

TRANSIT AND WAGES:

The Association between Wages and Transit Station Proximity over Time and with Respect to the Great Recession

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RESEARCH PERSPECTIVE

- America's transportation policies perpetuate social and economic inequity.
- Highway-based transportation investments limit the access of low-income and people-of-color to education, jobs and services.
- Civil rights organizations assert that low-wage jobs are inaccessible to those who are transit-dependent.
- Public transit is seen as one way to connect people to low-wage jobs, reduce poverty, increase employment and help achieve social equity goals.
- Does transit deliver on this promise?
- There are no studies showing the relationship between fixed-guideway transit systems and wages differentiated by lower, middle and upper categories.

RESEARCH DESIGN, STUDY AREAS, DATA AND METHOD

Research Design

Quasi-experimental difference between two time periods

Before Great Recession ~ 2002-2007

During Great Recession and early recovery ~ 2008-2011

Study Areas:

Light Rail [LRT]	Streetcar [SCT]	Commuter Rail [CRT]	Bus Rapid Transit [BRT]
Charlotte	Portland	Albuquerque-Santa Fe	Pittsburgh - South
Dallas	Tacoma	Miami-South Florida	Pittsburgh - East
Denver	Tampa	Salt Lake City	Las Vegas - MAX
Houston		Seattle	Pittsburgh - West
Phoenix			Kansas City - Main St.
Portland			Los Angeles - Orange
Sacramento			Eugene-Springfield - EmX
Salt Lake City			Cleveland - Health Line
San Diego			New York City - Bronx
Twin Cities			Salt Lake City - MAX

There are no studies showing the relationship between fixed-guideway transit systems and wages differentiated by lower, middle and upper categories.

Data

Longitudinal Employment-Household Dynamics (LEHD) database.

County Business Patterns

Allocating LEHD jobs into Lower Wage, Middle Wage and Upper Wage categories

Table 1 - Allocation of Jobs by Lower-, Middle- and Upper-Wage Category

NAICS Description	Mean Annual Wages, 2013	Wage Category	Share of Jobs
44 Retail Trade	\$25,779	Lower	
71 Arts, Entertainment and Recreation	\$32,188	Lower	
72 Accommodation and Food Services	\$17,453	Lower	
81 Other Services (except Public Administration)	\$29,021	Lower	
Weighted Mean Wages and National Share of Jobs		\$23,696	31%
48 Transportation and Warehousing	\$45,171	Middle	
53 Real Estate and Rental and Leasing	\$46,813	Middle	
56 Administrative, Support, Waste Mgmt., Remediation	\$35,931	Middle	
61 Educational Services	\$35,427	Middle	
62 Health Care and Social Assistance	\$44,751	Middle	
Weighted Mean Wages and National Share of Jobs		\$41,723	35%
22 Utilities	\$94,239	Upper	
31 Manufacturing	\$54,258	Upper	
42 Wholesale Trade	\$65,385	Upper	
51 Information	\$83,677	Upper	
52 Finance and Insurance	\$88,677	Upper	
54 Professional, Scientific and Technical Services	\$75,890	Upper	
55 Management of Companies and Enterprises	\$105,138	Upper	
Weighted Mean Wages and National Share of Jobs		\$70,490	34%

Source: County Business Patterns, 2013.

Method

Shift-share analysis

$SS = CC + SM + Station Area$

SS = Shift-Share

CC = Central County share

SM = Sector Mix

Station Area = Transit Station Area shift

Light Rail Transit

Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession



Figure 1 - Dallas Area Rapid Transit light rail

Table 2 - LRT Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession

LRT System	Station Area Share of Lower Wage Job Shift	Station Area Share of Middle Wage Job Shift	Station Area Share of Upper Wage Job Shift	Station Area Share of Total Job Shifts
Pre-Recession				
Dallas	(2,402)	(4,973)	(7,955)	(15,340)
Denver	(1,245)	(114)	3,192	1,833
Portland	(628)	(169)	(16,821)	(17,618)
Sacramento	(1)	(103)	311	197
Salt Lake City	(562)	84	(2,630)	(3,108)
San Diego	(1,606)	2,882	(3,146)	(1,870)
Twin Cities	(2,750)	(3,698)	(6,255)	(12,714)
Composite	(10,084)	(9,587)	(34,513)	(54,183)
Recession-Recovery				
Dallas	(923)	637	(2,549)	(2,835)
Denver	(474)	(387)	(1,862)	(2,722)
Portland	1153,000	(25,000)	1407,000	2535,000
Sacramento	73,000	358,000	1414,000	1844,000
Salt Lake City	(233,000)	(150,000)	(352,000)	(736,000)
San Diego	(1547,000)	(605,000)	(686,000)	(2837,000)
Twin Cities	315,000	2244,000	5780,000	8338,000
Composite	2722,000	(3465,000)	45643,000	44900,000

