

# “Wage Deserts:” An Exploration of Geographically Concentrated Working Poverty in Philadelphia, PA Using Census LEHD Data

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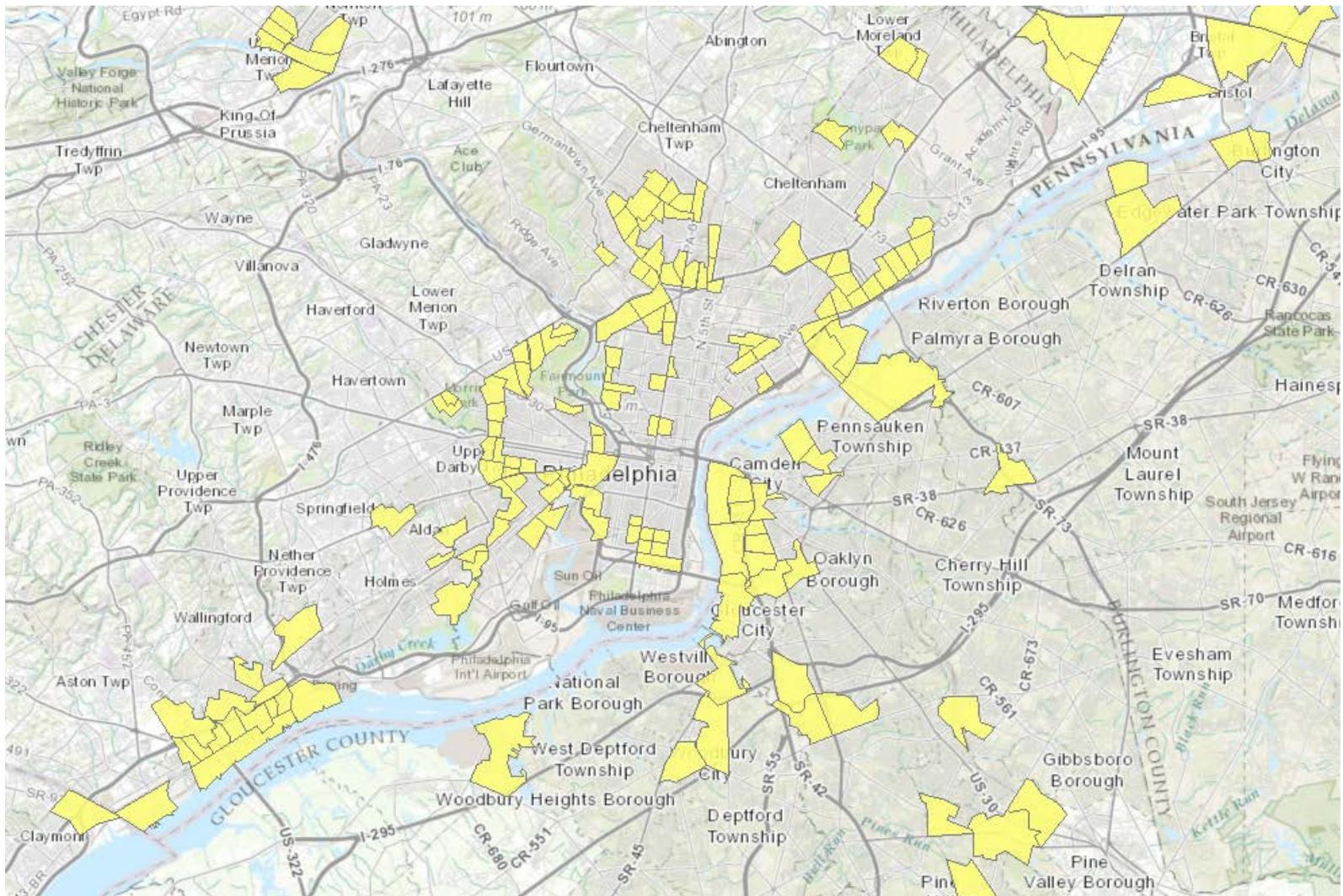
Shiva Kooragayala



# “Food Deserts”

“Low-income neighborhoods, both urban and rural, that have limited access to full-service supermarkets or grocery stores”

- Jiao et al 2012



USDA Food Access Research Atlas (tracts shaded in yellow are low-income and low-access)

Limited Supermarket Access (LSA) status, as of 2011.

All block groups included in the Limited Supermarket Access Study are designated as either "LSA" (within a Limited Supermarket Access) or "Not LSA" (not within a Limited Supermarket Access) according to TRF's analysis. TRF's methodology is designed to identify areas where residents travel longer distances to reach supermarkets when compared to the benchmark (average) distance traveled by residents of non-low/moderate income areas. Comparative areas are grouped based on similar values for population density and car ownership rates. The data sources include US Census (2010) for population living in households, residential land area, US Census ACS data (2005-2009) for car ownership rates, and Trade Dimensions (2011) data for supermarket locations. Areas designated as "Insufficient Data" were not included in the study. Please see the Data Directory for our methodology, for the family of LSA indicators, and for the exclusion criteria.

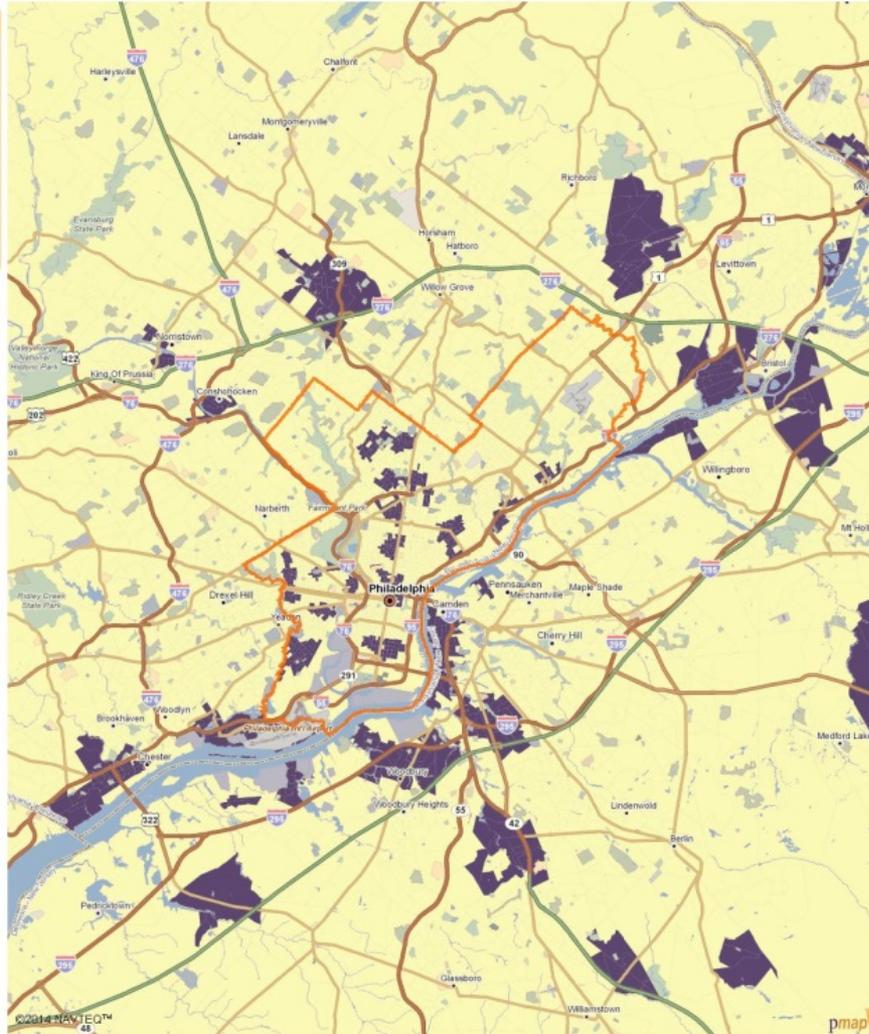
**Legend**

Year  
2011

Variable  
Type

- Insufficient Data
- LSA
- NOT LSA

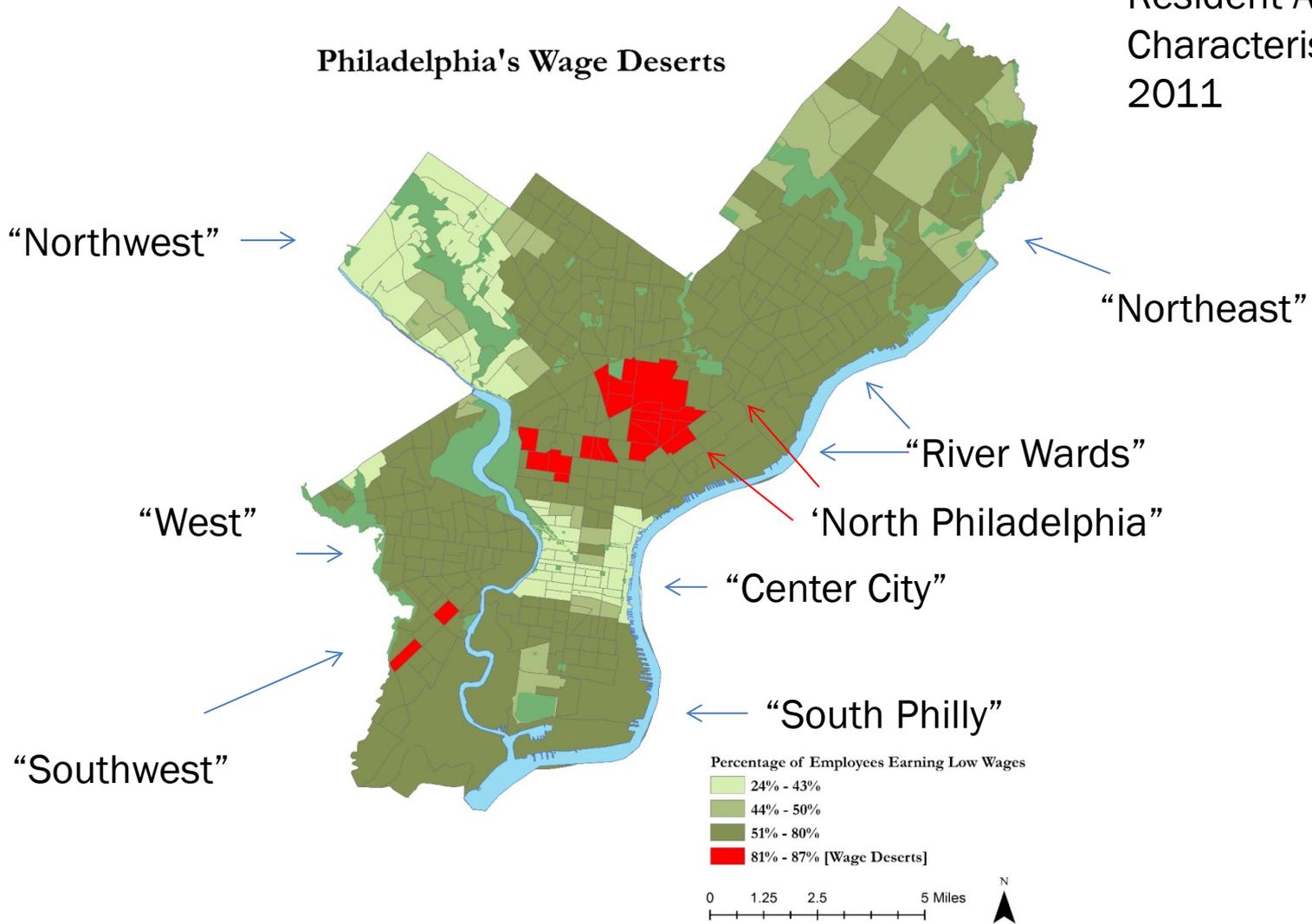
Shaded by: Block Group, 2000  
Source: TRF



Policy Map  
Limited Supermarket  
Access Database, 2011

(Block groups shaded purple  
have limited supermarket  
access)

Source: LEHD  
Resident Area  
Characteristics files,  
2011



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...advancing economic justice through research  
and the Self-Sufficiency Standard.



