Gender and Corruption: Evidence from Selected Developing Countries

Ahmad Jafari Samimi and Haniyeh Hosseinmardi
Economics, The University of Mazandaran, Babolsar, Iran

Abstract: Financial Corruption is a historical, important and effective phenomenon. There exist widely researches about the factors of corruption. Evidence in the social science literature is existed that women may be more honest or more risk averse and may have higher standards of ethical behaviour and may be more concerned with the common good than men are. This would imply that women are more willing to sacrifice private profit for the public good and this would be especially important for political and public life. The purpose of this paper is to examine women participation in politics and labour force and some other social impact on gender corruption. Specifically investigate the hypothesis is that increasing women participation in parliament and labour force can reduce financial corruption. For this by using panel data technique, present paper tests the hypothesis for 25 selected developing countries with a reasonable geographical dispersion during time period 2000-2008.

Key words: Gender • Corruption • Panel Data • Selected Developing countries

INTRODUCTION

Corruption activities are not a new phenomenon. Already 2000 years ago, the book Arthashastra written by Kautilya maintained to the corruption [1]. It is also interesting to note that in Ancient Egypt the pharaohs searched for ways to decrease corruption of their tax collectors that called them “Scribes”. They paid high salaries to scribes for reducing the incentive to enrich them by cheating taxpayers [2]. Corruption has attracted a great deal of attention in countries developed and developing, large or small, market-oriented or otherwise, governments have fallen because of accusations of corruption, prominent politicians (including president of countries and prime ministers) have lost their official positions and, in some cases, whole political classes have been replaced [1]. Two thousand years ago, the Corruption, defined as the misuse of public office for private gain, has attracted a great deal of attention in recent years. Many international and regional organizations now regard corruption as major obstacles to good policy making. [3]. The ways in which corruption can manifest and impact on the economy are many and varied and still little is known about the causes of illegal activities and about anti corruption instruments. Some empirical studies explain that using more participation of women in social and political activities can reduce the level of corruption in a country [4-7].

In recent years, a substantial body of work has emerged in the social sciences exploring differences in the behaviour of men and women in various contexts [6]. Marston [8] believes that due to existing gendered cultural norms, economic institutions and legal systems, women throughout the world do not have command over economic resources and assets to the same extent as men. This hinders women from fully contributing to the economy. In addition, women’s range of employment choices and personal development are often limited, impedes them from realizing their full potential as individuals and economic agents. In many societies, cultural, religious, or family norms dictate women’s specific roles and hinder their participation in economic life. Women are primarily responsible for reproductive and care-giving functions, such as cleaning the home, preparing food, tending to children and caring for ill and elderly family members. These obligations make up what is known as the “reproductive economy,” which largely limit women’s participation in the market economy or “productive economy”. Social norms may also dictate women’s mobility as well as property and inheritance rights. Women’s lack of control over assets often leads to greater dependency upon husbands or other male family members. This disparity often makes women overly vulnerable. Rivas [7] suggests that women may be more relationship-oriented, may have higher standards of ethical behaviour and may be more concerned with the
common good than men are. This would imply that women are more willing to sacrifice private profit for the public good and this would be especially important for political life. Most criminologists agree that men are more likely to commit offenses than females. They argue that the gender differences do not vary over time and countries, they start at low ages and are maintained through the years and the same patterns are observed in different countries. Moreover, crimes committed by men are more serious than those committed by women.

We know that the World Bank is most important recent policy statement on gender equality, ‘Engendering Development’, asserts a strong relationship between relatively high levels of female involvement in public life and low levels of government corruption. Goetz [9] concludes that additional support for having more women in politics and in the labour force – since they could be an effective force for good government and business trust. It is happen because in many countries, corruption does occur primarily through male-to-male networks and in forums where women are often excluded, such as in commerce or politics. As a result, various studies have shown that men are more likely to be victims of corruption than women. Men are usually the ones involved in government and business dealings and suffer increased demands for extortion and bribery when compared to women. However, if workplaces become more feminised or when women take the top leadership jobs, it cannot be taken for granted that women will be less corrupt or not form their own networks. Distorted institutions are likely to distort the individuals working in them, whatever their gender. Women also may be making or accepting bribes but doing it from behind the scenes or through proxies. Women may indirectly participate in corruption in order to get ahead in political bureaucracies. Since there is a cultural taboo against interacting with men who they are not related to, women may engage in bribery and extortion using their male relatives as the mediators. Their indirect participation may mislead observers into concluding that men are the root cause of corruption and women are less susceptible [10].