Note: Analysis extends from 2002 or when the system was commenced, whichever is the earlier, to 2011. "Composite" is not the sum of the respective columns but rather a shift-share analysis including all station areas for all systems compared to the central counties for all systems.

Notable Metropolitan LRT Station Area Findings

- All metropolitan areas lost LRT station area share of lower wage jobs before the Great Recession and nearly all did during recession and early recovery.
- Nearly all metropolitan areas lost LRT station area share of middle wage jobs during both periods of time.
- Nearly all metropolitan areas lost LRT station area share of upper wage jobs before the Great Recession but nearly all saw trends reverse during recession and early recovery.
- Overall, nearly all metropolitan areas lost LRT station area share of all jobs before the Great Recession but nearly all saw trends reverse during recession and early recovery.

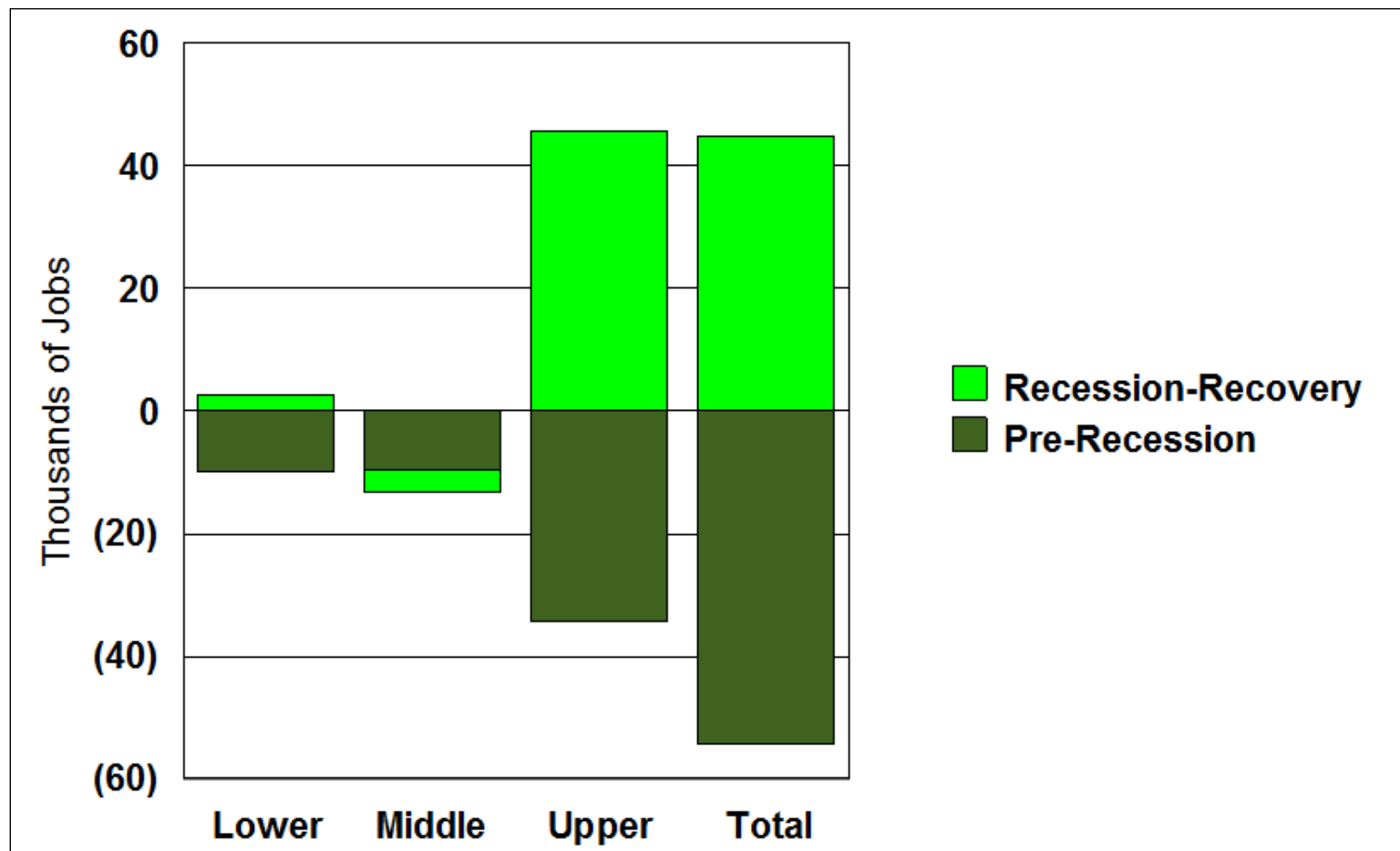


Figure 2 - Shift in Share of Jobs by Wage Category for LRT Station Areas Compared to their Metropolitan Areas during Pre-Recession and Recession-Recovery Periods

Overall LRT Station Area Wage Shift Findings

- Before the Great Recession, jobs in all wage categories shifted away from LRT station areas.
- During recession and early recovery, some lower wage jobs shifted to LRT station areas but middle wage jobs continued to shift away from them.
- During recession and early recovery, higher wage jobs shifted toward LRT station areas to a greater extent than were lost in the years before recession.

Streetcar Transit

Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession