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- [What is the Self-Sufficiency Standard?](#)
- [Where did the Self-Sufficiency Standard come from?](#)
- [How does the Self-Sufficiency Standard differ from the Federal Poverty Measure?](#)
- [How is the Self-Sufficiency Standard Calculated?](#)
- [How can the Self-Sufficiency Standard be used?](#)
- [Get a Self-Sufficiency Standard for Your State](#)

## ■ **What is the Self-Sufficiency Standard?**

The Self-Sufficiency Standard defines the amount of income necessary to meet basic needs (including taxes) without public subsidies (e.g., public housing, food stamps, Medicaid or child care) and without private/informal assistance (e.g., free babysitting by a relative or friend, food provided by churches or local food banks, or shared housing). The family types for which a Standard is calculated range from one adult with no children, to one adult with one infant, one adult with one preschooler, and so forth, up to two-adult families with three teenagers.

## ■ **Why was the Self-Sufficiency Standard developed?**

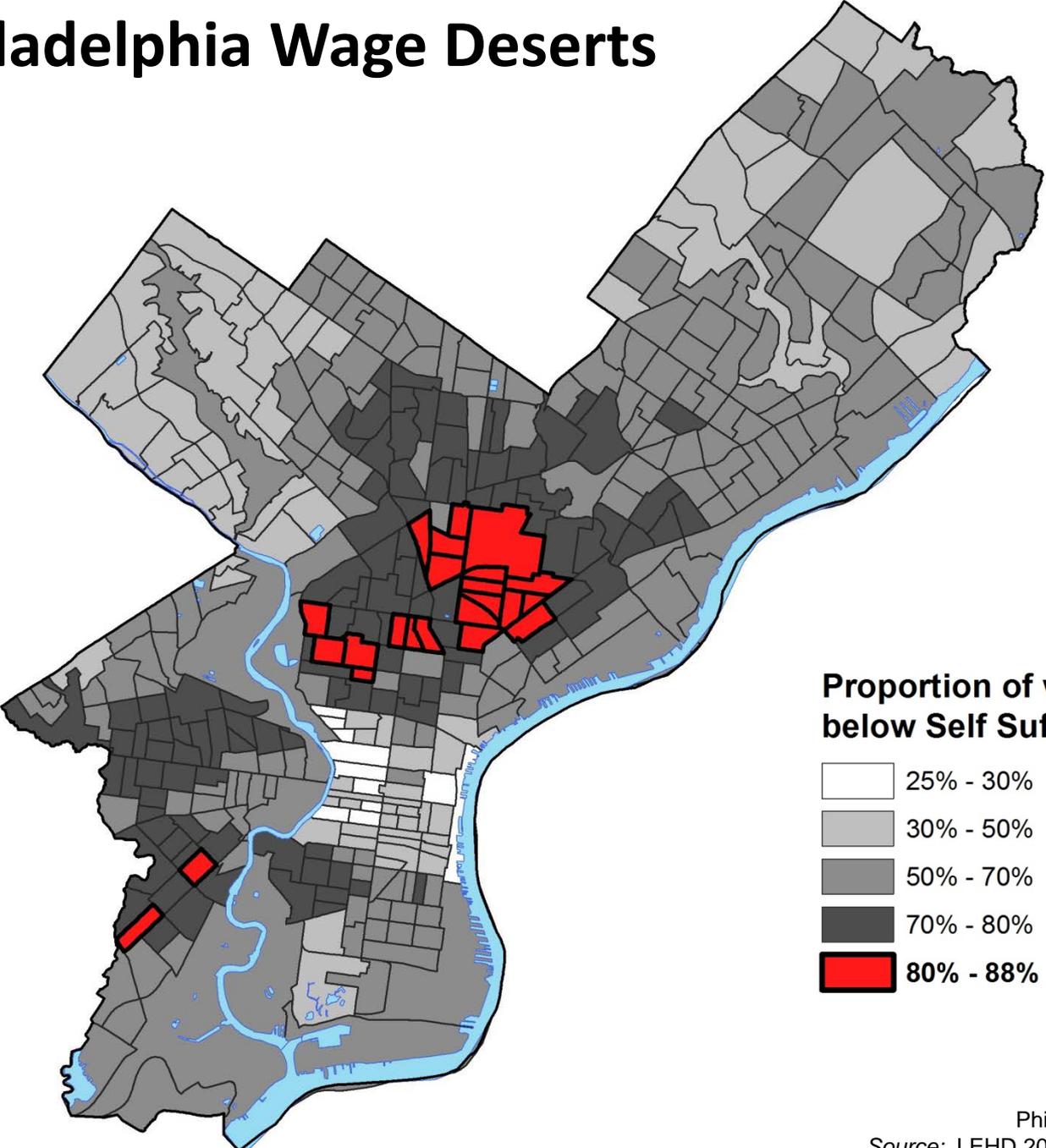
The Self-Sufficiency Standard was created in the mid-1990s by Dr. Diana Pearce, who at that time was Director of the Women and Poverty Project at Wider Opportunities for Women. The Standard was intended initially as a performance measure for the goal of "self-sufficiency" in federal job training programs (now known as WIA, the Workforce Investment Act program). It was a measure that provided realistic and detailed data on what clients individually needed to be self-sufficient. First calculated for Iowa in 1996, it experienced a major expansion with funding by the Ford Foundation in the early 2000s, and today, the Standard can be found in 37 states and the District of Columbia.

**APPENDIX B - TABLE 8 CONTINUED.** The Annual 2012 Self-Sufficiency Standard by County and Select Family Types:  
Pennsylvania

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COUNTY	Adult	Adult + Infant	Adult + Preschooler	Adult + Infant + Preschooler	Adult + School-age + Teenager	Adult + Infant + Preschooler + School-age	2 Adults + Infant + Preschooler	2 Adults + Preschooler + School-age
Lebanon	\$18,797	\$32,711	\$36,012	\$46,127	\$32,380	\$59,910	\$53,730	\$52,754
Lehigh	\$23,430	\$38,606	\$41,115	\$51,290	\$40,091	\$66,573	\$58,686	\$58,229
Luzerne	\$18,317	\$31,500	\$31,763	\$43,208	\$28,880	\$54,474	\$50,636	\$48,241
Lycoming	\$19,699	\$33,407	\$33,792	\$44,471	\$29,383	\$55,150	\$51,761	\$47,986
McKean	\$17,897	\$28,089	\$29,117	\$37,904	\$27,182	\$50,385	\$46,512	\$45,348
Mercer	\$18,322	\$32,434	\$35,139	\$46,289	\$31,415	\$58,680	\$53,648	\$52,284
Mifflin	\$16,708	\$27,136	\$28,700	\$37,903	\$27,334	\$51,280	\$46,241	\$46,167
Monroe	\$20,956	\$37,870	\$37,424	\$49,002	\$36,514	\$62,931	\$56,515	\$54,307
Montgomery	\$28,594	\$49,804	\$52,278	\$67,390	\$50,879	\$87,935	\$76,187	\$74,057
Montour	\$17,358	\$28,779	\$33,187	\$43,799	\$27,188	\$54,369	\$50,786	\$49,180
Northampton	\$23,595	\$40,797	\$40,835	\$53,037	\$40,403	\$68,407	\$60,549	\$58,176
Northumberland	\$17,433	\$26,556	\$28,643	\$36,957	\$26,933	\$49,738	\$45,600	\$45,741
Perry	\$17,534	\$29,106	\$32,709	\$42,544	\$29,939	\$55,094	\$49,673	\$49,849
Philadelphia	\$22,146	\$42,518	\$42,691	\$57,746	\$43,632	\$75,643	\$63,472	\$61,199

Source: *Overlooked and Undercounted: How the Great Recession Impacted Household Self-Sufficiency in Pennsylvania* (Pathways PA, 2012)

# Philadelphia Wage Deserts



**Proportion of workers earning below Self Sufficiency (%)**

- 25% - 30%
- 30% - 50%
- 50% - 70%
- 70% - 80%
- 80% - 88% [Wage Desert]**

Philadelphia Earnings by Home Census Tract  
Source: LEHD 2011, Residence Area Characteristics (RAC)

# Extraction and Mapping Process:

## Resident Area Characteristics (RAC) File

Objective: to apply and aggregate residents' job and earnings records to home census tracts

- Process steps:
  1. Aggregate LODES data from the Block Group to the Census Tract level
  2. Trim statewide RAC data to Philadelphia's 384 census tracts
  3. Characterize Wage Deserts at the city level
- Software: ArcGIS, *R* statistical package

