

:
(2005-1973)

*

2005-1973

2.07
. 2.68

0.33

.0.14

.1

1991

1992

634

) 1996

1040 1992

.(2006

1988

(1998 -1992)

2008/3/2

.2008/7/14

*

/

Joshua and)

23

(Anueval, 1991

(The

Neoclassical Growth Theory)

%20

(Solow, 1957; De Mello, 1997)

%15 %10

(1991)

(1985 -1970)

(Externalities)

%30

(Spillover Effect)

%20

(1991)

(Makki and Somwaru, 2004)

(Chain Reaction Theory) CRT

(1990 -1970)

(Karanassou, Sala and

Snower, 2006)

0.423

)

(

.(Karanasou and Snower, 1998)

) (1991 -1976)

(1995

Khan and)

(Reinhart, 1990

(2004 -1973)

)

(1996

%1

(Trade-off)

%0.035

%1
%0.04

(0.86-) (1993 -1969)

(Quraan,1997)

(Cobb-Douglas

Production Function)

:

.1 (2006)

.2

(2008)

.3

(1995 -1985)									
361			(14)						
2000		787	1997		:				
620									.1
		.(UNCTAD, 2005) 2004							
590									.2
2005		1058	2004						
455	()							
			668						.3
		299	40						
390		135							
	2005		%55		(1445.3)				
(%28)				2004		2004.7	1996		
	.(2006) (%8)						
				1379.5		980.5			
				12.8		32			
				270.9					
			1948			338.6			
				17.4		12.3			
)		1635.9	1130.1		
						.(2007			
						1995	16		
332.8									
630.1	1980		420	1973					
		1142.3		1990					
				2000					
21.5%	20.24%		19.83%				(%100)		
				26.4%			10		
11.1%			(2000-1973)						

2005 13.7% 16.8% 3.5%
 1273.3
 %23.8
 (2006) (2005 1993) %15.7
 1973

(-1973)
 (1985-1981) (1980-1976) (1975

:(2006)

(RC) .I

(Permanent Income Hypothesis)

(Friedman, 1956) (Habit Persistence)

(1986)

(YD_t) (C_{t-1})
 (RJ)

(RF_t)

(1994) (RR_t)

(I_t) .II

1980 10.2% 1973 16.8%
 2000 4.6% 1990 7.3%

(Mikhail, 1991) (RR)

(GDP_t) 73.3% 71.3% 67.7% 63.7%

(El-Mefleh, 1989) 9.5% 9.9%

(RJ) 15.5% 11.5%

(RF_t) 6.5% 9.9% 12.6% 9.7%
 (M_t) .III 2005

(GDP_t) 15.51% 3.55%
 73.83% 7.11%

(M_{t-1}) (2005 1989)

.4

(Adaptive Expectations)

(RJ) (RF_t) :
 (Glytsos, 2001)

(1)

RC_{t-1}		RC_t	
RJ_t		RI_t	
RF_t		G_t	
K_{t-1}	*	M_t	
RR_t		MD_t	
M_{t-1}		GDP_t	
X_t		Y_t)
DEF_t		YD_t	*(
RW_t	*	LJ_t	*
LJ_{t-1}	*	LG_t	*
LG_{t-1}	*	K_t	*
G_{t-1}		T_t	
I_{t-1}			

*

(G)

.IV

(LG)

(LJ)

(Quraan, 1988) (T_t)

(GDP_t)

.(Serry, 1987) (G_{t-1})

(T_t)

.V

)

.(1989

($\text{Log}(LJ_t)$)

.II

(Serry, 1987)

(GDP_t)

(LJ_t)

(I_t)

(Y_t)

(LJ_{t-1})

(W/P)_t

(2006)

.(Addison and Siebert, 1979)

(MD_t)

.VI

($\text{Log}(LG_t)$)

.III

(DEF_t)

(GDP_t)

(RR_t)

.(Quraan, 1988; El-Mefleh, 1989)

