Spatial Shifts in Daytime Population

Due to COVID Impacts & Increasing Levels of Remote Work

July 2021

FOURTH ECONOMY

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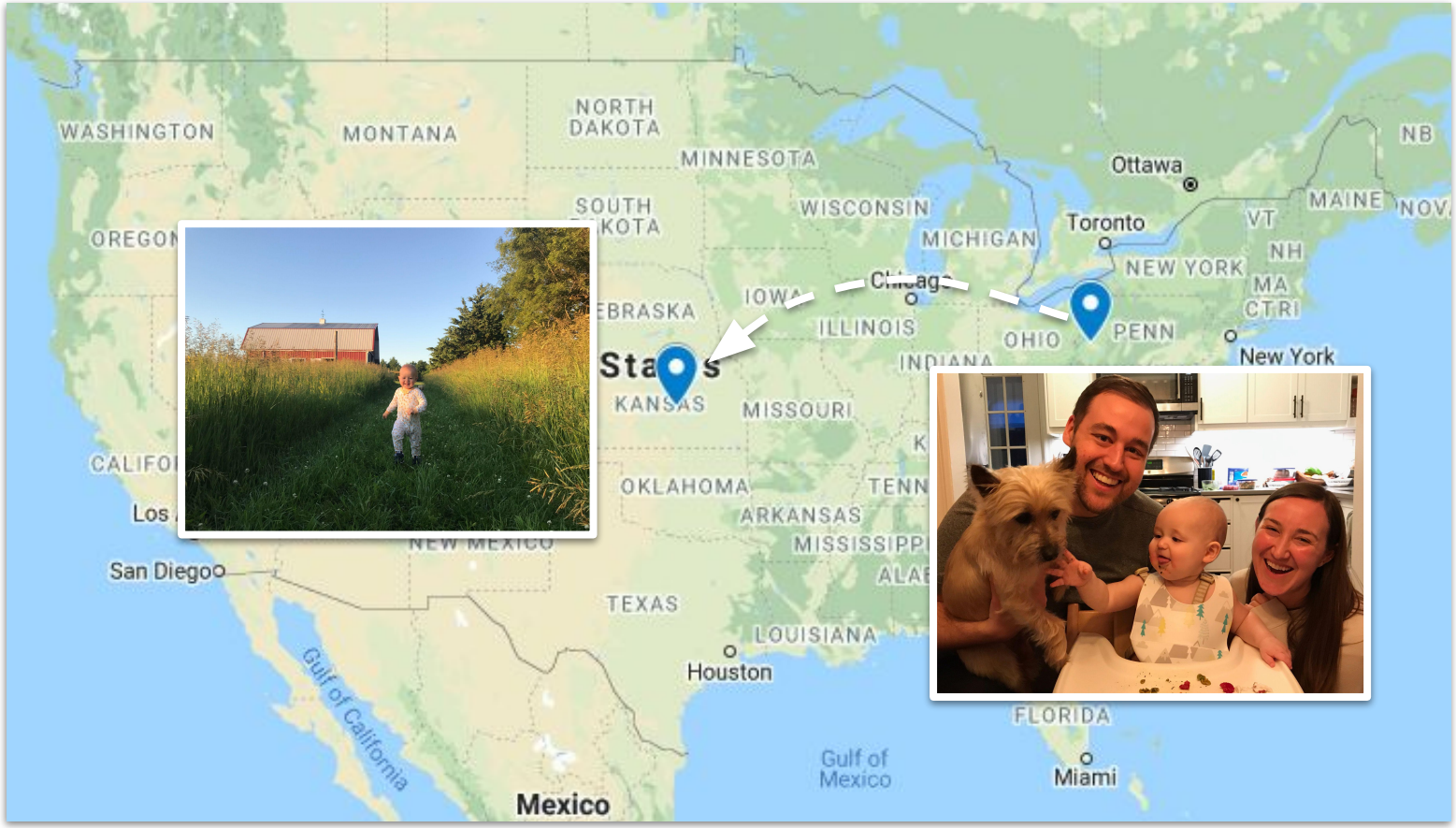
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Today's Presentation

Goal: **How LED data can be used to describe spatial shifts in daytime population**

1. **Headlines**

2. **Surveys & Data Sets**
   - Linked so that you can browse and utilize

3. **Fourth Economy's Work**
   - Project Examples
   - Detail around leveraging LED data to help tackle difficult questions

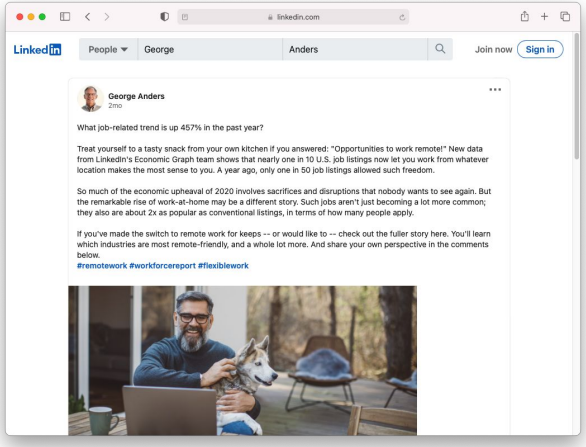
4. **Discussion**

Section 1

Headlines

What job-related trend is up 457% in the past year?

"As of May 20, 2021 the percentage of paid remote job postings on LinkedIn grew 457% from the year-earlier share. Overall, 9.7% of listings across all industries now involve remote work, up from barely 2% a year earlier."

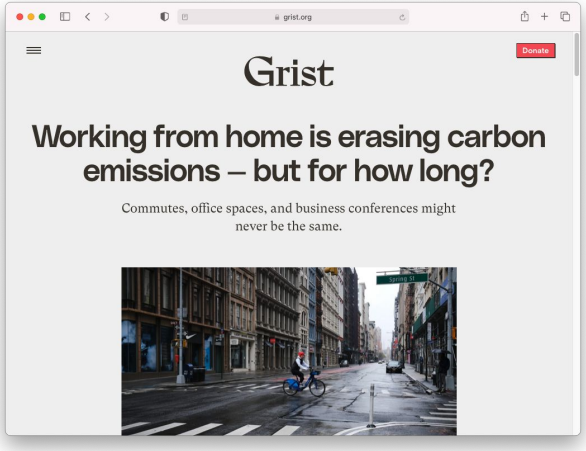


https://www.linkedin.com/posts/georgeanders_remotework-workforcereport-flexiblework-activity-6803434529043443712-FMx2/

Grist

Working from home is erasing carbon emissions — but for how long?

