

## Stata Results – Export Diversification and Economic growth

```
xtset country1 Year
      panel variable:  country1 (unbalanced)
      time variable:  Year, 2000 to 2019, but with a gap
      delta: 1 unit
```

```
pca CC GE PS RQ RL VA
```

```
Principal components/correlation      Number of obs   =      859
                                      Number of comp.  =       6
                                      Trace              =       6
Rotation: (unrotated = principal)    Rho              =     1.0000
```

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	3.49548	2.54871	0.5826	0.5826
Comp2	.946768	.324461	0.1578	0.7404
Comp3	.622307	.17711	0.1037	0.8441
Comp4	.445197	.165519	0.0742	0.9183
Comp5	.279678	.0691073	0.0466	0.9649
Comp6	.21057	.	0.0351	1.0000

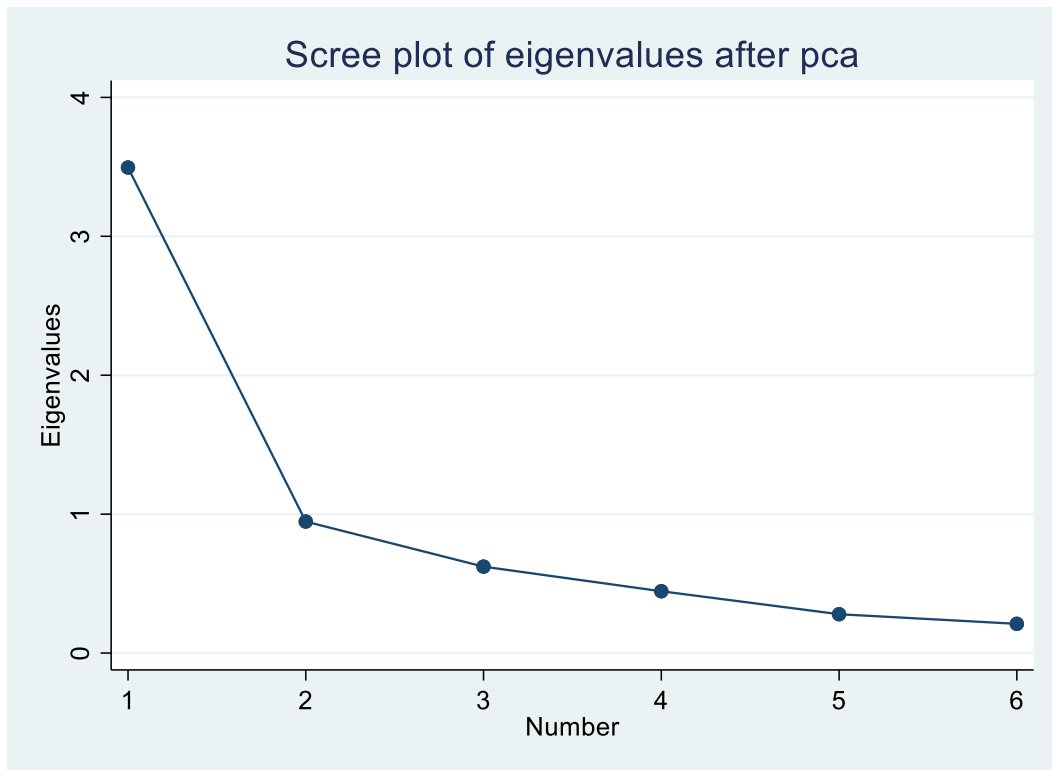
Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
CC	0.4523	0.0706	-0.2845	-0.4558	0.6767	0.2094
GE	0.4728	-0.1919	-0.2372	-0.0876	-0.2088	-0.7950
PS	0.2622	0.8197	-0.2180	0.4583	-0.0383	-0.0173
RQ	0.3796	-0.5162	-0.0533	0.7047	0.1774	0.2420
RL	0.4746	-0.0231	-0.0238	-0.2784	-0.6673	0.5008
VA	0.3658	0.1389	0.9010	-0.0217	0.1423	-0.1198