B	C	D	E	F	G	H	I	J	K	L	M
	TOTAL	Age			Monthly Earnings						
tract	JOBS	<= 29yrs	30 - 54	55+	<= \$1250	\$1251 - \$3333	>= \$3333	1 (Ag, Frst, Fish, Hur	21 (Mine, Oil&Gas)	22 (Utilities)	23 (Construction)
GEOID10	C000	CA01	CA02	CA03	CE01	CE02	CE03	CNS01	CNS02	CNS03	CNS04
GEOID10	TotalJobs	Jobs_A29u	Jobs_A30_54	Jobs_A55o	Jobs_E1250u	Jobs_E1251_3333	Jobs_E3333o	NAICS11	NAICS21	NAICS22	NAICS23
42101000100	1592	531	878	183	142	237	1213	0	0	4	16
42101000200	840	241	488	111	239	224	377	0	0	6	13
42101000300	1361	381	775	205	141	198	1022	0	1	1	11
42101000401	725	213	400	112	68	160	497	2	0	4	4
42101000402	1164	301	540	323	132	217	815	1	0	0	22
42101000500	631	260	300	71	104	176	351	1	1	2	6
42101000600	780	290	393	97	95	188	497	2	0	4	9
42101000700	1447	491	709	247	182	319	946	1	1	3	19
42101000801	776	234	420	122	91	149	536	1	0	3	13
42101000803	1691	526	800	365	185	363	1143	0	0	6	20
42101000804	1754	565	890	299	210	286	1258	0	3	4	21
42101000901	1078	402	526	150	162	262	654	1	0	5	14
42101000902	1078	304	577	197	142	186	750	0	1	3	6
42101001001	1249	304	603	342	170	230	849	1	0	4	10
42101001002	1690	386	886	418	196	325	1169	1	1	5	25
42101001101	1668	506	909	253	209	350	1109	0	1	5	13
42101001102	1393	444	747	202	161	291	941	0	0	4	20
42101001201	1869	484	986	399	205	319	1345	3	1	8	32
42101001202	2521	848	1322	351	276	479	1766	1	0	9	29
42101001300	2494	676	1477	341	323	585	1586	0	0	10	34
42101001400	1955	579	1098	278	325	449	1181	1	2	2	26

AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV
Ethnicity		Education				Sex		Calculations for W.Ds.				
Non-Latino	Latino	No H.S.	High School	Some College	BA or higher	Male_jobs	Female_jobs	% <= \$1250	% \$1251 - \$3333	% >= \$3333	% E01 or E02	
CT01	CT02	CD01	CD02	CD03	CD04	CS01	CS02					
NonLatino	Latino	No_HS	HighSch	SomeCollge	BA_orMore	Male	Female	Pct_E01	Pct_E02	Pct_E03	Pct_E01E02	WageDesert
952	43	121	198	239	150	483	512	0.2543	0.5698	0.1759	0.8241	Yes
1068	24	108	272	267	146	457	635	0.2701	0.5430	0.1868	0.8132	Yes
245	15	22	52	58	39	114	146	0.2885	0.5231	0.1885	0.8115	Yes
995	25	120	218	246	131	412	608	0.3020	0.5235	0.1745	0.8255	Yes
1180	36	129	264	274	156	503	713	0.3141	0.5255	0.1604	0.8396	Yes
411	431	121	169	166	115	418	424	0.2779	0.5344	0.1876	0.8124	Yes
590	34	57	157	147	90	266	358	0.2821	0.5641	0.1538	0.8462	Yes
342	13	48	73	69	53	162	193	0.3183	0.4845	0.1972	0.8028	Yes
745	31	100	175	194	112	366	410	0.2719	0.5361	0.1920	0.8080	Yes
1530	23	149	387	382	210	661	892	0.3026	0.5080	0.1893	0.8107	Yes
363	708	202	171	171	144	577	494	0.2568	0.5453	0.1979	0.8021	Yes
322	449	144	144	175	93	412	359	0.2620	0.5409	0.1971	0.8029	Yes
475	278	108	177	148	90	374	379	0.2709	0.5339	0.1952	0.8048	Yes
506	552	163	220	194	134	528	530	0.2788	0.5265	0.1947	0.8053	Yes
968	467	186	284	262	213	695	740	0.2983	0.5240	0.1777	0.8223	Yes
762	738	247	272	299	179	771	729	0.2727	0.5500	0.1773	0.8227	Yes
367	647	173	188	187	119	499	515	0.2880	0.5345	0.1775	0.8225	Yes
254	459	116	134	132	58	336	377	0.2861	0.5877	0.1262	0.8738	Yes
813	710	231	329	301	180	678	845	0.2942	0.5200	0.1858	0.8142	Yes
689	539	189	259	246	189	551	677	0.2362	0.5676	0.1963	0.8037	Yes
541	391	143	179	199	116	442	490	0.2961	0.5064	0.1974	0.8026	Yes

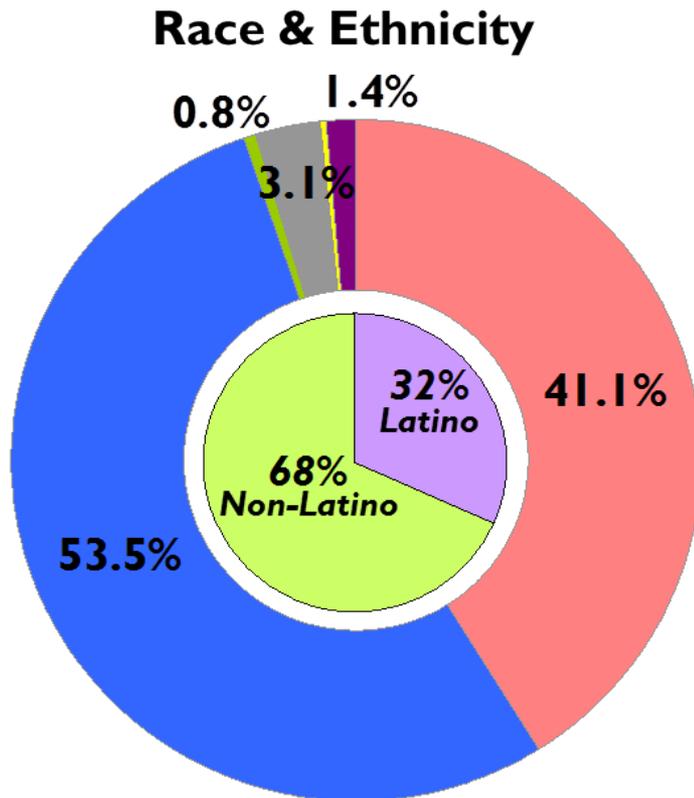
# Wage Deserts at a glance

	A N N U A L   E A R N I N G S			Total Under Self-Sufficiency
	<= \$15,000	\$15,000 to \$39,999	>= \$40,000	
	Pct_E01	Pct_E02	Pct_E03	Pct_E01E02
Average Wage Desert Tract	28.1%	53.6%	18.2%	81.8%
Average Philadelphia Tract	20.9%	40.1%	39.0%	61.0%

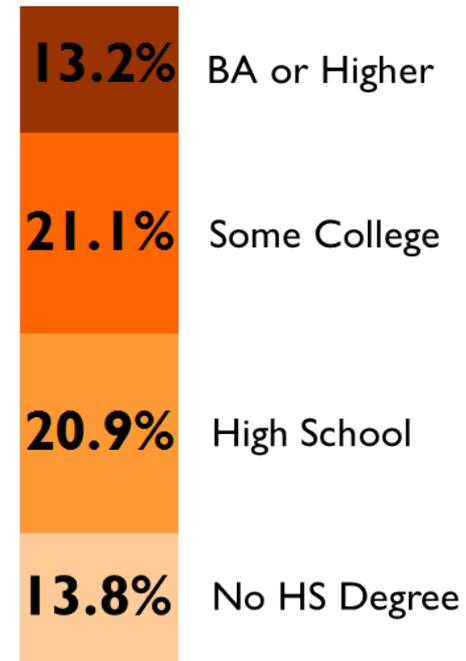
# Wage Deserts at a glance

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Average Wage Desert Tract	28.1%	53.6%	18.2%	81.8%
Average Philadelphia Tract	20.9%	40.1%	39.0%	61.0%
<i>Wage Desert Margin</i>	<b>+7.2%</b>	<b>+13.6%</b>	<b>-20.8%</b>	<b>20.8%</b>

