

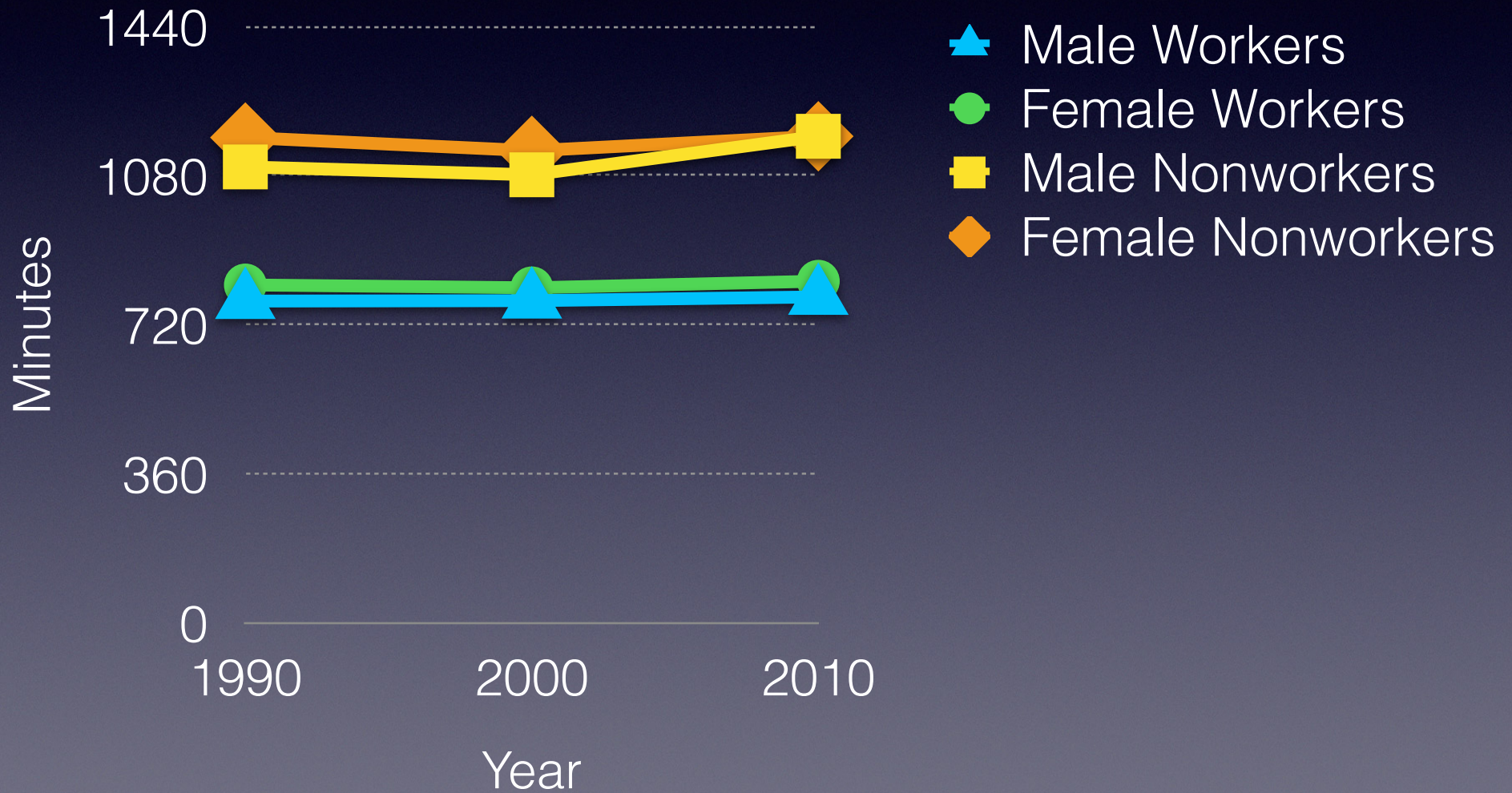
Accessibility and the Allocation of Time

