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Effects of Female Political Participation on Economic Growth: Evidence from Asian Countries

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Abstract: Gender equality is a global crucial topic all the time. Nowadays, it is visible that women still suffer gender discrimination in various fields. It is necessary to study women's contribution to society development. Using cross-country and panel regressions, I investigate whether gender gaps in political participation affect economic growth during the period 1991-2013 using data up to 30 countries in Asia. I update and specify the results of previous studies on the link between female political participation and economic development and concentrate the analysis on Asian panel. The result shows that in recent years, female political participation fosters economic growth in Asia.

Key words: Economic growth, Female members in parliaments, Economics of gender

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1. Introduction:

From the past to now, gender equality has always been a subject concerned by the whole world. As UNICEF¹ describes, gender equality “means that women and men, and girls and boys, enjoy the same rights, resources, opportunities and protections. It does not require that girls and boys, or women and men, be the same, or that they be treated exactly alike.”² It is increasingly recognized that gender equality can benefit the whole society.

The objective of this paper is to analyse the relationship between women’s political participation and economic growth. For a long time in history, politics was only for men, women did not have rights to get access to politics. After fighting for a long time, nowadays, women’s political position has been improved. In the 2000 UN Millennium Development Report, gender equality is listed as one of its eight goals and the achievement of this goal requires women’s empowerment. Moreover, the United Nation underlines that women and men should have equal opportunity to make decisions in parliament.³ In reality, more and more women are appearing in the national and local parliaments and female leadership is not that rare, there are even female presidents and premiers! Despite an overall decrease in gender inequality in virtually every modern nation, gender discrimination and unbalance still exist in many fields, especially in politics. Women are still not involved in politics as deeply as men. In many countries especially Asian countries, the ratio of female parliamentarian is low and most people tend to believe the statement that “Men make better political leaders”⁴. Under these circumstances mentioned above, it can be illustrating to figure out whether female political participation has an impact on economic growth.

The paper is based on the economic growth model studied by Jayasaira and Burke in 2013. Their work is based on information on female participation and economic performance of all the countries in the world till 2009. Since new data on seats held by women in national parliament and GDP per capita now stretch till 2013, this paper updated the findings of the impact of gender inequality in politics on economic growth focusing on Asian countries. In this paper, I will use an updated and extended data concentrating on Asian panel and a modified econometric specification that was applied in Jayasaira and Burke (2013). In comparison with Javasaira and Burke’s work, my sample has shorter but more recent time series and smaller set of countries.

¹ The United Nations Children's Fund

² United Nations. Report of the Economic and Social Council for 1997. A/52/3.18 September 1997, at 28: "Mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality."

³ United Nations, ‘Report of the Expert Group Meeting’, United Nations Division for the Advancement of Women, Equal participation of women and men in decision-making processes, with particular emphasis on political participation and leadership, Addis-Ababa, Ethiopia, 24–27 October 2005, p. 12, accessed 15 May 2014.

⁴ Joshi, D. K., & Kingma, K. (2013). The Uneven Representation of Women in Asian Parliaments: Explaining Variation across the Region*. *African and Asian Studies*, 12(4), 352-372.

Shorter time series may lead to a more biased result. However, more recent time series and concentrating sample make the results more fit with the practical situation, since panel study in some slope sufficient for all countries perhaps more likely in smaller groups.

The paper will unfold as follows. Before turning to the core issues, feminist movement and female status in the world and Asia are reviewed to give a background. The third section summarized previous studies discussing the relationship between economic growth and gender inequality in many fields globally and regionally. Further follows literature demonstrating female's politics, such as the consequence and causes of female unequal participation, emphasizing the advantages of female participation on economic growth. The fourth section highlights the statistical description of economic performance, female members in parliaments compared with male parliamentarians and female education. Then in the fifth section, data, methodology, model and variables used in this paper are explained. Section 6 presents and analyses empirical results and Section 7 concludes and puts forwards simple suggestion improving female political participation.

2. Background

Since the middle of the 17th century, women have fought for their political rights. During the French Revolution, even a feminist movement was organized. Those fights last for many generations, and finally after the mid-nineteenth century, females in countries such as the United States and Britain obtained the voting rights. Later in the first half of 20th century, women in some countries gained the same political rights as males had. In 1952, the United Nation declared that female and male should have the same rights in every election.

It is generally recognized that women are contributor to improvement and change, at the same time, the best driving force for economic growth. Nowadays, women's political position has been improved. This improvement matches the objective of UN Millennium Development goals. More and more women emerge in political activities, such as elected as parliamentarians, representing people to discuss and decide public issues. Women now are significantly under-represented in parliament, comprising one-fifth of all parliamentarians. In addition, an enormous amount of female legislators, senior officials and managers appears, the average ratio of which in Mongolia even reaches up to 47% in 2012 (data from World Development Indicators 2014). With regard to different continents, the ratio of female ministers and parliamentarians is highest in America, respectively up to 22.4% and 26.4%, where Europe and Africa are ranked second and third, while Asian ratio is the lowest, 18.5%. Besides, the number of female heads of state or government in the world was raised to 19, achieving the highest level of record.

However, women's political position still needs to be improved The 2015 Map of Women in Politics⁵ announced on March 10th stated new data on the ratio of female senior positions and female parliamentarians, and assessed the improvement and challenge of female political participation. Although the number of female senior

⁵ UN website

officers in governments around the world continuously increased in the last year, gender equality in public and politics still needs to be improved and may have a serious consequences on the global development plan.

It is widely admitted that men and women should participate politics equally. As I mentioned before, the proportion of women parliamentarians is a little more than 20%, this means that men make up to 80% in parliaments. Unfortunately, there is still a long way to accomplish the objective set by UN that female parliamentarians should comprise 30%. Referring to female ministers, there are 30 countries whose proportion of female ministers is up to and above 30%, while there were 36 countries last year. In the meantime, there are still eight countries never having female ministers.

