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Human Sciences
Research Council

Where have all the jobs gone? Unemployment trends in Gauteng, South Africa

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Societal challenges



Study background

- Gauteng most urbanised province in South Africa
 - ✓ 97% urbanised
 - ✓ 11 Million people
 - ✓ 5% of total land
- Large informal settlements
- High unemployment

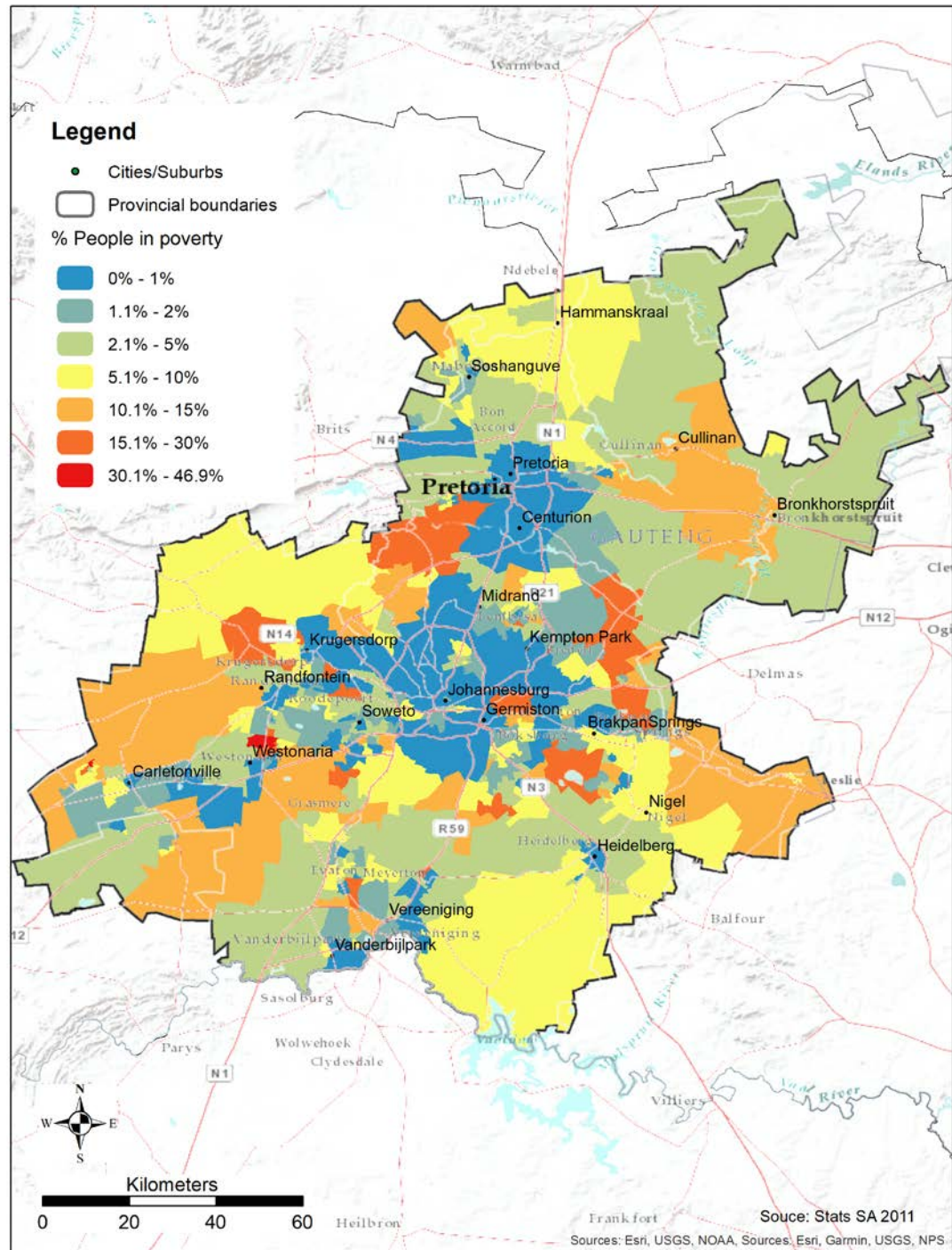


Smart city aspirations

- Create key economic clusters (i.e. ICT, Biotechnology and Aerospace)
- Enhance city operations through use of smart technologies
- Twinning can play a big part in local economic development
 - ✓ Lacking because of limited human capacity in municipalities
 - ✓ Non-compliance with public entity policies
 - ✓ Existing agreements: Hackney, Bethlehem, Sutton

