Draft

Economic Research Southern Africa Activity

April 2021 – March 2022

Director’s Statement

Forthcoming - Matthew Simmonds

Income and Expenditure Statement: 1 April 2021 – 31 March 2022

Economic Research Southern Africa (NPC)

(Registration number: 2010/002225/08)
Financial Statements for the year ended 31 March 2022

Detailed Income Statement

Figures in Rand	Notes	2022	2021
Revenue			
Grant Income		11 000 000	11 000 000
GIZ Funding		520 516	-
	8	**11 520 516**	**11 000 000**
Other income			
Employment tax incentive		2 097	3 985
Other Income		-	84 828
		2 097	**88 813**
Operating expenses			
Accounting fees		193 637	165 892
Advertising		2 811	92 442
Auditors remuneration		59 225	67 321
Bank charges		26 875	19 351
Board Stipend		83 473	2 632
Conferences and workshops		4 984	1 999
Department of labour compensation		12 323	14 838
Depreciation, amortisation and impairments		2 371	2 364
Development and research fees		330 000	-
ED Stipend		89 444	299 069
ERSA Fellows expense		-	135 000
ERSA Institution of Economic Policy Studies		1 376 082	350 000
ERSA Prizes		83 740	51 660
Employee costs		4 494 395	2 940 237
Entertainment		6 282	534
GIZ project expense		569 159	-
HR – Labournet & Consulting		35 006	11 649
IT expenses		329 186	137 770
Insurance		37 160	34 646
Lease rentals on operating lease		1 005 983	933 896
Media consultant expense		664 290	276 000
Office expenses		19 182	14 526
Postage		41 846	1 875
Printing and stationery		6 032	1 554
Provision for development and research		1 492 100	-
Provision for research fees		(171 818)	(83 410)
Research costs		520 884	799 546
SAMNET expense		329 490	-
Staff welfare		9 856	7 828
Subscriptions		2 105	4 474
Sundry		17 723	1 001
Telephone and internet		154 174	102 120
Training		301 594	264 986
Travel - local		31 462	-
		12 161 056	**6 651 800**
Operating (loss) profit		**(638 443)**	**4 437 013**
Investment income	11	534 131	523 194
(Loss) profit for the year		**(104 312)**	**4 960 207**

ERSA Policy Associate Reports:

I joined ERSA in October 2018 to manage and conduct independent policy related research and spend time interacting directly with policy makers. I am also tasked with developing ERSA's training, public economics, and representativity and diversity programmes.

In the last year, I have continued work on my research projects looking at the South African retirement fund industry and the child support grant. The first paper uses regulatory data to examine the structure and size, funding stability, risk sharing, and efficiency and economies of scale of retirement funds over time. The second paper looks at how a cash transfer during childhood (the child support grant) affects longer-run labour market outcomes. The study focuses on a time when individuals are no longer receiving the cash transfer and seeks to understand how government policies can affect future income and poverty and thereby reduce intergenerational poverty transmission.

I have also begun work on two new projects. The first project, joint with Konstantin Makrelov, extends my work on capital buffers to examine how changes in banks' capital buffers are related to changes in loan extensions. The second uses South African administrative tax data to analyse how retirement fund contributions vary along age and gender. Further, it exploits the panel nature of the data to examine how contributions vary for an individual over time as they earn more, switch employers, and experience other labour market changes. The project also aims to examine replacement rates at the individual level by comparing individual incomes in the years before their retirement with the retirement fund income they receive after their retirement to calculate individual replacement rates. These replacement rates can be compared across individuals to see if they vary by, for example, age and gender, and over time. This analysis on the demand side of the market (individual members) can be combined with my other work on the supply side (retirement funds) based on administrative data to provide unique insights into the retirement fund industry.

I continued to organise ERSA Public Economics webinar series with both local and international presenters covering a range of topics related to government spending, taxation and regulation. As in previous years, the webinars related to Covid-19 have been particularly popular.

As part of the Graduate Training programme, we again offered online courses on advanced panel data econometric techniques and on the economics of education. A new course on Advanced Empirical Methods in Finance and Economics was offered by my fellow policy associate, Lucas Mariani. All course received more applications than we were able to accept, and we received applications from a broad selection of candidates in both the academic and policy worlds.

This last year has seen the continued growth of ERSA programmes, and has been a productive one in terms of research. I look forward to the next year.

Neryvia Pillay
May 2022

I joined ERSA in June 2020 to manage and conduct independent policy-related research and spend time interacting with academics and potential partners to ERSA's projects. I am also tasked with developing ERSA's training in empirical methods and firms and development research area.

As part of the Graduate Training programme, I organized, developed, and taught one course via Zoom last year. This course was aimed to equip policymakers, Ph.D. Students, academics, and policymakers to modern techniques in causal analysis using topics in corporate finance, applied macroeconomics, and development economics. The course received applications from a broad selection of candidates in both the academic and policy worlds. I am planning to organize a similar course this year.

During 2020/2021, I helped the organizers of the "Public Economics" and the "Structural constraints on the economy: growth and political economy" webinars to identify and invite researchers I believed would be attractive to the Southern African academic and non-academic community.

In the past year, I started two projects using data from the SARS firm-level panel on issues related to the effects of firm dynamics on aggregate productivity, structural transformation, and development. This period was very fruitful for getting to know more about the data and its potential.

In the first project, I am working with Silvia Marchesi. We will analyze the effects of South African Government Bonds inclusion on the Citigroup World Government Bond Index (WGBI) firms' resource allocation and their effects on aggregate productivity. Recent literature shows that foreign capital inflows can reduce resource misallocation and improve aggregate productivity in emerging economies. Our project will leverage South African inclusion in the index along with rich firm-level tax data from South Africa to analyze the effects of sovereign debt demand upsurges on firm-level and aggregate productivity. To the best of our knowledge, this is the first project aiming to test the effects of a boost in a country's sovereign debt inflows on resource reallocation and productivity. The advantage of exploiting a country's inclusion in the WGBI allows us to overcome the endogeneity concerns since sovereign debt flows are endogenous to macroeconomic conditions. Specifically, we take advantage of the sudden and unanticipated announcements of this country's inclusion in the index.

In the second project, I will analyze the effects of Chinese competition in Africa on South African structural change and allocation of resources. China's increasing participation in international trade has generated heterogeneous impacts in developed and developing countries. Although
the literature has devoted much attention to the topic, most studies shed light on the effects of China's import penetration on the partner country. However, very little is known about such effects on exporting firms affected by this shock on foreign markets.1 This project will close this gap by analyzing the effects of China's penetration in Africa on South African firms and the spillover effects of such a shock on the local economy.

This last year has been essential to becoming more acquainted with the opportunities and context of Southern Africa for me. It has been a productive one in terms of research. I look forward to the following year.

Lucas Argentieri Mariani
May 2022

2. The Webinars Programme

During 2021 - 2022, 29 webinars were held:

IO and Digital Information

The objective of this virtual seminar is to bring together South African and international researchers working on questions related to Industrial Economics and Digital Transformation, exchange ideas and provide feedback in order to expand research capacity and feed into research-driven policy making on the African continent.

Activities Report

Demographic Table

Title
9 Seminars held during April 2021 to March 2022

Bridging the Divide in Economics

South Africa has had its fair share of issues with regards to the participation and contribution of various groups in society. These issues cut across various social cleavages such as race and gender. The study and practice of economics in South Africa has not been spared from these wider societal issues.

Title	Date	Total
Discussion – Bridging the Divide in Economics	8 April 2021	15

Structural Constraints on the Economy, Growth and Political Economy

The Economic Research Southern Africa webinars on 'Structural Constraints on the Economy, Growth and Political Economy' bring together scholars and practitioners of growth and political economy of Africa. The webinars reflect the current state of research in growth and political economy and provide a forum for exchange for scholars and practitioners.

Title	Date
Agrarian Elites, Education, and Long-Term Development	12 April
Transhumant Pastoralism, Climate Change, and Conflict in Africa	17 May 2021
Why Do People Stay Poor?	14 June 2021

Mask Wars: China's Exports of Medical Goods in Times of COVID-19	06 September 2021
Escaping the Climate Trap? Values, Technologies, and Politics	20 September 2021
Agrarian Origins of Individualism and Collectivism	03 November 2021
Tasks, Automation, and the Rise in US Wage Inequality	14 February 2022
Deposit Insurance and Depositor Behavior: Evidence from Colombia	07 March 2022

Public Economics

The goal of this webinar series is to provide a venue for the presentation of work in public economics and to bring together researchers in the field from the Southern African region and beyond. The series covers all areas of public economics and both theoretical and empirical work is welcome.

Title	Date	Total
COVID-19 and the labour market: Estimating the causal employment effects of South Africa's national lockdown	11 May 2021	253
An Aspiring Friend Is a Friend Indeed: School Peers and College Aspirations in Brazil	25 May 2021	253
Do firms have a preference for paying exactly zero tax?	8 June 2021	241
Corporate taxation and firm-level investment in South Africa"	22 June 2021	228
Covid-19 vaccine intentions in South Africa: Health communication strategy to address vaccine hesitancy	6 July 2021	227
Can cash transfers aid labour market recovery? Evidence from South Africa's special COVID-19 grant	20 July 2021	216
Getting into the Weeds of Tax Invariance	17 August 2021	97
Under Pressure: Women's Leadership During the COVID-19 Crisis	31August 2021	

South African Modelling Network

SAMNET Activities for 2021 have operated in the context of international COVID restrictions that limited the opportunities of developing the visiting program and confined all activities on-line.

Given the context, we have been focused on organizing relevant on-line technical and policy workshops, build connections with international researchers to be fully

developed after the re-opening of international visits and complete and organize the inventory of the South African models.

During the year, we have organized 3 research workshops, 1 training workshop and made some progresses in model development, that we will be able to speed up in 2022 with the possibility of bringing research fellows in the country.

Research Workshops

31st of March 2021: Hybrid Model Workshop

In the workshop the ERD Modelling Unit presented the directions of development of a new Hybrid Model which should bring together data consistency and with theoretical consistent long run characteristics. The workshop was attended by a restricted group local and international experts in the field to facilitate exchange of ideas and positive engagement with the modelling issues.

28-30 June 2021: Fiscal Policy and Fiscal-Monetary Interdependence in South Africa

The workshop was organized in collaboration with Romain Houssa (University of Namur) and it was introduced by a lecture by Eric Leeper (University of Virginia and NBER) on the current theoretical and empirical research on fiscal and monetary policy interaction. Nine papers were presented, seven from national scholars and two from international researchers, all focusing on the fiscal and monetary interaction in South Africa. More than 100 people attended the workshop daily, from academia, private sector and public institutions.

29th November – 1st of December 2021: New Developments in Macroeconomics: Exchange Rate, Expectations, Commodities, Inflation Target

The workshop was organized to overview new developments in area of great importance in policy making. Christiane Baumeister from the University of Notre Dame presented new methodologies to extract market expectations from asset prices while Vania Stravrakeva from the London Business School presented her research on the fundamental connections between exchange rate and macroeconomic expectations. Seven more papers where presented by national scholars and the program was concluded by a policy panel on the future of the South African monetary policy framework. Once again, more than 100 people attended the three sessions

Training Workshops

31st of March 2022: "Time Series Tools for Policy Scenarios" – Giovanni Ricco (University of Warwick and ERSA

The workshop introduced time series techniques to develop data consistent policy scenarios to in conjunction with the SARB model scenarios. The workshop developed a work program between the ERD modelling unit and external researchers to develop and test these tools in the South African context. The work will be completed within the year

Model Development

1) South Africa DSGE model with Commodity Markets – The model has been developed by Romain Houssa (University of Namur) and Vincent Dadam (UP and ERSA), based on a model by Romain Houssa (University of Namur) Jolan Mohimont (Bank of Belgium) and Chris Otrok (University of Missouri). The model is at the development stage and it will be presentec and tested at the next in person visit by Romain Houssa – in September 2022

2) The ERD Modelling group is continuing the work on the Hybrid Model. The develpoment is progressing according to the expected timetable.