Figure 3 - City of Portland, Oregon, streetcar

Source: http://pdp-media.s3.amazonaws.com/news/agency/uploads/images/articles/01112_streetcar_gallery_full_export.jpg

Table 3 - SCT Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession

Streetcar System	Station Area Share of Lower Wage Job Shift	Station Area Share of Middle Wage Job Shift	Station Area Share of Upper Wage Job Shift	Station Area Share of Total Job Shifts
Pre-Recession				
Portland	(1,089)	(1,821)	(12,785)	(15,695)
Tacoma	(223)	(547)	1,053	283
Tampa	4,581	1,130	14,593	20,304
Composite	3,932	(1,862)	(271)	1,799
Recession-Recovery				
Portland	47	(841)	(4,554)	(5,348)
Tacoma	(3,546)	(503)	(7,488)	(11,537)
Tampa	578	2,759	8,697	12,033
Composite	17,400	882	14,247	32,530

Note: Analysis extends from 2002 or when the system was commenced, whichever is the earlier, to 2011. "Composite" is not the sum of the respective columns but rather a shift-share analysis including all station areas for all systems compared to the central counties for all systems.

Notable Metropolitan Station Area SCT Findings

- All metropolitan areas lost LRT station area share of lower wage jobs before the Great Recession and nearly all did during recession and early recovery.
- Nearly all metropolitan areas lost LRT station area share of middle wage jobs during both periods of time.
- Nearly all metropolitan areas lost LRT station area share of upper wage jobs before the Great Recession but nearly all saw trends reverse during recession and early recovery.
- Overall, nearly all metropolitan areas lost LRT station area share of all jobs before the Great Recession but nearly all saw trends reverse during recession and early recovery.

