

2013 SOAC Conference



GDP and City Population in the Development Performance of City Structures

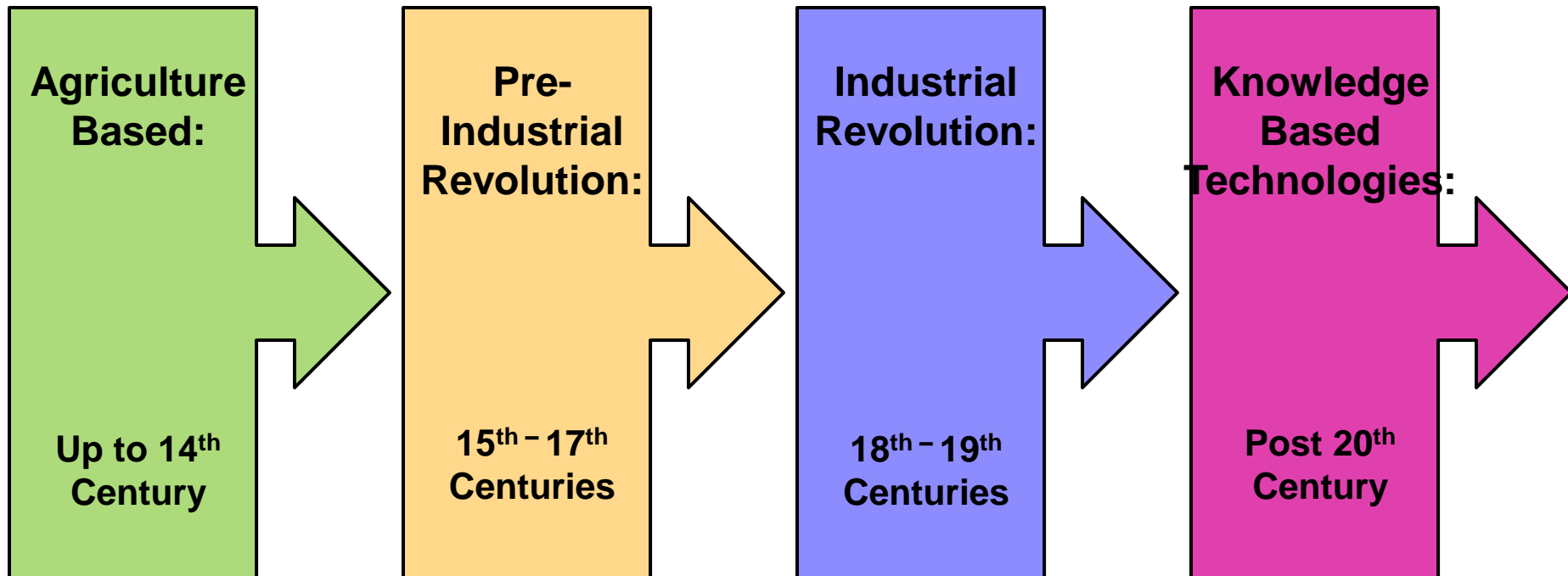
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Evolution of City Structures:

Four Distinct Phases



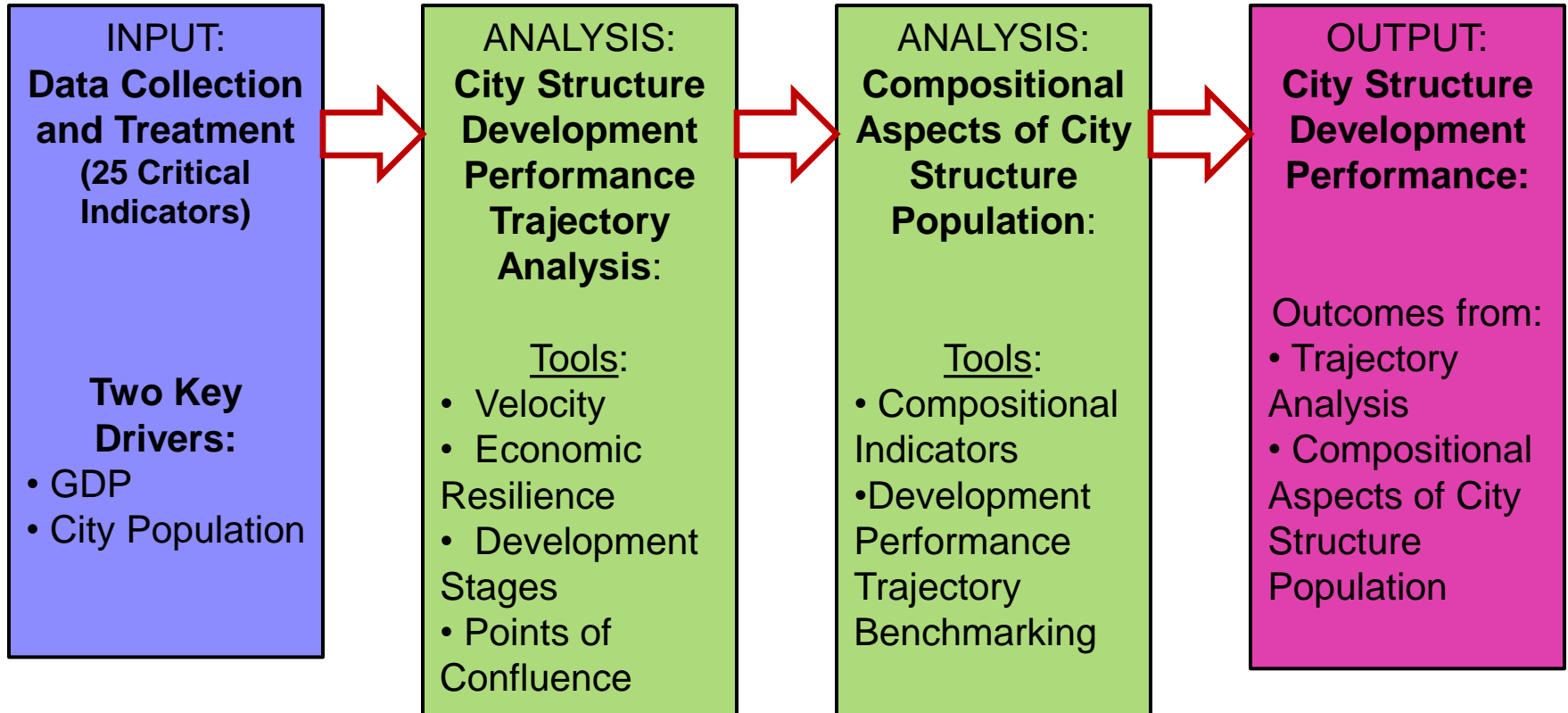
Source: Modified and Adapted from Pacione (2003) and Castells (2004) by Leong Glastris

City Structure: *A city structure is an evolutionary process determined by its network of functional activities; relationships; capital and knowledge flows which influence its growth and density as it transitions through a series of development stages.*

Notable Theories:

- **Castells (2004); Friedmann (2002); Fujita, Krugman & Venables (2001); Sassen (2001); Scott (2001) & Taylor (2004)** have developed the concept of the city as a node or a critical meeting place & a range of activities enables a city to be connected within a wider regional or global network.
- **Allen (2004); Blakely & Bradshaw (2002); Glaeser (2008); Beall & Fox (2009); Kim & Short (2008)** have advocated economic activity dominates the development of cities where capital, resources and knowledge are concentrated.
- **Turok & Mykhnenko (2007)** assert cities are “*continuous built up areas*” where the main indicator of urban change is city “population change” because it impacts on and is impacted by urban and economic conditions.
- **Shen, Peng, Zhang & Wu (2011)** examined the relationship between urbanisation and urban sustainability where a sustainable urbanisation elasticity coefficient was defined by an urbanisation velocity and an urban sustainability velocity.