In Asia, the situation of women political participation is much more serious. Firstly, though inferior to other continents, Asia's female political position has improved too. The percentage of female parliamentarians has increased to more than 18% in early 2013(Inter-Parliamentary Union, 2013). While we should realize that gender equality in politics in Asia is a challenge. "Although home to the majority of the world's women, Asia is the continent with the smallest proportion of women in Parliament." (Joshi and Kingma 2013) Furthermore, in early 2013, only four Asian countries have female header of states, those are Presidents Pratibha Patil (India) and Park Geun-hye (South Korea) and Prime Ministers Sheikh Hasina Wajed (Bangladesh) and Yingluck Shinawatra (Thailand). This phenomenon may results from Asian countries' typical culture or tradition. This sort of androcentric culture or tradition led to a lower proportion of female political participation in Asia. The gap between male and female political participation in Asia makes it practical to analyse the relationship with economic growth.

3. Previous Literature Review

In this section, since there is little literature studying the effects of female political participation on economic growth directly, the review of previous literature can be divided into three parts. In the first part, women's contribution to economic growth is stated mostly considering the effects of female school enrolment and labour participation. The relationship between female education and labour participation as well as female political participation is also indicated. The second part focuses on the causes and consequences of women politics. Then Asia's conditions of female politics will be discussed specifically in the end of both two parts.

3.1. Women's contribution to economic growth

In contrast to female political participation, there is large literature stating women's contribution to economic growth, especially the improvement of women's education and labour participation.

3.1.1. Women's education and economic growth

Considering gender inequality in education, the most popular argument is that gender equality would increase the economic growth, this is to say, girls' education can

produce the highest possible return on investment in the developing world so as to enhance development and reduce poverty. There are three mechanisms for female education to influence economic growth. The first one is human capital, whose meaning is that if more girls are allowed to go to school, high-quality girls will replace low-quality boys, leading to the overall improvement of human capital and positive impacts on economic growth. "Hindering girl's education means passing up high-return investments in human capital, with a significant effect on growth (Dollar and Gatti 1999).

The second refers to the externalities of female education. The main idea of this path is that increasing female education may reduce the fertility rate and promote education for the next generation. Educated women have fewer children; provide better nutrition, health and education for their families; experience significantly lower child mortality (Coleman, 2004). Both effects are obviously beneficial to economic growth. With respect to the education of the next generation, Coleman stated that mothers with education contribute more to children's schooling than their fathers with equivalent education. As a result, promoting women's education ensures earlier and longer schooling for the next generation.

The last mechanism of female education on economic development is an income effect. Receiving more education means generating more income. There is even a tendency that educated women, especially young girls, earn higher income than educated men. As for family household income, a family gains more returns if the mother instead of the father handles the cash. From researches in nations as varied as Bangladesh, Brazil, Canada, Ethiopia, and the United Kingdom, it is found that women generally spend more of the household income on education, health, and nutrition, and less on alcohol and cigarettes. Considering female's consuming behaviour, this income pattern improves national economy.

Many scholars have studied this relation between female education and economic growth in details, using evidence from one country or one region. According to different situations, the authors choose different methods. Many of these studies match the general conclusion we mentioned before. Economic growth benefits from the development of female education. Self and Grabowski (2008) examined female education's effects on the development of Japan. They divided Japan's history in three parts: the pre-war years, the five decades following the war and the after-war rapid rise years. Using the vector auto-regression analysis, authors demonstrate that economic growth benefits from female secondary and tertiary education in modern times. As for Pakistan and Sri Lanka, Fatima (2013) introduced the role of education on growth on the basis of gender aspects. The author applied the generalized Method of Moment in order to reveal that gender equality in education is beneficial to economic growth in these two countries. Hassan and Cooray (2013) utilize another method called extreme bounds analysis to analyse, choosing a panel of Asian countries. They drew a similar conclusion that Asia can improve their economies by promoting female education.

Sometimes the general conclusion may not apply to a single country. For example, Dauda (2012) focused on Nigeria, an African country. The author did research on whether female education has a positive impact on economic performance. Opposite to expectations, the results showed that female education does not stimulate economic

growth. Some problems appeared in low-income countries, “investing in primary education tends to pay off more than investing at secondary and higher educational levels, and girls are concentrated at lower levels of the education system than boys.”(Colemen, 2004) Families tend to choose boys to receive higher level of education if they have limited financial resources.

In practice, it is evident that regions which narrows gender gap in education successfully has achieved the most in economic and social aspects, including eastern Asia, south-eastern Asia and Latin America. In contract, regions such as southern Asia, the Middle East and Sub-Saharan Africa where the economic growth is low are also suffering a lagged investment in girl’s education. As a result, at present, southern Asia is experiencing the highest illiteracy rate among women adults which is 55 percent, while in the Arab World it is 51% and Sub-Saharan it is 45%.

3.1.2. Women’s labour participation and economic growth

With regard to female labour participation, similarly, gender equality will increase the overall ability of workforce, therefore may foster economic growth (Blackden, Canagarajah, Klasen and Lawson 2007). An inspiring idea is that high female labour participation may give women more power in family. This “bargaining” power can in some way enhance economic growth, since women have higher saving behaviours and more efficient way of using credit (Klasen and Lammana 2009).

At the regional level, Tsani and four other authors (2013) studied the relationship between female labour participation and economic growth in the Mediterranean countries. They used a two-step econometric approach and employed general equilibrium modelling. The conclusion they obtained is that higher female labour force participation contributes to economic growth, which matches the global phenomenon.

