

Where Did the Workers Go?



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This research brief updates an original release in July 2022 to show data for two more recent months (job openings, jobs, unemployment rates and labor force) or one quarter (employment by age group). Otherwise, the text is largely the same.

Many employers have noted ongoing challenges hiring and retaining staff, despite nominal wages that are considerably higher than those paid prior to the COVID-19 pandemic. For Pennsylvania, the latest data (July 2022) show an unemployment rate of 4.3% and 275,100 unemployed residents seeking work.¹ Both metrics are somewhat lower than annual averages for 2018 and 2019. However, current data show that the unemployment rate and number unemployed are relatively low not only due to strong labor demand, but also because many workers left the labor force and no longer work or actively seek employment. This research brief quantifies the scope of this issue and identifies potential factors that motivate the contraction of the state labor force since the start of the pandemic.

Labor Demand and Job Openings

The primary metric used to quantify labor demand intensity is the ratio of job openings to the number of unemployed.² Job openings data are published monthly by the U.S. Bureau of Labor Statistics (BLS) and is known as JOLTS (Jobs Openings and Labor Turnover Survey). The survey data are collected from sampled establishments and the number of unfilled jobs is viewed as an important measure of labor demand.

Table 1 presents the ratio of job openings to the number of unemployed for each June from 2018 to 2022 (latest data) for Pennsylvania and the U.S. Prior to COVID-19, the ratio was roughly 1.0 for Pennsylvania and 1.15 for the U.S. Hence, for each unemployed person actively seeking employment, there was roughly 1.0 job opening. For June 2022, the data show that there were 1.53 job openings for each unemployed individual in Pennsylvania and 1.81 for the U.S.³ Those ratios are notably higher than pre-COVID values. If more residents joined the labor force (i.e., were working or actively seeking work), the ratio would fall because (1) job openings would decline and/or (2) the number of unemployed actively seeking work would increase. The current ratio suggests there is an unusually high demand for workers relative to the number seeking employment. The ratios have been high since last fall and are consistent with the low unemployment rates for Pennsylvania (4.3%) and the U.S. (3.5%). Under “normal” labor market conditions such as those prior to the pandemic, the ratio would be closer to 1.0 for Pennsylvania and job openings and the number unemployed would be roughly 285,000. Relative to those levels, the current ratio suggests **unusually high demand for 105,000 additional workers.**

¹ Data are seasonally adjusted. Source: U.S. Bureau of Labor Statistics.

² Typically, the ratio is depicted as the number of unemployed to job openings but for ease of presentation, the ratio is reversed in this brief.

³ Data are seasonally adjusted. For Pennsylvania, the June 2022 data are preliminary.

Table 1: Job Openings vs Number Unemployed

	June 2018	June 2019	June 2020	June 2021	June 2022
Pennsylvania					
Job Openings	303	276	250	414	393
Unemployed	285	285	743	423	257
Ratio	1.06	0.97	0.34	0.98	1.53
United States					
Job Openings	7,237	7,147	6,039	9,852	10,698
Unemployed	6,446	5,906	17,616	9,502	5,912
Ratio	1.12	1.21	0.34	1.04	1.81

Note: Job Openings and Number Unemployed in 000s. Data are seasonally adjusted.
Source: U.S. Bureau of Labor Statistics.

A different measure published by BLS (not shown) is the job openings rate, or the ratio of job openings to the number employed plus job openings. For Pennsylvania, that ratio was typically 4.4% (pre-COVID) and is currently 6.2% (June 2022). Relative to the pre-COVID rate, the current ratio implies **unmet demand of roughly 110,000 additional workers** at current wage rates.

Labor Supply and Labor Force Participation Rates

Job openings provide insights into the demand for labor. Labor force participation rates (LFPR) quantify the supply of labor. The LFPR is the share of all residents age 16 or older who are working (includes self-employed) or actively seeking employment. It is based on survey data published monthly at the state and national levels.