Research Design

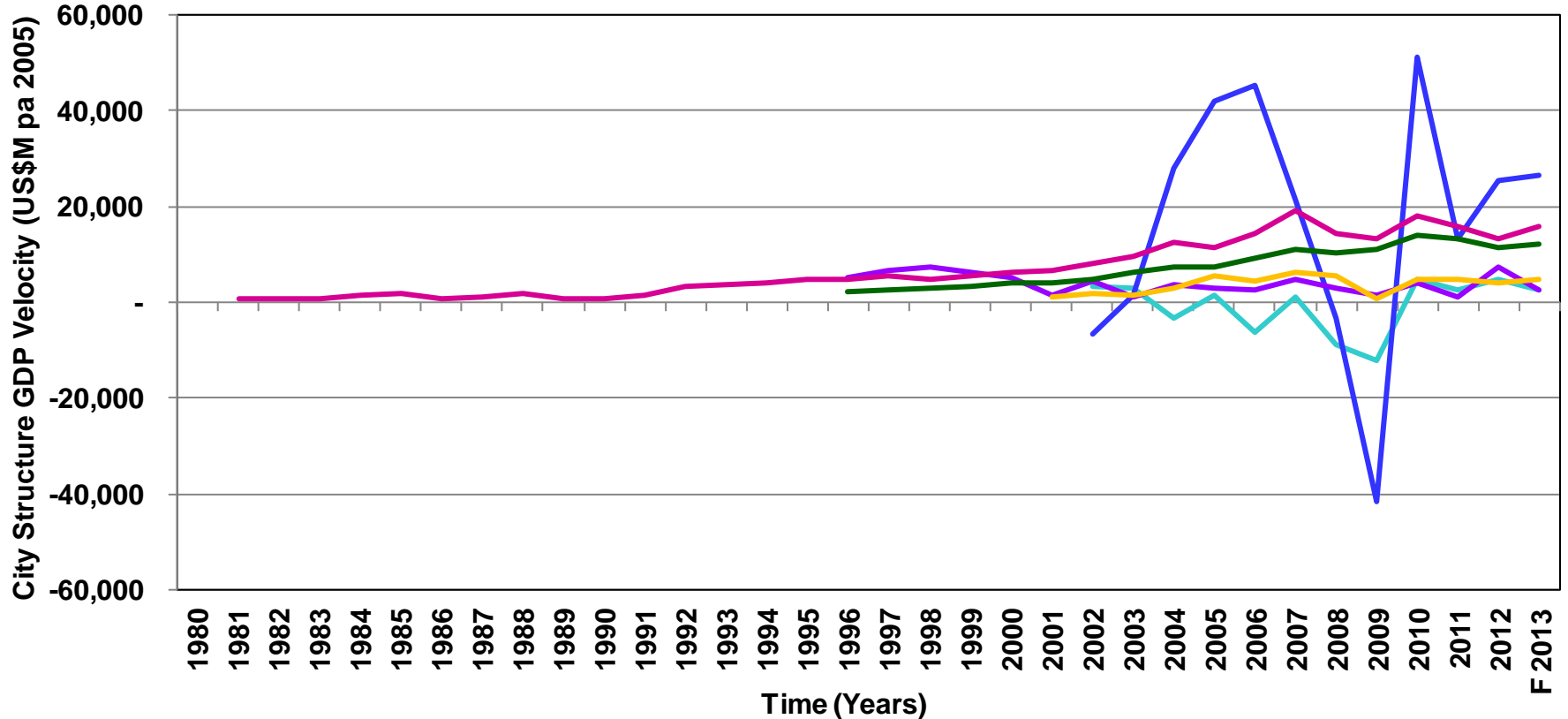


City Structure - Key Cities

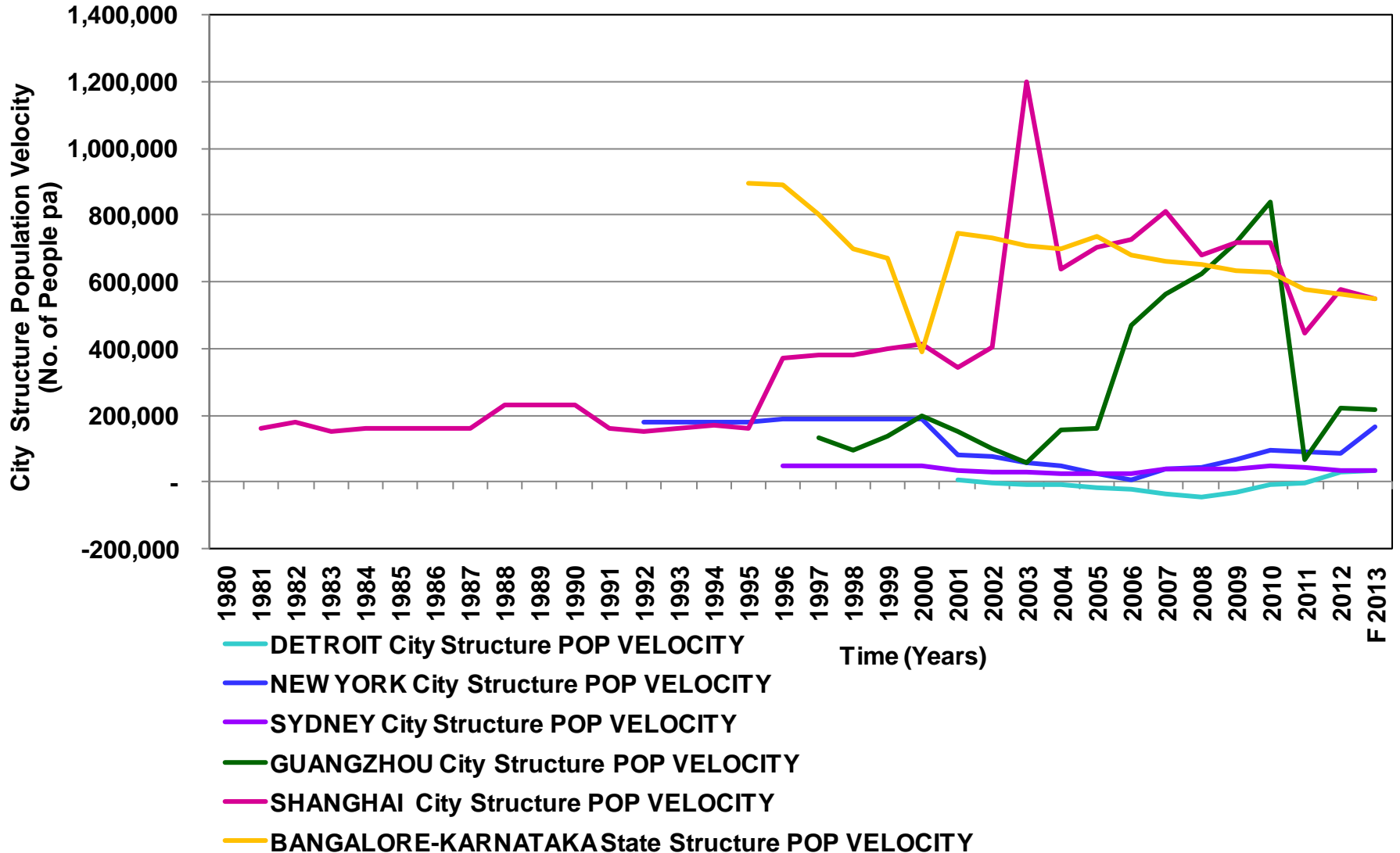
Profile Overlay: City Structure Development Stages - Key Cities

