

IS ECONOMIC DEVELOPMENT MORE THAN THE SUM OF INDIVIDUAL SUCCESSES? THE EFFECT OF FEMALE PARTICIPATION IN THE ECONOMY ON GDP

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ABSTRACT

Economic development is viewed as the solution to poverty and the pathway to prosperity for developing nations. The “aggregation” theory of development proposes that development is the sum of successes from multiple individuals and business enterprises. But this ignores the complex interactions between and among institutions, organisations and individuals in the society, which can have unpredictable effects. To test this traditional perspective we consider the contribution of women to the economy through participation in government, labor force and self employment. We find that as expected the proportion of women in parliamentary contributes to GDP and female unemployment reduces GDP. Contrary to expectations we also found that high participation in self employment and the labor force by women are negatively associated with GDP. This does not support the aggregation theory and may support Complexity Development Theory. Future research is needed to determine necessity entrepreneurship and necessity employment reduce rather than contribute to economic development.

INTRODUCTION

Economic development is viewed as the solution to poverty and the pathway to prosperity for developing nations. But cultures in some countries have prescribed roles for men and women, which do not

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promote equality in economic systems. These gender role differences, may lead to females being under-represented in government labor force, and self employment.

The 'aggregation' theory of development is the view that development is the sum total of individual and organisational performance. But if the economy is a Complex Adaptive System as proposed by Bader (2012) and Hasegawa and Noronha (2014) development is an emergent property of the whole economic system and inputs may not have direct effects on outputs of the system.

To test these two theories we ask what effect does the participation of women in the employment, business and government have on a country's economy?

We investigate this question by studying the relationship between female (compared to male) participation in education, employment, entrepreneurship, government and economic in the 214 economies in the World Bank's Global Economic Monitor.

LITERATURE REVIEW

In this literature review we discuss economic development, poverty and prosperity and the role of under-representation of women in government, labor force, and self employment.

Aggregation of Economic Activity versus Complexity Development Theory

In 2001 45% (2.7 billion) of the world's population of approximately 6.1 billion lived in 'moderate poverty' on less than US \$ 2 per person per day (World Population Summary, 2012).

In the last 60 years there have been many theories attempting to explain development, why some countries have the fastest growth in history, while others stagnate and so far no way has been found to explain the differences (Barder, 2012). There are numerous resource

based view theories of development based upon capital (Harrod & Domar reported by Barder, 2012), savings (Rostow reported by Barder, 2012), aid (Rostow reported by Barder, 2012), or technology (Solow reported by Barder, 2012). There is also an institutional view explaining development through policies (The Washington Consensus reported by Barder, 2012).

Neither Resource-Based View nor institutional theories provide clear answers to the question why some economies develop and others don't. Microfinance, which has been hailed as a saviour in the development field (Alvarez, 2012), can be seen as a resource-based view of development based upon capital. But microfinance is coming under scrutiny and results from the microfinance industry indicate that microfinance alone does not solve the problems of poverty (Dalglish & Tonelli, 2011).

These views imply that development is the aggregation of successes from multiple individuals and business enterprises, but this ignores the interactions between and among institutions, organisations and individuals in the society, which can often have unpredictable effects.

A number of authors have proposed that complexity theory can be useful to development efforts (Moss, 1998; Roe, 1999; Michael, 2004; Smith, 2007; Mowles, Stacey & Griffin, 2008; Loorbach, 2010; Barder, 2012).

Development is part of a much larger system than just the economy. Development involves the whole of society, including non-economic factors such as population, education, culture and institutions (Hasegawa & Noronha, 2014). Hasegawa and Noronha propose that a business system is made up of three layers. The foundational level creates meaning through culture, values, shared norms and socially constructed meaning, which provide rationale for behaviour, shared identity and a basis for authority (2014). The institutional layer of a business system creates order through institutions, such as government, which are the humanly devised constraints that shape

social interactions and provide a hospitable environment for cooperative solutions to complex exchange. The institutional layer uses material and external ideational logics to provide order to capital, human capital and social capital. Finally there is the organisational level, which creates structures and systems for coordinating economic behaviour and exchanges. This level creates patterns of firms and managing. Haswagawa and Noronha describes these three layers as a complex Business System.

