



vibrant
PITTSBURGH™

*Growing a diverse workforce.
And a brighter future for our region.™*

Using LEHD data to advance economic development in the Pittsburgh region

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Vibrant Pittsburgh

Who we are

- ▶ Vibrant Pittsburgh works to grow a talented and diverse workforce for the region, by attracting, retaining, elevating and educating people of all backgrounds.
- ▶ Vibrant Pittsburgh is focused on working collaboratively with private and public sector leadership to strengthen the region's economic future by growing and retaining a diverse workforce and fostering a more inclusive and welcoming community.

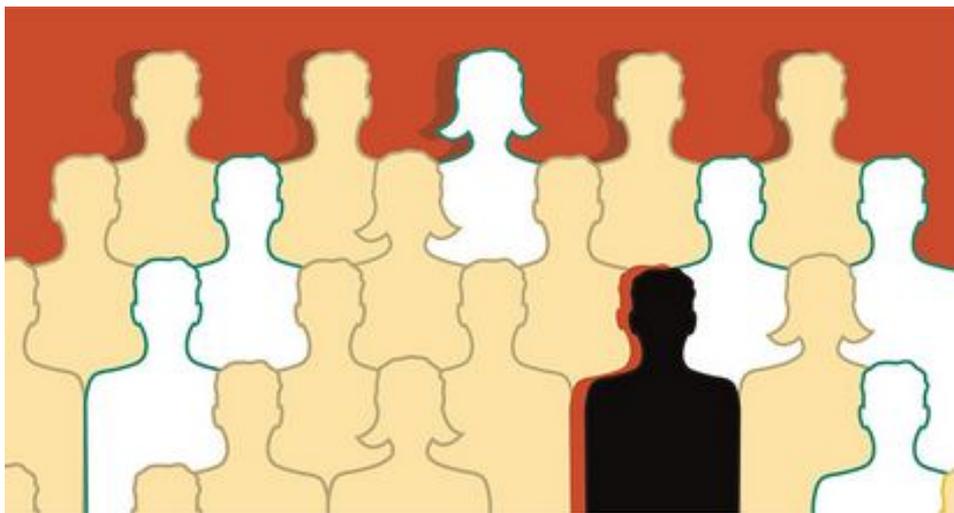


Background



- ❖ 2015 Report by the Pittsburgh Workforce Diversity Indicators Initiative
 - ❖ Vibrant Pittsburgh,
 - ❖ Pittsburgh Today
 - ❖ Three Rivers Workforce Investment Board
 - ❖ Allegheny Conference on Community Development
 - ❖ University of Pittsburgh Center on Race and Social Problems
 - ❖ University of Pittsburgh University Center for Social and Urban Research
- ❖ First round analysis focused on job sector employment, worker income, and workforce participation
- ❖ Local data was benchmarked against 14 peer regions
- ❖ Data was drawn from the 2013 LEHD program's Quarterly Workforce Indicators

Purpose

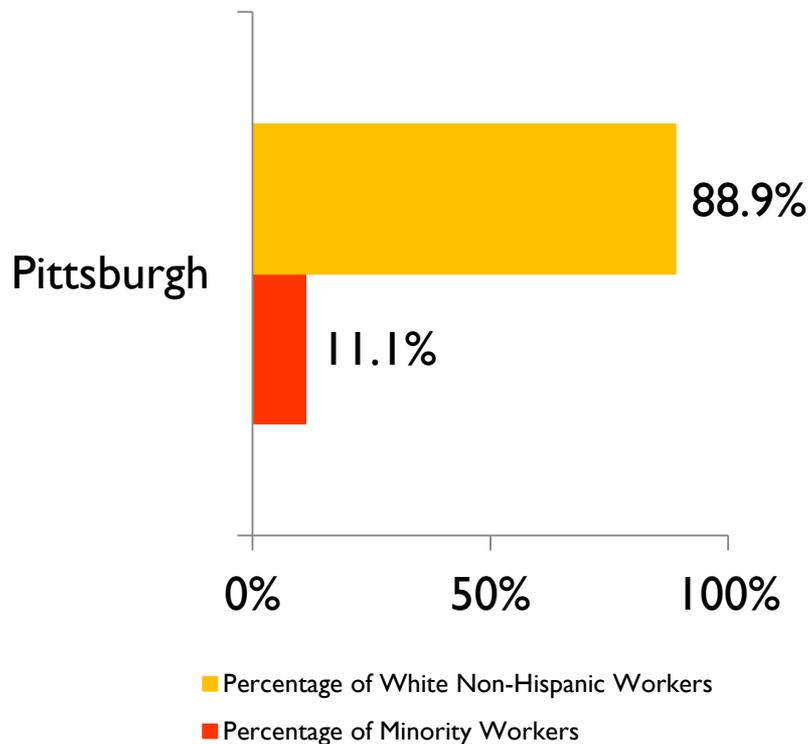


- ▶ To track and report regional workforce comparative data that are designed to bring greater resources and more constructive solutions to the goal of growing and diversifying the Pittsburgh region's workforce and population.

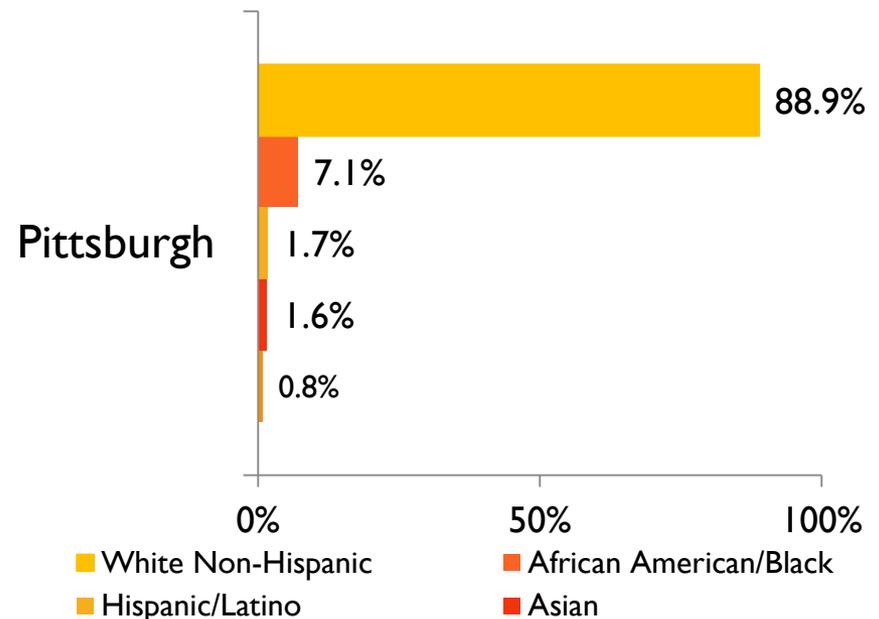
- ▶ Behind the Times: The Limited Role of Minorities in the Greater Pittsburgh Workforce is based on an analysis of workforce-related data collected by the Pittsburgh Regional Workforce Diversity Indicators Initiative.

