

Impact of Inflation and Unemployment on Economic Growth

Post Regression

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Hausman (Overall)

Hausman Hypothesis:

H_0 : No Differences in coefficients

H_1 : Significant Differences in coefficients

Hausman (1978) specification test

	Coef.
Chi-square test value	85.257
P-value	0

Regression (Overall)

VARIABLES	(1) GDP(FE)	(2) GDP(i.Time)	(3) GDP(Robust)
Infl	0.0657*** (0.0189)	-0.00761 (0.0175)	0.0657*** (0.0223)
Unemp	-0.150*** (0.0576)	-0.130** (0.0507)	-0.150 (0.0950)
MS	-0.0872*** (0.00773)	-0.0387*** (0.00855)	-0.0872*** (0.0226)
Sav	-1.59e-11 (1.15e-11)	7.54e-13 (1.00e-11)	--1.59e-11*** (2.05e-12)
IR	-0.0809*** (0.0260)	-0.105*** (0.0242)	-0.0809*** (0.0149)
ER	-0.000532 (0.000354)	-0.000108 (0.000310)	-0.000532*** (7.31e-05)
Inv	1.88e-11 (1.30e-11)	4.82e-12 (1.13e-11)	1.88e-11*** (2.33e-12)
2003.Time		0.819 (0.622)	
2004.Time		1.813*** (0.628)	
2005.Time		1.634*** (0.631)	
2006.Time		2.707*** (0.634)	

Regression (Overall)

2007.Time		2.116***	
		(0.639)	
2008.Time		0.137	
		(0.647)	
2009.Time		-3.560***	
		(0.648)	
2010.Time		0.815	
		(0.652)	
2011.Time		0.293	
		(0.655)	
2012.Time		-0.520	
		(0.652)	
2013.Time		-0.376	
		(0.658)	
2014.Time		-0.317	
		(0.663)	
2015.Time		-0.610	
		(0.675)	
2016.Time		-0.567	
		(0.677)	

Regression (Overall)

2017.Time		-0.679	
		(0.683)	
2018.Time		-0.471	
		(0.683)	
2019.Time		-1.116	
		(0.689)	
2020.Time		-7.101***	
		(0.732)	
2021.Time		2.162***	
		(0.704)	
Constant	11.50***	8.282***	11.50***
	(0.797)	(0.824)	(1.837)
Observations	1,000	1,000	1,000
R-squared	0.148	0.391	0.148
Number of countries	50	50	50

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Modified Wald Test (Overall)

- **Modified Wald Test Hypothesis:**

H_0 : Homoskedasticity (Constant Variance)

H_1 : Heteroskedasticity (Non-Constant Variance)

As $\text{Prob}>\chi^2=0$ we can reject the null hypothesis and denote that heteroscedasticity exists for which we will run Robust Fixed Effects which are shown in column 3.

Modified Wald test for groupwise heteroskedasticity in fixed effect regression model	
$\chi^2(50)$	= 4423.79
$\text{Prob}>\chi^2$	= 0.0000

Time Fixed Effects (Overall)

Time Fixed Effect Overall
(1) 2003.Time = 0
(2) 2004.Time = 0
(3) 2005.Time = 0
(4) 2006.Time = 0
(5) 2007.Time = 0
(6) 2008.Time = 0
(7) 2009.Time = 0
(8) 2010.Time = 0
(9) 2011.Time = 0
(10) 2012.Time = 0
(11) 2013.Time = 0
(12) 2014.Time = 0
(13) 2015.Time = 0
(14) 2016.Time = 0
(15) 2017.Time = 0
(16) 2018.Time = 0
(17) 2019.Time = 0
(18) 2020.Time = 0
(19) 2021.Time = 0
$F(19, 924) = 19.36$
Prob > F = 0.0000

Pesaran's Test (Overall)

Pesaran's Test Hypothesis:

H_0 : Error Terms do not correlate between entities

H_1 : Error Terms correlate between entities

Pesaran's test of cross-sectional independence =	44.925, $P_r = 0.0000$
Average absolute value of the off-diagonal elements =	0.360

Hausman (Developed)

Hausman Hypothesis:

H_0 : No Differences in coefficients

H_1 : Significant Differences in coefficients

Hausman (1978) specification test

	Coef.
Chi-square test value	56.748
P-value	0

Regression (Developed)

