

# Antidotes to Baumol's Disease: The Influence of Service Delivery Regimes and Bus Speed

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# Motivation: Budget and Sustainability Concerns

**Los Angeles Times**

L.A.'s slow buses aren't just shedding riders, they're becoming climate liabilities



Buses get stuck in traffic on Wilshire Boulevard even when its peak-hour bus-only lane is in effect. The bus-only lanes get choked with motorists who break the rules. (Los Angeles Times)

# Objectives of Paper

Context - Growth in Bus Operating Costs

Objectives - Assess impacts of:

- Baumol's Cost Disease
  - “Inherent characteristics”: high labor intensity, low rate of technological innovation with respect to labor productivity (Morales Sarriera et al., 2018, p. 16)
- Service delivery regime
- Commercial speed

# Service Delivery Regime 1: United States

- Limited contracting
  - 11% of all fixed route bus service operated by the private sector in 2017 (APTA, 2019)
  - Of top 20 agencies, none contracts more than 40% of trips (Lotshaw et al., 2017)
- Commercial speed
  - Impacted by congestion
  - 10% lower commercial speeds associated with 3.3% to 3.9% higher unit costs (Morales Sarriera et al., 2018)

## Service Delivery Regime 2: Great Britain outside London

- Services deregulated and privatized after 1985
- Little coordinated planning or centralized management
- Limited competition
  - 5 large operators control 70% of market
  - Not sustainably competitive or contestable without franchising (Cowie, 2011)

# Service Delivery Regime 3: London

- TfL plans, manages, and awards operating contract based on competitive tenders
- Congestion charging zone introduced in 2003 positively impacted speed and ridership
- Wage standardization underway

# Data Sources

Statistic	Data Source	
	United States FTA National Transit Database	United Kingdom DfT Bus Statistics
Trips	TS2.1 - Service Data and Operating Expenses Time-Series by Mode	Table Bus 0103 (Great Britain and London)
Passenger distance		Table Bus 0302a (Great Britain and London)
Vehicle distance		Table Bus 0203a (Great Britain and London)
Vehicle time		N/A
Operating expenses		Table Bus 0406a (London: TfL reports)
Employee hours worked	Through 2014: Table 18 After 2014: Employees Table	Table Bus 0703a (Entire UK)
Employee wages	Through 2014: Table 13 After 2014: Employees Table	Table Bus 0703a (Entire UK)

