed with a cross-country regression the analysis establishes that there isn't a significant correlation between the level of democracy and number of women represented, democracy seems to fail women. The authors of the study find that there is correlation with the democratization progress rather than the level of democratic freedom. The research locates those countries were women have participated in the democratization process and finds that the inclusion in national parliament is of a greater proportion, rather than countries where the revolution has occurred without women's organisation. The presence of grass-rot organizations pro-women empowerment and a greater level of social capital within the society have a greater grade of significance, concerning female representation in national government, than the actual level of democracy.[20] The correlation between democracy and the proportion of seats taken by women is therefore not defined. There are continues studies that imply that through free and well-performed election, women have a greater chance to be included in the political process. Other studies show that if women haven't been a great part of the democratization process they will be held back by a high level of democracy.[21]

[18] The World Bank. 2013. *Women, Buisness and the Law 2014.*
[19] Self & Grabowski. 2009. *Gender Development, Institutions and Level of Economic Development.*
[20] Kathleen. M. Fallon, Liam Swiss & Jocelyn Viterna. 2012. *Resolving the Democracy Paradox: Democratization and Women's Legislative Representation in Developing Nations, 1975 to 2009*. American Sociological Review, Vol.77(3). pp.380-408.
[21] D. Stockemer. 2011.*Women's Parliamentary Representation in Africa: The Impact of Democracy and Corruption on the Number of Female Deputies in National Parliaments*. Political Studies, Vol. 59. pp.693–712. Available at : http://onlinelibrary.wiley.com.till.biblextern.sh.se/doi/10.1111/j.1467-9248.2011.00897.x/references [Accessed 25/11-13]

3. THEORETICAL DISCUSSION

Economists have discussed the mechanisms which create economic growth during decades. Countries are endowed with different amounts and combinations of factors of production, such as capital, labour skills and technology. They create unique abilities for each country, which together with differences in saving rate, population growth and other features have an effect on growth that generates various levels and growth rates of GDP/capita across countries. The real world context provides a situation with diverse levels of living standards around the world. The theoretical discussion will primarily present the most general and known models in economic growth theory and how gender equality could affect economies.

3.1 Exogenous Growth Theory

The Solow-Swan model with technological progress

Robert Solow and Trevor Swan constructed and developed the Solow-Swan model independently in 1956. The model describes the relationship between capital accumulation, population growth, technological progress, savings rate and combined how they create economic growth. The different inputs are set exogenously, which implies that the change of production factors can't be explained within the model or economy, since it occurs without deliberate decision-making. The production function (Cobb-Douglas version) in Solow-Swan model with technological progress:

$$y = Ak^{\alpha}$$

Where y is output per worker, A productivity of capital and labour/technological progress, k capital per efficient worker and α the marginal productivity of capital per efficient worker, which is positive but diminishing. Labour grows in relation to population growth, while capital grows with economic advancement achieved by increased investments depending on the rate of savings.

In steady state the output per efficient worker and capital per efficient worker have the same growth rate, which is determined by the rate of technological progress. Countries with higher saving rate have lower fertility rates, which create a greater standard of living, but technological progress creates an increased growth rate. Technological progress can't be explained by the model since it appears from outside, the model also lack the ability to explain how long-term growth is accomplished, since the growth rate of efficient labour of capital ratio in steady state is constant.[22]

[22] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. p.487

Countries with an initial low level of GDP/capita have according to the model a faster growth path, due to the presence of diminishing returns of the production factors. This phenomenon is called the conditional convergence and concludes that in theory countries with a lower income should grow faster than countries with higher income. From y → y*, were y* is the target, is reached faster with a lower initial GDP/capita level according to conditional convergence and with a higher initial level of human capital.[23] Applying economic theory into a real world context, it supports a more complex reasoning than the conditional convergence explains, there are more factors which economic growth depends on than the neoclassical model presents.

However, education and increased knowledge have established as positive effects on women's empowerment, and higher educated women also decreases fertility rates. According to the Solow-Swan model, a decrease in population growth increases the per capita production. Increased gender equality in schooling would indirect have positive effect on an economy's growth according to the model. This argument supports that a higher proportion of included women in the economy increase economic growth.[24]

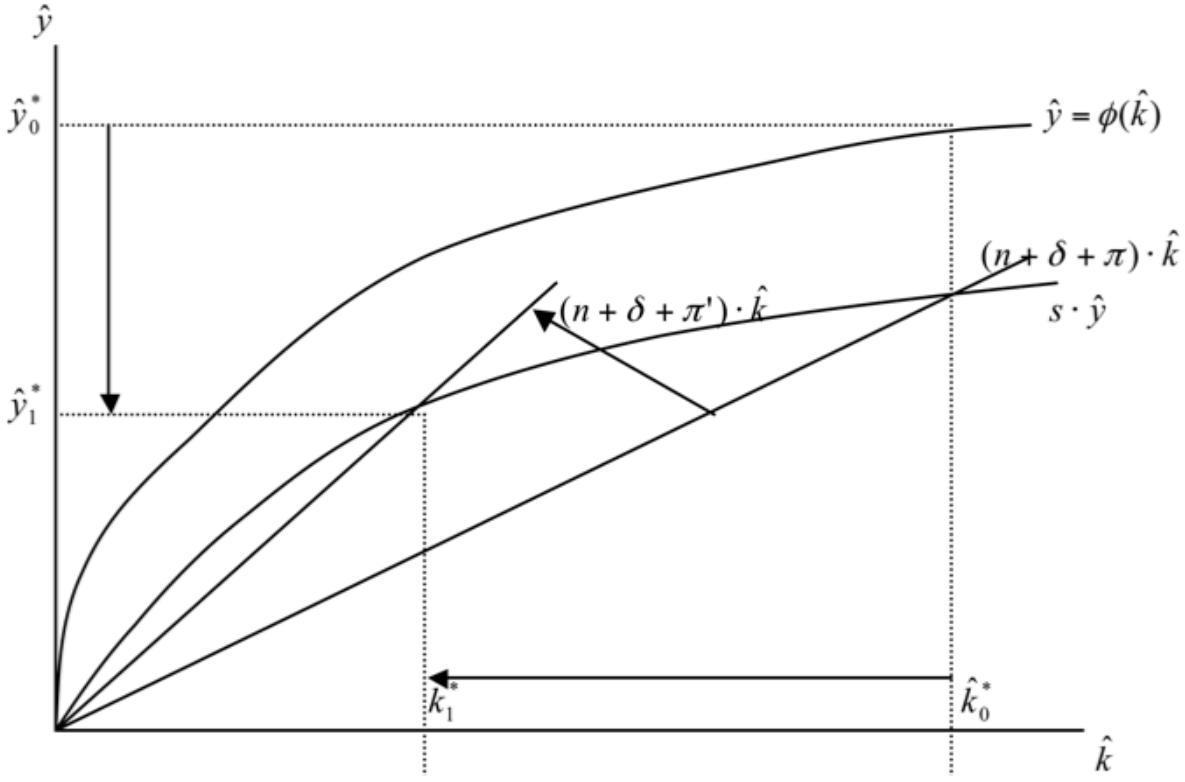


Figure 3.1 Solow-Swan model

the figure presents change in steady state when there is technological progress, which moves the steady state to a new level with a lower level of capital per efficient worker. Where, $\hat{y}$ *=income/output per efficient worker,* $\hat{k}$ *=capital per efficient worker, δ =depreciation rate, π =technological*

[23] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.2
[24] Klasen. 2004. Gender-related indicators of well-being.

progress, n=population growth rate, s=savings rate and $\hat{k}^*_0$, $\hat{y}^*_0$ *= denotes a steady state,* $\hat{k}^*_1$, $\hat{y}^*_1$ *the new steady state.*

The Solow-Swan model considerate human capital as an input in production, but it is (in the model) hard to distinguish from technological improvement and the labour force knowledge to *use* the technology effectively. In the Solow-Swan model human-capital is plainly education, which when added makes the model more applicable the real world context, but doesn't make it total justice. Human capital as an input has as capital, diminishing returns.[25]

3.2 Endogenous Growth Theories

The distinction between exogenous and endogenous growth models is the presence of diminishing returns, which endogenous models manage to overcome. There is instead an attendance of constant returns, this creates a state where governmental policies and institutions can shape and influence the economic environment in a country and affect the different parameters that determines long-term growth. This is of importance when investigating the effect of women's representation in the political arena in relation to growth. The inputs in endogenous growth models are investments in human capital or in R&D and knowledge spillover from accumulation of physical capital, which enables greater output when there is technological progress. [26] The models will include a gender perspective to comprise an in-depth understanding of the consequences gender inequality could have on a country's economic performance.