Variable	Unexplained
CC	0
GE	0
PS	0
RQ	0
RL	0
VA	0

Component rotation matrix

	Comp1	Comp2	Comp3	Comp4	Comp5	Comp6
Comp1	0.4746	0.3658	0.3796	0.2622	0.4728	0.4523
Comp2	-0.0231	0.1389	-0.5162	0.8197	-0.1919	0.0706
Comp3	-0.0238	0.9010	-0.0533	-0.2180	-0.2372	-0.2845
Comp4	-0.2784	-0.0217	0.7047	0.4583	-0.0876	-0.4558
Comp5	-0.6673	0.1423	0.1774	-0.0383	-0.2088	0.6767
Comp6	0.5008	-0.1198	0.2420	-0.0173	-0.7950	0.2094



```
vif
```

Variable	VIF	1/VIF
InDinvestm~t	1.13	0.885705
InTO	1.11	0.901530
Govindex	1.09	0.914840
InExD	1.05	0.952408
InFDI	1.05	0.956393
InTarrif	1.02	0.979822
Mean VIF	1.07	

```
describe InGDPPCG Govindex InFDI InDinvestment InExD InTarrif InTO InER InEx
> Dsq
```

variable name	storage type	display format	value label	variable label
InGDPPCG	float	%9.0g		Scores for component 1
Govindex	float	%9.0g		
InFDI	float	%9.0g		
InDinvestment	float	%9.0g		
InExD	float	%9.0g		
InTarrif	float	%9.0g		
InTO	float	%9.0g		
InER	float	%9.0g		
InExDsq	float	%9.0g		

```
sum InGDPPCG Govindex InFDI InDinvestment InExD InTarrif InTO InER InExDsq
```

Variable	Obs	Mean	Std. Dev.	Min	Max
InGDPPCG	859	5.772675	1.0041	0	8.578288
Govindex	859	-3.51e-10	1.000003	-1.730282	1.728277
InFDI	859	8.083583	.3022526	0	8.223895
InDinvestm~t	839	6.396833	.4674665	0	7.474772
InExD	759	5.8545	.6773568	0	6.98749
InTarrif	859	8.029759	.2929225	0	8.338784
InTO	839	5.710478	.9744493	0	7.052721
InER	859	6.907999	.3011226	0	7.145985
InExDsQ	759	34.73338	7.306886	0	48.82502

```
. xtsum InGDPPCG Govindex InFDI InDinvestment InExD InTarrif InTO InER InExDsQ
```

Variable	Mean	Std. Dev.	Min	Max	Observation
> s					
> -					
InGDPPCG overall	5.772675	1.0041	0	8.578288	N = 85
> 9					
between	.3690463	4.843016	6.445337	n = 4	
> 3					
within	.9353518	.1212913	7.993406	T-bar = 19.976	
> 7					
Govindex overall	-3.51e-10	1.000003	-1.730282	1.728277	N = 85
> 9					
between	.882119	-1.4599	1.671576	n = 4	
> 3					
within	.4882798	-2.715997	2.304757	T-bar = 19.976	
> 7					
InFDI overall	8.083583	.3022526	0	8.223895	N = 85
> 9					
between	.1179771	7.386343	8.176203	n = 4	
> 3					
within	.2788011	.6972404	8.891193	T-bar = 19.976	
> 7					
InDinv~t overall	6.396833	.4674665	0	7.474772	N = 83
> 9					
between	.2587528	5.957389	6.891151	n = 4	
> 2					
within	.3911652	.4394435	7.294852	T-bar = 19.976	
> 2					
InExD overall	5.8545	.6773568	0	6.98749	N = 75
> 9					
between	.5141287	4.866011	6.724449	n = 3	
> 8					
within	.448064	.3645995	7.100574	T-bar = 19.973	
> 7					
InTarrif overall	8.029759	.2929225	0	8.338784	N = 85
> 9					
between	.1094263	7.360348	8.108339	n = 4	
> 3					
within	.2721797	.669411	8.789405	T-bar = 19.976	
> 7					
InTO overall	5.710478	.9744493	0	7.052721	N = 83
> 9					
between	.5542957	4.138991	6.394587	n = 4	
> 2					
within	.8056336	1.571487	7.758017	T-bar = 19.976	
> 2					
InER overall	6.907999	.3011226	0	7.145985	N = 85
> 9					
between	.1559238	6.138348	7.051283	n = 4	
> 3					

```

> 7      within |          .2586083   .7696509   7.909311 | T-bar = 19.976
InExDsqr overall | 34.73338   7.306886         0   48.82502 | N = 75
> 9      between |          5.820716   23.90366   45.24309 | n = 3
> 8      within |          4.507153   2.443818   48.48127 | T-bar = 19.973