Indicative Development Stage:	General Description:	City and Country:
Early Emerging:	Cities in their initial growth phase of development.	Bangalore , India
Emerging:	Cities in their rapid growth phase of development.	Guangzhou , China
Maturing:	Cities which have entered a moderate growth phase of development.	Sydney , Australia
Mature:	Cities that are approaching a growth plateau in development.	New York , United States of America
Obsolescence - Decline:	Cities entering an obsolescence phase and/or are in development decline.	Detroit , United States of America
Obsolescence - Re-Growth:	Cities which have entered an obsolescence-decline phase but have been re-invigorated and are in a re-growth phase.	Shanghai , China

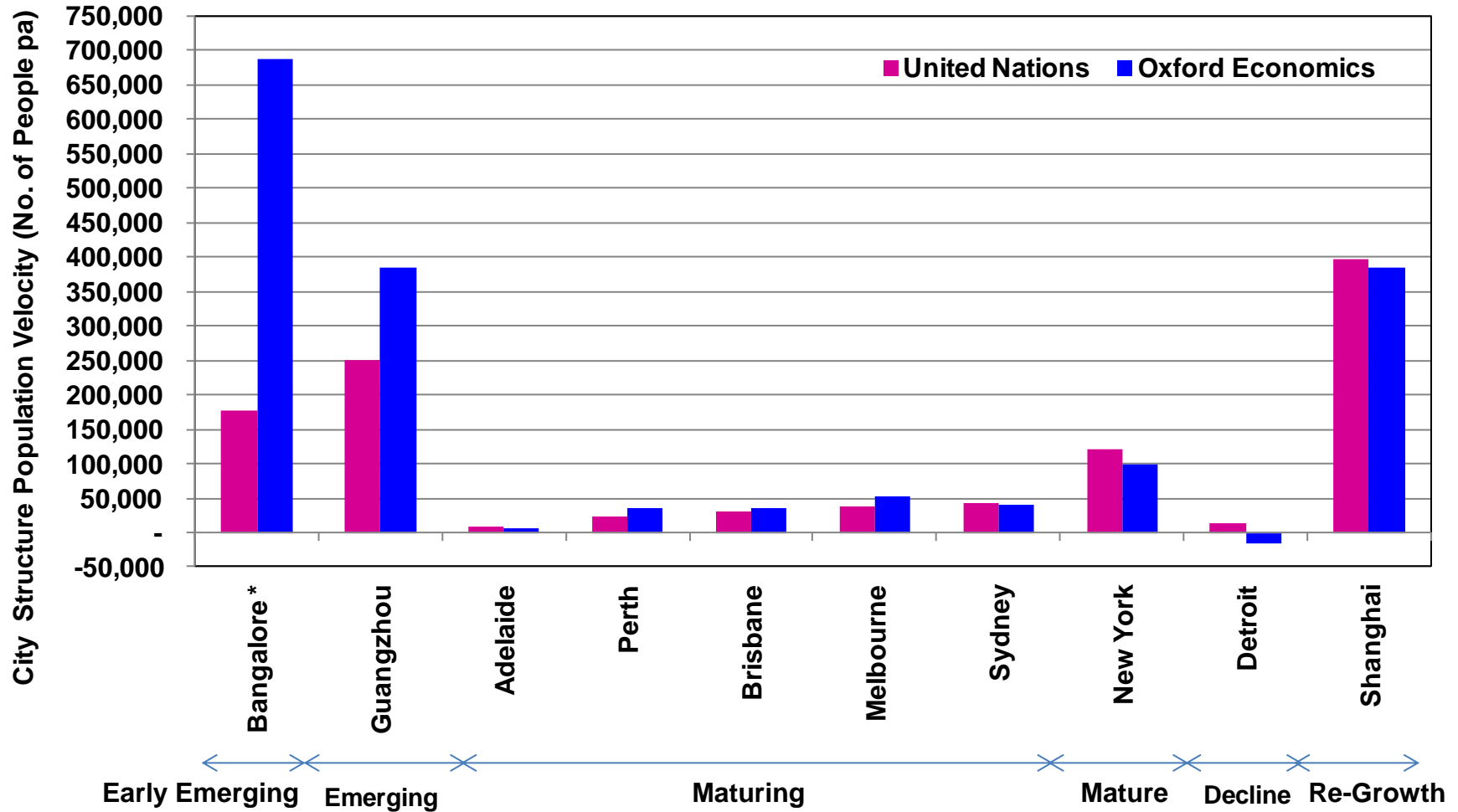
City Structure Gross Domestic Product Velocity