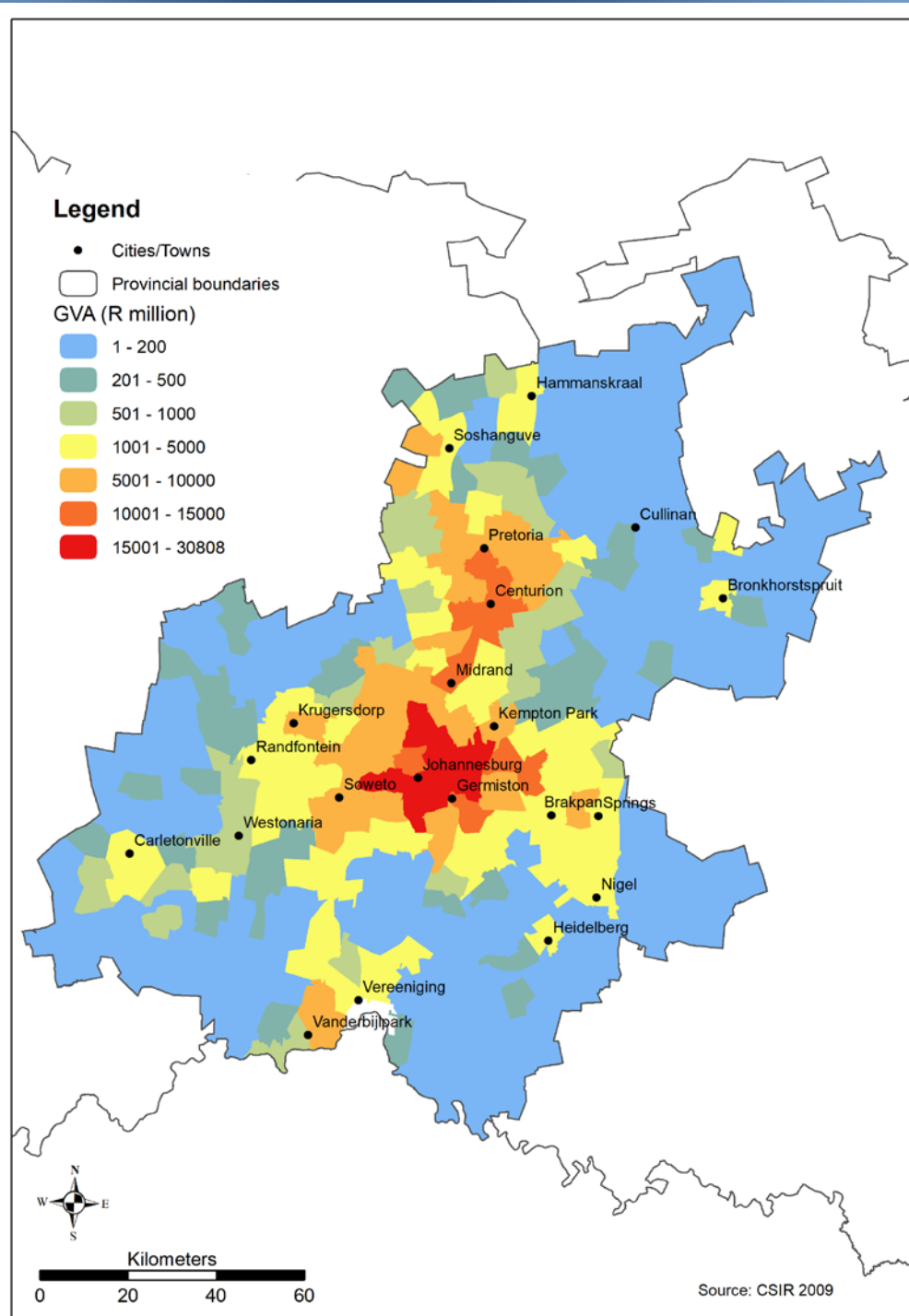
City realities

- Multi-dimensionally poor households



City realities (2)