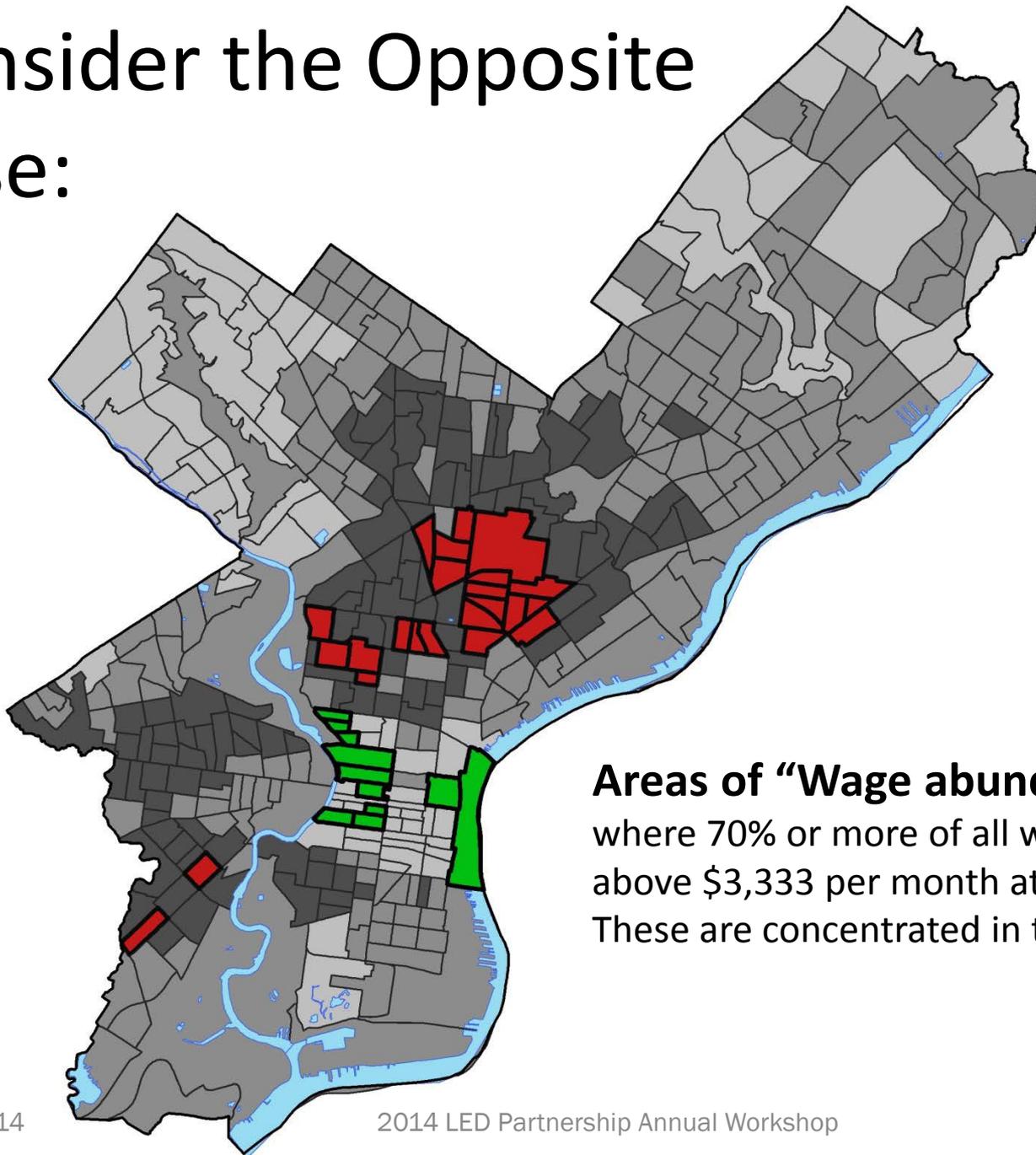
# Wage Deserts at a glance



### Educational Attainment (approx. 70% reporting)

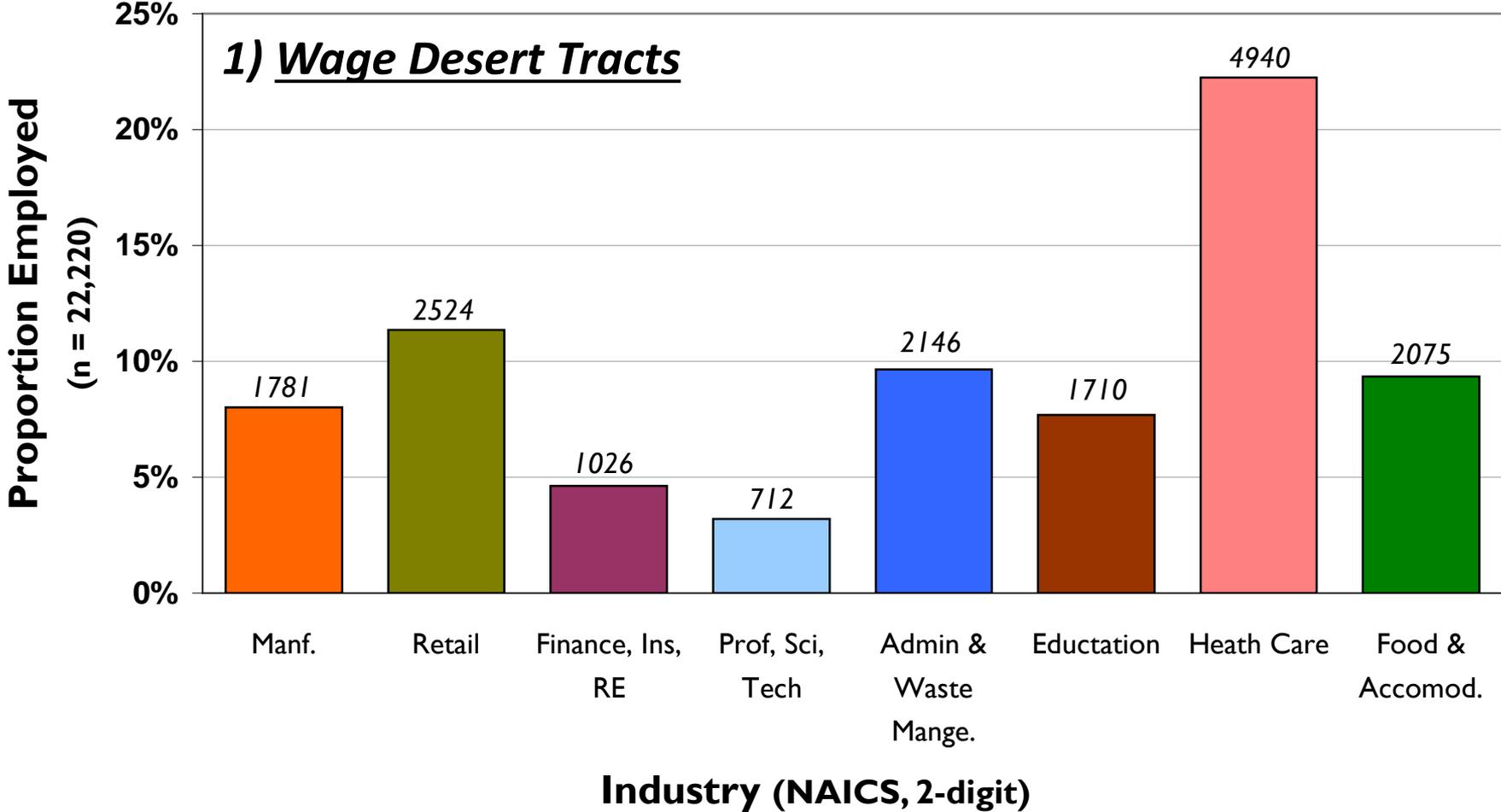


# Consider the Opposite Case:

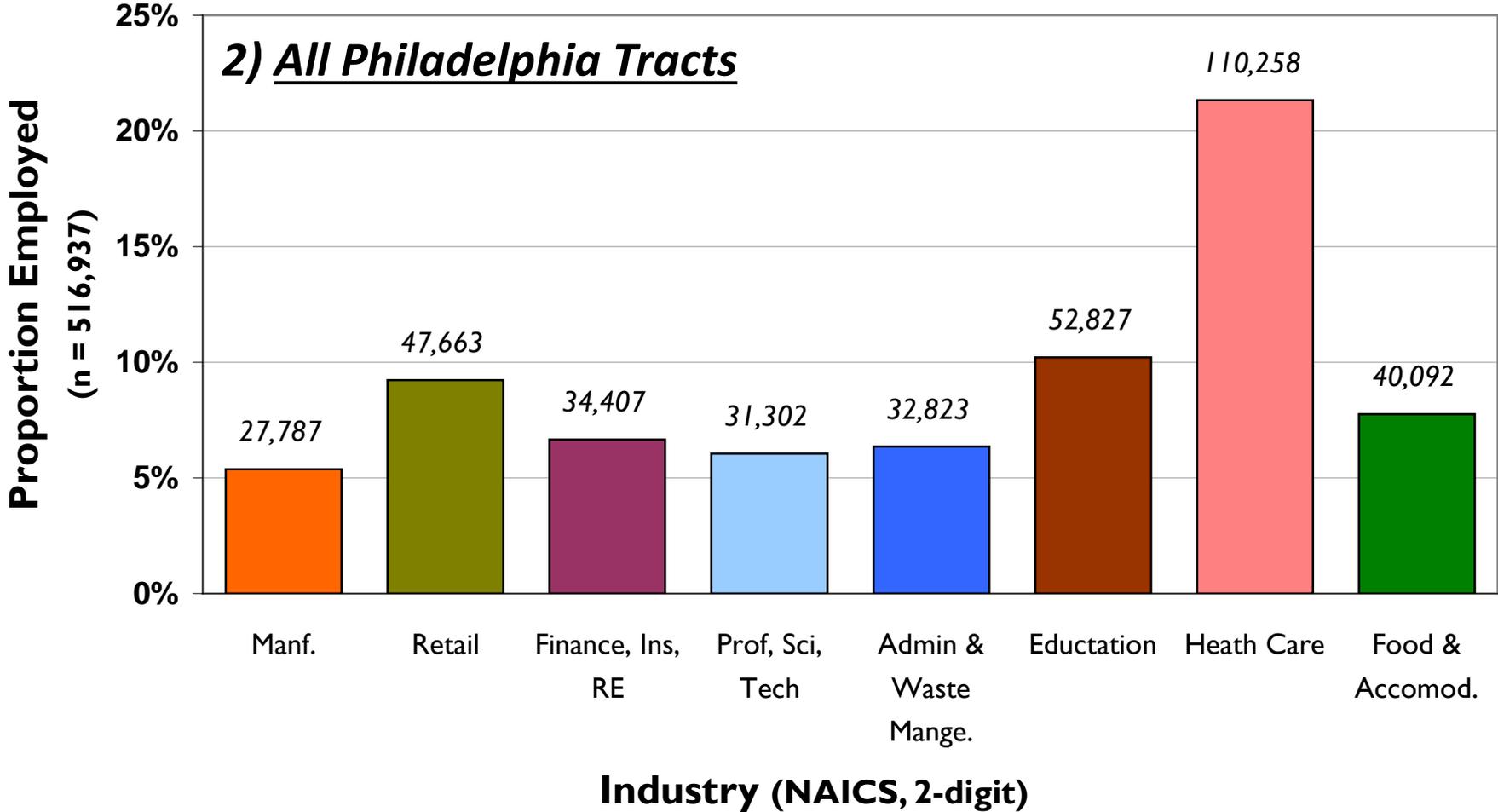


**Areas of “Wage abundance,”**  
where 70% or more of all working residents earn  
above \$3,333 per month at their primary job.  
These are concentrated in tracts near the CBD.