Minority Workers' Share of Pittsburgh Region Jobs

Percentage of Jobs in the Pittsburgh Labor Market Held by Minority Workers

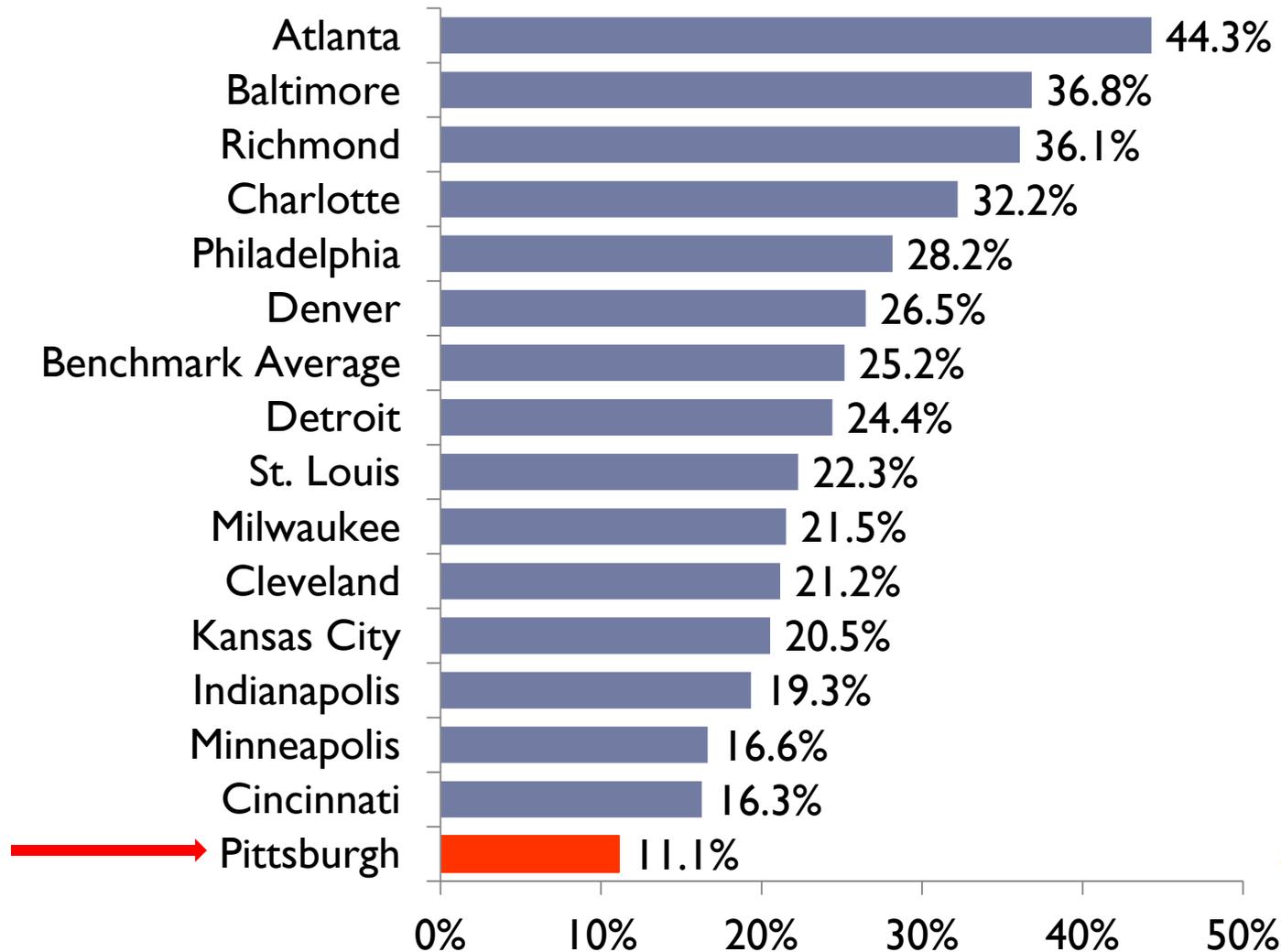


Overall Share of Jobs in the Pittsburgh Labor Market Held by Minority Workers by Racial and Ethnic Subgroups



DATA SOURCE: U.S. Census Bureau, Longitudinal Employer-Household Dynamics data

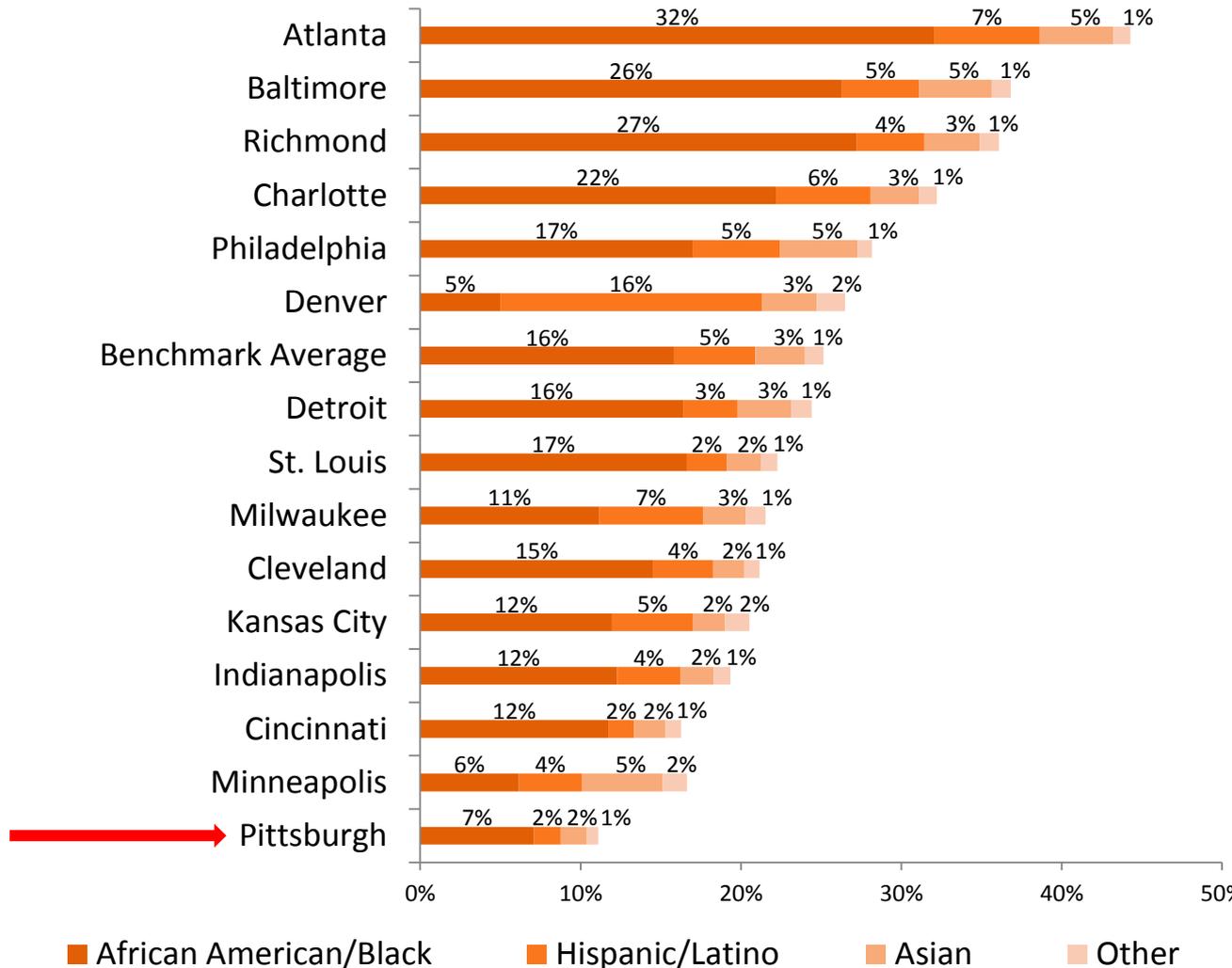
Percentage of Overall Share of Jobs Held by Racial/Ethnic Minority Workers by Peer Region in 2013



DATA SOURCE: U.S. Census Bureau, Longitudinal Employer-Household Dynamics data

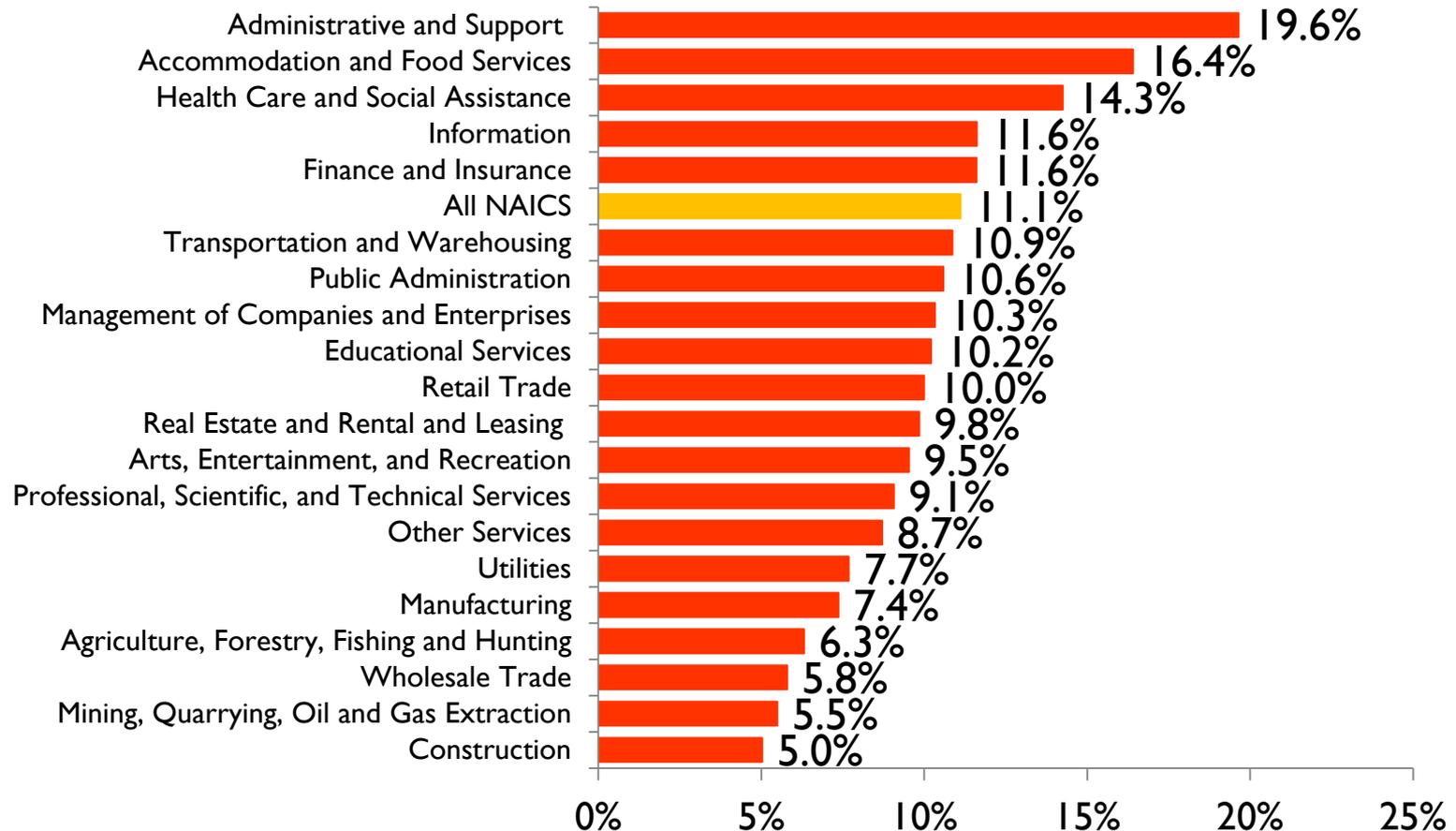
Workforce participation by minority subgroups – peer regions