- Spatially uneven economic activities
- Limited economic growth
 - ✓ Even declining
- 21 Million Internet users (national)
- High data costs



Methods and Data

- Census 2011 – spatial detail
- Grouping Analysis in ArcGIS
 - ✓ Different conceptualisations of spatial relations bring different results
 - ✓ Number of groups with best Pseudo F fit = 15
 - ✓ Spatial Matrix file which used K Nearest Neighbours, Inverse Distance OR
 - ✓ No spatial constraint, use random seeds
- A few useful models with high R^2 values
- Work in progress

Some results (1)

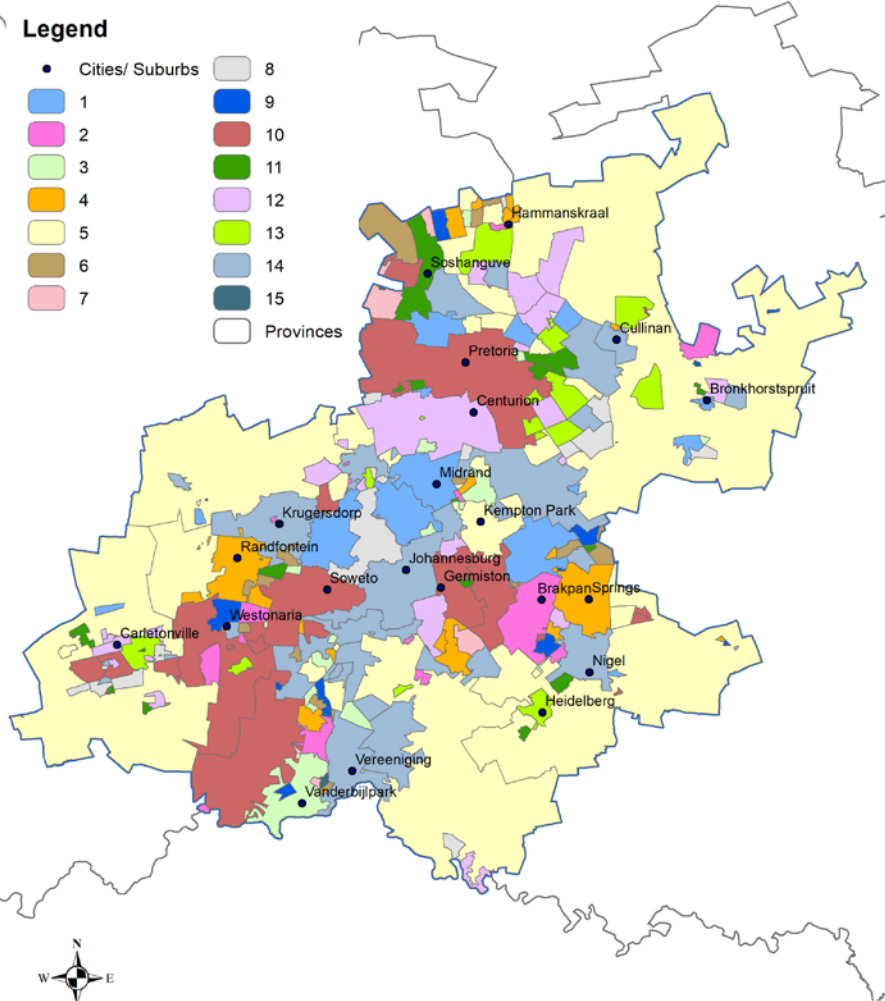
Model No	R ²	No of classes created	Optimum No suggested	Method/ Comment
12	0.8310	15	Not recorded	Spatial weight file , K nearest neighbour = 10
13	0.8615	15	15	Spatial weight file, Inverse distance
18	0.9393	5 (requested)	15	No spatial constraint, use random seeds
19	0.9927	15 (requested)	15	No spatial constraint, use random seeds