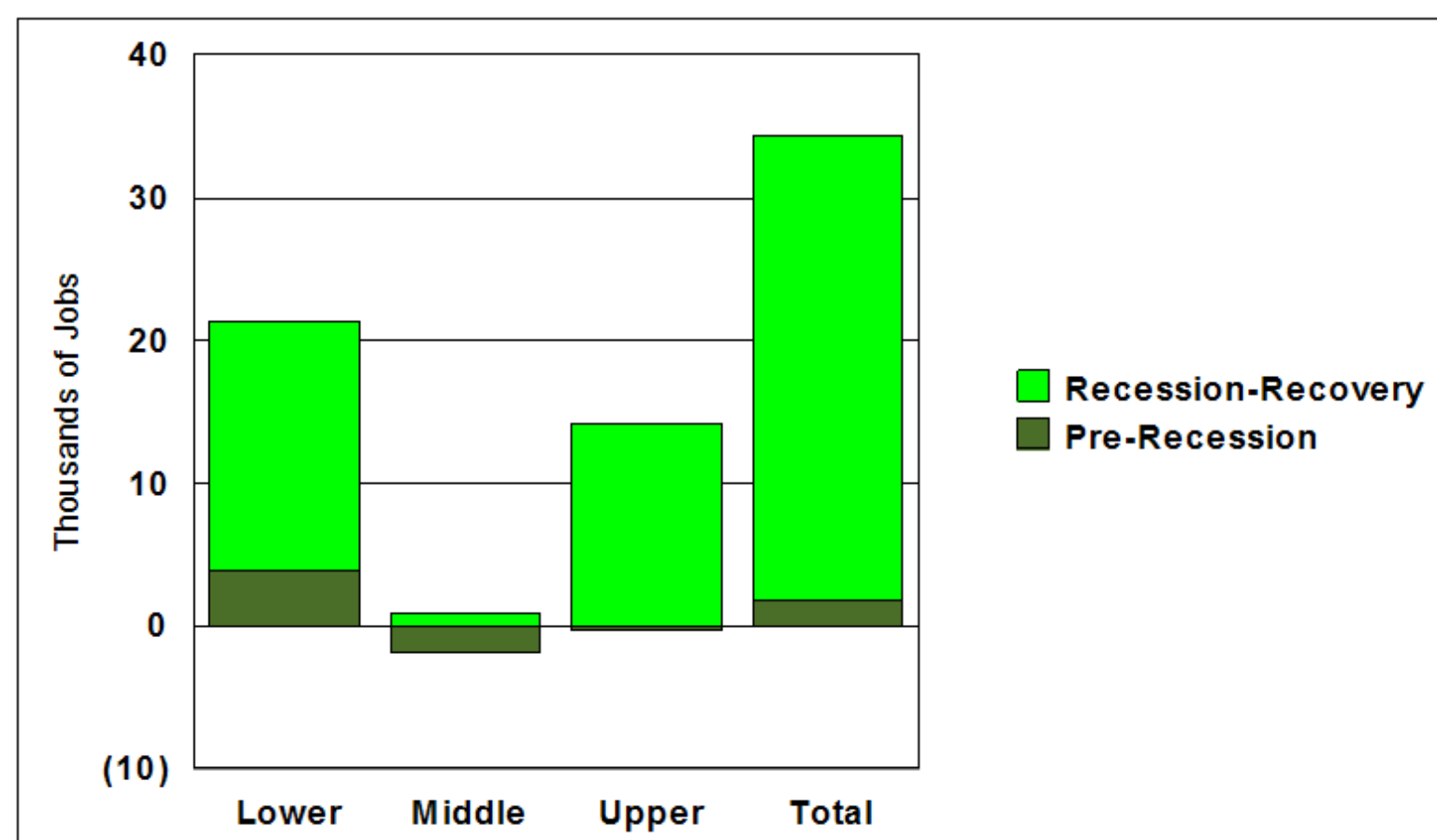


Figure 4 - Shift in Share of Jobs by Wage Category for SCT Station Areas Compared to their Counties during Pre-Recession and Recession-Recovery Periods

Overall SCT Station Area Wage Shift Findings

- Before the Great Recession, a small number of middle and upper wage jobs shifted away from SCT station areas.
- During recession and early recovery, jobs in all wage categories shifted to SCT station areas with most of the shift occurring among lower and upper wage jobs.
- There may be a symbiotic relationship between lower and upper wage jobs around SCT station areas, but not with respect to middle wage jobs.

Commuter Rail Transit

Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession



Figure 5 - Utah Transit Authority Frontrunner commuter rail

Source: <https://www.utah.gov/uploads/commuterRail/Highways.jpg>

Table 4 - CRT Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession

CRT System	Station Area Share of Lower Wage Job Shift	Station Area Share of Middle Wage Job Shift	Station Area Share of Upper Wage Job Shift	Station Area Share of Total Job Shifts
Pre-Recession				
Albuquerque-Santa Fe	(2,588)	(2,655)	(411)	(5,654)
Miami-South Florida	(1,582)	1,582	2,083	743
San Diego	(1,572)	(2,017)	21	(3,568)
Seattle	(259)	(1,165)	(1,739)	(3,163)
Composite	(7,130)	(3,673)	(993)	(11,795)
Recession-Recovery				
Albuquerque-Santa Fe	(5)	416	288	699
Miami-South Florida	(435)	(1,023)	(2,752)	(4,210)
San Diego	(671)	926	(3,596)	(3,341)
Seattle	327	278	(1,022)	(417)
Composite	(1,602)	654	(7,171)	(8,118)

Note: Analysis extends from 2002 or when the system was commenced, whichever is the earlier, to 2011. "Composite" is not the sum of the respective columns but rather a shift-share analysis including all station areas for all systems compared to the central counties for all systems.

