Extent of Monocentricity in Tallahassee, FL

Gabriel Valvassori and **Maria Clara Sandoval Durski**, Supervisor: Crystal Taylor, PhD

Florida State University, DeVoe L. Moore Center

Background and Research Question

Comprehending and modeling urban growth is vital for effectively planning infrastructure, forecasting population needs, and allocating resources.
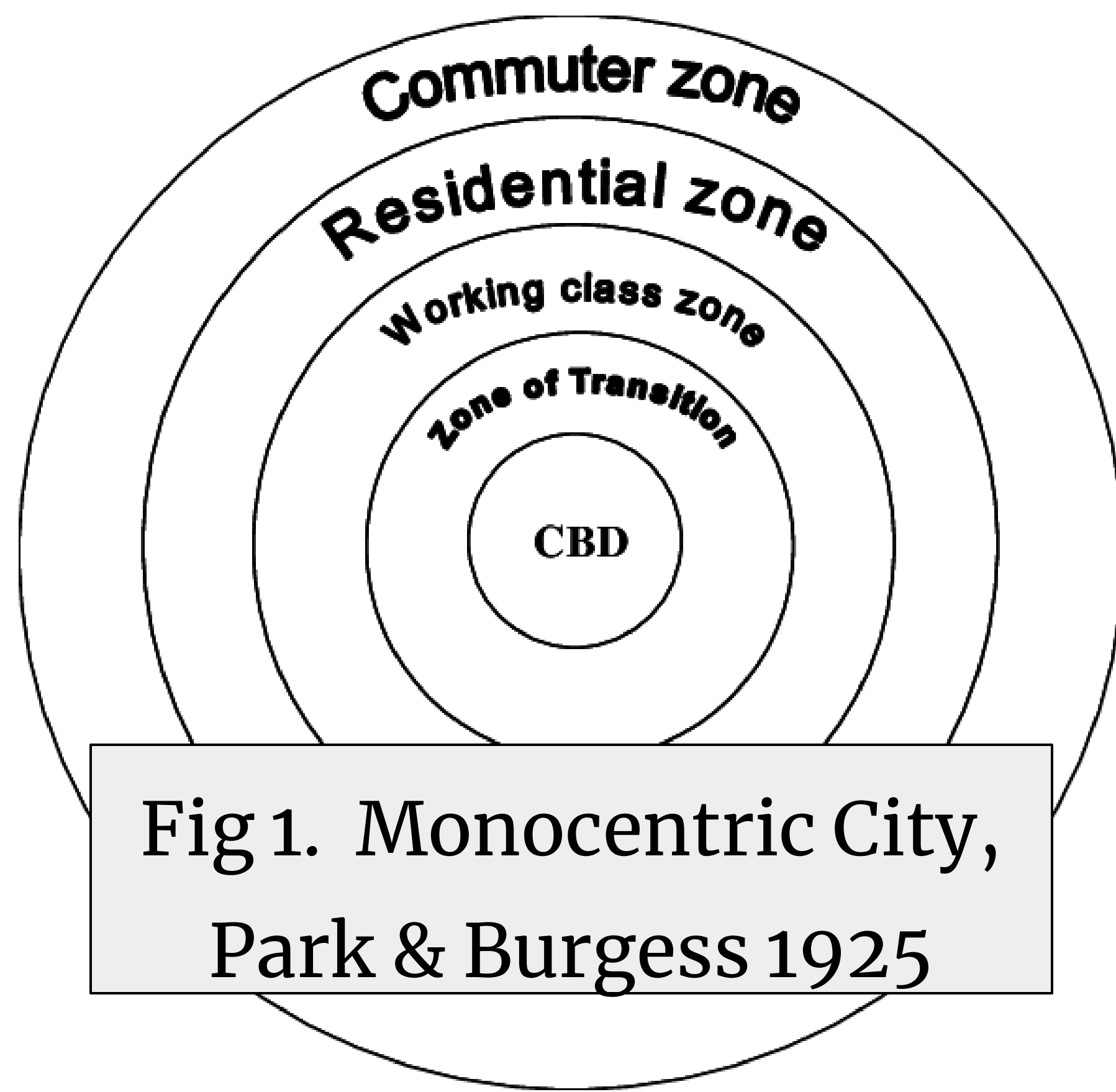
– **Monocentric cities** focus employment primarily within the central business district (CBD). With increasing distances from the CBD, the model assumes higher transportation costs and decreases in land prices.

Fig 1. Monocentric City, Park & Burgess 1925

– **Non-monocentric cities** contain multiple employment subcenters and tend to benefit from agglomeration economies.

Research Question: How well, if at all, does Tallahassee, Florida fit the monocentric city model?

Methodology

$$\text{Ln(employment density)} = \beta_1 \text{ distance from city center} + \sum \beta_i \text{ distance from city subcenter}_i^{-1} + c + u$$

Employment density data was obtained from PolicyMap. Distances from the city center and subcenters were calculated using IPUMS spatial data.