Haswagawa and Noronha (2014) follow Barder (2012) in proposing that the economy is a Complex Adaptive System and that development is an emergent property of the whole system, not just an aggregations of some parts of the system.

Interdependencies among 'actors' in the system make it very difficult, if not impossible, to use cause and effect relationships to predict how inputs to the system will affect the outputs of the system. Complexity Development Theory proposes that viewing society as a CAS and development as an emergent property of the system aids in understanding the dynamics of the economy. They further propose that Complexity Theory can help governments and aid organisations create better development programs at the organisational, institutional and national levels.

Barder (2012) proposes seven policy implications from viewing development as an emergent property of a CAS, one of which is to challenge concentrations of wealth and power, which attempt to maintain their positions of strength.

The marginalization of women can be seen as a concentration of wealth and power in the male population, which can have unpredictable effects on the complex national Business Systems we call the national economy.

In the following section we describe how unequal power and wealth between males and females in developing economies can result in differences in gender participation in the national economy.

Gender inequality in developing nations

It appears that women have gained greater gender equality in developed nations than developing nations. The year 2015 marks one century since European women gained the right to be elected to parliament.

In 1990 Tinker published a collected volume on the unifying persistence of inequalities between men and women in the face of development. The goal was the identification of approaches that will improve women's condition. While there may be improvement, the problem has not been resolved.

In the same year Ward wrote about how global restructuring would change women's work (1990). Ward reported on a Global Restructuring, which was like a global assembly line controlled by developed countries with the assembly line work delegated to less privileged nations and increasing use of female industrial workers in the informal sector. Pay and conditions in informal work are unregulated by labour legislation providing a way to avoid labour legislation and keep costs down. Thus participation in employment did not remove the exploitation of women in developing economies.

Elson writes on the male bias in the development process (1995). Elson points out that bias towards men does not indicate deliberate ill-intent towards women, but reflects the gendered nature of economic structures and processes. Hence even apparently gender-neutral "liberalisation" policies can perpetuate or intensify male bias. Elson proposes that " The best chance to reduce male bias lies in a shift to human-centred forms of development in which there is not only a transformation of the reproductive economy but also a transformation of the productive economy to recognise the

community of a family responsibilities of both men and women” (1995, viii).

The United Nations (UN) World Survey’s Report on the Role of Women in Development (2014) asserts the central role of gender equality in achieving sustainable development. The report uses three criteria to assess the likelihood of policy actions achieving gender equality. Do they support women’s capabilities and their enjoyment of rights? Do they reduce, rather than increase, women’s unpaid care work? And do they embrace women’s equal and meaningful participation as actors, leaders and decision-makers? They find that gender equality has not yet been achieved.

Effect of marginalisation on Economic Development

While the focus of the UN report (2014) is on the relationship between gender equality and sustainable development we posit that gender inequality and marginalization will decrease economic performance.

The Beijing Declaration and Platform for Action 2, adopted in 1995, set a landmark global agenda for women’s human rights, gender equality and the empowerment of women.

Benavot’s long term cross-national study (1989) found a link between educational expansion at primary school age had a stronger effect on long term economic prosperity than for boys. This effect was not mediated by women’s rates of participation in the paid employment or fertility rates.

Hence we propose that reduction of the role of women in the economy will have a negative effect on the economy.

H₁: There is a positive relationship between participation of women in the economy and the gross domestic product of a country, such that higher participation will be reflected by higher GDP and lower participation will be reflected by lower GDP.