By MSA, 2013



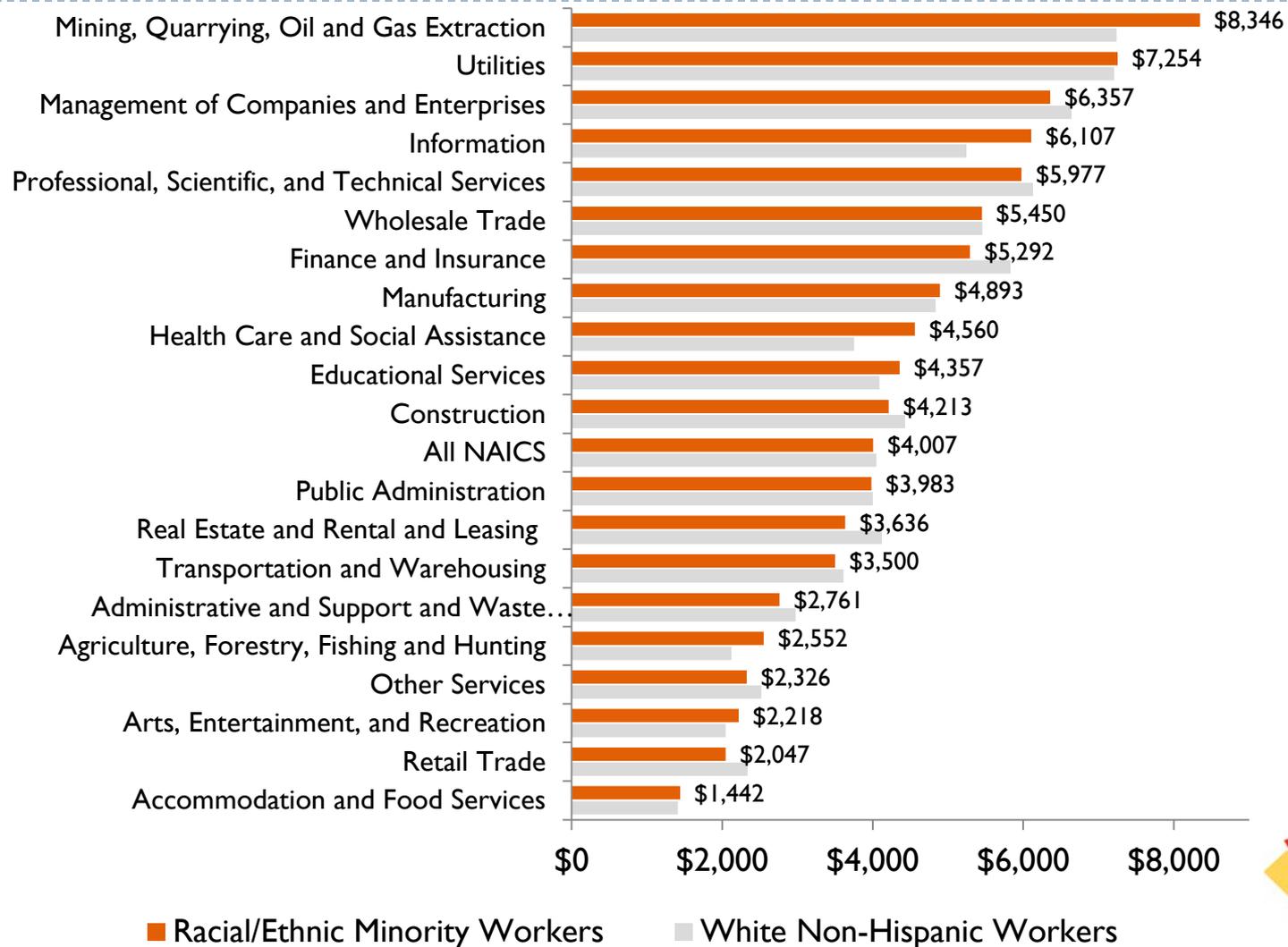
DATA SOURCE: U.S. Census Bureau, Longitudinal Employer-Household Dynamics data

Percentage of Jobs Held by Minority Workers by Industry in the Pittsburgh Labor Market in 2013