Notable Metropolitan CRT Station Area Findings

- Nearly all metropolitan areas lost substantial shares of lower and middle wage jobs near CRT stations before the Great Recession but lost a smaller share of upper wage jobs.
- Trends reversed during the Great Recession and early recovery as lower wage jobs lost less share while middle wage jobs gained share but upper wage jobs lost substantial share.
- These results are perplexing and need further analysis to help explain patterns that are unlike other fixed guideway transit modes.

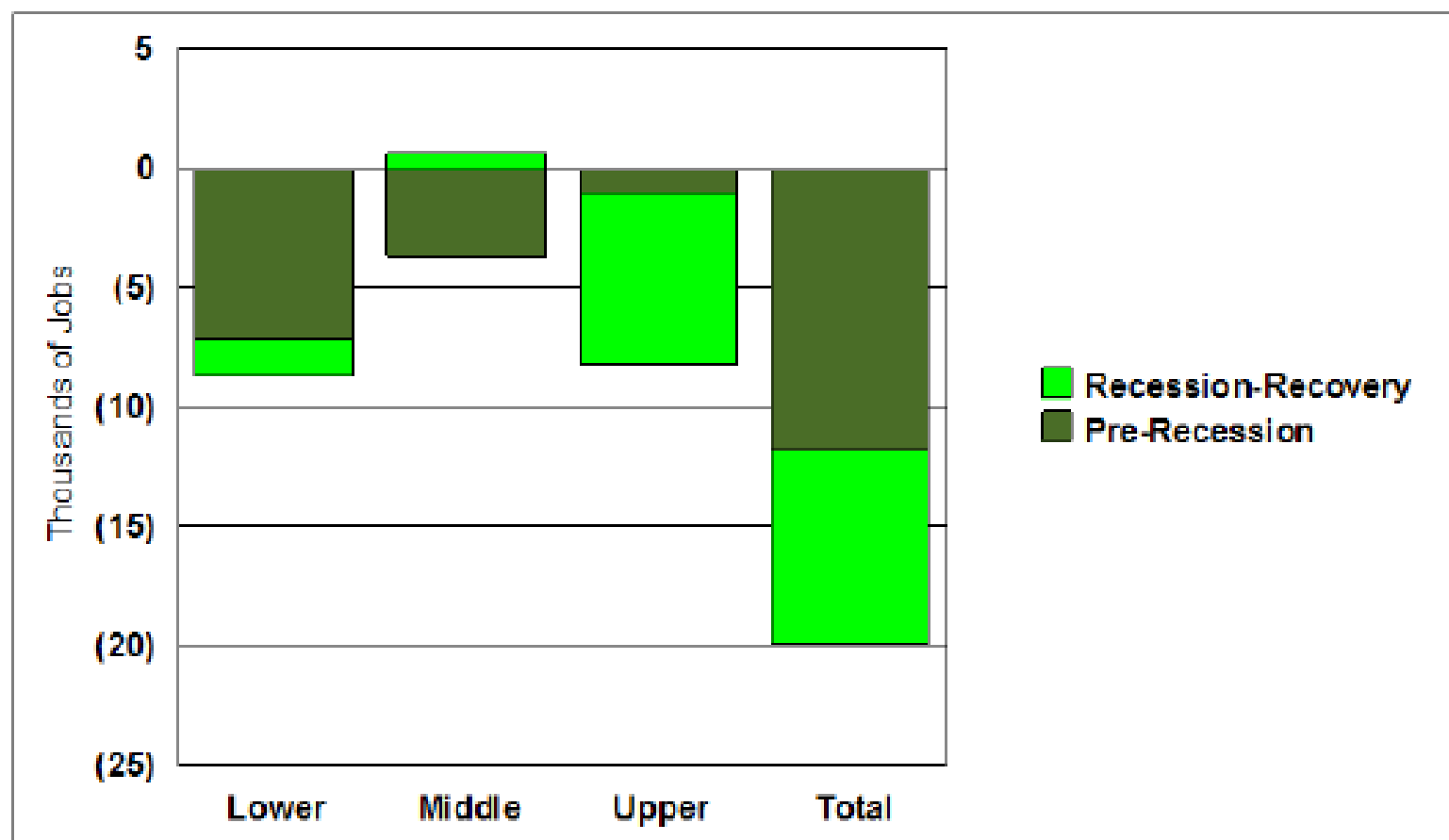


Figure 6 - Shift in Share of Jobs by Wage Category for CRT Station Areas Compared to their Metropolitan Areas during Pre-Recession and Recession-Recovery Periods