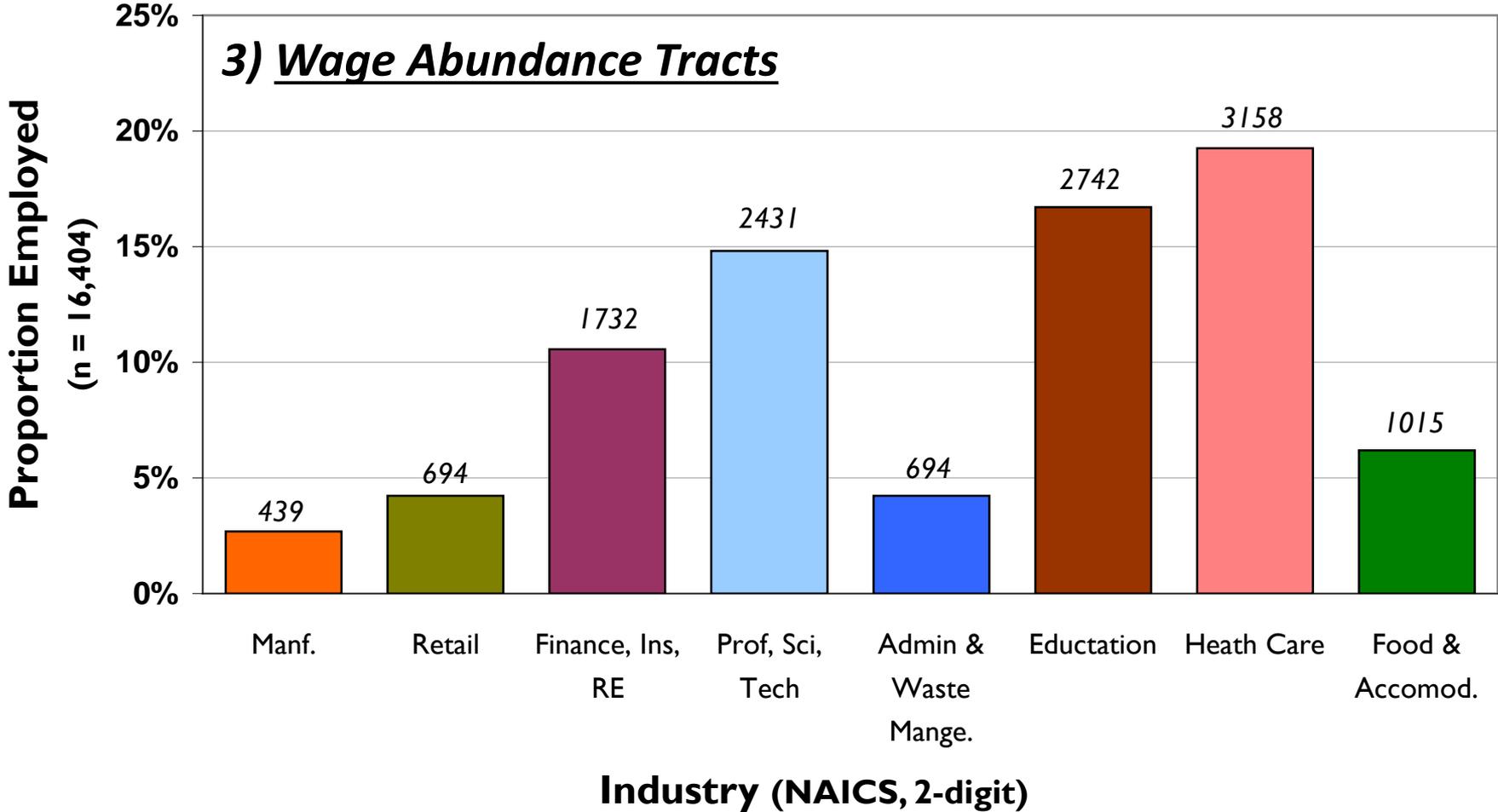
# Primary Job Holders by Industry



# Primary Job Holders by Industry

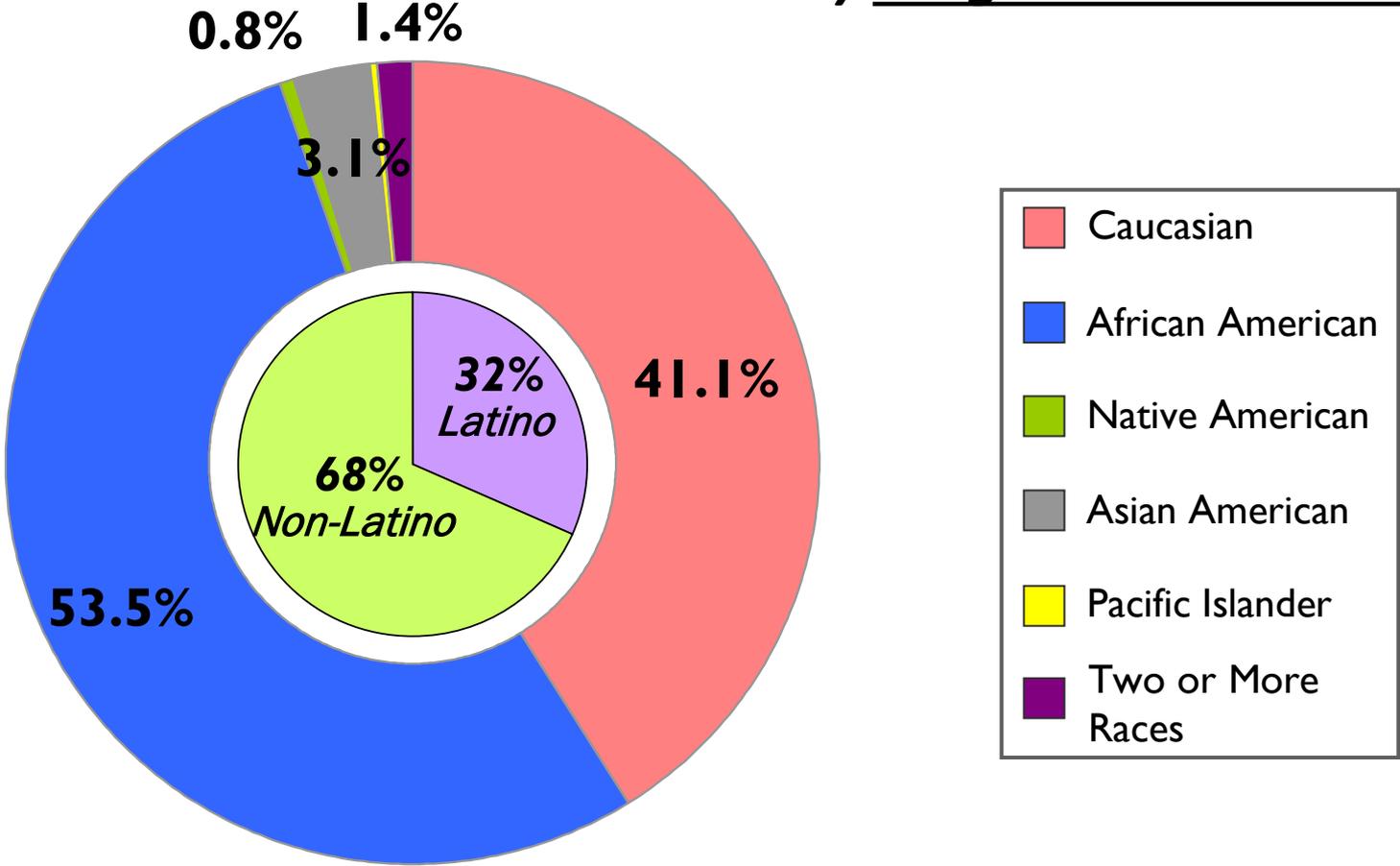


# Primary Job Holders by Industry



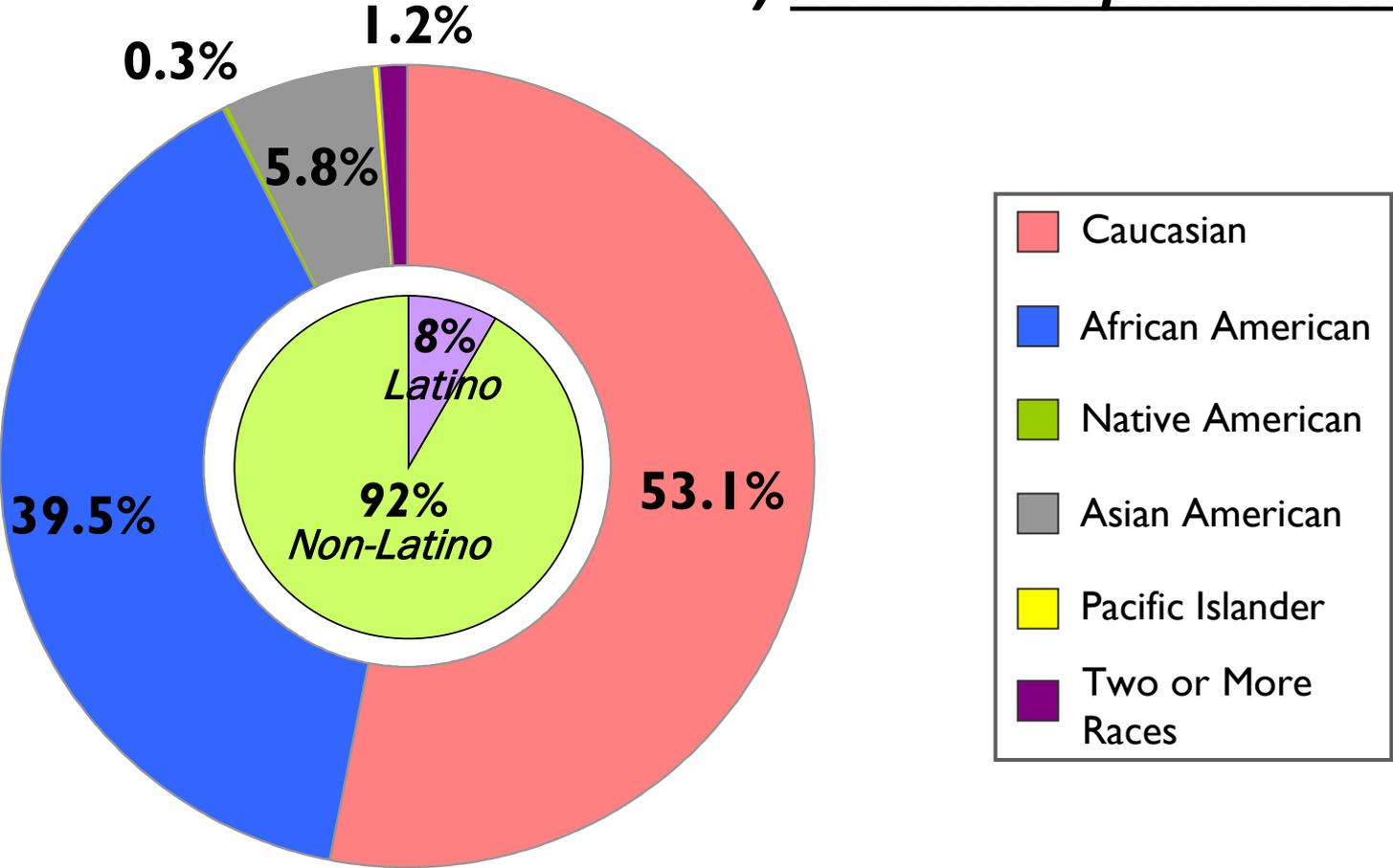
# Primary Job Holders by Race & Ethnicity

