

Fiscal Decentralization and Gender Parity in Developing Asia

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Abstract

The traditional fiscal decentralization theorem claims that decentralized government can provide the goods and services at local level more efficiently. However, empirically it is still to explore that how fiscal decentralization affects gender parity. This study empirically investigates the impact of fiscal decentralization on gender parity in developing economies of Asia, Armenia, Azerbaijan, Indonesia, Iran, Kazakhstan, Kyrgyz, Mongolia, Myanmar, Thailand and Turkey. The study used dynamic panel data technique namely system GMM over the period of 2006-2020. The multidimensionality of fiscal decentralization is captured through three measures of fiscal decentralization i.e. expenditure decentralization, revenue decentralization and composite decentralization. Further, it also examines the complementarity between fiscal decentralization and control of corruption to increase the gender parity. The results of the analysis show that expenditure decentralization is increasing the gender parity in developing economies of Asia. Additionally, control of corruption is a necessary reform to get the desired fruits of fiscal decentralization. Countries must focus on corruption aspect of local governments in implementing the expenditure, revenue and composite decentralization.

Keywords: Fiscal Decentralization, Gender Parity Index, Control of Corruption, Developing Asian Countries.

Introduction

Fiscal decentralization is becoming an important policy tool for better public service delivery over the last three decades. The broad definition of fiscal decentralization is that it is the transfer of decision-making authority for planning and administration of public functions from center to other levels, provincial/local, of government. Additionally, the process of decentralization was reinforced by the demand of local people, particularly in developing nations, for more democratic and political authority at local level. According to (Oates, 1972, 1993), delivery of public goods and desires of citizens are closely matched in decentralized setup, hence, increased productivity and more efficiency gains are expected which enhance the growth. To support this argument, (Manor, 1999; Smith, 1985) consider the fiscal decentralization as an efficient policy which can help to sort out the problems such as political instability, disparity, reduction of poverty and regional inequity. Conversely, the opponents of fiscal decentralization argue that it increase the social inequality, economic inefficiency and

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biased provision of social services is caused by decentralization (Blair, 2000; Katsiaouni, 2003; Samoff, 1990; Tanzi, 1996).

The Gender equality has been the common goal of all humankind and it is one of the 17 Sustainable Development Goals recommended by the United Nations Sustainable Development. A large body of empirical studies has used a variety of alternative definitions for gender disparity or inequality. The capabilities approach by (Sen, 2000) draw a comprehensive definition of inequality. Inequality in general and gender inequality in particular, are common constraints on the opportunities that an individual or a group can choose. Equality can be explained as increasing the opportunities and freedoms without taking the gender concerns (Nussbaum, 2011; Robeyns, 2007; Sen, 2000, 2011).

As per The Global Gender Gap Report, developed economies in Asia like South Korea and Japan have low rank in the gender equality index and rich Middle Eastern economies like Oman and Saudi Arabia have even lower rank. While developing economies like Sri Lanka and Philippines rank as the top two in gender equality index with the Philippines ranking top ten globally. Moreover, Pakistan and Yemen have lowest ranking in the world. It appears a strange phenomenon that economic development cannot describe the gender equality in Asian economies. The fiscal decentralization may affect the gender parity based on its argument of information advantage that local government is closer to locals to better understand their needs. This information advantage leads to better public service delivery that can decrease the gender inequality in the society. Fiscal decentralization and gender parity is also linked through accountability of local government (Bojanic, 2018a), income inequality (Sepulveda & Martinez-Vazquez, 2011), poverty alleviation (Kyei, 2008) and women empowerment through political participation (Khan, 2011). Asian countries provide good opportunity to explore the impact of fiscal decentralization on gender parity as many of the social expenditures like health, education are at local levels in Asian countries. Considering this, the study examines the role of fiscal decentralization on gender parity in developing Asian countries.

A major obstacle facing many researchers in this literature is how to measure the fiscal decentralization accurately. In order to resolve this problem, we employ several measures fiscal decentralization in our study i.e. expenditure decentralization, revenue decentralization and composite decentralization. Composite decentralization covers both expenditure and revenue assignments so it is a more comprehensive measure. Expenditure decentralization is closely linked to gender parity, as local government is more informed about local needs of gender so it can better target the gender aspects of society. Revenue decentralization is necessary with expenditure decentralization as it

improves the performance of local government. In composite decentralization, expenditure decentralization and revenue decentralization reinforce each other.