Overall CRT Station Area Wage Shift Findings

- Lower wage jobs lost a great share of the metropolitan area before the Great Recession than after though during the Great Recession and early recovery the loss of share was smaller.
- In contrast, higher wage jobs lost a higher share of jobs around CRT stations during the Great Recession and early recovery than before.
- During the Great Recession and early recovery, middle wage jobs gained share around CRT station after losing share before the Great Recession.
- Overall, CRT stations lost share of jobs across all wage groups around CRT stations the periods both before and after the Great Recession.

Bus Rapid Transit

Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession



Figure 7 - Lane County Transit Emerald Express bus rapid transit serving Eugene-Springfield, Oregon

Source: National Bus Rapid Transit Institute

Table 5 - BRT Station Area Shift in Share of Job Shifts by Wage Category before and after the Great Recession

BRT Line	Station Area Share of Lower Wage Job Shift	Station Area Share of Middle Wage Job Shift	Station Area Share of Upper Wage Job Shift	Station Area Share of Total Job Shifts
Pre-Recession				
Pittsburgh - South	(265.00)	935.00	(2574.00)	(1986.00)
Pittsburgh - East	(195.00)	1027.00	(390.00)	488.00
Pittsburgh - West	370.00	(3382.00)	(1064.00)	(4365.00)
Las Vegas - MAX	(7,000)	(4070.00)	(381.00)	(4363.00)
Kansas City - Main Street	151.00	62.00	292.00	512.00
Los Angeles - Orange	(207.00)	1207.00	(3543.00)	(2421.00)
Composite	362.00	(4543.00)	(8062.00)	(12720.00)
Recession/Recovery				
Pittsburgh - South	379.00	(858.00)	(1605.00)	(1968.00)
Pittsburgh - East	219.00	980.00	(134.00)	1004.00
Pittsburgh - West	1394.00	(964.00)	2799.00	2439.00
Las Vegas - MAX	4669.00	1723.00	(11295.00)	2431.00
Kansas City - Main Street	184.00	121.00	236.00	484.00
Los Angeles - Orange	(1563.00)	(1009.00)	(1390.00)	(3747.00)
Composite	6436.00	4993.00	(9739.00)	2858.00

Note: Analysis extends from 2002 or when the system was commenced, whichever is the earlier, to 2011. "Composite" is not the sum of the respective columns but rather a shift-share analysis including all station areas for all systems compared to the central counties for all systems.

Notable Metropolitan BRT Station Area Findings

- Taken as a whole, station areas along Pittsburgh's three BRT lines increased share of metropolitan area jobs across all wage after the Great Recession and early recovery years than before.
- These results also held substantially for the Las Vegas BRT system.
- The Kansas City BRT station areas gained share of metropolitan jobs among all wage groups during both study periods.
- In contrast, the Los Angeles BRT line lost more jobs near station areas for lower and middle wage jobs, though lost a smaller share of upper wage jobs, during the Great Recession and early recovery period than before.