Efforts to understand corruption and possible gender differences are highly relevant in the politico-economic process. It is common belief that an increase in women’s representation in public organization may reduce corruption and we know that the question of the connection between gender and corruption and the possible implications for anti-corruption strategies has been neglected until recently. This has less to do with the recognised fact that women, like other disadvantaged social groups, suffer in larger measure from the effects of corruption and more with the question of possible gender-specific causes of corruption. This paper addresses the general question of what possible intervention points are available for gender-sensitive measures in combating and preventing corruption. First, we shall examine the settings where a connection between corruption and gender is apparent:

- Would the injection of women into the public sector work as a potential anti-corruption remedy?
- What are the effects of social and economical condition on the corruption level in a country?

In this paper, we make an attempt at answering to these questions by examining the relationship between female participation in government legislatures and in labour force and the level of perceived corruption in a sample of 25 developing countries in 2000-2008 periods. We find a strong, negative and statistically significant relationship between the proportion of women in a country's legislature and labour force and the level of corruption, as measured by the Control of Corruption Index (CCI) corruption index.

The paper will proceed as follows: Section I introduces the topic of this paper and explains the question that we should answer in this paper, Section II speaks about the literature on gender and corruption, Section III will briefly outline the data that were collected for this project; in Section IV, we present our model and basic econometric results and their interpretation; finally, Section V contains a discussion of the results and our conclusions, at least the Section VI explains the recourses are used in this paper.

Literature on Corruption and Gender: In this section well known papers dealing with the relation between women and corruption are reviewed.

Dollar et al. [4] is one of the first paper that investigate empirically the relationship between women’s government participation in legislatures and the level of perceived corruption, using the sample of between 144 and 270 observation (countries) in period of 1982-1995 years. They find a strong negative and statistically significant relationship between the level of female participation in politics that measured by the percentage of seats occupied by women in the lower and upper chambers and the International Country Risk Guide Index (ICRG) is used as a corruption index. In the specification they control for the level of social and economic
development and find that a higher presence of women parliamentarian had a statistically significant negative impact of corruption and their conclusion is that encouraging women to have a higher political participation may be beneficial to the whole society.

Swamy et al. [5] use several data sets to investigate the relationship between gender and corruption. They present macro-evidence working with the Transparency International Corruption Perception Index. Different proxies for possible gender differences, such as the share of female members in national parliaments, share of female ministers and high-ranking government officials and gainful employment of women in the private sector. Controlling variables also for social, economic and political development are in particular the degree of civil and political freedoms as measured by the Freedom House index, to rule out distortions through extremes. They find that a higher share of women’s participation leads to decrease in corruption. Robustness tests working with the Graft Index and the International Country Risk Gide (ICRG) also indicate that there are gender differences. The authors also present micro- evidence using data from the World Bank study of corruption in Georgia (survey of 350 firms). The finding also indicates the gender difference regarding the involvement in bribery. Finally, in line with our paper the authors investigate the World Values Survey. As control variables they considered the marital status, religiosity, education and age.

Anne Marie Goetz [9]. Explained that there are more women in politics and the workforce in liberal democracies that are anyway less corrupt than poorer, less liberal regimes do not detract from the eagerness with which some development actors are seizing upon the potential role women might play in fighting corruption. The myth of women’s incorruptibility is not, of course, new. It is grounded in essentialist notions of women’s higher moral nature and an assumed propensity to bring this to bear on public life and particularly on the conduct of politics. In addition, corruption can be experienced differently by women and men, which has implications for anti-corruption strategies. A gendered analysis of corruption is in fact a useful entry-point to the examination of the gendered nature of accountability failures and of gender-specific gaps in current attempts to promote good governance.

Cheung and Hernandez-Julian [11] Conclude that International comparisons have shown that, In a cross-sectional analysis of the U.S. states finds a similar result that’s the countries with higher rates of female participation in government also have lower levels of corruption . This result may be due to omitted variable bias. Although having women in government might be beneficial in many ways, they suspect that the connection between women and corruption might not be as strong as suggested by the other papers cited above. These studies share a weakness: they compare a cross-section of countries at one point in time. They believe this could bias the estimated effect of women upwards due to omitted variables. Countries that have better constitutions, better human rights, or better rule-of-law may have less corruption and more women in government. These negative associations may be due to a high correlation of female acceptance with a higher aptitude for an honest democracy. When examining a cross-section of the data, the effect of these unobservable may be attributed to women. If the data followed the various countries over time, one could estimate a clearer measure of the effect of adding women to government. By collecting data on how women in government change in the same place, they can more clearly see their effect on corruption. As a result, panel data can provide a superior estimate of the effect adding women to the government of a country.

