Impact of population growth on economic growth

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Table 4: Overall regression

VARIABLES	(1) GDP	(2) GDP	(3) GDP
POPG	0.500***	0.413***	0.500***
	(0.0808)	(0.0723)	(0.178)
UNEMP	-0.109**	-0.139***	-0.109
	(0.0537)	(0.0483)	(0.0847)
FDI	0.0550***	0.0431***	0.0550
	(0.0128)	(0.0113)	(0.0386)
LBR	-3.34e-09	6.18e-08**	-3.34e-09
	(2.56e-08)	(2.42e-08)	(2.48e-08)
SAVE	0.140***	0.119***	0.140***
	(0.0209)	(0.0183)	(0.0422)
ADR	0.0790***	0.0462*	0.0790**
	(0.0262)	(0.0252)	(0.0385)
TRADE	0.0170**	0.0137**	0.0170*
	(0.00730)	(0.00671)	(0.0101)
2001.Time		-1.412**	
		(0.619)	
2002.Time		-1.262**	

Overall Regression

Figure 39: "Hausman test for overall regression"

Hausman (1978) specification test

	Coef.
Chi-square test value	28.697
P-value	0

Hausman test

"H0: No difference in coefficients"

"H1: Significant difference in coefficients"

(1) 2001.Time = 0
(2) 2002.Time = 0
(3) 2003.Time = 0
(4) 2004.Time = 0
(5) 2005.Time = 0
(6) 2006.Time = 0
(7) 2007.Time = 0
(8) 2008.Time = 0
(9) 2009.Time = 0
(10) 2010.Time = 0
(11) 2011.Time = 0
(12) 2012.Time = 0
(13) 2013.Time = 0
(14) 2014.Time = 0
(15) 2015.Time = 0
(16) 2016.Time = 0
(17) 2017.Time = 0
(18) 2018.Time = 0
(19) 2019.Time = 0
(20) 2020.Time = 0
(21) 2021.Time = 0
F(21, 1085) =   18.32
Prob > F =   0.0000

Figure 40 shows the value of prob>f that is equal to 0, because the value is less than 1, it means we have to include time dummies in our regression. We are doing this to capture the time fixed effect on the overall regression.

Figure 41: "Modified Wald test for GroupWise heteroscedasticity"

chi2 (53) = 6956.96
Prob>chi2 = 0.0000

Pesaran's test of cross sectional independence = -0.644, Pr = 0.5193
Average absolute value of the off-diagonal elements = 0.243

Figure 41 shows the test for heteroscedasticity. The results indicate the rejection of the null hypothesis as the value of Prob>F equals 0 and this proves the existence of heteroscedasticity so due to which we will run robust Fixed effect as shown in the column 3.

Table 5: Developed Countries Regression

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VARIABLES	(1) GDP	(2) GDP	(3) GDP
POPG	0.455**	0.448***	0.455***
	(0.204)	(0.0576)	(0.0713)
UNEMP	-0.0970	-0.114**	-0.0970
	(0.0850)	(0.0544)	(0.0680)
FDI	0.0593***	0.0111	0.0593***
	(0.0197)	(0.0144)	(0.0177)
LBR	-2.18e-07	2.25e-08	-2.18e-07**
	(1.35e-07)	(8.10e-08)	(8.48e-08)
SAVE	0.173***	0.141***	0.173***
	(0.0582)	(0.0266)	(0.0344)
ADR	0.0670*	0.0513*	0.0670**
	(0.0330)	(0.0269)	(0.0332)
TRADE	0.00190	-0.00110	0.00190
	(0.0228)	(0.00929)	(0.0113)
2001.Time		-3.092***	
		(0.681)	
2002.Time		-3.074***	
		(0.685)	
2003.Time		-2.059***	
		(0.686)	
2004.Time		0.142	
		(0.686)	
2005.Time		-1.716**	
		(0.693)	
2006.Time		-0.665	

Figure 43: "Hausman test for developed countries regression"

	Coef.
Chi-square test value	19.936
P-value	.003

H0: "No difference in coefficients"

H1: "Significant difference in coefficients"

Figure 43 shows Hausman test for overall regression and it can be seen that p-value is equal to zero it means that the null hypothesis will be rejected and we will be using fixed effect model for our regression. We used fixed effects model and table 4 results were estimated. In column 1 regressions, results for the fixed effect model are given, in column 2 time fixed effects are estimated and in the last column, we provided the fixed effect robust estimates.

