



DEPARTMENT OF ECONOMICS AND ECONOMETRICS

FINAL ASSESSMENT

NOVEMBER 2015

APK CAMPUS

Course: **NATIONAL AND LOCAL GOVERNMENT FINANCE HONOURS**
(NLG8X01/EKN4812)

Marks: 100

Time: 3 hours

Assessors: Mr J Mahabir

Moderator: Dr M Ncube

Instructions:

1. Number of pages: 7 pages.
 2. The paper consists of **two (2)** sections and **six (6)** questions (three questions per section).
 3. Answer only **four (4)** questions by choosing **two (2)** questions from each section.
 4. Each question carries 25 marks.
 5. Noiseless calculators may be used.
 6. Please write neatly and legibly.
 7. Ambiguous or unsupported answers will not receive full credit.
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SECTION A – Answer two (2) of the three (3) questions

Question 1

- a) Assume that the production of good X produces a marginal private benefit and marginal external benefit as given in the functions below:

$$MPB = 15 - x$$

$$MEB = 2$$

Further assume that the marginal cost of producing good X is fixed at R3. Use this information to answer the following questions.

- i. Sketch a graph of the MPB, MEB and MC curves and show both the private market equilibrium and the efficient equilibrium.

- ii. Using the above functions, solve for the private market and efficient equilibriums.
- iii. Using the graph, give a brief explanation showing that the move from the private market equilibrium to the efficient equilibrium, assuming welfare transfers are possible, is a Pareto improvement.

[15]

- b) Assume that a pig farm is located adjacent to a winery and that the smell from the pig farm reduces the number of tourists who choose to stop at the winery. The table below shows the number of pigs the farmer can raise, the farmer's marginal cost for each additional pig, the farmer's marginal benefit and the marginal damage for the winery.

Number of Pigs	Marginal Cost	Marginal Benefit	Marginal Damages
1	R3	R13	R5
2	R6	R13	R7
3	R10	R13	R9
4	R13	R13	R11
5	R19	R13	R13
6	R21	R13	R15

Use this information to answer the following questions.

- i. What is the private optimal for the pig farmer?
- ii. What is the farmer's optimal number of pigs if the farmer is liable to the winery for foregone (or lost) revenue?
- iii. Assume that the farmer has the right to raise as many pigs as they deem optimal. Explain, in detail, what the winery owner may do to get the farmer to reduce his/her number of pigs. What will be the equilibrium number of pigs on the farm using this process?

[10]

Question 2

- a) Explain and critically apply Nozick's 'three principles of justice' as per his 'entitlement theory' to the current issue of land redistribution in South Africa. What are the main weaknesses with this approach in analysing the issue of land redistribution in the country?

[25]

Question 3

- a) Koksai (2008) analysed public expenditure in Turkey using the median voter theory. The econometric results are given in Annexure A of this script. Explain the empirical model that was estimated, interpret the results and explain how the results confirm or refute the median voter theory.

[15]

- b) Using the necessary graph(s), explain the theory of optimal voting rules. Explain how the optimal majority is reached to vote on an issue, why this majority is likely to be different for different issues and why it is easier to achieve a majority outcome in homogenous societies.

[10]

SECTION B – Answer two (2) of the three (3) questions

Question 4

- a) Chipaumire *et al* (2014) tested for the long run impact of government spending on economic growth in South Africa. Discuss the theoretical channels that the authors propose to explain such a relationship and highlight a potential criticism of their theoretical approach. Suggest a more appropriate theory to explain government's impact on long run economic growth.

[10]

- b) Chipaumire *et al* (2014) found a negative impact between government expenditure and long run economic growth in South Africa. Provide reasons to explain such a relationship in support of this finding.

[10]

- c) List and explain the five (5) policy challenges highlighted by Triegaardt (2006) that is adversely affecting South Africa's ability to tackle poverty and inequality challenges.

[5]

Question 5

- a) Discuss the results found by Doyle and Samphantharak (2008) in Annexure B. How applicable is this study to South Africa.

[10]

b) Discuss the results found by Kumar and Woo (2010) in Annexure C.

[10]

c) Explain briefly how they try to check for robustness of their results.

[5]

Question 6

a) Annexure D illustrates the division of revenue between the three spheres of government in South Africa. Provide the economic and policy rationale for the division of revenue process in the country.

[10]

b) "The South African fiscal scene has over many decades been characterised by a steady and gradual reduction of fiscal autonomy of sub-national governments" (Calitz and Essop, 2012). Do you agree with this statement? In answering this question, critically discuss the criteria used by the authors to determine the extent of fiscal decentralisation in the country that informed their conclusion. Ultimately, would you support a centralised or decentralised fiscal system? Substantiate your answer.