They use a panel can be constructed using the U.S. states, instead of different countries. We use state-level data from 1984-2000 to estimate the effects of such characteristics.

They argue that including descriptive variables for variation between the states, as well as state fixed effects, captures the effect of the unobservable relationship between a state’s corruption and the representation of women. This relationship controls for characteristics such as different constitutions or different heritage. They find that, without controlling for such state fixed effects, increasing women in legislatures seems to decrease corruption. This finding is consistent with the existing international literature. However, adding state fixed effects eliminates the significant effect of women on corruption.

Elin Bjarnegard [12]. Reverses the causal direction and looks more closely at the possibility that a high degree of corrupt practices within political parties, such as clientelism and vote buying, impede the possibility of women becoming politicians. The paper argues that a gender perspective on any given political phenomenon does not only imply studying women and the factors that enable women to gain political power, but that the reasons behind the persistent male dominance in the political sphere must also be scrutinized.
The hypotheses drawn from the theoretical overview can be summarized as follows:

**H1**: Corruption levels influence who gets selected as a candidate and thus the more absence of corrupt practices, the less male dominance in parliament.

**H2**: Corruption causes more discriminatory representation patterns and male dominance in parliament in a semi-democracy than it does in a democracy.

These hypothesis gain empirical support from advanced regression analyses on a large quantitative material covering elections 453 elections taking place in 117 different countries during the period of 1985 to 2005 time period.

The proportion of men in parliament is calculated from the Inter-Parliamentary Union’s data on election results and number of women and men among the representatives. A case study of Thai election campaigns and nomination procedures further supports the argument by demonstrating the mechanisms at play in the reversed causal direction. It builds on extensive field work and shows how politics in Thailand remains an exclusive arena because clientelist structures guide the selection process within the politicial parties. Being selected a political candidate in Thailand presupposes the maintenance of a clientelist network. Clientelist networks are characterized by links to traditional leaders, high levels of trust between its members and informal recruitment procedures and are, as a consequence, almost exclusively male.

Michilova and Melnykovska [13], Analyzes the correlation between gender and corruption for a specific sample of 28 countries, sharing common cultural and historical legacy – transition countries. Transition countries are also a good example to analyse the evolution of corruption. In the Soviet times, these countries experienced a uniform level of corruption, but diverge on this governance institution in the course of transition. In addition, transition countries are interesting from the point of the gender research. They are characterized by the high number of educated women, high number of female participation in the work-force, however distrust in mental abilities of women, not only by men but by women themselves, alongside low self-respect of women, wrong perception of feminism and ideas of this movement, apathy in political life and low representation of women in parliament. These countries are very much under the influence of the traditional view on the female and male roles, which due to economic reality is not fully realized in (social) life.

Relationship between higher numbers of women in parliament and decreasing level of corruption is supported by data. Relations with other forms of women social activity (women’s share of legislators and managers, percentage of women in the adult labour force and gender empowerment index, measuring equality of opportunities for women and men) were found to be insignificant. Contribution of their paper to the research literature on this topic is twofold. First analysis on gender and corruption in transition economies has previously not been done. Second, this study could also be used for the practical policies on fighting corruption by application of gender quotas.

Shukralla and Allan [14], they look at the impact of foreign aid and political gender equality (measured as the percentage of women in parliament) on corruption. In doing so, they combine two important topics in the corruption literature. The first one relates foreign aid to corruption and the other looks at the impact of gender on corruption. They find that neither aid nor the percentage of women in parliament affects perceived corruption in a significant way. Moreover, the impact of aid on corruption does not seem to be affected by the share of women in parliament. On the other hand, a long-established democracy is consistently found to be significant in affecting corruption. Their results are robust to various specifications, alternative measures of corruption and use of panel data estimation techniques for Political Risk Service Data that was collected as ten years average (for most variables) for 76 countries. They focus on the 2000s, a decade that entirely falls in the post anti-corruption era [14].