```

```

. pwcorr InGDPPCG Govindex InFDI InDinvestm InExD InTarrif InER InTO InExDs
> q

```

	InGDPPCG	Govindex	InFDI	InGFCF	InExD	InTP	InER	InTO	InExDsqr
InGDPPCG	1.0000								
Govindex	-0.0136	1.0000							
InFDI	0.1097	-0.0429	1.0000						
InGFCF	0.0310	0.1510	0.1079	1.0000					
InExD	-0.0811	0.1787	-0.0346	0.1555	1.0000				
InTP	-0.0195	-0.0201	-0.0267	0.0718	-0.0229	1.0000			
InER	-0.0216	-0.0347	0.0287	-0.0443	0.0371	-0.0474	1.0000		
InTO	0.0240	-0.2050	-0.0880	-0.2084	-0.1171	-0.0067	-0.0506	1.0000	
InExDsqr	-0.0806	0.1829	-0.0283	0.1650	0.9875	-0.0216	0.0429	-0.1180	1.0000

```

estimate table ols ols_dum fixed fixed_dum, star stats(N)

```

Variable	ols	ols_dum	fixed	fixed_dum
Govindex	-.00077306	-.00005398	-.03396861	-.02434935
InFDI	1.5191306**	1.5170932**	1.1244044	1.1006145
InDinvestm~t	.13190315	.13652281	.10608633	.10782991
InExD	-.01414244	-.07312686	-.45524806	-.5230849
InTarrif	-.05950671	-.09141206	.00337066	-.03707622
InTO	-.03283943	-.03108936	.00757057	.00990289
InER	-.01296853	-.04762389	-.00267092	-.05248669
InExDsqr	-.0121377	-.0069008	.03492838	.04097122
Year				
2001		.05656176		.04790679
2002		.14026475		.1468204
2003		.26838785		.25739874
2004		.30223569		.30210485
2005		.37732914		.37744093
2006		.37351289		.37431354
2007		.33459769		.35366114
2008		.432884		.44842075*
2009		-.168487		-.14891906
2010		.47740896*		.48626747*
2011		.31572484		.32751335
2012		.41267207		.43007632*
2013		.11810212		.13533488
2014		.21388343		.23894319
2015		-.35198818		-.33778813
2016		.15705987		.16743007
2017		.17934885		.18485951
2018		.17743114		.17887782
2019		-.00618369		-.01847945
_cons	-6.1120475	-5.6668368	-2.6110523	-1.7841985
N	739	739	739	739

legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

```

hausman fixed random

```

---- Coefficients ----				
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
Govindex	-.0339686	-.0083608	-.0256078	.0469368
InFDI	1.124404	1.323094	-.19869	.2500064
InDinvestm~t	.1060863	.121407	-.0153206	.0294468
InExD	-.4552481	-.2637725	-.1914756	.1071568
InTarrif	.0033707	-.0184255	.0217962	.026541
InTO	.0075706	-.0081054	.015676	.0144423
InER	-.0026709	-.0164024	.0137314	.0424749
InExDsqr	.0349284	.0135482	.0213802	.014114

b = consistent under Ho and Ha; obtained from xtreg  
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(8) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
= 10.63  
Prob>chi2 = 0.2235

xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

InGDPPCG[country1,t] = Xb + u[country1] + e[country1,t]

Estimated results:

	Var	sd = sqrt(Var)
InGDPPCG	.9420752	.9706056
e	.8415516	.9173612
u	.0802862	.2833482

Test: Var(u) = 0

chibar2(01) = 47.01  
Prob > chibar2 = 0.0000

xtcsd, pesaran abs

Pesaran's test of cross sectional independence = 2.756, Pr = 0.0058

Average absolute value of the off-diagonal elements = 0.201

xttest3

Modified Wald test for groupwise heteroskedasticity  
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2(37) = 5066.27  
Prob>chi2 = 0.0000

estimate table Drisc fixed random, star stats(N)