“During the height of the lockdowns in early April, daily emissions from surface transport — cars, buses, and such — were down by 36 percent worldwide.”

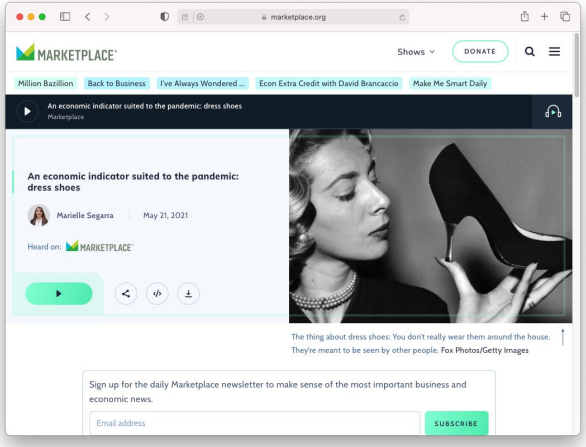


https://grist.org/climate/working-from-home-is-erasing-carbon-emissions-but-for-how-long/

MARKETPLACE®

An economic indicator suited to the pandemic: dress shoes

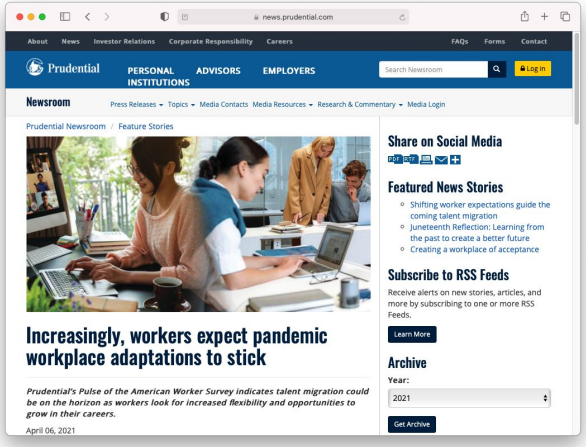
“The thing about dress shoes: You don’t really wear them around the house. They’re meant to be seen by other people.”



https://www.marketplace.org/2021/05/21/an-economic-indicator-suited-to-the-pandemic-dress-shoes/

Prudential

Increasingly, workers expect pandemic workplace adaptations to stick



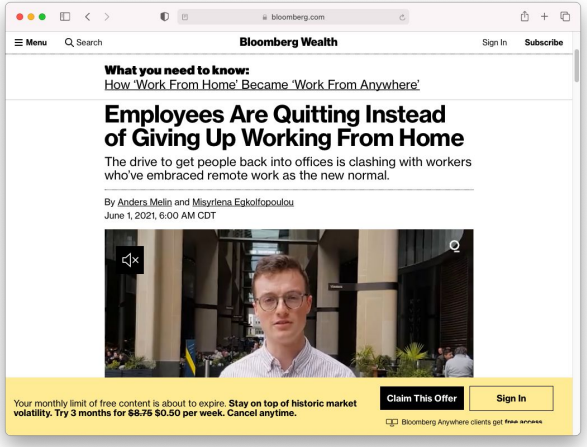
"87% of American workers who have been working remotely during the pandemic would prefer to continue working remotely at least one day a week, post-pandemic."

https://news.prudential.com/increasingly-workers-expect-pandemic-workplace-adaptations-to-stick.htm

Bloomberg

Employees Are Quitting Instead of Giving Up Working From Home

“The drive to get people back into offices is clashing with workers who’ve embraced remote work as the new normal.”

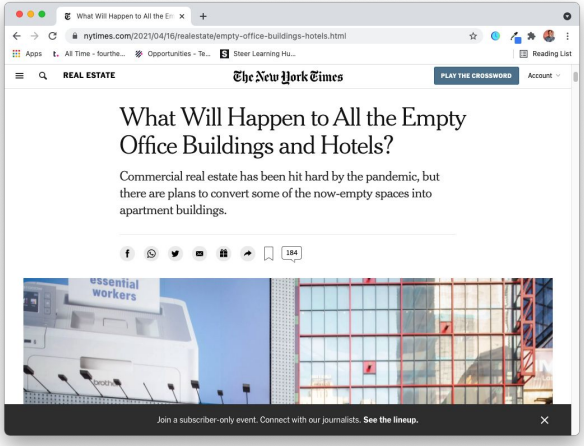


https://www.bloomberg.com/news/articles/2021-06-01/return-to-office-employees-are-quitting-instead-of-giving-up-work-from-home

The New York Times

What Will Happen to All the Empty Office Buildings and Hotels?

“Conversions seem to fall into three categories: offices to housing, hotels to housing, and hotels turning into offices, though not for long stays but short-term sessions.”



https://www.nytimes.com/2021/04/16/realestate/empty-office-buildings-hotels.html

Section 2

Surveys and Data Sets

Surveys

These surveys have invaluable information about how workers are impacted by remote work.

BLS Job Flexibilities and Time Use Survey, 2017-2018

Telework data based on industry, occupation, and worker characteristics. Link

BLS Supplemental data measuring the effects of the coronavirus (COVID-19) pandemic on the labor market

Beginning in May 2020, BLS added questions to the Current Population Survey around missed work, job seeking activities, and telework. Link

Prudential Pulse of the American Worker Survey

The Pulse of the American Worker Survey series explores workers' perceptions on the trends, policies and issues impacting the future of work. Link

Data Sources

These data sources have provided insight into who can work remotely as well as remote work trends.