**Data and Variables**: Our data for this paper are drawn from a wide range of sources. A more detailed description of the variables and their sources come here:

**Dependent**

**Corruption**: The most popular and simplest definition of corruption is that it is the abuse of public power for private benefit. This is the definition used by the World Bank [1]. Corruption is an act in which the power of public office is used for personal gain in a manner that contravenes the rules of the game [15] and the corruption has been one of the foremost challenges faced by less developed countries. Low administrative efficiency, poor governance structure, political instability and underdevelopment of the economy: all have corruption as one of their causes. Corruption is also an international issue. International organizations have recognized that corruption explains the failure of foreign direct investment and foreign aid programs [16].
From this definition, it is clear that at least three conditions are necessary for corruption to arise and persist:

- **Discretionary power:** the relevant public official must possess the authority to design or administer regulations and policies in discretionary manner.
- **Economic rents:** the discretionary power must allow extraction of (existing) rents or creation of rents that can be extracted.
- **Weak institutions:** the incentives embodied in political, administrative and legal institutions must be such that officials are left with an incentive to exploit their discretionary power to extract or create rents [17].

Acts of corruption can be classified in different categories. Corruption can be:

- **Bureaucratic (or “petty”) or political (or “grand”);** for example, corruption by the bureaucracy or by the political leadership;
- **Cost-reducing (to the briber) or benefit enhancing;**
- **Briber-initiated or bribe-initiated;**
- **Coercive or collusive;**
- **Centralized or decentralized;**
- **Predictable or arbitrary;** and
- **involving cash payments or not [1].**

We use Control of Corruption Index (CCI) in this study, that is published by World Bank and it’s one of the Good Governance indicators. This index is most commonly used in the related economics literature. This variable is meant to capture the likelihood that government officials will demand special payments and the extent to which illegal payments are expected throughout low levels of government. In addition this variable has the advantage of having the broadest coverage of countries [18]. The World Bank defines CCI: the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests [19]. The control of corruption index is an aggregation of various indicators that measure the extent to which public power is exercised for private gain. Index is ranged from -2.5 (for very poor performance) to +2.5 (for excellent performance). This index ranges the countries from 0 (for very poor performance) to 100 (for excellent performance) (World Bank). We use World Resource Institute data for 2000-2008 years.

**Independent Gender:** Gender, as defined by the World Bank, is a set of socially constructed roles based on cultural interpretations of biological differences in men and women. From this, presuppositions about appropriate male and female behaviour and activities and the rights, resources and power they possess are derived [8]. The term GENDER denotes the roles of women and men as defined and constructed in a certain societal context. Unlike biological sex, which is congenital and unalterable, gender roles are learned by individuals, differ depending on the social context as well as individual attributes, such as economic status, age, religious affiliation etc. and change over time. These social behaviour patterns and roles designated as "male" or "female" in turn entail a different social status, different access to positions of power and resources and unequal social opportunities, which as a rule put women at a disadvantage [20] and now we should use the variables can represent this inequality. Hence we select (the squared of) Women Labour Force Participation and (the squared of) Percentage of Women in Parliament.

The share of women in parliament can affect corruption levels in at least two ways. First, legislative corruption is itself an important dimension of governmental corruption and if women tend to accept fewer bribes, the incidence of legislative corruption will be lower where women hold more seats. Second, members of parliament may influence the incidence of bureaucratic and judicial corruption through the passage of laws designed to deter bribery, through their influence on judicial or executive branch appointments (in some countries), or through placing corruption on the public agenda and encouraging the media and other elements of civil society to focus on the problem [5].

Although women’s share of elite positions can influence petty corruption, it is useful to have a supplementary measure of women’s representation in lower levels of the government bureaucracy as well as in the private sector [5].

Data on the share of lower-level government positions held by women are unavailable. Women’s share of the labour force overall is the closest available proxy. Women’s share of the labour force is likely to also capture, to some extent, any tendency for women in the private sector to offer bribes less frequently than men. Women Labour Force Participation’s data are extracted from ILO statistics for 2000-2008 and Percentage of Women in Parliament’s are extracted from United Nations Data for the same period of time.
GDP per Capita: economic costs of corruption to be enormous. Corruption leads to increased transactions costs and uncertainty in the economy. Corruption hinders investment (both domestic and foreign), reduces growth, restricts trade, distorts the size and composition of government expenditure, weakens the financial system and strengthens the underground economy, increases levels of poverty and income inequality [13]. Our tests of the relationship between the level of corruption and women’s participation control for many other potential determinants of corruption. We control for (the ln of) per GDP per capita for two reasons. First, the development of institutions to restrain corruption may be a costly activity undertaken more easily by richer countries. Second, in some cases where survey respondents have little concrete information on which to base their assessments, they may simply infer that corruption is a problem where they observe incomes to be low [5]. We expect both the level of corruption and political opportunities available to women to be affected by the overall level of social and economic development. Hence, we include Ln(GDP) and Ln(GDP) squared as controls. We use the World Bank statistics to obtain the data for this variable in 2000-2008 years.