VARIABLES	(1) GDP(FE)	(2) GDP(i.Time)	(3) GDP(Robust)
Infl	0.0815*** (0.0233)	0.00700 (0.0233)	0.0815*** (0.0288)
Unemp	-0.212** (0.0873)	-0.251*** (0.0806)	-0.212** (0.0940)
MS	-0.0632*** (0.00796)	-0.0366*** (0.00891)	-0.0632*** (0.0190)
Sav	-1.40e-11 (1.04e-11)	-3.70e-12 (9.51e-12)	-1.40e-11*** (1.89e-12)
IR	-0.0720** (0.0294)	-0.0675** (0.0272)	-0.0720*** (0.0150)
ER	-0.0206 (0.0150)	-0.00178 (0.0138)	-0.0206 (0.0261)
Inv	1.70e-11 (1.18e-11)	8.91e-12 (1.07e-11)	1.70e-11*** (2.11e-12)
2003.Time		1.765** (0.825)	
2004.Time		3.210*** (0.833)	
2005.Time		2.106** (0.839)	
2006.Time		3.268*** (0.839)	

Regression (Developed)

2007.Time		2.171**	
		(0.845)	
2008.Time		0.663	
		(0.857)	
2009.Time		-2.679***	
		(0.860)	
2010.Time		1.939**	
		(0.858)	
2011.Time		1.695**	
		(0.861)	
2012.Time		0.807	
		(0.858)	
2013.Time		0.438	
		(0.864)	
2014.Time		0.624	
		(0.869)	
2015.Time		1.100	
		(0.889)	
2016.Time		0.831	
		(0.887)	
2017.Time		0.264	

Regression (Developed)

		(0.891)	
2018.Time		0.531	
		(0.890)	
2019.Time		-0.232	
		(0.895)	
2020.Time		-4.346***	
		(0.939)	
2021.Time		2.766***	
		(0.901)	
Constant	10.28***	6.758***	10.28***
	(1.073)	(1.149)	(1.963)
Observations	500	500	500
R-squared	0.176	0.383	0.176
Number of countries	25	25	25

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Time Fixed Effects (Developed)

Time Fixed Effect Developed
(1) 2003.Time = 0
(2) 2004.Time = 0
(3) 2005.Time = 0
(4) 2006.Time = 0
(5) 2007.Time = 0
(6) 2008.Time = 0
(7) 2009.Time = 0
(8) 2010.Time = 0
(9) 2011.Time = 0
(10) 2012.Time = 0
(11) 2013.Time = 0
(12) 2014.Time = 0
(13) 2015.Time = 0
(14) 2016.Time = 0
(15) 2017.Time = 0
(16) 2018.Time = 0
(17) 2019.Time = 0
(18) 2020.Time = 0
(19) 2021.Time = 0
F(19, 449) = 7.94
Prob > F = 0.0000

Modified Wald Test (Developed)

- **Modified Wald Test Hypothesis:**

H_0 : Homoskedasticity (Constant Variance)

H_1 : Heteroskedasticity (Non-Constant Variance)

As $\text{Prob}>\chi^2=0$ we can reject the null hypothesis and denote that heteroscedasticity exists for which we will run Robust Fixed Effects which are shown in column 3.

Modified Wald test for groupwise heteroskedasticity in fixed effect regression model	
$\chi^2 (25)$	= 1353.14
$\text{Prob}>\chi^2$	= 0.0000

Pesaran's Test (Developed)

Pesaran's Test Hypothesis:

H_0 : Error Terms do not correlate between entities

H_1 : Error Terms correlate between entities

Pesaran's test of cross-sectional independence =	-0.830, Pr = 0.4063
Average absolute value of the off-diagonal elements =	0.288

Hausman (Developing)

Hausman Hypothesis:

H_0 : No Differences in coefficients

H_1 : Significant Differences in coefficients

Hausman (1978) specification test

	Coef.
Chi-square test value	80.382
P-value	0

Regression (Developing)

VARIABLES	(1) GDP(FE)	(2) GDP(i.Time)	(3) GDP(Robust)
Infl	0.0272 (0.0297)	-0.0162 (0.0269)	0.0272 (0.0223)
Unemp	0.00883 (0.0799)	0.0299 (0.0696)	0.00883 (0.176)
MS	-0.167*** (0.0181)	-0.0832*** (0.0217)	-0.167*** (0.0299)
Sav	0.163*** (0.0354)	0.124*** (0.0304)	0.163* (0.0807)
IR	-0.155*** (0.0525)	-0.155*** (0.0507)	-0.155*** (0.0439)
ER	-0.000699* (0.000367)	-0.000288 (0.000332)	-0.000699*** (0.000121)
Inv	0.0879** (0.0351)	0.0818*** (0.0307)	0.0879 (0.0687)
2003.Time		-0.130 (0.893)	
2004.Time		0.157 (0.908)	
2005.Time		0.887 (0.911)	
2006.Time		1.810* (0.928)	