City Structure Population Velocity



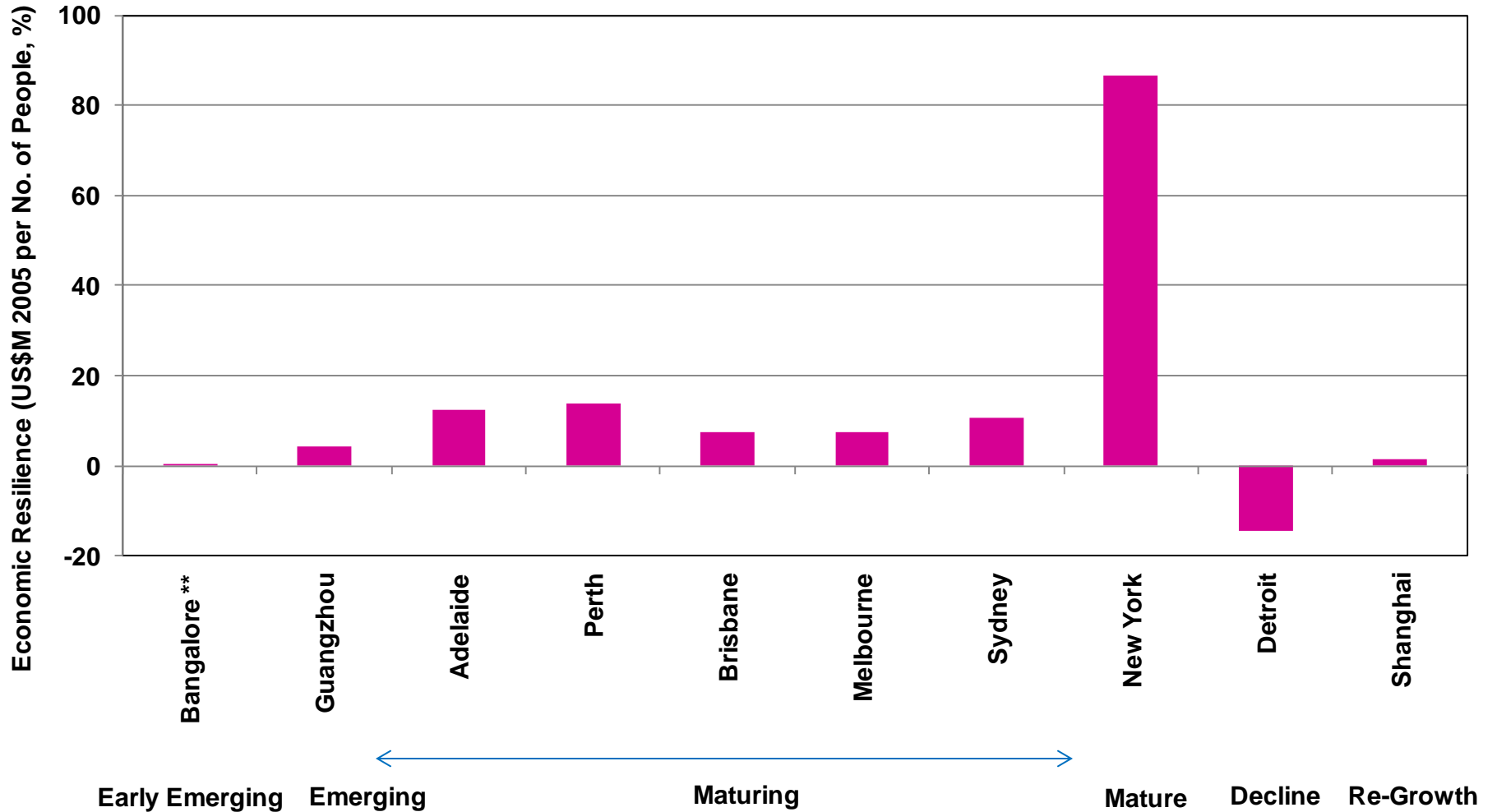
City Structure Population Velocities: 1980-2010