Martin Brosnan
David Levinson

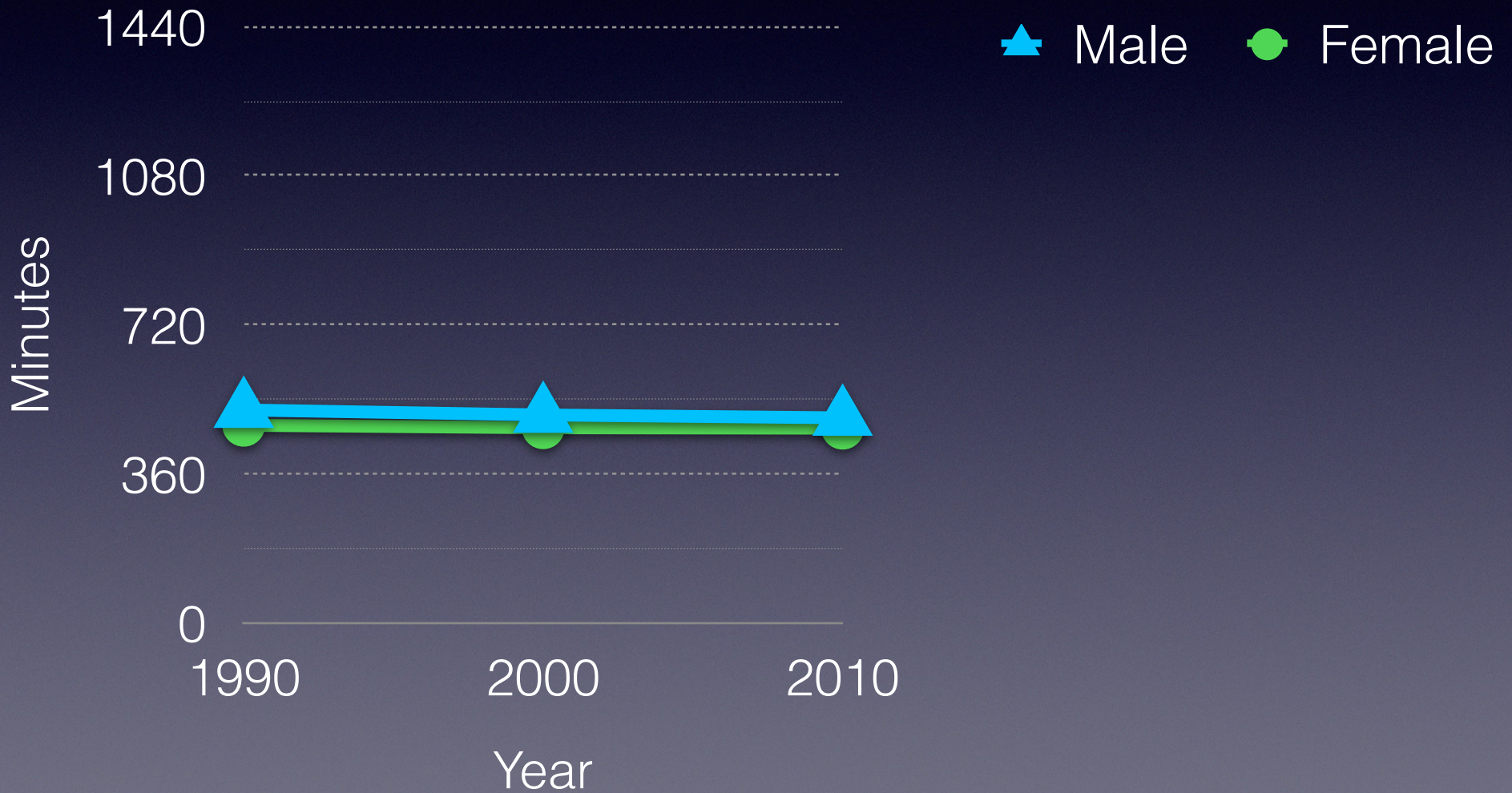
Travel Behavior Over Time

- Using Metropolitan Council's TBI 1990-2010
- Study how travel in the Twin Cities Metro is changing
- Implications for engineers and planners