Table 2 presents the LFPR for July 2022 for Pennsylvania and the U.S. and the prior four years.⁴ Although data are published by age and gender at the state level, only total LFPRs are shown due to the small number of data points at the state level for those subgroups (which makes point estimates unreliable). For Pennsylvania, the LFPR for July 2019 was 63.0%, which implies that 63.0% of all residents age 16 or older were either employed or actively seeking work.⁵ For July 2022, the LFPR was 61.7%, a reduction of 1.3 percentage points (ppts). The reduction implies that the state labor force (i.e., actively employed or seeking employment) contracted by roughly **130,000 workers**.⁶ For the U.S., the respective figures were 63.1% (July 2019) and 62.1%, a reduction of 1.0 ppts. The U.S. data show a much larger contraction for men (-1.6 ppt) than women (-0.4 ppt), and higher ratios for women compared to July 2021.

⁴ Data are seasonally adjusted. The JOLTS data on job openings lag other labor market data by one month.

⁵ Data are seasonally adjusted. For "prime working age" adults age 25 to 54, the LFPR for 2019 was 83.8%.

⁶ This computation is based on a noninstitutional population of 10.45 million age 16 or older that is used by the U.S. Bureau of Labor Statistics.

Table 2: Labor Force Participation Rates

	July 2018	July 2019	July 2020	July 2021	July 2022
Pennsylvania LFPR	62.6%	63.0%	62.3%	61.5%	61.7%
Unemployed (000s)	282	288	691	409	275
Employed (000s)	6,219	6,270	5,798	6,002	6,171
United States LFPR	62.9%	63.1%	61.5%	61.7%	62.1%
Men	68.9%	69.2%	67.1%	67.6%	67.6%
Women	57.4%	57.3%	56.1%	56.2%	56.9%

Note: Data are seasonally adjusted. LFPR is (employed + unemployed) / residents age 16+.
Source: U.S. Bureau of Labor Statistics.

To examine employment trends by age at the state level, a different data source is used. The source is the Quarterly Workforce Indicators (QWI) published by the U.S. Census Bureau. The data source is based on tax and administrative returns and records filed with state and federal agencies (compared to much smaller samples used for labor force participation rates) and reflects nearly 90% of total payroll employment (but excludes self-employed and federal government workers) included in the published Quarterly Census of Employment and Wages (QCEW). Given the broad coverage, the data source is best used to examine payroll employment trends over time based on demographic characteristics such as age, gender, race and education level. It does not track unemployed individuals who actively seek employment.

Table 3 displays the change in the number of jobs by age group for 2021 Q4 (latest QWI data) versus 2019 Q4. The data show a jobs contraction of 199,200 (-3.9%) that is notably larger for younger workers and shows job gains for those age 65 or older.⁷ It is noted that the QWI data only reflect payroll jobs and exclude workers who may have shifted to self-employed status (e.g., DoorDash, Uber, Grubhub). For Pennsylvania, it does not appear that there was a large contraction of older workers. However, due to the relatively large increase in residents age 65 or older (roughly 102,000) during the two years, if the number employed in that age group did not change, then the state LFPR for that age cohort declined by roughly 0.7 pts.

Table 3: Pennsylvania Employment Change: 2021 Q4 vs 2019 Q4

	Employment Change by Age Group						Total
	19-24	25-34	35-44	45-54	55-64	65+	
Number (000s)	-33.8	-69.4	-9.0	-58.4	-34.9	6.3	-199.2
Percent	-6.3%	-6.0%	-0.9%	-5.6%	-3.6%	1.7%	-3.9%

Note: Excludes self-employed, federal government workers and workers age 14 to 18.
Source: U.S. Census Bureau, Quarterly Workforce Indicators.

⁷ For comparison, the establishment data from the U.S. Bureau of Labor Statistics (Current Employment Statistics, State and Metro Area Employment) show a reduction of 253,000 jobs (-4.2%) for the same time period.

