HSRC
Human Sciences
Research Council

Where the jobless will be: a geographically disaggregated predictive model of future unemployment in South Africa

Dr Gina Weir-Smith

Royal Geographical Society conference, London

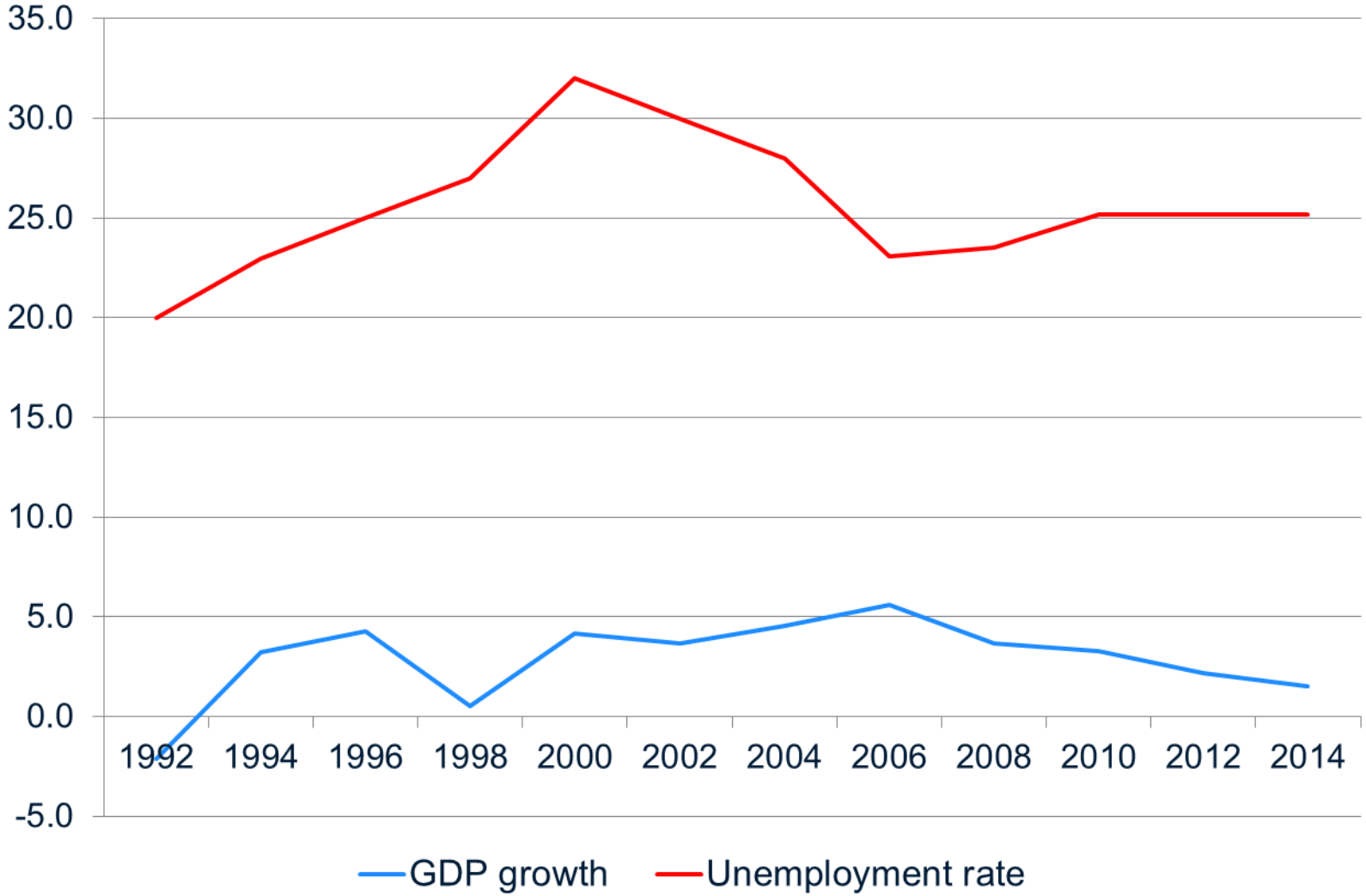
2 September 2016

Presentation layout

- Introduction
  - Unemployment trends in South Africa
  - Geographic differentiation
- Methodology and data
- Findings and discussion
- Conclusion and recommendations