# Derived Measures

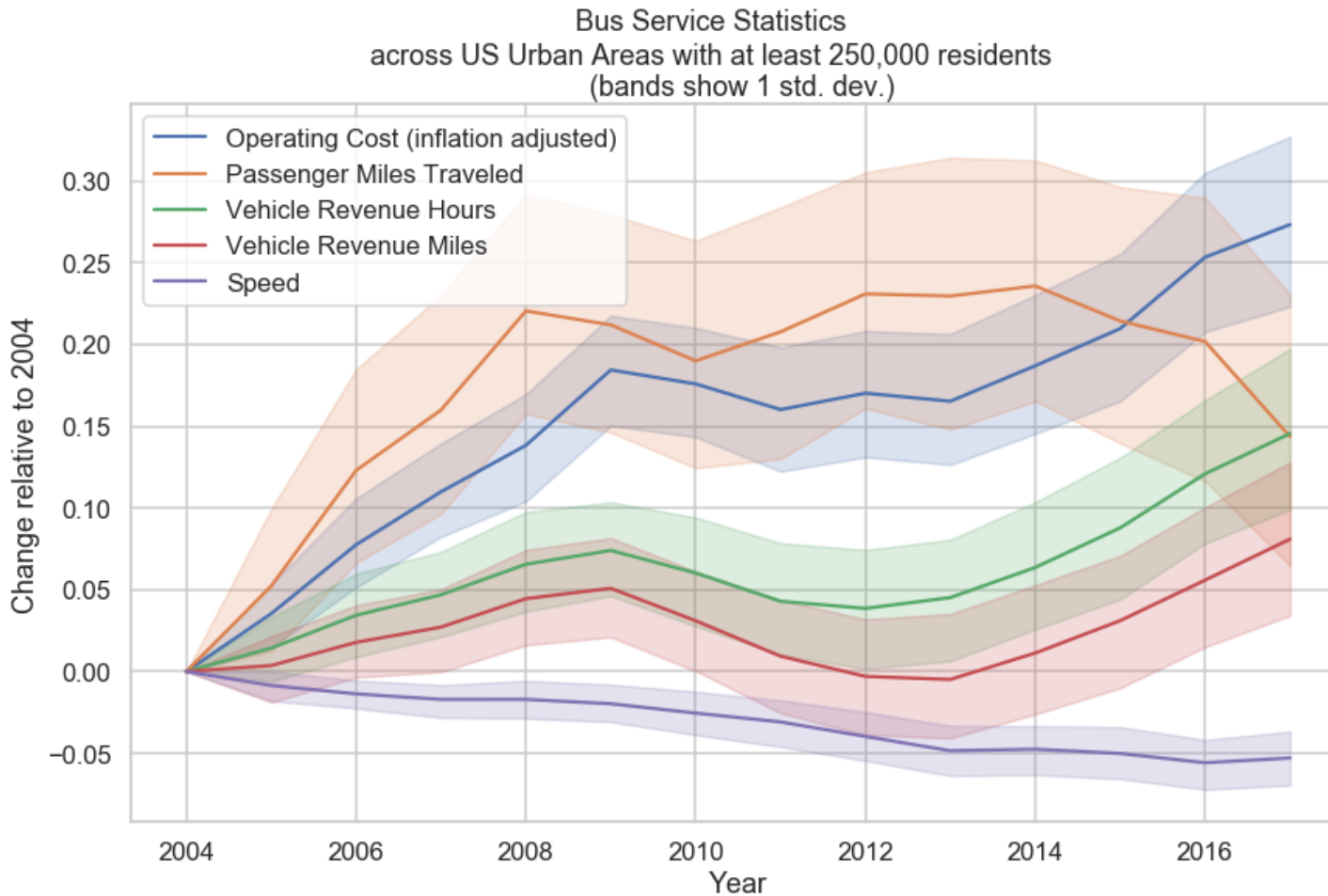
- Productivity: Vehicle revenue distance/total work hours
- Commercial speed: Vehicle revenue distance/vehicle revenue time (VRM/VRH)
- Unit costs
  - Operating expenditure per vehicle revenue distance (Opex/VRM)
  - Operating expenditure per passenger distance (Opex/PM)