Cities (Sorted by Development Stage and then by Increasing UN Pop Velocity)

Note: * Oxford Economics uses State of Karnataka for Bangalore

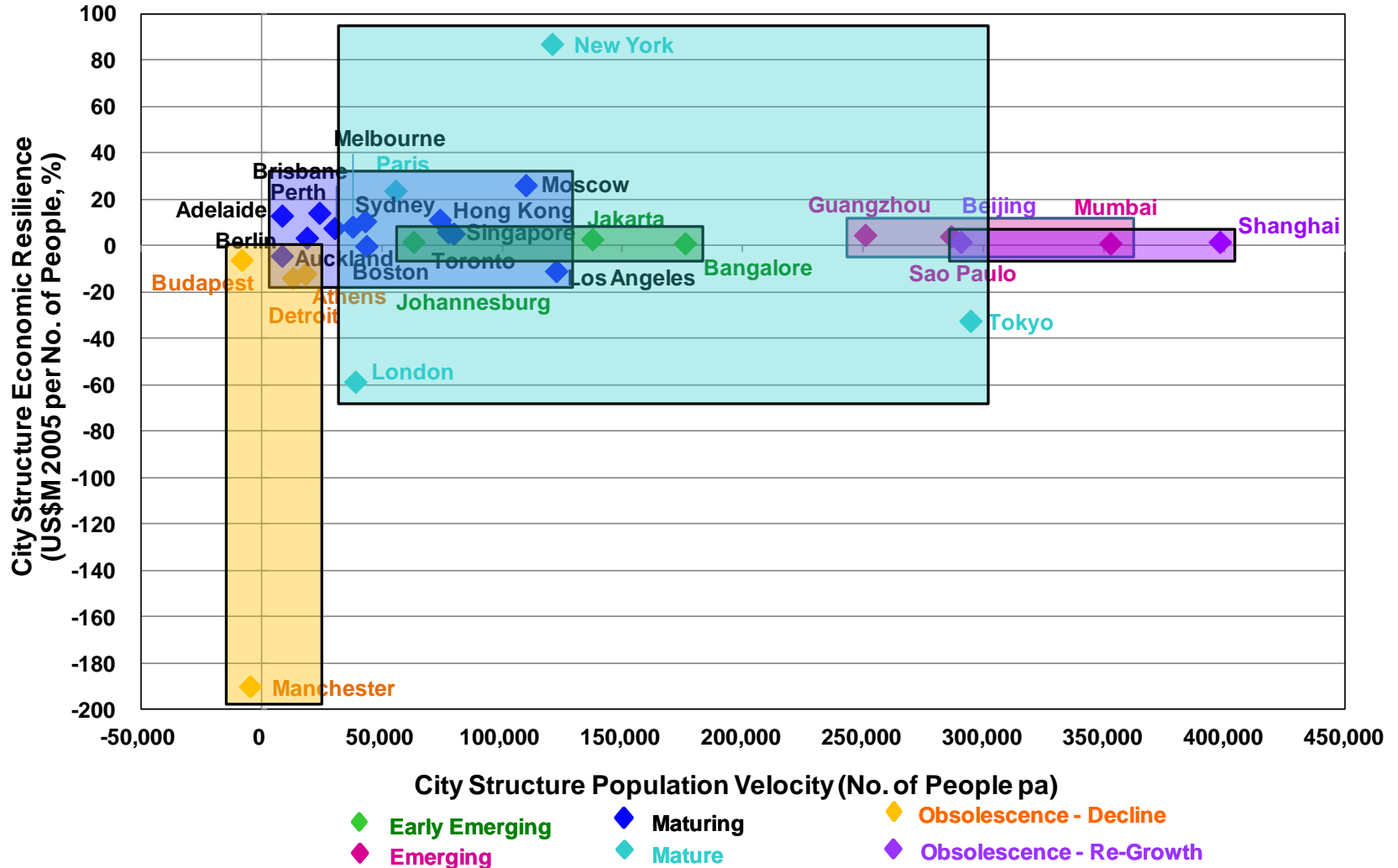
City Structure Economic Resilience: 1981-2012



Cities (Sorted by Development Stage and then by Increasing Economic Resilience)