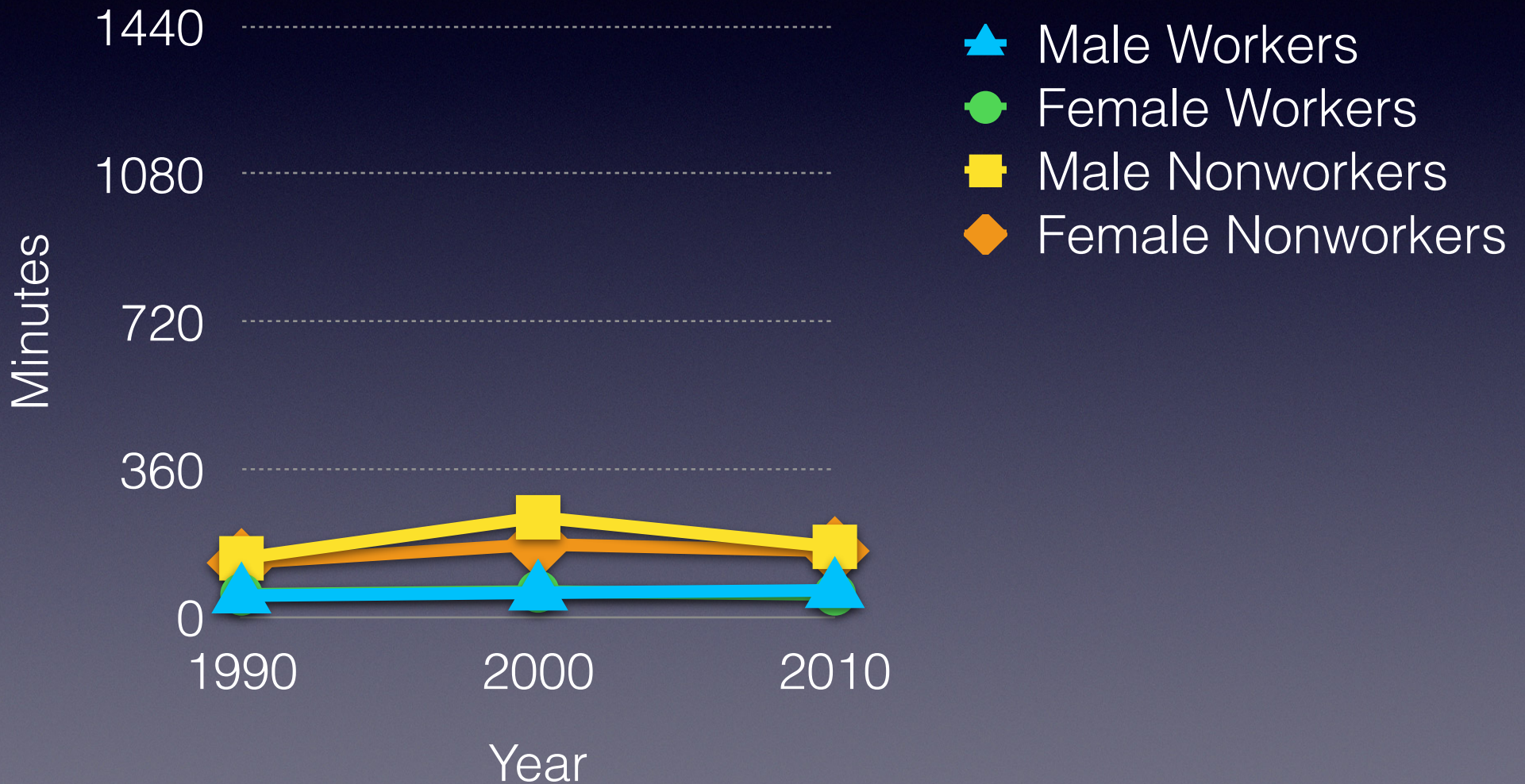
Time Spent at Home



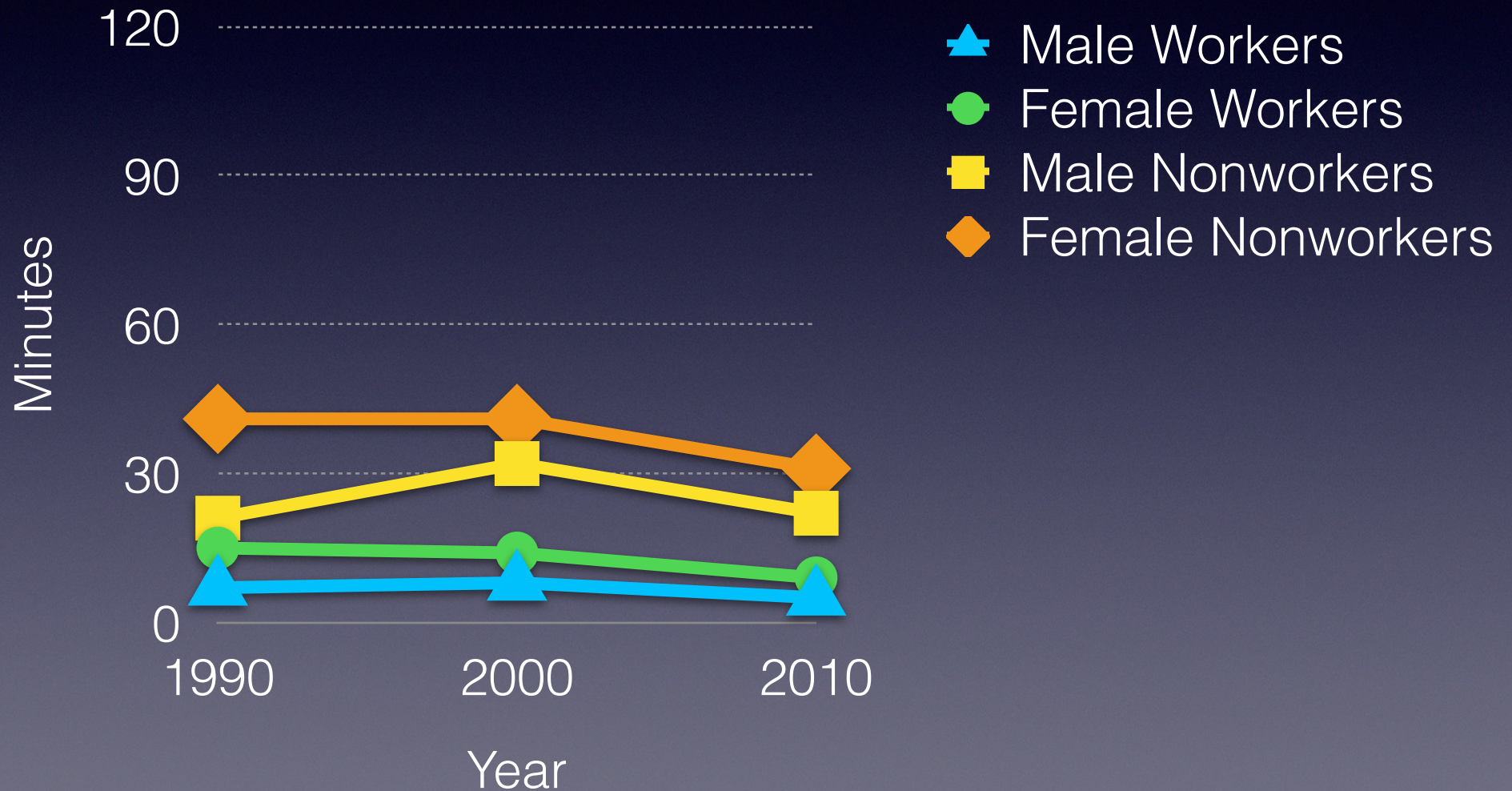
Time Spent at Work