3) A Time Series model for Policy analysis has been developed by Giovanni Ricco (University of Warwick) Ekaterina Pirotzkova (UP and SARB) and Nkosipindile Shenge (UP) and will be presented in the second part of 2022

4) New models are discussed with international scholars which have agreed to work in the SAMNET context. In particular, Mehmet Balcilar (Eastern Mediterranean University), a leading academic in time series and risk analysis, will develop a model or the Natural Rate of Interest using a Bayesian Model Averaging approach, in collaboration with Vincent Dadam (UP and ERSA)

5) Vincent Dadam is continuing the collection of South African models which can be found at https://github.com/SAMNet-ersa/DSGE-Models-Collection-for-the-South-African-Economy. We are also in contact with the international network Macroeconomic Model Data Base at the University of Frankfurt (https://www.macromodelbase.com) to contribute to the international collection with the South African models.

3. Working, Policy Paper and Policy Bulletin Series

The ERSA Working, Policy Paper and Research Brief series remains active and constitutes a core element of the ERSA initiative to stimulate the range and depth of research in economics in Southern Africa.

Evaluation is completed by the ERSA editorial team, consisting of the Director and Deputy Directors of ERSA for assignment to referees. In addition, two or three affiliates from each research group have recently been appointed as associate editors in order to assist with this process. Referee's reports require author responses and determine acceptance into the ERSA paper series.

Submissions are subject to standard academic peer review, and acceptance into the series results in a financial pay-off subject to subsequent publication in a peer reviewed journal which attracts a financial reward, on a nonlinear scale depending on the professional status of the journal accepting the paper. Journal rankings are provided by the ISI Thomson Web of Science impact factor adjusted ranking according to the total citations criterion, which is an international standard for journal rankings in economics.

The core objective of the mechanism is the provision of a clear incentive mechanism to researchers to both increase output, and to attempt to place their work in as highly placed a journal internationally as is feasible.

The rate of publication of working papers still remains at a satisfactory level. In the last annual report, ERSA was able to report the publication of 854 Working Papers and 23 Policy Papers. Since April 2021 to March 2022, this has increased to 876 Working Papers and 28 Policy Papers.

The distribution of the topics of papers is wide ranging and represents the general coverage of the ERSA mechanism.

What is pleasing about the papers appearing in the ERSA series is that they are meeting a high success rate in terms of publication in peer reviewed journals. To date, 426 out of the 854 Working Papers have been published.

The evidence is thus consistent with stated objective of ERSA to increase the publications profile of South African economists, and in particular to raise the international profile of Southern African based publications in economics. Given the structure of the financial incentive mechanisms surrounding the Working and Policy Paper series, this is not altogether surprising.

Policy Bulletin

The ERSA policy bulletin is a vehicle for preliminary research, lightly reviewed, on current policy issues and debates. The series emphasizes brief, focused, and timely interventions. The desk review will evaluate ethical and professional standards, basic research design, and the interest of the topic. The manuscript should not be longer than seven printed pages or less, excluding tables, figures, and references. Authors willing to present their research in this series should send the manuscript in PDF format to nicola.viegi [at] up.ac.za

Policy Bulletin 05:
The impact of global FX liquidity on the rand
Authors: Tim Olds, Daan Steenkamp and Roussouw van Jaarsveld
Date: July 2021

The Covid crisis saw significant declines in market liquidity and calls for central banks to step in. Most research into foreign exchange (FX) liquidity does not consider a large cross-section of emerging market currency pairs or include the rand (ZAR) in its analysis, so this note sheds light on the intra-day behaviour of foreign currency rates and FX market liquidity for 20 of the most traded currency pairs.

Table 3 : ERSA Working Paper – Journal Publication Breakdown April 2021 to March 2022

WP#	Author/s	Title	Journal	Ranking
743	S Mukanjari	Recreation demand and optimal pricing for international visitors to Kruger National Park	2020, Journal of Environmental Economics & Policy	International
766	H Ntuli	Can local communities afford full control over wildlife conservation? The case of Zimbabwe	2020, Journal of Choice Modellin	International
791	R Hawthorne	Distribution of the benefits of regulation vs. Competition: The case of mobile telephony in South Africa	2020, International Journal of Industrial Organization	International
796	H Ntuli	Understanding the drivers of subsistence poaching in the Great Limpopo Transfrontier Conservation Area: What matters for community wildlife	2021, Journal of Ecology & Society	International
799	E Tigum	The effects of price and non-price policies on cigarette consumption in South Afica	2020, Tobacco Induced Diseases	International
805	T Kisten	Monitoring financial stress in South Africa	2020, Emerging Markets Finance and Trade	International
806	R Klege	Competition and Gender in the Lab vs Field: Experiments from off-grid Renewable Energy Entrepreneurs in Rural Rwanda	2020, Journal of Behavioural and Experimental Economics	International
811	G Liu	The Optimal Monetary and Macroprudential Policies for the South African Economy	2020, South African Journal of Economics	International

812	C Mulwa	Emergent large traders in smallholder grain markets and their role in enhancing adoption of sustainable agricultural intensification practics in Kenya	2021, Agriculturl Economics Journal	International
816	G Mudiriza	The persistence of apartheid regional wage disparities in South Africa	2020, Journal of Economic Geography	International
817	Y Getachew	Redistribution, inequality, and efficiency with credit constraints: implications for South Africa	2020, Economic Modelling	International
819	A Oyenubi	Does the choice of balance-measure matter under genetic matching?	2020, Empirical Economics	International
820	A Nyagwachi	The effect of tobacco-and alcohol-control policies on household spending patterns in Kenya: An approach using matched difference in differences	2020, Social Science & Medicine	International
828	D Gelo	Forest commons, vertical integration and smallholder's saving and investment responses: Evidence from a quasi-experiment	2020, World Development	International
833	J Bohlmann	Examining the determinants of electricity demand by South African households per income level	2020, Energy Policy	International

Statement by the Chair of the ERSA Editorial Committee

ERSA Working Paper Series – April 2021 to March 2022

On behalf of the editorial committee, I would like to briefly report on the state of the ERSA Working Paper Series (hereafter "The WPS") for the period Jan 2021 to March 2022.

Between Jan 2021 – March 2022, ERSA has received 50 new submissions. During the reporting period April 2021 – March 2022, 19 working papers and 1 Policy Bulletin was published. The number of papers published since the start of the WPS initiative (2005) to date is 876.

Some statistics of the review are as follows:

- 34.6%; acceptance rate
- 25% Major revision rate
- 5.8% Minor revision rate
- 34.6% rejection rate

The editorial committee currently consists of 17 people. The editorial committee members are leading researchers in South Africa. In principle, all papers including those submitted by the associate editors go through the peer-review process, unless the editor uses his discretion and deems a paper ready for immediate publication.

The electronic platform, ScholarOne Manuscripts, works fine, but ERSA decided not to make use of it from April 2022. ERSA also decided to discontinue the formal review process and financial incentives for WPs that are published in accredited journals from April 2022.[1]

The WPS is still the premier series in Southern Africa to publish the work-in-process economic research articles and will continue to encourage more and better research in Economics in the future.

Yours truly,

Guangling Liu

[1] This paragraph is for record purpose and does not need to be included in the annual report.

4 ERSA Economics Prizes

As a means of incentivizing study in economics, ERSA has re-introduced a mechanism for the recognition in student performance in the economics discipline.

To this end, the Academic Committee introduced monetary awards to the best two economics students in South Africa across all universities, in each year of study. While very moderate in amount, the prizes nevertheless allow universities to recognise the best achievers in each year of study, and to motivate them to continue studying further in economics.

The prizes are R1000 for the first placed student, and R800 for the second placed student.

This year, a total of 9 institutions submitted their top students' information for this program. The following universities have applied for and are being awarded the prizes for their top students. ERSA no longer gives a donation of R3500 towards hosting a departmental social function to honour their top students. Details of student prize winners are listed in Table 4.

Table 4: Prize Winning Students

Institution	Placing	First Year	Second Year	Third Year	Honours	Masters	PhD
U Cape Town	First				B Coutts-Trotter	A Giger	G Kinyanjui
	Second				A Euston-Brown	J Tatham	A Ebrahim
U Fort Hare (Alice Campus)	First	MK Masontsela	S Mbadla	AN Panda	E Pedzayi		
	Second	J Mawere	SF Sinyenyeka	PF Mupondi	S Godlo		
U Fort Hare (East London Campus)	First	B Cakata	ZM McAllister	F Madzinga	A Simanga	S Lindani	
	Second	SW Velebhayi	B Mgwatyu	AM Nomachule	I Nomandla	M Tshaka	
U Free State	First	L Vorster	I De Klerk		S Ntsaluba	A Meggersee	
	Second	P Omphile	C Makhado		T Modiba		
U Limpopo	First	N Khoza	OM Majadiboni	MJ Mogano	HI Mabunda	HM Maboa	
	Second	VP Mboweni	AL Rigala	AA Setlhako	LP Rampedi	L Letsoalo	
U Stellenbosch	First	HR Hay	SC Woolard	TB Buxton	A Guana	J Brink	
	Second	I Botes	T Swart	SA Tocknell	J Smith	J Dolling	
U Western Cape	First	L Mkhalane	C Newman	C Khan	K Antonio	N Ndaba	F Nackerdien
	Second	R Khan	Y Naidoo	A Abrahams	F Damon	S Bala	S Madyibi
		Z Whiteboy					
U Zululand	First	S Makhathini	N Sithole	L Mchunu	SL Zondo	LO Mpungose	BP Makhoba
	Second	T Sikhakhane	N Sithole	NT Nkwanyana	N Mtetwa	MP Jeza	O Niyitegeka

5. Skills Development Programme

The Skills Development Initiative, which is aimed at raising the technical skills of young faculty members for an active research career, continues. Three Skills Development workshops were held in the 2021/2022 year. See reports below.

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Faculty of Economic and Management Sciences
Department of Economics

3 May 2022

Attention: ERSA Board Economic Research Southern Africa Claremont Cape Town

Dear Sir/Madam

Report: ERSA Skills Development Workshop
(Cross-Section Econometrics, Cohort 5, Session 2)

In this document, we present a report on the Workshop hosted by the Department of Economics at the University of Pretoria, between 12 and 16 April, 2021.

The fifth cohort (session 2), consisting of 16 delegates attended the workshop in a continued effort towards the goal of deepening economic research capacity through the training of young academics employed in Economics departments at academic institutions in South Africa.

The report is organised under the following headings:

- Background;
- Selection of participants;
- Format and timing of delivery of the programme;
- Topics covered during the workshop; and
- Feedback from participants and our impressions.

As in the past, we thank ERSA for the opportunity granted to participants to be part of the programme and for lecturers from the University of Pretoria to be involved in the training.

Sincerely,

Steve Koch
Professor

Report: ERSA Skills Development Workshop
Time Series Econometrics
Presented at the University of Pretoria
12 – 16 April 2021

Background

The ERSA sponsored Skills Development programme commenced in November 2013, after the ERSA board accepted a proposal for the offering of intermediate Econometrics training to academics from South African universities. The motivation for the project stems from the fact that a significant number of academics affiliated with South African Universities, and employed within Economics departments around the country, are inadequately trained in Econometrics. They are consequently not suitably equipped to conduct empirical research and/or supervise students. This workshop aims to bridge this gap by providing intermediate Econometrics training.

The workshops run over five days in a well-equipped econometrics laboratory at the Department of Economics, University of Pretoria, although the meetings have been online during Covid. They are designed to be of particular benefit to economists and social scientists in the academic, and also public and private sectors, wanting to know how to use time series, cross section and panel data techniques to inform research, student supervision and policy making.

The first two cohorts comprised 10 delegates for each three-year training period, during the third and fourth cohort this number was increased to 15. For the fifth cohort 36 applicants were accepted, which were split into two sessions, with 20 delegates attending session 1 and sixteen attending session 2. The second of the series of three workshops, once again focussed on Cross Section Econometrics and was offered during the week of 12 to 16 April 2021.