O*Net Work Activity Data

Occupational information collected and available for O*NET-SOC occupations. Tracks things like interacting with others, physical activities, and computer usage. Link

Google COVID-19 Mobility Data

Tracking location data through mobile devices. Data shows how visits to places, such as grocery stores and parks, are changing over time. Link

Section 3

Fourth Economy's Work

Fourth Economy's Portfolio of Remote Work

1. National Remote Work Model -- early attempt at building a nationwide data set
2. Pittsburgh Foundation Community -- worker vulnerability
3. Livability.com -- attracting remote workers
4. **Lansing Michigan -- changes in commuting patterns/shifts in spending**
5. **Downtown Pittsburgh -- remote work and commercial real estate**

These last two use LED data

Data when well presented…

- Can provide backing to the lived experiences of residents
- Can allow voices to be heard
- Can align resources
- Can change opinions
- Can impact lives

Lansing, Michigan

Changes in commuting patterns/shifts in spending

Interesting Analysis Starts with a Good Question

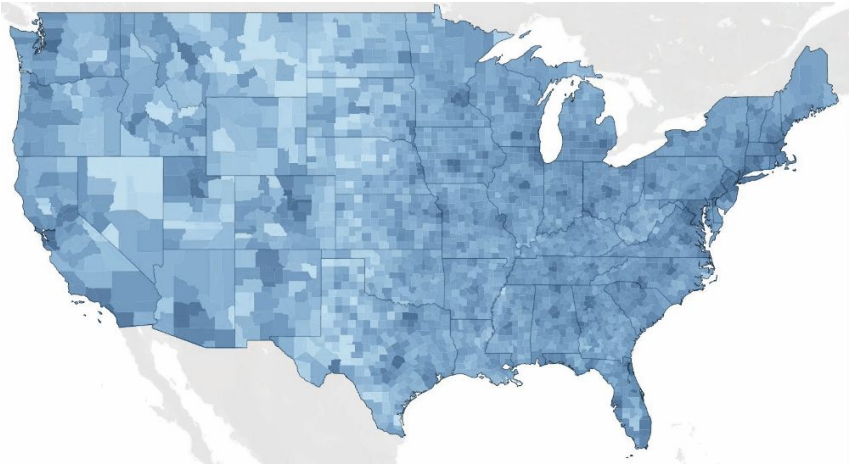
Image Source: Tri-County Regional Planning Commission

"How has the shift to remote work affected commuting in the Lansing, Michigan region?"

- Tri-County Regional Planning Commission

Ability to Work Remotely ~42M workers

Map: Workers who are able to work remotely



Low concentration of remote workers

High concentration of remote workers

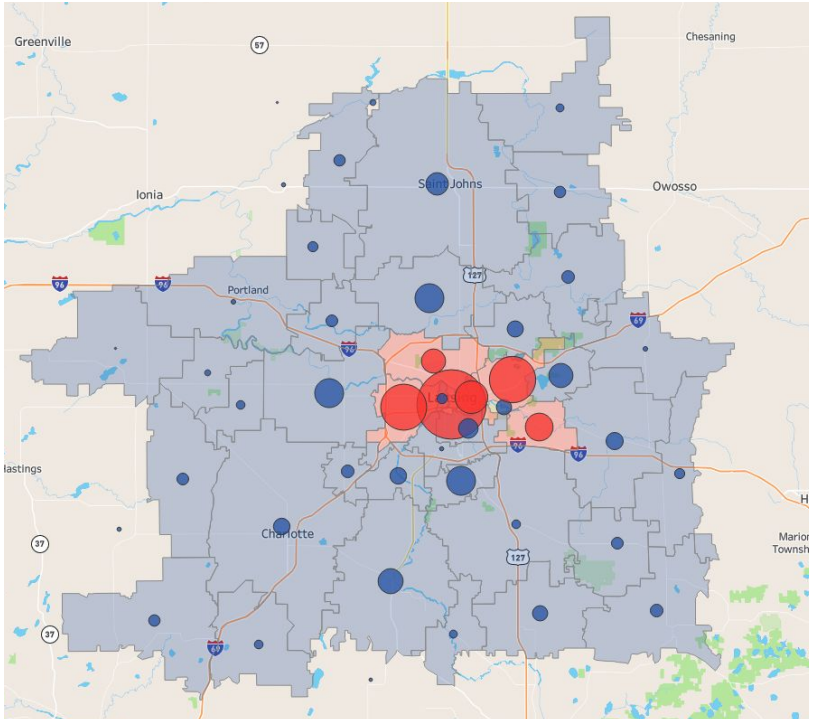
Industry is a key determinant of ability to work remotely.

Across the country, the concentration of workers who are able to work remotely generally ranges from ¼ to ⅓ of all workers.

Source: BLS Job Flexibilities and Work Schedule data, 2017-2018

Shifts in Commuting

Map: Change in Daytime Population



Loss in daytime population

Gain in daytime population

-20,500 workers, a loss of -14%

The six zip codes in the region that have a lower daytime population saw a decrease in daytime population of -20,500, a loss of -14%.

+14,700 workers, a gain of +21%

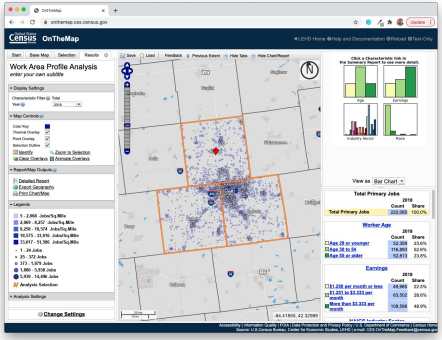
The suburban and rural areas of the region that gained daytime population gained +14,700 workers, +21% increase of pre-pandemic levels.

-5,800 in daytime population

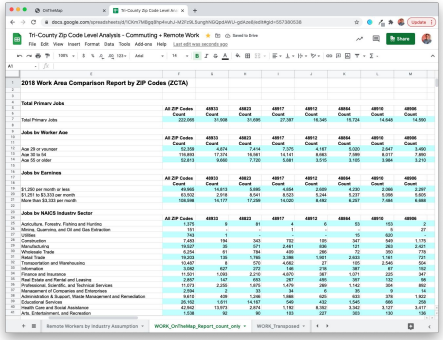
The three county planning region see an overall loss of -5,800 in daytime population.

Source: Based on modeling the Change in Daytime Population by Fourth Economy, includes BLS Job Flexibilities and Work Schedule data, 2017-2018 and Census Longitudinal Employer-Household Dynamics data, 2018

Tools Used



Census OnTheMap



Spreadsheet Software

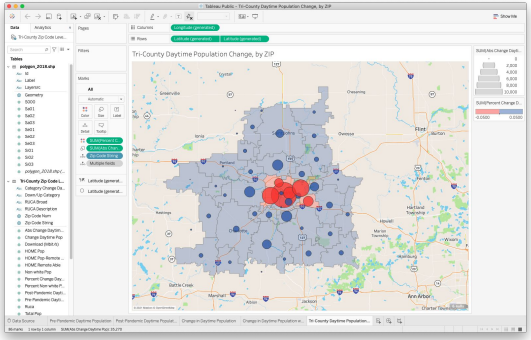


Tableau Public

Data Used

Census OnTheMap

- Home/Work Area: both Home and Work used
- Area Profile, Labor Market Segment: All Workers
- Year: 2018
- Job Type: Primary Jobs

Remote Work Ability by Industry

- BLS Job Flexibilities and Work Schedule data, 2017-2018

Basic Model

Change in Daytime Pop. = **Post-Pandemic Daytime Pop.** - **Pre-Pandemic Daytime Pop.**

Post-Pandemic Daytime Pop.

