Study of Interregional Long-Distance Commuting Using NHTS data

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Outline

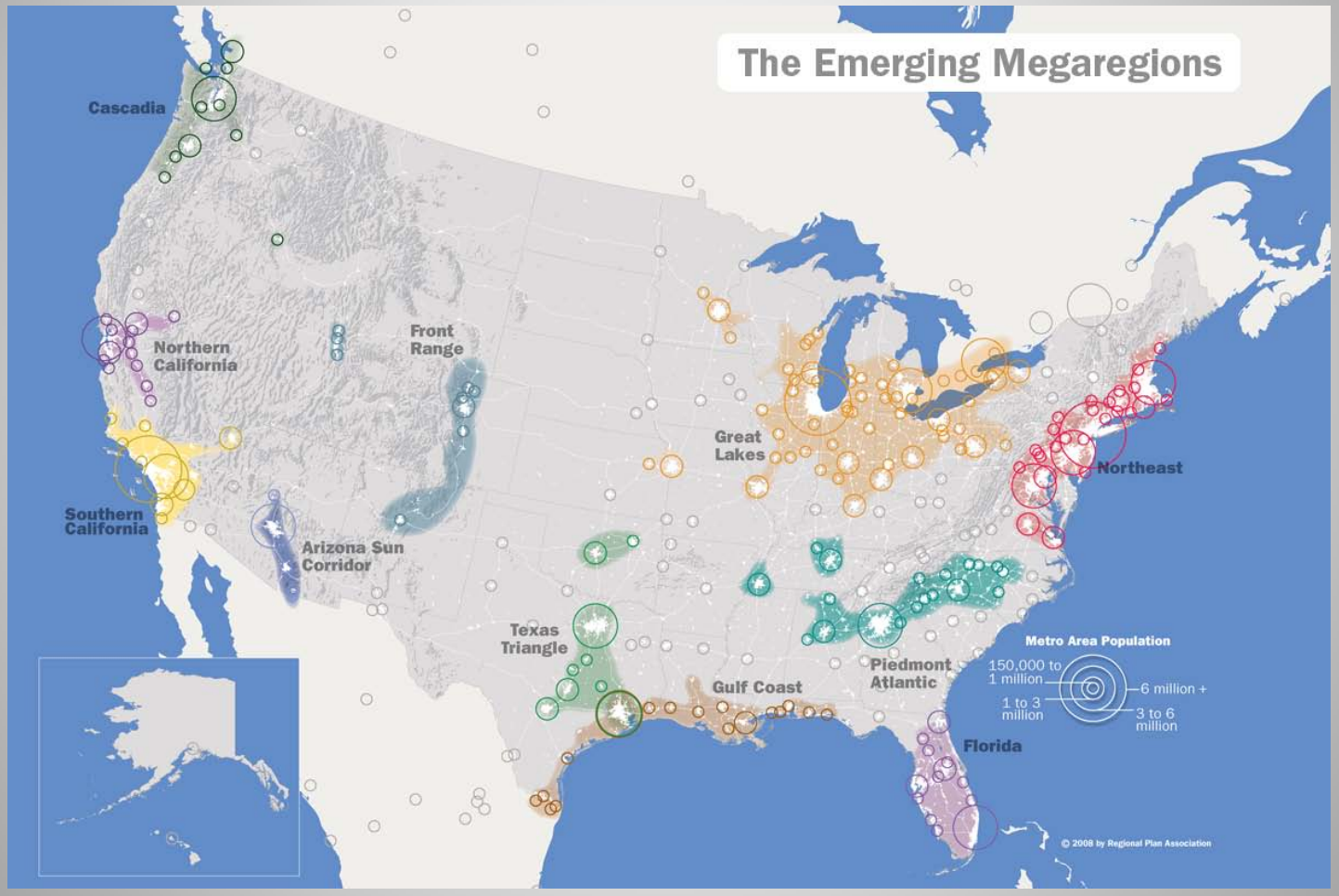
- Research Background
- Explore NHTS data
  - Nation
  - Texas
- Conclusions

Research Background

Commuting Trends

- Increase of extreme commuters – the 2000 Census identified about 3.5 million extreme commuters, doubled the number in 1990 (Lang & Nelson, 2007).
- Increase of inter-metropolitan commuting – from 1980 to 2000 inter-metropolitan commuting increased 28%, more than doubled the growth rate of the overall commuting (Pisarski, 2006).