Lucas Model on Human Capital

Using human capital as an input without diminishing returns to capital and the creation of endogenous growth the forthcoming equation has to be applied:

$$\dot{h}_t = ch_t\,(1 - u_t)$$

Where h_t is the economy's amount of human capital per person, the time spent on improving the level of human capital is $1 - u_t$ and c is applied as a scale parameter. For the model to produce endogenous growth h has to grow in proportion to the existing stock, in other words, there has to be linearity. This implies that labour who has been accumulating human capital will have a rapidly effect on the growth rate constantly, the output per capita will have permanently increased.

[25] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. p.503
[26] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.1

In the Solow-Swan model, human capital increases output per capita and the level of growth increase, but not the growth rate since there is a presence of diminishing returns. In this endogenous growth model with human capital, education has an external effect, which doesn't disappear with constant returns that appear when the existing knowledge is passed on to future periods.[27]

Lucas endogenous growth model emphasises the ability of education and time spent on improving the workers skills in the present period as an input into the production, which enables increasing growth rate in future periods. It is described as a "complementary engine to technological progress", where the time allocated by the worker will improve their productivity and increases the use of the technological progress. This is considered as an internal effect on the accumulation of human capital, since the time spent on increasing the individual's productivity reflects the subsequent earnings from that investment. External human capital is a constant average level of human capital for all labour force, this measurement enables the economy to benefit from the accumulation of human capital as external effects that pushes the economic growth rate forward.[28]

The model distinguishes the difference between human capital and physical capital, so engaging with groups and individuals in society creates accumulation of human capital. There is an already existing level of human capital that the new generation inherit a proportion of, which creates external effects that cannot be executed with physical capital. The external effects are a spill over effect, when a person's knowledge and human capital is passed on, it intensifies the production within a country, creating increased growth rate.[29] There is empirical evidence strengthening that women to a higher extent than men, reproduce and passes on human capital for their children. This increases the importance for women to become educated and employed as skilled labour to influence the future level of knowledge. Underinvestment in human capital creates a stagnant economy, where a higher level of human capital produces higher quality of the output, which increases the revenues and creates a higher value on the production.[30]

The Role of Institutions

The well functioning of institutions are of great importance in endogenous growth theories since they create the structures absorbing technological progress in a society. It benefits an effective allocation of investments in human capital, were a greater well-educated labour force stimulates increasing growth rate.[31] Theoretical reasoning shows that knowledge combined with economic incentives through temporarily monopoly (well functioning institutions) creates innovations and stimulates

[27] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. p.536
[28] Robert. E. Lucas. 1988. *On The Mechanics of Economic Development.* University of Chicago, Chicago, 1L 60637, USA.
[29] ibid.
[30] Self & Grabowski. 2009. *Gender Development, Institutions and Level of Economic Development*.
[31] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. pp.535-537

growth, which is one way to comprehend how technological progress is a key factor in growth theories. Further explained, technological progress is defined as increased investment in R&D that leads to successful innovation, which increases the output and capital per efficiency unit of labour. The market available for the innovator combined with the functioning of the institutions, such as property rights and economic freedom, affects the level of capital per efficiency unit of labour, in other words the probability of a successful innovation. A country with high savings rate can invest in R&D and increase the efficiency level pushing the economic growth rate forward, while countries with low savings and R&D labour will operate on a lower level of growth.[32] This is often why countries with lower income have issues with high human capital through R&D investments. According to this reasoning the well functioning of institutions are of great importance for creating economic growth, the institutions are controlled by the government, which in turn makes the representation of these essential. Democratic systems require a representation that embodies all groups in the society to eliminate the risk of minorities being discriminated and excluded.[33]

The theory of presence emphasises that a greater proportion of female represents in the national parliament would increase the incentives of including policies for women at every level in the society. From the on-going theoretical reasoning this would imply a significant increase in female enrolment in education and that a greater proportion of the labour force would be identified with a higher level of human capital capacity. This would create a good economic environment where a higher proportion of the population is engaged in a more effective production. Investments in human capital and R&D for a higher proportion of the population (more women) would according to theory increase the possibilities for successful innovations and economic growth. [34]

If the proportion of employed women would be used as a measurement for gender equality, an increase would mean that the labour force augments and so does growth. The growth increase is due to the fact that the amount of sold work increases, and the long-term relationship is between employed women (the level of gender equality) and the GDP level. The actual increase in economic growth is short-term and is a result of increased gender equality expressed as an increasing proportion of employed women. There could be a long term correlation between the level of gender equality and growth. It is not irrational to think that a high proportion of employed women could push the long-term growth curve higher, rest held constant, since more people will then start businesses, introduce new market-based innovations, and so forth. This is in accordance with Schumpeterian growth theory where more people increase the potential of innovation and so does a higher level of human capital, education, within the labour force, which in this case transpires

[32] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. pp.542-545
[33] Robert Dahl. 1989. *Democracy and its Critics*. London: Yale University Press. p.221
[34] Anne Phillips. 1995. *The Politics of Presence*. Oxford: Oxford University Press. pp.10-13

through gender equality. Thus gender equality can have a favourable impact on both the GDP level and growth rates if institutions are well functioning and if the political representation pushes for equality in influencing the economy for that situation. The higher level of gender equality in society, the higher the average levels of productivity will be (i.e. higher GDP level) and perhaps also the faster the innovation process, which in other words generates higher rates of growth.[35]

3.3 Political Distribution, Institutions and the Effect on Human Capital

The correlation between increased growth and the representation of female parliamentarians seem to be directed to how involved the female part of the population is in production. As highlighted in the level of a country's gender development is founded on well functioning institutions and access to education.[36].

Human capital takes longer time to construct than physical capital. Physical and financial capital is clearly distinguished, human capital is harder to define and can increase in various ways.[37] Lucas theory on human capital concludes that the time spent on education is a proxy for the level of human capital, but the content of the expression exceeds education and skills in production. Education creates empowerment for women and increases their possibilities to enter the economic arena. Abilities included in the term of human capital are also: level of health, the inclusion in society and the economy's level of social capital.