(accounting for shift to remote work for large segments of the workforce)

Pre-Pandemic Daytime Pop.

(with baseline of 4% remote workers, based on historical Census ACS data)

Post-Pandemic Daytime Population =
Work Location of Primary Workers
- Remote Workers by Industry
+ Home Location Remote Workers by Industry

Pre-Pandemic Daytime Population =
96% of Work Location of Primary Workers
+ 4% of Home Location Primary Workers

So What?

Geospatial distribution of workers has far reaching implications for commuting data, consumer spending behaviors at restaurants, retail, and services, and commercial real estate.

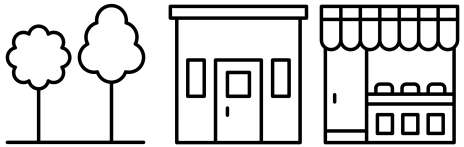
This “shifts in commuting” dataset is **more impactful when merged with other data.**

Over the next few slides, we’ll look at an example of the “So What” in the Lansing, Michigan region around estimates of Loss in Main Street Small Business Revenue

Source: Census Longitudinal Employer-Household Dynamics data with Quarterly Workforce Indicators used to estimate small business employment and number of small business, and Economic Census Data to estimate sales.

Commuting Impacts on Main St. Small Business

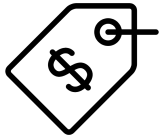
Small businesses within retail, accommodation and food, arts, entertainment, and rec., and other services industries in the 6 ZIP Codes losing commuters.



2,100

Main St. Small Businesses

The six zip codes in the region that have a lower daytime population from losing commuters have an estimated 2,100 main street small businesses.



$184 M

Monthly Sales

These main street small businesses generate an estimated $184 million in monthly sales.

14,300

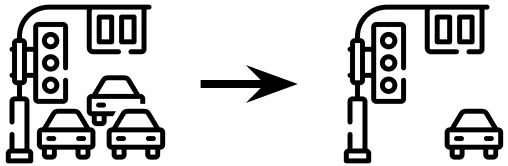
Workers

These main street small businesses employ an estimated 14,300 workers.

Source: Census Longitudinal Employer-Household Dynamics data with Quarterly Workforce Indicators used to estimate small business employment and number of small business, and Economic Census Data to estimate sales.

Commuting Impacts on Main St. Small Business

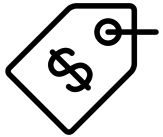
Small businesses within retail, accommodation and food, arts, entertainment, and rec., and other services industries in the 6 ZIP Codes losing commuters.



-14%

Change in Demand

If all workers who could work remotely work remotely, these six ZIP Codes would see a shift of commuters of -20,500, a loss of -14%.



-$25.8 M

Monthly Sales

With a -14% decrease in sales, these main street businesses would lose an estimated $25.8 million in monthly sales.

2,000

Workers

This demand decrease could impact 2,000 workers, using a sales per worker estimate from the Economic Census.

Source: Census Longitudinal Employer-Household Dynamics data with Quarterly Workforce Indicators used to estimate small business employment and number of small business, and Economic Census Data to estimate sales.

So What?

- Are Business Supports Enough?

  PPP loans and State of Michigan Grants to main street small businesses in the 6 zip codes losing commuters would cover 3 months of lost sales due to less commuters from remote workers.

- “Buy Local” Campaign

  Spending on experiences and services could rebound - arts and culture, restaurants, and travel spending could rise as consumer confidence returns. “Buy local” campaigns could make a comeback.

- Rural Opportunity

  Shifts in commuting patterns due to an increase in remote work may lead to negative impacts for small businesses in the urban core, but may also lead to an increase in business and activity for businesses in surrounding suburbs and rural areas.

Image Source: Ken Lund, Flickr

Downtown Pittsburgh

Remote work, changes in commuting, and commercial real estate

Image Source: Yuhan Du, Unsplash

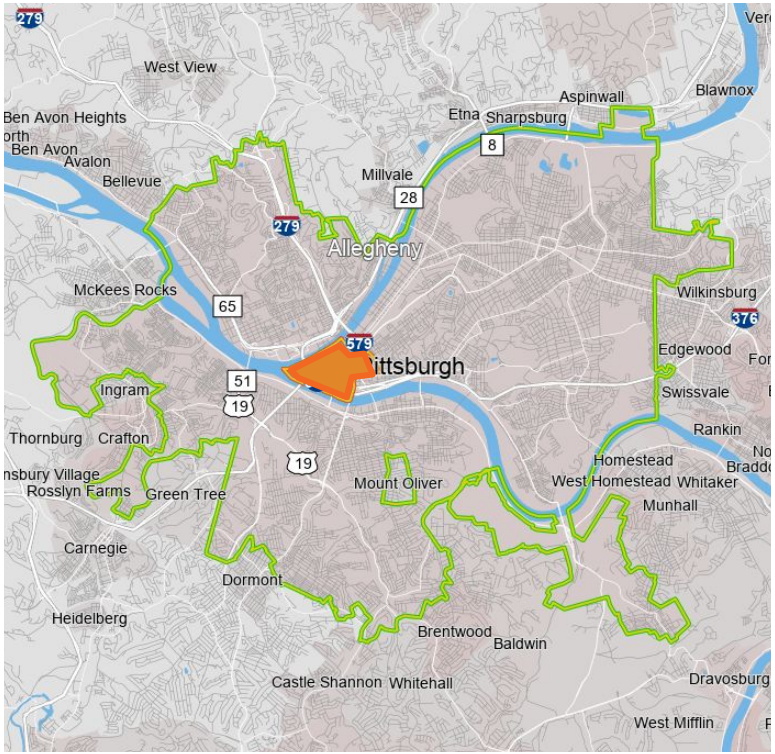


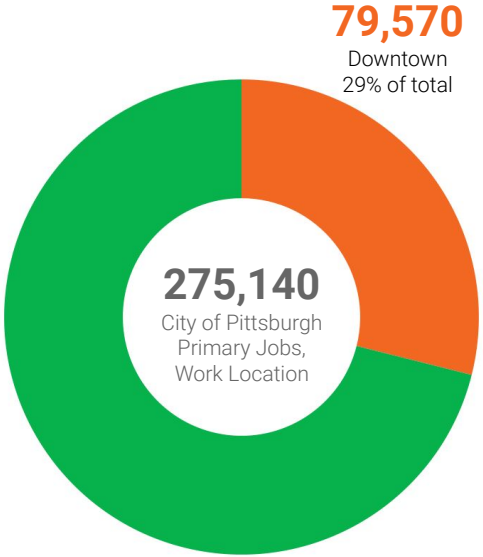
Image Source: OnTheMap

Downtown Pittsburgh
Census Tract 201 (Allegheny, PA)