## 1) Wage Desert Tracts



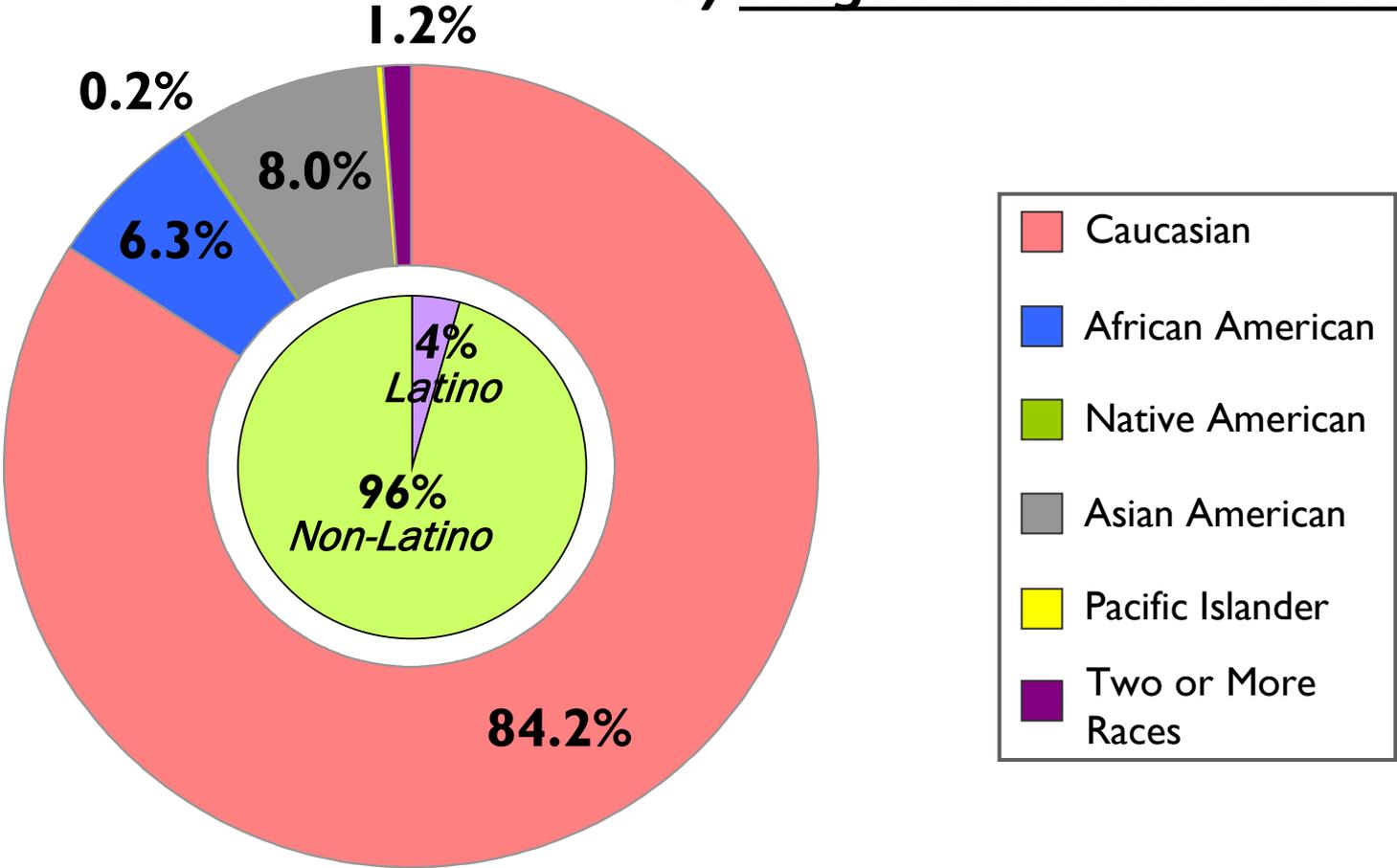
# Primary Job Holders by Race & Ethnicity

## 2) All Philadelphia Tracts



# Primary Job Holders by Race & Ethnicity

## 3) Wage Abundance Tracts



# Extraction and Mapping Process: Origin-Destination (OD) File

Objective: to trace wage desert or wage abundance originators to their place of work

– Process steps:

1. Aggregate LODES data from the Block Group to the Census Tract level
2. Match workers' "home tracts" (originating in Wage Desert or Wage Abundance areas) to their respective "work tracts"

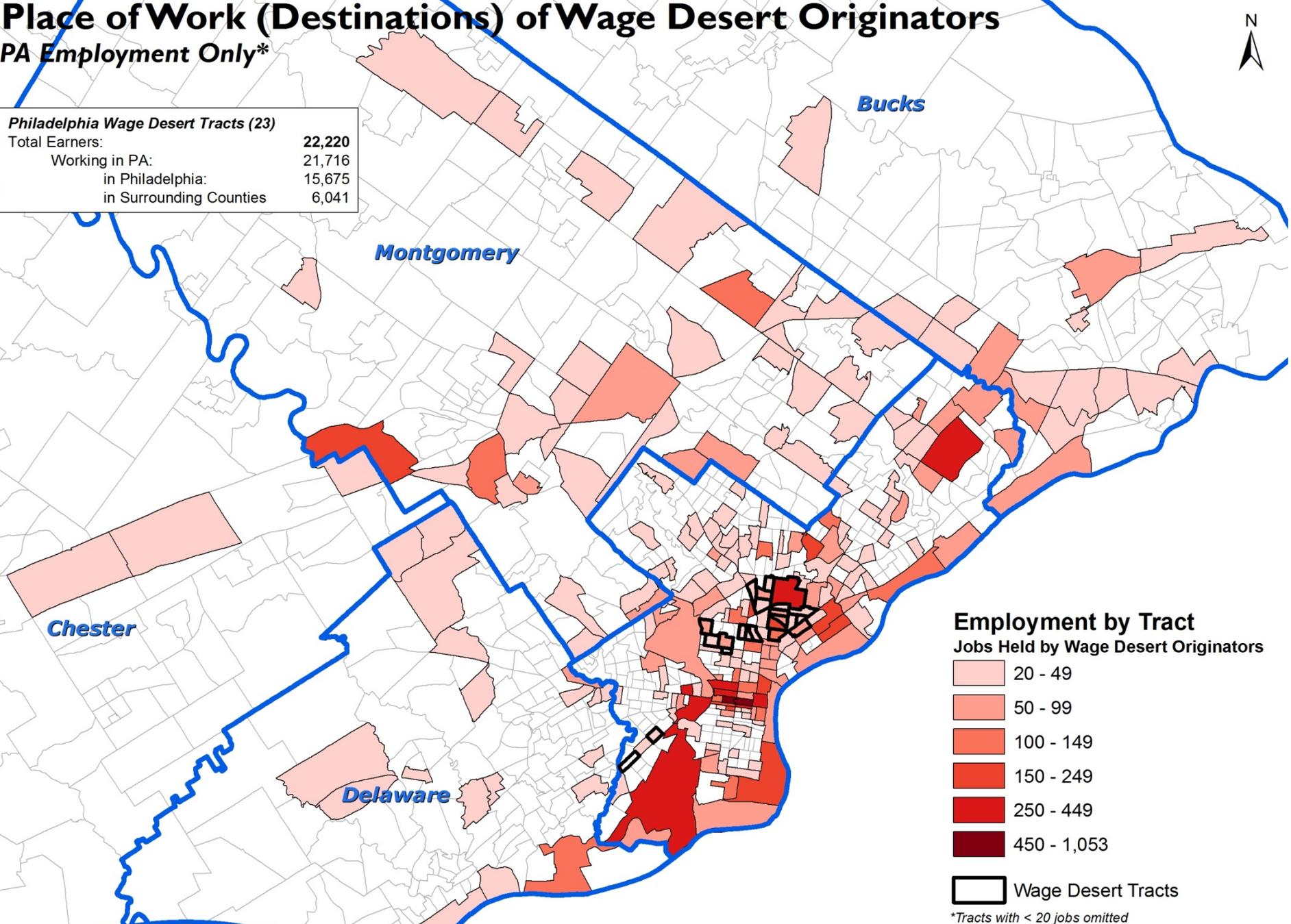
– Software: ArcGIS, *R* statistical package

# Place of Work (Destinations) of Wage Desert Originators

PA Employment Only\*



<b>Philadelphia Wage Desert Tracts (23)</b>	
Total Earners:	22,220
Working in PA:	21,716
in Philadelphia:	15,675
in Surrounding Counties:	6,041



**Employment by Tract**  
Jobs Held by Wage Desert Originators

- 20 - 49
- 50 - 99
- 100 - 149
- 150 - 249
- 250 - 449
- 450 - 1,053
- Wage Desert Tracts

*\*Tracts with < 20 jobs omitted*

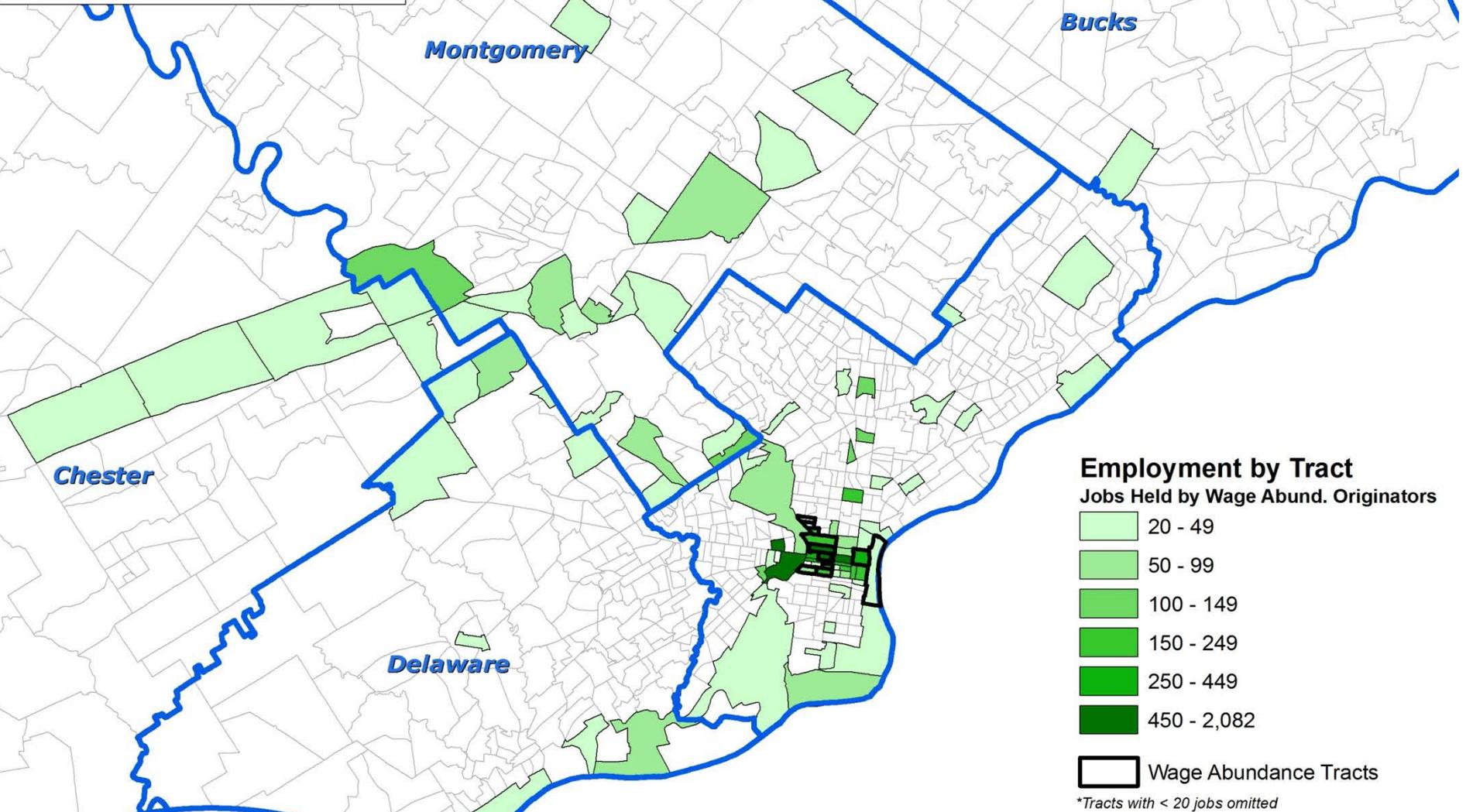
\*Source: LEHD Origin-Destination (OD) file, Pennsylvania, 2011