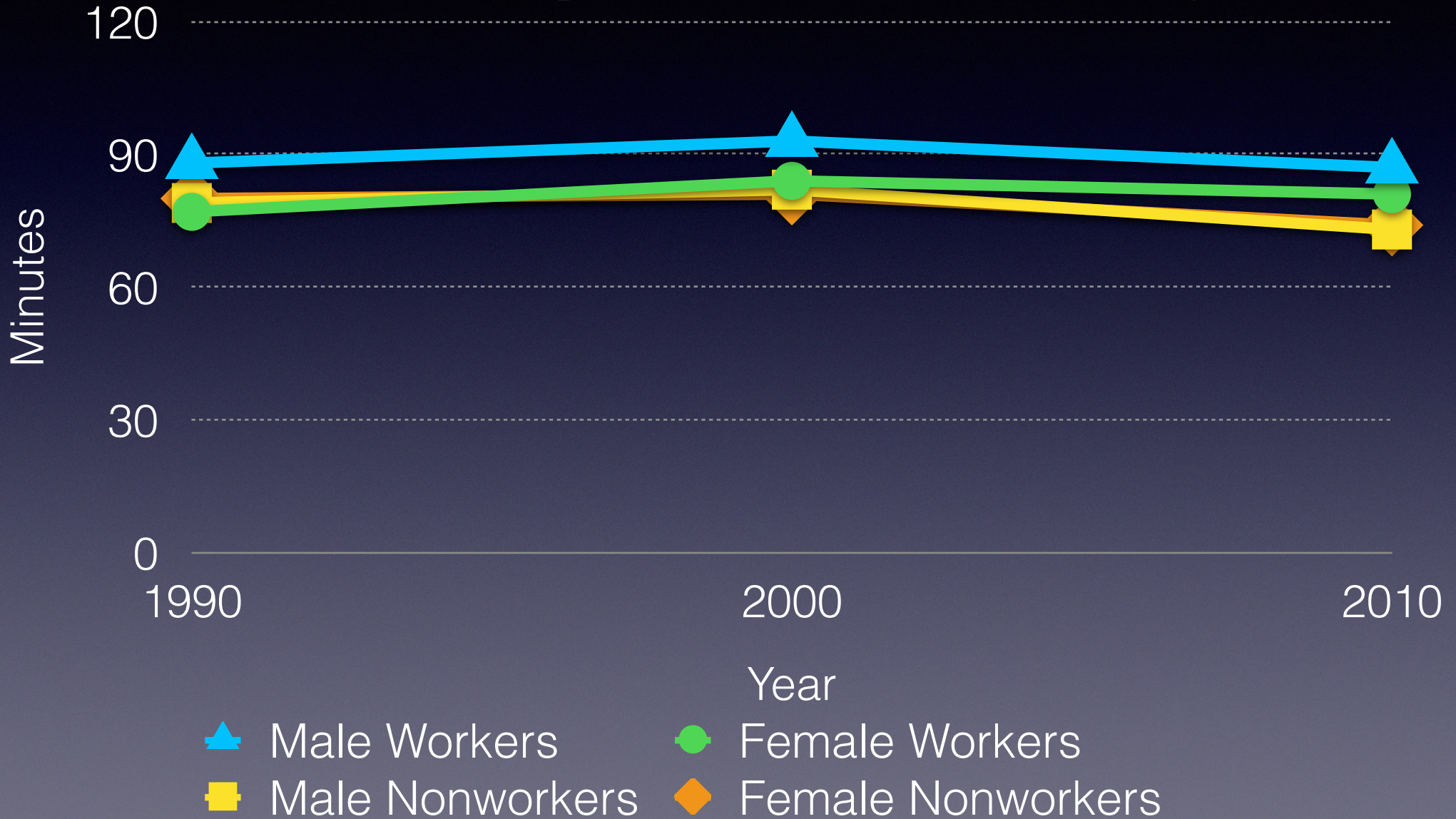
Time Spent Other



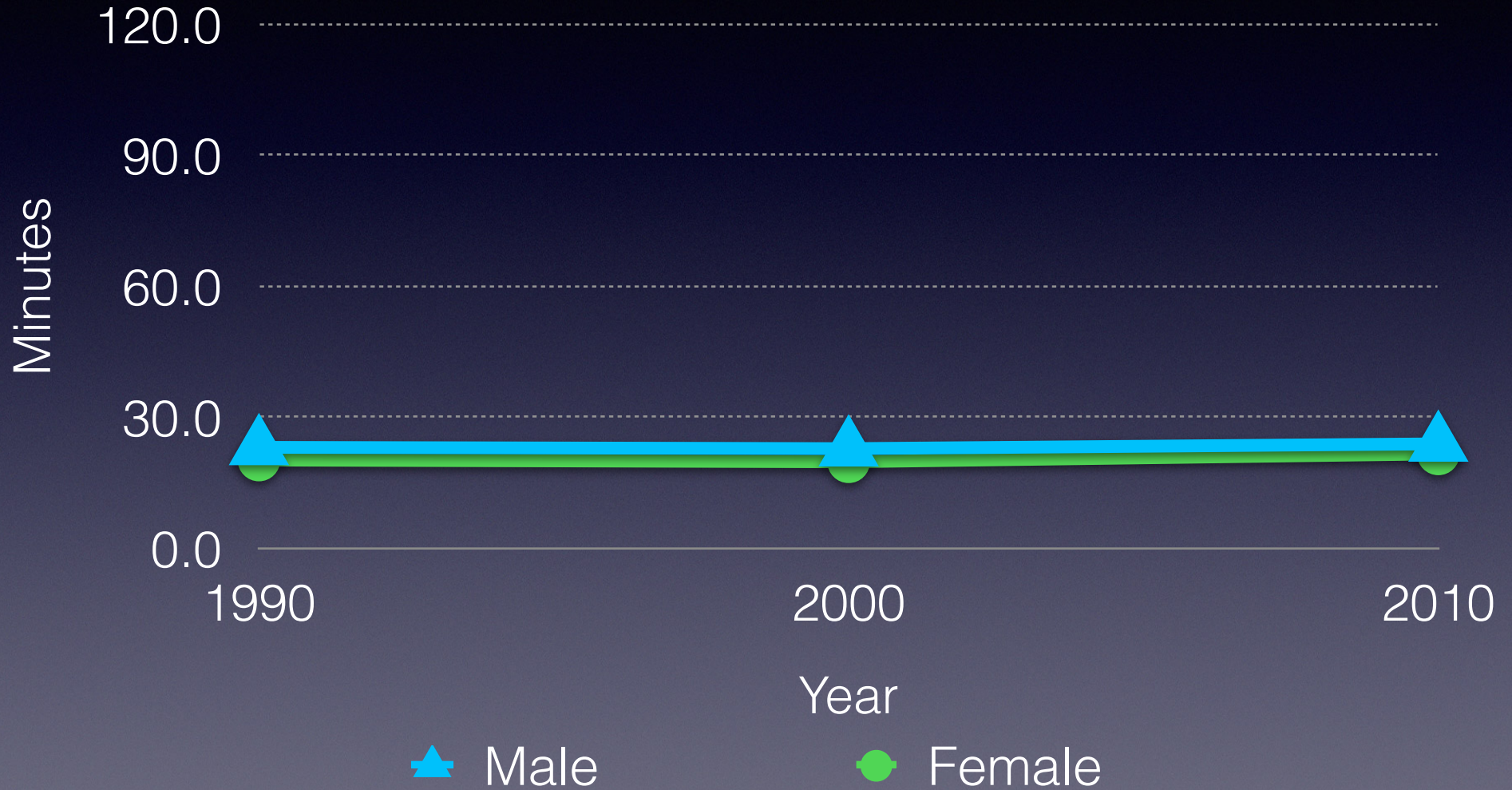
Time Spent Shopping