Selection of participants

Given the ongoing demand for econometrics training and capacity building, the fifth cohort of academics was selected by the ERSA Skills Development Committee. sixteen delegates were scheduled to attend the workshop (session 2 of cohort 5). The group comprises representatives from the NMMU; TUT; University of the South Africa; University of Limpopo; University of Mpumalanga; University of Zululand; University of KwaZulu Natal; University of the Northwest; University of Johannesburg; University of Lesotho. The participants in this workshop are listed below, together with their affiliation.

		Name	Surname	Affiliation	e-mail address
1	Ms	Nwabisa	Daniels	NMMU	KhawutaD88@gmail.com
2	Mrs	Ruth Oluwatosin	Eegunjobi	UJ	ruth2012ee@gmail.com
3	Mrs	Tamaryn	Friderichs	Rhodes University	t.friderichs@ru.ac.za
4	Ms/Dr	Tapuwa Roseline	Karambakuwa	NMMU	rkarambakuwa@gmail.com;Roselinek@nmmu.ac.za; roseline.karambakuwa@mandela.ac.za
5	Mr	Praise Sandile	Khuswayo	UNISA	sandilepkhuzwayo@gmail.com
6	Mr	Thabang	Malatji	UNISA	malatmt@unisa.ac.za; tmalatji@outlook.com
7	Ms	Lerato	Mothae	U. Lesotho	lmothaelillian@gmail.com

8	Mr	Thamsanqa Reginald	Mtshengu	U. Zululand	MtshenguT@unizulu.ac.za
9	Ms	Lorrane	Nesongozhe	UNISA	nesonlm@unisa.ac.za
10	Mr	Lwazi Senzo	Ntshangase	U. Zululand	lwazimenziwa@gmail.com
11	Mr	Gabila	Nubong	NWU	Gabila.Nubong@nwu.ac.za
12	Mr / Dr	Kanayo	Ogujiuba	U. Mpumalanga	Kanayo.Ogujiuba@ump.ac.za
13	Mr	Marco	Sgammini	U. North West Vanderbijlpark	m.sgammini27@gmail.com
14	Mr	Oliver	Takawira	UJ	olivertakawira@gmail.com; otakawira@uj.ac.za
15	Mr	Bhasela	Yalezo	UKZN	Yalezob@ukzn.ac.za
16	Mr	Mulatu Fekadu	Zerihun	Tshwane University of Technology	Zerihunmf@tut.ac.za; zerihunmulatufekadu606@gmail.com

Format and timing of delivery of the programme

The workshop was conducted online, via Zoom, with the aim of participants acquiring the necessary theoretical background and being exposed to hands-on empirical application, using STATA, although some discussion included R.

The instructors for the Cross-Section workshop were Prof Steve Koch and Dr Matthew Clance.

A typical day started at 8:30 and ended at 16:30 with a "lunch" break of one hour and a mid-morning and mid-afternoon "coffee/tea" break of 20 to 30 minutes.

Slides with references and practical exercises with solutions were made available in electronic format. Time was divided between theoretical discussions and practical applications.

Workshop participants were not overly talkative, although Q & A was encouraged. Although the majority had prior exposure to some software, few had exposure to programming, which is typically necessary for undertaking cross-section analysis. Thus, practical work was often slower than expected.

Topics covered during the workshop

The topics below were addressed during the course of the week.

1. Using Stata to Read Data, Manipulate and Present Data (1 day)
   - 1.1. Reading data, manipulating, compressing, loops
   - 1.2. Do files v data files v log files
   - 1.3. Assisted practical (examples of reproducible work)
   - 1.4. Developing tables
   - 1.5. Creating illustrations
   - 1.6. Assisted practical (example journal tables and figures)
2. OLS and LPM
   - 2.1. Heteroscedasticity (1 day)
   - 2.1.1. Robust estimation
   - 2.1.2. GLS
   - 2.1.3. Assisted practical (examples GLS and FGLS)
   - 2.2. Categorical variables

2.2.1. As controls: Categories for dummies
2.2.2. As outcomes: LPM and probit/logit
2.2.3. Assisted practical (binary models)
3. Multinomial Models, IV and Heteroskedastic IV (1 day)
3.1. Endogeneity issues
3.1.1. IV/2SLS
3.1.2. Control functions
3.1.3. Assisted practical (wage equation)
3.2. Other ID Strategies
3.2.1. Heteroskedastic IV
3.2.2. Other moments?
3.2.3. Assisted practical (wage equation)
3.3. Multinomial models
4. Treatment Effects (1 day)
4.1. Regression Discontinuity
4.2. Difference-in-Difference
4.3. Matching models
4.4. Assisted practical
4.4.1. RD
4.4.2. Matching
5. Smorgasbord (1 day)
5.1. Bootstrap standard errors
5.2. Selection, censoring and truncation
5.3. Quantile regression
5.4. Assisted practical
5.4.1. Quantile wage equation
5.4.2. Two-part model and selection wage equation

The following prior knowledge was assumed: Basic statistical methods, such as the calculation of means and standard deviations, as well as hypothesis testing, primarily t, z, and F distribution based tests. A modest understanding of matrix algebra was assumed (meaning that the participant can, for example, interpret the solution to the OLS problem, as well as follow the explanation of IV and heteroskedastic IV).

Topics 3 and 4 received emphasis and more time were spent on them than on the others.

Feedback from participants and our impressions

In general, the delegates were grateful for the opportunity granted to them, although only a few were eager to engage via the online platform. We did feel it benefitted the students, although we will only later see if this training gets used in further research.

This time around, the short-term STATA license was excellent, since everyone was operating under the same software circumstances, even though basic programming skills did not appear extensive. Although this is a stickier subject, such skills are becoming more important, but are beyond the scope of a week-long methods course.

As in the past, we thank ERSA for the opportunity granted to the participants to be part of the programme and for lecturers from the University of Pretoria to be involved in the training. We undertook to keep contact with the delegates and we invited them to contact us when they need assistance in applying the techniques they were exposed to during the workshop.

UNIVERSITEIT VAN PRETORIA
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Report: ERSA Skills Development Workshop

Panel Data Econometrics (Cohorts 5 and 6)
Presented by the University of Pretoria, Department of Economics
Instructor: Reneé van Eyden
Cohort 5: 12 – 23 July 2021
Cohort 6: 26 July – 6 August 2021

Introduction

This document provides a brief account on the virtual offering of the Panel Data Econometrics workshop of the ERSA sponsored Skills Development programme, where presenting online was motivated by the health situation in the country.

Participants

A total number of 19 participants (cohort 5) and 16 participants (cohort 6) attended the third workshop in the series of three workshops during July and August of 2021 (refer to *Appendix A* for participants' details and their affiliations).

Scheduling and presentation

Instead of having a weeklong face-to-face training in a computer lab on campus, we scheduled both courses over a period of two weeks, from 12 to 23 July 2021 (cohort 5) and from 26 July to 6 August 2021 (cohort 6) respectively, i.e. 10 days of training per course.

All material was made available on Google drive, with separate folders for daily announcements and meeting recordings; lecture material, practical application, textbook references, etc. Daily announcements of topics covered (theoretical and practical) were posted on the shared drive and communicated in email as necessary.

A total number of 10 zoom sessions per course were scheduled of between two and two and a half hours each. Some sections of the material were covered during the live session with the remainder consisting of video recordings accompanying written material.

In addition to live group sessions, individual sessions were scheduled as requested by participants, which opportunity allowed for more effective communication and targeted discussion and clarification.

Instead of a formal assessment opportunity, full worked examples with suggested solutions were made available for participants to work through in their own time.

Refer to *Appendix B* (Cohort 5) and *Appendix C* (Cohort 6) for topic outline and course schedule communicated to participants for the respective courses.

Positive aspects

ERSA purchased a Stata software license for each delegate, valid for six months, supporting on-going use of the software.

Participants can refer back to Zoom class recordings and other narrated material at a later stage.

Having individual sessions is probably the single most valuable aspect to include in a virtual course, as this helps to clear up many uncertainties that exist after engaging with the material.

Negative aspects

We do not have a formal attendance register and there was not full attendance at all times,

probably because the zoom recordings were made available. It is sometimes also difficult to judge the extent to which participants engage with the material. Whereas some were active in discussion and asked questions, some were quiet and did not contribute much, but this is probably not very different to a normal class situation.

Appendix A

Cohort 5 participants

	Name	**Surname**	**Affiliation**	**e-mail address**
1	Weliswa	Matekenya	NMMU	wmatekenya01@gmail.com Weliswa.Matekenya@mandela.ac.za
2	Zintle	Sikhunyana	NMMU	zintle.sikhunyana@mandela.ac.za
3	Benard	Ndansi	Pearson Institute of Higher Education	ndansishow@yahoo.com
4	Jennifer Bothoboile (Botho)	Enele	SOL Plaatje University	botho.enele@spu.ac.za
5	Christelle	Meniago	SOL Plaatje University	christelle.meniago@spu.ac.za
6	Thamaga Edwin	Letsoalo	U. Limpopo	letsoalothamaga@gmail.com thamaga.letsoalo@ul.ac.za
7	Sehludi Brian	Molele	U. Limpopo	Sehludi.molele@ul.ac.za
8	Maria Elizabeth	Eggink	U. Mpumalanga	maria.eggink@ump.ac.za
9	Phetole Donald	Semosa	U. Mpumalanga	dsemosa@gmail.com; phetole.Semosa@ump.ac.za
10	Ruth Thandazile	Gumede	U. Zululand	ruth4gumede@gmail.com
11	Mashapa Siphas	Sekome	U. Zululand	SekomeM@unizulu.ac.za
12	Lindokuhle Talent	Zungu	U. Zululand	talent.nomsa@ymail.com
13	Ayanda	Meyiwa	UKZN	meyiwaa@ukzn.ac.za
14	Navitha	Sewpersadh	UKZN	navitha2609@gmail.com
15	Ntombifuthi Winnie	Gamede	UNISA	gamednw@unisa.ac.za
16	Malefa Rose	Malefane	UNISA	malefmr@unisa.ac.za
17	Ismael	Maloma	UNISA	malomi@unisa.ac.za
18	Lerato	Nkosi	UNISA	nkosil@unisa.ac.za
19	Hlanganani Siqondile	Sibanda	Walter Sisulu University	hsibanda@wsu.ac.za

Cohort 6 participants

	Name	**Surname**	**Affiliation**	**e-mail address**
1	Nwabisa	Daniels	NMMU	KhawutaD88@gmail.com
2	Ruth Oluwatosin	Eegunjobi	UJ	ruth2012ee@gmail.com
3	Tamaryn	Friderichs	Rhodes University	t.friderichs@ru.ac.za
4	Tapuwa Roseline	Karambakuwa	NMMU	rkarambakuwa@gmail.com Roselinek@nmmu.ac.za roseline.karambakuwa@mandela.ac.za
5	Praise Sandile	Khuswayo	UNISA	sandilepkhuzwayo@gmail.com
6	Thabang	Malatji	UNISA	malatmt@unisa.ac.za tmalatji@outlook.com
7	Lerato	Mothae	U. Lesotho	lmothaelillian@gmail.com
8	Thamsanqa Reginald	Mtshengu	U. Zululand	MtshenguT@unizulu.ac.za
9	Lorrane	Nesongozhe	UNISA	nesonlm@unisa.ac.za
10	Lwazi Senzo	Ntshangase	U. Zululand	lwazimenziwa@gmail.com
11	Gabila	Nubong	NWU	Gabila.Nubong@nwu.ac.za
12	Kanayo	Ogujiuba	U. Mpumalanga	Kanayo.Ogujiuba@ump.ac.za

13	Marco	Sgammini	U. North West Vanderbijlpark	m.sgammini27@gmail.com
14	Oliver	Takawira	UJ	olivertakawira@gmail.com otakawira@uj.ac.za
15	Bhasela	Yalezo	UKZN	Yalezob@ukzn.ac.za
16	Mulatu Fekadu	Zerihun	Tshwane University of Technology	Zerihunmf@tut.ac.za zerihunmulatufekadu606@gmail.com

Appendix B - Cohort 5

UNIVERSITEIT VAN PRETORIA
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Faculty of Economic and Management Sciences
Fakulteit Ekonomiese en Bestuurswetenskappe

ERSA Skills Development Workshop Panel Data Econometrics

Presented by the University of Pretoria 12 – 23 July 2021

Welcome to the final session in the series of three workshops! In this workshop, we will be focusing on Panel Data Econometrics. Given our present health situation, we will not be able to meet in one location and will present the Panel Data Econometrics course remotely. We trust that you will find the experience equally enriching and helpful for your own research, teaching and supervision.