[15]

Annexure A

Table 1: Fixed Effect Estimation with LS

Estimated parameter	Coefficient	Std. Error	t-Statistic
Price elasticity	-0.52***	0.04	-12.42
Population elasticity	0.55***	0.06	9.75
Income elasticity	0.51***	0.05	10.67
Elas. of preceding level	0.54***	0.06	9.40
R-squared: 0.99 Durbin-Watson stat: 2.11 Number of obs: 474			

Annexure B

Table II: Regression Results

A: July Tax Repeal

Dependent Variable:	Log(Retail Price)			Log(Wholesale Price)
	(1)	(2)	(3)	(4)
Illinois or Indiana	-0.048	-0.013	-0.014	-0.035
	(0.038)	(0.025)	(0.021)	(0.017)
Post July 1	-0.052	0.029	0.025	-0.088
	(0.007)	(0.013)	(0.015)	(0.006)
(IL or IN)*Post July 1	-0.035	-0.029	-0.029	-0.007
	(0.007)	(0.008)	(0.008)	(0.006)
Observations	29675	29675	29433	29433
R-Squared	0.23	0.60	0.64	0.57
Mean of Dep. Var.	0.560	0.560	0.560	0.560

B: October Tax Reinstatement

Dependent Variable:	Log(Retail Price)			Log(Wholesale Price)
	(1)	(2)	(3)	(4)
Indiana	-0.056	-0.052	-0.053	-0.015
	(0.009)	(0.007)	(0.007)	(0.001)
Post Oct. 31	-0.014	-0.008	-0.009	-0.021
	(0.006)	(0.006)	(0.006)	(0.001)
IN*Post Oct. 31	0.039	0.040	0.040	-0.005
	(0.006)	(0.007)	(0.006)	(0.002)
Observations	22092	22092	21884	21884
R-Squared	0.16	0.18	0.26	0.41
Mean of Dep. Var.	0.457	0.457	0.456	0.456

C: January Tax Reinstatement

Dependent Variable:	Log(Retail Price)			Log(Wholesale Price)
	(1)	(2)	(3)	(4)
Illinois	0.019	-0.001	-0.005	0.029
	(0.035)	(0.024)	(0.021)	(0.007)
Post Jan. 1	-0.000	-0.038	-0.020	0.051
	(0.004)	(0.004)	(0.004)	(0.002)
IL*Post Jan. 1	0.027	0.036	0.037	-0.014
	(0.004)	(0.004)	(0.004)	(0.003)
Observations	7090	7090	7071	7071
R-Squared	0.04	0.24	0.39	0.41
Mean of Dep. Var.	0.303	0.303	0.303	0.303

Controls:

Wholesale Price	No	Yes	Yes	-
ZIP Codes Characteristics	No	No	Yes	Yes

Panel A: Prices observed June 27, June 28, July 5, July 6; Panel B: Prices observed Oct. 26, Oct. 27, Oct. 31, Nov. 1

Panel C: Prices observed Dec. 29, Dec. 30, Jan. 2, Jan. 3. Standard errors are reported, clustered at the state level.

Annexure C

Table 1. Baseline Panel Regression—Growth and Initial Government Debt, 1970–2007 (Five-year Period Panel)
Sample: Advanced and Emerging Economies
Dependent Variable: Real per Capita GDP Growth

