

Oil Rents, Education, and Women Participation in Labor Market and Politics

(Case Study of Iran)

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Abstract

This paper examines the use of autoregressive distributed lag (ARDL) model for the analysis of long-run relations among female labor force (FLFP) and female political participation (FPP) on one hand as dependent variables and oil and gas rents, GDP and education on the other hand as independent variables in Iran during the time span of 1990:Q1 to 2013:Q4.

The results prove the long-run relationship among each independent variable and control variables.

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Introduction



Discovering oil → Dutch Disease

Transformation of economy away from traded sector → towards the non-traded sector

I. Influx of foreign currency → exchange rate raise → cheaper local tradable goods ***import*** buying less from domestic producers

II. Non-tradable goods' demand increase → drawing labor away from the tradable sector to non-tradable

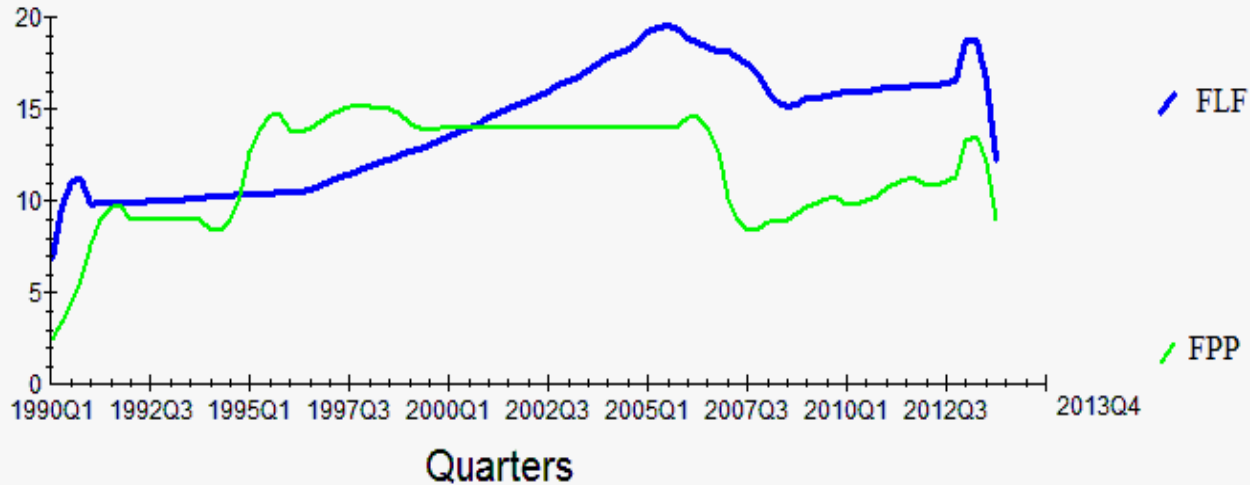


How does this affect women?

2 key factors:

- ✓ Prevailing female wage
- ✓ Female unearned income

Female Labor Force and Political Participation Trends



02

Data and Methodology



Variables

- ✓ *Female Labor force Participation*
- ✓ *Female political Participation*
- ✓ *Oil Rents Per Capita*
- ✓ *Income*
- ✓ *Education*

ARDL Specification of Equations

Dynamic equation specification:

$$FLFP_t = \alpha_0 + \alpha_1 FLFP_{t-1} + \alpha_2 FLFP_{t-2} + \beta_0 GDP_t + \beta_1 GDP_{t-1} + \beta_2 GDP_{t-2} + \gamma_0 OGR_t + \delta_0 EDU_t + \varepsilon_t$$

$$FPINF_t = \alpha_0 + \alpha_1 FPINF_{t-1} + \alpha_2 FPINF_{t-2} + \beta_0 GDP_t + \beta_1 GDP_{t-1} + \beta_2 GDP_{t-2} + \beta_3 GDP_{t-3} + \beta_4 GDP_{t-4} + \beta_5 GDP_{t-5} + \beta_6 GDP_{t-6} + \beta_7 GDP_{t-7} + \beta_8 GDP_{t-8} + \beta_9 GDP_{t-9} + \gamma_0 OGR_t + \gamma_1 OGR_{t-1} + \delta_0 EDU_t + \delta_1 EDU_{t-1} + \delta_2 EDU_{t-2} + \varepsilon_t$$

ARDL Specification of Equation

Long-run co-integrating relation:

$$FLFP_t^* = \frac{\alpha_0}{1 - \alpha_1 - \alpha_2} + \frac{\beta_0 + \beta_1}{1 - \alpha_1 - \alpha_2} GDP_t^* + \frac{\delta_0 + \delta_1}{1 - \alpha_1 - \alpha_2} EDU_t^* + \frac{\gamma_0 + \gamma_1}{1 - \alpha_1 - \alpha_2} GDP_t^*$$