A large body of literature has investigated the impact of fiscal decentralization on different socioeconomic indicators e.g. economic growth (Cantarero & Gonzalez, 2009; Leonov *et al.*, 2012; Martinez-Vazquez & McNab, 2006), health and education (Asfaw *et al.*, 2007; Stotsky, 2019), income inequality (Boex *et al.*, 2006; Grisorio & Prota, 2015) and employment (Bianchi *et al.*, 2019; Martinez-Vazquez & Yao, 2009). The empirical literature shows that micro and macroeconomic indicators have different effects on gender related indicators in different countries. For example, Thomson *et al.* (2018) and Osypuk *et al.* (2014) found that health policies affect differently male and female health, governance influences male and female employment (Milazzo & Goldstein, 2017), economic growth has varying effects on male and female employment (Niimi, 2009). Based on these evidences, the research question emerges whether fiscal decentralization is increasing or decreasing the gender equality.

The current study departs from existing literature in many ways. In the earlier literature, none of the studies have focused on gender parity and fiscal decentralization analysis. This might be due to complex and varying financial structure in different economies. Every country has different capacity to fund their expenditures and raise revenues and limited data availability is a major obstacle for analysis. Moreover, little attention has also been paid to the analysis of the factors contracting its benefits and to examine how its benefits can be realized. As a result, there is little empirical evidence on this relationship. The results of the current study reveals that fiscal decentralization is helpful in increasing the gender equalities in developing Asia. Secondly, for comprehensive explanation of impact of fiscal decentralization on gender parity, we are going to focus on the developing economies of Asia. Thirdly, the more comprehensive measure of gender parity may be the gender parity index, which we are using in this research. It covers the gender parity in health, education, empowerment and employment. Fourthly, it is hoped that the findings of this study may inspire further multidisciplinary research in public finance field.

Literature Review

Fiscal decentralization is an emerging phenomenon in developing economies and it is important to have comprehensive idea of the recent progress in the theoretical and empirical literature on fiscal decentralization.

The theoretical literature on fiscal decentralization largely deals with the conceptual elements and design of intergovernmental fiscal transfers in a context of competitive federalism (Bird *et al.*, 1995; De Mello Jr, 2000; Musgrave, 1959; Qian & Weingast, 1997; Tiebout, 1956). Tiebout (1956) proposed the local expenditure theory in

which size of an economy have a central place in decentralization process. He argued that large economies may be exploited for provision of public services at local level. The more distant regions may be poorly served due to transportation cost, preferences by center and lack of information. According to Oates (1972) the welfare achieved through decentralization is superior to achieved in centralized setup by providing the goods and services across the regions. It is because the participatory local government is well informed about the needs of local society and it is the entry point of gender concern. Qian and Weingast (1997) suggested a new perspective in theory of fiscal decentralization that competition in different jurisdiction along with decentralization could be more effective to decrease the regional inequality than allocation from center. Competition among local governments plays a vital role in gender related decision making, designing and implementation of development programs.

The opponents of fiscal decentralization have challenged the positive effects of fiscal decentralization in previous studies such as (Prud'Homme, 1995; Tanzi, 1996). The critiques argued that implementation process of decentralization have faced several problems at local level. They claimed that the assumption of information advantage of local governments can be challenged because central governments can assign government officials at local offices. Apparently, there is no compelling reason to believe that the information obtained by these representatives will be less accurate than the ones gathered by the local governments (Prud'Homme, 1995). One potential problem associated with fiscal decentralization is the attacking of the fiscal commons by the local governments due to soft-budget constraint. The decentralized governments expect that central government will cover their fiscal deficits. This, in turn, weakens the incentives for local governments to observe a responsible fiscal behavior.