City of Pittsburgh

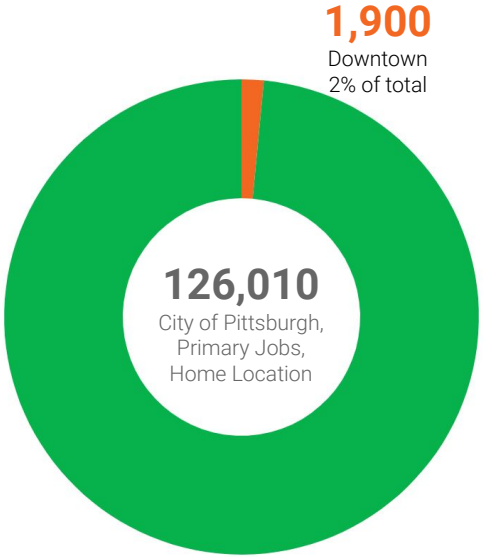
Downtown Pittsburgh, Pre-Pandemic

Work Location



Downtown Pittsburgh is a **work hub**

Home Location



… but **few workers live downtown**

Source: Census Longitudinal Employer-Household Dynamics data

Source: “Stay At Home | Pittsburgh Aerial Video,” Perspectrum, LLC

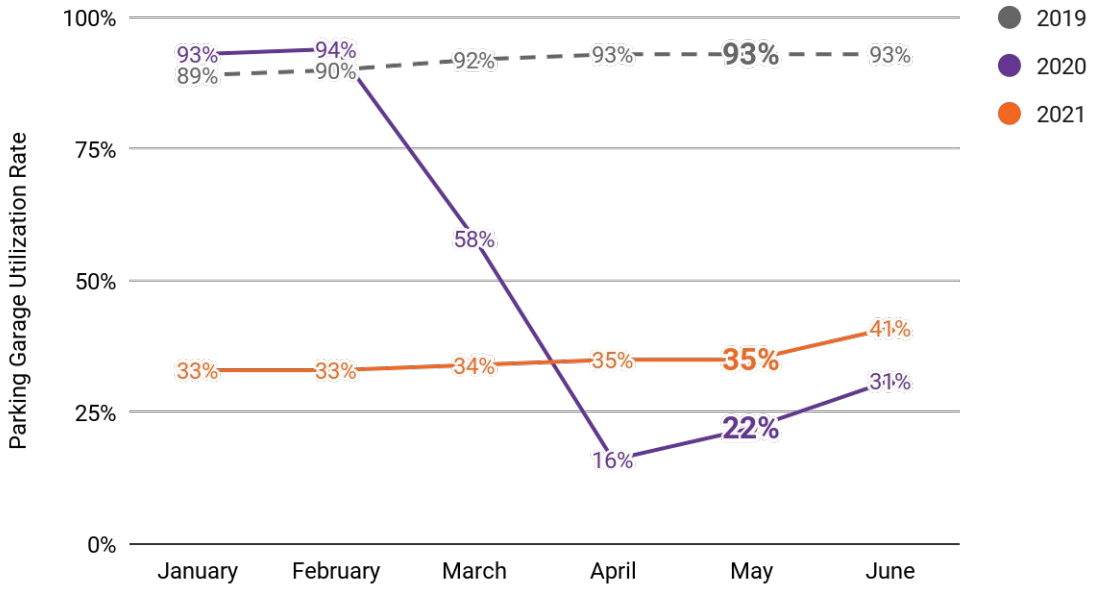
Early Pandemic

While workers were advised to “Stay at Home,” city streets had little traffic.

Rush hour looked eerily different. Downtown Pittsburgh, normally a vibrant hub of activity, was quiet.

Less Commuters into Downtown

Parking Garage Utilization Rate, Pittsburgh Parking Authority



Source: Pittsburgh Parking Authority

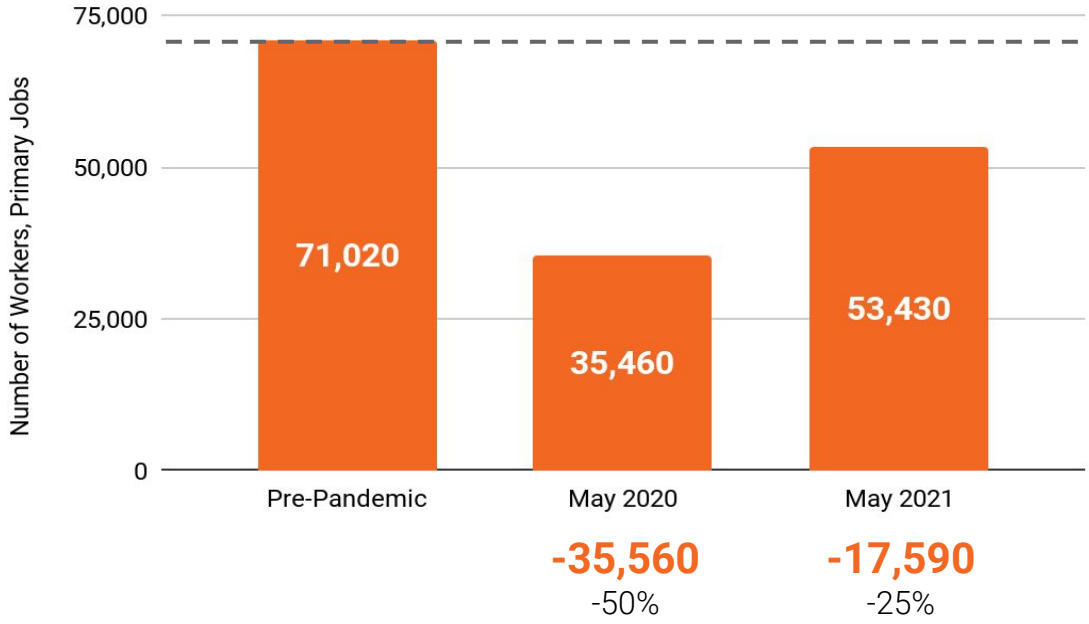
PPA measures this data by taking the utilization rates at two time periods each day: 11:00 a.m. and 2:00 p.m. An average utilization rate was taken for each Downtown garage and then combined in aggregate to display a monthly average.