Differences in social capital (voice and political participation) could also affect growth. Social capital includes individuals' social and political involvement outside the home/family. In some countries gender gaps are extreme and men totally dominate public life, which directly affects growth, due to a range of factors, including corruption.[38] Studies have shown that women tend to be less corrupt than men, which indicates that there is a considerable risk that institutions will function less effectively and that investments will be fewer as long as women are absent from the political arena.[39] Social capital can also intensify the use of human capital and the technological progress increases. This is due to that a high level of social capital equals trustworthiness in the community and society, which increases efficiency in the economy. Trust decreases the risk for being deceived in the community, by having an increased level of trust and acceptance in the economy, through increased gender equality, the interpersonal skills improve across sectors.[40] When the accumulation of human capital increases with a positive effect on the technological progress, reforms like "creative

[35] Löfström, Åsa. 2009. *Gender equality, economic growth and employment*. Swedish Ministry of Integration and Gender Equality.
[36] Self & Grabowski. 2009. *Gender Development, Institutions and Level of Economic Development.*
[37] Debraj Ray. 1998. *Development Economics.* Princeton University Press. 41 William Street, Princeton, New Jersey 08540. p.286
[38] Löfström. 2009.
[39] Dollar & Gatti. 1999.
[40] Robert Putnam. 2000, Bowling Alone: *The Collapse and Revival of American Community,* Simon and Schuster, New York.

destruction" will transpire. Through this process and transition other skills in production are needed to use the new technology efficiently. A part of the labour force will not have these abilities and skills, which means that they will need to expand their knowledge or find other sources of income[41] . These transitions are more effective in economies with a higher level of social capital. Societies with norms of deceiving and low levels of social capital will not succeed with a neutral and compromising implementation of new innovations.[42] The theory of Schumpeter assumes that the new innovation cannot be imitated direct, giving the innovation a temporary monopoly, an effective transition where the implantation of the new creation could increase the profits for the innovator.[43]

Exceeding the issue of transition and innovation within a society, social capital is empirically proved to increase the effectiveness of national government and institutions. Since caring and trusting for the community and its members, individuals tend to be more involved in political engagement, such as voting. Greater political engagement from members in the society results in an increased pressure on politicians to carry out a good and fair job.[44]

This reasoning makes increased productivity of human capital dependent on the level of trust and engagement within the group, which makes social capital an indirect input to the production.[45] Increased health and enrolment of women in school, combined with increased belief in the economic system, is policies that could be applied by the government that are descriptive representative for these interests.[46] By neglecting and not including half the population creates a situation where the ability of that labour force is overseen and the production becomes ineffective when not using its full potential. Having a more representative and including government could therefor both increase the efficiency of in the economic and political arena.[47]

3.4 Differences between HIC and LIC

Further, it is important to highlight the sources for diversity in abilities that creates long-term growth across countries. In the model on human capital it is concluded that the variety in growth rate depends on for instance the level of political stability and the functioning of institutions. Countries with an unstable economic environment will suffer from unsustainable growth, this is generally the case in countries with lower levels of income.[48]

Human capital is not only education, but also health. In Low-Income Countries a greater proportion

[41] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. pp.542
[42] Martin Raiser. 1997. *Informal institutions, social capital and economic transition: reflections on a neglected dimension*. EBRD. Available at: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.194.8230&rep=rep1&type=pdf [Accessed 13/12-13]
[43] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. pp.542
[44] Weil. 2013. *Economic growth*. p.428
[45] ibid. pp.428-430
[46] Phillips. 1995. *The Politics of Presence*. pp.10-13
[47] Löfström. 2009.
[48] Lucas. 1988. *On The Mechanics of Economic Development.*

of the population generally are unhealthy, compared with countries with higher income. This reflects consequences in production, where individuals living in low-income countries generally are victims for malnutrition or a least not enough calorie intake, affecting their ability to perform both physical and mental work.[49]

Highlighting education, the most important input for human capital[50], the differences in both the number of years in schooling and the quality of the education, which is, according to the statistics used, generally less in countries considered poor than in richer countries. Applying Lucas endogenous model with externalities, where a greater level of social capital creates an increased positive effect of the level of human capital in the economy, further explains why there are differences across countries depending on the level of trust within the society.[51]

It is important to further address the effects on production, which appear in differences in income levels across countries, than those on the labour force. The accumulation of capital and the use of technology are described in endogenous models to be easier increased with an initial far-reaching progress in production. Countries lacking specialized domestic production and a high rate of technological progress will be challenged with difficulties when adopting innovations to imitate the process of change and not have the same opportunities of creating the same increased growth rate. If a country would have tools to adopt innovations from countries at the technological progress frontier, the growth rate will be characterized by the same productivity as the countries at the frontline. This is in accordance with the theory of Schumpeter, where the institutions set the possibilities to absorb technological progress and therefore economic growth. A country with malleable-institutions, without proper property rights given and incentives for innovations, growth rate will be stagnant.[52] Combined with low savings rate this is characteristic for countries with low income R&D investments and human capita accumulation.[53]

[49] Weil. 2013. *Economic growth*. p.428
[50] ibid. pp.170-196
[51] ibid.
[52] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. pp.550-552
[53] Löfström. 2009.

4. EMPIRICAL ANALYSIS

This section will present the regression model used in the thesis, a descriptive explanation of the chosen variables and is to be concluded by an analysis of the result.

The regression will be performed once for two different groups, where sorting the countries as low and low middle income into one group and middle, high middle, and high-income countries into the other group, generalising the groups as High Income Countries (HIC) and Low Income Countries (LIC). The division is based on the measure GNI, Gross National Income, a term used by the World Bank. The model being used is the OLS, Ordinary Least Squares, which is the general method, used when analysing linear regression, since it minimizes the residuals and the deviations from the mean.[54]

4.1 Regression Model

The regression is performed with a linear-model using a cross-sectional method to be able to analyse trends between different countries. The division into two groups create a possibility to analyse whether the country's initial economic situation and income distribution generates different results on the significance level for each independent variable. By dividing the countries into two groups and perform four models during each regression the result will become unmitigated.

$$GDP_{Growth\,i} = \alpha + \beta_1 WOM_i + \beta_2 GDPINITIAL_i + \beta_3 FDI_i + \beta_4 POP_i + \beta_5 EDU_i + \beta_6 TRADE_i + \beta_7 DEM_i + \varepsilon_i$$

Explanation of variables

GDPGROWTHi = Dependent variable, average GDP/capita growth 2003-2012

α = intercept , βn = estimate of coefficient, i = "i" for each cross-sectional observation

WOMi = proportion of seats taken by female parliamentarians in a single or lower chamber

GDPINITIALi = GDP/capita year 2003

FDIi = foreign direct investment percentage of GDP, average value between 2003-2012

EDUi = years of education, average value between 2003-2012

POPi = population growth percentage, average value between 2003-2012

TRDi = terms of trade, percentage ratio of the export unit value index to the import unit value index, average value between 2003-2012.

DEMi = level of democracy, value between (1-10), average value 2006 and 2012

εi = error term

[54] A. H. Studenmund, 2011. *Using econometrics: a practical guide*. 6. ed. Pearson, Boston, Mass. p.34

Table 4.1 Hypothesised signs of estimates

Variable	Description	Source	Hypothesised sign of estimate
GDPGROWTH	GDP/capita growth 2003-2012	World Bank	Dependent Variable
WOM	Proportion of seats held by women in national parliaments	World Bank	+
GDPINITIAL	Initial GDP/capita US$, 2003	World Bank	-
FDI	Foreign direct investment/GDP	World Bank	+
EDU	Expected years of education	UNDP	+
POP	Population growth	World Bank	-
TRD	The percentage ratio of the export unit value indexes to the import unit value indexes, measured relative to the base year 2000, from 2003-2012	World Bank	+
DEM	The level of democracy (1-10)	EIU	+

4.2 Data and Specification for Chosen Variables

Real GDP/capita growth

Growth in real GDP/capita is the dependent variable, based on local currency and on the percentage growth of real GDP/capita. Growth in real GDP/capita is an accurate measure, since it reflects the distribution of national income and therefore a good fit when measuring growth. The value of real GDP/capita growth rate in the regression is an average for each country in between 2003-2012, which is commonly used when measuring economic growth.[55]

[55] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.19

Proportion of seats held by women in National parliaments

Women in parliament is assumed to have a positive sign and effect on the dependent variable according to the thesis's hypothesis and theoretical discussion. The assumption is based on the condition that a greater proportion of women in the parliament will accomplish increased economic growth, through an increased average level of human capital and a greater proportion of the population who is engaged in economic performance.[56]

Initial GDP/capita year 2003

The initial GDP/capita in US$ is included as a control variable for conditional convergence. The hypothesised sign is assumed to be negative since the initial GDP/capita level has an effect on growth rate, this is according to diminishing returns to capital. A lower initial GDP/capita will rapidly increase the growth rate for a country.[57] The data is conducted from 2003 where the regression is based.