METHODOLOGY

Data

Since the research is focusing on the participation of women in the economy and the gross domestic product of the countries around the world, the data was collected from the Global Economic Monitor (<http://data.worldbank.org/data-catalog/global-economic-monitor>) as secondary data. In the research, the complete variable data set for all countries and regions was analysed rather than selecting any sample for the efficient result. So, the whole world is the sample for the research. The variable data were collected from 214 countries (See Appendix 1), the population of countries in the world. The time frame of variable data is 15 years (from 2000 to 2014). This time frame includes good and not so good (e.g. the Global Financial Crisis in 2008) times in the world economy.

Analysis

All the data was downloaded in MS Excel format from the source. For the analysis purpose, the entire data set was converted into SPSS. All variables are averaged for the years 2000 to 2014. The descriptive statistics are analysed as Mean, Minimum value, Maximum value and Standard Deviation for each variable. The correlation matrix among the all variables was created and finally an OLS regression analysis is performed.

Measures

This section describes the measures and the descriptive statistics are used to illustrate each variable.

Table 1 shows the mean for all variables by region. Table 2 shows the mean, minimum, maximum and standard deviation for the dependent variable, GDP per person, by region.

The dependent variable, **Gross domestic product (GDP) per capita**, is measured in current US dollars. From both tables it can be seen that

countries in Europe, North America and OEDC countries have the highest GDP per person in current US Dollars. Table 3 shows the descriptive statistics for all variables for all 214 countries. The mean GDP for all nations is \$13,264, ranging from a minimum of \$182 (Burundi) to a maximum of \$131,192 (Monaco), with a standard deviation of 20,138.

The independent variables, which represent women's participation in the economy are also described and illustrated.

The **proportion of seats held by women in national parliaments** is shown as a percentage. Below 50% represents under participation, above 50% is over participation. In Table 2 the proportion ranges from 0 (Bermuda, Fed. Sts. Of Micronesia, Palau and Qatar) to 49% (Rwanda), with the average of 16% and a standard deviation of 10.

Women in the labor force is represented by women as a percentage of total labor force. The mean is 41% with a standard deviation of 9. The minimum is 14% (United Arab Emirates, Qatar, Saudi Arabia and Afghanistan) and the maximum is 54% (Mozambique).

Women's participation in self employment is measured by the percentage of females who are self-employed as a percentage of all self-employed. The mean is 36% with a standard deviation of 16. The minimum is 0.25% (Qatar) and the maximum is 97% (Mozambique).

Women's long-term unemployment is a reversed measure of participation in the economy. It is measured as the percentage of females long term unemployed a percentage of all long term-unemployed. The mean is 37% with a standard deviation of 21. The minimum is 1% (Rep Korea) and the maximum is 82% (FYR Macedonia).

Table 1. Mean Variables by Region (% Female)

	GDP	% Parliament	% Labor Force	% Self Employing	% Long Unemploy
Arab World	\$4,950	9.8	21.6	.	.
Caribbean small states	\$7,539	16.5	42.2	24.8	.
Central Europe and the Baltics	\$9,963	17.1	45.5	20.3	47.0
East Asia & Pacific (all income levels)	\$6,143	17.5	43.6	.	.
East Asia & Pacific (developing only)	\$2,950	17.9	43.7	.	.
Euro area	\$33,341	23.9	44.2	12.1	43.2
Europe & Central Asia (all income levels)	\$20,427	20.6	44.8	15.8	39.3
Europe & Central Asia (developing only)	\$4,545	13.5	42.1	33.4	.
European Union	\$30,004	23.1	44.7	13.2	39.8
Fragile and conflict affected situations	\$1,076	13.2	40.4	.	.
Heavily indebted poor countries (HIPC)	\$589	17.4	45.2	.	.
Latin America & Caribbean (all income levels)	\$6,862	20.8	40.5	35.2	.
Latin America & Caribbean (developing only)	\$6,280	20.9	40.7	36.7	.
Least developed countries: UN classification	\$585	16.9	44.5	.	.
Middle East & North Africa (all income levels)	\$5,730	8.8	20.6	.	.
Middle East & North Africa (developing only)	\$3,064	9.1	20.7	52.1	.
North America	\$45,071	18.8	46.2	6.4	13.5
OECD members	\$32,250	22.1	43.2	14.1	23.9
Other small states	\$3,433	13.8	43.3	.	.
Pacific island small states	\$2,676	3.6	36.7	.	.
Small states	\$4,428	12.7	42.6	.	.
South Asia	\$943	14.9	28.1	86.8	42.1
Sub-Saharan Africa (all income levels)	\$1,132	17.2	45.7	.	.
Sub-Saharan Africa (developing only)	\$1,121	17.2	45.7	.	.
World	\$8,193	17.8	39.9	.	.