Fewer commuters in the early pandemic; car trips still lag in 2021

Parking garage utilization was at 89% to 94% pre-pandemic.

In May 2020, rates dropped to 22%. By May 2021, rates had risen to 35%, still well below pre-pandemic levels.

Primary Workers in Downtown Pittsburgh



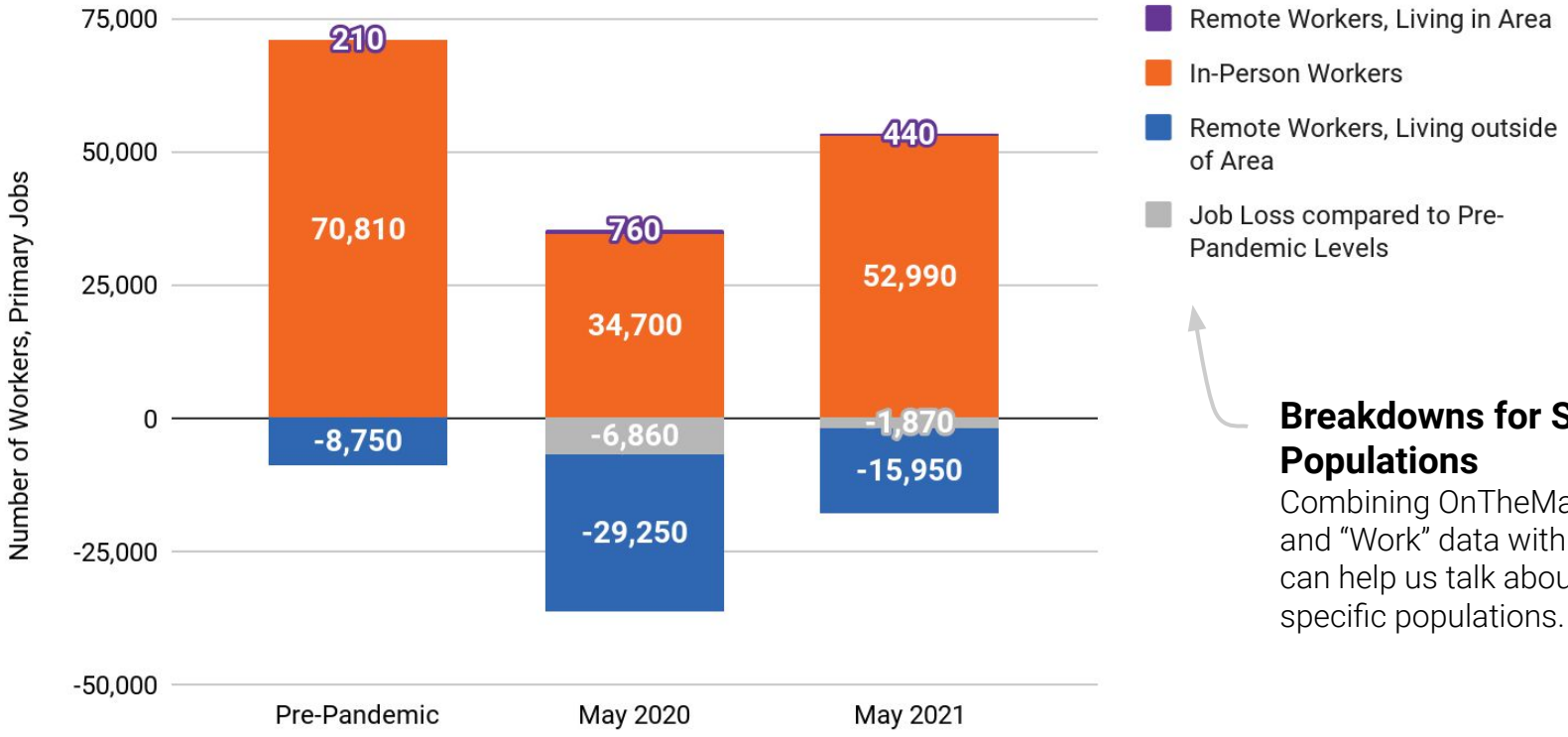
Pre-Pandemic Baseline
includes In-Person Workers and Remote Workers who live in the area.

In 2020
Downtown Pittsburgh had 50% less primary workers than it did before the pandemic.

By 2021
Downtown Pittsburgh had somewhat recovered, but still had 25% fewer primary workers than it did before the pandemic.

Source: Fourth Economy Analysis using Census Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

Job Loss & Remote Work Impacts

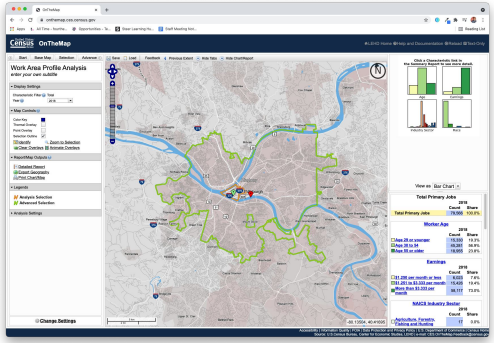


Breakdowns for Specific Populations

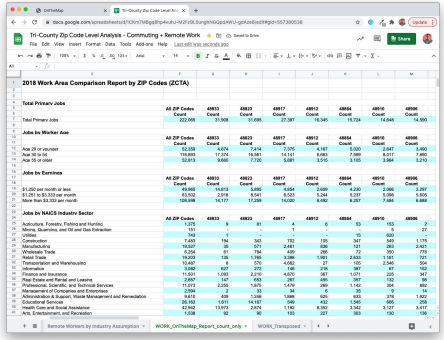
Combining OnTheMap "Home" and "Work" data with BLS data can help us talk about more specific populations.

Source: Fourth Economy Analysis using Census Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

Tools Used



Census OnTheMap



Spreadsheet Software

Data Used

Census OnTheMap

- Home/Work Area: both Home and Work used
- Area Profile, Labor Market Segment: All Workers
- Year: 2018
- Job Type: Primary Jobs

Job Loss

- BLS Labor Force Statistics. Assumption that Downtown inherits share of unemployment from Pittsburgh MSA.