Metropolitan Networks



Source: http://www.america2050.org/maps/

Define Interregional Long Distance Commuting

- At lease 50 miles one-way
- Cross the boundary of a metropolitan region

Commuting Cases

- Scott – commutes between Austin and Hallettsville daily, 2-hour drive;
- Brandy – commutes between Austin and Houston weekly, 3-hour drive;
- Lisa – commutes between Austin and Dallas bi-weekly, 3.5-hour drive;
- Lester – commutes between Dallas and Houston weekly, 4-hour drive, sometimes takes flight.

What the NHTS Tells Us?

National Long Distance Commuting
(Reported Distance to Work >=50 miles)

Long-Distance Commuting Share

- Total workers increased 4% from 2001 to 2009.
- Long distance commuter: 2.8% (2001 NHTS); 2.9% (2009 NHTS);

Year	Northeast	Midwest	South	West
2001	3.1%	2%	2.9%	3.1%
2009	2.9%	2.9%	3.1%	2.5%

Long-Distance Commute Composition

- 2001 NHTS

Distance (Miles)	Northeast	Midwest	South	West	Nation
50-100	87.17%	92.17%	78.17%	91.91%	85.9%
100-300	12.59%	6.68%	17.12%	5.72%	11.52%
>300	0.24%	1.15%	4.72%	2.37%	2.58%

- 2009 NHTS

Distance (Miles)	Northeast	Midwest	South	West	Nation
50-100	86.61%	91.09%	84.12%	88.30%	86.98%
100-300	12.78%	6.44%	13.42%	8.38%	10.73%
>300	0.61%	2.48%	2.46%	3.32%	2.29%

Mode Share & Commute Schedule

- Mode share

Year	Auto mode share	Drive alone share
2001	91.3%	80.0%
2009	91.5%	83.0%

- Commute schedule

Year	Commuting Distance	Leave home before 7am	Return home after 6pm
2001	<50 miles	29.2%	37.4%
	>=50 miles	56.4%	56.6%
2009	<50 miles	28.9%	36.2%
	>=50 miles	56.0%	59.6%

VMT

- VMT for long distance commuting: 16% (2001 NHTS); 13% (2009 NHTS);

Region	VMT for commuting (billion miles)					
	2001			2009		
	All	<50 miles	>=50 miles	All	<50 miles	>=50 miles
Northeast	106.9	91.4	15.4	112.4	96.9	15.6
Midwest	154.1	137.6	16.5	147.8	130.8	17.0
South	259.7	211.4	48.3	264.3	227.4	36.9
West	146.6	121.6	25.0	142.5	122.7	19.8
Total	667.3	562.0	105.3	667.0	577.8	89.2

Factors affect Long-Distance Commuting Decision

- **Individual characteristics** – Gender, Age
- **Socioeconomic status** – Income, Education, Occupation
- **Household component** – Marriage status, Children, Spouse
- **Job/Housing market** – Residence location, Housing tenure, Company policy
- **Transportation & Communication Technology** – Travel mode options, Internet use
- **Preference & Social tie**

Binary Models

Variable	Model 1	Model 2	Model 3	Model 4
	DISTTOWK>=50 (2001)	DISTTOWK>=100 (2001)	DISTTOWK>=50 (2009)	DISTTOWK>=100 (2009)
Gender	Male/Female			
Income	1=<$25,000; 2=<$60,000; 3=<$100,000; 4=(>=100,000)			
Education	1=High school and lower; 2=Some college; 3=Bachelor; 4=Graduate		1=Lower than college; 3=Bachelor; 4=Graduate	
Occupation	1=Sales or service; 2=Clerical or administrative; 3=Manufacturing, construction, maintenance, or farming; 4=Professional, managerial or technical; 5=Other			
Life cycle	With children under 5/Not with			
Number of worker in household	1-10			
House ownership	Own/Not own			
Census region	1=Northeast; 2=Midwest; 3=South; 4=West			
Home location	1=Second city; 2=Rural; 3=Suburban; 4=Town; 5=Urban		1=Second city; 2=Suburban; 3=Town and country; 4=Urban	
Work at home option	Work at home in past two month		Has option working at home/No option	
Internet use	Access to internet in past 6 month/Not access		Access to internet in past month/Not access	
View on price (Gas , Toll, etc.)	-		Is a problem/Not a problem	