Adding the factors of industrialization, urbanization and economic development, there is a two-stage influence of female education and labour participation on women’s political participation:

First, industrialization brings women into the paid workforce and dramatically reduces fertility rates. During this stage, women make substantial gains in educational opportunities and literacy. Women are enfranchised and begin to participate in representative government, but they still have far less power than men. The second, post-industrial phase brings a shift toward greater gender equality, as women move into higher-status economic roles and gain greater political influence within elected and appointed bodies (Norris and Inglehart, 2001).

Thus, with Asian countries industrializing, more and more women gain the chance to go to school and became educated, resulting in a higher proportion of female labour participation. Subsequently, as larger amount of women attending tertiary education (where researches show women perform better than men), increasing number of eligible female candidates appear in the election and ultimately reducing gender gap in parliaments (Jayweera 1997; Haque 2003).

3.2. Female politics

Many scholars are interested in women's political representation. These studies generally can be divided into two parts, the first part is mainly about the consequences of women participating in politics, and the second one is discussing the causes of unequal gender representation in politics.

3.2.1. Consequences of women participating in politics

With a view to the role of women in politics, plenty researches have proved that "women are critical to economic development, active civil society, and good governance, especially in developing countries." As Nobel Prize winning economist Amartya Sen claimed, the economic, political, and social participation of women is the most important force for development today. Women, who have long been treated as passive recipients of aid, are now generally seen as active agents of change who can help the whole community. And a variety of researches suggest that accordingly the benefits to women are the greatest, when aids focused on improving their education, their control over resources, and their political voice.

One of the advantages of female politics is that women are less corrupt than men. Female's behaviour is always different from male according to practical experiments. Rivas (2012) argues that women can be more careful for the relationship and have higher standards of ethics, implying that women are more willing to sacrifice private benefits for the public. Besides, women are more risk averse than men, leading them less corrupt since corruption can be regarded as risky activity. Just as previous research said, 'Women attach great importance to the quality of contact between people and are less individualistic than men. (ENE, 1997)' Focusing on Asia, Panday (2008) mentioned that women's participation in parliament certainly has a positive impact on the character of Asian parliaments and make public policies create 'a more peaceful, productive and less corrupt societies'.

Another advantage which is widely proved is that the presence of more women in parliament brings better governance. Achieving gender equality is seen as essential to reducing poverty and improving governance. Women's participation in politics can facilitate democracy, not only because it improves their civil rights and helps them speak out their interests, but also because powerful women tend to make different policy choices from their male counterparts, which are beneficial to the local distribution of public resources and the development. When a woman is in charge, they invest more in infrastructure which matches the needs of women in order to cover the imbalance of women resulting from the past ignorance of women (Coleman 2004). The 56th Commonwealth Parliamentary Conference points out that the political culture can be changed by more women participation in the decision making and women represent change and creation.

On the microeconomic aspect, Khandker (2005) proved that female microeconomic borrowing are much more efficient than male's borrowing, showing that women are better microeconomic operators. This efficiency may also have an impact when women are in the office. Moreover, microfinance endows greatest long-term interests on the social status of women. Studies show that women with microfinance can obtain

more decision-making power in family, a growing number of political and legal awareness, and more participation in public affairs than other women. Microfinance can also reduce wife abuse because women start to generate income of their own and need not only depend on male to survive (Coleman, 2004).

Other interesting findings about the role of female parliamentarians are how they are able to promote female representation in parliament. Intuitively, senior women officers in national managerial system tends to increase the amount of women representatives by putting forward a lot of female-supportive policies, for example, they can facilitate gender equality when the parties make a decision of the candidates submitted to voters (Kunovich and Paxton, 2007). Moreover, active women political activities have undoubtedly succeeded in creating a more open political environment for women (Chappell, 2002). And Reindgold (2000) stated that female legislators are much more likely to make laws beneficial to female's interest.

The fact that women's career and promotion are facilitated with each other is widely noticed too. Mansbrige (1999) argues that social groups (including women) tend to elect individuals who have similar backgrounds to them even if the candidate may have some different perspectives and interests from them. It is believed that women in the office are supposed to create and increase opportunities for the career of other women (Cornfield, 1989). A study in law organizations proved this facilitation too. The findings of Ely (1994) shows that female associates in law firm gain more help if there are female partners exist. There is evidence that women leaders often benefit considerably from the network of women and conversely makes their organization more female-friendly (Healy, Geraldine, Kirton and Gill, 2012).

3.2.2. Causes of unequal gender representation in politics

In consideration of the cause of gender gap in politics, according to the serious fact that women nowadays are under-represented in parliaments, the United Nation identified a list of social and cultural obstacles which forbid women to be elected in national parliaments on an equal basis as men in Australia, the United Kingdom and the United States. These obstacles are:

- the nature of the electoral system
- the nature and processes of political parties
- women's lower levels of education and socio-economic status
- traditions and beliefs about the role of women in society, and the burden of combining work and family responsibilities.⁶

Political institutions can be an important factor which influences female representative ratio in parliament. Improper political institutions can deepen gender imbalance in parliaments. Overall, political institutions include electoral systems, party systems and gender quotas. Definitively, these institutions are able to shape incentives for the election of female parliamentarians. Compared with cultural and ideology, the changes of political institutions may be easier so as to improve female's position in parliaments in a short run for Asian countries.

⁶Gender equality fact sheet, State of world population 2005, United Nations Population Fund (UNFPA), accessed 16 May 2014.

Specifically, Duverger (1955) argued that women political participation benefits more from proportional representation (PR) electoral system than first-pass-the-post (FPTP) and single-member districts (SMD), which represents the first obstacle that UN came up with. Many scholars have supported Duverger’s opinion using cross-country empirical studies (McAllister and Studlar, 2002; Norris, 2004)

Considering the second obstacle mentioned above, there is evidence that countries which have multi-party system tend to have higher proportion of female members in parliament than countries with two-party and one-party systems. The reasons are intuitive. More accountable parties can provide more numbers of candidates so that women gain more opportunities to be elected. On the other hand, exactly as Norris (1993) stated, “the more parties there are in the system, the more benefit this usually is for female representation.” Table1 summarizes different electoral systems applying in main Asian countries now.