Human Development Index (HDI): Many studies believe that a more educated population may be less tolerant of corruption. Therefore, we control for the average years of education completed by adults [4, 5] but we use another proxy to show the Human Capita more complete than years of education. We select the Human Development Index because this variable not only contain the years of education but also HDI is a widely used standardized measure of overall development within countries. HDI is used in this issue for first time in this paper.

The annual Human Development Report (HDR) published by the United Nations Development Program (UNDP) gives the values for Human Development Index (HDI) as a measure of achievement of the nations in terms of life expectancy, educational attainment and adjusted real income [21] and the number of this index is between 0 to 1 and the numbers near 1 monitor high human development in country. HDI is a weighted average of the per capita income, life expectancy and level of education within a country that determines the level of deprivation of a country with respect to all other countries [22]. HDI data is extracted from HDR annual report for 2000-2008 years.

Rule of Law Index: measures perceptions of the extent to which agents have confidence in and abide by the rules of society and in particular the quality of contract enforcement, property rights, the police and the courts, as well as the likelihood of crime and violence [13]. Rule of law is a tool that can help policy makers, businesses and civil society to identify trends, make arguments for action regarding important public policy issues and place their country’s performance relative to others at the centre of the policy discourse [23]. Rule of Law is between 0 to1 and near 1 show the better situation of law in country. Rule of Law Index is published by Political Risk Service (PRS) and we use the data between 2000 to2008 years.

Methodology: We study the case of 25 developing countries and use annual data for the 2000 - 2008 periods. This time period and frequency is largely dictated by the availability of data on Control of Corruption Index. Data on GDP per capita, Percentage of Women in National Parliament, Participation of Women in Labour Force, Human Development Index and Rule of Law Index.
Table 2: Average of Variables in Selected Developing Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage of Women in Parliament</th>
<th>Participation of Women in Labour Force</th>
<th>Human Development Index</th>
<th>Rule of Low Index</th>
<th>GDP per capita (current USS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algeria</td>
<td>5.41</td>
<td>27.07</td>
<td>0.64</td>
<td>0.43</td>
<td>2863.13</td>
</tr>
<tr>
<td>Argentina</td>
<td>32.39</td>
<td>39.52</td>
<td>0.75</td>
<td>0.46</td>
<td>5555.30</td>
</tr>
<tr>
<td>Brazil</td>
<td>7.82</td>
<td>49.91</td>
<td>0.67</td>
<td>0.34</td>
<td>4736.14</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>21.41</td>
<td>38.32</td>
<td>0.72</td>
<td>0.58</td>
<td>3513.23</td>
</tr>
<tr>
<td>Chile</td>
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<td>33.62</td>
<td>0.76</td>
<td>0.83</td>
<td>6701.90</td>
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<tr>
<td>China</td>
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<td>68.27</td>
<td>0.61</td>
<td>0.73</td>
<td>1750.62</td>
</tr>
<tr>
<td>Colombia</td>
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<td>50.21</td>
<td>0.65</td>
<td>0.20</td>
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<td>Egypt</td>
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<td>0.58</td>
<td>0.65</td>
<td>1367.48</td>
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<tr>
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<td>69.02</td>
<td>0.28</td>
<td>0.81</td>
<td>171.59</td>
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<td>Hungary</td>
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<td>37.93</td>
<td>0.79</td>
<td>0.67</td>
<td>9581.44</td>
</tr>
<tr>
<td>Indonesia</td>
<td>9.17</td>
<td>43.78</td>
<td>0.55</td>
<td>0.43</td>
<td>1322.65</td>
</tr>
<tr>
<td>Jordan</td>
<td>3.44</td>
<td>12.22</td>
<td>0.65</td>
<td>0.67</td>
<td>2423.31</td>
</tr>
<tr>
<td>Malaysia</td>
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<td>42.50</td>
<td>0.72</td>
<td>0.59</td>
<td>5346.89</td>
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<td>Mexico</td>
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<td>38.11</td>
<td>0.72</td>
<td>0.42</td>
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<td>0.89</td>
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<td>0.91</td>
<td>3073.14</td>
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<td>0.50</td>
<td>680.32</td>
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<td>Pananama</td>
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<td>45.37</td>
<td>0.61</td>
<td>0.37</td>
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<td>Poland</td>
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<td>0.70</td>
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<td>Romania</td>
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<td>45.69</td>
<td>0.73</td>
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<td>Senegal</td>
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<td>55.26</td>
<td>0.38</td>
<td>0.50</td>
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<tr>
<td>Turkey</td>
<td>4.86</td>
<td>23.28</td>
<td>0.65</td>
<td>0.72</td>
<td>5907.37</td>
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<tr>
<td>Ukraine</td>
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<td>46.18</td>
<td>0.69</td>
<td>0.67</td>
<td>1756.78</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>5.00</td>
<td>35.78</td>
<td>0.79</td>
<td>0.67</td>
<td>2863.13</td>
</tr>
</tbody>
</table>