Error-correction:

$$\Delta FLFP_t = \beta_0 \Delta OGR_t + \delta_0 EDU_t + \gamma_0 \Delta GDP_t - \alpha_2 \Delta FLFP_{t-1} - (1 - \alpha_1 - \alpha_2) ECM_{t-1} + \varepsilon_t$$

Results of ADF test for Non-stationarity

Variable	Level		First Difference		Result
	With Constant	With Constant & Trend	With Constant	With Constant & Trend	
Female Labor Force Participation	-1.311 (0.621)	-0.104 (0.996)	-1.755 (0.399)	-5.679 (0.000)	I (1)
Female Political Participation	-1.732 (0.411)	-1.928 (0.631)	-3.430 (0.012)	-3.663 (0.029)	I (1)
Oil & Gas Rent	-3.149 (0.026)	-3.476 (0.047)	-8.644 (0.000)	-8.61 (0.000)	I (0)
GDP	1.605 (0.999)	-1.050 (0.937)	-5.404 (0.000)	-5.443 (0.000)	I (1)
Education	-2.301 (0.173)	-0.480 (0.982)	-1.134 (0.699)	-4.833 (0.000)	I (1)

Model I

Dynamic ARDL Regression

Variable	Coefficient	Standard Error	T statistic
Model			
LFLFP(-1)	1.6642	.084096	19.7888[.000]
LFLFP(-2)	-.69573	.084385	-8.2447[.000]
LGDP	.11595	.0048558	23.8792[.000]
LGDP(-1)	-.18750	.011889	-15.7712[.000]
LGDP(-2)	.085289	.011973	7.1233[.000]
LOGR	-.0013884	.0011849	-1.1718[.245]
LEDU	.013475	.0057776	2.3323[.022]
Constant	-.25994	.069976	-3.7148[.000]
R ²	.99853		
R ⁻²	.99837		
F- stat	6341.6 [.000]		
DW	1.62		