The empirical evidences on fiscal decentralization in cross-country and single country analysis have emerged in recent literature. A number of studies have shown that decentralization of budgetary expenditures is positively associated with various social indicators. Such as Norris *et al.* (2000) discussed key aspects of the decentralization process in three Asian transition economies namely Russia, Ukraine, and Kazakhstan. They pointed out that greater autonomy and accountability assigned to local governments and transparency with regards to spending and revenue collection arrangements are all necessary for obtaining the benefits of decentralization. Sepulveda and Martinez-Vazquez (2011) tested the impact of decentralization on distribution of income and poverty and concluded that fiscal decentralization increased the poverty measures, but it reduced the income inequality if general government represent, at least, twenty percent of economy.

Habibi *et al.* (2003) examined decentralization and human development of Argentine's provinces. They concluded that disparity in the infant mortality rate and in

educational output, between low and high-income provinces, has decreased during the period of decentralization. Soejoto *et al.* (2015) used primary and secondary data to test that how funds decentralization affected human development in Indonesia. They found that funds decentralization have positive impact on human development and total poor population of autonomous regions and cities. Furthermore, Simatupang (2009) analyzed decentralization and education outcomes in Indonesia. The results showed that decentralization has improved education outcomes as more female literacy rate and less dropout rates of primary and secondary educations. While, Stotsky (2019) investigated the intergovernmental fiscal transfers and gender equality in education in India. The findings suggested that fiscal transfers from center to states are not achieving the gender parity in education at aggregate level. In the second part of the analysis, the study disaggregated the specification for transfers and proposed that unconditional fiscal transfers strengthen the gender equality but conditional transfers have less effect on gender parity in education in India.

Hodge *et al.* (2015) empirically examined the relationship between decentralization and inequalities in health in Indonesia. The findings of the study showed positive association between fiscal decentralization and decrease in health inequalities and expansion in health services in Indonesia. Systemic funding failures from decentralization are likely to have greater impact on deprived areas where local capacity is fragile. While, Simatupang (2009) analyzed decentralization and health outcomes in Indonesia and found that decentralization did not increase the availability of health services. Arze *et al.* (2012) examined fiscal decentralization and composition of public expenditures. They found that fiscal decentralization increased the health and education expenditures in fifty-nine developed and developing countries. While Rubio (2011) found that decentralization of health services worsened the health outcomes in Canada. Khemani (2001) examined the intergovernmental design and its impact on local accountability in Nigeria. The results demonstrate that after decentralization the healthcare services deteriorated. This is mainly due to lack of systematic and effective accountability mechanism.

Martinez-Vazquez and Yao (2009) examined the relationship between fiscal decentralization on public sector employment. The results showed that public employment generation at the sub-national government level overcomes the decline in public employment at the central level. As a result, with the degree of fiscal decentralization, the level of total public sector workforces rises. Additionally, decentralization can have somewhat different effects on public employment subject to the level of development and institutional environment in a country. Bianchi *et al.* (2019) analyzed fiscal decentralization and labor markets for Italian municipalities. The

results showed that decentralization increased the female participation in the labor market as compare to pre fiscal decentralization period.

De Mello and Barenstein (2001) found that good governance is positively related with subnational spending levels and the higher the nontax revenues, the stronger this relationship. They also show that unlike expenditure decentralization, the lower the revenue decentralization the better the governance. In addition, Fisman and Gatti (2002) found strong negative relationship between decentralization and corruption, while Treisman (2000) showed evidence of a strong positive relationship between the same two variables. However, Swamy *et al.* (2001) found that participation of women in governance structure lessens the possibilities of corruption. The gender differences in the incidence of corruption may range from personality traits (honesty, law-abiding), to less information that how to engage in corrupt activities. Additionally, the effective participation of female representatives at the local level can change the priorities in budgeting, bring accountability and ensure quality and efficiency of public goods and services.

These reviewed empirical studies investigated the impact of fiscal decentralization on number of socioeconomic indicators for group of countries as well as the individual country. Over the years, fiscal decentralization is a growing phenomenon in developing economies and it can be concluded that fiscal decentralization is helpful for better public service delivery like health, education, employment. However, the gender parity aspect still needs to be explored. We propose the following hypothesis;

H₁: Expenditure decentralization does not improve the gender parity in developing Asian countries.

H₂: Revenue decentralization does not improve the gender parity in developing Asian countries.

H₃: Composite decentralization does not improve the gender parity in developing Asian countries.

The current study attempts to fill this gap by exploring the impact fiscal decentralization on gender parity from an economics perspective, aiming to obtain important findings.