Table 3: Models regression findings

<table>
<thead>
<tr>
<th>Variables</th>
<th>Equation 1</th>
<th>Equation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>t-Statistic</td>
</tr>
<tr>
<td>C</td>
<td>5.215294**</td>
<td>2.203179</td>
</tr>
<tr>
<td>(PWLF)²</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>(PWP)²</td>
<td>0.000333***</td>
<td>3.029720</td>
</tr>
<tr>
<td>Ln (GDP)</td>
<td>-1.148029**</td>
<td>-2.487127</td>
</tr>
<tr>
<td>(Ln (GDP))²</td>
<td>0.073119**</td>
<td>2.658281</td>
</tr>
<tr>
<td>Log (HDI)</td>
<td>5.259374***</td>
<td>2.200689</td>
</tr>
<tr>
<td>RL</td>
<td>0.339380**</td>
<td>2.192764</td>
</tr>
<tr>
<td>R²</td>
<td>0.973534</td>
<td>0.972799</td>
</tr>
<tr>
<td>Ftest</td>
<td>176.773815***</td>
<td>0.0000</td>
</tr>
<tr>
<td>Htest</td>
<td>9.971482*</td>
<td>0.0760</td>
</tr>
<tr>
<td>Htest (fixed effect)</td>
<td>Fixed Effect</td>
<td>Fixed Effect</td>
</tr>
<tr>
<td>F-Statistic</td>
<td>185.9122***</td>
<td>0.0000</td>
</tr>
<tr>
<td>DW</td>
<td>0.780618</td>
<td>0.762993</td>
</tr>
</tbody>
</table>

Source: Researcher calculations using Eviews 7.

* p<0.1, ** p<0.05, *** p<0.01 (one-tailed)
The basic model to be estimated on panel data for 25 developing countries and the sample period is 2000-2008: (1)

\[ corrup_{i,t} = \beta_0 + \beta_1(PWP_{i,t})^2 + \beta_2\ln(GDP_{i,t}) + \beta_3(Ln(GDP_{i,t}))^2 + \beta_4\log(HDI_{i,t}) + \beta_5RL_i + \epsilon_{i,t} \]

\( i \): The countries that are used their data
\( t \): The years that are used their data
\( corrup_{i,t} \): Control of Corruption Index
\( PWP_{i,t} \): Percentage of women in parliament
\( GDP_{i,t} \): Gross Domestic Product per capita
\( HDI_{i,t} \): Human Development Index
\( RL_i \): Rule of Law Index

This model is used for first time by Dollar in [4] and after him some other researchers use same equation of him with some little changes. We try to examine the effects of Human Development Index and Rule of Law for controlling the condition of societies, because these variables are neglected in many articles that are relate to this issue.

We use another proxy for women social participation in second equation, this variable is Proportion of Women in Labour Force. We try to compare these two equations. (2)

\[ corrup_{i,t} = \beta_0 + \beta_1(PWLF_{i,t})^2 + \beta_2\ln(GDP_{i,t}) + \beta_3(Ln(GDP_{i,t}))^2 + \beta_4\log(HDI_{i,t}) + \beta_5RL_i + \epsilon_{i,t} \]

\( PWLF_{i,t} \) is represented of proportion of female in labour force.