Table1. Comparing the Electoral Systems of Asia (Kingma, 2013)

District-Type	Plurality	Majority	Proportional
Single Member	<u>SMD-FPTP</u> • 'British System' Found in Bangladesh, India, Malaysia, the Philippines, and many commonwealth countries.	<u>Two-Round System</u> • 'French System' Found in Bhutan, Uzbekistan and several former French colonies.	
Multi-Member	<u>Block Vote (MMD-FPTP)</u> • Found in a few countries such as Mongolia and Singapore.		<u>PR-List</u> • 'Nordic System' Found in various countries such as Cambodia, Indonesia, Kyrgyzstan, Sri Lanka and Timor-Leste.

Note: Many Asian countries including Japan, Nepal, South Korea, Taiwan, and Thailand use a mixture of SMD-FPTP and PR-Lists. Mongolia has experimented with several electoral systems. It had a block vote system at the time of writing this article but was planning to change its electoral system again.

The characteristics of parties also matter. Kingma (2013) proves that left-side parties support the election of female parliamentarians more than parties on the right side. Joshi and O’Dell (2013) provides a possible reason that political left parties are more likely to set the aim to increase social and economic equality, including gender equality, since the left parties always represents reformers in society. Then in order to avoid loss of specific electoral support, parties on the left increase their nomination of female candidates (Siaroff, 2000). Hence, left parties have tendency to nominate more female candidates than right-wing parties (Reynolds, 1999). In other words, compared to the conservative parties, left parties are in favor of female taking part in the public affairs (Caul, 1999; Kittilson, 2006). These ideas are proved in practice. In

Sweden where there are two left-of-center parties, the ratio of women in parliaments is high (Joshi and Navlakha, 2010). In addition, quotas can become a useful but not stable method to maintain the proportion of female representation.

The third barrier has been discussed in previous section. As for the fourth obstacle, it is widely recognized that women politicians are in a large extent limited by their family life, compared with men. Women usually spend more time dealing with their children. Marriage, children and the so-called family responsibility makes up their obstacles to avoid them practice politics. And also there is usually bias for women's promotion in their political career. Men are more likely to gain promotion and nomination than women. Mezey (1978) drew the above conclusion by analysing Hawaii's situation. From the fourth obstacle, the role of culture can explain the relative low proportion of female political participation. Kingma (2013) gave an example of Bangladesh. In Bangladesh, there is patriarchal tradition like *purdah* and a strict gender division which can be regarded as reasons leading to low level of the ratio of female parliamentarians. Many people in this country believe that it is unsafe for women to appear in public alone without a male. Even worse, female parliamentarians are threatened; it naturally avoids women attending politics (Panday, 2008).

There is little literature studying directly the relationship between female political participation and economic growth. Jayasuriya and Burke (2013) examined the interaction between female parliamentarian and economic growth using global panel data. The two fixed-effects and system GMM estimators suggest that higher ratio of female parliamentarian foster economic growth. Countries can accelerate economic growth by improving the gender balance of their parliaments.

4. Descriptive Statistics

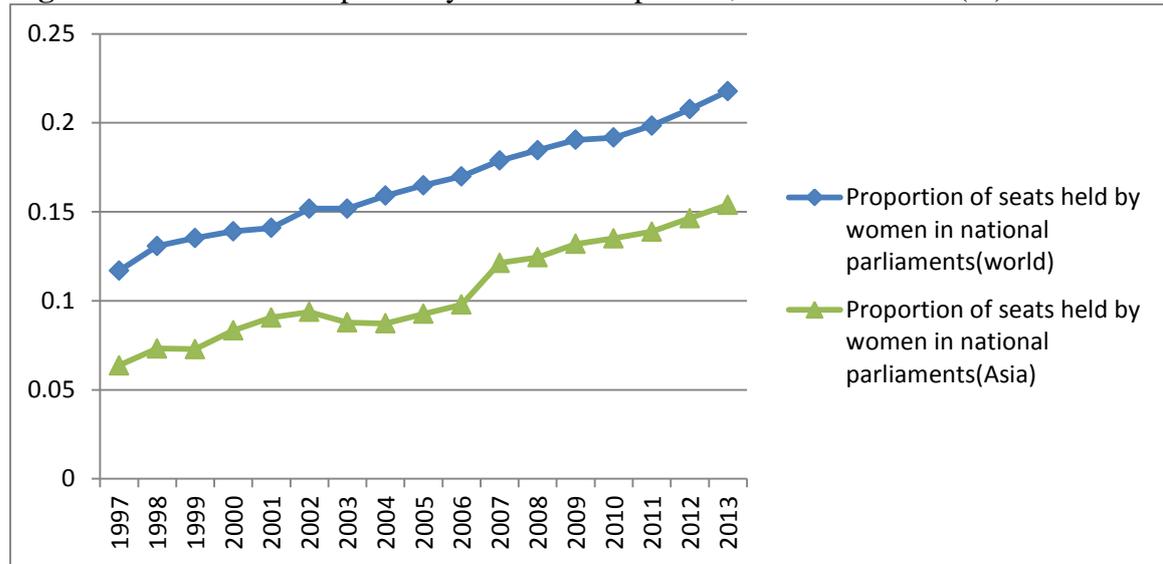
In this section, the development of female political participation is shown. In addition, the relationship between political participation and education is explained. In the last part, I will discuss the relationship between female parliamentarian and economic growth.

4.1. Gender and Political Participation

Although the appearance of female politicians is common now, I want to emphasize the large gender inequality gap in political field. Women still lag far behind men in holding political power. This situation is much more serious in Asia.