Methodology

Model Specification

A dynamic penal data model, namely system GMM, is used to empirically investigate the effect of fiscal decentralization on gender parity in developing Asia. Dynamic panel models use the lag of dependent variable as an independent variable, so the models have dynamic interpretation capability. According to (Blundell & Bond, 1998, 2000), dependent variables at different periods, are depending its past values. The

gender parity is a cultural phenomenon and persistent. The state of gender parity in the previous period will affect the state of gender equality in the next period. Arellano and Bond (1991) proposed that establishing the dynamic panel data model, the lag of the dependent variable is related to the individual effects of random errors and cause the endogeneity problems. To overcome this shortcoming, Arellano and Bond (1991) proposed a GMM estimation method for deriving the corresponding moment conditions using instrumental variables. It summarizes other estimation techniques like ordinary least squares, two-stage least squares and maximum likelihood method. Moreover, system GMM effectively solves the weak instrumental variables issue and overcomes the potential inaccuracies due to difference GMM. The System GMM method also corrects the individual heterogeneity, omits variable bias and measurement error, which are often involved in traditional methods such as OLS and fixed-effect methods. Therefore, the system GMM results are relatively better and robust. The Sargan test is performed to examine whether the instrumental variables are exogenous and use residual to regress these instrumental variables. The p-value of Sargan test should be greater than one (Baum *et al.*, 2003). The functional form of the model is as follow;

$$GPI_{i,t} = f(GPI_{i,t-1}, Fdi_{i,t}, Xi_{i,t}, \mu_i, t) \quad (1)$$

Where $i=1, \dots, N$ and $t=1, \dots, T$

Fd is fiscal decentralization, X_{it} are other explanatory variables of different cross section in t time period and μ_{it} is error term. Subscripts i and t represent different countries and years respectively. Fiscal decentralization is calculated in three ways; expenditure decentralization, revenue decentralization and composite decentralization. Therefore, the system GMM models of all three measures of fiscal decentralization, gender parity index and explanatory variables are following;

$$GPI = \alpha_0 + \alpha_1 GPI_{i,t-1} + \alpha_2 EDCEN_{i,t} + \alpha_3 EDCEN * COC_{i,t} + \alpha_4 GHEXP_{i,t} + \alpha_5 SEMPF_{i,t} + \alpha_6 LGDPC_{i,t} + \varepsilon_{i,t} \quad \dots\dots 2$$

$$GPI = \beta_0 + \beta_1 GPI_{i,t-1} + \beta_2 RDCEN_{i,t} + \beta_3 RDCEN * COC_{i,t} + \beta_4 GHEXP_{i,t} + \beta_5 SEMPF_{i,t} + \beta_6 LGDPC_{i,t} + \varepsilon_{i,t} \quad \dots\dots 3$$

$$GPI = \gamma_0 + \gamma_1 GPI_{i,t-1} + \gamma_2 CDCEN_{i,t} + \gamma_3 CDCEN * COC_{i,t} + \gamma_4 GHEXP_{i,t} + \gamma_5 SEMPF_{i,t} + \gamma_6 LGDPC_{i,t} + \varepsilon_{i,t} \quad \dots\dots 4$$

Where gender parity is measured by gender parity index (GPI), Expenditure decentralization (EDCEN) is measured by expenditure decentralization ratio, revenue decentralization (RDCEN) and composite decentralization (CDCEN) is measured by composite ratio of expenditure decentralization and revenue decentralization. EDCEN*COC, RDCEN*COC, CDCEN*COC are interaction terms of fiscal

decentralization and control of corruption. GHEXP is government health expenditures, SEMPF is self-employed female and LGDPC is log of GDP per capita constant 2010 US\$.

Table 1. *Definitions of Variables*

Variables		Definition	Data Source
GPI	Dependent Variable	Gender Parity Index	The Global Gender Gap Report (2006–2018)
EDCEN	Independent Variable	The share of expenditures of local level of government as a proportion of general government spending.	International Monetary Funds' fiscal decentralization database 2020.
RDCEN	Independent Variable	The share of own revenues of local government as a proportion of general government revenue.	International Monetary Funds' fiscal decentralization database 2020.
CDCEN	Independent Variable	Ratios of expenditure decentralization and revenue decentralization.	International Monetary Funds' fiscal decentralization database 2020.
COC	Control Variable	The perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption	The Worldwide Governance Indicators, 2020.
DGGHE	Control Variable	Domestic general government health expenditure as percentage of current health expenditures	World Development Indicators, 2020.
SEMPF	Control Variable	Self-employed, female as percentage of female employment	World Development Indicators, 2020.
LGDPC	Control Variable	Log of GDP per person employed	World Development Indicators, 2020.