Foreign direct investment

FDI is investment in the home country, performed by a foreign investor who owns the production. The hypothesised sign is assumed to be positive since there is economic theory that supports the assumption. Both from an exogenous and an endogenous growth theory, FDI will have a positive effect on growth, either by increased capital stock[58] or by technological change[59]. There is although differences between economists opinion of how well a country can absorb the FDI, if the investment actually gains the country itself or only the investor.[60] In the regression the value is an average of FDI inflow as a percentage of GDP in between 2003-2012.

Average years in school

Education is commonly measured by the average years of schooling, in turn used as a measure of a country's level of human capital. The use of average years in schooling is not an indicator of whether the education has a high standard or not, as the degree of level of education differs between countries, but the data capturing the quality is hard to deduct. The sign of the coefficient is expected to be positive, since human capital is a factor of production, higher human capital increases growth. Average year of

[56] Self & Grabowski. 2009. *Gender Development, Institutions and Level of Economic Development*.
[57] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. pp.13-15
[58] Robert Solow. 1956. *A contribution to the theory of economic growth*. The Quarterly Journal of Economics. Vol.70(1). pp.65–94. Available at: http://qje.oxfordjournals.org.till.biblextern.sh.se/content/70/1/65.short [Accessed 21/11-13]
[59] Paul. M. Romer. 1990. *Endogenous technological change*. Journal of Political Economy, Vol.98(5). pp.71–102. Available at: http://www.jstor.org.till.biblextern.sh.se/sici?sici=0022-3808(199010)98:5%3CS71:ETC%3E2.0.CO;2-8 [Accessed 21/11-13]
[60] Durham. J. Benson. 2004. *Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth* European Economic Review, Vol.48, Issue 2. pp.285–306 Available at: http://dx.doi.org/10.1016/S0014-2921(02)00264-7 [Accessed 21/11-13]

schooling is an accepted indicator of human capital and will be used in the regression.[61] The value is the average year of schooling in between 2003-2012.

Population growth

The sign is assumed to be negative since the capital is distributed on more workers when the population grows, ideal is instead to invest more capital per worker.[62] The value is an average of population growth in percentage in between 2003-2012.

Terms of Trade

The sign is assumed to have a positive value, since an improvement in terms of trade stimulates increased domestic output. Change in terms of trade is in the regression exogenous and not depending on anything within the model. There is also generally assumed that countries with low incomes are dependent on changes in terms in trade to proceed to money-generating sectors.[63] The measure is calculated as the percentage ratio of the export unit value index to the import unit value index, measured to a base year, 2000.[64] The value used in the regression is an average in between 2003-2012.

Level of Democracy

The sign of level of democracy is uncertain since countries with high economic growth might have a low democracy index. The relevance of including democracy as an independent variable is that it enables a comparison between the two different groups, when the effect on growth is different whether a country is more or less democratic depending on income. The proportion of women in the parliament has been discussed as an extension of the democracy, which implies that the level of democracy is important for the model, whether the assumption is correct or not.[65]

The Economist Intelligence Unit (EIU) constructs the Democracy Index. The data used in the regression is an overall score, based on five individual measurements: electoral process and pluralism, civil liberties, the functioning of government, political participation and political culture. A score is given from 1-10, where the score 10 is the greatest level of democracy. There are four kinds of regimes in which EIU divides the world : full democracies, flawed democracies, hybrid regimes and authoritarian regimes.[66] The value used in the regression is an average between the democracy index from 2006 and 2012, since the EIU started collecting democracy data first in 2006.

[61] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.19
[62] ibid. p.20
[63] ibid.
[64] UNCTAD controls the data reported by countries that the unit value indexes are based on. World Bank 2013
[65] Self & Grabowski. 2009. *Gender Development, Institutions and Level of Economic Development.*
[66] The Economist Intelligence Unit (EIU). 2013. *Democracy Index 2006 and 2012*. Available at: http://www.eiu.com/ [Accessed 12/11-13]

Table 4.2 Descriptive Statistics - HIC

VARIABLE	MEAN	MEDIAN	MAXIMUM	MINIMUM	STD. DEV
GDP/CAPITA GROWTH %	2,726	2,660	12,344	-5,824	2,569
WOMEN IN PARLIAMENT%	19,718	17,900	45,800	0,000	10,312
INITIAL GDP/CAPITA	13810,98	6481,108	64531,989	883,614	14297,59
FDI/GDP %	4,935	3,648	20,342	-3,564	4,547
DEMOCRACY (1-10)	6,672	7,245	9,805	1,775	2,119
EDUCATION YEARS	9,505	9,900	13,250	4,050	1,980
POPULATION GROWTH %	1,008	0,875	10,492	-0,792	1,440
TERMS of TRADE %	113,036	100,968	195,346	70,144	30,698

Table 4.3 Descriptive Statistics – LIC

VARIABLE	MEAN	MEDIAN	MAXIMUM	MINIMUM	STD. DEV
GDP/CAPITA GROWTH %	3,001	3,098	7,487	-3,184	2,367
WOMEN IN PARLIAMENT %	15,007	12,464	52,550	0,300	8,721
INITIAL GDP/CAPITA	825,168	510,423	5192,769	108,015	887,040
FDI/GDP %	4,794	3,645	36,353	0,065	5,168
DEMOCRACY (1-10)	4,522	4,315	7,725	1,635	1,626
EDUCATION YEARS	5,451	5,150	12,100	1,150	2,709
POPULATION GROWTH %	2,003	2,189	3,728	-0,557	0,978
TERMS of TRADE %	113,461	108,879	189,293	26,832	31,854

4.3 Regression Analysis

Table 4.4 Regression result HIC:

Dependent Variable:	**Average GDP/capita growth 2003-2012**			
Models:	**1**	**2**	**3**	**4**
Independent Variables	Estimated Coefficient	Estimated Coefficient	Estimated Coefficient	Estimated Coefficient
Constant	3,35334*** (0,633957)	2,65462** (1,27787)	1,13859 (1,46482)	5,52715*** (1,79943)
Proportion of Women in National Parliament	-0,031811 (0,0285299)	0,0209412 (0,0238746)	0,0233952 (0,0234221)	0,0396994* (0,0220148)
Initial GDP/Capita		- 0,00012058*** (1,91413e-05)	- 0,000110641*** (1,93999e-05)	-7,2e-05*** (2,0600e-05)
FDI		0,161713*** (0,0464768)	0,171202*** (0,0458786)	0,149879*** (0,0426)
Education		0,0971224 (0,133144)	0,0709576 (0,131099)	0,102459 (0,121009)
Population growth		-0,394528** (0,171378)	- 0,518233*** (0,178999)	- 0,77934*** (0,179402)
Trade			0,014663* (0,00735563)	0,00197154 (0,0075983)
Democracy				-0,55884*** (0,151689)
R-squared	0,016306	0,5413	0,56594	0,637288
Adjusted R-squared	0,00319	0,508997	0,528735	0,600491
F-statistic	1,243238	16,75702	15,21137	17,3191
P-value	0,268408	6,66E-11	4,59E-11	5,12E-13
N= 77				
Std. error in parenthesis				
***level of significance at 1 %**				
level of significance at 5%				
* **level of significance at 10 %**				