Figure 1 shows Comparison of political participation rates of different gender between world and Asia, by using the average data. From the figure, we can state that male still occupy a large portion of parliament seats while the ratio of female parliamentarians is relatively low.

Figure 1. Political Participation by Gender Comparison, World and Asia (%)



Source: World Development Indicator

On the other hand, there are some positive aspects. The involvement of women in politics and decision making has become a major concern for modern society. The proportion of seats held by women is increasing from 1997 to 2013. And the gender gap in parliaments is diminishing.

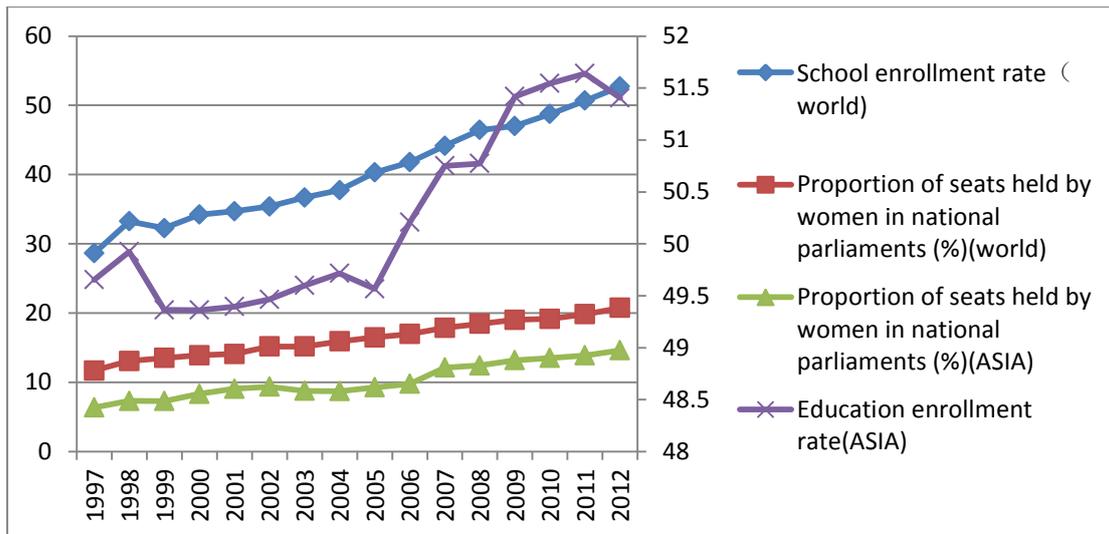
Concerning Asia, the situation is much more serious. Gender inequality in politics takes a more prominent role. In 2013, the percentage of men in parliament in Asia is 69% more than women's, while the percentage of men in parliament in the world is 56% than women's.

Figure 1 also shows the comparison of the ratio of male and female parliamentarians in Asia. It can be indicated that female political position in Asia is lower than the world implying that Asian women representation in parliament lags the global average level.

4.2. Education and Female Political Participation

Obviously, the improvement of female education has a crucial impact on female political participation. If the ratio of women who have received education increases, the amount of female parliamentarians can be forecasted to increase too. Figure3 shows the relationship between these two variables: education and female political participation.

Figure 2. Education and Female Political Participation Comparison, World and Asia (%)



Source: World Development Indicator

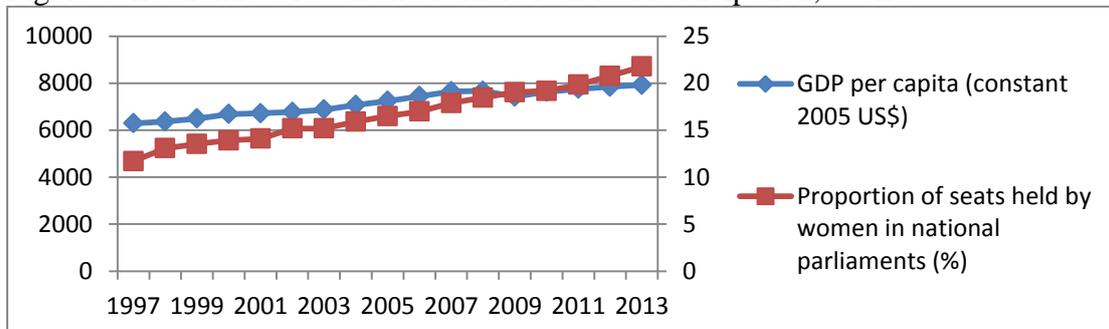
In figure 2, “school enrollment rate” stands for the proportion of women who receive primary education. Before 2009, Asia’s female primary enrollment rate is lower than that of the world. Besides, both proportions of seats held by women in national parliaments are consistent with the enrollment rate. It can be inferred that Asian female’s situation in both education and politics is worse compared with the world.

4.3. Female Political Participation and Economic Growth

Here, I will analyse female political participation and economic growth in a relatively direct way. It is generally recognized that socio-economic modernization and industrialization are expected to increase the proportion of seats women held in parliament. “These are a demonstration of the instrumental role women play in the social, economic and political stability of a country.” (Commonwealth Parliamentary Association, 2010)

Figure 3 illustrates the tendency of GDP per capita and the ratio of female parliamentarians all over the world and displays the interaction of these two variables by diagram.