Gender Parity Index

The gender parity index (GPI) described in Global Gender Gap Report is used to measure the gender equality. This index measures the gap between male and

female in four important categories: health and survival, educational attainment, economic participation and opportunity and political empowerment. The highest possible score is one indicating equality and the lowest is zero showing inequality.

Expenditure Decentralization

The current study calculates the expenditure decentralization as the share of expenditures (i.e. the sum of expense and net investment in nonfinancial assets) of the different levels of government (central; state/province/region; local) as a proportion of general government spending. Local expenditures do not include the portion of spending that is transferred to other levels of government, international organizations and foreign governments. This measure has been used in many studies e.g. (Cantarero & Gonzalez, 2009; Lin & Liu, 2000; Neyapti, 2010; Xie *et al.*, 1999; Yilmaz, 1999; Zhang & Zou, 1998). The indicator is computed as follows:

$$EDCEN = \frac{LEXP}{LEXP + CEXP}$$

Where LEXP and CEXP are local expenditures and central government expenditures respectively.

Revenue Decentralization

The revenue decentralization ratio is computed the share of own revenues of the three levels of governments (central, state/province/region; and local) as a proportion of general government revenue. Local revenues do not include the portion of revenues obtained from other levels of government, international organizations and from non-resident governments. This measure has been used in studies like (Akai & Sakata, 2002; Cantarero & Gonzalez, 2009; Eller, 2004; Feltenstein & Iwata, 2005; Iimi, 2005), as shown below:

$$RDCEN = \frac{LREV}{LREV + CREV}$$

Where, LREV and CREV is local revenue and central government revenue respectively.

Composite Decentralization

Martinez-Vazquez and Timofeev (2010) developed a composite indicator of fiscal decentralization, which captures the multidimensionality nature of fiscal decentralization process. It combines the information contained in expenditure and revenue ratios. It is used in studies like Iqbal *et al.* (2013). Composite decentralization is computed as:

$$CDCEN = \frac{RDCEN}{1 - EDCEN}$$

Where, CDCEN, RDCEN and EDCEN are the composite decentralization, revenue decentralization and expenditure decentralization respectively.

Control Variables

Control of corruption reflects the perceptions of the extent to which public power is exercised for private gain, including petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. Estimate of governance ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. Corruption's role in process of decentralization is very important. There is a negative association between decentralization and corruption (Huther & Shah, 1998). We have included an interaction term of control of corruption and components of fiscal decentralization to see the impact to what extent the control of corruption affects the gender parity. We introduce the health aspect in the model to see the impact of health on gender parity. Gender significantly explains many variations between both men and women and health systems that can play a key part in reducing health inequalities between them. The differences in behaviors of women and men contribute to both mortality and morbidity and health systems that take account of these gender differences in their public health spending strategies are considered to be more successful (Bertakis *et al.*, 2000). Domestic general government health expenditure as percentage of current health expenditures are considered to see the impact of health spending on gender parity. Globally, finding a job is much tougher for women than it is for men. The current global labor force participation rate for women is close to 49 percent and for men this rate is 75 percent. Working mothers earning their own income also help reduce poverty, particularly among children (Cantillon *et al.*, 2001). To see the impact of employment on gender parity, self-employed, female as percentage of female employment is taken. Finally, Income is strongly linked with gender parity and it is measured as GDP per person. To avoid heteroscedasticity, log of GDP is taken.