Introduction (1)

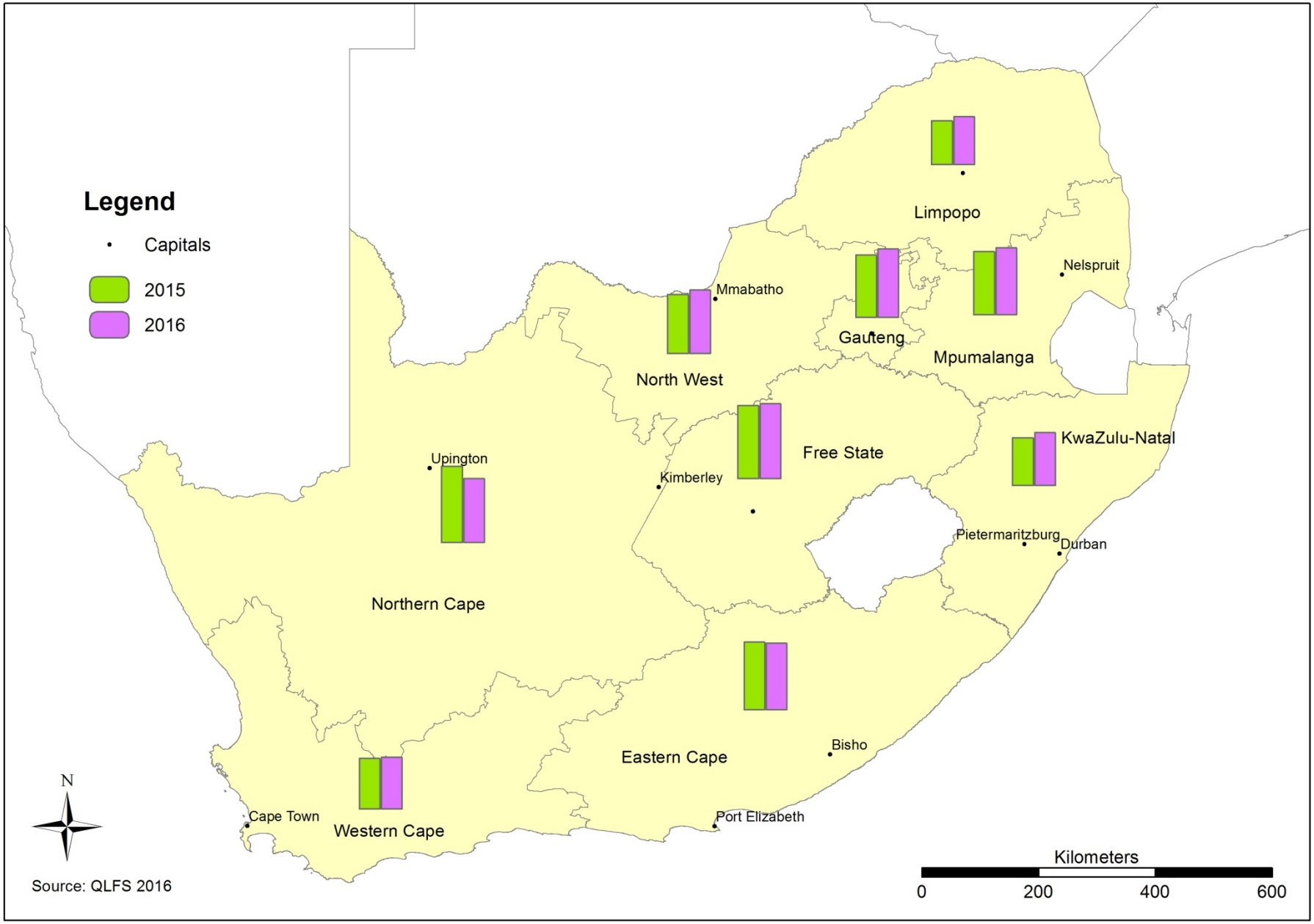
- Unemployment trends = narrow definition