Figure 3. Economic Growth and Female Political Participation, World

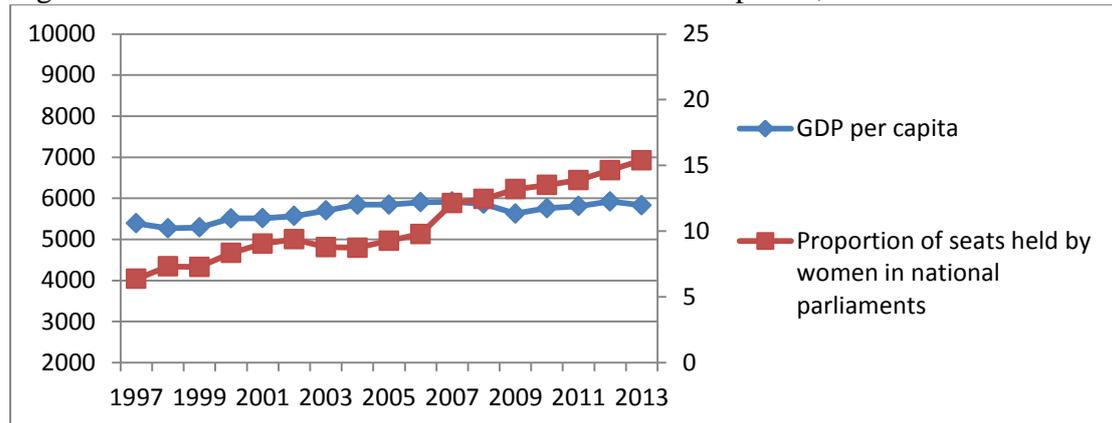


Source: World Development Indicator

From the figure above, with GDP per capita increasing, the proportion of seats held by women in parliament is increasing accordingly. The rising range of female political participation is obviously larger than the economic growth rate. The world has witnessed a significant reduction in the representation gap between male and female, consistent with economic development.

Similarly, figure 4 introduces the situation in Asia. Asia's female politics is lagging other continents, as I mentioned before, Asia owns the least proportion of female members of parliaments.

Figure 4. Economic Growth and Female Political Participation, Asia



Source: World Development Indicator

Figure 4 shows in general the relationship in Asia is similar to the world despite that there is more fluctuation in both GDP per capita and proportion of female parliamentarians. The low level of female members of parliaments can be explained by Asian religions, culture and political constitution. Asia has experienced a long male-oriented history and there is still some traditional opinion that politics belongs to men and women are supposed to take good care of their family and children. This common concept undoubtedly leads to women's weak position in parliaments in Asia.

5. Approach

5.1. Data

In this paper, all the data are extracted from the World Bank's database World Development Indicators (1990-2013). These are: the proportion of seats held by women in national parliaments (%), school enrolment, primary, female (% gross), population growth (annual %), trade of GDP (%) and GDP per capita (constant 2005 US\$). The data cover 30 countries from Asia, since data about the above variables of these 30 countries are accessible and available. Due to data limitations, there are 18 countries⁷ in Asia which are not included in the sample of this paper.

My main dataset consists of the following countries:

⁷ According to the Montevideo convention, a state must have a permanent population, a defined territory, a government, and the capacity to enter into relations with other states.

Armenia, Azerbaijan, Bahrain, Bangladesh, Bhutan, China, Georgia, India, Indonesia, Iran, Japan, Jordan, Kazakhstan, Korea, Kyrgyz, Lao, Lebanon, Malaysia, Mongolia, Nepal, Oman, Pakistan, Philippines, Sri Lanka, Tajikistan, Thailand, Turkey, United Arab Emirates, Vietnam and Yemen.

It should be noted that all of data used in the model are annual and country-level.

5.2. Methodology:

Considering the similar cultural backgrounds of Asian countries, I decided to use panel data regression model. Panel data consists of both time series data and cross-section data. These dimensions offer a way to analyse a region's data during a longer period. Here are the advantages of panel data methods summarized by Baltagi (2001):

- Panel data methods take into account the heterogeneity of countries, firms and products so as to reduce the bias of data.
- Panel data covers both time series and cross-section, providing much more information.
- Compared with time series and cross-section models, panel data models can detect and measure errors better.
- Panel data is good at more complicated behavioural models.

There are usually two estimators dealing with panel data. One is the fixed-effects model; another is the random-effects model. The fixed-effects model relies on a basic assumption that μ_i is fixed parameters to be estimated, where μ_i is an unobservable entity-specific effect. The model is usually written as:

$$y_{it} = \alpha + \beta x_{it} + \mu_i + v_{it}$$

Note that the μ_i is fixed for each country, the constant part of the RHS of the regression equation for any I is now $\mu_i + \alpha$. This shows that the fixed effects model can be interpreted simply as introducing different intercept terms for each country.

Additionally, the fixed effects model has a straightforward dummy variable interpretation, which can be written as:

$$y_{it} = \alpha + \beta x_{it} + \mu_1 D1_i + \mu_2 D2_i + \mu_3 D3_i + \dots + \mu_N DN_i + v_{it}$$

Where D1 is the dummy for country 1, etc., and the μ_i 's are coefficients to be estimated. This is called the Least Squares Dummy Variable (LSDV) model. The dummy variable representation of the fixed effects model is just a standard regression model, and can be estimated by OLS.

An alternative to the fixed effects model is the random effects model. The random effects model can be written as:

$$y_{it}^* = \alpha^* + \beta x_{it}^* + \mu_{it}^*$$

The random effects model requires that there is no remaining correlation in the error terms. Comparing the fixed effects model, random effects model is generally more efficient than fixed effect because of fewer estimated parameters and the avoidance of the correlation of errors within countries. The problem is that the RE model has more strict assumptions. Typically, the RE model is rejected with macro data. Sometimes, the empirical data does not satisfy the requirements of RE model.

Usually, redundant fixed-effect test: likelihood ratio test is used to test whether fixed-effect model can be used. Similarly, the random effect model is tested by correlated random effect test (or Hausman test).

In order to analyse the effects of female political participation on economic growth in Asian countries, I present estimates by using the fixed-effect estimator.