Source of Data

Fiscal decentralization actually is more popular among transitional and developing economies (Martinez-Vazquez & McNab, 2003). There are 47 countries in Asia and, on the availability of the data, 10 developing Asian countries are selected for the analysis. The selected countries are: Armenia, Azerbaijan, Indonesia, Iran, Kazakhstan, Kyrgyz, Mongolia, Myanmar, Thailand and Turkey. The panel data set for gender parity index is taken from Global Gender Gap Report (Hausmann *et al.*, Various issues). The global gender gap report first published in 2006 so, this study, covers the time from 2006 to 2020. Data for different measures of fiscal decentralization is taken from International Monetary Funds' fiscal decentralization database published by Victor *et al.* (2020). Data for control of corruption is taken from World Governance Indicator 2020 published by Daniel and Aart (2020). Data for other control variables like income,

government health spending and self-employed female is derived from World Development Indicators published by World Bank (2020). We use linear interpolation method to fill the missing values of the data.

Table 2: *Descriptive Statistics for Developing Asia*

Variables	Mean	Std. Dev.	Min	Max
GPI	.674	.046	.577	.895
EDCEN	.219	.229	.001	.807
RDCEN	.077	.059	.001	.439
CDCEN	.177	.234	.001	.781
COC	.175	.747	-.875	1.960
DGGHE	30.118	23.171	3.738	76.583
SEMPF	35.795	22.039	3.694	69.463
LGDP	231.747	322.895	6.509	1141.848

The correlation matrix is in the appendix and Table 2 shows descriptive statistics of developing Asia. It shows that Asian countries focus more on expenditure decentralization than revenue decentralization on average. The value of control of corruption ranges from -.8 to 1.96 in developing Asian countries. Government health expenditures ranges from 76 percent to 3.7 percent with average of 30 percent in developing countries of Asia. Average of Self-employed female is 35 percent varying from 3.6 percent to 69 percent. The average of log of GDP per person employed is 231 percent.

Results and Discussion

The results of all three models of fiscal decentralization are reported in Table 3. The p-values of AR (1) and AR (2) are greater than 1 showing no autocorrelation in residuals in all three models. The p-value of Sargan test is also greater than 1, rejecting the null hypothesis and proving the validity of instrumental variables.

The expenditure decentralization is positively contributing in increasing the gender parities in developing Asia. This positive effect of fiscal decentralization and gender parity is in line with the arguments of traditional theory of fiscal federalism by (Oates, 1972, 1993). This positive relationship is also supported by recent empirical literature. Soejoto *et al.* (2015) showed that fiscal decentralization improved human development in Indonesia. Similarly, Neyaptı (2005) found positive association between fiscal decentralization and several socioeconomic indicators in Turkey. Samadi *et al.* (2013) showed positive association between fiscal decentralization and health sector outcomes such as under five-mortality rate in Iran. Stotsky (2019) established positive relationship between gender equality in education and fiscal decentralization in India.

Akpan (2011) found positive relationship of fiscal decentralization and health and education outcomes in Nigeria. Cantarero and Pascual (2008) concluded that increasing the local healthcare expenditures is helpful in reducing the infant mortality and it increased the life expectancy in the provinces of Spain. (Faguet *et al.*, 2021) showed that fiscal decentralization improves female health in Ethiopia. Khaleghian (2003) showed positive association of fiscal decentralization with health outcomes in low and middle-income economies. Kelkar (2005) claimed that female poverty is mainly caused by underemployment that, in turn, worsen the disparity in gender relations in South Asia. Bianchi *et al.* (2019) found that fiscal decentralization is positively associated with female employment in Italy. Hence improving the components of gender parity through fiscal decentralization, improve the overall gender parity index.

The interaction terms of fiscal decentralization i.e., expenditure decentralization and control of corruption, revenue decentralization and control of corruption and composite decentralization and control of corruption are reducing gender parities in developing Asia. These results show that control of corruption is a complementary reform along decentralization process. The effects of fiscal decentralization depend on institutional mechanism design, which relates to the degree of decentralization and how decentralization policy in terms of intergovernmental transfers, along with functional and financial assignment at the subnational levels and institutions, interact. Good governance is necessary at local level to get the beneficial results of fiscal decentralization (Shah & Huther, 1999). Sow and Razafimahefa (2015) argued that corruption decrease the efficiency of public services in fiscal decentralization in developed in developing countries. Norris *et al.* (2000) point out that greater accountability, autonomy and transparency with regards to spending and revenue collection at local level are all necessary for obtaining the benefits of decentralization in Ukraine, Russia and Kazakhstan. Lin and Liu (2000) argued that decentralization has contributed to economic growth in China via better utilization of local revenue sources and better monitoring and management of local government. In short, we recommend that fiscal decentralization along with control of corruption increase the women's access to education, increase employment and income and endow them with greater political rights in developing Asia.