Some results (2)

Model 19

Legend

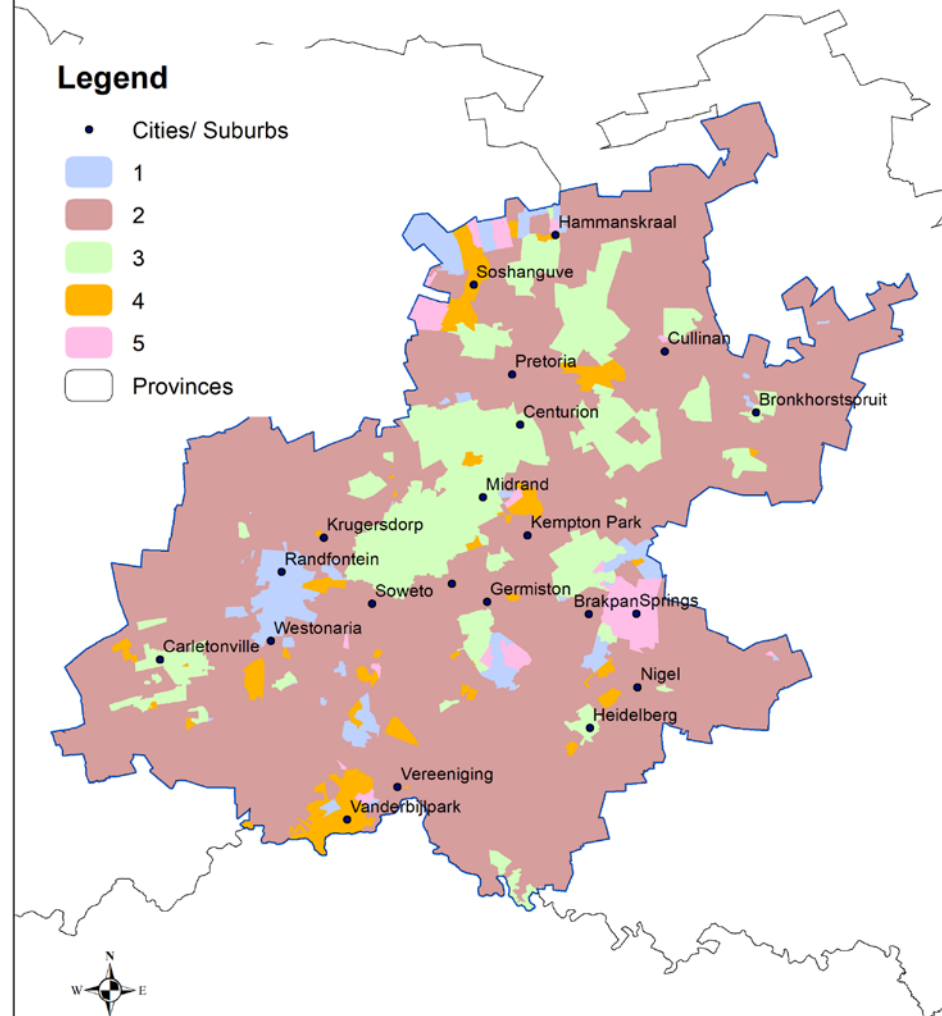
- Cities/ Suburbs
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15
- Provinces