5. 3. Model:

Here the following growth model is come up with to outline the relationship between female political participation and economic growth:

$$100(Y_{i,t} - Y_{i,t-1}) = \beta_1 Y_{i,t-1} + \beta_2 W_{i,t} + X'_{i,t} \beta + \beta_i + \beta_t + \varepsilon_{i,t} \quad (1)$$

Dependent Variable:

Economic growth rate is the only dependent variable of the models. In (1), Y is the logarithm of real Gross Domestic Product (GDP) per capita in country i in year t. Then $Y_{i,t} - Y_{i,t-1}$ stands for country i's economic growth rate in t. The dependent variable is multiplied by 100 to express the relative change in percent.

Explanatory Variables:

Explanatory variables which are on the right-hand side of the model are listed and explained below.

$Y_{i,t-1}$ represents the lagged log GDP per capita. This variable is called “convergence term”, it is included because perhaps richer countries will experience slower GDP growth in the future in line with the so-called catch-up effect according to neoclassical growth theory.

$W_{i,t}$ means proportion of seats held by women in national parliaments (%). This variable is the key factor in this paper. I use the proportion of seats held by women in national parliaments (%) to represent female political participation. The share of female members in parliament is for the lower house of bicameral parliaments and the sole house of unicameral parliaments.

X includes additional determinants of economic growth, such as the primary female school enrolment rate (%), trade share of GDP (%) and population growth rate (%).

The primary female school rate is the ratio of girls attending primary education to the total enrolment. Primary education provides children with basic reading, writing, and mathematics skills along with an elementary understanding.

The trade share of GDP is measured as the sum of exports and imports of goods and services of gross domestic product.

Population growth rate (%) for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship.

β_i, β_t are fixed effects of country and year and $\varepsilon_{i,t}$ is a residual whose expected value is zero. β_i can help us control country-specific factors which may affect both parliamentary representation and the economy.

6. Empirical Results

This section shows and interprets the estimation results of my study. As already mentioned before, the model is estimated with a fixed-effects estimator on annual data after fixed-effects (likelihood ratio test)/random effect test (Hausman test).

Using annual data, the results of redundant fixed effects test and the correlated random effects test on this case are listed in the following table.

Table2. Cross-section fixed effects and cross-section random effects test

Test cross-section fixed effects				
Period	Effects Test	Statistic	d.f.	Prob.
1991-2003	Cross-section F	5.245807	27269	0
2003-2013	Cross-section F	7.362272	27206	0
Test cross-section random effects				
Period	Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
1991-2003	Cross-section random	80.492049	5	0
2003-2013	Cross-section random	17.685344	5	0.0034

According to the results, the model rejects the null hypotheses in cross-sectional dimension and does not reject the null hypothesis in random effect model. Therefore I choose fixed-effects in cross-sectional dimension.

Table 3 shows the fixed-effects regression results using annual panel data in Asia.

Table3. Fixed-effects results (annual panel in Asia); Dependent Variable: $100 \times (\ln GDP \text{ per capita}_t - \ln GDP \text{ per capita}_{t-1})$

	(1)	(2)
	1991-2003	2003-2013
Seats held by women in parliament(%)t	-0.010 (0.883)	0.027** (0.042)

In GDP per capita t-1	-11.483*** (0.000)	-5.471*** (0.000)
School enrolment rate, female, primary(% gross)t	0.139*** (0.000)	0.022 (0.390)
Trade (% GDP)t	0.039** (0.035)	-1.155*** (0.000)
Population growth rate t	-0.058** (0.007)	0.045*** (0.000)
Year dummies	yes	yes
R ²	0.39	0.68
Countries	28	29
Observations	302	249

Note: Source from World Development Indicator. Years in full sample: 1991-2013. P-values are given in parentheses. The R² includes the explanatory power of the year dummies. ***,** and * denote significance at 1%, 5% and 10% levels, respectively.

From Table 3, estimate results from 1991 to 2003 are given in column 1. From 1991 to 2003, contrary to my expectation, there is no significant evidence that female political participation affects economic growth, but the signs of other control variables match my expectation. Female primary education enrolment and the ratio of trade in GDP have a positive impact on economic development, especially girl's primary education. Regarding statistical significance, except the key explanatory variable, seats held by women in parliament which represents the extent of female political participation which is insignificant, the other control variables are all significant, either at the 1% confidence interval or 5% confidence interval, concluding that Asian countries economic development depends on these factors during this period. Among explanatory variables, the coefficient of ln GDP per capita at t-1 is -11.483, influencing the economic condition most.

The insignificant coefficient of seats held by women in parliament in this case can be explained that the impact of female political participation on economic growth may be not linear, which means that the number of women in parliaments needs to reach up to a certain level so that female representation in parliaments can influence national economy. At the beginning of 1990s, women just started to take part in national parliaments in most Asian countries. The average proportion of female members in parliaments in 1991 is only 8%, that is, there was less than 1 female parliamentarian out of 10 parliamentarians. It is noteworthy that the ratio even decreased during the first-half of 1990s to 6% in 1997. Under this circumstance, the number of female parliamentarians might be too few to have an impact on the economic growth from 1991 to 2003.

Based on Huntington (1991)'s statement about the period after the peak of the third wave of democratization⁸ and the fact that Asian female politics lag other continents. I restricted the sample to 2003-2013. Estimates after restriction are listed in column 2. After female political participation becomes popular and well-recognized, the advantage of female political participation gradually shows up. This time, as expected,

⁸ "Huntington's 'third wave' begins as democracy come to Portugal, Spain and Greece; sweeps over Latin America and parts of Asia and Africa; and culminates with the collapse of communism in Europe." (Rustow, 1992)

the increase of the proportion of female members in parliaments fosters economic growth, while lagged economic situation and the ratio of trade negatively affect national economy. Contrary to the first-half sample, population growth is beneficial to economic growth. In both cases, the past economic situation has a negative impact on economic growth in this regression results. The P-value of female primary school enrolment rate shows that girl's education's influence on economic growth is not obvious this time. In my opinion, this phenomenon may result from the fact that the marginal return of female primary education may be gradually diminishing to zero, and thereby secondary and tertiary education play a much more important role in increasing human capital and promoting economic growth than primary education in Asian countries, based on the data that Asian countries maintained a relatively high female primary enrolment rate for a long time.