In this document we communicate important information logistical information regarding contact details of your instructor, course material, scope of material and daily programme.

Your instructor:
Prof Reneé van Eyden, renee.vaneyden@up.ac.za

Communication and medium on instruction:
You will receive an invitation and link in advance to attend the daily *Zoom* meetings. The link for the first meeting (12 July) will be forwarded to you by Friday, 8 July.

Course material:
Course materials are available on:
https://drive.google.com/drive/folders/14leP74Fv9tk3Flv48PtXFc3TBQ6LvPup?usp=sharing

Even though we are flexible in what we cover, a suggested outline and programme are provided below. The aim is to acquire the necessary theoretical background but also being exposed to hands-on empirical application, using Stata software.

During the period of 12 to 23 July, you can expect to spend an estimated 40 hours on the course material, working through reading material, recorded lectures and practical assignments. We will have a virtual meeting daily at 9:00 am, which may last between one and two hours. In addition, your instructor will be available at all times should you encounter a problem while working through the material.

We assume the following prior knowledge; basic statistical methods, such as the calculation of means and standard deviations, as well as hypothesis testing, primarily *t*, *z*, *F* and χ^2 distribution based tests. Furthermore, a fairly good understanding of matrix algebra is necessary for the theory of Panel Data Econometrics. Appendix (B) in the Gujarati & Porter text (available in the Google Drive folder, **Textbook References**) is a good source to revise your skills in matrix algebra, while Appendix (A) is useful for refreshing basic statistical concepts. The Classical Normal Linear Regression model and the OLS estimator, as well as violations of the Classical Assumptions and potential remedies remains important and are extended to the panel case in this workshop. The Baltagi text will be our main textbook reference for this course (supplemented by the Wooldridge text), but as a start, **Chapter 16** in Gujarati & Porter provides a brief and simple introduction to panel data techniques.

Description of course:
In this course "panel data" refers to the pooling of observations on a cross-section of countries, households, firms, individuals, etc. over a number of time periods. Panel data often allows for more informative results, more variability, more degrees of freedom and more efficiency. The course covers techniques applicable to both stationary and non-stationary panel data sets and static and dynamic model specifications.

We begin the discussion with the static linear model in a panel data setting. We start with the fixed effects (FE) model and pay attention to the least squares dummy variable (LSDV) estimator and the within transformation (Within estimator). As an alternative way to eliminate the individual effects, we look at the first-difference (FD) estimator and the difference-in-difference estimator. We distinguish between one-way and two-way error component models. Relevant hypothesis testing includes testing for the validity of fixed effects, i.e. pooling of slope and intercept coefficients vs only pooling the slopes (Baltagi, Chapters 1, 2).

We continue the discussion by assuming a case where individual effects can be considered random factors, independently and identically distributed over cross-sections, i.e. the random effects (RE or EGLS) estimator (Baltagi, Chapters 2, 3). We also discuss choosing between FE and RE. Relevant hypothesis testing includes testing the validity of random effects and the Hausman specification (endogeneity) test (Baltagi, Chapter 4). We also consider tests for heteroscedasticity and serial correlation in panel data models; testing for it and the correction thereof (Baltagi, Chapter 5).

The next topic is simultaneous equations with error components: we consider endogeneity of regressors; Instrumental variable (IV) estimation (Within 2SLS, Between 2SLS, Error component 2SLS, Generalised 2SLS); Endogeneity occurring through the unobserved individual effects; and Hausman and Taylor estimator (Wooldridge, Chapters 4, 5, 8, 9).

The above is followed by dynamic panel data models (Baltagi, Chapter 8). We cover dynamic relationships and sources of persistence; Nickell (1981) bias and corrections; Arellano and Bond (1991) DIF-GMM estimator; Arellano and Bover (1995) estimator; Blundell and Bond (1998) SYS- GMM estimator; and Keane and Runkle (1992) estimator.

We next revisit panel heterogeneity, also paying attention to cross-sectional dependence (Lecture Notes). We consider models that extend heterogeneity in intercept coefficients to heterogeneity in slope coefficients, including the Mean Group (MG) estimator of Pesaran and Smith (1995); Pooled Mean Group (PMG) estimator (Pesaran & Smith 1997; Pesaran, Shin & Smit, 1999); Swamy's (1970) Random Coefficient (RC) estimator; and Zellner's (1962) Seemingly Unrelated Regression (SUR) estimator. We also consider cross-section (between-group) dependence: SUR and Pesaran's (2006) Common Correlated Effects (CCE) estimator.

We conclude the course with a discussion on non-stationarity in panels (Baltagi, Ch 12), focussing on panel unit root tests assuming cross-section independence and panel unit root tests assuming cross-sectional dependence. We also discuss the concept of spurious regressions in panel data and panel cointegration tests. We conclude this section with a discussion on estimation and inference in panel cointegration models.

Topic overview of the course:

Stationary panel data
☐ Introduction
☐ One-way error component models
☐ Two-way error component models
☐ Hypothesis testing

IV and Dynamic panel data

☐ Instrumental variables
☐ Dynamic panel data models

Panel heterogeneity revisited
☐ Heterogeneity in slope coefficients
☐ Cross-sectional dependence
Non-stationary panel data
☐ Overview of the issues
☐ Unit root tests
☐ Estimation with non-stationary time series
☐ Cointegration tests

Schedule:

On the calendar below, the times of virtual meetings are scheduled together with planned topic coverage. You will receive daily detailed communication in terms of material to cover for each topic.

JULY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12 9:00-11:00 Intro/Overview Pooled OLS One-way FE	13 9:00-11:00 One-way FE, RE Stata application	14 9:00-11:00 Two-way FE, RE	15 9:00-11:00 Hypothesis testing: Poolability Endogeneity	16 9:00-11:00 Hypothesis testing: Serial correlation Heteroskedasticity	17
18	19 9:00-11:00 Instrumental variables	20 9:00-11:00 Dynamic panel	21 9:00-11:00 Slope heterogeneity Cross-sectional dependence	22 9:00-11:00 Non-stationary panel	23 9:00-11:00 Wrap-up session	24
25	26	27	28	29	30	31
		June 2021	August 2021		Notes:	

June 2021

S	M	T	W	Th	F	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

August 2021

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

I look forward to engage with you! Reneé van Eyden

Appendix C - Cohort 6

UNIVERSITEIT VAN PRETORIA
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Faculty of Economic and Management Sciences
Fakulteit Ekonomiese en Bestuurswetenskappe

ERSA Skills Development Workshop Panel Data Econometrics
Presented by the University of Pretoria 26 July – 6 August 2021

Welcome to the final session in the series of three workshops! In this workshop, we will be focusing on Panel Data Econometrics. Given our present health situation, we will not be able to meet in one location and will present the Panel Data Econometrics course remotely. We trust that you will find the experience equally enriching and helpful for your own research, teaching and supervision.

In this document we communicate important information logistical information regarding contact details of your instructor, course material, scope of material and daily programme.

Your instructor:
Prof Reneé van Eyden, renee.vaneyden@up.ac.za

Communication and medium on instruction:
You will receive an invitation and link in advance to attend the daily *Zoom* meetings. The link for the first meeting (26 July) will be forwarded to you by Friday, 23 July.

Course material:
Course materials are available on: https://drive.google.com/drive/folders/14leP74Fv9tk3Flv48PtXFc3TBQ6LvPup?usp=sharing

Even though we are flexible in what we cover, a suggested outline and programme are provided below. The aim is to acquire the necessary theoretical background but also being exposed to hands-on empirical application, using Stata software.

During the period of 26 July to 6 August, you can expect to spend an estimated 40 hours on the course material, working through reading material, recorded lectures and practical assignments. We will have a virtual meeting daily at 9:00 am, which may last between one and two hours. In addition, your instructor will be available at all times should you encounter a problem while working through the material.

We assume the following prior knowledge; basic statistical methods, such as the calculation of means and standard deviations, as well as hypothesis testing, primarily t, z, F and χ^2 distribution based tests. Furthermore, a fairly good understanding of matrix algebra is necessary for the theory of Panel Data Econometrics. Appendix (B) in the Gujarati & Porter text (available in the Google Drive folder, **Textbook References**) is a good source to revise your skills in matrix algebra, while Appendix (A) is useful for refreshing basic statistical concepts. The Classical Normal Linear Regression model and the OLS estimator, as well as violations of the Classical Assumptions and potential remedies remains important and are extended to the panel case in this workshop. The Baltagi text will be our main textbook reference for this course (supplemented by the Wooldridge text), but as a start, **Chapter 16** in Gujarati & Porter provides a brief and simple introduction to panel data techniques.

Description of course:
In this course "panel data" refers to the pooling of observations on a cross-section of countries, households, firms, individuals, etc. over a number of time periods. Panel data often allows for more informative results, more variability, more degrees of freedom and more efficiency. The course covers techniques applicable to both stationary

and non-stationary panel data sets and static and dynamic model specifications.

We begin the discussion with the static linear model in a panel data setting. We start with the fixed effects (FE) model and pay attention to the least squares dummy variable (LSDV) estimator and the within transformation (Within estimator). As an alternative way to eliminate the individual effects, we look at the first-difference (FD) estimator and the difference-in-difference estimator. We distinguish between one-way and two-way error component models. Relevant hypothesis testing includes testing for the validity of fixed effects, i.e. pooling of slope and intercept coefficients vs only pooling the slopes (Baltagi, Chapters 1, 2).

We continue the discussion by assuming a case where individual effects can be considered random factors, independently and identically distributed over cross-sections, i.e. the random effects (RE or EGLS) estimator (Baltagi, Chapters 2, 3). We also discuss choosing between FE and RE. Relevant hypothesis testing includes testing the validity of random effects and the Hausman specification (endogeneity) test (Baltagi, Chapter 4). We also consider tests for heteroscedasticity and serial correlation in panel data models; testing for it and the correction thereof (Baltagi, Chapter 5).

The next topic is simultaneous equations with error components: we consider endogeneity of regressors; Instrumental variable (IV) estimation (Within 2SLS, Between 2SLS, Error component 2SLS, Generalised 2SLS); Endogeneity occurring through the unobserved individual effects; and Hausman and Taylor estimator (Wooldridge, Chapters 4, 5, 8, 9).

The above is followed by dynamic panel data models (Baltagi, Chapter 8). We cover dynamic relationships and sources of persistence; Nickell (1981) bias and corrections; Arellano and Bond (1991) DIF-GMM estimator; Arellano and Bover (1995) estimator; Blundell and Bond (1998) SYS- GMM estimator; and Keane and Runkle (1992) estimator.

We next revisit panel heterogeneity, also paying attention to cross-sectional dependence (Lecture Notes). We consider models that extend heterogeneity in intercept coefficients to heterogeneity in slope coefficients, including the Mean Group (MG) estimator of Pesaran and Smith (1995); Pooled Mean Group (PMG) estimator (Pesaran & Smith 1997; Pesaran, Shin & Smit, 1999); Swamy's (1970) Random Coefficient (RC) estimator; and Zellner's (1962) Seemingly Unrelated Regression (SUR) estimator. We also consider cross-section (between-group) dependence: SUR and Pesaran's (2006) Common Correlated Effects (CCE) estimator.

We conclude the course with a discussion on non-stationarity in panels (Baltagi, Ch 12), focussing on panel unit root tests assuming cross-section independence and panel unit root tests assuming cross-sectional dependence. We also discuss the concept of spurious regressions in panel data and panel cointegration tests. We conclude this section with a discussion on estimation and inference in panel cointegration models.