Model 18

Legend

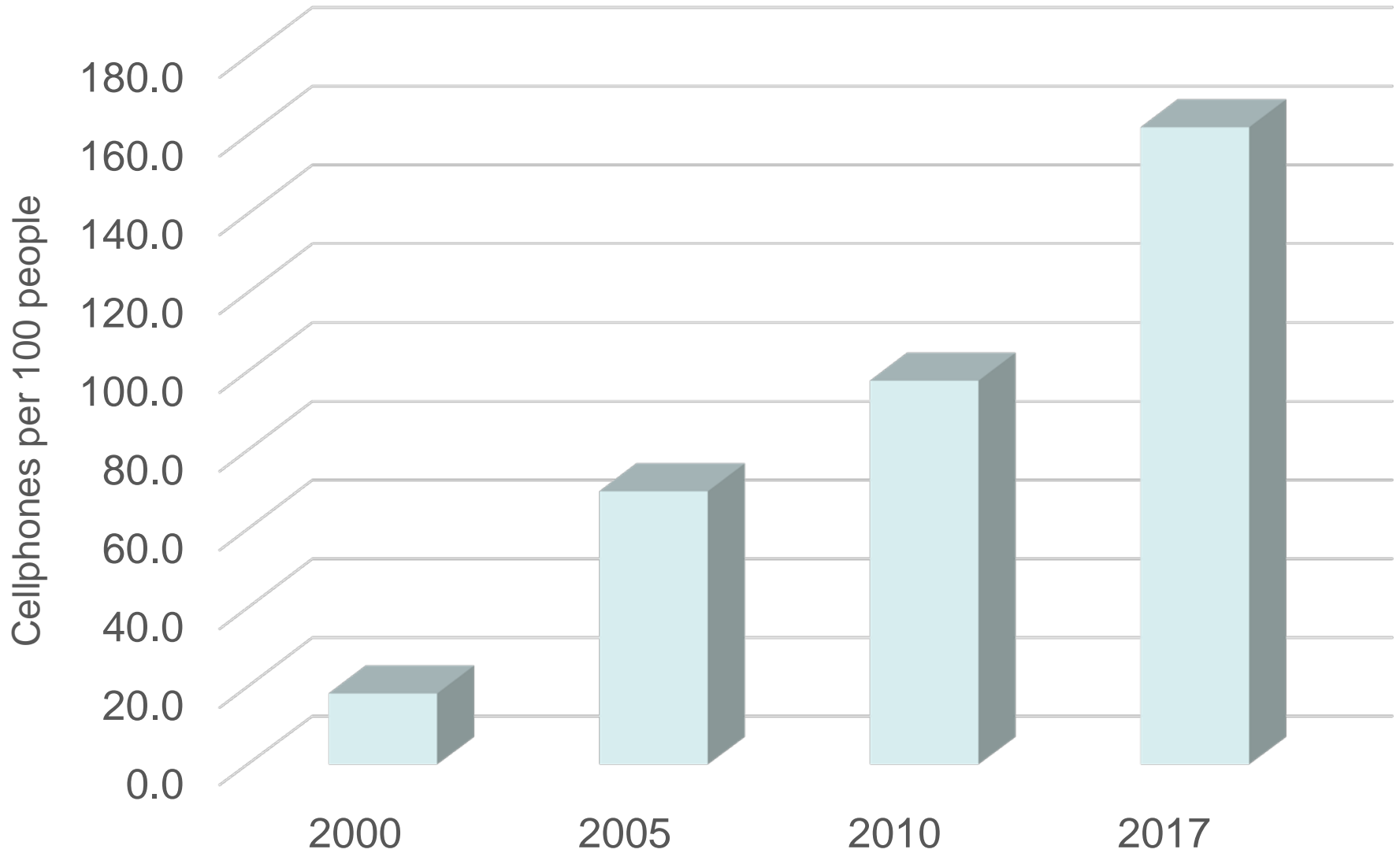
- Cities/ Suburbs
- 1
- 2
- 3
- 4
- 5
- Provinces



Recommendations (1)

- Know your constituency
 - ✓ 15 classes difficult to comprehend
- Identify distinct areas for intervention
- Combine with suitable digital solutions
 - ✓ 96.3% of households have a mobile phone
 - ✓ 4G networks reach 75% of the SA population
- Geo-targeted intervention

Recommendations (2)



Conclusion

- Identify cell phone penetration per area
- Use mobile solutions
 - ✓ To advertise opportunities
 - ✓ For skills development
- Promote use of free wi-fi hotspots
- Investigate correlation between education level and ICT usage