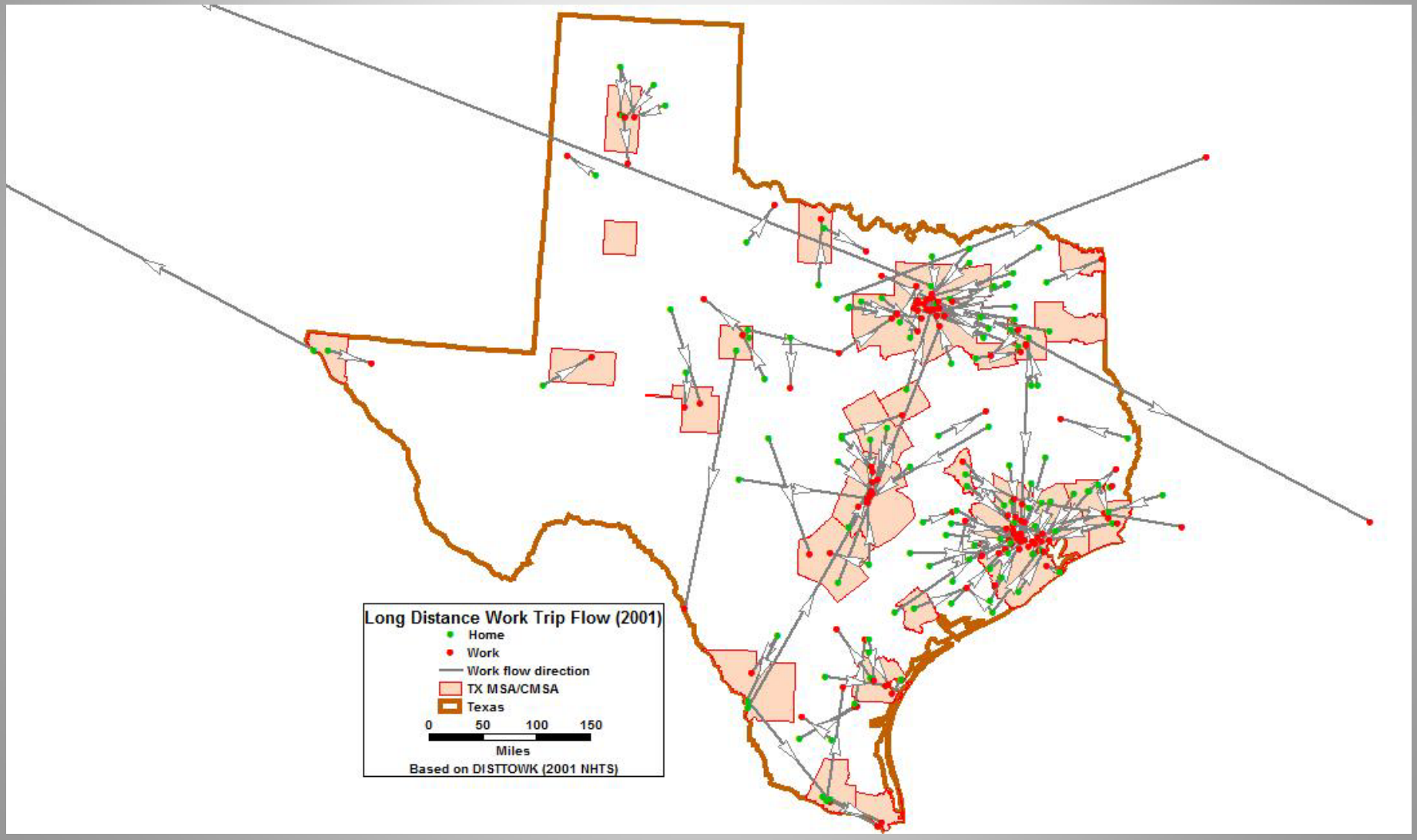
Model Results

Variable	Model 1	Model 2	Model 3	Model 4
	DISTTOWK>=50 (2001)	DISTTOWK>=100 (2001)	DISTTOWK>=50 (2009)	DISTTOWK>=100 (2009)
Gender	Male is more likely to commute long distance			
Income	Workers with income more than 100,000 are more likely to commute long distance			
Education	Not significant			
Occupation	Not significant			
Life cycle	Workers with small children are more likely to commuter long distance	Workers with small children are less likely to commuter long distance (Not significant)	Workers with small children are less likely to commuter long distance	
Number of worker in household	Workers who have other people work in the household are less likely to commute long distance			
House ownership	Not significant			
Census region	Workers in Midwest are less likely to commute long distance than works in Northeast and West	Workers in South are more likely to commute long distance then workers in West	Workers in West are more likely to commute long distance then workers in Midwest and South	Not significant
Home location	Workers who live in urban areas are less likely to commute long distance			
Work at home option	Workers who can work at home are more likely to commute long distance			
Internet use	Workers with intenet access are less likely to commute long distance	Not significant		
View on price (Gas, Toll, etc.)	-	Workers have concerns about gas (and other charges) are more likely to commute long distance		