Remote Work Ability by Industry

- Census Home-Based Workers in the United States: 2010
  - Used for pre-pandemic levels of remote work by industry.
- **BLS Current Population Survey**
  - Supplemental data measuring the effects of the coronavirus (COVID-19) pandemic on the labor market
  - Table 2. Employed persons who teleworked or worked at home for pay at any time in the last 4 weeks because of the coronavirus pandemic by usual full- or part-time status, occupation, industry, and class of worker
  - Used for May 2020 and May 2021 data

Basic Model

Pre-Pandemic Baseline

Very similar to analysis above.

Uses 2018 OnTheMap data and Census Home-Based Workers data.

In-Person Workers and Remote Workers who live in the area =

- Work Location Primary Workers, less those who can work remotely
- Home Location Primary Workers who can work from home

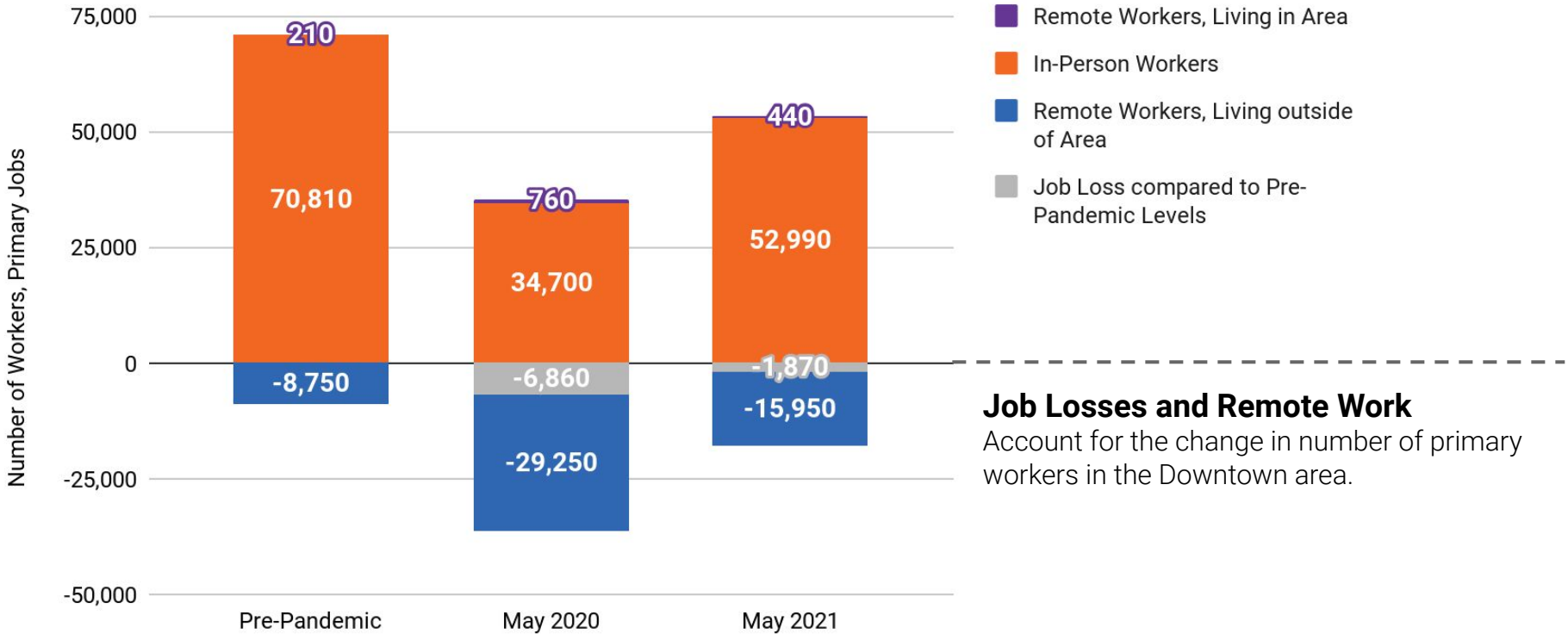
May 2020 and May 2021 Impacts

1. Makes adjustments to overall employment by industry using BLS unemployment data by industry and assumes Downtown fits overall MSA unemployment.

2. After these adjustments, applies remote work levels by industry reported by BLS Current Population Survey added questions: Supplemental data measuring the effects of the coronavirus (COVID-19) pandemic on the labor market

In-Person Workers and Remote Workers calculated the same as pre-pandemic baseline.