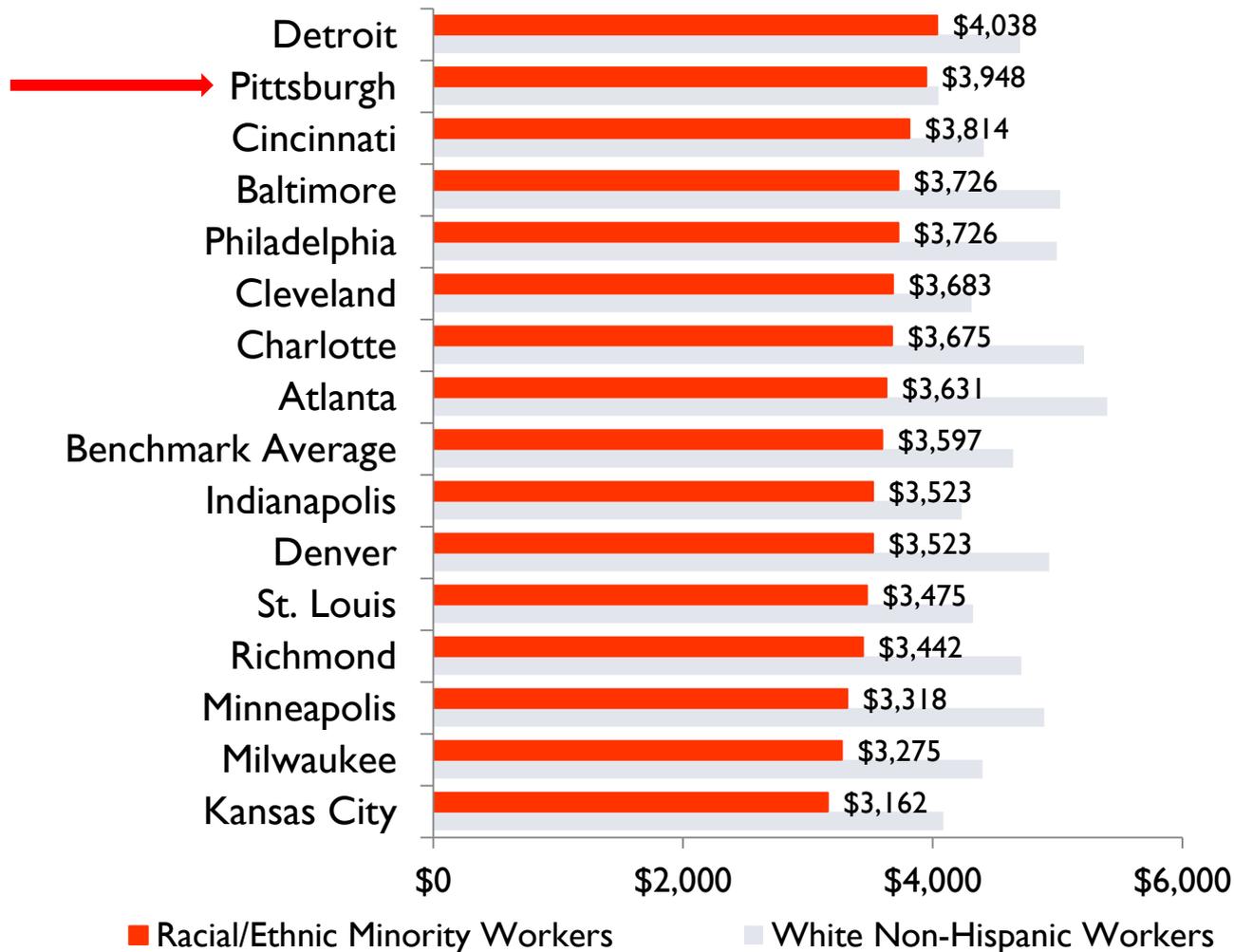


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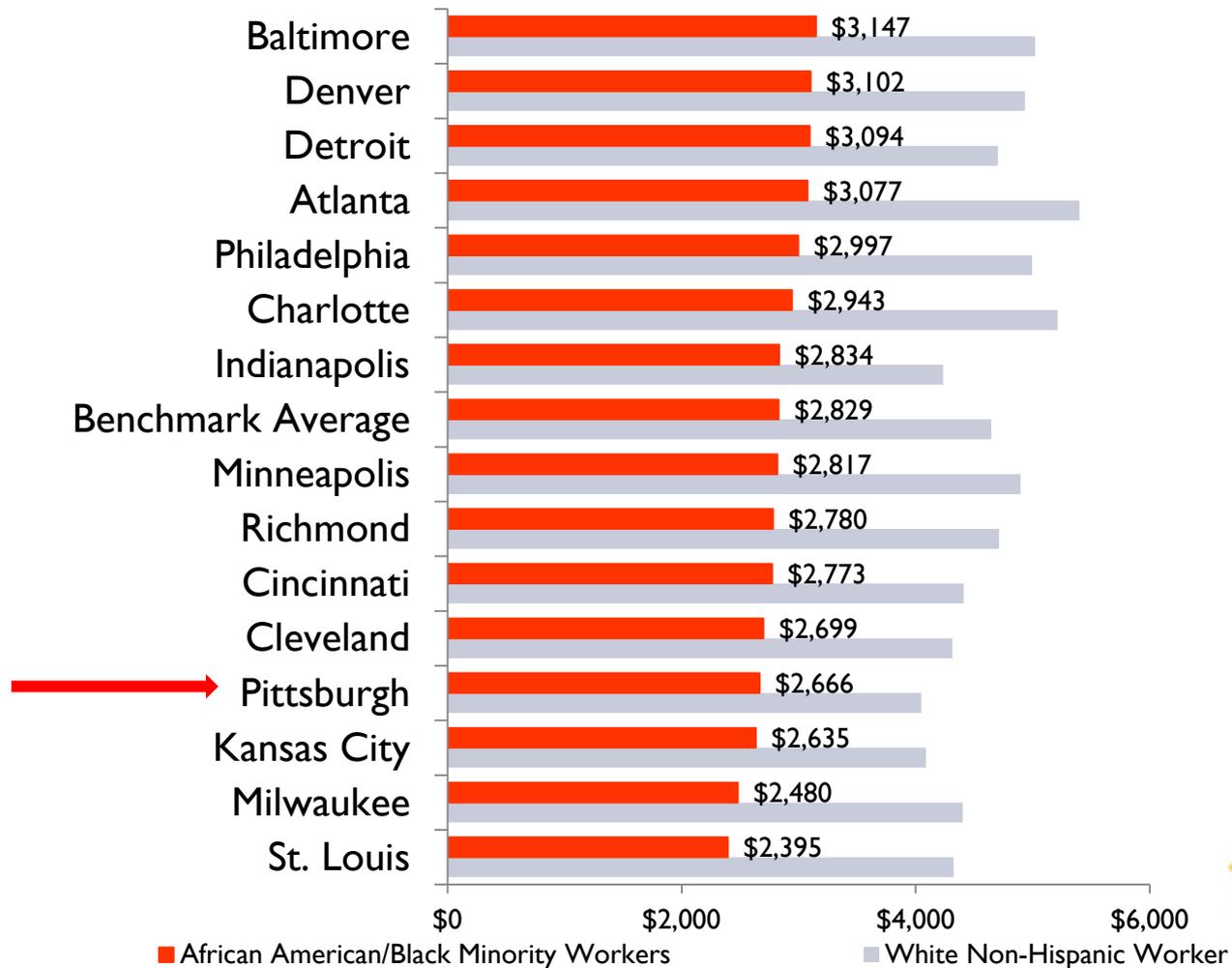
Average Monthly Wages for Racial/Ethnic Minority Workers by Industry in the Pittsburgh Labor Market for 2013



Average Monthly Wages for Racial/Ethnic Minority Workers by Peer Region in 2013

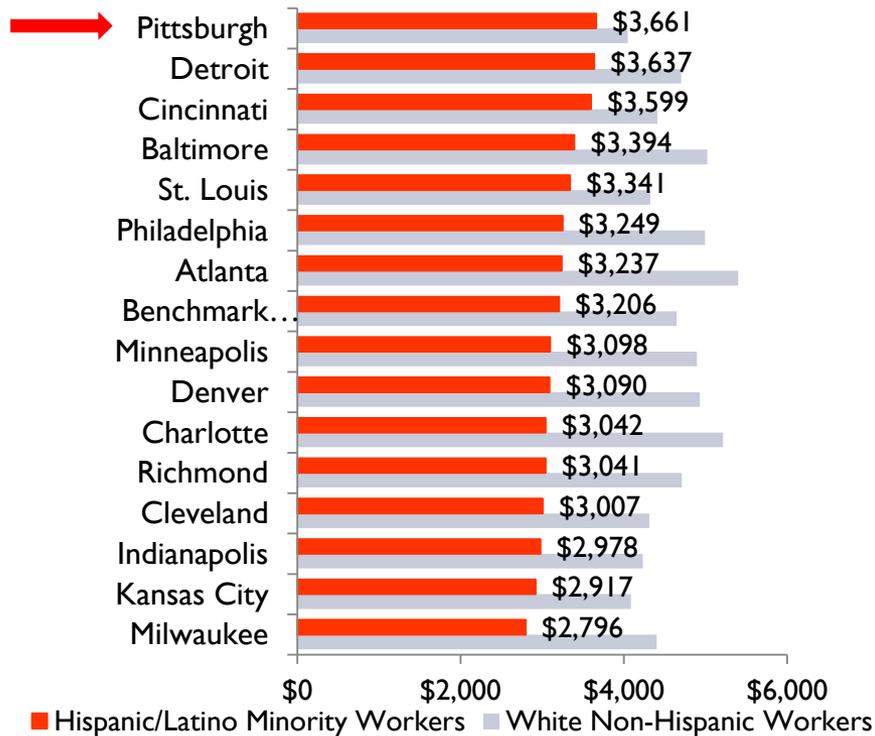


Average Monthly Wages of African American/Black Minority Workers by Peer Region in 2013

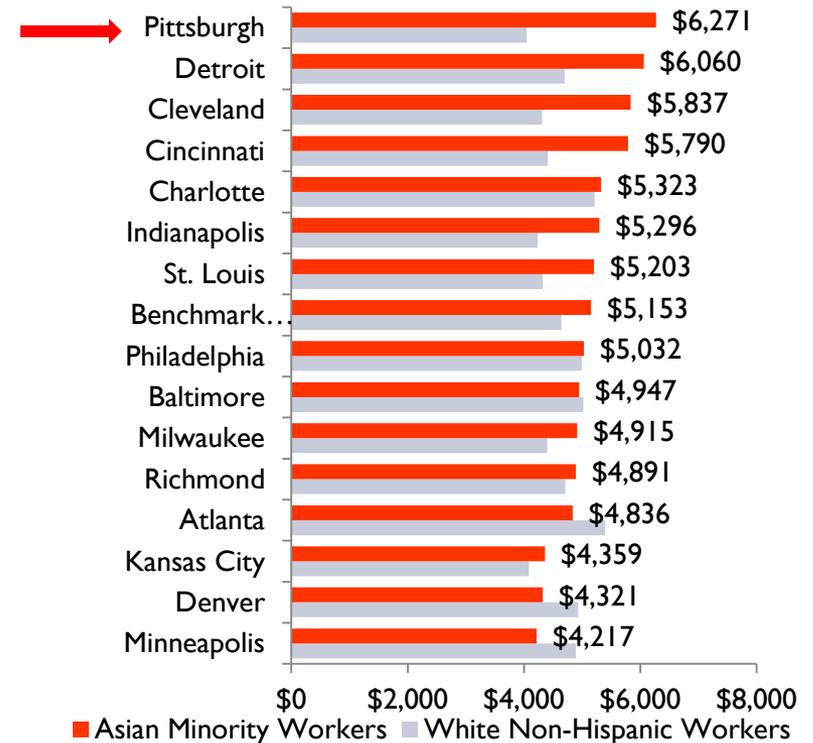


Average Monthly Wages for Racial/Ethnic Minority Workers by Peer Region in 2013

Average Monthly Wages of Hispanic/Latino Minority Workers by Peer Region in 2013



Average Monthly Wages for Asian Minority Workers by Peer Region in 2013



How the data was gathered

Using publicly available LEHD data from
<http://lehd.ces.census.gov>



Click on “LED Extraction Tool”

United States
Census
Bureau

Topics
Population, Economy

Geography
Maps, Geographic Data

Library
Infographics, Publications

You are here: [Census.gov](#) > [Business & Industry](#) > [Center for Economic Studies](#) > [Longitudinal Employer-Household Dynamics](#)

Longitudinal Employer-Household Dynamics

Main Applications Data Learn More Research State Partners Partner with Us

Applications

- QWI Explorer
- OnTheMap
- OnTheMap for Emergency Management
- LED Extraction Tool**

Useful Links

- Center for Economic Studies
- QWI Data
- LODES Data
- LED Workshop

Contact Information

Email us:
CES_Local_Employment_Dynamics@census.gov

or

Call us at (301) 763-8303

[Further contact information](#)

[Join an LEHD mailing list](#)

The initial release of National Quarterly Workforce Indicators is now available. This first national, rather than state-level, release of the QWI provides a consistent reference point for users of the QWI. Also provided are rates and new variability measures that preview future enhancements to the state-level QWI.