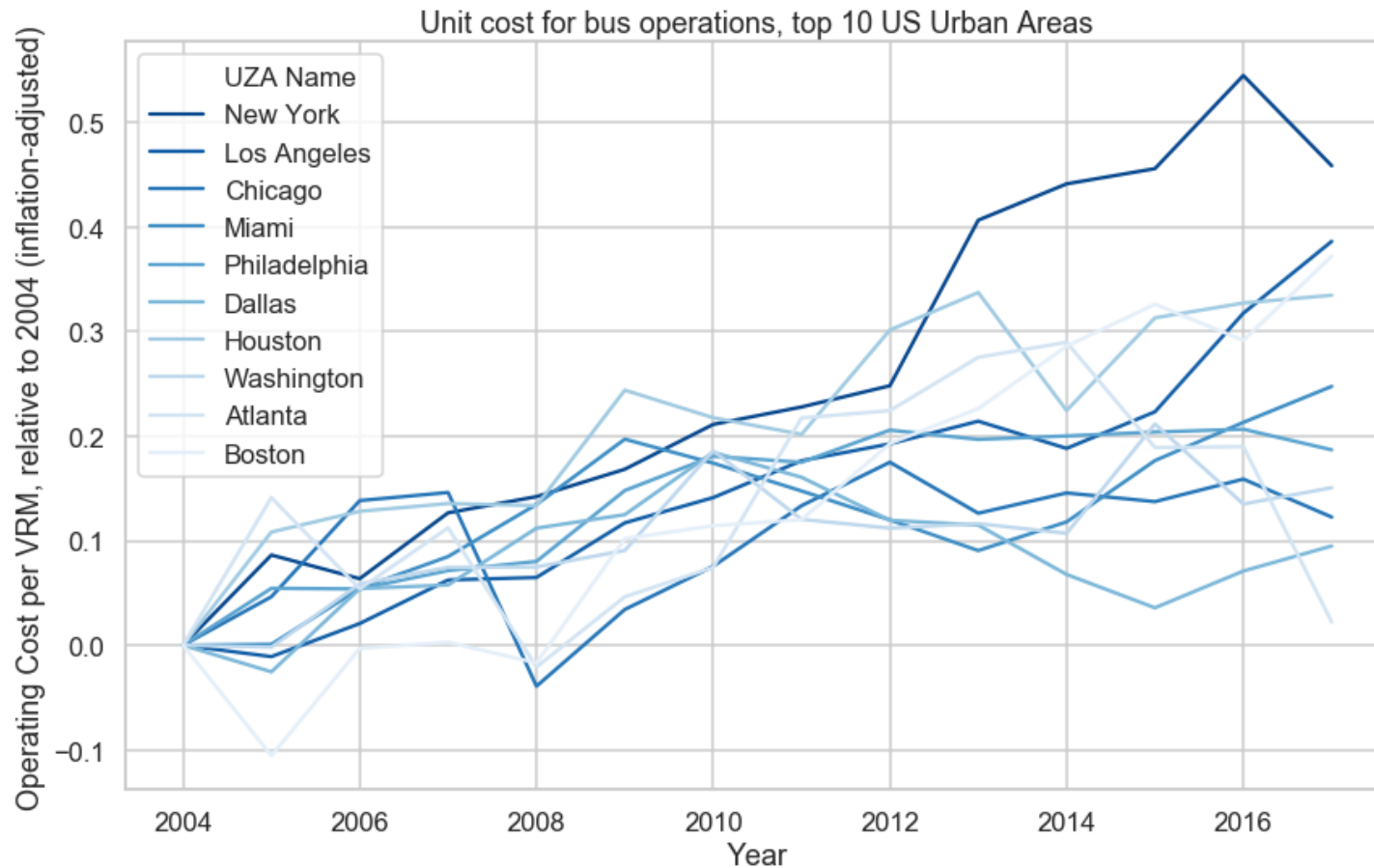
# Summary of Results

Region	Compound Annual Growth Rate (Percent), 2004 - 2017				
	Speed	VRM	PM	Opex/VRM	Opex/PM
New York	-1.3	-1.7	-1.9	2.9	3.2
Los Angeles	-1.2	-1.0	-1.4	2.5	2.9
Chicago	-0.3	-1.0	-1.7	0.9	1.6
Miami	-0.4	-0.2	0.8	1.7	0.6
Philadelphia	-0.2	0.2	-0.2	1.3	1.8
Dallas-Ft. Worth	-0.7	0.0	-4.2	0.7	5.1
Houston	-1.3	-1.8	-4.3	2.2	4.9
Washington	-0.8	1.2	-0.9	1.1	3.2
Atlanta	-0.2	-0.8	-1.7	0.2	1.1
Boston	-0.5	-0.1	0.2	2.5	2.2
US (overall aggregate)	-0.7	-0.5	-1.0	1.6	2.2
US (by urban area)	-0.5	-0.5	-1.0	1.2	1.4
London		0.2	1.7	1.1	-0.4
Rest of GB		-1.0	-0.3	1.5	0.7