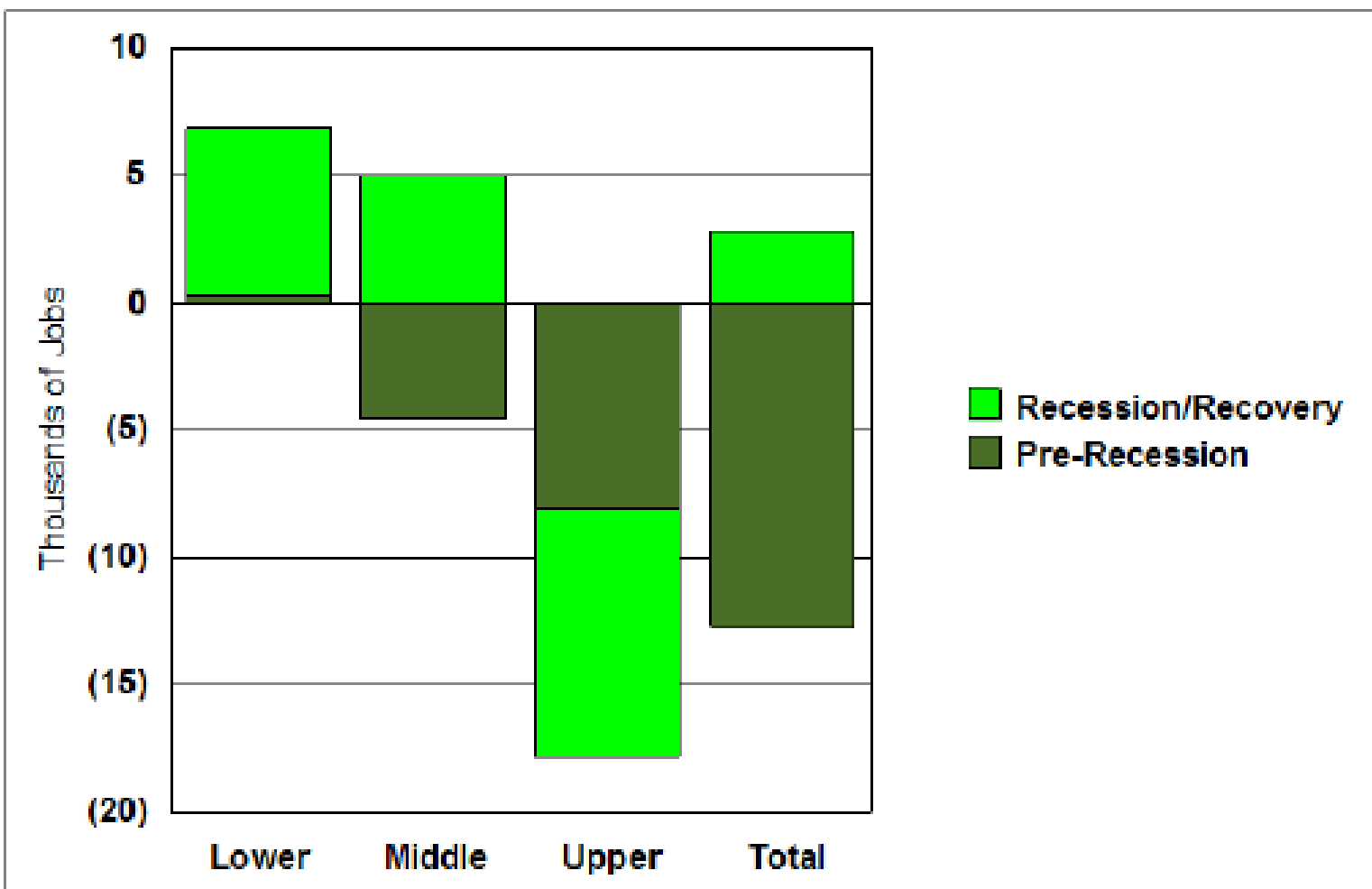


Figure 8 - Shift in Share of Jobs by Wage Category for BRT Station Areas Compared to their Central Areas during Pre-Recession and Recovery Periods

Overall BRT Transit Station Area Wage Shift Findings

- Lower wage jobs near transit stations gained considerable share during the Great Recession and early recovery years after holding steady during the pre-recession period.
- Middle wage jobs reversed direction by gaining roughly the same share near transit stations during the Great Recession and early recovery years as were lost in the pre-recession period.
- Perhaps the most interesting is among upper wage jobs that lost about must share of jobs near transit stations before and during the Great Recession and early recovery years. It would seem that CRT transit station proximity repels upper wage jobs.

Acknowledgements and Disclaimer

Support for this article came from the National Institute of Transportation and Communities through funding from the U.S. Department of Transportation with numerous co-sponsors including Utah Transit Authority, Portland Metro, TriMet, Lane County Transit, City of Provo, Utah, Transportation for America (a subsidiary of Smart Growth America), and the University of Arizona. The author acknowledges technical and editing assistance from Dejan Eskic and Keuntae Kim. The contents of this article reflect the views of the author, who is solely responsible for the facts and the accuracy of the material and information presented herein.