[View National QWI Data Page](#)

< 1 2 3 4 5 6 7 8 >

What's New?

- 06/11/15: [State-Level Job-to-Job Flows Released](#)
- 05/20/15: [1.1 Version of QWI Explorer Released](#)
- 03/04/15: [Call for Workshop Presentations and Posters](#)
- 02/27/15: [Registration Now Open](#)

[View all announcements](#)

Age=35-44 Sex=Male

End-Quarter Hiring Rate

1994Q1 1995Q4 1997Q3 1999Q2 2001Q1 2002Q4 2004Q3 2006Q2 2008Q1 2009Q4 2011Q3 2013Q2

Recession Manufacturing Wholesale Trade



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Step 1 – Geography

The following metropolitan statistical areas (MSAs) were used:

- Pittsburgh, PA
- Atlanta, GA
- Baltimore, MD
- Charlotte, NC
- Cincinnati, OH
- Cleveland, OH
- Denver, CO
- Detroit, MI
- Indianapolis, IN
- Kansas City, KS
- Milwaukee, WI
- Minneapolis, MN
- Philadelphia, PA
- Richmond, VA
- St. Louis, MO

Steps:

1. Select a state – Pennsylvania
2. Select Micro/Metropolitan Areas
3. Check Pittsburgh, PA



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Step 2 – Firm Characteristics

LED Extraction Tool - Quarterly Workforce Indicators (QWI)

1. Geography | **2. Firm Characteristics** | 3. Worker Characteristics | 4. Indicators | 5. Quarters | 6. Summary and Export

Industry Detail Level

- NAICS Sectors
- NAICS 3-digit Subsectors
- NAICS 4-digit Industries

Firm Ownership

- All
- All Private

Firm Age

- All Firm Ages
- 0-1 Years
- 2-3 Years
- 4-5 Years
- 6-10 Years
- 11+ Years

Firm Size

- All Firm Sizes
- 0-19 Employees
- 20-49 Employees
- 50-249 Employees
- 250-499 Employees
- 500+ Employees

Industries

Search:

[Check All](#) | [Check None](#) | [Invert Selection](#)

- 00 All NAICS Sectors
- 11 Agriculture, Forestry, Fishing and Hunting
- 21 Mining, Quarrying, and Oil and Gas Extraction
- 22 Utilities
- 23 Construction
- 31-33 Manufacturing
- 42 Wholesale Trade
- 44-45 Retail Trade
- 48-49 Transportation and Warehousing
- 51 Information
- 52 Finance and Insurance
- 53 Real Estate and Rental and Leasing
- 54 Professional, Scientific, and Technical Services
- 55 Management of Companies and Enterprises

Keep the default selections for:

- Industry Detail Level
- Firm Ownership

Click “Check All” under Industries

Step 3 – Worker Characteristics

LED Extraction Tool - Quarterly Workforce Indicators (QWI)

1. Geography 2. Firm Characteristics **3. Worker Characteristics** 4. Indicators 5. Quarters 6. Summary and Export

Select Worker Characteristics by **Race and Ethnicity** ▼

Race and Ethnicity

Race	Ethnicity
<input checked="" type="checkbox"/> All Races	<input checked="" type="checkbox"/> All Ethnicities
<input checked="" type="checkbox"/> White Alone	<input checked="" type="checkbox"/> Not Hispanic or Latino
<input checked="" type="checkbox"/> Black or African American Alone	<input checked="" type="checkbox"/> Hispanic or Latino
<input checked="" type="checkbox"/> American Indian or Alaska Native Alone	
<input checked="" type="checkbox"/> Asian Alone	
<input checked="" type="checkbox"/> Native Hawaiian or Other Pacific Islander Alone	
<input checked="" type="checkbox"/> Two or More Race Groups	

- In the drop down menu for “Select Worker Characteristics by” - select “Race and Ethnicity”
- Check all boxes under “Race”
 - Check all boxes under “Ethnicity”

Step 4 – Indicators (1 of 3)

LED Extraction Tool - Quarterly Workforce Indicators (QWI) ↑ LEHD H

1. Geography | 2. Firm Characteristics | 3. Worker Characteristics | 4. Indicators | 5. Quarters | 6. Summary and Export

Select one or more **Quarterly Workforce Indicators** by clicking the checkboxes below. The set of currently selected indicators can be seen in the column to the right. To open or collapse one of the categories, simply click the text of the category heading. Standard and Technical Descriptions for each indicator can be displayed by clicking the checkboxes at the bottom of the page. For more information see the [QWI 101](#) [PDF, 203k] document.

Indicator	Description
<input checked="" type="checkbox"/> Emp Beginning of Quarter Employment: Counts	Estimate of the total number of jobs on the first day of the reference quarter. Beginning-of-quarter employment counts are similar to point-in-time employment measures, such as the QCEW (see: www.bls.gov/c ew/).
<input type="checkbox"/> EmpEnd End of Quarter Employment: Counts	Estimate of the number of jobs on the last day of the quarter.
<input type="checkbox"/> EmpS Full-Quarter Employment (Stable): Counts	Estimate of stable jobs, i.e., the number of jobs that are held on both the first and last day of the quarter with the same employer. This is often, but not necessarily, the same as being employed for a full quarter (e.g., an on-call substitute teacher may have earnings in each of three consecutive quarters, but intermittently).
<input type="checkbox"/> EmpSpv Full-Quarter Employment in the Previous Quarter: Counts	Estimate of stable jobs in the quarter before the reference quarter. This measure is provided for certain special-purpose analyses.
<input type="checkbox"/> EmpTotal Employment - Reference Quarter: Counts	This is a count of people employed in a firm at any time during the quarter. It is not a count of jobs. This measure may also be referred to as "flow" employment.
Employment Change, Individual	
Employment Change, Firm	
Earnings	

Step 4 – Indicators (2 of 3)

LED Extraction Tool - Quarterly Workforce Indicators (QWI) LEH

1. Geography | 2. Firm Characteristics | 3. Worker Characteristics | 4. Indicators | 5. Quarters | 6. Summary and Export

Select one or more **Quarterly Workforce Indicators** by clicking the checkboxes below. The set of currently selected indicators can be seen in the column to the right. To open or collapse one of the four indicator categories, simply click the text of the category heading. Standard and Technical can be displayed by clicking the checkboxes at the bottom of the page. For more information about the indicators, please see the [QWI 101 \[PDF, 203k\]](#) document.

Employment

Employment Change, Individual

<input type="checkbox"/> HirA Hires All: Counts (Accessions)	Estimated number of workers who started a new job in the specified quarter. It is the sum of "Hires New" and "Hires Recalls."
<input checked="" type="checkbox"/> HirN Hires New: Counts	Estimated number of workers who started a new job. More specifically, total hires that, while they worked for an employer in the specified quarter, were not employed by that employer in any of the previous four quarters.
<input type="checkbox"/> HirR Hires Recalls: Counts	Estimated number of workers who returned to the same employer where they had worked within the previous year (i.e., total hires that are not new hires).
<input checked="" type="checkbox"/> Sep Separations: Counts	Estimated number of workers whose job with a given employer ended in the specified quarter.
<input type="checkbox"/> HirAEnd End-of-Quarter Hires	Estimated number of workers who started a new job in the specified quarter, which continued into next quarter.
<input type="checkbox"/> HirAEndR End-of-Quarter Hiring Rate	Hires as a percent of average employment.
<input type="checkbox"/> SepBeg Beginning-of-Quarter Separations	Estimated number of workers whose job in the previous quarter continued and ended in the given quarter.
<input type="checkbox"/> SepBegR Beginning-of-Quarter Separation Rate	Separations as a percent of average employment.
<input type="checkbox"/> HirAS Hires All (Stable): Counts (Flow into Full-Quarter Employment)	Estimated number of workers that started a job that lasted at least one full quarter with a given employer. Jobs are counted as a stable hire in the first quarter of full quarter employment, rather than the first quarter of employment.
<input type="checkbox"/> HirNS Hires New (Stable): Counts (New Hires to Full-Quarter Status)	Estimated number of workers who started a job that they had not held within the past year and the job turned into a job that lasted at least a full quarter with a given employer. Jobs are counted as a stable hire in the first quarter of full quarter employment, rather than the first quarter of employment.
<input type="checkbox"/> SepS Separations (Stable): Counts (Flow out of Full-Quarter Employment)	Estimated number of workers who had a job for at least a full quarter and then the job ended. Jobs are counted as a stable separation in the last quarter of employment.
<input type="checkbox"/> SepSnx Separations (Stable), Next Quarter: Counts (Flow out of Full-Quarter Employment)	Estimated number of workers in the next quarter who had a job for at least a Full-quarter and then the job ended. Jobs which are stable separations in the next quarter will be Full-quarter employed in the reference quarter.
<input checked="" type="checkbox"/> TurnOvrS Turnover (Stable)	The rate at which stable jobs begin and end. It is calculated by summing the number of stable hires in the reference quarter and stable separations in the next quarter, and dividing by the average full-quarter employment.