The control variables concerning employment and income have expected impact on gender parity. Female employment captured by self-employed female is positively affecting gender parities stating that more self-employed females, greater the gender parity. Income per person also increase the gender parity.

Table 3: *Results of System GMM of Three Models: Dependent Variable (GPI)*

Variables	Expenditure Decentralization Model1	Revenue Decentralization Model2	Composite Decentralization Model3
GPI			
L1.	-.380 (0.422)	-.411 (0.443)	-.610 (0.322)
EDCEN	.128 (0.039)		
RDCEN		.075 (0.365)	
CDCEN			-.211 (0.315)
EDCEN*COG	.191 (0.011)		
RDCEN*COG		.468 (0.012)	
CDCEN*COG			.209 (0.037)
GHEXP	-.001 (0.187)	-.0001 (0.618)	.001 (0.152)
SEMPF	.001 (0.042)	.002 (0.029)	-.0004 (0.760)
LGDP	.00006 (0.035)	.0001 (0.052)	9.68 (0.987)
_cons	.872 (0.013)	.867 (0.021)	1.105 (0.025)
AR(1)(p-value)	.961	.932	.883
AR(2)(p-value)	.868	.730	.511
Sargan test(p-value)	.925	.868	.897

Note: *p*-values are in parenthesis

Conclusion & Policy Recommendations

Fiscal decentralization is an important policy tool in developing economies to achieve better and efficient public service delivery. Gender parity is one of important sustainable development goals. Despite the economic development in countries of Asia, still several developing countries of Asia rank low in gender parity index. The current study is the first attempt to explore this important linkage between fiscal decentralization and gender parity index in developing part of Asia through a dynamic panel data technique system GMM. The results of the analysis show that expenditure decentralization is increasing the gender parities in health, education, employment and empowerment in developing countries of Asia. Furthermore, the interaction term of expenditure decentralization and control of corruption positively influence the gender parity. Revenue decentralization and control of corruption and, third more comprehensive

measure of fiscal decentralization, composite decentralization and control of corruption also increases the gender parity in developing Asia. These results are robust and three important implications emerge from these results. Firstly, there is need of careful sequencing of the reform process. Countries must focus on corruption aspect while implementing decentralization process. Secondly, the benefits of fiscal decentralization are more extended when it is implemented with reform such as control of corruption. Thirdly, countries in developing Asia must focus on both types of fiscal decentralization i.e. expenditure decentralization and revenue decentralization.

Asia is divided into six regions: South Asia, Southeast Asia, East Asia, Central Asia, North Asia and West Asia. This study added developing Asian countries in the analysis because of limited data availability. Pakistan is part of South Asia and South Asia and Central Asia are more influenced by the Islamic Culture. Islamic Culture influences gender equality, so Pakistan, Iran and Kazakhstan are relatively close to each other. According to global gender gap report 2020, Pakistan scores 0.55 percent while Iran scores 0.58 percent in global gender parity index. Moreover, South Asia and Central Asia are increasingly connecting from the perspective of gender equality and economic development. They also carried the comprehensive reforms of their inter-governmental fiscal systems since the last two decades. Hence, the results of the study also have relevance regarding to Pakistan as more fiscal decentralization can contribute to increase the gender parity in Pakistan.

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Appendix

Table 4: *Correlation Matrix*

	GPI	EDCEN	RDCEN	CDCEN	COC	DGGHE	SEMPF	LGDP
GPI	1.00							
EDCEN	0.28	1.00						
RDCEN	0.17	0.34	1.00					
CDCEN	0.27	0.84	0.75	1.00				
COC	0.24	-0.17	-0.06	-0.11	1.00			
DGGHE	-0.08	-0.28	0.01	-0.12	0.31	1.00		
SEMPF	0.08	0.21	-0.17	-0.01	-0.42	-0.92	1.00	
LGDP	0.10	-0.32	-0.04	-0.20	0.25	0.66	-0.60	1.00