Explanatory Variables	(1) BE	(2) Pooled OLS	(3) FE	(4) SGMM	(5) Pooled OLS	(6) FE	(7) SGMM
Initial per capita real GDP	-2.616*** (-6.66)	-2.257*** (-3.26)	-3.598*** (-3.03)	-2.555*** (-3.04)	-2.187*** (-2.74)	-4.506*** (-3.31)	-2.823*** (-3.33)
Initial years of schooling	4.246*** (4.58)	2.965*** (2.96)	5.622*** (3.66)	4.333* (1.70)	2.863*** (2.72)	4.138** (2.34)	4.161** (2.12)
Initial inflation rate	0.931 (0.47)	-2.351*** (-3.81)	-2.571*** (-4.65)	-3.062** (-2.27)	-2.234*** (-3.49)	-2.467*** (-6.93)	-2.296 (-1.43)
Initial government size	0.1** (2.45)	0.086** (2.30)	0.125 (1.41)	0.113 (0.99)	0.087** (2.29)	0.012 (0.15)	0.168 (1.20)
Initial trade openness	0.002 (0.39)	0.001 (0.18)	0.024 (1.71)	-0.006 (-1.14)	-0.001 (-0.25)	0.020 (1.47)	-0.004 (-0.71)
Initial financial depth	0.024*** (2.98)	0.018*** (2.76)	-0.001 (-0.07)	0.033*** (2.98)	0.019*** (2.87)	0.006 (0.71)	0.026*** (2.72)
Terms of trade growth	0.111* (1.67)	-0.015 (-0.64)	0.011 (0.41)	-0.024 (-0.97)	-0.019 (-0.88)	-0.003 (-0.14)	-0.025 (-0.96)
Banking crisis	-1.143 (-0.85)	-0.819** (-2.50)	-0.782*** (-3.62)	-1.196* (-1.91)	-0.728** (-2.27)	-0.673** (-2.64)	-1.519 (-1.42)
Fiscal deficit	0.012 (0.44)	-0.048*** (-4.89)	-0.051*** (-4.60)	-0.056*** (-3.42)	-0.044*** (-4.91)	-0.037*** (-4.63)	-0.036* (-1.78)
Government debt, initial	-0.026*** (-3.04)	-0.020*** (-3.64)	-0.019*** (-3.23)	-0.029*** (-3.24)	-0.018*** (-2.66)	-0.004 (-0.79)	-0.020** (-2.49)
Arellano-Bond AR(2) test p-value 1/				0.64			0.12
Hansen J-statistics (p-value) 2/				0.28			0.26
Number of observations	166	166	166	166	166	166	166
R ²	0.78	0.55	0.4		0.66	0.60	
Time-fixed effects	N/A	No	No	No	Yes	Yes	Yes

Note: Heteroskedasticity and country-specific autocorrelation consistent *t*-statistics are in parentheses. Time dummies are not reported.

Levels of significance: *** 1 percent, ** 5 percent, * 10 percent. In the OLS regressions, dummies for OECD, Asia, Latin America, and sub-Saharan Africa are also included in each regression (not reported to save space). FE refers to the fixed effects panel regressions and BE is the between estimator.

For the dynamic panel estimation, a two-step system GMM (SGMM) with the Windmeijer's finite-sample correction for the two-step covariance matrix.

1/ The null hypothesis is that the first-differenced errors exhibit no second-order serial correlation.

2/ The null hypothesis is that the instruments used are not correlated with the residuals.

Annexure D

Table 7.1 Division of nationally raised revenue, 2010/11 – 2016/17

	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
	Outcome			Revised estimate	Medium-term estimates		
R million							
Division of available funds							
National departments	356 027	382 712	412 706	449 251	489 424	522 257	552 983
of which:							
<i>Indirect transfers to provinces</i>	–	76	860	2 693	5 413	5 044	4 127
<i>Indirect transfers to local government</i>	2 939	2 770	4 956	5 697	7 726	9 467	10 221
Provinces	322 822	362 488	388 238	414 932	444 423	477 639	508 254
Equitable share	265 139	291 736	313 016	338 937	362 468	387 967	412 039
Conditional grants	57 682	70 753	75 222	75 995	81 955	89 672	96 215
Local government	60 904	68 251	76 430	83 670	90 815	100 047	105 187
Equitable share	30 541	33 173	37 139	39 789	44 490	50 208	52 869
Conditional grants	22 821	26 505	30 251	34 268	36 135	39 181	41 094
General fuel levy sharing with metropolitan municipalities	7 542	8 573	9 040	9 613	10 190	10 659	11 224
Non-interest allocations	739 752	813 451	877 374	947 853	1 024 662	1 099 943	1 166 424
<i>Percentage increase</i>	7.2%	10.0%	7.9%	8.0%	8.1%	7.3%	6.0%
Debt-service costs	66 227	76 460	88 121	101 256	114 901	126 647	139 201
Contingency reserve	–	–	–	–	3 000	6 000	18 000
Main budget expenditure	805 979	889 911	965 496	1 049 109	1 142 562	1 232 590	1 323 624
<i>Percentage increase</i>	7.9%	10.4%	8.5%	8.7%	8.9%	7.9%	7.4%
<i>Percentage shares</i>							
<i>National departments</i>	48.1%	47.0%	47.0%	47.4%	47.8%	47.5%	47.4%
<i>Provinces</i>	43.6%	44.6%	44.2%	43.8%	43.4%	43.4%	43.6%
<i>Local government</i>	8.2%	8.4%	8.7%	8.8%	8.9%	9.1%	9.0%

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