Step 4 – Indicators (3 of 3)

LED Extraction Tool - Quarterly Workforce Indicators (QWI)

1. Geography | 2. Firm Characteristics | 3. Worker Characteristics | 4. Indicators | 5. Quarters | 6. Summary and Export

Select one or more **Quarterly Workforce Indicators** by clicking the checkboxes below. The set of currently selected indicators can be seen in the column to the right. To open or collapse one of the four indicator categories, simply click the text of the category. A category can be displayed by clicking the checkboxes at the bottom of the page. For more information about the indicators, please see the [QWI 101 \[P\]. 203k](#) document.

- Employment**
- Employment Change, Individual**
- Employment Change, Firm**
- Earnings**

<input checked="" type="checkbox"/> EarnS Full Quarter Employment (Stable): Average Monthly Earnings	Average monthly earnings of employees with stable jobs (i.e., worked with the same firm throughout the quarter).
<input type="checkbox"/> EarnBeg Beginning-of-Quarter Employment: Average Monthly Earnings	Average monthly earnings of employees who worked on the first day of the reference quarter.
<input type="checkbox"/> EarnHirAS Hires All (Stable): Average Monthly Earnings	Average monthly earnings for workers who started a job that turned into a job lasting a full quarter. That is, average monthly earnings of full-quarter employees who started working with a firm in the previous quarter.
<input checked="" type="checkbox"/> EarnHirNS Hires New (Stable): Average Monthly Earnings	Average monthly earnings of newly stable employees (i.e., full-quarter employees who were new hires with a firm in the previous quarter).
<input type="checkbox"/> EarnSepS Separations (Stable): Average Monthly Earnings	Average monthly earnings of separations from full-quarter status at an establishment.
<input type="checkbox"/> Payroll Total Quarterly Payroll: Sum	Total quarterly payroll for all jobs.

Step 5 - Quarters

LED Extraction Tool - Quarterly Workforce Indicators (QWI)

1. Geography 2. Firm Characteristics 3. Worker Characteristics 4. Indicators 5. Quarters 6. Summary and Export

Select the desired quarters of data by clicking the checkboxes below. Click the green check icons to select an entire year or entire set of quarters. The availability of historical quarters is determined by t are not available in the most recent quarter.

For this report the latest 2013 value was represented by 1QTR 2013 + 3 previous QTR avg.

	Q1	Q2	Q3	Q4
2014	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2013	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2012	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2011	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2010	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2009	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2008	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2007	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2006	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2005	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2004	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2003	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2002	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2001	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2000	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1999	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1998	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1997	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Step 6 – Summary and Export

LED Extraction Tool - Quarterly Workforce Indicators (QWI)

1. Geography | 2. Firm Characteristics | 3. Worker Characteristics | 4. Indicators | 5. Quarters | 6. Summary and Export

Estimated Results Size

Number of Rows: 2,000
Size of CSV: Less than a Megabyte.
Size of ZIP: Less than a Megabyte.
Run Time: Less than a Minute.

Submit Request X Cancel Request

Include Labels
Including labels will dramatically increase processing time and file size.

Email results: _____

Request Progress

Click "Submit Request" to send your request to the server.

Submission → Waiting → Processing → Finished

* Be sure to check “Include Labels”

- Steps 1-6 were repeated for each MSA and specified year
 - 15 MSAs in total
 - 1998, 2002, 2007, 2010, 2012, & 2013
- The combined results created a workbook with over 127,000 lines of data

Cleaning up the data

	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	geography_label.v	industry_label.v	race_label.v	ethnicity_label.v	year	quart	Emp	HirA	Sep	TurnOv	EarnS	EarnHirNS	
2	Pittsburgh, PA	All NAICS Sec	All Races	All Ethnicities	2012	4	1121327	183035	188788	0.007	4048	2512	
3	Pittsburgh, PA	All NAICS Sec	All Races	Not Hispanic or Latino	2012	4	1102470	178734	183534	0.086	4045	2508	
4	Pittsburgh, PA	All NAICS Sec	All Races	Hispanic or Latino	2012	4	18857	5121	5254	0.13	3730	2655	
5	Pittsburgh, PA	All NAICS Sec	White Alone	All Ethnicities	2012	4	1009346	155800	161295	0.083	4109	2547	
6	Pittsburgh, PA	All NAICS Sec	White Alone	Not Hispanic or Latino	2012	4	995933	152100	157440	0.083	4113	2544	
7	Pittsburgh, PA	All NAICS Sec	White Alone	Hispanic or Latino	2012	4	13413	3700	3855	0.132	3828	2675	
8	Pittsburgh, PA	All NAICS Sec	Black or African Ar	All Ethnicities	2012	4	81297	22241	21644	0.123	2700	1815	
9	Pittsburgh, PA	All NAICS Sec	Black or African Ar	Not Hispanic or Latino	2012	4	80117	21823	21264	0.123	2699	1808	
10	Pittsburgh, PA	All NAICS Sec	Black or African Ar	Hispanic or Latino	2012	4	1179	417	380	0.154	2784	2165	
11	Pittsburgh, PA	All NAICS Sec	American Indian or	All Ethnicities	2012	4	2523	665	673	0.131	3432	2759	
12	Pittsburgh, PA	All NAICS Sec	American Indian or	Not Hispanic or Latino	2012	4	1215	351	344	0.147	3271	2854	
13	Pittsburgh, PA	All NAICS Sec	American Indian or	Hispanic or Latino	2012	4	1308	314	329	0.116	3578	2634	
14	Pittsburgh, PA	All NAICS Sec	Asian Alone	All Ethnicities	2012	4	18268	2560	2656	0.096	6288	4887	
15	Pittsburgh, PA	All NAICS Sec	Asian Alone	Not Hispanic or Latino	2012	4	18040	2499	2604	0.096	6311	4921	
16	Pittsburgh, PA	All NAICS Sec	Asian Alone	Hispanic or Latino	2012	4	229	61	52	0.128	4340	2919	
17	Pittsburgh, PA	All NAICS Sec	Native Hawaiian or	All Ethnicities	2012	4	715	160	170	0.108	3945	3064	
18	Pittsburgh, PA	All NAICS Sec	Native Hawaiian or	Not Hispanic or Latino	2012	4	632	138	147	0.106	3979	3073	
19	Pittsburgh, PA	All NAICS Sec	Native Hawaiian or	Hispanic or Latino	2012	4	83	22	22	0.123	3682	2994	
20	Pittsburgh, PA	All NAICS Sec	Two or More Race	All Ethnicities	2012	4	9178	2429	2350	0.13	3229	2063	
21	Pittsburgh, PA	All NAICS Sec	Two or More Race	Not Hispanic or Latino	2012	4	6534	1823	1735	0.135	3041	1813	
22	Pittsburgh, PA	All NAICS Sec	Two or More Race	Hispanic or Latino	2012	4	2644	606	615	0.119	3685	2810	
23	Pittsburgh, PA	Agriculture, Fc	All Races	All Ethnicities	2012	4	975	187	426	0.105	2331	1224	

Columns retained: Geography, Industry, Race, Ethnicity, Year, Quarter, Employment, New Hires, Separations, Turnovers, Average Monthly Earnings, New Hire Average Monthly Earnings,



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Cleaning up the data

▶ Adding a new variable – “Calculated Year”