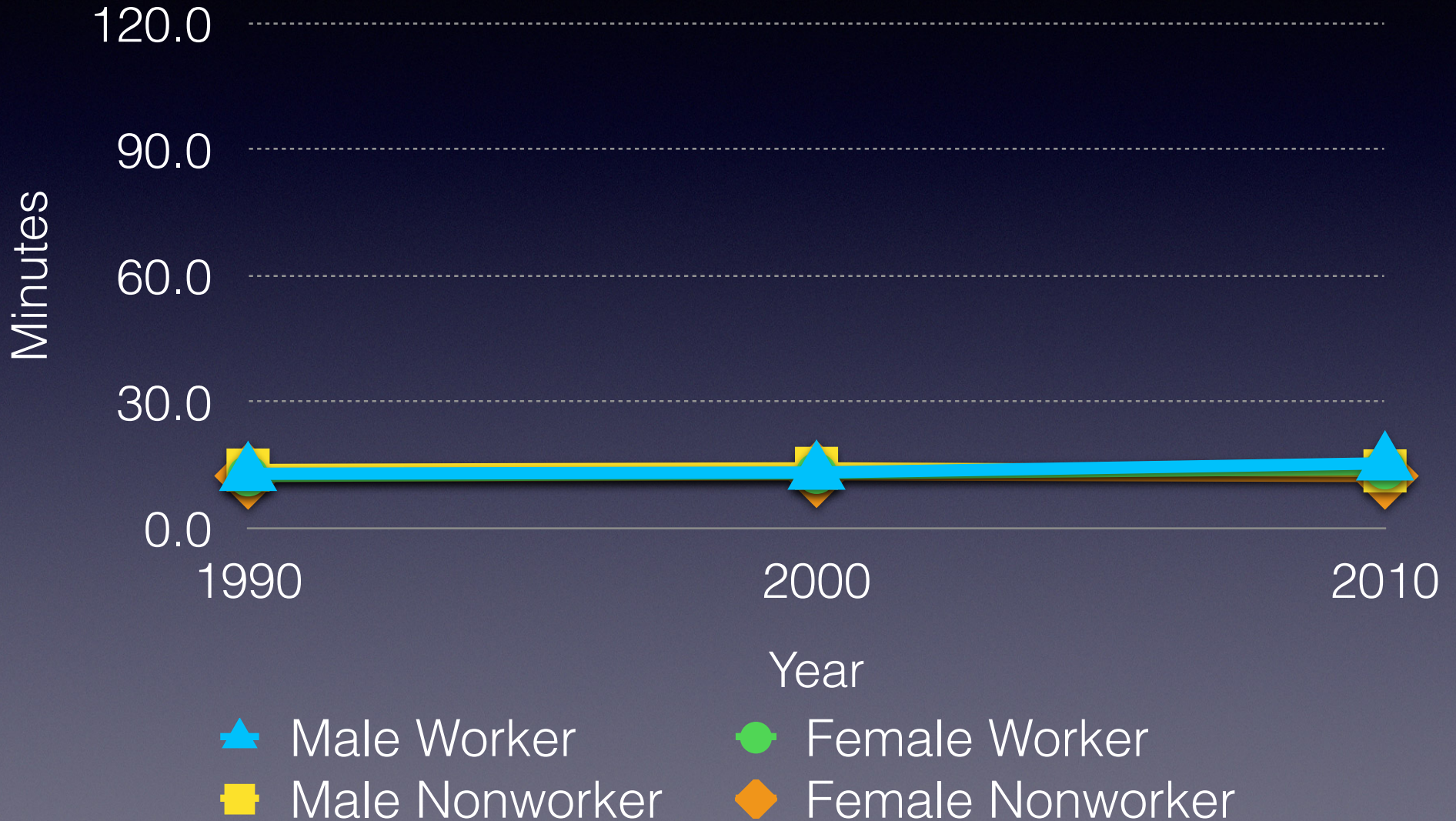
Time Spent Traveling



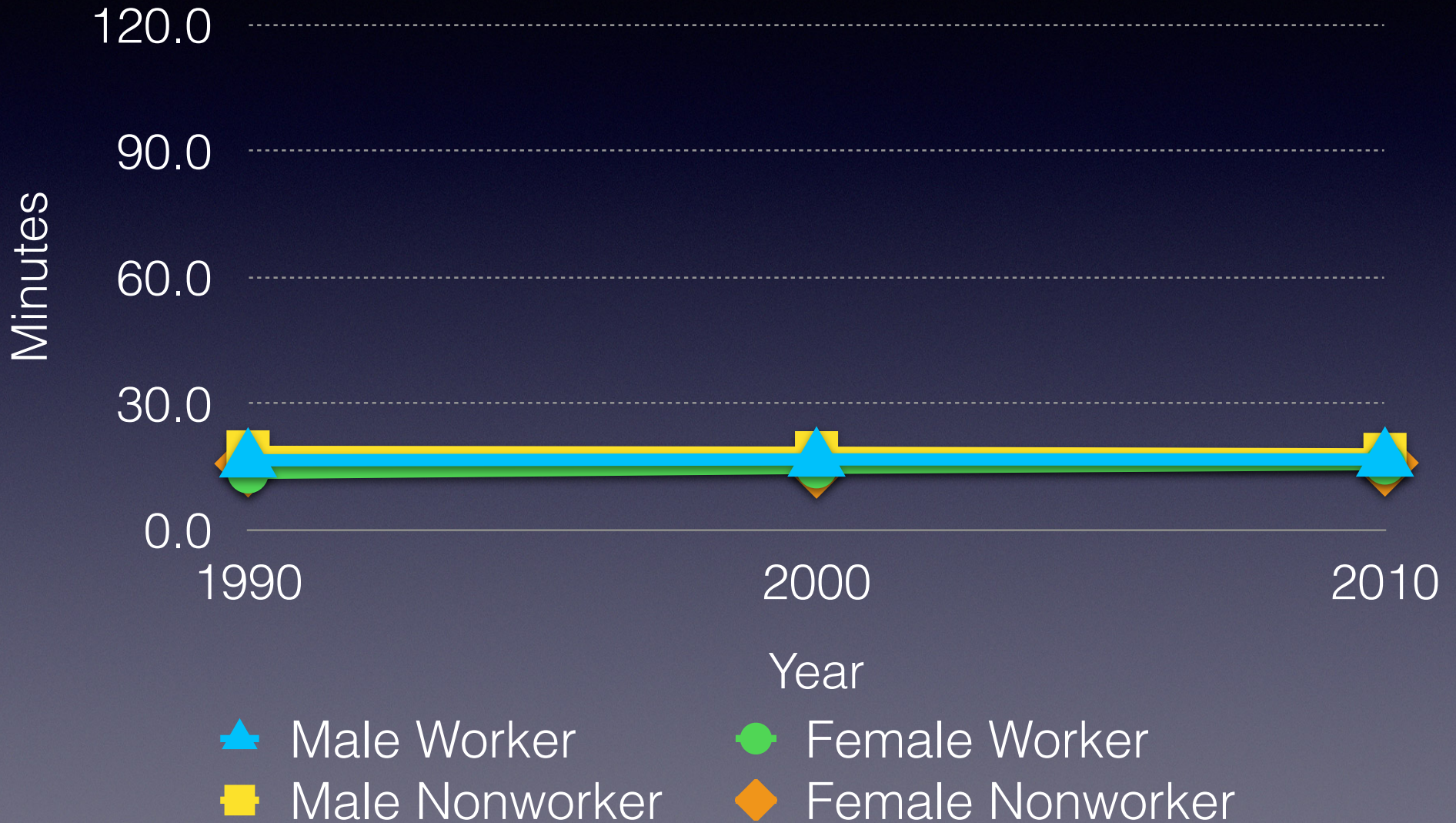
Travel Times to Work



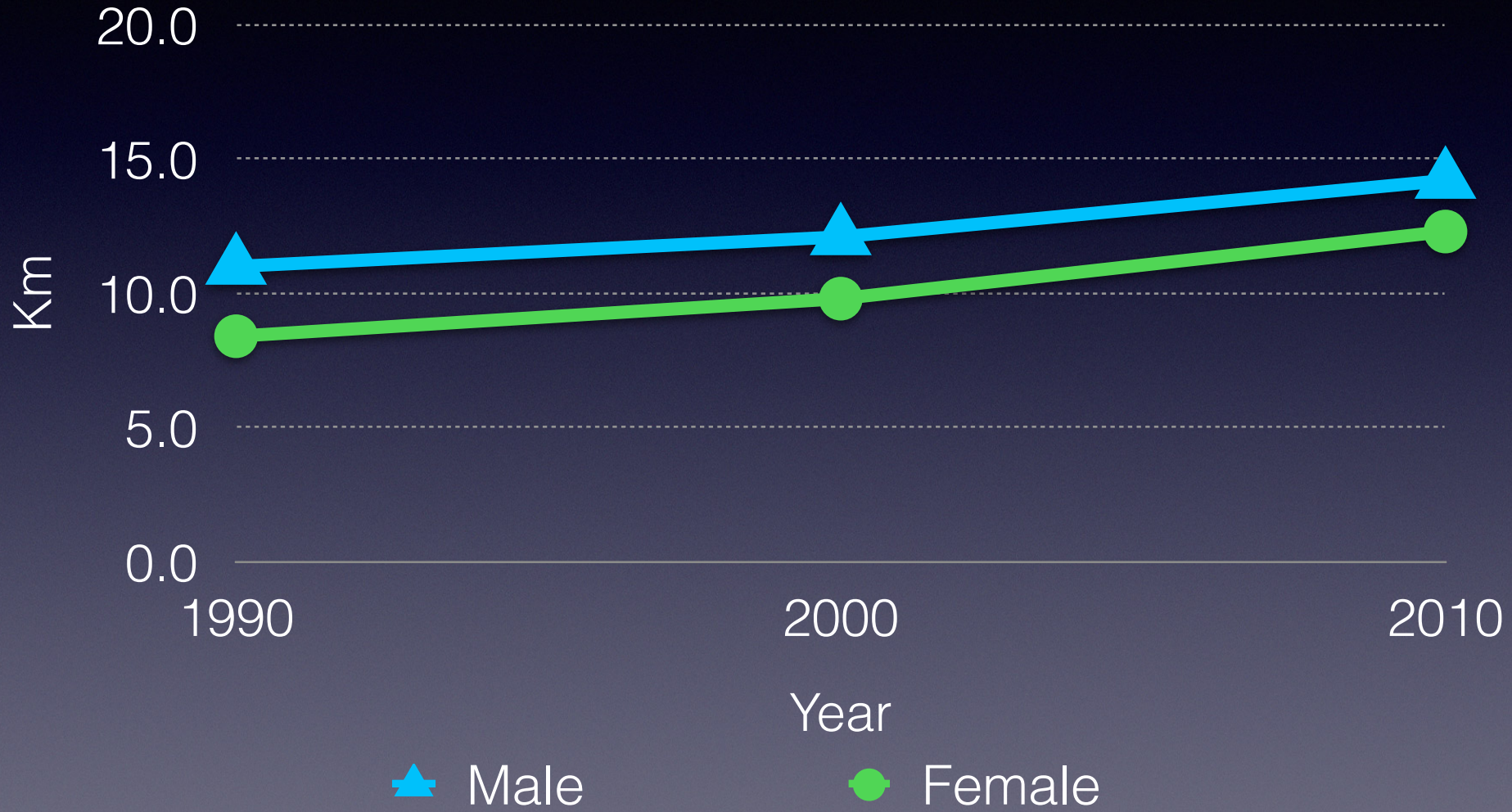