Which Employment Sectors Contracted?

In addition to supply and demand conditions, factors that could motivate departures from the state labor force can be gleaned from published employment data by sector and subsector. **Table 4** displays the change in payroll jobs from July 2019 to July 2022. The data show a total contraction of 59,900 payroll jobs. Two subsectors comprise 80% of the July net jobs contraction: nursing home and residential care (-27,500) and full-service restaurants (-20,300). Other sectors or subsectors with notable job losses include all manufacturing (-13,000), non-profits and advocacy entities (-11,500), accommodation (-10,800) and employment services (-9,200).⁸ The bottom of the table displays two subsectors with significant job gains: warehousing and storage (+31,800) and couriers-messengers (+10,900).

	July 2019	July 2022	Change
Total Payroll Employment (000s)	6,040.9	5,981.0	-59.9
Nursing Home and Residential Care	203.8	176.3	-27.5
Full-Service Restaurants	200.8	180.5	-20.3
All Manufacturing	579.0	566.0	-13.0
Non-Profit, Professional, Advocacy	140.7	129.2	-11.5
Accommodation	70.2	59.4	-10.8
Employment Services	113.4	104.2	-9.2
Amusements and Gaming	95.9	89.0	-6.9
State Government Education	43.2	36.9	-6.3
Couriers and Messengers	34.6	45.5	10.9
Warehouse and Storage	91.5	123.3	31.8
All Other	4,467.8	4,470.7	2.9

Note: Data not seasonally adjusted. Thousands of payroll jobs. Excludes self-employed.
Source: U.S. Bureau of Labor Statistics.

Why Did the Labor Force Contract?

The text that follows discusses factors that caused or motivated the contraction of the state labor force since the start of the pandemic. This issue is different than the “Great Resignation,” which refers to the surge in job quits and transitions to new employment. A recent article by the Pew Research Center examined that issue and found that the three most important factors cited by workers were: (1) low pay, (2) no opportunity for advancement and (3) feelings of disrespect at work.⁹

⁸ The childcare subsector is down 2,400 jobs (-5.1%).

⁹ See <https://www.pewresearch.org/fact-tank/2022/03/09/majority-of-workers-who-quit-a-job-in-2021-cite-low-pay-no-opportunities-for-advancement-feeling-disrespected/>.

Recent and Long-Term Demographic Trends

From 2019 to 2022, the state population contracted by an estimated 48,000 residents and the median age increased.¹⁰ While the first outcome is relatively new, the second is a continuation of a long-term trend. Both factors cause the state labor force to contract: the first due to fewer potential workers and the second because older residents have lower LFPRs. The data are as follows for 2019 to 2022:

- Residents age 25 to 54 (“prime working age”) contracted by an estimated 50,000. Their LFPR is 82.5% based on U.S. data (May 2022).
- Residents age 55 to 64 who might consider early retirement contracted by an estimated 78,000. Based on U.S. data, their LFPR is 65.4%.
- Residents age 65+ increased by 164,000 due to aging Baby Boomers. Based on U.S. data, their LFPR is 19.2%.¹¹

If national LFPRs by age group can be used for Pennsylvania, then the combination of the decline in total population and lower LFPRs for older residents implies a contraction in the state labor force of roughly 61,000. *These two outcomes, one recent and one long-term, motivate somewhat more than one-half of the current labor force contraction and related worker shortage.* The impact is more noticeable due to the dramatic reversal in the state economy when large numbers of workers were laid off or furloughed due to COVID-19 mitigation efforts, but then demand rebounded rapidly due to business re-openings and multiple massive federal stimulus programs.