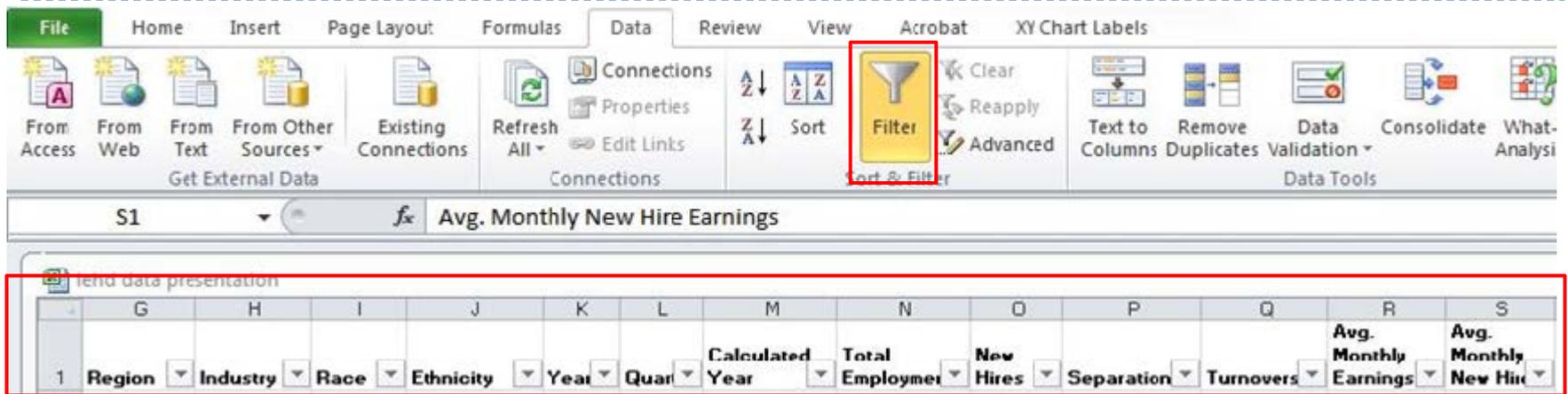
- ▶ Combines the quarters into the correct year (ex: QTR 2 2012 + QTR 3 2012 + QTR 4 2012 + QTR 1 2013 = 2013)
- ▶ Useful when creating pivot tables

M1		fx		Calculated Year									
	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	geography_label.v	industry_label.v	race_label.v	ethnicity_label.v	year	quarter	Calculated Year	Emp	HirA	Sep	TurnOv	EarnS	EarnHirNS
2	Pittsburgh, PA	All NAICS Sec	All Races	All Ethnicities	2012	4	2013	1121327	183855	188788	0.087	4040	2512
3	Pittsburgh, PA	All NAICS Sec	All Races	Not Hispanic or Latin	2012	4	2013	1102470	178734	183534	0.086	4045	2508
4	Pittsburgh, PA	All NAICS Sec	All Races	Hispanic or Latino	2012	4	2013	18857	5121	5254	0.13	3730	2655
5	Pittsburgh, PA	All NAICS Sec	White Alone	All Ethnicities	2012	4	2013	1009346	155800	161295	0.083	4109	2547
6	Pittsburgh, PA	All NAICS Sec	White Alone	Not Hispanic or Latin	2012	4	2013	995933	152100	157440	0.083	4113	2544
7	Pittsburgh, PA	All NAICS Sec	White Alone	Hispanic or Latino	2012	4	2013	13413	3700	3855	0.132	3828	2675
8	Pittsburgh, PA	All NAICS Sec	Black or African Ar	All Ethnicities	2012	4	2013	81297	22241	21644	0.123	2700	1815
9	Pittsburgh, PA	All NAICS Sec	Black or African Ar	Not Hispanic or Latin	2012	4	2013	80117	21823	21264	0.123	2699	1808
10	Pittsburgh, PA	All NAICS Sec	Black or African Ar	Hispanic or Latino	2012	4	2013	1179	417	380	0.154	2784	2165
11	Pittsburgh, PA	All NAICS Sec	American Indian or	All Ethnicities	2012	4	2013	2523	665	673	0.131	3432	2759
12	Pittsburgh, PA	All NAICS Sec	American Indian or	Not Hispanic or Latin	2012	4	2013	1215	351	344	0.147	3271	2854
13	Pittsburgh, PA	All NAICS Sec	American Indian or	Hispanic or Latino	2012	4	2013	1308	314	329	0.116	3578	2634
14	Pittsburgh, PA	All NAICS Sec	Asian Alone	All Ethnicities	2012	4	2013	18268	2560	2656	0.096	6288	4887
15	Pittsburgh, PA	All NAICS Sec	Asian Alone	Not Hispanic or Latin	2012	4	2013	18040	2499	2604	0.096	6311	4921
16	Pittsburgh, PA	All NAICS Sec	Asian Alone	Hispanic or Latino	2012	4	2013	229	61	52	0.128	4340	2919
17	Pittsburgh, PA	All NAICS Sec	Native Hawaiian or	All Ethnicities	2012	4	2013	715	160	170	0.108	3945	3064
18	Pittsburgh, PA	All NAICS Sec	Native Hawaiian or	Not Hispanic or Latin	2012	4	2013	632	138	147	0.106	3979	3073
19	Pittsburgh, PA	All NAICS Sec	Native Hawaiian or	Hispanic or Latino	2012	4	2013	83	22	22	0.123	3682	2994



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Cleaning up the data



Old Label	New Label
geography_label	Region
industry_label	Industry
race_label	Race
ethnicity_label	Ethnicity
Emp	Total Employment
HirA	New Hires
Sep	Separations
TurnOvrS	Turnovers
EarnS	Avg. Monthly Earnings
EarnHirNS	Avg. Monthly New Hire Earnings

- ▶ Renaming labels
- ▶ Adding filters
 - ▶ Data Tab
 - ▶ Highlight top row
 - ▶ Filter Button



Creating Pivot Charts

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotTable' button is highlighted with a red box. A dialog box titled 'Create PivotTable with PivotChart' is open, showing the following options:

- Choose the data that you want to analyze:
 - Select a table or range
 - Table/Range: lehd data presentation!\$A\$1:\$M\$1765
 - Use an external data source
 - Choose Connection...
 - Connection name:
- Choose where you want the PivotTable and PivotChart to be placed:
 - New Worksheet
 - Existing Worksheet
 - Location:

Red arrows point to the 'PivotTable' button, the 'Table/Range' field, and the 'New Worksheet' radio button.

- ▶ Click on Insert tab
- ▶ Click on PivotTable – Select Pivot Chart

Creating Pivot Charts

The screenshot shows the Microsoft Excel interface with a PivotTable and a PivotChart. The PivotTable is titled "All, Race, Ethnicity - Microsoft Excel" and is located in the range A1:G7. The PivotTable has "Average of Total Employment" as the Row Labels and "Column Labels" as the Column Labels. The PivotTable data is as follows:

Column Labels	American Indian or Alaska Native Alone - Not Hispanic or Latino - Pittsburgh	Asian Alone - Not Hispanic or Latino - Pittsburgh	Black or African American Alone - Not Hispanic or Latino - Pittsburgh	Native Hawaiian or Other Pacific Islander Alone - Not Hispanic or Latino - Pittsburgh	Two or More Race Groups - Not Hispanic or Latino - Pittsburgh
Row Labels					
2013	1,175	17,806	79,058	584	6,612

The PivotChart is titled "Total Employment (3QTR + 3 previous QTRS avg.)" and is a clustered bar chart showing the total employment for each race/ethnicity group in 2013. The Y-axis is labeled "Total Employment" and ranges from 0 to 90,000. The X-axis is labeled "2013". The chart data is as follows:

Race/Ethnicity	Total Employment
American Indian or Alaska Native Alone - Not Hispanic or Latino - Pittsburgh	1,175
Asian Alone - Not Hispanic or Latino - Pittsburgh	17,806
Black or African American Alone - Not Hispanic or Latino - Pittsburgh	79,058
Native Hawaiian or Other Pacific Islander Alone - Not Hispanic or Latino - Pittsburgh	584
Two or More Race Groups - Not Hispanic or Latino - Pittsburgh	6,612

The "Insert Slicers" dialog box is open, showing a list of fields to add to the report. The fields are:

- Region
- Industry
- Race
- Ethnicity
- Year
- Quarter
- Calculated Year
- Total Employment
- New Hires
- Separations
- Turnovers
- Job Creation
- Net Job Flows
- Avg. Monthly Earnings
- Avg. Monthly New Hires Earnings

The PivotTable Field List is also visible on the right, showing the following fields:

- Region
- Industry
- Race
- Ethnicity
- Year
- Quarter
- Calculated Year
- Total Employment
- New Hires
- Separations
- Turnovers
- Job Creation
- Net Job Flows
- Avg. Monthly Earnings
- Avg. Monthly New Hires Earnings

The "Raw Data" button is highlighted in the bottom right corner of the PivotTable area.