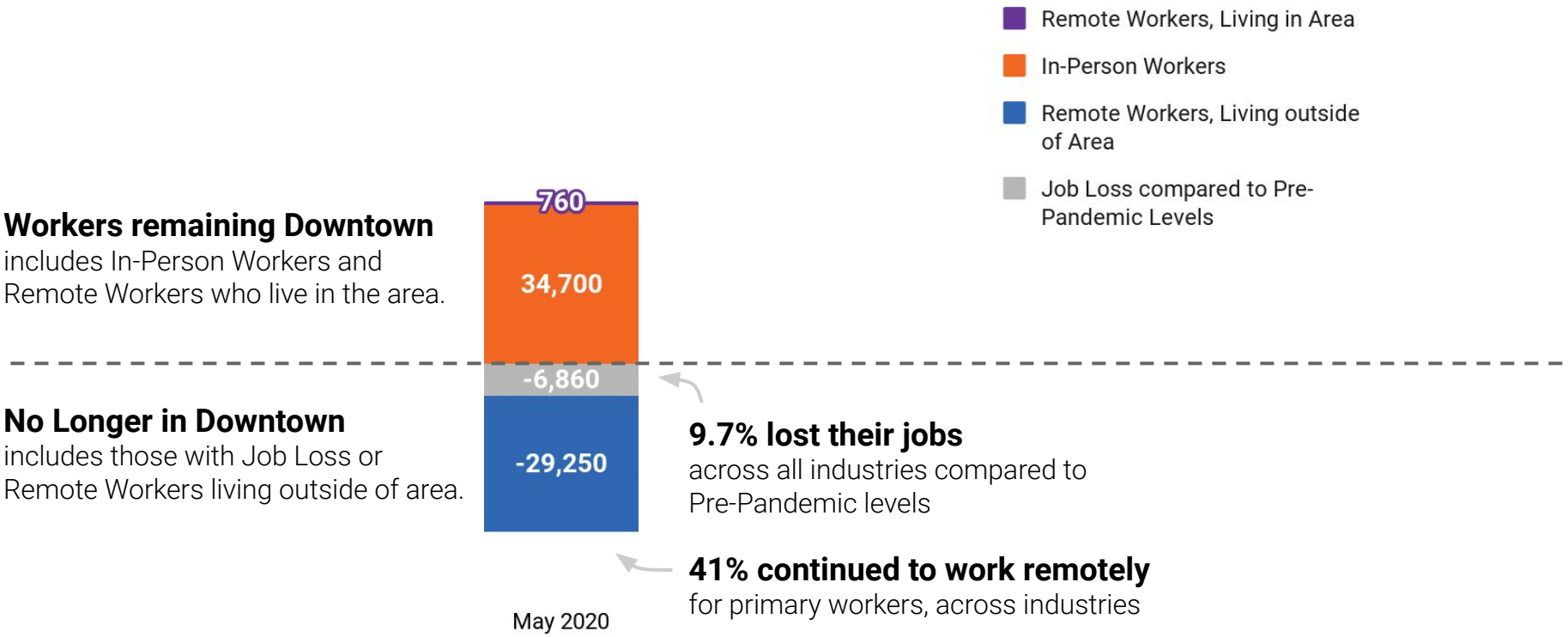
Job Loss & Remote Work Impacts



Job Losses and Remote Work
Account for the change in number of primary workers in the Downtown area.

Source: Fourth Economy Analysis using Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

2020



Workers remaining Downtown
includes In-Person Workers and Remote Workers who live in the area.

No Longer in Downtown
includes those with Job Loss or Remote Workers living outside of area.

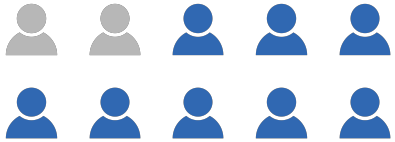
9.7% lost their jobs
across all industries compared to Pre-Pandemic levels

41% continued to work remotely
for primary workers, across industries

Source: Fourth Economy Analysis using Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

2020

No Longer in Downtown
includes those with Job Loss or Remote Workers living outside of area.



2 in 10 because of job loss
across all industries compared to Pre-Pandemic levels

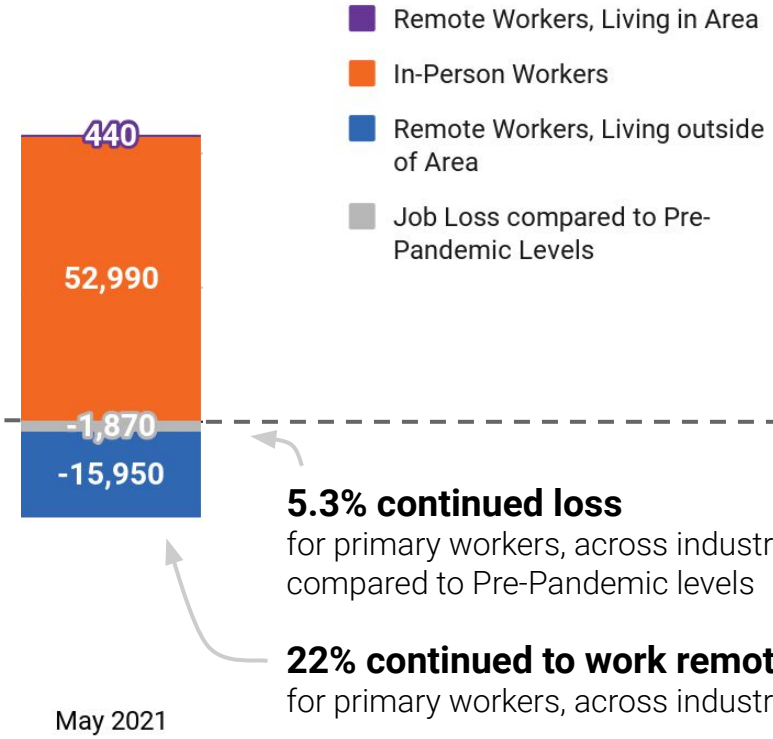
8 in 10 because of remote work
for primary workers, across industries

Source: Fourth Economy Analysis using Census Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

2021

Primary Workers in Downtown
The number of primary workers in Downtown rebounds in 2021. Nearly half of those who were working remotely in 2020 returned to in-Person work by May 2021.

No Longer in Downtown
Jobs rebound, but employment has yet to return to pre-pandemic levels. The remote work trend continues, with many workers continuing to work remotely.



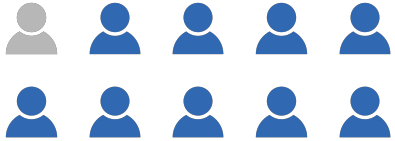
5.3% continued loss
for primary workers, across industries compared to Pre-Pandemic levels

22% continued to work remotely
for primary workers, across industries

Source: Fourth Economy Analysis using Census Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

2021

No Longer in Downtown
Jobs rebound, but employment has yet to return to pre-pandemic levels. The remote work trend continues, with many workers continuing to work remotely.



1 in 10 continued job loss
across all industries compared to Pre-Pandemic levels

9 in 10 remote work
for primary workers, across industries

Source: Fourth Economy Analysis using Census Longitudinal Employer-Household Dynamics data with BLS Unemployment and Remote Work data

So What?

- Remote work especially impacts job hubs.

  Places that have many jobs, but few residents, like downtown Pittsburgh, are the most impacted by shifts to remote work.

- Is remote work here to stay?

  Remote work has deeply impacted the Pittsburgh downtown, responsible for 90% of the change in primary worker population in May 2021 compared to pre-pandemic levels. Will remote workers remain away from downtown, and if so, how can we bring back people and vibrancy to these spaces?

- How will commercial real estate be impacted?

  A change in demand for office space will have an effect on commercial real estate in the downtown area -- and presents an opportunity for conversion of office space to housing, or other uses.

Image Source: Katherine Hanlon, Unsplash

Section 4

Discussion

What are you seeing in your community?

Remote work and geospatial distribution of workers has far reaching implications for commuting data, consumer spending behaviors at restaurants, retail, and services, and commercial real estate.

- Is remote work here to stay?
- What implications will remote work have on your community?
- What are you interested in figuring out?

What are you seeing in your community?

- Is remote work here to stay?
- What implications will remote work have on your community?
- What are you interested in figuring out?

FOURTH ECONOMY

Thank you!

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