Long-Distance Commute Flows in Texas

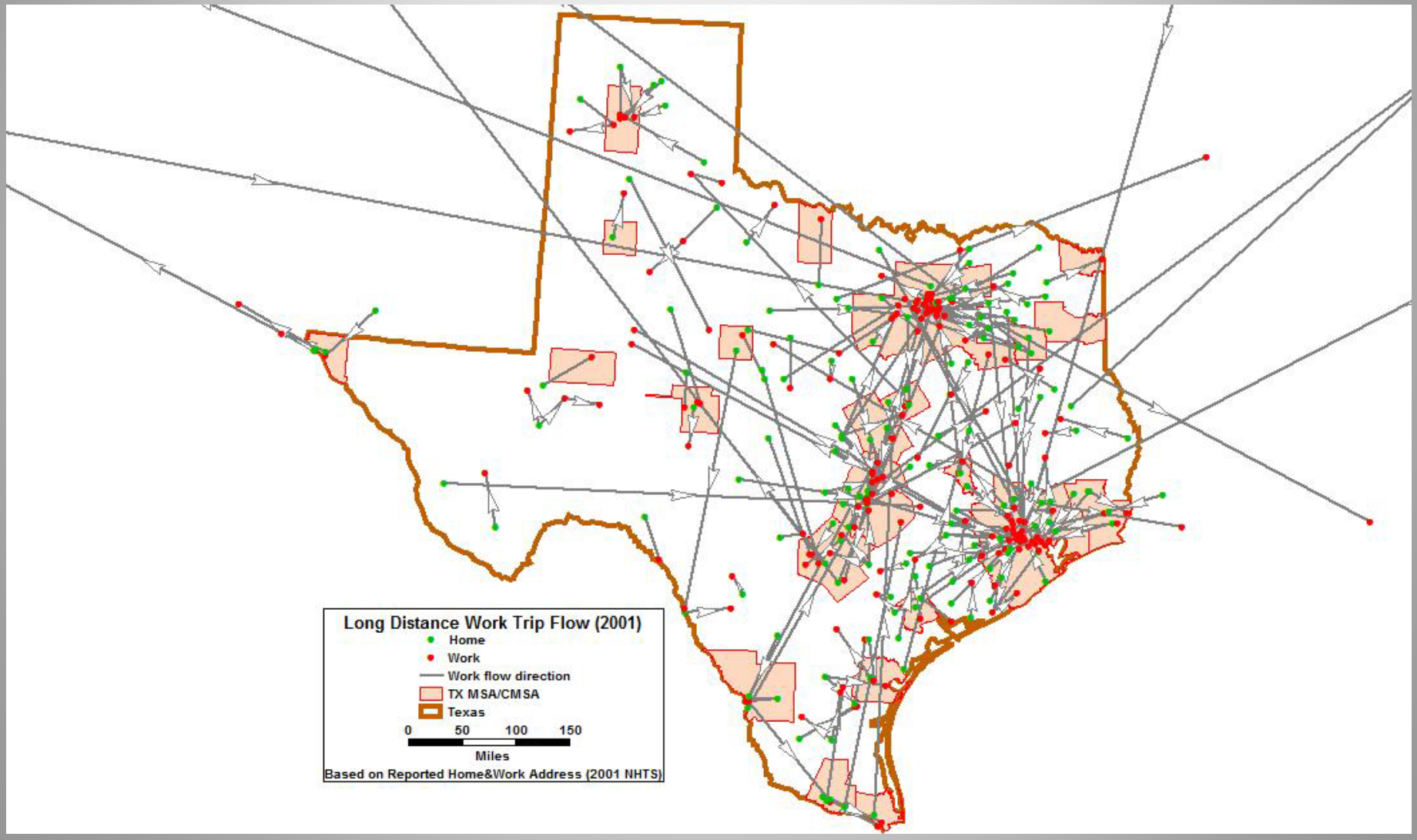
Flow Directions One

(based on reported distance to work, 2001 NHTS)