In the second estimation, the estimated impact of female political participation remains positive and significant, where seats held by women in parliament is significant at 5% confidence interval likewise. More recently in Asia, the higher the ratio of female members in parliaments, the higher is economic growth rate. Except girl's primary enrolment and the ratio of female members in parliament, other variables are all significant at 1% confidence interval. Correspondingly, the coefficient of lagged Ln GDP per capita in this case is -5.471, which is about 5% larger than the full year sample case, suggesting that in a more recent period, the past economic situation affects less. The adjusted R^2 is 39% from 1991 to 2003 and 68% from 2003 to 2013, showing that the panel model corresponds to the practical situation to some extent in Asian countries.

Comparing Jayasaira and Burkes (2013) fix-effect results, our conclusion are similar. Based on either the global panel or Asian panel, it is evident that high representation of female in parliament has simulated economic growth. In the recent period after restricting samples, the coefficient of seats held by women in national parliament in the world is 0.093 at 1% confidence interval while the coefficient in Asia is 0.027 at 5% confidence level, illustrating that the effect of female political participation on economic growth in the world is stronger than the effect in Asia. However, since Asian female political participation is falling behind other regions and continents, maybe we can expect that Asian female political power will grow faster than the world in the future.

7. Conclusion

This paper's main attempt is made to investigate the effects of female political participation on economic growth in Asia. In order to express female political participation, I chose a key explanatory variable, that is, "proportion of seats held by women in national parliaments (%)", since becoming a member in national parliaments can be regarded as a main signal of political participation and also mean taking part in deciding national issues as well as making policies. Most of these political behaviours influence a county's economic life in some extent. Thereby, it seems reasonable that female participating in politics may affect economic development.

From the previous empirical analysis, although analysing data from 1991 to 2003 in Asia brings a result that female's participation in politics does not affect economic growth. As I explained in the previous section, it may result from the small amount of female parliamentarians in Asia in the beginning of 1990s. However, after restricting data into a more recent period from 2003 to 2013, things become different. Over recent decades in Asia, higher representation of female in parliament has fostered economic growth, which is consistent with Jayasuriya and Burke's conclusion studying the global case in 2013.

As for girl's primary education, in the long run, promoting girl's primary education leads to faster economic growth. But recently, this influence is not as obvious as it in the past. This insignificance may be because secondary and tertiary education plays a much more important role in modern economic growth. Trade brought benefit to economic growth in Asia during the first-half period.

The above statement shed a light that empowering women, which is a crucial way to achieve gender equality in a long run, is a vital way promoting economic growth, especially in Asia. Asia is experiencing the lowest shares of female parliamentarians and the largest imbalance between male and female. Therefore Asian countries are most likely to gain most from reducing the gap between male and female in political participation.

Many scholars have discussed the appropriate mechanism for increasing female's representation in parliaments. Before I state this part, it should be clarified that the choice of the most proper political mechanism is a complicated and contentious issue. Countries should put national conditions on the first place prior to considering female's participation. As I stated before, some cultural backgrounds and ideology in Asian countries have restricted female participating in political activities. However, this kind of self-enforced informal norms is the hardest to change and this change may take 100 to 1000 years. Therefore, in the short run, it is wise for Asian countries to emphasize political institution transformation.

One way to improve gender balances of Asian parliaments is that Asian countries can choose multi-member electoral districts, multi-party systems and stipulate fixed quotas, since there are findings that "countries with multi-member electoral districts, multi-party systems and strict quotas had more female MPs than those with flexible quotas and only one or two major political parties." (Joshi and Kingma 2013) To select proper electoral system is also an efficient way. Previous research suggests that PR party-list system can increase the proportion of female representation in parliament rather than SMD electoral system, implying that Asian countries should prefer PR party-list system in order to narrow gender gap in politics. In general, as Norris and Inglehart mentioned, the attitude supporting female leadership is not enough. Social structure and political institution should be considered too. Reformers in favour of female political participation should never ignore transforming political institution.

Setting up relevant agencies and organizations fighting for women's interest and position promotion can also be an effective way. Today many organizations and unions are devoted to improve women's position in many fields, such as The United Nations Commission on the Status of Women (UNCSW) and some parliamentary

associations. UNCSW and Inter-parliamentary Union (IPU) are trying to thinking up ways to encourage national parliaments to improve women parliamentarian's ratio. The IPU has raised a definition of a gender-sensitive parliament which states that a parliament should match 'the needs and interests of both men and women in its work as a nation's pea legislative institution'.⁹ The IPU similarly demonstrated that women parliamentarians can be an important enforcement to facilitate gender equality in parliament and promoting gender equality in parliament should be parliament's responsibility.

Before truly realizing equality between male and female in political participation and many other fields such as education and labour participation, feminist movement cannot be stopped. There are some tradition, culture and religious opinions which prevent the achievement of gender equality. In Saudi Arabia, women are even not entitled to voting rights. In spite of some improvement of female political representation, nowadays, women are still regarded as vulnerable groups in many fields, particularly in politics. Male "conquer" and control most political power. However, the situation is improving. Women participating in politics is now accepted widely and a growing consensus. I hope this paper can contribute in some way to the improvement of female's position in society.

⁹Palmieri, 'Gender-sensitive parliaments: a global review of good practice', op. cit., p. 6, accessed 2 June 2014. The United Nations defined gender mainstreaming in 1997 as 'the process of ensuring that policies and practices meet the needs of men and women equitably'.

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