Table 2. Regions Gross Domestic Product Per Person in US Dollars.

Region	Mean	Min.	Max.	S.D.
Arab World	4,950	2,503	7,690	1,986
Caribbean small states	7,539	5,020	9,789	1,767
Central Europe and the Baltics	9,963	3,973	14,394	3,852
East Asia & Pacific (all income levels)	6,143	3,664	9,463	2,178
East Asia & Pacific (developing only)	2,950	955	6,222	1,865
Euro area	33,341	20,208	42,182	7,569
Europe & Central Asia (all income levels)	20,427	11,508	26,152	5,396
Europe & Central Asia (developing only)	4,545	1,554	7,148	2,076
European Union	30,004	18,063	37,881	6,915
Heavily indebted poor countries (HIPC)	589	302	915	223
Latin America & Caribbean (all income levels)	6,862	3,670	10,172	2,581
Latin America & Caribbean (developing only)	6,280	3,543	9,423	2,330
Least developed countries: UN classification	585	285	944	240
Middle East & North Africa (all income levels)	5,730	2,927	8,845	2,292
Middle East & North Africa (developing only)	3,064	1,534	4,873	1,268
North America	45,071	35,233	54,199	6,284
OECD members	32,250	23,061	38,400	5,700
Other small states	3,433	1,710	4,935	1,206
Pacific island small states	2,676	1,697	3,575	647
Small states	4,428	2,594	5,847	1,270
South Asia	943	455	1,541	393
Sub-Saharan Africa (all income levels)	1,132	493	1,796	482
Sub-Saharan Africa (developing only)	1,121	491	1,781	477
World	8,193	5,353	10,804	2,025

Table 3. Descriptive statistics for 214 countries

	N	Mean	Min.	Max.	S.D.
GDP per capita (current US\$)	204	\$13,264	\$182	\$131,192	\$20,138
Proportion of seats held by women in national parliaments (% Female)	191	16	0	49	10
Labor force, female (% Female of total labor force)	185	41	14	54	9
Self-employed, female (% females)	154	36	0	97	30
Long-term unemployment, female (% female)	68	37	1	82	21

RESULTS

Hypothesis 1 proposes a positive relationship between participation of women in the economy and the gross domestic product of a country, such that higher participation will be reflected by higher GDP and lower participation will be reflected by lower GDP.

Table 4 shows the correlation among variables. The independent variables correlated to GDP include:

- Proportion of seats held by women in national parliaments (%)
- Self-employed, female (%)
- Long-term unemployment, female (%)

The independent variables not correlated to GDP include:

- Labor force, female (% of total labor force)

To test this hypothesis we conducted a linear regression on GDP of our independent variables. We found that Women in national parliament has a barely significant positive effect (Table 4, Model 1, $\beta=.201$, $p<.10$). Women in long term unemployment, which reflects lower

participation was highly significant (Table 4, Model 1, $\beta=.279$, $p<.001$). Contrary to our prediction, women in the labour force had a highly significant negative effect on GDP (Table 4, Model 1, $\beta=-.215$, $p<.001$). Also contrary to our prediction, women who are self employed had a significant negative effect (Table 4, Model 1, $\beta=-.534$, $p<.001$). Thus providing missed results.