First we test heterogeneous between units by F-statistic. If null hypothesis is not accepted, we use panel data. Null hypothesis is [24]:

\[ H_0: \mu_1 = \mu_2 = \ldots = \mu_n = 0 \]
\[ H_1 \neq H_0 \]

\[ F = \frac{(PRESS - URSS)}{(N-1)} / \frac{(NT-N-K)}{N_0} = F_{(N-1),(NT-N-K)} \]

\( RRSS \): Restrict Residual sum Squares
\( URSS \): Unrestricted Residual sum Squares
\( N \): numbers of units
\( K \): numbers of Parameters

Then for choice between Fixed Effect (F.E) and Random Effect (R.E) models we used Hausman Test [24]:

\[ H = [(b_s - \hat{\beta}_s)^T (M_1 - M_0)^{-1} (b_s - \hat{\beta}_s)] = x^2 \]

\( r \): number of parameters.
\( M1 \): covariance matrix for coefficients of F.E model (b). 
\( M0 \): covariance matrix for coefficients of R.E model (\( \hat{\beta} \)).

In addition to the test of heterogeneous, we can’t accept the null hypothesis then we estimate equation in panel data model and In Hausman test null hypothesis show Fixed Effect. In according above test, as shows in table 3, we run both of the regressions with Fixed Effect test.

**Empirical Results:** Table 3 shows the results from the regression specification one and two, in both regressions the reported standard errors are corrected for heteroskedasticity. In according to the Husman test in both equation we accept to use the fixed effect at 10% level and R² in regression 1 and 2 (0.973 and 0.972 in respectively) shows that the variables can explain the model in high level.

We start by analyzing the coefficient on the (PWP)² (0.00033) in Table 3 in equation 1 results, which is positive and significant at the 5% level. We know that when the number of CCI increased, it means that the corruption become lower than before. Thus we conclude that increase of women in parliament has a positive effect for a country through its negative (non-linear) relationship to corruption levels.

In Table 3 in equation 2 results, coefficients on (PWLF)² are also positive (0.00013) and significant at 10%. This is in line with the previous research, thus it means that negative and non-linear relationship is existed between corruption and participation of women in the labour force.

GDP per capita is the representation of economic development and when it grows the countries become richer. In this paper the coefficients of Ln (GDP) in both models respectively are: -1.148, -1.300 and the coefficients of (Ln (GDP))² in respectively are: 0.0731, 0.0831. The sings of Ln (GDP)’s coefficients are against of our expectation and its means that when GDP per capita increases the corruption becomes grow in a country but the signs of (Ln (GDP))² are positive and it is in line with the previous studies thus we conclude that the relationship between corruption and Ln(GDP) is negative and non linear and it implies that the growth in GDP per capita can reduce the level of corruption but not one to one way. A positive association between the wealth of the countries and
corruption is found in both specifications of regression for this specific sample, however this relationship is of the inverted U-shape form i.e. after the countries in our sample would reach some specific level of wealth corruption would start decreasing. This is in line with previous research that found that high economic performance is in essence incompatible with poor public governance [25].

Human Development Index is a good proxy for education and this index is a representation of human capita, the coefficients on the LOG (HDI) in both equation (5.259, 5.800 in respectively) is positive and significant at 5% level, it means when HDI increase the level of corruption is reduced. The last variable is Rule of Law; we use this variable for controlling the society’s conditions in countries and the coefficients of this variable in respectively are: 0.339 (significant at 5% level), 0.277 (significant at 10% level). From this report we can conclude that when the law performance is better we can see more corruption’s restriction in a country.

**CONCLUSION**

The goal of this paper was to analyze the existence of the negative relationship between women social, economic and political activity, expressed as women’s share in parliament, the measure of women in labour force and corruption measure for some selected developing countries with a reasonable geographical dispersion during time period 2000-2007.

There exists a substantial literature in the social sciences which suggests that women may have higher standards of ethical behaviour and be more concerned with the common good and criminologists have developed many theories that are potentially relevant. Women may be brought up to be more honest or more risk averse than men, or even feel there is a greater probability of being caught [25].

This study has attempted to investigate the effect of participation of women in parliament and in labour force on the level of corruption and how they relate in a general context. The OLS regression technique in panel data model, for 25 developing countries, was used to model these effects on the corruption including two modelled equations. For these results we will accept that different shapes of women participation have a widening effect on financial corruption. This paper finds that the increasing in HDI and education and some other social factor like Rule of Law can lead to less corruption.

**REFERENCES**

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