Introduction (2)

- Geographic differentiation of unemployment
  - Urban vs. rural
    - Rural unemployment higher
    - Yet, unemployment becoming more urban phenomenon
  - Administrative boundaries
    - Province not enough variation
    - Sub-municipal data not always published
- Labour force surveys report per province
- Census report per municipality
- Compromise on what is available

Intro (3) Provincial unemployment



Methodology and data (1)

- Data sources
  - Census 1991, 1996, 2001
  - Community Survey 2007
  - Municipality level
- Endogenous unemployment model
  - External factors excluded – impact is not the same throughout municipalities
- Regression analysis using official unemployment definition
- All provinces contain less than 45 municipalities, therefore lumped provinces

Methodology and data (2)

- Provinces lumped by GGP contribution
  - Gauteng, Western Cape and KwaZulu-Natal
  - Eastern Cape, Limpopo and Mpumalanga
  - North West, Free State and Northern Cape
- All models accurate within a 95% confidence interval
- Residual values between observed and predicted values were small (between -3.6 and 2.7)

Findings and discussion (1)

- Gauteng, Western Cape and KwaZulu-Natal
- $\gamma = b_0 + b_1\, Percentage\ with\ no\ schooling\ 2007 + b_2\, Percentage\ in\ agriculture\ 1991 + b_3\, Percentage\ in\ mining\ 1991$
- Positive relationship: as number of people with no education increased, so did unemployment
- $R^2 = .73$
- In 2011 - less than 4% of population employed in the agricultural or mining sector
- Highest proportion of urbanised population in the country
  - 43% to 96%

Findings and discussion (2)

- Eastern Cape, Limpopo and Mpumalanga
- Highest poverty rates
- $\gamma =$

  $b_0 + b_{1\ Unemployment\ ranking\ in\ 2007} +$

  $b_{2\ Per\ capita\ income\ in\ 2007} + b_{3\ Percentage\ in\ agriculture\ 1991}$
- Adjusted R^2 = .66
- For one decrease in per capita income in 2007, unemployment rate for 2011 increased by 0.58