Table 4.5 Regression result LIC:

Dependent Variable:	**Average GDP/capita growth 2003-2012**			
Models:	**1**	**2**	**3**	**4**
Independent Variables	Estimated Coefficient	Estimated Coefficient	Estimated Coefficient	Estimated Coefficient
Constant	2,35856*** (0,555163)	2,42614 (1,50942)	0,764808 (1,54242)	-0,56496 (1,81181)
Proportion of Women in National Parliament	0,0428 (0,0320404)	0,0578517* (0,0315537)	0,0535352* (0,0299636)	0,050717* (0,0298311)
Initial GDP/Capita		1,63322e-05 (0,0003231)	-0,000127648 (0,000310476)	-0,000181717 (0,000310871)
FDI		0,0809384 (0,0526987)	0,0460357 (0,0514158)	0,0394078 (0,0512946)
Education		0,0832646 (0,136462)	0,0411168 (0,130242)	0,0346503 (0,129445)
Population growth		-0,573684 (0,374715)	-0,887747** (0,371595)	-0,786209** (0,376396)
Trade			0,0253035*** (0,00874467)	0,0272443*** (0,00879942)
Democracy				0,234462 (0,170559)
R-squared	0,024858	0,147152	0,244474	0,266143
Adjusted R-squared	0,010927	0,082543	0,174734	0,185877
F-statistic	1,784405	2,277588	3,505471	3,315775
P-value	0,185936	0,056807	0,004581	0,004498
N=72				
Standard error in parenthesis				
***level of significance at 1%**				
level of significance at 5 %				
*level of significance at 10 %**				

4.4 Regression Result for HIC

The result of the regression for HIC is presented in table 4.4 at the previous page. The variable explaining the effect of the proportion of women in national parliament becomes positive significant at 10% level, when adding all other variables in model 4. This indicates that it has an explanatory effect on economic growth. The model has the highest adjusted R2, which implies that the model becomes better when more variables are added and that they are relevant for the model. The adjusted R2 in model 4 is 0,6, which is viewed as high score in a cross-sectional regression.[67]

Furthermore, initial GDP/capita for 2003 shows a significance level at 1 % in the three models where the variable is included, which could support the theory of conditional convergence.[68]

FDI shows significance at a level of 1% throughout all three models where it is applied, which could indicate that empirical evidence supporting the theory that economies with higher income has capacity to better absorb investments from foreign countries. Both exogenous and endogenous growth theory supports this reasoning depending on if the FDI increases technological progress or an increased capital stock.[69]

The expected negative sign of population growth is confirmed by the regression with a significance level of 5 % through model 3 and 4, this is supported by general growth theories.[70] If population growth increase and GDP growth is held constant, GDP/capita decreases, which supports that having less children by educating women have positive effect on GDP/capita.

The variable that describes the effect from the level of democracy within a country shows a significance level at 1 %, the variable is applied in the last model and the sign is negative. This will be further examined when comparing the results for the two income groups.

The coefficients that has an absence of significance, education and terms of trade, is likely to be caused by presence of multicollonearity, but the signs are as expected and according to theoretical reasoning.[71]

4.5 Regression Result for LIC

The result of the regression for LIC is presented in table 4.5 at the previous page. The variable "proportion of women in national parliament" becomes positive significant in model 2 and continues to be significant at a 10% level during the two following models. The regression has a low adjusted R2 throughout all models, but it is increasing when adding more variables, indicating that the variable concerning women's representation is relevant, but that other significant variables are missing.

[67] Studenmund, 2011. *Using econometrics: a practical guide*. p.50
[68] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.6
[69] Benson. 2004. *Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth.*
[70] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. p.462
[71] Studenmund, 2011. *Using econometrics: a practical guide*. pp.247-249

Other than the explanatory variable been examined, Terms of Trade and Population growth shows significant results. Terms of Trade are significantly positive at a 1% level, which could imply that countries with a lower level of income gains from positive changes in the index.[72]

Population growth follows the expected hypothesis that an increased population have when growth is held constant a lower capital labour output, causing negative effects on GDP/capita.[73]

Democracy has a positive effect on growth in the second regression, which could indicate that countries that generally have a lower level of democratic freedom would gain economic development from an increased level of democracy.[74]

There is a greater absence of significant results and a lower level of goodness of fit in the regression for LIC, which could be according to multicollonearity and a greater amount of outliers.[75]

4.6 Comparison between the Regression of HIC and LIC

The correlation matrixes for both income groups are presented in the following Appendix 2 (Table 4.6 and 4.7). The results are considerable different from each other, the regression for HIC has a high overall value with high adjusted R2, while the second regression for LIC has a low overall goodness of fit. This could imply that there are other more important variables for countries with low income that determines the growth rate than there is for countries with a higher income. This could also be an indicator that growth rate in countries with less income lack balanced economic development due to outliers, experiencing heavy fluctuations in growth rates.[76]

The proportion of women in parliament has a positive significance at 10 % level in both regressions, which indicates that the theory is consistent with the result.

FDI seem to have a positive impact on growth for both groups but is significant for rich countries, this could be according to the reasoning that countries considered poor lacks in ability to absorb the foreign investment due to absence of capacity in the production sector.[77]

Terms of Trade is significantly positive for LIC but not for HIC, which is following the argument that a positive change in terms of trade has a greater impact for poor countries which have a shortage in specialized domestic production. Countries with high income generally have had a specialization with expansion of their domestic production where the industries are less fragile when real currency rates changes on the global market. The Terms of Trade variable describes the real world market context, where countries with a less developed domestic production could benefit in growth by a trade-policy

[72] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. pp.20-21
[73] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. p.479
[74] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. pp.35-37
[75] Studenmund, 2011. *Using econometrics: a practical guide*. pp.247-249
[76] ibid. p.20
[77] Durham. 2004. *Absorptive capacity and the effects of foreign direct investment and equity foreign portfolio investment on economic growth.*

change to a greater extent than countries already specialized.[78]

The concept of democracy has been stressed, economies with limited political freedom and countries viewed as non-democratic is not equal a society without economic freedom. The interpretation of the negative coefficient for democracy for HIC and positive for LIC, could be that countries with a very low level of democracy gains from increased political freedom, when a low value equals an extreme dictatorship. While countries that initially has a high level of democracy would not gain by further augmented level in terms of increased economic growth.[79]

Casual relations could be moving in another direction where high level of GDP often is related to higher gender equality. Countries with high income and economic development could therefore engage more women to become more political committed instead of the opposite relation. The case could also be that men in well developed economies are more likely to accept female leaders. The relations may well also be moving in both directions; greater equality between women and men is a significant factor in creating economic growth in Low Income Countries. A higher GDP level could also result in social change towards enhanced gender equality in different areas. This indicates that the results cannot be isolated to the hypothesis that gender equality increases growth and not the other way around. What seems reasonable to assume is that a higher proportion of women in decision-making positions would seize decisions more likely to involve empowerment and gender equality. Observed from a growth perspective, it is primarily a question of introducing reforms that will enable women with care responsibilities to become gainfully employed.

If causality runs in the opposite direction, this would be caused by the increased number of women in parliament help bring about reforms that enhance gender equality, which in turn impacts positively on GDP.