(Y_t)

:

($\text{Log}(Y_t)$)

.I

(RW_t)

-

(Addison and Siebert, (LG_{t-1})

(Cobb-Douglas)

.1979)

:

(Log (K))

.IV

:

) (I)

(K_{t-1})

.(1994

$$Ld_t = \alpha + \beta_0 I_t + \beta_1 I_{t-1} + \beta_2 I_{t-2} + \beta_3 I_{t-3} + \dots + \beta_n I_{t-n} + \varepsilon_t$$

:(2006)

:

$$RC_t = \alpha_0 + \alpha_1 C_{t-1} + \alpha_2 YD_t + \alpha_3 RJ_t + \alpha_4 RF_t + \alpha_5 RR_t$$

:Ld_t

$$RI_t = \beta_0 + \beta_1 RJ_t + \beta_2 RF_t + \beta_3 GDP_t + \beta_4 RR_t$$

.

$$G_t = \psi_0 + \psi_1 GDP_t + \psi_2 T_t + \psi_3 G_{t-1}$$

:I_t

$$M_t = \gamma_0 + \gamma_1 M_{t-1} + \gamma_2 GDP_t + \gamma_3 RJ_t + \gamma_4 RF_t$$

:n

$$T_t = \Omega_0 + \Omega_1 GDP_t + \Omega_2 I_{t-1}$$

:ε_t

$$MD_t = \sigma_0 + \sigma_1 GDP_t + \sigma_2 RR_t + \sigma_3 DEF_t$$

:

-1

$$LogY_t = Log \theta_0 + \theta_1 LogLJ_t + \theta_2 LogLG_t + \theta_3 LogK_t$$

B₀

-2

$$LogLJ_t = Log \phi_0 + \phi_1 LogLJ_{t-1} + \phi_2 LogY_t + \phi_3 LogRW_t$$

.(ΣB_s)

$$LogLG_t = Log \varepsilon_0 + \varepsilon_1 LogLG_{t-1} + \varepsilon_2 LogY_t + \varepsilon_3 LogRW_t$$

.(Mean Lag)

$$Mean Lag = \sum_j B_j / \sum B_j$$

$$LogK_t = Log \delta_0 + \delta_1 LogK_{t-1} + \delta_2 LogI_t$$

j

$$Y_t = C_t + I_t + G_0 + X_0 - M_t + RJ_t - RF_t$$

B_j

$$Yd_t = Y_t - T_t$$

(Partial

Adjustment Mechanism)

$$Md = Ms$$

:

Ms

$$Ld_t - Ld_{t-1} = \theta (Ld_t^* - Ld_{t-1})$$

I_{t-1}

Ld_t

X₀

Ld_t^{*}

(Dynamic

:

:

Model)

$$Ld_t = \alpha\theta + \beta\theta I_t + (1-\theta) Ld_{t-1}$$

θ

(

)

θ

(

(Lags)

.(Greene,1993)

Two-Stage Least)

(Squares
. (3)

%1

1.16

(Inconsistent)

(OLS)

0.003

0.45

(Over-identified)

:

2SLS

(Full Information Maximum
(Full Information Methods
(3SLS)
(Greene, 2001) Likelihood)

OLS

%5

:

.1

(Reduced Form)

(2)