Variable	Drisc/Kraay	fixed	random
Govindex	-.02434935	-.02434935	-.00836082
InFDI	1.1006145	1.1006145	1.3230944*
InDinvestm~t	.10782991	.10782991	.12140696
InExD	-.5230849*	-.5230849	-.26377248
InTarrif	-.03707622	-.03707622	-.01842553
InTO	.00990289	.00990289	-.00810542
InER	-.05248669	-.05248669	-.01640236
InExDsqr	.04097122	.04097122	.01354816
Year			

2000		(empty)	(base)	
2001		.04790679	.04790679	
2002		.1468204**	.1468204	
2003		.25739874***	.25739874	
2004		.30210485***	.30210485	
2005		.37744093***	.37744093	
2006		.37431354***	.37431354	
2007		.35366114***	.35366114	
2008		.44842075***	.44842075*	
2009		-.14891906	-.14891906	
2010		.48626747***	.48626747*	
2011		.32751335***	.32751335	
2012		.43007632***	.43007632*	
2013		.13533488	.13533488	
2014		.23894319**	.23894319	
2015		-.33778813***	-.33778813	
2016		.16743007	.16743007	
2017		.18485951*	.18485951	
2018		.17887782*	.17887782	
2019		-.01847945	-.01847945	
_cons		-1.7841985	-1.7841985	-4.3356154
N		739	739	739

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legend: \* p<0.05; \*\* p<0.01; \*\*\* p<0.001

```
. xtabond2 InGDPPCG l.InGDPPCG InFDI InTarrif InTO Govindex InExD InDinvestmen
> t, gmm(InGDPPCG, collapse) iv(InDinvestment InER InTarrif Govindex ,equation
> (level))robust nodiffsargan orthogonal small
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> r speed, perm.
```

Dynamic panel-data estimation, one-step system GMM

```
-----
Group variable: countryl                               Number of obs   =       701
Time variable : Year                                   Number of groups =        37
Number of instruments = 25                             Obs per group: min =        17
F(7, 36) = 132.36                                       avg             =       18.95
Prob > F = 0.000                                         max             =        19
-----
```

InGDPPCG		Coef.	Robust Std. Err.	t	P> t	[95% Conf. Interval]
InGDPPCG						
L1.		-.4431926	.0848015	-5.23	0.000	-.615178 - .2712072
InFDI		.29161	.219607	1.71	0.095	-2.578521 30.76175
InTarrif		-.0774174	.2658225	0.29	0.773	-.4616956 .6165304
InTO		.7084805	.5997789	1.18	0.245	-.5079275 1.924889
Govindex		-.3005119	.7753615	1.83	0.076	-.1548777 .7559015
InExD		-.2193075	1.19019	2.61	0.074	-4.606893 .2207434
InDinvestm~t		.70615	.5836727	2.12	0.023	-.477593 1.889893
_cons		-102.0727	70.3413	-4.45	0.005	-244.7315 40.58609

Instruments for orthogonal deviations equation

GMM-type (missing=0, separate instruments for each period unless collapsed)

L(1/19).InGDPPCG collapsed

Instruments for levels equation

Standard

InDinvestment InER InTarrif Govindex

\_cons

GMM-type (missing=0, separate instruments for each period unless collapsed)

D.InGDPPCG collapsed

```
-----
Arellano-Bond test for AR(1) in first differences: z = -2.26 Pr > z = 0.024
Arellano-Bond test for AR(2) in first differences: z = -1.59 Pr > z = 0.112
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```

```
Sargan test of overid. restrictions: chi2(17) = 79.47 Prob > chi2 = 0.051
(Not robust, but not weakened by many instruments.)
```

```
Hansen test of overid. restrictions: chi2(17) = 23.02 Prob > chi2 = 0.149
(Robust, but weakened by many instruments.)
```