4.7 Validity and Reliability for the Regression Analysis

Further, the result from a regression analysis will continuously have omitted variables, due to the impossibility to include all variables that has an explanatory effect on economic growth. Thus, this will have biased effects on the result, which indicates that the estimates of the variables included in the regression will show these tendencies as well.[80] This phenomenon has been taken into account when choosing the variables being observed, by using acknowledged variables in economic growth theory and research, to increase the unbiasedness.[81]

[78] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.20
[79] ibid. pp.35-37
[80] Studenmund, 2011. *Using econometrics: a practical guide*. p.168
[81] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. pp.14-23

The sample being used in the regression is not fully complete, since it does not include all the worlds countries. The countries excluded effects the outcome, called a selection bias, as the sample is performed by convenience, since the consisting data available was not complete.[82] Nevertheless, the concept of excluding countries in a regression analysis is common when the available data is lacking or is non-existent, thus enabling an analysis to take place.[83] The majority of the states being excluded are so-called "micro-states", with a very small population or a small geographic area, often both.[84] A great proportion of the world population is therefore included in the research. Combined with the fact that countries from all continents and in all income levels are represented in the regression, makes it valid.

[82] Studenmund, 2011. *Using econometrics: a practical guide*. p.556
[83] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. pp.14-23
[84] The Economist Intelligence Unit (EIU). 2013. *Democracy Index 2006 and 2012*.

5. FINDINGS

5.1 Concluding observations

The research provided by Jayasuriya and Burke in 2013 supports that the proportion of women in national parliament would have a significant positive effect on growth independent of the country's level of income.[85] This is also in accordance with empirical evidence provided by the World Bank[86], thus that female participation in decision-making, increases the total amount of women engaged in economic development. Women taking seats in the parliament have as in accordance with the theoretical discussion effects on the enrolment rate of girls in school, which in turn could increase the level of human capital within the labour force.[87] It is important to emphasize that women represent half of the population, in any form of exclusion for this group a country's economic performance is affected with consequences for the abilities of the labour force.[88]

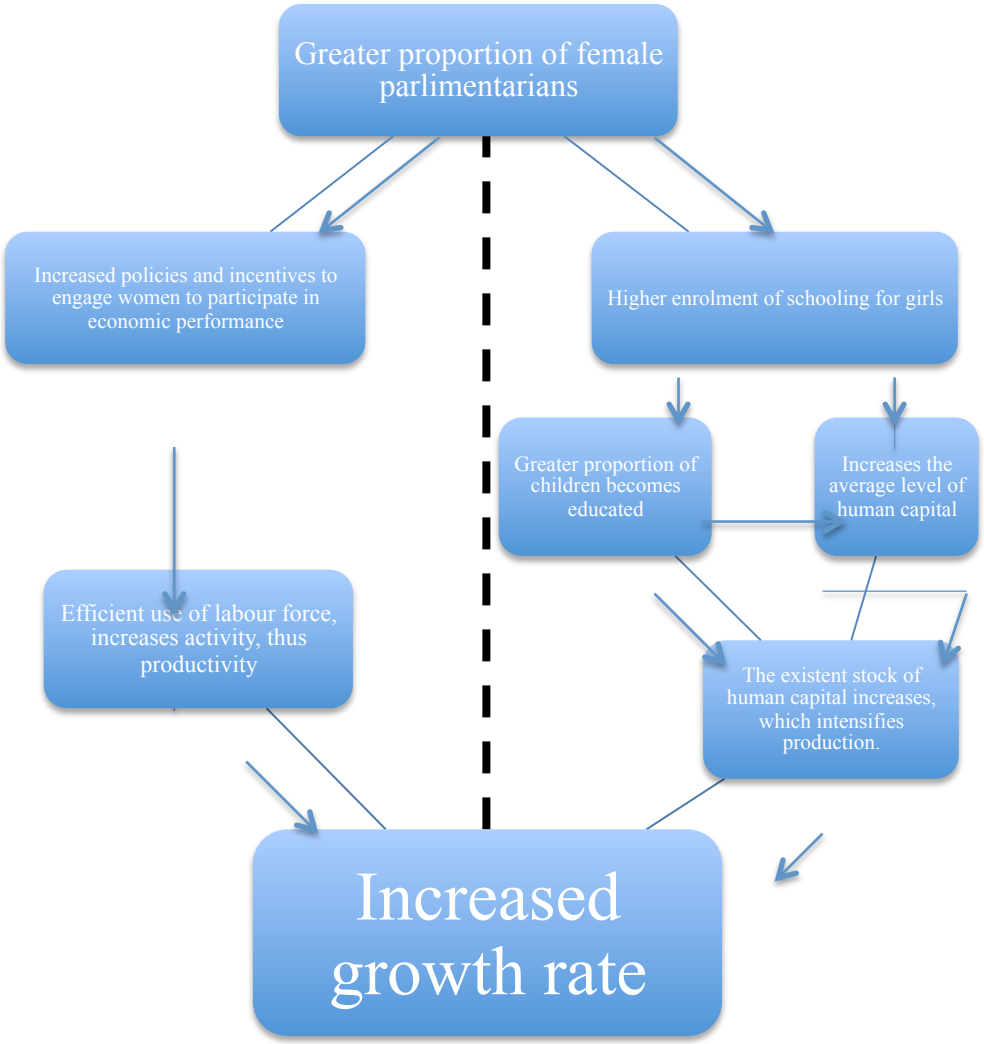
Further, the inclusion of women in parliament is proved to increase policy-making and the well functioning of institutions towards getting women to participate in economic activities.[89] This is consistent to the theory of Schumpeter and the importance of the functioning of institutions, to create incentives for innovation, which pushes economic development forward.[90] The institutions have a direct effect on the maintenance of property rights and equal laws within the society, which increases the effectiveness and incentives for participation in economic progress.[91] More investments in R&D and human capital increases successful innovations if institutions function, higher educated women and representative institutions and governments increase the potential amount of marketed labour and innovations, which according to the theoretical reasoning creates growth.[92]

The relation between economic growth and the level of democracy is inconclusive, which is supported by the different signs of the co-efficient in the regression and through previous studies.[93] The impact on increased empowerment for women, through a high level of democracy is also unclear, where the correlation depends on the level of income (see appendix 2 for correlation matrix). This is supported by previous studies with empirical evidence, which states that women's role in democratisation process is of great importance for increased governmental participation, rather than the level of democracy.[94] This strengthens the theory of social capital and the role of institutions, where a country with a high level of

[85] Jayasuriya & Burke. 2013. *Female parliamentarians and economic growth: evidence from a large panel*.
[86] The World Bank. 2013. *Women, Buisness and the Law 2014.*
[87] Klasen. 2004. *Gender-related indicators of well-being*.
[88] The World Bank. 2013. *Women, Buisness and the Law 2014.*
[89] Fallon, Swiss & Viterna. 2012. *Resolving the Democracy Paradox: Democratization and Women's Legislative Representation in Developing Nations.*
[90] Carlin & Soskice. 2006. *Macroeconomics: Imperfections, Institutions and Policies*. pp.542-550
[91] The World Bank. 2013. *Women, Buisness and the Law 2014.*
[92] Löfström. 2009.
[93] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*. p.19
[94] Fallon, Swiss & Viterna. 2012. *Resolving the Democracy Paradox: Democratization and Women's Legislative Representation in Developing Nations.*

trust engages the members of the community to stimulate a well-functioning and fair government.[95] This could also be a sign on casual relations where a high level of GDP affects the rate of gender equality and in which countries women tend to participate more frequent.[96]