Estimated Equation	R ²	Adj. R ²	F-values	D.W.
$RC_t = 88.69 + 2.36C_{t-1} + 0.31YD_t + 2.16RJ_t - 29.0RF_t - 440.19RR_t$ (-0.07) (6.81)* (0.46) (1.27) (-4.82)* (-3.14)**	0.699	0.618	8.53	2.05
$RI_t = 44.62 + 0.72RJ_t - 1.78RF_t + 0.14GDP_t + 2.45RR_t$ (0.17) (3.58)* (-1.95)*** (2.38)** (0.83)	0.966	0.959	132.55	1.32
$G_t = 143.46 + 0.01GDP_t + 0.08T_t + 0.81G_{t-1}$ (2.05)** (0.12) (0.22) (6.82)*	0.919	0.909	99.28	2.24
$M_t = -234.54 + 0.35M_{t-1} + 0.50GDP_t + 0.70RJ_t - 7.25RF_t$ (-2.39)** (4.12)* (7.21)* (2.27)** (-5.38)*	0.987	0.985	475.91	2.06
$T_t = -64.29 + 0.18GDP_t + 0.091I_{t-1}$ (-2.55)** (9.08)* (1.23)	0.985	0.983	565.03	1.80
$MD_t = -107.63 + 1.94GDP_t - 16.42RR_t - 23.15DEF_t$ (-0.04) (12.99)* (1.54) (2.67)**	0.987	0.986	662.13	1.72
$LogY_t = -4.97 + 0.95LogLJ_t + 0.29LogLG_t + 0.51LogK_t$ (-5.84)* (10.82)* (12.07)* (3.54)*	0.987	0.985	474.35	2.16
$LogLJ_t = 4.17 + 0.71LogLJ_{t-1} + 0.15LogY_t - 0.45LogRW_t$ (3.11)* (6.87)* (3.15)* (-3.16)*	0.942	0.932	97.46	1.97
$LogLG_t = -4.52 + 0.55LogLG_{t-1} + 1.16LogY_t - 0.003LogRW_t$ (-1.79)*** (3.98)* (2.19)** (-2.37)**	0.966	0.962	245.39	2.43
$LogK_t = 0.18 + 0.93LogK_{t-1} + 0.08LogI_t$ (0.12) (7.38)* (1.68)***	0.795	0.780	51.58	1.74

.t

.%1

*

.%5

**

.%10

(3)

0.14	2.07	0.371	0.077	0.064	0.11	0.049	0.071	
0.20	2.10	0.326	0.072	0.077	0.081	0.005	0.091	
0.33	2.68	0.349	0.16	0.024	0.074	0.074	0.017	
0.18	2.12	0.212	0.029	0.064	0.068	0.005	0.046	

.0.14

.2

.6

0.091

0.071

.0.017

.5

.3

0.371

0.349

370
2004

590
2005

2003

1058

.0.212

.4

2.07

:

2.10

2.12

2.68

(3)

.5

0.33

%6

%14

:

1993
 .4 9
 1989
 .1 5
 1990
 1989
 1991
 1985 -1970
 2006 .32-21 1
 1994
 1996
 2007
 2006
 2006
 2004 -1970
 .2 35
 1997
 1995
 2004 -1970
 .54 -33 ()1
 1991-1976
 1964 1961