```

xtabond2 lngdpppcg l.lngdpppcg lnfdi lntrarif lnexdsq lnTO Govindex lnExD lnDi
> nvestment,gmm(lngdpppcg, collapse) iv(lnDinvestment lnER lnTarrif Govindex) r
> obus nodiffsargan orthogonal small

```

Dynamic panel-data estimation, one-step system GMM

Group variable: country1	Number of obs	=	701
Time variable : Year	Number of groups	=	37
Number of instruments = 25	Obs per group: min	=	17
F(8, 36)	=	367.99	avg = 18.95
Prob > F	=	0.000	max = 19

		Robust				
InGDPPCG	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
InGDPPCG						
L1.	-.479298	.0581718	-8.24	0.000	-.5972759	-.3613202
InFDI	8.234786	7.722466	1.07	0.293	-7.427102	23.89667
InTarriF	-.0099087	.1835142	-0.05	0.957	-.3820927	.3622754
InExDsQ	1.113619	1.151244	0.97	0.340	-1.221212	3.44845
InTO	.7396859	.4015987	1.84	0.074	-.074794	1.554166
Govindex	.1160189	.1402187	0.83	0.413	-.1683578	.4003956
InExD	-12.17915	12.33177	-0.99	0.330	-37.18914	12.83085
InDinvestm~t	.4204976	.3883894	1.08	0.286	-.3671927	1.208188
cons	-32.35062	81.58812	-0.40	0.694	-197.819	133.1178

cons

GMM-type (missing=0, separate instruments for each period unless collapsed)  
D.InGDPPCG collapsed

-----  
Arellano-Bond test for AR(1) in first differences: z = -1.99 Pr > z = 0.046  
Arellano-Bond test for AR(2) in first differences: z = -1.86 Pr > z = 0.063  
-----

Sargan test of overid. restrictions: chi2(16) = 54.14 Prob > chi2 = 0.000  
(Not robust, but not weakened by many instruments.)  
Hansen test of overid. restrictions: chi2(16) = 26.58 Prob > chi2 = 0.046  
(Robust, but weakened by many instruments.)

**xtabond2 InGDPPCG l.InGDPPCG InFDI InTarrif InTO Govindex InExD InDinvestmen**  
**> t,gmm(InGDPPCG, collapse) iv(InDinvestment InER InTarrif Govindex) robust nod**  
**> iffsargan orthogonal small two**  
Favoring space over speed. To switch, type or click on mata: mata set matafavor  
> r speed, perm.

Dynamic panel-data estimation, two-step system GMM

-----  
Group variable: countryl Number of obs = 701  
Time variable : Year Number of groups = 37  
Number of instruments = 25 Obs per group: min = 17  
F(7, 36) = 118.24 avg = 18.95  
Prob > F = 0.000 max = 19  
-----

		Corrected				
InGDPPCG	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
InGDPPCG						
L1.	-.5306512	.1029748	-5.15	0.000	-.7394938	-.3218086
InFDI	3.68998	13.39816	0.28	0.785	-23.48275	30.86271
InTarrif	-.0003873	.2585143	-0.00	0.999	-.5246787	.5239041
InTO	.701738	1.240989	0.57	0.575	-1.815104	3.21858
Govindex	.3571732	.280245	1.27	0.211	-.2111899	.9255363
InExD	-1.619403	1.6152	-1.00	0.323	-4.895181	1.656374
InDinvestm~t	.7765291	.6450898	1.20	0.237	-.5317736	2.084832
_cons	-20.50327	117.7222	-0.17	0.863	-259.255	218.2484



-----  
Instruments for orthogonal deviations equation

Standard

FOD.(InDinvestment InER InTarrif Govindex)

GMM-type (missing=0, separate instruments for each period unless collapsed)

L(1/19).InGDPPCG collapsed

Instruments for levels equation

Standard

InDinvestment InER InTarrif Govindex

\_cons

GMM-type (missing=0, separate instruments for each period unless collapsed)

D.InGDPPCG collapsed

-----  
Arellano-Bond test for AR(1) in first differences: z = -0.92 Pr > z = 0.359

Arellano-Bond test for AR(2) in first differences: z = -2.08 Pr > z = 0.038

-----  
Sargan test of overid. restrictions: chi2(17) = 71.69 Prob > chi2 = 0.000

(Not robust, but not weakened by many instruments.)

Hansen test of overid. restrictions: chi2(17) = 22.37 Prob > chi2 = 0.171

(Robust, but weakened by many instruments.)