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Creating Graphs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Peer Region	Racial Minority	Black Alone Minority	Asian Minority	Other Minority (1)	Ethnic Minority	TOTAL Minority	White Non-Hispanic	TOTAL	Total Minority Workers	African American/Black Alone Minority	Asian Alone Minority	Hispanic Minority	Other Minority
2	Atlanta	818,312	695,909	99,599	22,804	143,397	961,709	1,288,400	2,250,109	43%	31%	4%	6%	1%
3	Baltimore	393,270	323,078	55,540	14,652	59,066	452,336	775,888	1,228,222	37%	26%	5%	5%	1%
4	Charlotte	207,671	172,441	35,230	15,200	62,171	254,842	535,131	789,435	32%	22%	3%	6%	1%
5	Cincinnati	112,071	81,171	30,900	10,200	40,671	132,842	532,979	764,259	17%	12%	2%	3%	1%
6	Cleveland	172,441	117,171	55,270	10,000	65,171	182,342	779,197	988,413	21%	15%	2%	4%	1%
7	Denver	128,501	81,171	47,330	10,000	57,330	138,501	927,321	1,261,351	26%	5%	3%	16%	2%
8	Detroit	373,951	273,171	100,780	20,000	120,780	393,951	1,344,721	1,778,824	24%	16%	3%	3%	1%
9	Indianapo	139,931	90,171	49,760	10,000	59,760	149,931	735,038	911,226	19%	12%	2%	4%	1%
10	Kansas Cit	80,371	51,171	29,200	10,000	39,200	90,371	412,622	519,261	21%	12%	2%	5%	2%
11	Milwaukee	121,631	81,171	40,460	10,000	50,460	131,631	635,227	809,505	22%	11%	3%	7%	1%
12	Minneapc	213,731	144,171	69,560	10,000	79,560	213,731	1,404,778	1,685,121	17%	6%	5%	4%	2%
13	Philadelph	405,131	279,171	125,960	20,000	145,960	405,131	1,282,290	1,785,068	28%	17%	5%	5%	1%
14	Pittsburgh	105,231	65,171	40,060	10,000	50,060	105,231	989,677	1,113,410	11%	7%	2%	2%	1%
15	Richmond	191,011	111,171	80,840	10,000	90,840	191,011	383,446	599,955	36%	27%	3%	4%	1%
16	St. Louis	193,261	123,171	70,090	10,000	80,090	193,261	810,533	1,029,439	21%	16%	2%	2%	1%
17	Benchmark	243,770	190,410	39,829	13,532	61,344	305,091	862,483	1,167,573	25%	16%	3%	5%	1%

Define new variables as:

Total Minority Workers = G2/I2

African American/Black Alone Minority = C2/I2

Asian Alone Minority = D2/I2

Hispanic Minority = F2/I2

Other Minority = E2/I2

New variables represent the percentage of jobs in all NAICS sectors held by racial and ethnic minority workers.

Creating Graphs

The screenshot shows the Microsoft Excel interface with the 'Insert' tab selected. The 'PivotTable' icon is highlighted with a red box. A red arrow points to the 'Page Layout' tab. Another red arrow points to the 'PivotTable' icon. A third red arrow points to the 'Table/Range' field in the 'Create PivotTable with PivotChart' dialog box. A fourth red arrow points to the 'New Worksheet' radio button. A fifth red arrow points to the 'OK' button.

Peer Region	Racial Minority	Black Alone	Asian Minority	Other Minority (1)	Ethnic Minority	TOTAL Minority	White Non-Hispanic	TOTAL	Total Minority Workers	African American/Black Alone Minority	Asian Alone Minority	Hispanic Minority	Other Minority
Atlanta	818,312	695,909	99,599	22,804	143,397	961,709	1,288,400	2,250,109	43%	31%	4%	6%	1%
Baltimore	393,270	323,078	55,540	14,652	59,066	452,336	775,888	1,228,222	37%	26%	5%	5%	1%
Charlotte	207,679	175,053	24,009	8,617	46,627	254,306	535,131	789,435	32%				
Cincinnati	112,078	89,700	15,050	7,328	19,203	131,281	632,979	764,259	17%				
Cleveland	172,445	143,787	19,810	8,848	36,772	209,217	779,197	988,413	21%				
Denver	128,502	63,104	43,295	22,103	205,529	334,031	927,321	1,261,351	26%				
Detroit	373,957	291,584	59,228	23,145	60,507	434,104	1,344,721	1,778,824	24%				
Indianapo	139,931	111,841	18,782	9,308	36,259	176,190	735,038	911,226	19%				
Kansas Cit	80,372	62,122	10,322	7,928	26,266	106,638	412,622	519,261	21%				
Milwaukee	121,634	90,276	21,496	9,862	52,645	174,279	635,227	809,505	22%				
Minneapc	213,734	103,543	84,263	25,928	66,610	280,344	1,404,778	1,685,121	17%				
Philadelph	405,131	303,146	85,813	16,172	97,648	502,779	1,282,290	1,785,068	28%				
Pittsburgh	105,235	79,058	17,806	8,371	18,498	123,733	989,677	1,113,410	11%				
Richmond	191,016	163,173	20,628	7,215	25,494	216,510	383,446	599,955	36%				
St. Louis	193,261	160,777	21,787	10,697	25,646	218,907	810,533	1,029,439	21%				
Benchmark	243,770	190,410	39,829	13,532	61,344	305,091	862,483	1,167,573	25%				

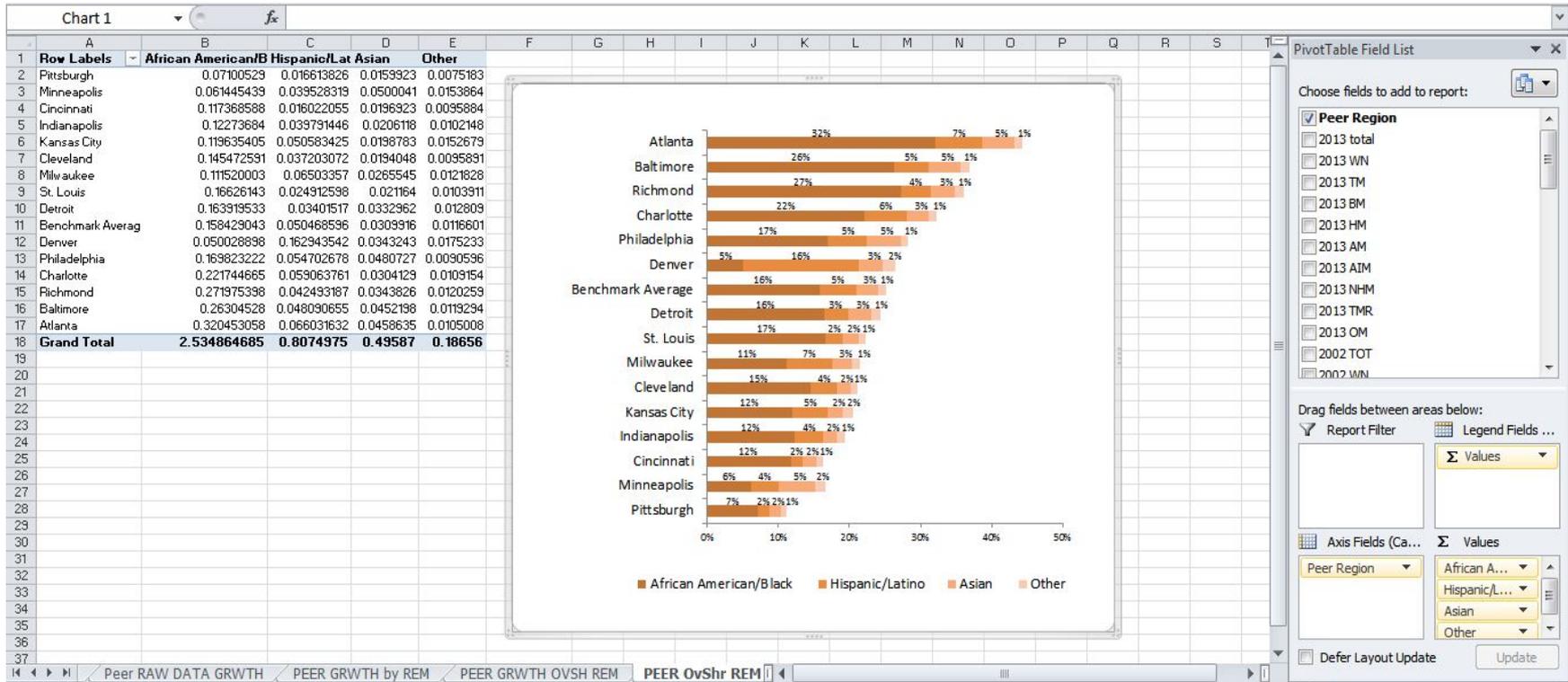
Create a pivot table

- Click on Insert tab
- Click on PivotTable – Select Pivot Chart



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Creating Graphs



Using the pivot chart feature to create a graph makes it easier to order the data and format as desired.

Why does this matter?

“Diversity and inclusion is an economic imperative for the Pittsburgh region as we cannot continue to grow regional employment into the future if the population maintains its current racial and ethnic composition”