# Place of Work (Destinations) of Wage Abundance Originators

PA Employment Only\*



<b>Philadelphia Wage Abundance Tracts (11)</b>	
Total Earners:	16,404
Working in PA:	15,172
in Philadelphia:	12,012
in Surrounding Counties:	3,160



**Employment by Tract**  
Jobs Held by Wage Abund. Originators

	20 - 49
	50 - 99
	100 - 149
	150 - 249
	250 - 449
	450 - 2,082

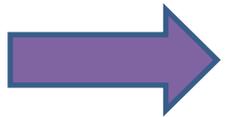
Wage Abundance Tracts

*\*Tracts with < 20 jobs omitted*

\*Source: LEHD Origin-Destination (OD) file, Pennsylvania, 2011

# Limitations of LEHD wage data in supporting inferences about household income and poverty

- LEHD reports earnings on a job basis, not a household basis. This might lead to an inaccurate picture of tracts in which there is more than one earner per household, or tracts in which a single earner works more than one job.
- Provides only earnings data (no information about other sources of household income).



Work-around – use ACS data to fill in the gaps.

# Comparing ACS and LEHD

ACS (5-year estimates)	LEHD
Total employment in wage deserts: 22,676	Total workers in wage deserts: 22,220
Total employment in Philadelphia: 542,854	Total workers in Philadelphia: 516,937
Person reported - Survey Data  MOE, based on sample size	Employer reported - Administrative Data  Synthetic data methods (residences)
What's not counted: Includes primary employment only	What's not counted: Excludes business owners, self-employed, some temporary workers, family farmers and military personnel.

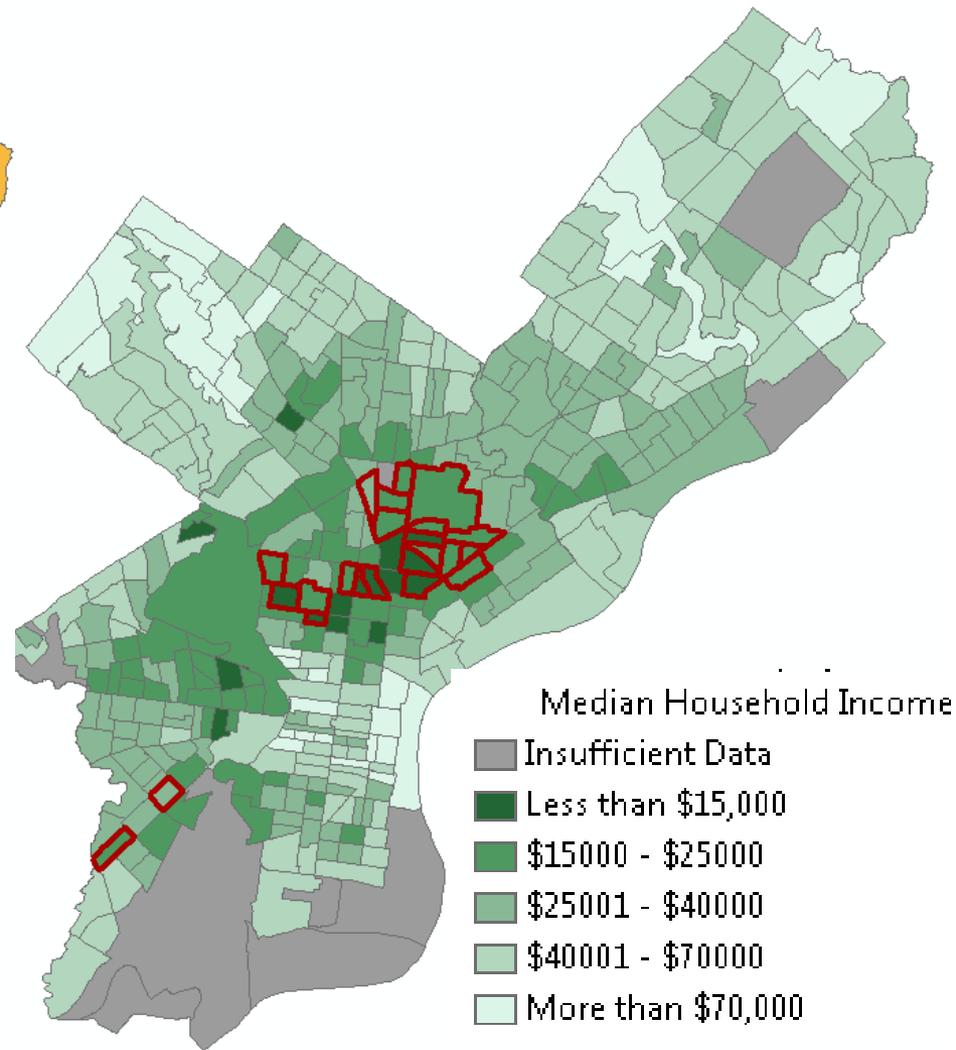
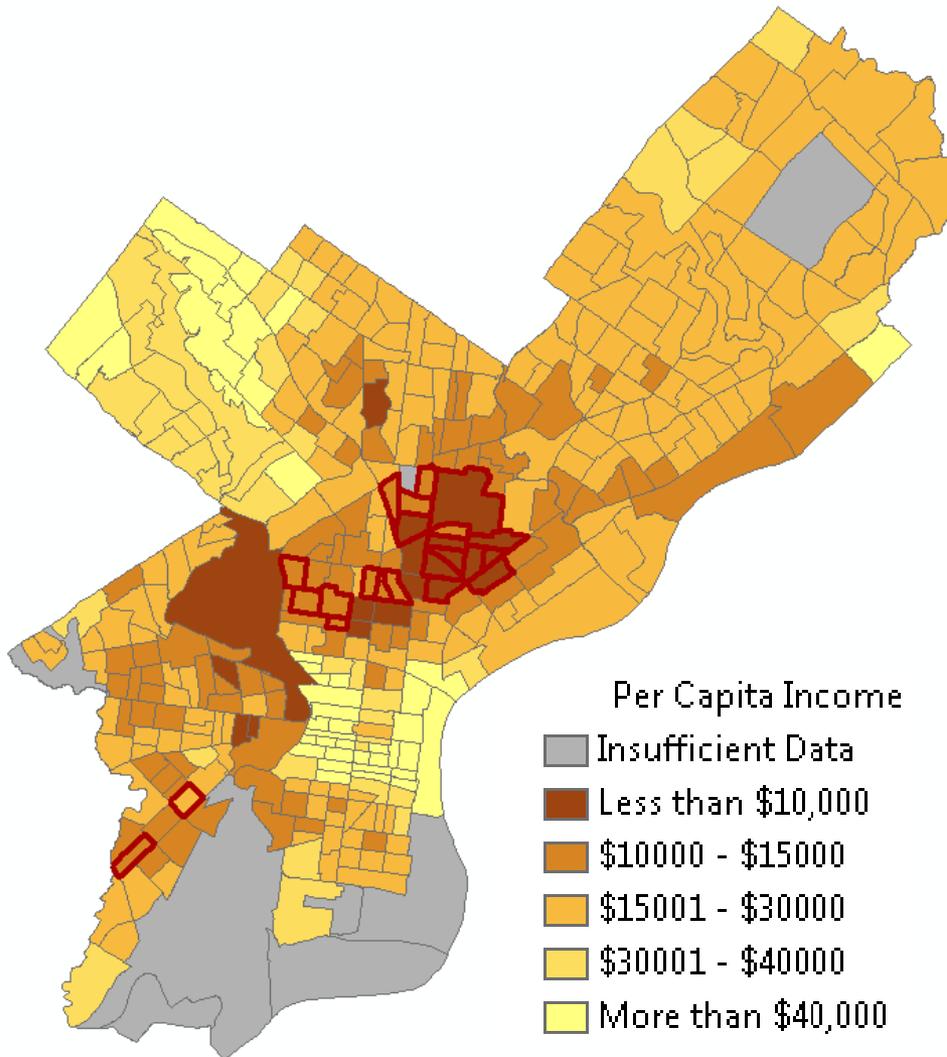
# Per Capita vs. Household Income

- The per capita income and median household income in the wage deserts is **less than half** of the City average.
- The poverty rate in these areas is roughly **twice** the City average.

	Wage Deserts	Philly
Per Capita Income	\$10,663	\$21,946
Median Household Income	\$17,679	\$37,016
Pct of People in Poverty	50.8%	25.5%

Source: American Community Survey 2008-2012

# Per Capita vs. Household Income



# Accounting for Multiple Jobs

A slightly higher proportion of people are working more than one job in wage desert tracts, compared to the City as a whole.