Travel Times to Shopping



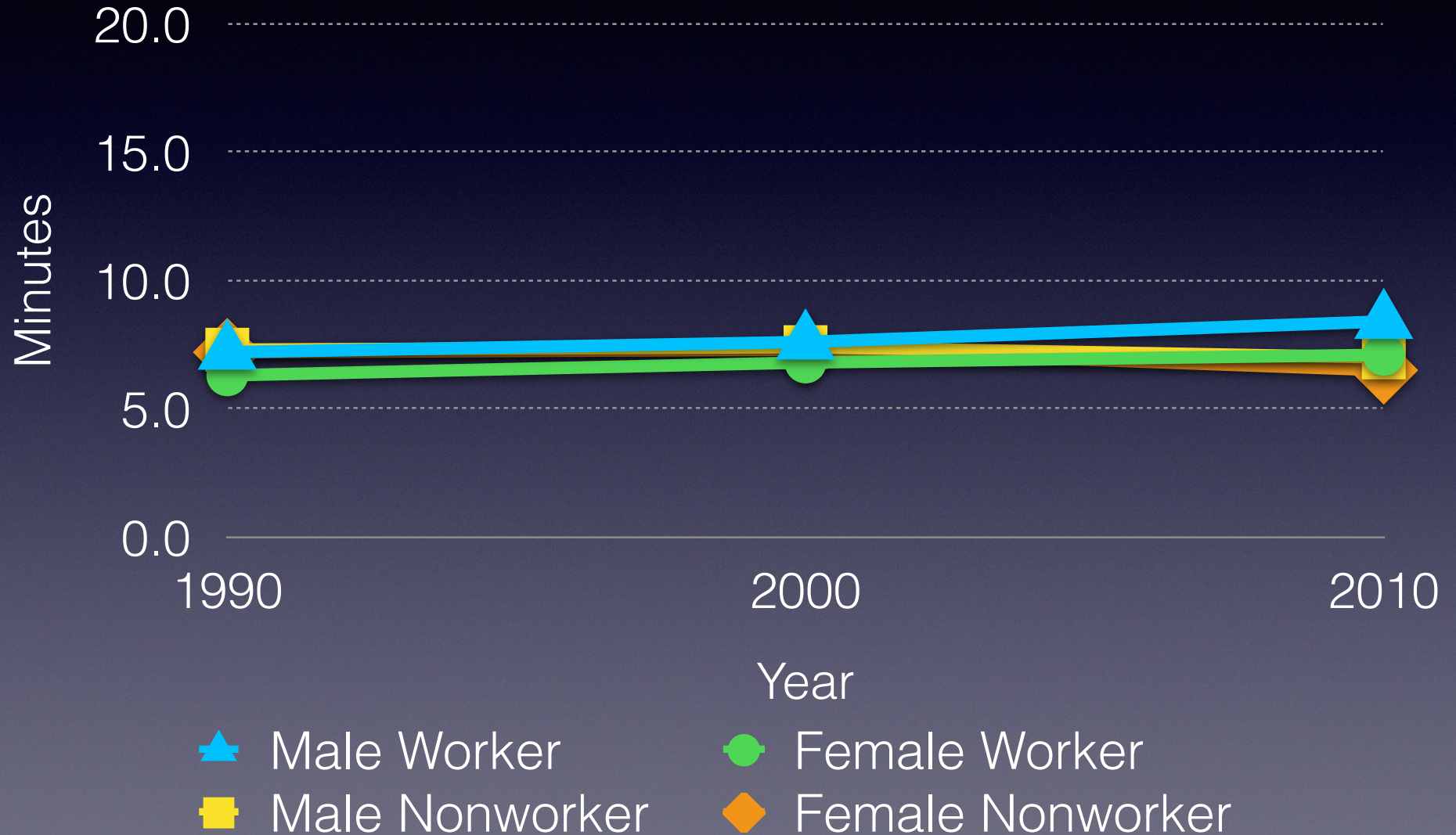
Travel Times to Other



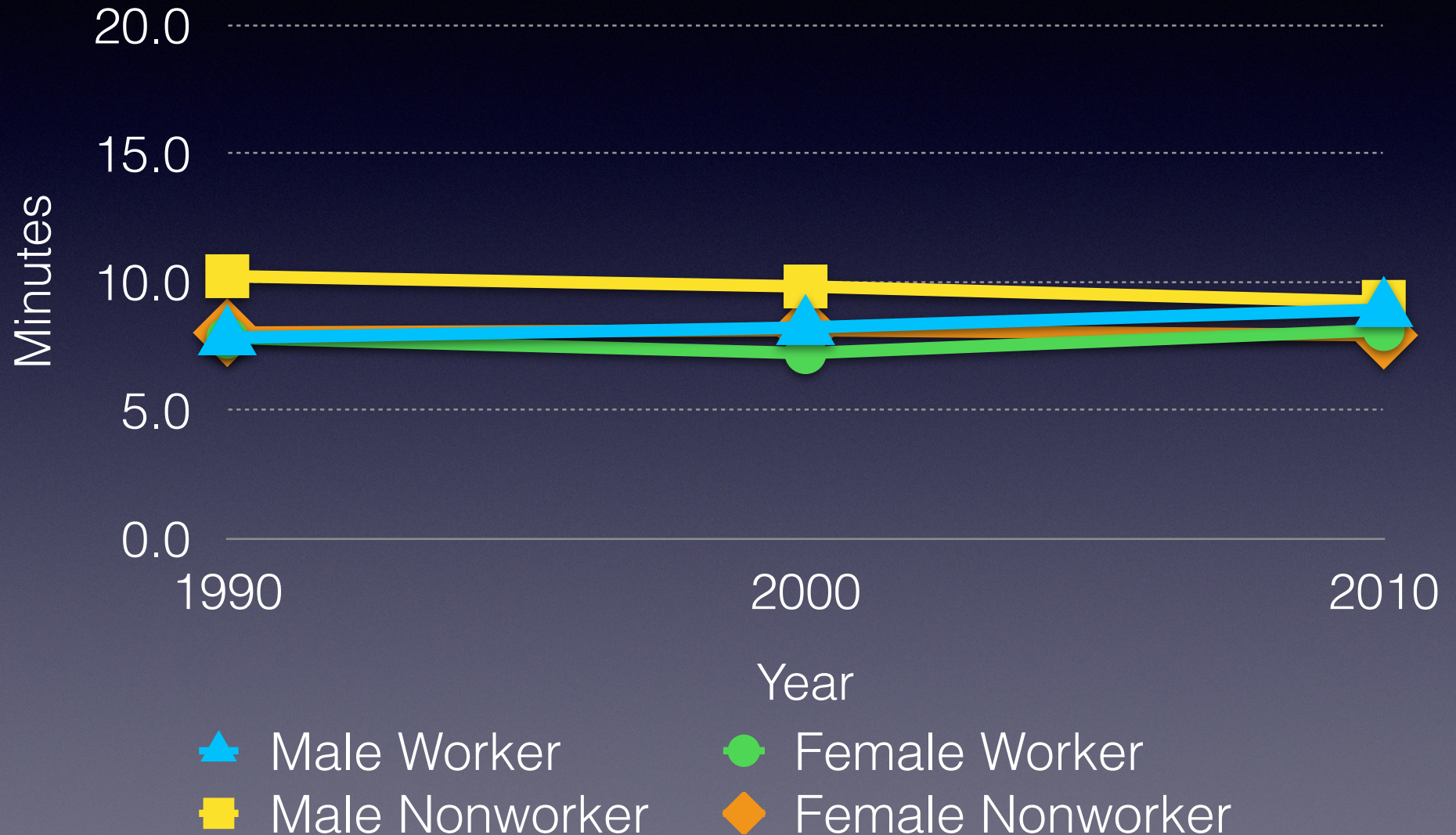
Travel Distance to Work



Travel Distances to Shopping



Travel Distances to Other



What is Causing Changes?