Topic overview of the course:
Stationary panel data
- ☐ Introduction
- ☐ One-way error component models
- ☐ Two-way error component models
- ☐ Hypothesis testing

IV and Dynamic panel data
- ☐ Instrumental variables
- ☐ Dynamic panel data models

Panel heterogeneity revisited
- ☐ Heterogeneity in slope coefficients
- ☐ Cross-sectional dependence

Non-stationary panel data
- ☐ Overview of the issues

☐ Unit root tests
☐ Estimation with non-stationary time series
☐ Cointegration tests

Schedule:

On the calendar below, the times of virtual meetings are scheduled together with planned topic coverage. You will receive daily detailed communication in terms of material to cover for each topic.

JULY 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26 9:00-11:00 Intro/Overview Pooled OLS One-way FE	27 9:00-11:00 One-way FE, RE Stata application	28 9:00-11:00 Two-way FE, RE	29 9:00-11:00 Hypothesis testing: Poolability Endogeneity	30 9:00-11:00 Hypothesis testing: Serial correlation Heteroskedasticity	31
		June 2021 S M T W Th F Sa: 1 2 3 4 5 / 6 7 8 9 10 11 12 / 13 14 15 16 17 18 19 / 20 21 22 23 24 25 26 / 27 28 29 30		August 2021 S M T W Th F Sa: 1 2 3 4 5 6 7 / 8 9 10 11 12 13 14 / 15 16 17 18 19 20 21 / 22 23 24 25 26 27 28 / 29 30 31	Notes:	

AUGUST 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 9:00-11:00 Instrumental variables	3 9:00-11:00 Dynamic panel	4 9:00-11:00 Slope heterogeneity Cross-sectional dependence	5 9:00-11:00 Non-stationary panel	6 9:00-11:00 Wrap-up session	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

July 2021

S	M	T	W	Th	F	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

September 2021

S	M	T	W	Th	F	Sa
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

Notes:

I look forward to engage with you! Reneé van Eyden

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Report: ERSA Skills Development Workshop

Time Series Econometrics (Cohort 7)
Presented by the University of Pretoria
Instructors: Renee van Eyden, Ruthira Naraidoo
7 – 18 February 2022

Introduction

This document provides a brief account on the virtual offering of the Time Series Econometrics workshop of the ERSA sponsored Skills Development programme, where presenting online was still motivated by the health situation in the country.

Participants

A total number of 26 participants were selected by ERSA in 2021 (refer to Appendix A for details on their affiliations).

Scheduling and presentation

Instead of having a weeklong face-to-face training in a computer lab on campus, we scheduled the course over a period of two weeks, between 7 and 18 February 2022, i.e. 10 days of training.

All material was made available on Google drive, with separate folders for daily announcements and meeting recordings; lecture material, practical application, textbook references, etc. Daily announcements of topics covered (theoretical and practical) were posted and communicated in email as necessary.

A total number of 10 zoom sessions were scheduled of between two and two and a half hours each. Some sections of the material were covered during the live session with the remainder consisting of video recording accompanying written material. Examples of using the software were also narrated and made available as mp4 files.

In addition to live group sessions, individual sessions were scheduled as requested by participants, which opportunity allowed for more effective communication and targeted discussion and clarification.

At the end of each week, a written assignment consisting of discussion questions and a dataset were given, allowing one week for submission.

Refer to Appendix B for topic outline, course schedule communicated to participants.

Positive aspects

ERSA purchased a software license for each delegate that is valid for six months, supporting on-going use of the software.

Participants can refer back to class recording and other narrated material at a later stage.

Having individual sessions is probably the single most valuable aspect that I would encourage in a virtual course, as this helps to clear up many uncertainties that exist after engaging with the material, and bring a little bit of the human aspect back, as video cameras of participants remained

switched off most of the time, while bandwidth better allows to see a face on the other side when discussing problems in a one-on-one setting. In our experience, for this course, participants did not make use of the offering to the same extent as in previous ERSA workshops that we offered online.

Negative aspects

We do not have a formal attendance register and there was not full attendance at all time, probably because the zoom recordings were made available. It is sometimes also difficult to judge the extent to which participants engage with the material. Whereas some were active in discussion and asked questions, some were quiet and did not contribute much, but this is probably not very different to a normal class situation.

Not all participants submitted the assignment, but I have send a key solution and short narrated discussion of the results to participants.

Prepared by Reneé van Eyden
Department of Economics
University of Pretoria

2022-06-03

Appendix A

Cohort 7 participants

Name	Surname	Affiliation	e-mail address
Asanda	Fotoyi	Nelson Mandela Metropolitan University	asanda.fotoyi@mandela.ac.za
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Thobekile	Qabhobho	Nelson Mandela Metropolitan University	Thobekile.qabhobho@mandela.ac.za
Coster	Ruzengwe	Rhodes University	cruzengwe@gmail.com
Juniours	Marire	Rhodes University	j.marire@ru.ac.za
Nwabisa	Malimba	Rhodes University	n.malimba@ru.ac.za
Innocentia Nothando	Hlongwane	Tshwane University of Technology	HlongwaneIN@tut.ac.za
Keoagile Clement Seane	Kobedi	Tshwane University of Technology	KobediKCS@tut.ac.za
Leonard Sello	Mmofsoa	Tshwane University of Technology	MmofsoaLS@tut.ac.za
Angelique	Nindi	University of Eswatini	nindiangie@gmail.com agnindi@uniswa.sz
Daniel	Dlamini	University of Eswatini	dan@uniswa.sz
Kesaobaka	Mmelesi	University of Johannesburg	kmmelesi@uj.ac.za
Nomusa Yolanda	Nkomo	University of Johannesburg	nomsaynkomo@gmail.com
Phindile	Nkosi	University of Johannesburg	phindilen@uj.ac.za
Maggie	Kgomo	University of Limpopo	Maggiekholo@live.co.za
Ndivhuho	Ratombo	University of Limpopo	ndivhuho.ratombo@ul.ac.za ratombo.ne@gmail.com
Ombeswa	Ralarala	University of Limpopo	ombeswa.ralarala@ul.ac.za
Eric	Mungatana	University of Pretoria	emungatana@sun.ac.za
Arno Johan	Van Niekerk	University of the Free State	niekerka@ufs.ac.za
Calvin	Mudzingiri	University of the Free State	mudzingiric@ufs.ac.za
Celeste	Campher	University of the Free State	camphercelesteg@gmail.com
Rochelle	Beukes	University of the Western Cape	rgbeukes@uwc.ac.za
Kholiswa	Malinidini	University of the Witwatersrand	kholiswa.malindini@wits.ac.za
Ruth	Castel Branco	University of the Witwatersrand	ruthcastelbranco@gmail.com
Dorah	Dubihlela	Walter Sisulu University	kinsibanda@wsu.ac.za
Ivan	van der Merwe	University of the Free State	vdmerwei@ufs.ac.za

Note: The above 26 participants were approved to attend the workshop, however the following persons have communicated to Yoemna that they are/were unable to attend, and that they would seek permission to attend the July course: Celeste Campher, Dorah Dubhela, and Ruth Castel Branco.

Appendix B

UNIVERSITEIT VAN PRETORIA
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YUNIBESITHI YA PRETORIA

Faculty of Economic and Management Sciences
Fakulteit Ekonomiese en Bestuurswetenskappe

ERSA Skills Development Workshop
Time Series Econometrics, Cohort 7
Presented by the University of Pretoria
7 - 18 February 2022

Welcome to the first in a series of three workshops, focussing on Time Series, Cross Section and Panel Data Econometrics, respectively. Given our present health situation, we will not be able to meet in one location and will present the Time Series Econometrics course remotely (hopefully this may change for the second and third workshops). We trust that you will find the virtual learning experience equally enriching and helpful for your own research, teaching and supervision.

Your instructors for Time Series Econometrics:
Prof Reneé van Eyden, renee.vaneyden@up.ac.za
Prof Ruthira Naraidoo, ruthira.naraidoo@up.ac.za

Even though we are flexible in what we cover, a suggested outline and programme are provided below. The aim is to acquire the necessary theoretical background but also being exposed to hands-on empirical application, using software like EViews, Stata, Matlab and R. For this course in Time Series Econometrics, we will focus on EViews and Matlab.

During the period between 7 and 18 February, you can expect to spend an estimated 40 hours on the course material, working through reading material, recorded lectures and practical assignments. Roughly half of the estimated time (20 hours), will be spent on online discussion using *Zoom*. In addition, your instructors will be available at all times should you encounter a problem while working through the material.

We assume the following prior knowledge; basic statistical methods, such as the calculation of means and standard deviations, as well as hypothesis testing, primarily t, z, F and χ^2 distribution based tests. Furthermore, a modest understanding of matrix algebra is assumed, implying that you can, for example, interpret the solution to the OLS problem, as well as follow the explanation of the concept of vector autoregression and multivariate cointegration. References will be provided should you feel that you need a refresher in basic statistics, hypothesis testing, the Classical Normal Linear Regression model and the OLS estimator, as well as violations of the Classical Assumptions and potential remedies.

This focus of the first workshop is on modelling techniques for time series data when unit roots are present in the data. An overview of the technical characteristics of time series data and the concept of non-stationarity is provided; and the econometric techniques of cointegration and error correction modelling in single equations (residual-based cointegration) are discussed, with emphasis on empirical application. This is followed by the theory and application of vector autoregression and multivariate cointegration. The course concludes with a discussion on the application of volatility models.

Communication and material

You will receive an invitation and link to attend Zoom meetings in advance. The link for Monday's meeting (7 February) will be forwarded to you on Friday, 4 February.

Course material with detailed references on which material is relevant for each session will be uploaded to:

https://drive.google.com/drive/folders/1mei1f4O5Z0VcWOnJsBDyjliJQiDsalsq?usp=sharing

If you have any questions or concerns, please contact us on renee.vaneyden@up.ac.za or ruthira.naraidoo@up.ac.za.

On the next pages, refer to the topic outline and schedule for the workshop.

We look forward to engaging with you!

Reneé and Ruthira

Planned topics to cover during the Time Series Econometrics workshop

1. Research Orientation and the Econometric Approach to Analysis (mostly assumed prior knowledge)

a. Research orientation
b. The nature of the econometric approach
c. Purposes of econometrics
d. Introduction to the simple linear regression model
e. OLS Estimator, properties
f. The Classical Normal Linear Regression Model (CNLRM)
g. Goodness of fit
h. Hypothesis testing
i. Example in EViews: Model Specification, Estimation, Evaluation and Interpretation

2. Time Series Econometrics (Part 1)

a. Underlying data generating process and concepts of stationarity and non-stationarity
b. Unit root tests (ADF, PP, DF-GLS, Ng-Perronn, KPSS)
c. Concept of cointegration
d. Residual-based test for cointegration (Engle-Granger cointegration test)
e. Error correction model (ECM) specification
f. Diagnostic checking
g. Model simulation and response characteristics
h. Practical exercise in EViews

3. Time Series Econometrics (Part 2)

a. Vector autoregressive (VAR) model
b. Impulse response and variance decomposition analysis
c. Multivariate cointegration technique (Johansen Maximum Likelihood method)
d. Block causality and exogeneity test
e. Weak exogeneity tests and model identification
f. Practical example and Exercise in EViews and Matlab/R

4. Volatility Models (Introduction and demonstration)

a. Properties and theoretical and empirical Issues
b. ARCH processes
c. ARCH and GARCH models
d. Estimation and prediction
e. Interpretation and evaluation of results

Below, a suggested time line is proposed. Reneé will be the principal instructor for 7-11 February, while Ruthira will facilitate the workshop from 14-18 February.