Methodological considerations by Huang et al. (2015)

1) Using negative exponential models for mapping the spatial distribution of employment,

2) incorporating the distance from subcenter variable, and

3) observing how employment density declines faster with increasing distance from subcenters.
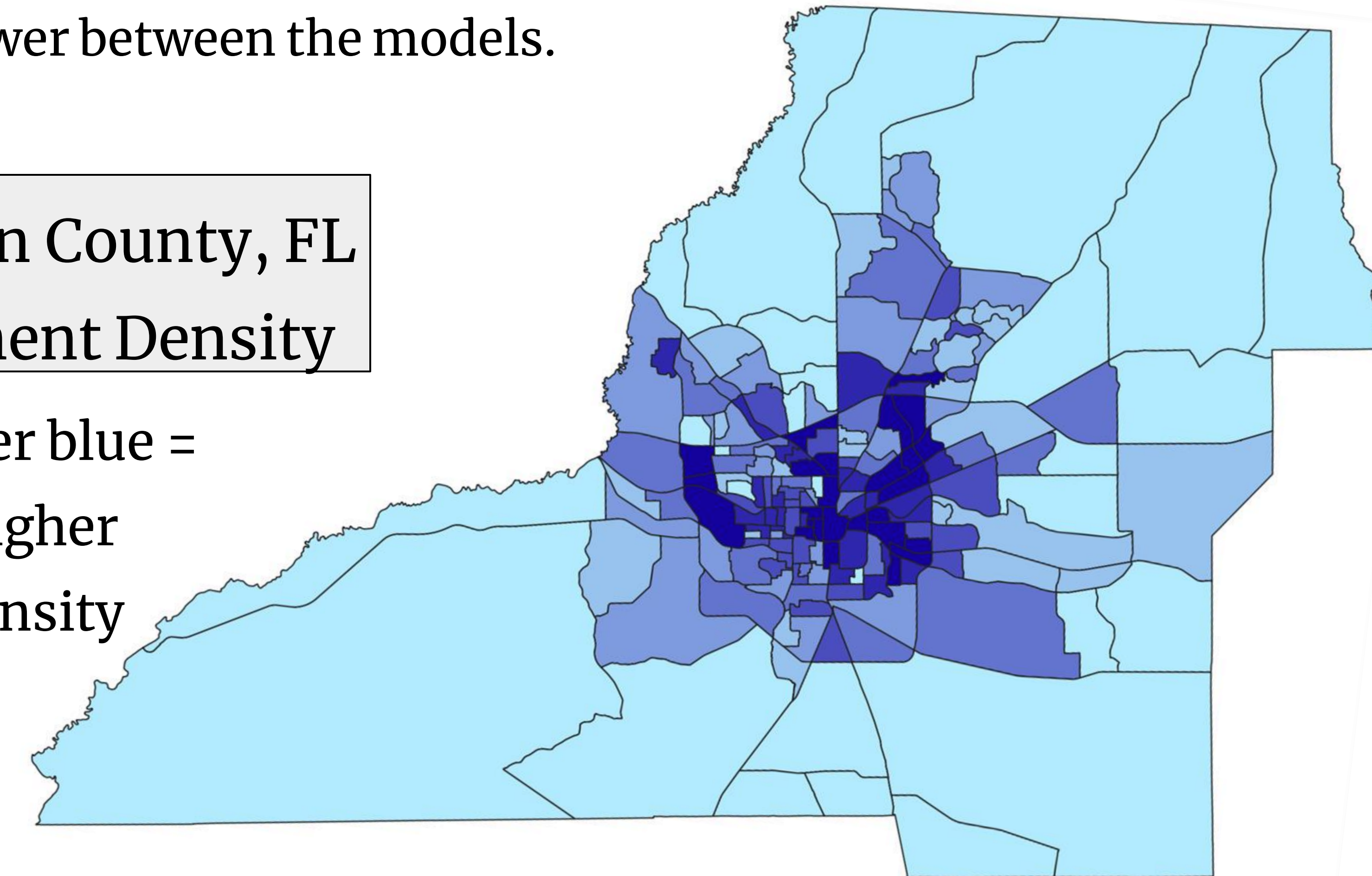
Limitations

FSU's employment density data, concentrated in a small campus area, was merged with other block groups.

Results and Conclusion

Tallahassee is still predominantly monocentric, with only marginal improvements in explanatory power between the models.

Fig 2. Leon County, FL Employment Density

Darker blue = Higher density

Model 1: Monocentric

Variables	Coeff	SE	Prob
Distance City Center	-0.311	0.045	0
Constant	0.312	0.208	0.136
R^2 0.2178		*Adj. R^2*	0.2132

Model 2: Polycentric

Variables	Coeff	SE	Prob
Distance City Center	-0.276	0.044	0
Subcenter1	0.218	0.171	0.205
Subcenter2	0.603	0.304	0.049
Subcenter3	0.280	0.181	0.124
Constant	-0.381	0.259	0.143
R^2 0.3102		*Adj. R^2*	0.2938

Policy Implications and Future Research

With increased population growth, the market may continue to shift job creation to subcenters. Policymakers could proactively prime infrastructure in these subcenters to support new businesses, thus collecting tax revenue in the area.

Future research could compare cities with large government employment sectors to cities with high industrial activities. Uncovering where subcenters emerge could guide infrastructure investments including highways, public transit, and social services.

Acknowledgments and References