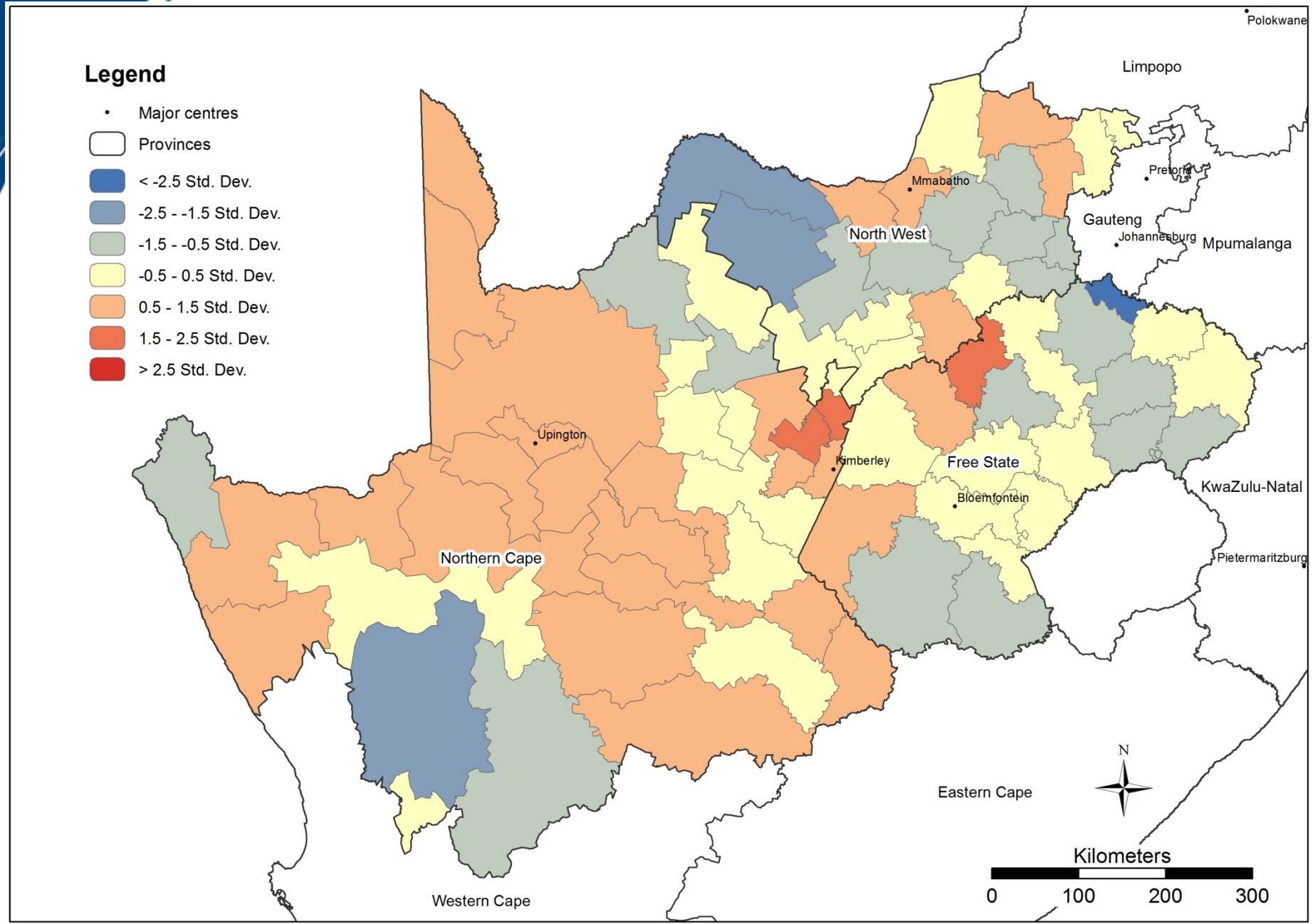
Findings and discussion (3)

- North West, Free State and Northern Cape
- Adjusted $R^2 = .61$
- $\gamma = b_0 + b_{1\ Dependency\ ratio\ in\ 1991} + b_{2\ Percentage\ in\ mining\ 1991} + b_{3\ Percentage\ in\ agriculture\ 1991} + b_{4\ Rural\ people\ in\ 2001} + b_{5\ Dependency\ ratio\ in\ 1996}$
- Relationship between unemployment in 2011 and dependency ratio in 1991 and 1996 and number of people in rural areas in 2001, was positive

Findings and discussion (4)

- Verifying predictions
- Residual values were randomly distributed
- Under forecasting (-2.5 to -1.5 standard deviations)
  - Highly industrial area in northern Free State
  - Low population density, mountainous and semi-desert areas
- Over forecasting (1.5 to > 2.5 standard deviations)
  - Declining mining towns

Findings and discussion (5): Cluster 3



Conclusion and recommendations (1)

- Regions have unique labour markets
  - Local labour market supply and demand factors are spatially distinctive
- Common predictor in all models - ratio of economically active people employed in the agricultural sector in 1991
  - Negative relationship
- Unemployment trends intimately linked with other socio-economic problems

Conclusion and recommendations (2)

- Policies on education, labour market regulation and skills creation should collaboratively address unemployment
- Most unemployed males are not competitive in either urban or rural labour markets
- Economic growth data at spatially detailed level - more meaningful analysis
- Quality, timeliness, relevance and accessibility of data remain perpetual obstacles for policymaking