Suggested time line for workshop, 7-18 February 2022:

Monday, 7 February	Tuesday, 8 February	Wednesday, 9 February	Thursday, 10 February	Friday, 11 February
09:00-11:00 Zoom • *Meet fellow workshop participants and your instructor for this week, Prof Reneé van Eyden* • *Introduction to course material* • *Overview of techniques covered in the course*	09:00-11:00 Zoom • *Questions on previous day's material* *Time series concepts* • *Stationarity vs. non-stationarity* • *Data generating process (DGP)* *Unit root testing*	09:00-11:00 Zoom • *Questions on previous day's material* • *Engle-Granger (E-G) cointegration method* *Long-run cointegration* • *E-G (residual-based) cointegration test* *Engle-Granger (E-G) Error correction model* • *Derivation of ECM from ARDL model*	09:00-11:00 Zoom • *Questions on previous day's material* *Construction of ECM* *Diagnostic testing*	9:00-11:00 Zoom • *Questions on previous day's material* • *Brief comparison of 3 methods of cointegration* *Engle-Granger* *Pesaran et at. ARDL* *Johansen multivariate* • *Introduction to structural modelling and simulation*
In your own time: Optional refresher: • Basic statistics (mean, standard deviation, variance, etc.) Hypothesis testing CLRM and OLS • Classical Assumptions of CLRM and violations	**Material to revise on your own:** Time series concepts • Stationarity and non-stationarity • Unit root testing (Watch narration of Stationarity and URT)	**Material to revise on your own:** E-G cointegration test	**Material to revise on your own:** Construction of ECM Diagnostic testing	**Material to revise on your own:** • Structural modelling and simulation
Practical application in EViews: • *Work through Example 1 (South African Export demand)* **Software support:** • EViews online tutorials on www.eviews.com • Download *EViews Illustrated* from eviews.com under Learning Resources	**Practical application in EViews:** • *Work through Example 2, Pract 1 (South African rand- US dollar exchange rate – unit root testing)*	**Practical application in EViews:** • *Work through Example 2, Pract 2 (South African rand- US dollar exchange rate – long-run cointegration relationship)*	**Practical application in EViews:** • *Work through Example 2, Pract 3 (South African rand- US dollar exchange rate – ECM and diagnostic testing)*	**Practical application in EViews:** • *Work through Example 5, (Constructing a small-scale macro model)*

Suggested time line for workshop, 7-18 February 2022 (cont.):

Mon, 14 Feb	Tues, 15 Feb	Wednes, 16 Feb	Thurs, 17 Feb	Fri, 18 Feb
09:00-11:00 Zoom • *Meet your instructor for this week, Prof Ruthira Naraidoo* • *Introduction to course material for second week* *Vector autoregression* • *Impulse response functions and variance decomposition*	09:00-11:00 Zoom • *Questions on previous day's material* *Vector autoregression* • *Impulse response functions and variance decomposition*	**14:00-16:00** Zoom • *Questions on previous day's material* *Vector autoregression* • *Impulse response functions and variance decomposition*	09:00-11:00 Zoom • *Questions on previous day's material* • *Concept of multivariate cointegration* *Johansen cointegration test* • *Vector error correction model (VECM)* *Diagnostic testing*	9:00-11:00 Zoom • *Questions on previous day's material* *Volatility models*
Material to revise on your own: Basic matrix algebra such as matrix inversion Enders: chap 5 and Hamilton: chap 10-11 VAR model - Practical: work through the 'Matlab Pre-requisite' folder	**Material to revise on your own:** Granger Causality Weak and strong exogeneity • Impulse response function and Variance decomposition	**Material to revise on your own:** VARs and Structural econometric models	**Material to revise on your own:** Johansen multivariate cointegration test Construction of VECM Diagnostic testing	**Material to revise on your own:** Volatility models
Practical application in Matlab: • Coding an unrestricted VAR as in Kilian textbook Chap 2 equation (2.3.1) **Software support:** Matlab	**Practical application in EViews:** • *Work through VAR example in EViews; Stock and Watson example* *ry also replicating these in Matlab*	**Practical application in EViews:** • *Work through VAR example in EViews; Stock and Watson example* *ry also replicating these in Matlab*	**Practical application in EViews:** • *Work through VECM example in EViews*	**Practical application in EViews:** • *Work through GARCH model example in EViews* *** Complete Evaluation Part 2 and submit to instructor, ruthira.naraidoo@up.ac.za* *by **4 March 2022**.*

Graduate Training Programme

The Graduate Training Programme aims to provide Southern African scholars with the tools needed to perform rigorous academic and policy analysis. The programme supports ERSA's mission to broaden the scope and deepen the quality of economic research in Southern Africa.

Title	Date	Total
Fundamentals of Effective Communication	7-11 June 2021	25
Panel Data Econometrics	19 Jul – 21 Aug 2021	37
Finance and Economics: Advanced Empirical Method	21 Sept – 21 Oct 2021	22
Topics in the Economics of Education	22-24 November 2021	15

6. Podcasts

Another new initiative is the ERSA's Podcast Series. In these podcasts, we explore topical economic issues and see how they affect our daily lives here in South Africa. Speaking to experienced and knowledgeable people in the field, we gain perspectives and insights from both a practical and a policy level.

#	Date	Topic	Presenters
1	April 2021	Permanent spending habits: What to listen for while politicians' campaign	Isaah Mhlanga
2	May 2021	Developing a forex network model to highlight risk transmission channels in a timely manner	Rossouw van Jaarsveld
3	May 2021	SA's labour market: is a national lockdown as severe as we think?	Tim Kholer
4	June 2021	Sailing into the Wind: evaluating the near future of monetary policy in SA	Nicola Viegi
5	July 2021	Addressing current and persisting challenges in South Africa's labour market	Andreas Worgotter
6	Aug 2021	Understanding South Africa's trade policy and performance	Matthew Stern
7	Nov 2021	A positive MTBPS: getting to know Finance Minister Enoch Godongwana	Isaah Mhlanga
8	Nov 2021	Building back fairer from the Covid-19 Pandemic in South Africa	Channing Arndt

Appendix I: Workshop and Seminar Reports: April 2021 – March 2022

Lukasz Grzybowski - Industrial Organisation and the Economics of Digital Transformation

We have continued online seminars with South African and international speakers. The full list of presenters and their papers is attached below. The seminars were attended by about 10-20 people depending on the subject, where in total 84 people registered.

The objective of these seminars was to provide an opportunity to South African researchers to present their projects to broaden audience and to get ideas about research questions of relevance for South Africa, which are investigated by international researchers.

In February-March 2021 we organized an online course on "Empirical Industrial Organization (part I)" with the objective to build research capacity in this area. The course was attended by about 20-30 participants, where about 70 people registered from various institutions across South Africa. The course was thought by Professor Lukasz Grzybowski from the University of Cape Town and Dr Ryan Hawthorne from Acacia Economics. The list of people who registered and their affiliations are in table below.

The second part of the course "Empirical Industrial Organization (part II)" took place in May 2021 and was taught by Dr Melissa Newham from University of Zurich. There were about 20-30 participants as well.

The outlines of both courses are attached.
ERSA Seminar on Industrial Organization and the Economics of Digital Transformation
Past events:

- November 17: Måns Söderbom (University of Gothenburg), Worker Turnover and Job Reallocation: Evidence from Matched Employer-Employee Data
- November 11 at 6pm CAT: Emma Riley (University of Washington), Peer effects in technology adoption: Evidence from mobile banking in Ghana
- October 28: Agnieszka Postepska (University of Groningen), Household demand and willingness to pay for grid electricity: Evidence from Burkina Faso
- October 14: Philippe LeMay-Boucher (Heriot-Watt University), Contrasting the Impacts from two Formal Savings Devices: Evidence from a field experiment in Benin.
- October 6: Justice Tei Mensah (IFC, The World Bank Group), Saving Lives through Technology: Mobile Phones and Infant Mortality in Africa
- September 22:Laura Barasa (University of Nairobi), Mobile Money: An Antidote to Petty Corruption?
- July 7: Jessica Rudder (University of California Davis): "Search Costs and Relational Contracting: The Impact of a Digital Phonebook on Small Firms in Tanzania"
- April 28: Dante Donati (Universitat Pompeu Fabra): "Mobile Internet access and political outcomes: Evidence from South Africa"

List of people who registered for online courses

Name	**Affiliation**
Lumkile Mondi	University of the Witwatersrand
Dzingai Francis Chapfuwa	Department of Public Enterprises
Moses Nyangu	University of Stellenbosch
Matthew Kensett	DNA Economics
Tita	USB
Vuyokazi Gobile	USB
Chiedza Muchopa	
Lucas Schmitz Condeza	Catholic University of Chile
Syden Mishi	Nelson Madela University
Oyelami Lukman	
Tania Els	Outsurance
Sada Alkasim	UMAR Musa Yar'adua University
Leward Jeke	Nelson Madela University
Frans van der Walt	
Ntombi Tshabalala	University of Johannesburg
Sinesipho Siswana	South African Reserve Bank
Clement Moyo	Nelson Mandela University
Jacob Sila Muthoka	Technical University of Kenya
Sibahle Matambeka	Nelson Mandela University
Talent Zungu	University of Zululand
Monde Nyambe	University of Stellenbosch
Thelile Shelter	University of Zululand
Esihle Komanisi	Nelson Mandela University
Tiaan Meiring	Genesis
Tafadzwa Chitenderu	Nelson Mandela University
Anmar Pretorius	North-West University
Olusola Ajibona	University of Stellenbosch
Coster Ruzengwe	Rhodes University
Julita Ramsunder	DNA Economics
Lerato Mothae	National University of Lesotho
David Botchway	Birla Institute of Technology and Science, Pilani - Goa Campus
Sylvester Lelimo	National University of Lesotho
Sibahle Magadla	Berkeley Research Group
Mpho Agnes Rasupu	National University of Lesotho
Ortiz Thaureaux, Rolando	Nelson Mandela University
Litha Mini	Nelson Mandela University
Bianca Capazario	DNA Economics
Lehlohonolo Mantsi	National University of Lesotho
Nonophela Mpayipeli	Nelson Mandela University

Mamatsau Monyane	National University of Lesotho
Sonwabile Wolela	Nelson Mandela University
Saara Hamunyela	University of Stellenbosch Business School
Gareth McHardy	University of Cape Town
Zubair Patel	University of Cape Town
Nicola Willas	University of Cape Town
Sha'ista Goga	Acacia Economics
Bella Gebers	University of Cape Town
James Phillips	University of Cape Town
Elijah Mumba	University of Cape Town
Marco Sanka	University of Cape Town
Tlhologelo Masehla	University of Cape Town
Jessica van der Berg	University of Cape Town
Spero Falade	African School of Economics
Laura Meyer	University of Stellenbosch
Wawa Nkosi	University of Stellenbosch
Liebe Burger	University of Stellenbosch
Kyla Endenburg	University of Stellenbosch
Tendai Gwatidzo	University of the Witwatersrand
Hisseine Bahar	University of Cape Town
Megan Friday	University of Stellenbosch
Basani Mushwana	
Sithabiso Buthelezi	Nelson Mandela Metropolitan University
Bellymay Beleshi Mutale	University of Johannesburg
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Neryvia Pillay – Public Economics and Bridging the Divide

Bridging the Divide

We held two workshops aimed at increasing representivity and diversity in the economics profession. Building on the first series of webinars on the topic of Representivity, Diversity and Gender in Economics,s which were held in 2020, we hosted a virtual discussion via Zoom in April 2021. A group of 15 individuals met to share ideas of programmes and research that could be conducted under ERSA's Bridging the Divide initiative. Under the guidance of the chair, Elias Masilela, we came away with a list of skills development proposals that can work to promote inclusiveness in the South African economics profession, and identified research topics on the state and evolution of representation in economics in South Africa that can be addressed in future work.

One of the proposed programmes that was identified in the discussion was the development of communication skills. So in June 2021, we hosted a Fundamentals of Effective Communication course taught by Gabi Nudelman from the University of Cape Town. Over the course of 4 days, 25 participants learnt about academic writing and presenting their research. Since the Bridging the Divide initiative is targeted at historically disadvantaged individuals, all participants were Black and 60% were female. There was a great deal of interest in this course and we were only able to offer places to 35% of applicants. There is a clear demand for more courses like this.

Graduate Training

In 2021, we again offered courses on Panel Data Econometrics taught by Professor Tomson Ogwang of Brock University in Canada, and Topics in Education taught by Professor Andrew Hill of Montana State University in the US. These courses again proved very popular and we were only able to accept 34% of applicants to the Panel Data Econometrics course and 65% of applicants to the Topics in Education course. We also offered a new course on Advanced Empirical Methods in Finance and Economics taught by Lucas Mariani, an ERSA policy associate, and were only able to offer places to 50% of applicants. As is evident, our graduate training courses are in high demand.