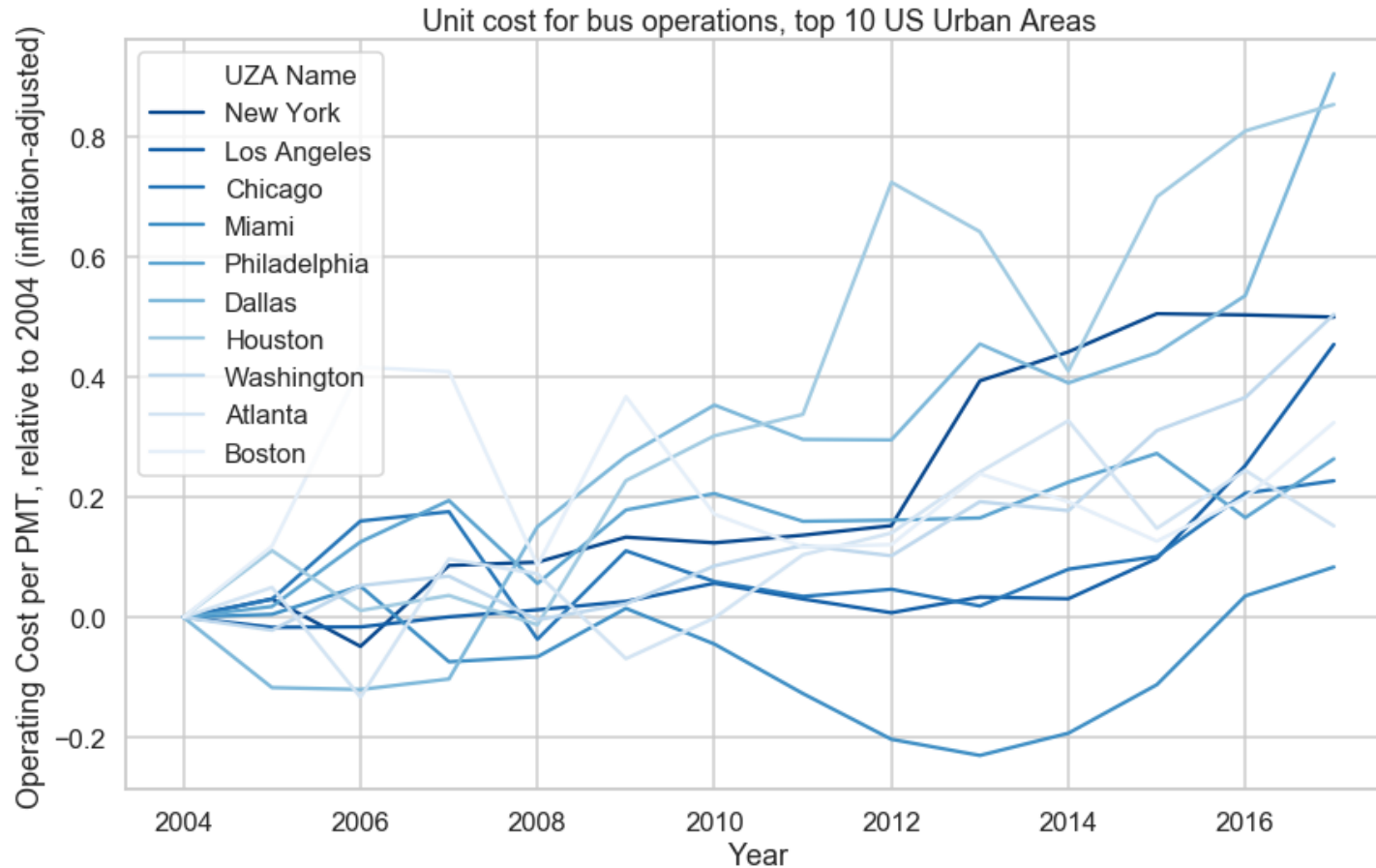
# Results: United States



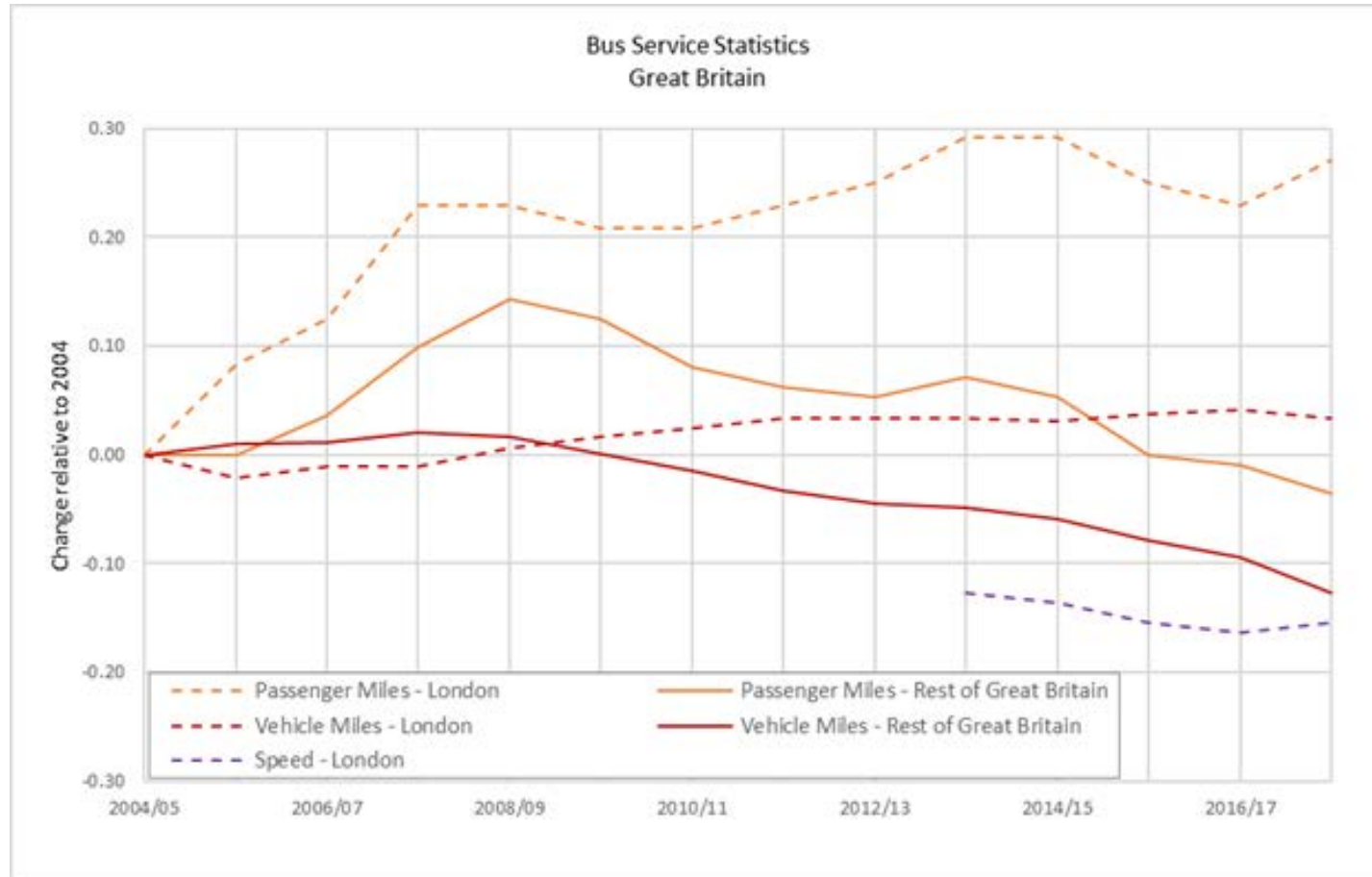
# Unit Cost: Opex/VRM



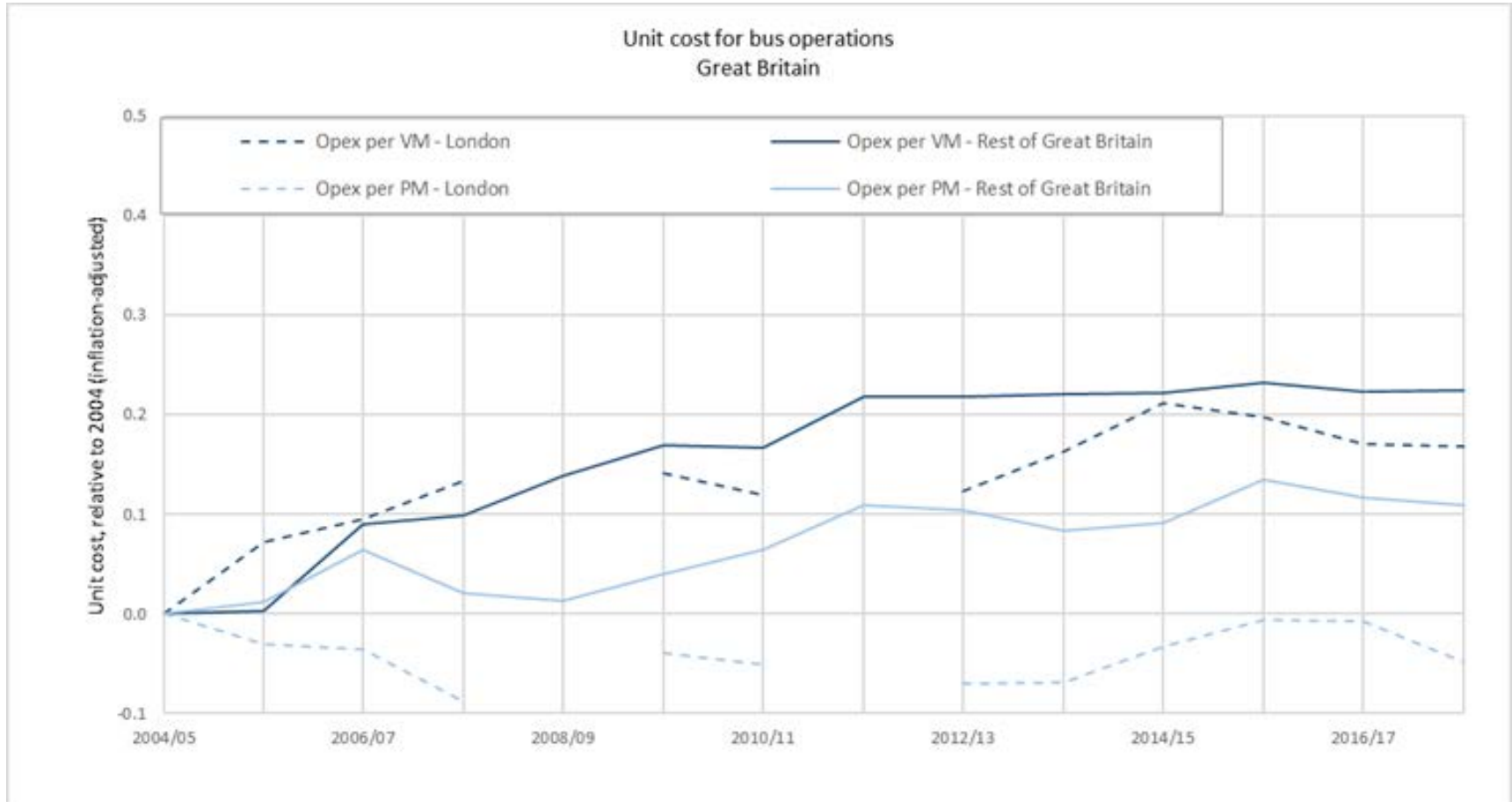
# Unit Cost: Opex/PM



# Results: Great Britain



# Results: Great Britain



# Discussion

- Falling speed creates classic vicious cycle
  - Longer driving and recovery times for operators
  - Lower service quality, higher fares
- Efforts to improve speeds
  - London
  - New York and Los Angeles
- VRM vs. PM as unit cost basis
  - Reflecting value of public transport in growing regions
  - Exogenous factors such as substitute modes

# Conclusions

- Preliminary analysis without controls for confounding factors
- US and Great Britain outside London
  - Similar unit cost growth, despite different service delivery regimes
- London
  - Lower growth in Opex/VRM
  - Decreasing Opex/PM, thanks to growing ridership
- New planning and contracting powers for English cities in Bus Services Act of 2017
- Dedicated road space and other priority measures can play an important role