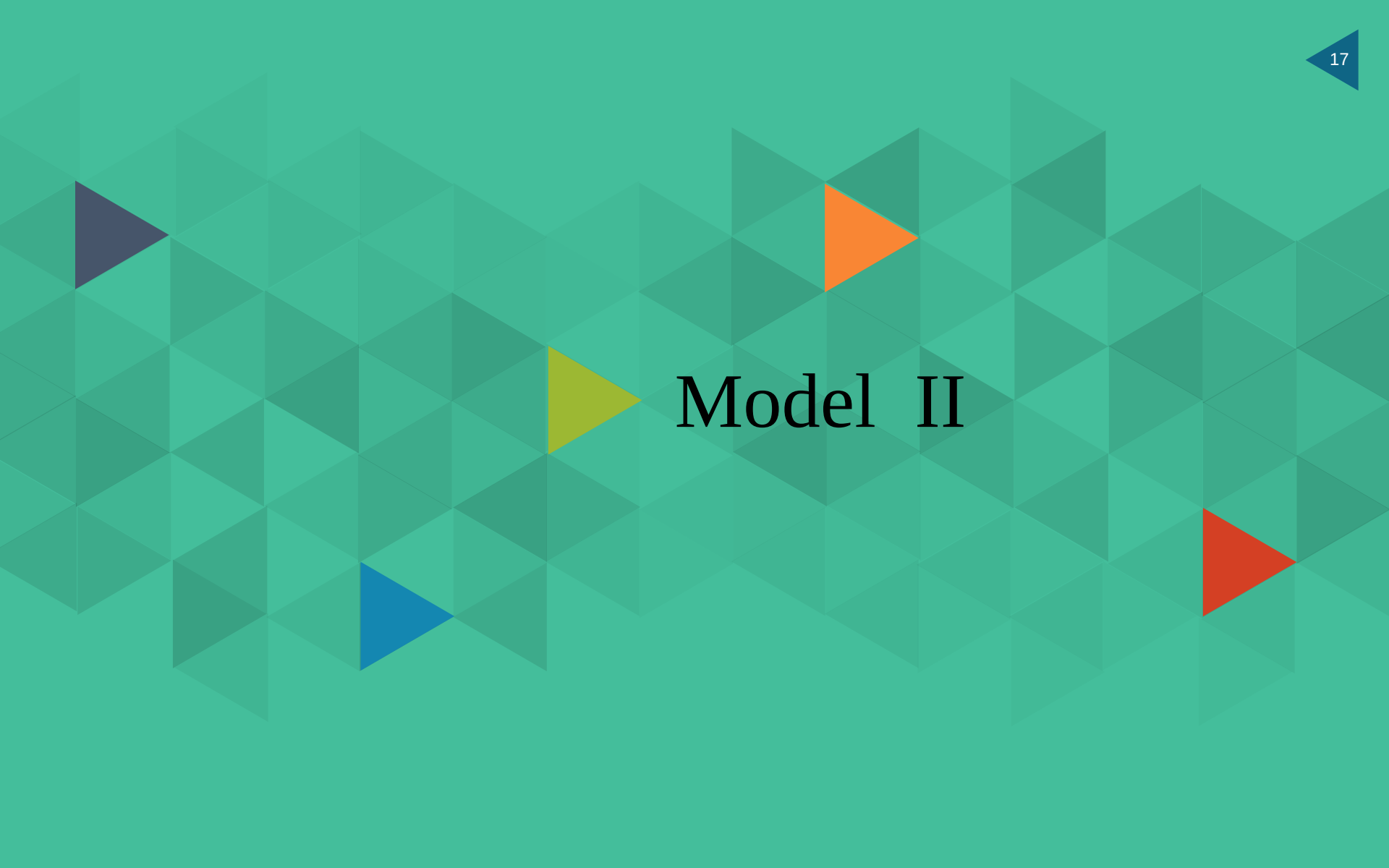
ARDL Bonds Test for Co-integration

Variable	F_Statistics	Co-integration
F (FLFP,GDP,OGR,EDU)	7.3653	Co-integrated
Critical Value	Lower Bound	Upper Bound
1%	4.385	5.615
5%	3.219	4.378
10%	2.711	3.8



Long Run Coefficients

Variable	Coefficients	P-Value
C	-8.2322	-3.6165[.001]
GDP	.43504	2.4869[.015]
OGR	-.043971	-1.0747[.286]
EDU	.42675	2.5479[.013]



Model II

Dynamic ARDL Regression

Variable	Coefficient	Standard Error	T statistic
Model			
LLFPP(-1)	1.4105	.053876	26.1802[.000]
LLFPP(-2)	-.55699	.054117	-10.2924[.000]
LGDP	-.21190	.038785	-5.4634[.000]
LGDP(-1)	.18583	.063883	2.9089[.005]
LGDP(-2)	-.12247	.038246	-3.2023[.002]
LOGR	.011716	.0052910	2.2142[.030]
LOGR(-1)	-.018758	.0057699	-3.2511[.002]
LEDU	2.5707	.29173	8.8120[.000]
LEDU(-1)	-3.6471	.51246	-7.1168[.000]
LEDU(-2)	1.2730	.28003	4.5460[.000]
Constant	-1.2863	.020703	3.8649[.000]
R ²	.98867		
R ²	.98693		
F- stat	567.3512[.000]		



ARDL Bonds Test for Co-integration

Variable	F_Statistics	Co-integration
F(FPP,GDP,OGR,EDU)	7.3103	Co-integrated
Critical Value	Lower Bound	Upper Bound
1%	4.385	5.615
5%	3.219	4.378
10%	2.711	3.8



Long Run Coefficients

Variable	Coefficients	P-Value
C	-7.4928	-4.1644[.000]
GDP	-1.0296	-10.0600[.000]
OGR	-.086844	-2.6385[.010]
EDU	1.2236	8.7024[.000]

Dynamic Parameters

Model I			Model II		
Regressor	Coef.	T- Stat	Regressor	Coef.	T- Stat
dLFLF1	.69573	8.2447[.000]	dFPP1	.55699	10.2924[.000]
dLGDP	.11595	23.8792[.000]	dLGDP	-.21190	-5.4634[.000]
dLGDP1	-.085289	-7.1233[.000]	dLGDP1	.12247	3.2023[.002]
dLOGR	-.0013884	-1.1718[.245]	dLOGR	.011716	2.2142[.030]
dLEDU	.013475	2.3323[.022]	dLEDU	2.5707	8.8120[.000]
dC	-.25994	-3.7148[.000]	dLEDU1	-1.2730	-4.5460[.000]
ecm(-1)	-.031577	-3.5202[.001]	dC	-1.2863	-4.9947[.000]
			ecm(-1)	-.14651	-5.6307[.000]

03

Conclusion

➔ **Model I:**

Opposite relationship between oil & gas rents and female labor force participation.

Positive relationship between education and female labor force participation.

➔ **Model II:**

Opposite relationship between oil & gas rents and female political participation.

Positive relationship between education and female political participation.

Thanks

for

Yore Attention

04

References

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- Barro, Robert J., and Jong-Wha Lee.(2012), A New Data Set of Educational Attainment in the World, 1950-2010. Working paper.
 - Inglehart, Ronald, and Pippa Norris. (2003a), The True Clash of Civilizations. Foreign Policy135: 62–70
 - Lütkepohl, Helmut (2005) New Introduction to Multiple Time Series Analysis, Springer Berlin, Heidelberg, New York.
 - Pesaran, M. H., and Shin (1999), An Autoregressive Distributed Lag Modeling Approach to Cointegration Analysis, In Strom, S. (Ed): Econometrics and Economic Theory in 20th Century: The Ragnar Frisch Centennial Symposium, Chapter11, Cambridge University Press, and Cambridge.
 - Ross, Michael L. (2008), Oil, Islam, and Women, American Political Science Review 102(1): 107-123.