-1973)
 :
 (2004
 2008
 :
 2004 -1973
 :
 13
 .1964

- Holistic Perspective, IZA Discussion Paper, 2265, Bonn.
- Khan, M. and Reinhart, C. 1990. Private Investment and Economic Growth in Developing Countries, *World Development* 18 (1): 20-22.
- Kleinman, Mark. 2003. The Economic Impact of Labor Migration, *Political Quarterly*, Supplement 1, Vol.74, 59-74.
- Maddala, G. S. and In-Moo, Kim. 1998. Unit Roots Co-integration and Structural Change, Cambridge University Press.
- Makki, S. and Somwaru, A. 2004. Impact of Foreign Direct Investment and Trade on Economic Growth: Evidence from Developing Countries, *American Journal of Agricultural Economics*: 86(3), 795 – 801.
- Quraan, Anwar Al-Ali. 1988. Macroeconomic Effects of Workers' Remittances: The Case of Jordan, Ph.D. Dissertation, University of Texas at Dallas.
- Quraan, Anwar. 1997. Private and Public Investment in Jordan: An Empirical Analysis, *Abhath Al-Yarmouk - Humanities and Social Science Series*, Vol. 13, No. 3, 35-46.
- Royal Scientific Society (RSS). 1986. The Socio-Economic Impact of Guest Workers in Jordan, Vol.1, Amman.
- Serry, E.A. 1987. A Macro-econometric Model for the Egyptian Economy, Specification, Estimation and Simulation under Alternative Principles of Economics, Clark University, Worcester, Massachusetts.
- Solow, R. 1957. Technical Change and the Aggregate Production. *Review of Economics and Statistics*: 39: 312 –320.
- Talafha, Hussain. 1983. Supply of Educated Labor in Jordan, Unpublished Ph. D. Dissertation, Syracuse University, USA.
- Todaro, M. 1989. Economic Development in the Third World, 4th Edition, Longman (New York and London).
- UNCTAD, World Investment Report 2005; www.unctad/fdistatistics.
- 2005
- .2004
- .(2004-2000)
- 2005
- 2003
-
- Addison, John and Stanley, Sibert. 1979. The Market for Labor: An Analytical Treatment (California, Goodyear Publishing Company).
- Atamneh, Abdel Baset. 2004. The Effect of Labor Migration on Economic Growth: The Case of Jordan. 1970-2001. *Mutah for Research and Studies*, Vol. 19, No. 5.
- El-Mefleh, Muhammad. 1989. A Macroeconomic Forecasting Model for Jordan, Ph. D. Dissertation, the Florida State University.
- El-Sakka, M.I.T. 2005. Migrant Workers, Remittances and Macroeconomic Policy in Jordan, Unpublished Paper, Dept. of Economics: Kuwait University.
- Greene, H. William. 1993. Econometric Analysis (New York: Prentice-Hall International, Inc.).
- Hamermesh, Daniel. 1976. Econometric Studies of Labor Demand and their Application to Policy Analysis, *Journal of Human Resources*, Vol.11, No.4, 507-525.
- Hsiao, C. 1981. Autoregressive Modeling and Money Income Causality Detection, *Journal of Monetary Economics*, Vol.7, 85-106.
- Karanassou, M. and Snower, D.J. 1998. How Labor Market Flexibility Affects Un-employment: Long-Term Implications of the Chain Reaction Theory, *The Economic Journal*, 108, 832-849
- Karanassou, M., Sala, H.and Snower, D.J. 2006. Phillips Curves and Unemployment Dynamics: A Critique and a

The Relationship between Investment and Employment in Jordan: An Econometric Analysis (1973-2005)

*Abdel Baset A. Athamneh and Bashir Kh.Al- Zu'bi **

ABSTRACT

This study aimed at estimating the relationship between investment and employment in Jordan during the period 1973-2005, as well as at determining to what extent does the acceleration in investment activities could improve the levels of employment in the Kingdom.

In order to achieve its objectives, this study developed two econometric models; the 1st was a macro econometric model and included both demand and supply sides, at which the demand on national labor and the demand on guest labor were estimated to reflect the equilibrium level of employment in the economy and its need for additional labor. The 2nd model was a dynamic model and explained the response of employment to the change in investment level.

The results of the study showed that the average period needed for investment to improve employment levels exceeded two years in all cases at which the shortest period (2.07 years) concerned the response of the demand on Jordanian labor to change in total investment, while the longest (2.68 years) concerned the response of the demand on guest labor to the change in the FDI. With respect to the speed of adjustment, it was the fastest (0.33) in the response of the demand on guest labor to the changes in total investment contrary to the response of the demand on Jordanian labor to change in total investment which was the slowest (0.14).

Finally, the study recommended continuing the government policy that aimed to raise the cost of the employment of guest labor, and supporting the exporting sector through supporting the employment of Jordanians in this sector by covering a part of wages paid to them.

Keywords: Investment and Employment, Labor Market Adjustment, Demand on Jordanian and Guest Labor.

* Department of Economics, the Hashemite University, Zarqa, Jordan; and Faculty of Business, University of Jordan.
Received on 2/3/2008 and Accepted for Publication on 14/7/2008.