Our graduate training workshops provide important skills development to applicants from a range of institutions and backgrounds. The Panel Data Econometrics participants were 19% Black female, 75% Black male and 6% White male; the Topics in Education participants were 37.5% Black female, 37.5% Black male, 12.5% White female and 12.5% White male; and the Advanced Empirical Methods in Finance and Economics participants were 24% Black female and 76% Black male.

March 08, 2022

Economic Research Southern Africa

Subject: Report on ERSA Webinars on 'Structural Constraints on the Economy, Growth and Political Economy' 2022

To ERSA,

Thanks for giving me the opportunity to convene the 'Structural Constraints on the Economy' node. Given the Covid-19 pandemic, the node has moved completely online and the workshops became webinars.

The webinars in 2022 were given by two very promising Assistant Professors, Pascual Restrepo (Boston) and Nicola Limodio (Bocconi). Pascual presented a paper on automation and inequality, and Nicola on deposit insurance. Both webinars were at the highest level and had very lively discussions. I expect both papers to hit top 10 journals. I received a number of congratulatory messages during and after the webinars. I was very pleased. The programme is available from https://www.econrsa.org/events/structural-constraints-economy-growth-and-political-economy.

The webinars are advertised using ERSA's mailing list and its usual social-media channels, and also by CSAE/Oxford, University of Pretoria, AEA and RePEc. Thanks to all these institutions in helping to spread the word about the webinars.

Participants come from across the board, say, academia, government departments and private sector. Most of the participants are based in South Africa, but given the international nature of the webinars we have had participants from other African countries as well as USA (East coast), Europe and India.

The webinars, apart from the Zoom subscription and the data bundles that I use, are essentially free of charge and open to all.

Thanks again for giving me the opportunity to convene the 'Structural Constraints on the Economy' node.

Sincerely,

Manoel Bittencourt
Extraordinary Professor of Economics

Appendix II:
ERSA Working and Policy Papers published: April 2020 - March 2021

Working Paper 855
Impact of technological progress on carbon emissions in different country income groups
Author(s): Chris Belmert Milindi, Roula Inglesi-Lotz
Publication date: March 2021

Abstract: This study examines the complex relationship between carbon emissions and technological progress in a sample of 60 countries, divided into four categories based on their per capita income between the periods of 1989-2018. For robustness purposes and due to the broad definition of technology, we use six different proxies to represent technology; namely: Information and telecommunication technology (ICT); patents; public R&D expenditure; total factor of productivity (TFP); and a number of science and technology publications. After applying the fixed-effect method with Driscoll and Kraay standard errors, for the full sample, the results show that the ICT variables are a good instrument for carbon abatement, while R&D expenditure and patents do not have a clear impact on carbon emissions, TFP increases carbon emissions, and science and technology publications are negatively related to carbon emissions. The impact of the indicators on the various income levels groups of countries vary which has significant policy implications.

Working Paper 856
Understanding the behaviour of house prices and household income per capita in South Africa: Application of the asymmetric autoregressive distributed lag model
Author(s): Anthanasius Fomum Tita and Pieter Opperman
Publication date: March 2021

Abstract: Homeownership by the lower and middle-income households is crucial to create wealth, particularly for South Africa with high levels of economic and wealth inequality. However, scholarship has paid little attention to how income affects the affordable housing market segment despite its systemic importance to the South African economy. This study employs the asymmetric autoregressive distributed lag model to study the effect of household income per capita on the affordable house prices in South Africa using quarterly data from 1985 to 2016. The results revealed the presence of an asymmetric long-run relationship between affordable house prices and household income per capita. The estimated asymmetric long-run coefficients of logIncome[+] and longIncome[-] are 1.080 and -4.354 respectively implying that a 1% increase/decrease in household income per capita induces a 1.08% rise/4.35% decline in affordable house prices everything being equal. We argue that given the 71.4% market share of affordable housing in all residential properties in South Africa, a persistent fall in household income can trigger a systemic crisis, particularly with mortgage securitization. Thus, policymakers should closely monitor the practice of mortgage securitization, particularly in the affordable market segment to avoid systemic risk to the economy.

Working Paper 857
Estimates of bank-level funding costs in South Africa
Author(s): Tim Olds, Daan Steenkamp
Publication date: March 2021

Abstract: We develop a new dataset of bank-level balance sheets data to estimate bank-level funding costs. These estimates are useful for monitoring of funding pressures and other

risks to the banking sector as well as understanding the impact of prudential regulations and market conditions on the transmission of monetary policy. We show that bank funding cost spreads are materially higher now than before the Global Financial Crisis of 2008, in spite of lower interest rates. During the Covid-19 crisis, we show that aggregate funding costs have fallen in level (i.e. percentage) terms, but that funding costs have increased when expressed relative to reference rates. We show that the relative cost of raising deposits has increased, as deposit rates have not fallen by as much as the repurchase rate and other money market rates.

Working Paper 858

Income Convergence in Southern Africa: A Nonlinear Time-Varying coefficients Framework
Author(s): Ntokozo Nzimande
Publication date: April 2021

Abstract: This article investigated income per capita convergence in the Southern African Development Community (SADC) over the period 1980-2017 in a non-linear time-varying coefficients framework. The findings of the study suggested no overall income convergence in the SADC region, but evidence supporting the existence of convergence clubs was found indicating that the SADC comprises five convergence clusters, each converging to its own steady-state equilibrium. These findings suggest that, to promote convergence in the region, policies that explicitly target 'low-income' countries are warranted.

Working Paper 859

The effect of cigarette price changes on smoking prevalence by gender: the case of South Africa
Author(s): Zachary Gitonga, Nicole Vellios, Corne van Walbeek
Publication date: April 2021

Abstract: South Africa successfully reduced smoking prevalence by substantially increasing tobacco excise tax and therefore real cigarette prices between 1993 and 2010. Tobacco market structure changed in 2010 following the entry of local tobacco companies and the introduction of cheaper cigarette brands. Illicit cigarettes have also increased significantly. This paper estimates price elasticities of smoking prevalence by gender and examines the effect of an increase in illicit cigarettes and changes in tobacco market structure on smoking behavior in South Africa. Two nationally representative longitudinal data sets and cigarette price data from Statistics South Africa, are used. We use pooled fractional probit correlated random effects and panel LPM models for estimation. Smoking prevalence and price sensitivity are higher among males than among females. Price elasticity of smoking prevalence is about -0.33 overall, -0.43 for males and -0.20 for females. The increase in illicit cigarettes and availability of cheaper brands reduce the effect of price on smoking prevalence and undermine tobacco control policy. The relatively price-inelastic demand implies that there is room for an increase in excise tax on cigarette. We recommend a further increase in excise taxes on tobacco and implementing a track and trace system to control illicit trade.

Working Paper 860

Transhumant Pastoralism, Climate Change and Conflict in Africa
Author(s): Eoin F. McGuirk and Nathan Nunn
Publication date: May 2021

Abstract: We consider the effects of climate change on seasonally migrant populations that herd livestock – i.e., transhumant pastoralists – in Africa. Traditionally, transhumant pastoralists benefit from a cooperative relationship with sedentary agriculturalists whereby

arable land is used for crop farming in the wet season and animal grazing in the dry season. Droughts can disrupt this arrangement by inducing pastoral groups to migrate to agricultural lands before the harvest, causing conflict to emerge. We examine this hypothesis by combining ethnographic information on the traditional locations of transhumant pastoralists and sedentary agriculturalists with high-resolution data on the location and timing of rainfall and violent conflict events in Africa from 1989–2018. We show that droughts in the territory of transhumant pastoralists lead to conflict in neighboring areas. Consistent with the hypothesis, these conflict events are concentrated in agricultural areas; they occur during the wet season and not the dry season; and they are due to rainfall's impact on plant biomass growth. This mechanism explains a sizable proportion of conflict events in Africa, particularly civil conflicts and religious-extremist attacks. We find that the effects are muted in the presence of irrigation aid projects, but not in the presence of other forms of foreign aid. The effects approach zero as pastoral groups share more political power.

Working Paper 861

'Learning to export' and 'learning to innovate': Revisiting the relationship between innovation and exports in African firms
Author(s): Elvis Korku Avenyo, Fiona Tregenna and Kwanele Ngwadleka
Publication date: May 2021

Abstract: This paper examines the relationship between innovation and export performance for African firms. We use Tobit simultaneous equation full information maximum likelihood (FIML) model with selection on a crosssectional dataset from the World Bank's Enterprise Surveys for 28 African economies. The paper provides new evidence of a two-way positive relationship between innovation and export performance in African firms: innovation is important for both the ability to export (export propensity) and for export intensity, while exporting also increases the likelihood of innovating. These effects are driven mainly by direct exports and apply to both product and process innovation. We argue that these results point to a two-way relationship in which innovation enables firms to 'learn to export', while firms also 'learn to innovate' through exporting. A higher share of foreign ownership in firms, as well as firms having an internationally recognised quality certification strengthen the positive effects in both directions.

Working Paper 862

Fiscal risks and their impact on banks' capital buffers in South Africa
Author(s): Konstantin Makrelov, Neryvia Pillay and Bojosi Morule
Publication date: June 2021

Abstract: South Africa's fiscal balances have deteriorated significantly over the last decade, while the economy has been recording disappointing economic growth rates even prior to the COVID-19 crisis. In this paper, we estimate a series of equations using the Arellano and Bond (1991) estimator to test how sovereign risk premia affect capital buffers, while controlling for variables identified in the literature, such as size of banks, the economic cycle, competition and equity prices. Unlike other studies, we use actual capital buffers provided by the South African Prudential Authority. We show that these are substantively different to the proxy buffers calculated using the common approach in the literature, indicating that results based on proxy measures should be interpreted with caution. Our overall results show a positive relationship between the sovereign risk premium and capital buffers, and the results are robust across different specifications. This suggests that banks are accumulating capital to mitigate against fiscal and other domestic policy risks, and the related financial stability issues. It is likely that this is contributing to higher lending rates.

Working Paper 863

Corporate taxation and firm – level investment in South Africa
Author(s): Mashekwa Maboshe
Publication date: June 2021

Abstract: This paper investigates the responsiveness of firm-level investment to corporate tax changes in South Africa over the period 1999 to 2012. The study exploits rare changes in corporate tax policy to assess the responsiveness of firm-level investment among Johannesburg Stock Exchange listed non-financial firms. Our estimation of a neoclassical investment model using GMM techniques shows that although changes in corporate tax policy reduced the tax-adjusted marginal cost of capital over time, the reductions did not translate into significant investments in fixed assets. We speculate that the well-documented financial frictions in the capital markets could explain the failure of neoclassical investment theory in South Africa. Our findings are similar to those in other developing countries and crucially suggest that investment policies should look beyond the use of corporate tax incentives.

Working Paper 864

Human Capital and the Timing of the First Birth
Author(s): Jesse Naidoo
Publication date: July 2021

Abstract: I construct and partially characterize the solution of a life-cycle model of fertility choice and human capital accumulation. Because children take time to raise, women face a trade-off between between lifetime earnings and childbearing. The model implies that (i) earnings must drop discontinuously at the time of a birth; (ii) age at first birth and human capital will be positively correlated; and (iii) a permanently higher demand for skill causes women to delay first births. I show that the second of these predictions holds in a sample of South African women drawn from the first wave of the National Income Dynamics Study.

Working Paper 865

Differential corporate taxation and inter-asset investment distortions in South Africa
Author(s): Mashekwa Maboshe
Publication date: July 2021

Abstract: South Africa has since the 1990's actively reformed its corporate tax policy to stimulate investment in various assets and industries. While the investment impact of corporate taxation has been evaluated in various studies, no effort has been made to assess the potential inter-asset distortions due to differential taxation. Using a unique asset-industry level dataset, we find evidence of inter-asset distortions arising from differential taxation of assets and industries in South Africa. In particular, compared to a counterfactual benchmark where tax rates are equalized, we find that differential taxation induces under-investment in non-residential structures and computer equipment and over-investment in machinery and transportation equipment. The immediate policy implications are that ignoring distortions due to heterogeneous tax treatment could understate the efficiency and redistributive effects of tax policy in South Africa.