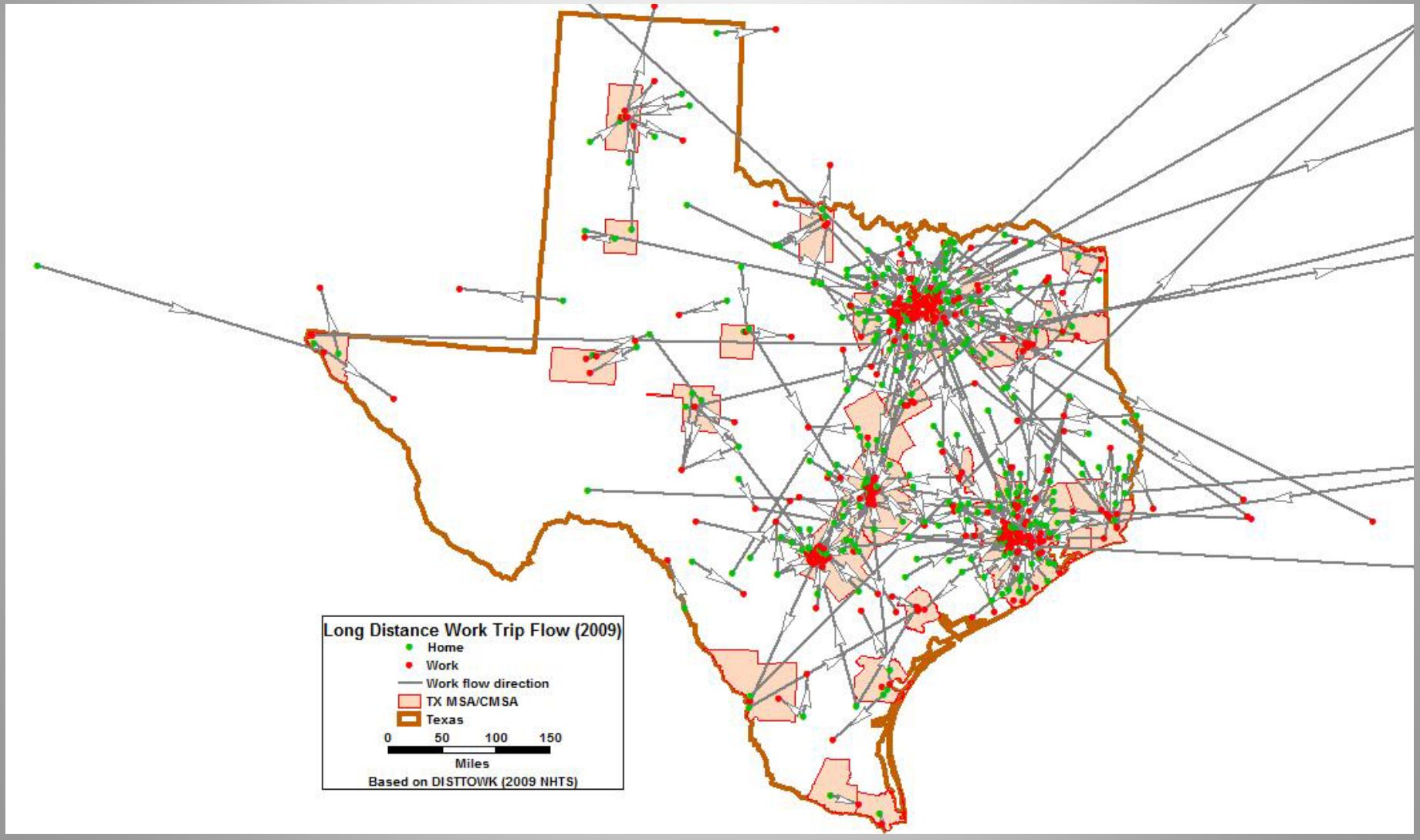
Flow Directions Two

(based on reported home & work locations, 2001 NHTS)