Figure 44: Time fixed effect for Developed Countries

(1) 2001.Time = 0
(2) 2002.Time = 0
(3) 2003.Time = 0
(4) 2004.Time = 0
(5) 2005.Time = 0
(6) 2006.Time = 0
(7) 2007.Time = 0
(8) 2008.Time = 0
(9) 2009.Time = 0
(10) 2010.Time = 0
(11) 2011.Time = 0
(12) 2012.Time = 0
(13) 2013.Time = 0
(14) 2014.Time = 0
(15) 2015.Time = 0
(16) 2016.Time = 0
(17) 2017.Time = 0
(18) 2018.Time = 0
(19) 2019.Time = 0
(20) 2020.Time = 0
(21) 2021.Time = 0
F(21, 453) = 18.07
Prob > F = 0.0000

Figure 44 shows the value of prob>f that is equal to 0, as the value is less than 1 it means we have to include time dummies in our regression. We are doing this to capture the time fixed effect on the overall regression.

Figure 45: "Modified Wald test for GroupWise heteroscedasticity"

chi2 (23) = 3125.17
Prob>chi2 = 0.0000

Figure 45 shows the test for heteroscedasticity. The results indicate the rejection of the null hypothesis as the value of Prob>F equals 0 and this proves the existence of heteroscedasticity so due to which we will run robust Fixed effect as shown in the column 3.

Pesaran's test of cross sectional independence = -1.125, Pr = 0.2607 Average absolute value of the off-diagonal elements = 0.238

Table 6: Developing Countries Regression

VARIABLES	(1) GDP	(2) GDP	(3) GDP
POPG	0.608**	0.477**	0.608**
	(0.247)	(0.228)	(0.243)
UNEMP	-0.121	-0.137*	-0.121
	(0.0810)	(0.0771)	(0.124)
FDI	0.0481***	0.0595***	0.0481
	(0.0179)	(0.0165)	(0.0549)
LBR	1.47e-08	6.59e-08**	1.47e-08
	(3.09e-08)	(3.00e-08)	(2.67e-08)
SAVE	0.128***	0.119***	0.128**
	(0.0272)	(0.0251)	(0.0529)
ADR	0.0850**	0.0126	0.0850
	(0.0392)	(0.0428)	(0.0595)
TRADE	0.0245**	0.0175*	0.0245**
	(0.00984)	(0.00945)	(0.0112)
2001.Time		-0.307	
		(0.965)	
2002.Time		-0.176	
		(0.971)	
2003.Time		0.220	
		(0.977)	
2004.Time		0.700	
		(0.991)	
2005.Time		0.423	
		(1.006)	
2006.Time		0.585	

Figure 47: "Hausman test for developing countries regression"

	Coef.
Chi-square test value	26.613
P-value	0

H0: No difference in coefficients"

"H1: Significant difference in coefficients"

Figure 47 shows Hausman test for overall regression and it can be seen that p-value is equal to zero it means that the null hypothesis will be rejected and we will be using fixed effect model for our regression. We used fixed effects model and table 6 results were estimated. In column 1 regressions, results for the fixed effect model are given, in column 2 time fixed effects are estimated and in the last column, we provided the fixed effect robust estimates.

Figure 48: Time fixed effect for Developed Countries

(1) 2001.Time = 0
(2) 2002.Time = 0
(3) 2003.Time = 0
(4) 2004.Time = 0
(5) 2005.Time = 0
(6) 2006.Time = 0
(7) 2007.Time = 0
(8) 2008.Time = 0
(9) 2009.Time = 0
(10) 2010.Time = 0
(11) 2011.Time = 0
(12) 2012.Time = 0
(13) 2013.Time = 0
(14) 2014.Time = 0
(15) 2015.Time = 0
(16) 2016.Time = 0
(17) 2017.Time = 0
(18) 2018.Time = 0
(19) 2019.Time = 0
(20) 2020.Time = 0
(21) 2021.Time = 0
F(21, 602) = 7.52
Prob > F = 0.0000

Figure 48 shows the value of prob>f that is equal to 0, as the value is less than 1 it means we have to include time dummies in our regression. We are doing this to capture the time fixed effect on the overall regression.

Figure 49: "Modified Wald test for GroupWise heteroscedasticity"

chi2 (31) = 2012.05
Prob>chi2 = 0.0000

Figure 49 shows the test for heteroscedasticity. The results indicate the rejection of the null hypothesis as the value of Prob>F equals 0 and this proves the existence of heteroscedasticity so due to which we will run robust Fixed effect as shown in the column 3.