Care of Elderly Parents

The jobs data from Table 4 show a dramatic employment reduction for the nursing home and residential care subsector. Data from the Centers for Medicare and Medicaid Services (CMS) show that the average number of Pennsylvania nursing home residents per day fell from 76,107 (June 2019) to 64,276 (June 2022), a reduction of 11,831 (-15.5%).¹² (Note: CMS data only reflect residents that use beds or rooms that are Medicare/Medicaid certified. The data represent approximately 90% of total beds and residents.) During that time, the number of residents age 65 or older increased by an estimated 164,000 while the number age 75 or older increased by an estimated 58,000. For adult children that now provide in-home care, it is possible they departed the labor force because many elderly parents require a high level of care.

Accumulation of Savings and Wealth Effects

Several recent news articles have noted a significant build-up of household savings due to federal stimulus transfers, unusually high profits and stock market gains. Through 2022 Q1, data from the Federal Reserve Board show that U.S. households’ holdings of cash and cash equivalents (e.g., checking accounts, money markets, time deposits) increased by \$4.6 trillion from 2020 Q1. If only checkable deposits are included, then the increase is \$3.2 trillion.¹³ Other wealth measures also increased significantly during that time period: the median Pennsylvania home value increased by 29% while the S&P 500 Index increased by 51%

¹⁰ The overall population contraction was driven by three factors: (1) a net domestic outflow to other states (-8,496 for 2020 to 2021, 2022 data not yet available), (2) much lower international migration and (3) deaths that exceeded births (-38,543 for 2020 to 2021). For 2020 and 2021, the IFO estimated that COVID-19 caused 38,650 “excess deaths,” the great majority (nearly 90%) applies to residents age 65 or older. See IFO Research Brief *COVID-19 Impact on Pennsylvania Deaths*.

¹¹ Additional U.S. LFPR detail is as follows: age 65 to 69 (33.3%), age 70 to 74 (18.6%), age 75+ (8.0%).

¹² These figures exclude residents in personal care homes and assisted living facilities.

¹³ For both metrics, nearly 70% of excess savings are held by the top 20% of households as measured by income.

(average for quarter). Higher nominal savings and wealth likely encouraged an unknown number of workers to depart the labor force. If inflation remains elevated, those workers may return eventually.

Remote Learning: Cyber Charter Enrollment and Home Schooling

In response to the pandemic, some parents opted to keep children at home and enroll in cyber charters or receive instruction from a parent or tutor. **Table 5** displays enrollment data for school year (SY) 2017-18 to SY 2021-22. Relative to SY 2019-20 (data represent October 2019 enrollments and are pre-COVID), the latest enrollment data show a reduction of 50,800 pupils in grades K-12 for public schools and smaller contractions for brick-and-mortar charters (-2,700) and non-public schools (e.g., religious affiliation, -2,500). Enrollment in cyber charters increased by 19,700 (51.5%) and homeschooling (includes private tutors) increased by 15,900 (estimate, value for SY 2021-22 assumes no growth from prior year).¹⁴

Parents who now opt for at-home instruction may have worked previously and departed the labor force to oversee their children’s education. If one half of the higher enrollments at cyber charters and homeschooling have a parent at home that worked prior to the pandemic and the average household has two pupils engaged in remote learning, then it could explain a reduction in the labor force of 9,000 workers.

Table 5: Pennsylvania Pupil Enrollment

	School Year					21-22 vs 19-20
	2017-18	2018-19	2019-20	2020-21	2021-22	
Public School	1,571.4	1,568.9	1,566.7	1,516.0	1,515.9	-50.8
Brick-Mortar Charter	103.3	105.9	108.3	108.4	105.6	-2.7
Non-Public	<u>217.1</u>	<u>217.1</u>	<u>207.5</u>	<u>198.0</u>	<u>205.0</u>	<u>-2.5</u>
Sub-Total	1,891.8	1,892.0	1,882.5	1,822.4	1,826.5	-56.0
Cyber Charter	34.5	37.4	38.3	60.9	58.0	19.7
Homeschool	<u>25.4</u>	<u>25.9</u>	<u>26.8</u>	<u>42.7</u>	<u>42.7</u>	<u>15.9</u>
Sub-Total	59.9	63.3	65.1	103.6	100.7	35.6
All Pupils	1,951.7	1,955.2	1,947.6	1,926.0	1,927.2	-20.4

Note: Thousands of pupils. Enrollment as of October except homeschool, which represents end of year. Homeschool for 2021-22 is an estimate and assumes no growth from prior year. Homeschool includes a small number of private tutors.