The model on human capital assumes an already existing level of knowledge, thus overcoming diminishing returns, which increases with further education.[97] This is linked with representation of women since empirical evidence concludes that increased proportion of women in national parliament increases the enrolment of schooling for women.[98] When also educating women, rather than only men, knowledge is more likely to be passed on to the children, which in turn increases the accumulation of human capital more distinctly.[99] Summing up, the existing stock of knowledge inherent by educating women becomes greater, which the thesis show tendencies to generate economic progress.[100]



[95] Weil. 2013. *Economic growth*. p. 428.
[96] Löfström 2009
[97] Lucas. 1988. *On The Mechanics of Economic Development*
[98] The World Bank. 2013. *Women, Buisness and the Law 2014.*
[99] Klasen. 2004. *Gender-related indicators of well-being.*
[100] Lucas. 1988. *On The Mechanics of Economic Development*

The two regressions provide dissimilar results, which support that the wellbeing within a country and the level of income generates diverse opportunities to create increased growth.[101] Even though differences exist across countries, an increased proportion of seats taken by women seem to have a significant positive effect on growth.[102] This emphasizes that there are incentives for countries to invest and engage women in decision-making through allocated seats in national parliament. Thus the issue of gender equality should be addressed across countries independent on income level and economic progress.

This thesis is unique in terms of its presentation and connection to previous studies, such as empirical evidence recently presented by the World Bank and other studies. The thesis is performed with regression analysis as method, concluding that the proportion of female parliamentarians could have a positive effect on economic growth. The study cannot isolate if gender equality creates economic growth or that increased economic development increases gender equality. What is clear throughout the study is that a higher educated and engaged labour force increases the production level, which stimulates growth. In many countries women are not involved to the same extent as men on the economic stage, making the economy operate at lower level, indicating that involvement of women would push economic development forward.[103] If this inclusion initially should be in parliament the study is unable to answer, which creates opportunities for further studies.

The dividing of low- and high-income groups are used to define different independent variables effecting growth, conditional of living standards, also makes the study distinctive in its field. The thesis connects evidences to economic theory, which previously has not been performed as comprehensive. The outcome of the regression analysis and response to the problem statement is conclusive to previous studies and economic theory.

[101] Barro. 1996. *Determinants of Economic Growth: A Cross-Country Empirical Study*.p.19
[102] Jayasuriya & Burke. 2013. *Female parliamentarians and economic growth: evidence from a large panel*.
[103] Löfström. 2009.

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Appendix 1: Average values 2003-2012

Table 1.1: Countries in Europe

Country	Average GDP/Capita growth (% of GDP/capita)	Proportion of Women in Parliament %	FDI(% of GDP)	Average level of Democracy (1-10)	Population Growth %	LDC
Albania	4,97	10,47	7,06	5,79	-0,32	0
Armenia	7,49	7,56	6,55	4,12	-0,26	1
Austria	1,18	30,56	5,36	8,66	0,46	0
Azerbaijan	12,34	12,75	19,07	3,23	1,29	0
Belarus	7,63	28,08	2,61	3,19	-0,41	0
Belgium	0,59	36,33	15,64	8,10	0,75	0
Bosnia	3,36	16,67	4,99	5,45	-0,16	0
Bulgaria	4,29	22,54	13,12	6,91	-0,55	0
Croatia	1,95	22,30	4,78	6,99	-0,10	0
Cyprus	-0,01	13,22	6,38	7,45	1,42	0
CzechRepublic	2,66	17,90	3,89	8,18	0,37	0
Denmark	0,20	38,00	0,91	9,52	0,39	0
Estonia	3,87	20,30	10,65	7,68	-0,14	0
Finland	1,24	39,85	2,75	9,16	0,40	0
France	0,44	16,88	2,46	7,98	0,61	0
Georgia	6,23	8,10	9,70	5,22	0,35	1
Germany	1,30	32,36	0,96	8,58	-0,07	0
Greece	-0,28	15,24	0,89	7,89	0,26	0
Hungary	1,41	9,84	12,81	7,25	-0,21	0
Iceland	1,21	35,88	10,63	9,68	1,07	0
Italy	-0,68	17,60	0,94	7,74	0,64	0
Latvia	5,14	21,00	4,48	7,21	-0,68	0
Lithuania	5,84	20,16	3,31	7,34	-0,79	0
Luxembourg	0,52	21,99	20,34	8,99	1,75	0
Macedonia,	3,09	27,43	4,66	6,25	0,15	0
Malta	1,14	8,80	12,23	8,34	0,55	0

Moldova	6,74	19,81	5,77	6,41	-0,18	1
Netherlands	0,80	38,95	3,63	9,33	0,38	0
Norway	0,56	38,10	3,30	9,74	1,01	0
Poland	4,21	20,92	3,65	7,21	0,08	0
Portugal	-0,21	24,96	3,60	8,04	0,15	0
Romania	3,70	11,26	5,04	6,81	-0,22	0
Russia	4,86	12,02	3,03	4,38	-0,12	0
Slovakia	4,52	17,93	3,53	7,38	0,14	0
Slovenia	1,59	16,75	1,75	7,92	0,31	0
Spain	0,19	35,44	3,15	8,18	1,12	0
Sweden	1,62	45,80	3,81	9,81	0,64	0
Switzerland	0,94	27,25	4,73	9,06	0,93	0
Turkey	3,71	8,24	1,96	5,73	1,29	0
Ukraine	4,24	7,44	5,08	6,43	-0,56	1
U. K.	0,74	20,07	4,90	8,15	0,64	0

Table 1.2: Countries in Africa

Country	Average GDP/Capita growth (% of GDP/capita)	Proportion of Women in Parliament %	FDI(% of GDP)	Average level of Democracy (1-10)	Population Growth %	LDC
Algeria	1,84	9,52	1,43	3,50	1,67	0
Angola	6,99	26,23	2,39	2,88	3,35	1
Benin	0,63	8,76	0,85	6,08	3,04	1
Botswana	3,12	10,41	3,97	7,73	1,02	1
Burkina Faso	3,17	13,90	0,55	3,62	2,92	1
Burundi	0,09	28,33	0,06	4,06	3,36	1
Cameroon	0,71	11,90	1,48	3,36	2,57	1
Cape Verde	5,10	16,26	8,33	7,68	0,74	1
Central African Republic	-0,05	10,72	3,93	1,80	1,83	1
Chad	4,88	7,38	10,25	1,64	3,29	1
Congo, Rep.	1,70	7,79	17,22	3,04	2,78	1
Cote d'Ivoire	-0,04	9,10	1,78	3,32	1,74	1
Egypt	2,93	3,14	4,12	4,23	1,67	1
Equatorial Guinea	5,96	12,30	9,01	1,96	2,89	1
Eritrea	-2,19	22,00	0,59	2,36	3,59	1
Ethiopia	6,17	20,78	2,28	4,22	2,71	1
Gabon	0,71	13,29	2,74	3,14	2,39	0
Gambia, The	0,59	10,16	6,98	3,85	3,15	1
Ghana	4,66	9,36	5,67	5,69	2,48	1
Guinea	0,14	9,65	6,51	2,41	2,36	1
Guinea-Bissau	-0,17	12,40	1,20	1,72	2,23	1
Kenya	1,85	8,48	0,66	4,90	2,69	1
Lesotho	3,49	19,46	5,39	6,57	0,84	1
Liberia	1,95	10,87	36,35	5,09	3,11	1
Madagascar	1,00	9,54	7,37	4,88	2,87	1
Malawi	2,49	16,27	2,92	5,53	2,88	1
Mali	1,34	10,20	1,33	5,56	3,11	1
Mauritania	3,11	16,98	9,13	3,65	2,77	1