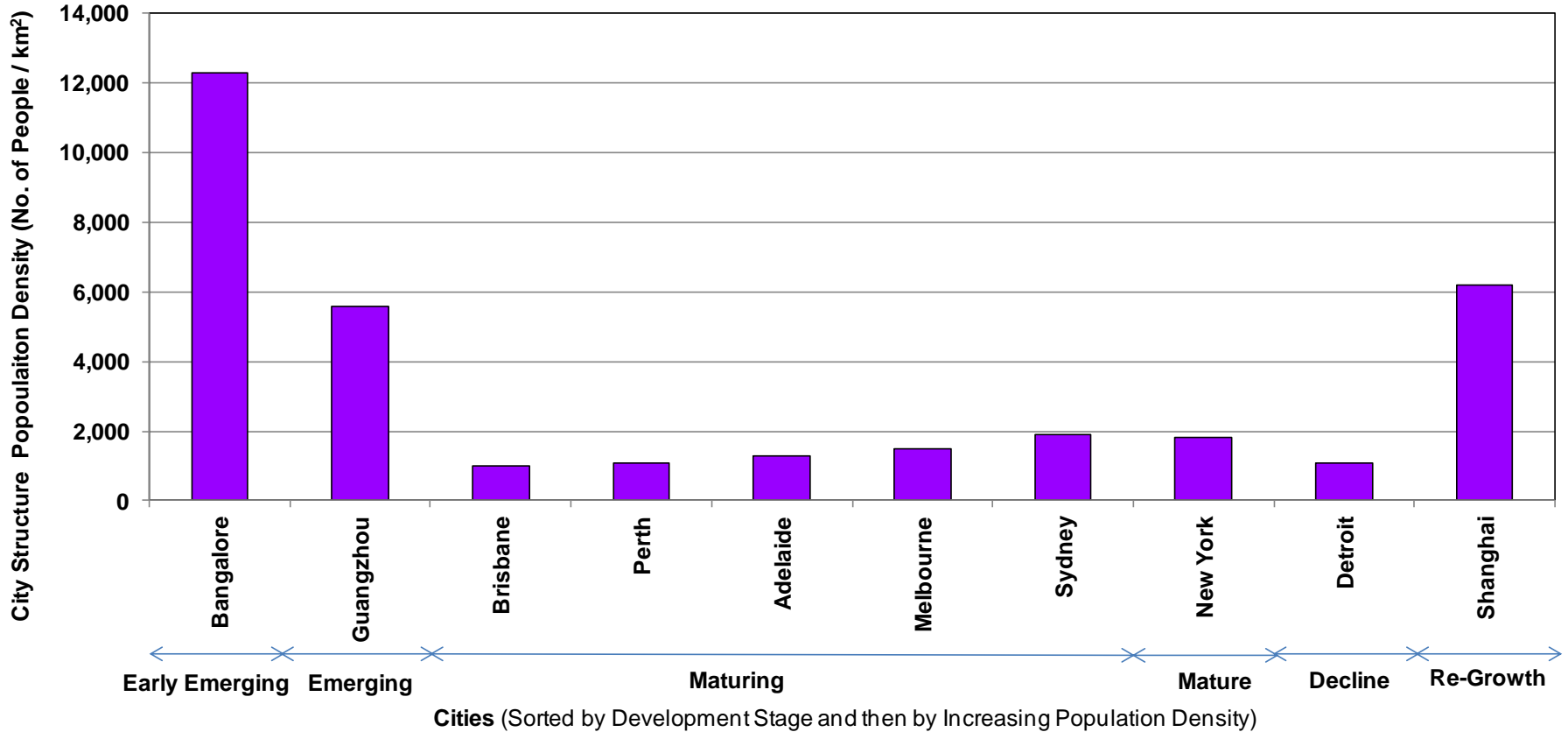
*Note: * Oxford Economics uses State of Karnataka for Bangalore*

Points of Confluence: Population Velocity vs Economic Resilience



Note: Population Velocity Comparison: 1980-2010 Historical Annual Average & Economic Resilience Comparison: 1981-2012 Historical Annual Average