Hypotheses:

Economy

Employment

Gas Prices

Licensing is harder

Culture - Millennials
don't like cars

Technology

Work at Home

More shopping done
online

Easier to communicate
not in-person

Conclusion

Travel times by purpose are relatively stable, though distances are increasing

Number of trips is dropping

Total time spent traveling is decreasing

Total Vehicle Kilometers Traveled (VKT) is decreasing

Accessibility relationships to commute duration are relatively stable over time

Time spent at work related to commute duration

Transit Service Quality and Transit Use

Travel Behavior Over Time

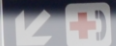


to downtown Minneapolis



Thanks for riding
METRO Blue Line!

EMERGENCY



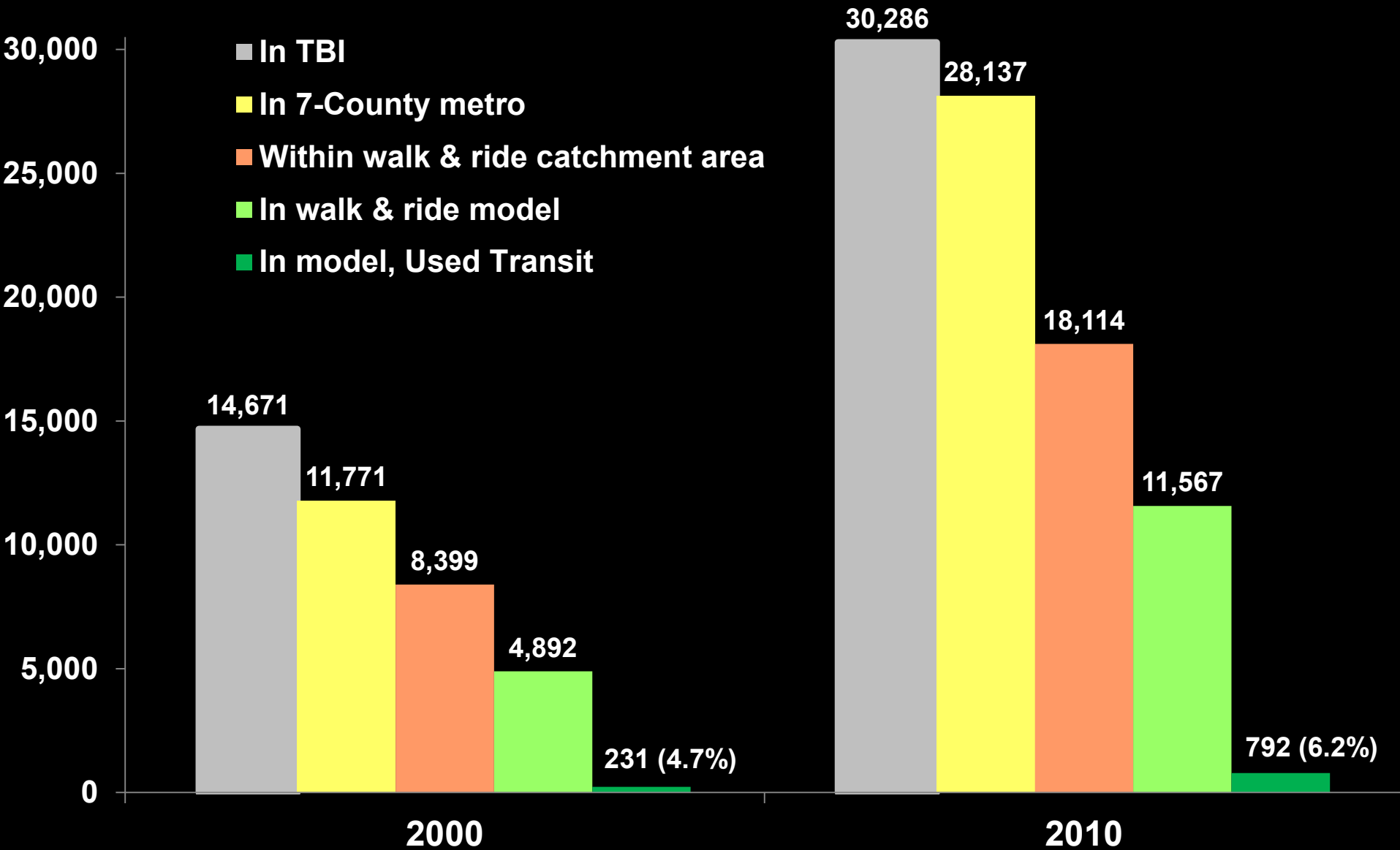
Paid Fare Zone
Valid Fare Required
Proceed to ticket
machine ahead

Research Question:

Did the relationship between transit service and transit use change between 2000 and 2010?



Person-level walk-ride model



Relationships to transit use in 2000 & 2010

Transit availability variables

	2000	2010
Meters to Nearest Stop	-	-
Served by Hi-Frequency Bus		
Served by Express Bus	-	-
Served by Limited-Stop Bus	+	
Served by Light Rail	++	++
Served by Commuter Rail		++

Land Use variables

	2000	2010
Population Density	+	+
% Retail Land Use		
% Office/Institutional Land Use		

Socio-demographic variables

	2000	2010
Children Under 6 in Household	-	
Children 6-17 in Household		
One-Person Household	++	++
Fewer Cars than Drivers	++	++
Licensed Driver	--	--
Student		+
Worker	++	++
Household Income	-	-
Female	+	
Age Under 18	--	--
Age 40-64		
Age 65 and Over	-	-

Significant changes in relationships (2000-2010)

	2000	2010	Change
Population Density	+	+	Weaker
Children Under 6 in Household	-		Weaker
Licensed Driver	- -	- -	Weaker
Female	+		Weaker
Household Income		-	Stronger

All other relationships remained the same.

Key points

No significant change in the transit service and transit use relationship, but

the relationship remains positive and proximity to rail strongly positive in 2010.



Decline of car access as negative for transit use



Decline of children as
negative for transit use



Thank you!

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