Flow Directions Three

(based on reported distance to work, 2009 NHTS)



Interregional Long-Distance Commuting in the Texas Triangle Area

- Scott – commutes between Austin and Hallettsville daily, 2-hour drive;
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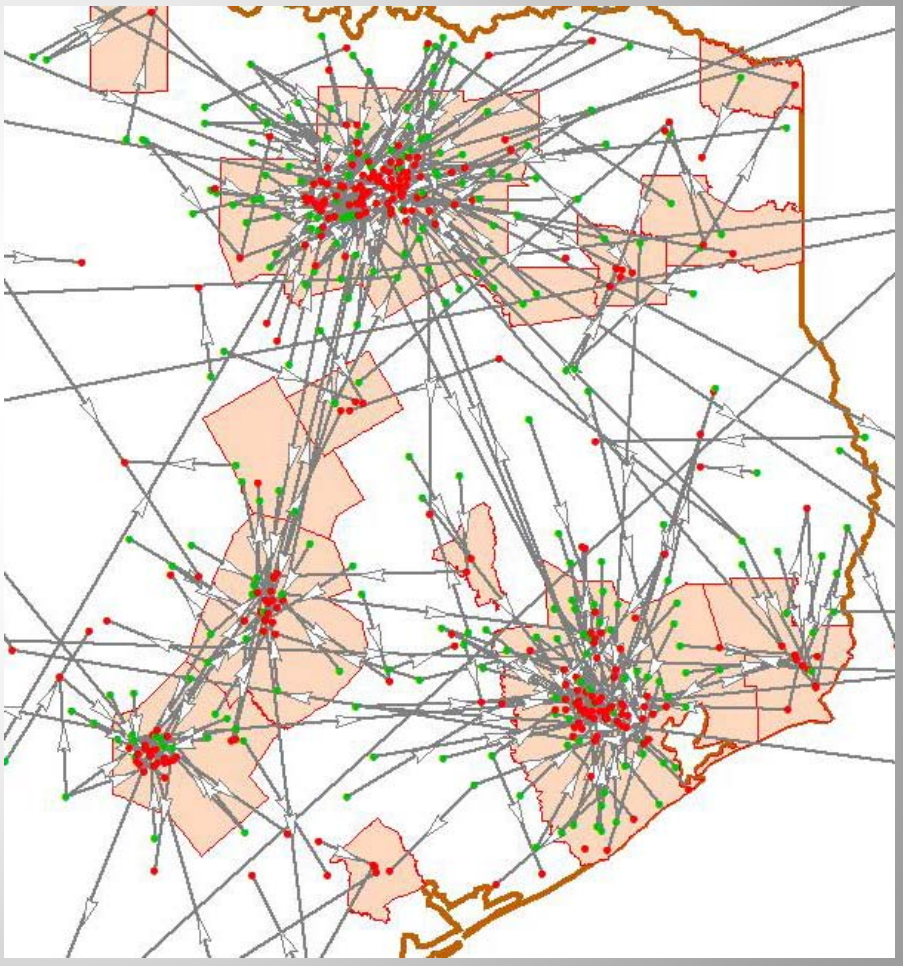

Conclusions

- From 2001 to 2009, the percentage of long distance commute remained relatively stable;
- Most long distance commuters drove alone to work, and more than half of them left home before 7am and returned home after 6pm;
- Males with high level of income tend to commute long distance;
- Having the option to work at home encourages long distance commuting;
- 70% of commute with distance of 50 miles or longer was interregional in Texas;
- The Texas Triangle Area attracted more than 70% of long distance commute in Texas;

Conclusion

- The NHTS assumes that individuals commute on a daily basis between a single fixed residence and single fixed workplace;
- Lack of information about less frequent or weekly interregional long distance commuting.

Questions and Comments?

Thank You!