Compositional Aspects: City Structure Population Densities - 2013



Compositional Aspects of City Structures

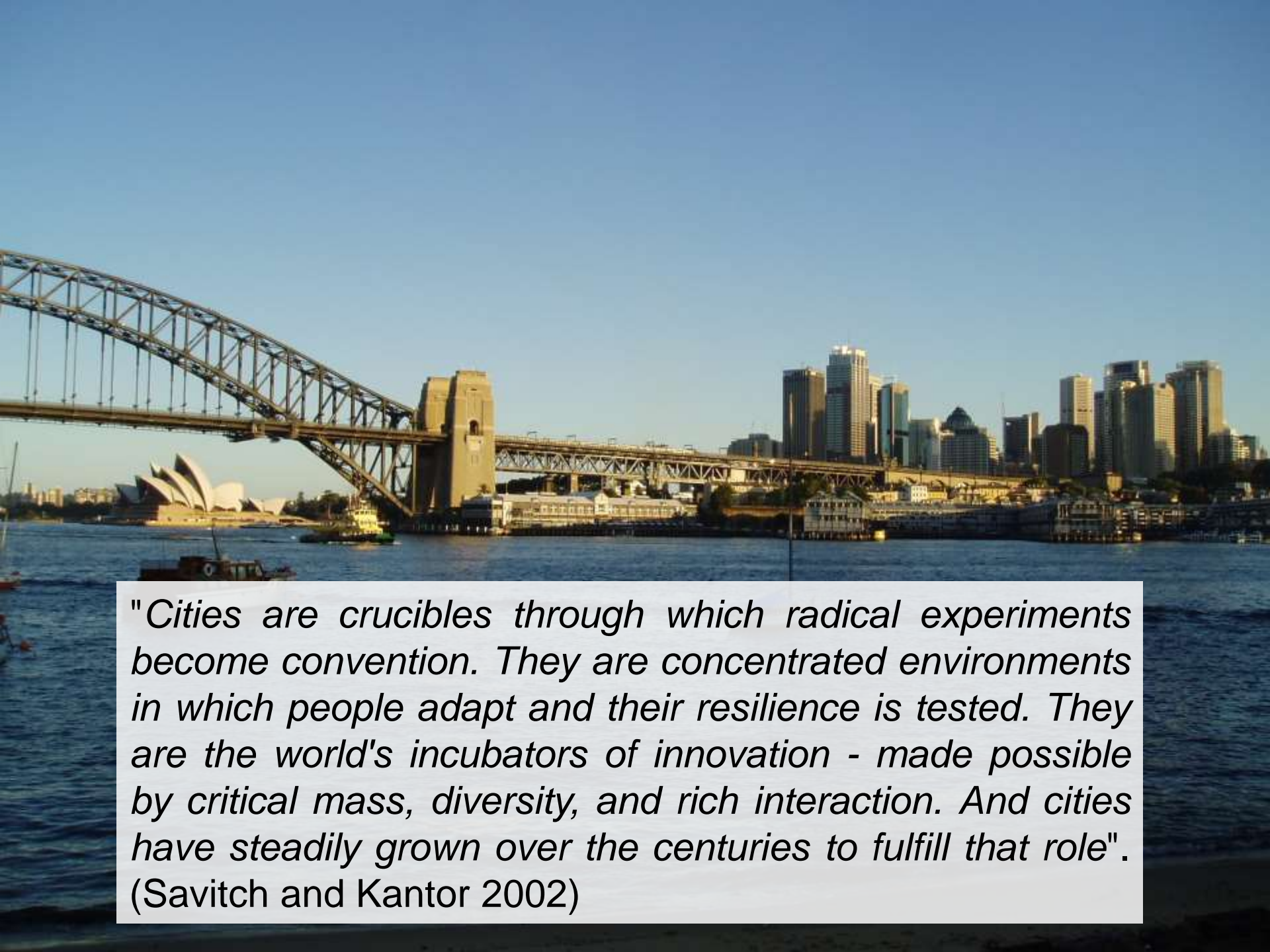
Compositional Aspects of City Structures:

City Structure	Population Magnitude ¹ as at 2012 (M, No. of People)	Population Density ² (No. of People / km ²)	Population Velocity ^{3,4} as at 2013 (No. of People pa)	Economic Resilience ^{3,4} as at 2013 (%)
Detroit	4.6	1,100	33,500	7.2
New York	20.8 Megacity	1,800	163,900	16.3
Sydney	4.7	1,900	33,400	7.7
Guangzhou	11.6	5,600	218,300	5.6
Shanghai	21.6 Megacity	6,200	548,700	2.9
Bangalore	9.3	12,300	549,000	0.9

*Sources: United Nations¹, Demographia², and Oxford Economics³,
Research, Methodology & Analysis Developed By: Leong Glastris⁴*

Conclusion:

- **Evaluative framework and tools** for investigating the development performance of city structures - GDP and City Population are strong key drivers.
- **Development Performance Trajectory Analysis** for Velocity and Resilience – Useful in evaluating development performance of city structures & their development stages.
- **Points of Confluence** (Economic Resilience versus Population Velocity) - quantifies city structure development stages and their characteristics.
- **Compositional Aspects of City Structure Population** - provides a comprehensive profile of a city structure with respect to productivity, capacity and resilience of city structures.



*"Cities are crucibles through which radical experiments become convention. They are concentrated environments in which people adapt and their resilience is tested. They are the world's incubators of innovation - made possible by critical mass, diversity, and rich interaction. And cities have steadily grown over the centuries to fulfill that role".
(Savitch and Kantor 2002)*