Mauritius	3,69	15,33	2,51	8,11	0,65	0
Morocco	3,49	11,92	2,74	3,99	1,04	1
Mozambique	4,39	36,08	7,40	5,08	2,66	1
Namibia	3,58	25,91	5,84	6,39	1,43	1
Niger	-0,48	11,17	6,73	3,85	3,73	1
Nigeria	4,55	6,36	3,56	3,65	2,67	1
Rwanda	4,86	52,55	1,25	3,59	2,43	1
Senegal	1,32	23,16	2,25	5,73	2,78	1
Sierra Leone	3,91	13,61	6,83	4,14	2,86	1
South Africa	2,31	36,78	1,44	7,85	1,17	0
Sudan	3,26	18,18	9,49	2,64	2,42	1
Swaziland	0,57	12,22	1,77	3,07	1,29	1
Tanzania	3,94	30,04	4,30	5,53	2,89	1
Togo	0,82	9,62	2,68	2,60	2,60	1
Tunisia	2,96	23,41	3,60	4,37	0,97	0
Uganda	3,52	29,65	5,17	5,15	3,37	1
Zambia	3,27	13,27	7,84	5,76	2,81	1
Zimbabwe	-3,18	14,39	1,54	2,65	0,82	1

Table 1.3: Countries in North and South America

Country	Average GDP/Capita Growth (% of GDP/capita)	Proportion of Women in Parliament %	FDI(% of GDP)	Average level of Democracy (1-10)	Population Growth %	LDC
Bolivia	2,68	20,38	2,13	5,91	1,71	1
Brazil	2,55	8,72	2,51	7,25	1,02	0
Canada	0,77	22,07	2,88	9,08	1,06	0
Chile	3,42	14,18	7,37	7,72	0,99	0
Colombia	3,91	10,66	3,79	6,52	1,46	0
Costa Rica	3,28	37,01	5,16	8,07	1,60	0
Cuba	5,23	40,00	0,04	3,52	0,05	0
Dominican Republic	3,97	19,31	4,22	6,31	1,40	0
Ecuador	2,77	25,22	1,12	5,71	1,73	0
El Salvador	1,43	16,54	2,56	6,35	0,47	1
Guatemala	0,91	10,74	1,88	5,98	2,48	1
Guyana	1,58	29,22	7,91	6,10	0,58	1
Haiti	-0,29	4,46	1,30	4,08	1,38	1
Jamaica	-0,15	12,54	5,36	7,37	0,36	0
Mexico	1,27	25,52	2,34	6,79	1,24	0
Nicaragua	2,37	23,61	5,78	5,62	1,32	1
Panama	6,33	12,74	9,14	7,22	1,79	0
Papua New Guinea	3,09	1,08	0,99	6,43	2,36	1
Paraguay	2,05	11,13	1,29	6,21	1,83	1
Peru	5,29	23,97	4,25	6,29	1,15	0
Suriname	3,80	19,81	-3,56	6,59	1,07	0
Trinidad and Tobago	3,97	24,38	5,29	7,09	0,46	0
United States	0,77	16,29	1,58	8,17	0,87	0
Uruguay	5,06	12,41	5,25	8,07	0,20	0
Venezuela	3,24	16,05	0,87	5,29	1,68	0

Table 1.4: Countries in Asia and Oceania

Country	Average GDP/Capita growth (% of GDP/capita)	Proportion of Women in Parliament %	FDI(% of GDP)	Average level of Democracy (1-10)	Population Growth %	LDC
Australia	1,60	25,42	3,28	9,16	1,43	0
Bangladesh	4,88	12,53	0,98	5,99	1,21	1
Bhutan	6,35	7,57	1,24	3,64	2,15	1
Cambodia	6,34	15,78	6,08	4,87	1,57	1
China	9,87	20,81	3,73	2,99	0,53	0
Fiji	0,48	3,78	7,17	4,67	0,69	1
Honduras	2,21	17,96	5,88	6,05	2,00	1
India	6,18	9,55	1,83	7,60	1,39	1
Indonesia	4,24	13,78	1,56	6,59	1,38	1
Iran	2,86	3,48	1,06	2,46	1,21	0
Israel	2,18	16,51	4,24	7,41	1,85	0
Japan	0,86	9,27	0,20	8,12	0,01	0
Jordan	3,39	7,36	11,11	3,84	2,26	0
Kazakhstan	5,98	15,11	8,74	3,29	1,23	0
Korea, Rep.	3,13	13,36	0,47	8,01	0,49	0
Kuwait	0,42	3,69	0,24	3,44	4,62	0
Kyrgyz Republic	2,98	16,67	6,35	4,39	1,12	1
Lao PDR	5,65	24,47	3,73	2,21	1,81	1
Lebanon	2,53	3,58	12,09	5,44	2,30	0
Malaysia	3,22	9,92	3,21	6,20	1,80	0
Mongolia	7,29	6,80	17,62	6,48	1,35	1
Nepal	2,93	20,69	0,19	3,79	1,31	1
New Zealand	0,75	31,93	2,11	9,14	1,16	0
Oman	1,34	1,14	3,18	3,02	3,62	0
Pakistan	2,90	21,85	1,79	4,25	1,80	1
Philippines	3,32	19,36	1,25	6,40	1,78	1
Saudi Arabia	3,98	0,00	3,98	1,82	2,59	0
Singapore	3,60	21,14	18,87	5,90	2,41	0
Sri Lanka	5,67	5,34	1,37	6,17	1,08	1

Syrian Arab Republic	1,62	12,16	2,53	2,00	2,76	1
Tajikistan	5,30	16,99	4,85	2,48	2,24	1
Thailand	3,80	11,89	3,35	6,11	0,46	0
Turkmenistan	8,63	17,65	9,87	1,78	1,17	0
United Arab Emirates	-5,82	13,00	3,99	2,50	10,49	0
Uzbekistan	6,03	18,27	2,33	1,79	1,64	1
Vietnam	5,80	26,12	6,41	2,82	1,10	1
Yemen, Rep.	-0,08	0,30	1,34	3,05	2,51	1

Appendix 2: Correlation Matrix

Table 4.6: Correlation Matrix LIC

Correlation	Growth	Initial GDP/ capita	Women in National Parliament	FDI/GDP	Democracy	Education	Trade	Population growth
Growth	1							
Initial GDP/ capita	0.0731	1						
Women in National Parliament	0.1577	-0.1577	1					
FDI/GDP	0.1503	0.0196	-0.0913	1				
Democracy	0.2055	0.1917	0.0002	0.0351	1			
Education	0.2324	0.3050	-0.1515	0.0531	0.2628	1		
Trade	0.2678	0.0892	0.0182	0.2496	-0.1970	-0.0595	1	
Population Growth	-0.2718	-0.2872	0.1009	0.0509	-0.3578	-0.6673	0.257 1	1

Table 4.7: Correlation Matrix HIC

Correlation	Growth	Initial GDP/ capita	Women in National Parliament	FDI/GDP	Democracy	Education	Trade	Population growth
Growth	1							
Initial GDP/ capita	-0.6136	1						
Women in National Parliament	-0.1277	0.4128	1					
FDI/GDP	0.2253	0.0918	-0.0656	1				
Democracy	-0.4104	0.5510	0.5164	-0.0194	1			
Education	-0.0910	0.4624	0.3541	0.1640	0.4593	1		
Trade	0.1609	0.2251	-0.2419	-0.0912	-0.5694	-0.1872	1	
Population Growth	-0.3739	0.1728	-0.2599	0.0277	-0.3984	-0.3063	0.318	1