Regression (Developing)

2007.Time		1.797*	
		(0.940)	
2008.Time		-0.662	
		(0.948)	
2009.Time		-4.104***	
		(0.949)	
2010.Time		-0.247	
		(0.966)	
2011.Time		-1.132	
		(0.976)	
2012.Time		-1.661*	
		(0.970)	
2013.Time		-0.792	
		(0.986)	
2014.Time		-0.887	
		(1.000)	
2015.Time		-1.741*	
		(1.023)	
2016.Time		-1.436	
		(1.031)	
2017.Time		-1.124	

Regression (Developing)

		(1.046)	
2018.Time		-1.046	
		(1.057)	
2019.Time		-1.268	
		(1.073)	
2020.Time		-8.533***	
		(1.208)	
2021.Time		2.190*	
		(1.146)	
Constant	10.85***	7.609***	10.85**
	(2.313)	(2.075)	(5.007)
Observations	500	500	500
R-squared	0.236	0.474	0.236
Number of countries	25	25	25

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Time Fixed Effects (Developing)

Time Fixed Effect Developing
(1) 2003.Time = 0
(2) 2004.Time = 0
(3) 2005.Time = 0
(4) 2006.Time = 0
(5) 2007.Time = 0
(6) 2008.Time = 0
(7) 2009.Time = 0
(8) 2010.Time = 0
(9) 2011.Time = 0
(10) 2012.Time = 0
(11) 2013.Time = 0
(12) 2014.Time = 0
(13) 2015.Time = 0
(14) 2016.Time = 0
(15) 2017.Time = 0
(16) 2018.Time = 0
(17) 2019.Time = 0
(18) 2020.Time = 0
(19) 2021.Time = 0
$F(19, 449) = 10.74$
$\text{Prob} > F = 0.0000$

Modified Wald Test (Developing)

- **Modified Wald Test Hypothesis:**

H_0 : Homoskedasticity (Constant Variance)

H_1 : Heteroskedasticity (Non-Constant Variance)

As $\text{Prob}>\chi^2=0$ we can reject the null hypothesis and denote that heteroscedasticity exists for which we will run Robust Fixed Effects which are shown in column 3.

Modified Wald test for groupwise
heteroskedasticity in fixed effect
regression model

$\chi^2(25) = 882.62$

$\text{Prob}>\chi^2 = 0.0000$

Pesaran's Test (Developing)

Pesaran's Test Hypothesis:

H_0 : Error Terms do not correlate between entities

H_1 : Error Terms correlate between entities

Pesaran's test of cross-sectional independence = -1.253, Pr = 0.2102

Average absolute value of the off-diagonal elements = 0.270

Comparison between Developed and Developing Countries

- Inflation and unemployment have a significant effect on GDP growth for developed countries but insignificant impact on GDP growth in case of developing countries.
 - The coefficient for inflation is larger in case of developed countries (0.0815) almost four folds as compared to the coefficient for inflation in developing countries (0.0272).
- The direction of the relation is different for the case of unemployment. In developed countries unemployment has a negative relation with GDP growth however in developing countries it has a positive relation in developed countries.
 - The coefficient for unemployment is also larger in case of developed countries (-0.212) as compared to developing countries (0.00883).

Comparison between Developed and Developing Countries

- Both developed and developing countries have significant negative relations between money supply and interest rates with GDP growth.
 - The negative effect of money supply on GDP growth is much stronger in developing countries (-0.167%) compared to developed countries (-0.0632%).
- The same holds for interest rates, where the negative effect on GDP growth is (-0.155%) in developing countries and (-0.0720%) in developed countries.
 - It has a significant relation in both Developing and Developed.

Comparison between Developed and Developing Countries

- In terms of savings rate, there is a positive and significant relation with GDP growth in developing countries, while the effect is insignificant in developed countries.
 - The coefficient for it is very small in case of developed countries ($1.04e-11$).
- Investment has a positive and significant effect on GDP growth developing countries but insignificant impact in case of developed countries.
 - The magnitude in developing countries is much higher as compared developed countries.
- Exchange rate has a negative and significant effect on GDP growth in developing countries but negative and insignificant in developed countries.
 - The coefficient is much larger incase of developed countries (-0.0206) as compared to developing countries (-0.000699).

THANK YOU!