Table 4. Correlation of variables

		1	2	3	4
1	GDP per capita (current US\$)				
2	Proportion of seats held by women in national parliaments (%)	.284**			
3	Labor force, female (% of total labor force)	.04	.310**		
4	Self-employed, female (%)	-.605**	-.194*	.14	
5	Long-term unemployment, female (%)	-.426**	-.258*	.042	.247*

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

*** Correlation is significant at the 0.001 level (2-tailed).

Table 5. Regression Analysis. Dependent Variable: GDP per capita
(current USD)

	Model 1
Constant	n.s.
Independent variables	
Women in national parliament	.201+
Women in Long-term unemployment	-.279**
Women in Labor force	-.215+
Women self-employed	-.534***
R²	.487
ΔR²	
F	13.985***

*** P<0.001, ** p<0.01, * p< 0.05,

DISCUSSION

Lack of development creates conditions of poverty for significant portions of the world's population and contributes to conflict and environmental damage. Traditional views of development imply that development is the aggregation of successes from multiple individual business enterprises, i.e. the sum total of success equates to national development. But this ignores the interactions between and among institutions, organisations and individuals in the society, which can often have unpredictable effects. To test this traditional perspective we consider the contribution of women to the economy through participation in government, employment (or lack of employment), and self employment. Our basic hypothesis is that greater participation of women in the economy will results in higher GDP per capita. What we find is that the proportion of women in

parliamentary contributes to GDP and female unemployment reduces GDP as expected.

We did not expect to find that high self employment by women is negatively associated with GDP. This could be explained by the theory of opportunity versus necessity driven entrepreneurship. "Opportunity entrepreneurship represents the voluntary nature of participation and necessity reflecting the individual's perception that such actions presented the best option available for employment but not necessarily the preferred option." (Acs and Varga, 329). In a study of 11 countries Acs and Varga found that opportunity entrepreneurship has a significant positive effect on economic development, but necessity entrepreneurship has no effect. They explain that opportunity entrepreneurship is more likely to involve technological innovation and greater firm growth. Thus, if women's entrepreneurship in developing nations is necessity based, it would be less likely to increase their GDP. More research is needed to investigate the relationship between opportunity and necessity entrepreneurship in developing economies.

We also did not expect to find that women in the labor force had a significant negative influence on GDP. It could be that there is a form of opportunity versus necessity employment, similar to the case for entrepreneurship. Women forced to work out of necessity could be less productive than women choosing to work to take advantage of the employment as an opportunity. This also requires future research.

The theoretical implications of this study are the potential relationships between opportunity and necessity entrepreneurship and employment. This work also supports the Complexity Development theory, which posits that the economy is a complex adaptive system and linear relationships do not always hold up due to unrecognized relationships and/or externalities. More research is needed to test this proposition.

This research makes a contribution to theory showing that women's participation in government at the highest levels (parliament) has a positive influence on the economic well being of the country.

This study is limited by the inability to control for all possible influences on GDP. Future research is needed to investigate relevant controls, moderating and mediating effects. Another consideration is the influence of culture on women's options and behaviour. Future research will benefit from measuring the independent variables before the dependent variables. Future research is also needed to determine if this phenomenon represents female necessity entrepreneurship and necessity employment.

CONCLUSION

Economic development is viewed as the solution to poverty and the pathway to prosperity for developing nations. Traditional views of development imply that development is the aggregation of successes from multiple individual business enterprises, i.e. the sum total of success equates to national development. But this ignores the interactions between and among institutions, organisations and individuals in the society, which can often have unpredictable effects. To test this traditional perspective we consider the contribution of women to the economy through government, employment (or lack of employment), business and self employment. We find that the proportion of women in parliamentary contributes to GDP and female unemployment reduces GDP as expected. Contrary to expectations we also found that high self employment and high employment by women are negatively associated with GDP. Could it be that the road from poverty to prosperity passes through equality on the way to economic development?

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