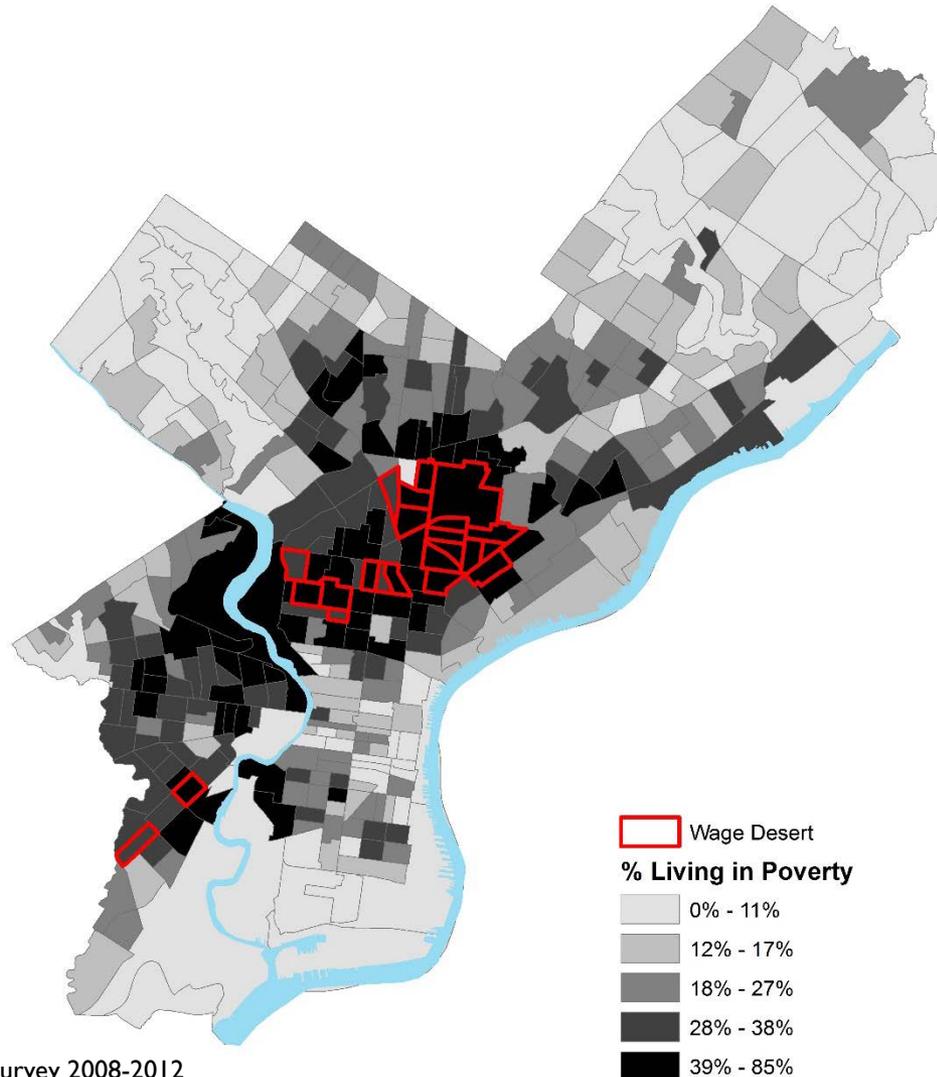
	Wage Deserts	Philly
Jobs	24,049	555,139
Workers	22,220	516,937
Ratio of Jobs to Workers	1.08	1.07
Proportion of Workers working more than 1 job <i>*assumes no one is working more than 2 jobs</i>	8.2%	7.4%

# Accounting for Multiple Earners

- Wage deserts have fewer jobs per household and fewer workers per household than in Philly as a whole.
- Wage deserts have a slightly higher proportion of working age adults per household than does Philly as a whole.

	Wage Deserts	Philly
<b>LEHD</b>		
Workers Per Household	.67	.86
Jobs Per Household	.73	.93
<b>Census 2010</b>		
Count of Households	33,158	599,736
Average Working Age Adults Per Household	1.6	1.4

# Poverty rates in Philadelphia



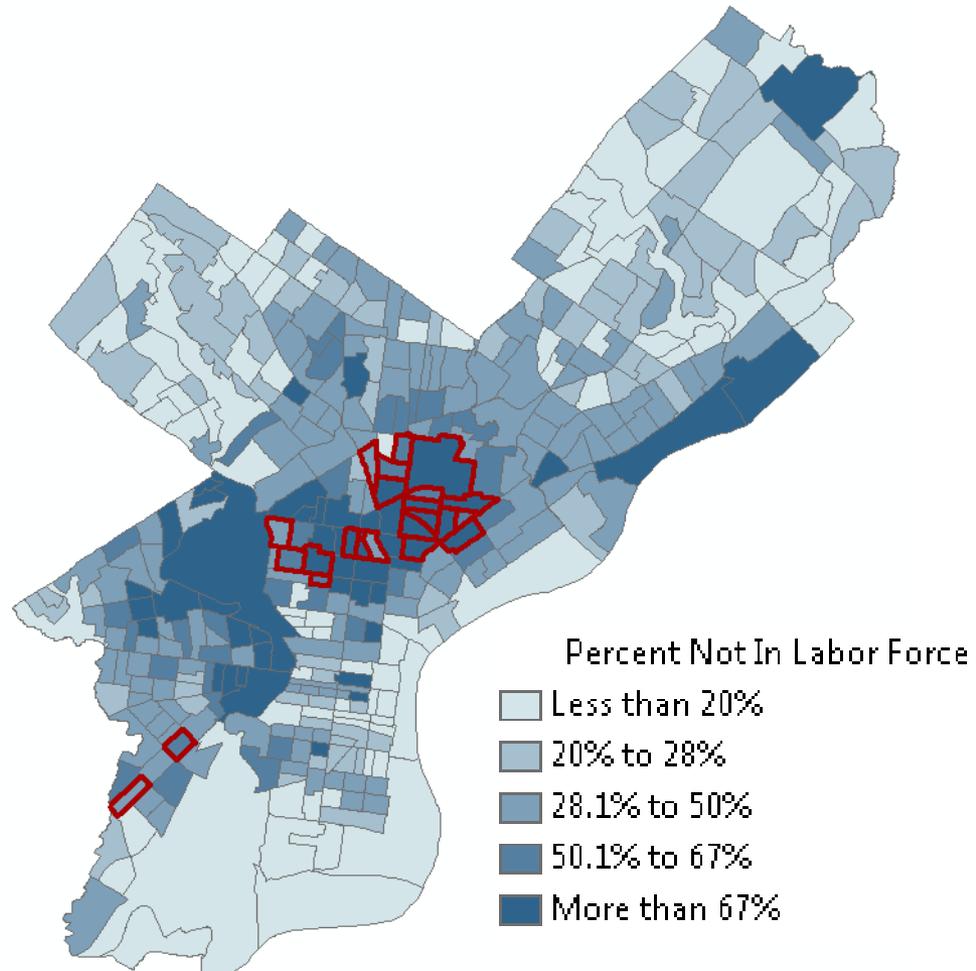
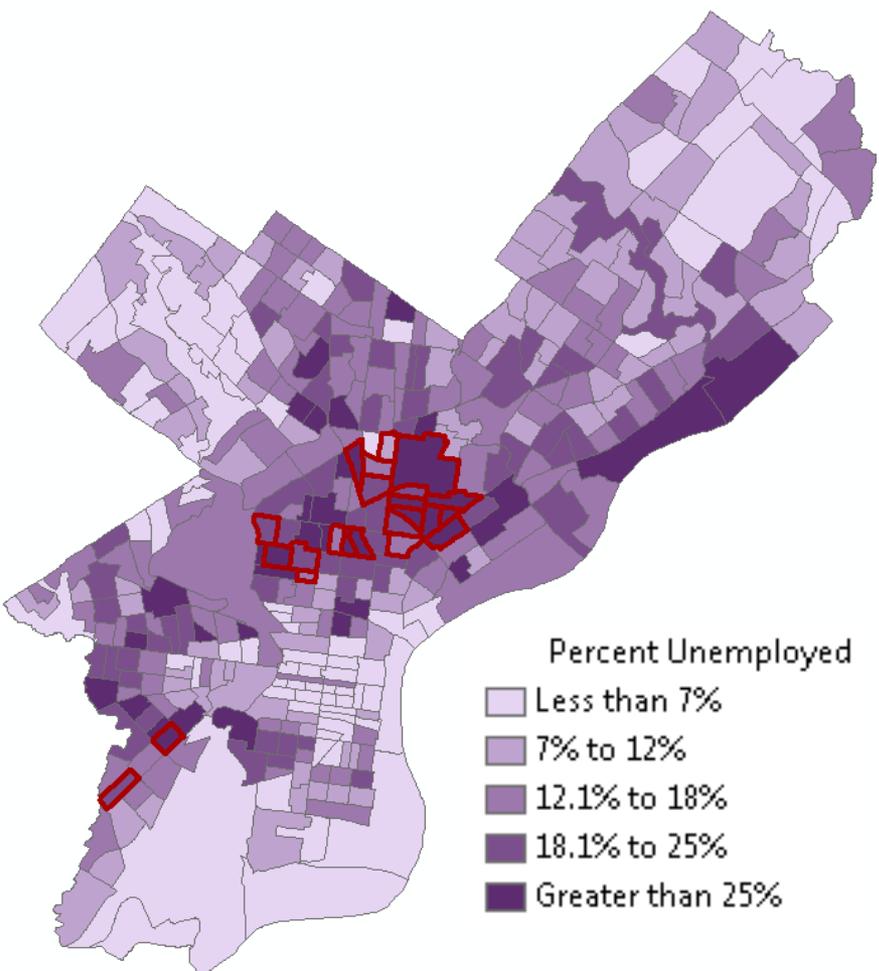
Source: American Community Survey 2008-2012

# *Are the wage deserts typical of the poorest Philadelphia Tracts?*

- Wage deserts and the poorest quintile of tracts (n=77) have **similar** rates of labor force participation.
- Wage deserts have **higher** rates of unemployment than the poorest quintile of tracts.

	Wage Deserts	Philly	Highest poverty tracts
<b>Labor Force (ACS 2012)</b>			
In Labor Force	57%	73%	<b>59%</b>
Not in Labor Force	43%	27%	<b>41%</b>
<b>Employment (ACS 2012)</b>			
Pct Employed	75%	86%	<b>79%</b>
Pct Unemployed	25%	14%	<b>21%</b>

# Unemployment & Labor Force Participation



# *Are the wage deserts typical of the poorest Philadelphia Tracts?*

- Wage deserts have, on average, **lower** per capita incomes than tracts in the highest-poverty quintile as a whole.
- Wage deserts have **lower** median household income than tracts in the highest poverty quintile as a whole.
- Wage deserts have **greater** percent of people living in poverty

	Wage Deserts	Philly	Highest poverty tracts
Per Capita Income	\$10,663	\$21,946	\$ 12,029
Median Household Income	\$17,679	\$37,016	\$ 20,812
Pct of People in Poverty	50.8%	25.5%	48.42%

Source: American Community Survey 2008-2012

# Directions for policy

- Use RAC files to target tracts with high proportions of low-earning workers as priorities for interventions that help people avail themselves of subsidies to which they are entitled (medical, childcare, EITC) (e.g. BenePhilly)
- Use OD files to target the locations in which low-wage earners **work** as priorities for services like skills upgrading, ESL, childcare and youth development
- Regulation mandating living wages or self-sufficiency wages (increasingly occurring locally)
- Consider concepts of self-sufficiency, rather than poverty, in formulating policy

# Future research

- Compare Philadelphia with other big cities
  - with smaller cities
  - with rural areas
  - with cities in other regions of the country
  - with cities with different industry profiles
- For wage desert tracts, investigate uptake rates for programs designed to support work: EITC, subsidized childcare, Medicaid