Working Paper 866

Risk and Return Spillovers in a Global Model of the Foreign Exchange Network
Author(s): Matthew Greenwood-Nimmo, Daan Steenkamp and Rossouw van Jaarsveld
Publication date: August 2021

Abstract: We developed a network model to capture the dynamic interactions among foreign exchange returns and realised risk measures among 20 developed and emerging market currencies, including the rand (ZAR). We demonstrate how this framework can be used to assess the sensitivity of a given currency to shocks from other currencies and to provide narratives contextualising currency movements, focusing on the ZAR. We show that variations in the risk-return profile of the USDZAR correlate with variations in the risk-return profile of many other currencies, and that this is especially notable with respect to emerging market currencies. We interpret this as evidence of the ZAR's role as a bellwether emerging market currency. We show that the model is able to highlight risk transmission channels in a timely manner during foreign exchange flash crashes and periods of heightened financial market uncertainty.

Working Paper 867

Government Religious Preference and Intrastate Conflict

Author(s): Eduard van der Merwe, Carolyn Chisadza and Matthew Clance

Publication date: August 2021

Abstract: Understanding the causes and consequences of conflicts continues to be an important contribution to the economic development literature, particularly the mechanisms that can reduce civilian deaths. We contribute to understanding attacks on civilians and the spillover effects by analysing the impact of government religious preference on civilian deaths. Using panel data analysis for 113 countries for the period 1989 to 2015, we find that a higher government preference towards religion causes more civilian deaths for countries experiencing intrastate conflict. Furthermore, we analyse this effect by the different types of conflict and find that the results are driven by both state-based and non-state-based conflicts. Lastly, a regional analysis shows that the negative impact of a strong preference towards religion from the government is particularly notable for countries in Africa and Asia.

Working Paper 868

Household debt and consumption dynamics: A non-developed world view following the financial crisis

Author(s): Adél Bosch, Matthew Clance and Steven F. Koch

Publication date: August 2021

Abstract: According to recent macroeconomic evidence (Bosch and Koch 2020b; Farrell and Kemp 2020), the global financial crisis is still impacting the South African financial landscape more than 10 years later. In an effort to better understand the effect of the financial crisis, we examine household debt dynamics, with particular attention to deleveraging, following the financial cycle peak. Our analysis is predicated on the National Income Dynamics Study, the first wave of which was conducted adjacent to the beginning of the crisis. We apply standard regression analysis finding heterogeneity in debt and deleveraging at the household level, with both an uptick in short-term debt in the early stages of the crisis and a reduction in long-term debt, primarily mortgage debt, since. Overall, deleveraging was greatest amongst higher income households with relatively larger mortgage debt-to-income ratios, although that was partially offset in households with higher mortgage repayment costs relative to income. Long-term deleveraging was also more likely amongst households with higher vehicle debt-to-income ratios, but lower consumer debt-to-income ratios.

Working Paper 869

Measuring and Testing a Modified Version of the South African Financial Cycle

Author(s): Malibongwe C Nyati, Christian K Tipoy and Paul F Muzindutsi

Publication date: October 2021

Abstract: This study reports on measuring and testing of a Composite Financial Cycle Index (CFCI) as a modified version of a South African Financial Cycle (FC). This is achieved through the adoption of thirteen monthly financial time series indicators observed over the period 2000M1 to 2018M12. In this context, a Two-Step Markov Switching Dynamic Factor in State-Space Form is utilised. The analyses are extended through the measurement of the SARB proxy index in order to facilitate comparison. The study provided evidence that the indicators of credit, house price and equity prices are the best indicators for measuring FCs in South Africa. However, there exists room for extension of the scope of financial time series variables used beyond these indicators. The added indicators proved to have more information content for financial crises forecasting. They have further proved to be better signals and to be better early warning indicators of financial crises in South Africa. Therefore, the addition of time series indicators beyond credit, house price and equity, increased the accuracy in measuring FCs, which could help prevent vulnerabilities from accumulating unnoticed.

Working paper 870

Does the uptake of multiple climate smart agriculture practices enhance household savings, food security and household vulnerability to climate change? Insights from Zimbabwe

Author(s): Boscow Okumu, Herbert Ntuli, Edwin Muchapondwa, Gibson Mudiriza and Alfred Mukong

Publication date: January 2022

Abstract: Climate change and variability poses a significant hindrance on agricultural productivity. The adverse effects are particularly concerning in many African countries that rely more on rainfed subsistence agriculture for livelihood. The promotion of climate smart agriculture technologies as a pathway to enhancing food security, farmer's welfare, and providing climate adaptation and mitigation benefits is one of the several interventions aimed at improving agricultural productivity. However, there has been a dearth of evidence on the determinants of adoption of climate smart agriculture practices as well as the impact of climate smart agriculture practices on food security and household welfare. This paper contributes to this knowledge gap by using the probit model to explore the drivers of uptake of climate smart agriculture practices and the inverse probability weighting regression model and the instrumental variable approach to assess the impact on food security and household savings and household vulnerability. We find that the adoption of climate smart agriculture practices among smallholder farmers is influenced by land ownership, climatic variables, land terrain, and household sociodemographic characteristics. The study further revealed that adoption of climate smart agriculture practices leads to reduction in household savings and household vulnerability but leads to improved food security. The findings suggest the need to promote climate smart agriculture practices aimed at livestock management, enhanced agricultural extension work and reduced resource constraints that inhibit farmer's capacity to adopt complementary practices among others.

Working paper 871

Climate Change and Child Health: A Nigerian Perspective

Author: Eduard van der Merwe, Matthew Clance and Eleni Yitbarek

Publication date: January 2022

Abstract: The detrimental effect of climate change on health is becoming an essential topic of economic research and policymaking. The negative impact of rising temperatures and extreme weather events on children's health outcomes and their human capital is especially concerning. This study investigates the effects of a changing climate, in terms of changes in the monthly maximum average near-surface temperature (◦C) and total monthly precipitation

(mm), on children's nutritional status in Nigeria using LSMS-ISA survey data combined with high-resolution gridded climate data. Malnutrition in children is measured in the form of stunting, underweight and wasting. Our results indicate that the changing climate is correlated with a higher probability that Nigeria's children are malnourished - even more so in rural areas. The paper's findings support the notion of the need for climate-friendly policies to mitigate the long-term effect of climate change on malnourishment; otherwise, climate change could reverse years of progress in lowering children's malnutrition.

Working paper 872

Contagion across Financial Markets during COVID-19: A Look at Volatility Spillovers between the Stock and Foreign Exchange Markets in South Africa
Author(s): Chevaughn van der Westhuizen, Reneé van Eyden and Goodness Aye
Publication date: February 2022

Abstract: The onset of the novel coronavirus pandemic (COVID-19) and previous crises have heightened interest in the interaction of stock market and exchange rate volatility. This paper aims to investigate the interdependence and volatility transmissions between the stock and foreign exchange markets for South Africa over the period 1979:01–2021:08, including the effect the COVID-19 pandemic has had on the interdependence and transmissions. Using bivariate Exponential Generalised Autoregressive Conditional Heteroscedasticity (EGARCH) modelling, this paper provides strong evidence in support of the "stock-orientated' approach, where significant price and volatility spillovers propagate from the stock market into the foreign exchange market; whilst evidence of the "flow-orientated" approach is seen in the second moment and significant shock and asymmetric spillovers from the exchange to stock market are found. The results support the asymmetric and long-range persistence volatility spillover effect and show strong evidence of contagion between stock and foreign exchange market. These spillovers became more pronounced during the COVID-19 pandemic, confirming heightened contagion during periods of crisis. The results heed important implications for not only policymakers who are concerned by the contagion and better regulation of these markets, but also for investors and fund managers who seek to hedge investment risks in South Africa.

Working paper 873

Big data forecasting of South African inflation
Author(s): Byron Botha, Rulof Burger, Kevin Kotze, Neil Rankin, and Daan Steenkamp
Publication date: February 2022

Abstract: We investigate whether the use of machine learning techniques and big data can enhance the accuracy of inflation forecasts and our understanding of the drivers of South African inflation. We make use of a large dataset for the disaggregated prices of consumption goods and services to compare the forecasting performance of a suite of different statistical learning models to several traditional time series models. We find that the statistical learning models are able to compete with most benchmarks, but their relative performance is more impressive when the rate of inflation deviates from its steady state, as was the case during the recent COVID-19 lockdown, and where one makes use of a conditional forecasting function that allows for the use of future information relating to the evolution of the inflationary process. We find that the accuracy of the Reserve Bank's near-term inflation forecasts compare favourably to those from the models considered, reflecting the inclusion of off-model information such as electricity tariff adjustments and within-month data. Lastly, we generate Shapley values to identify the most important contributors to future inflationary pressure and provide policymakers with information about the potential sources of future inflationary pressure.

Working paper 874

Equivalence scales with endogeneity and base independence
Author(s): Steven F. Koch
Publication date: February 2022

Abstract: This study estimates food budget share equations to calculate household equivalence scales that address both base-independence and potential endogeneity, even though an instrument that satisfies the usual exclusion restriction may not be available. The application incorporates semi-parametric methods, control functions and heteroscedasticity instrumentation. The application is founded on the most recent income and expenditure data that is available for South Africa. We find that endogeneity matters, and that failing to account for it leads to overstated equivalence scales in nearly every circumstance. When we fit our calculated scales to a typical $(A + \kappa K)\psi$ equivalence structure via non-linear least squares, we find values of κ near unity and values of ψ mostly below 0.5. Thus, our analysis suggests that a square-root scale is more appropriate than other scales that have been used to examine poverty and inequality in South Africa.

Working paper 875

Revisiting the accuracy of inflation forecasts in Nigeria: The oil price-exchange rate-asymmetry perspectives
Author(s): Kazeem Isah, Abdulkader Cassim Mahomedy, Elias Udeaja, Ojo Adelakun & Yusuf Yakubua
Publication date: February 2022

Abstract: Motivated by the distinctive paradoxical nature of the Nigerian economy as the only OPEC oil-exporting economy that yet depends heavily on the importation of gasoline, we are compelled to re-examine the accuracy of the oil-based augmented Philips curve model in the predictability of inflation. Using quarterly data from 1970 to 2020, we investigate whether including the exchange rate into the oil price-based augmented Phillips curve improves the accuracy of forecasting inflation for the Nigerian economy. We rely on the outcomes of our preliminary analysis to account for the presence of endogeneity, persistence, and conditional heteroscedasticity in the predictability of inflation following the Westerlund & Narayan (2015) procedure. We find the extended variant of the oil price-based Phillips curve model that includes the exchange rate pass-through as most accurate for improving inflation forecasts in Nigeria. Given the robustness of our results from several models, we conclude that the exchange rate channel through which shocks to the oil price transmit into the economy is essential for forecasting inflation.

Working paper 876

The bond market impact of the South African Reserve Bank bond purchase programme
Author(s): Roy Havemann, Henk Janse van Vuuren, Daan Steenkamp and Rossouw van Jaarsveld
Publication date: March 2022

Abstract: We use a unique dataset comprising over a million trades and quotes to assess the impact of the unexpected announcement of a bond purchase programme by the South African Reserve Bank on intraday market liquidity, yields and pricing volatility. Our dataset details the timing and order details of individual bonds purchased by the South African Reserve Bank during the COVID-19 pandemic, as well as data from over a million other fixed-coupon bond trades and intraday quotes. We find that the programme was successful at shoring up market confidence and addressing dislocation in the government bond market. We show that bond spreads fell both on announcement and after purchases themselves. Bond pricing adjusted

slowly, with effects typically strengthening over the course of the trading day. We find that announcement effects dominated the impact of purchases themselves. Lastly, our intraday dataset enables assessment of the spillovers of central bank announcements in major economies and we show that the Federal Reserve played an important role in stabilising South Africa's bond market, helping to support the actions of SARB.