Source: Pennsylvania Department of Education.

¹⁴ During the time period, the pupil population age 4 to 17 (as of July 1 prior to start of school year) declined by roughly 23,000. Therefore, some of the contraction for public schools is attributable to general demographic trends.

Other Factors

Other factors will also cause or facilitate reductions in the state labor force, but are difficult to quantify. Other factors (no particular order) include:

- Lifestyle choices. Workers may have decided that time at home or with family has greater value since the start of the pandemic. Workers in households with more than one source of earnings may have quit work or reduced hours from full to part-time.
- Higher SNAP benefits and ongoing Emergency Allotments. Relative to February 2020, USDA data show 114,290 more state residents (1.84 million total residents, +6.6%) received SNAP benefits (May 2022, latest published data) and benefits increased by \$250/\$3,002 (+116%) per month/annum for the average household (1.9 members).¹⁵ Currently, all households formerly eligible only for partial benefits based on income levels are automatically raised to the maximum benefit for the household size. All households already at the maximum benefit amount receive an extra \$95 per month.¹⁶ The maximum monthly/annual benefit is \$250/\$3,000 for a single person and \$835/\$10,020 for a household with four members. With the extra \$95 per month, benefits increase to \$345/\$4,140 and \$930/\$11,160. The elimination of the income-based phase-out effectively creates a full benefits versus no benefits cliff for SNAP benefits once the income threshold is exceeded.¹⁷ This highly punitive cliff provides a significant disincentive for household members included in the maximum income computation to find employment or accept a new position with higher pay given the substantial benefits that will be lost.
- Early retirements. National data show that LFPRs for the age 65+ cohort declined by 0.8 ppts from June 2019 to June 2022 and state data suggest a similar decline (see text above). The U.S. data also show that LFPRs for the age 55 to 64 cohort decreased by 0.4 ppts during that time period, while the age 25 to 54 cohort was flat.¹⁸ Therefore, at the national level, it does appear that older workers departed the labor force at a relatively higher rate.
- Student loan moratorium. Despite historically low unemployment rates and strong demand for labor, the student loan repayment moratorium entered its third year and has been extended seven times from March 2020 to December 2022, and impacts up to 1.8 million state residents who retain \$3,000 to \$4,500 per annum on average through non-repayment of government loans. Through executive action, up to \$20,000 of loan debt will also be forgiven.
- Lingering health issues related to COVID-19. An unknown number of former workers may have symptoms related to “long COVID” and may be unable to maintain stable employment.
- Difficulty securing childcare. Since July 2019, employment for the childcare subsector contracted by 2,400 jobs (-5.1%) and childcare services have likely become considerably more expensive.

¹⁵ For SNAP data, see <https://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap>.

¹⁶ From the DHS website: Starting in May 2021, a SNAP household will receive an extra benefit in the amount needed to bring them up to the maximum benefit for their household size or \$95, whichever is greater. This includes households that are receiving the maximum benefit for their household size already. The \$95 minimum benefit is regardless of household size. For July 2022, Pennsylvania was approved for \$171.3 million of Emergency Allotments. See <https://fns-prod.azureedge.us/sites/default/files/resource-files/PA-SNAP-COVID-EA-Extension-July-2022-Acknowledged.pdf>.

¹⁷ For a household of one, the net maximum monthly income is \$1,074. For a household of four, it is \$2,209. A categorically eligible household does not need to meet the resource limit or gross income limits.

¹⁸ See <https://data.bls.gov/PDQWeb/In>.