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| Issue Brief: Supply Side Supply Side in Gap Analysis Work Mark Oleson | Summer 2024 |

## Decorative

## Overview

Demand data, specifically LMI predicted yearly job openings have been added to this analysis and are the source of demand in the later methods sections.

Supply demand gap analysis has two parts, the supply, and the demand. This brief outlines the work accomplished in updating and modifying the supply-side data sources used in the workforce supply tool, initially developed through SWEAP funding. Additional data sources have also been added. The updates included modifications to existing code and the development of new code to incorporate additional Classification of Instructional Programs (CIPs) and Standard Occupational Classifications (SOCs) for both supply 'stock' and supply 'flow'.

Supply stock refers to the current available workforce for a given occupation or industry, including currently employed and unemployed individuals. Supply flow refers to the incoming workforce soon-to-be available, such as graduating students. Data were updated to the most current versions and consolidated into tables. Specifically:

* **IPEDS** (Integrated Postsecondary Education Data System) was updated through the academic year 2022, serving as the primary source for supply flow.

### Data Cleaning and Transformation

**Flow[[1]](#endnote-1)**

* **IPEDS**: Publicly available at [IPEDS Website](https://nces.ed.gov/ipeds/use-the-data), the list of CIPs was expanded from high-demand and critical to all graduates in the state, and additional years were added. Basic cleaning steps include:
  + Added new years of data up to 2022.
  + Standardized CIP codes and aggregated data by award level, program and institution.

**Stock[[2]](#endnote-2)**

* **LMI**: Long-term labor market information publicly available at [LMI Website](https://ohiolmi.com/Home/Projections/ProjectionsHome). Basic cleaning steps include:
  + Standardizing employment projections and occupational codes.

### Data Structure

The counts by completers for the flow data sources (IPEDS, HEI, OTC, RAPIDS) are grouped:

* **Year**: Aggregating data annually.
* **Graduating Program**: Using standardized CIP/SOC codes.
* **JobsOhio Region**: Adjustments based on zip code or county to JobsOhio region.
* **Education Classification**: Grouped into Certificate, Associate, Bachelor's, and Graduate levels.[[3]](#endnote-3)

Geography

* Adjusted based on zip code to county to JobsOhio region, as zip codes change over the years. Crosswalks were available at [HUD Office of Policy Development and Research](https://www.huduser.gov/portal/datasets/usps_crosswalk.html) and [UnitedStatesZipCodes.org](https://www.unitedstateszipcodes.org/zip-code-database/)

CIP/SOC Year

* ~~Given the changes in CIP and SOC codes from 2000 to 2020, we target SOC-2010 and aim to capture CIP codes from 2000, 2010, and 2020. To achieve this, we convert CIP 2000 to 2020. We combine CIP 2010 - SOC 2010 with CIP 2020 - SOC 2018 and then convert the SOC codes from 2018 to 2010.~~

### References

* IPEDS: [IPEDS Data Center](https://nces.ed.gov/ipeds/use-the-data)
* OEWS: BLS OEWS
* LMI: [Ohio LMI](https://ohiolmi.com/Home/Projections/ProjectionsHome)
* O\*NET: [O\*NET Online](https://www.onetonline.org/)
* Froeschle, R. "How Many is Enough? A Practitioner's Guide to Occupational Targeting and Supply/Demand Analysis"

1. . **Stock and Flow in Occupational Supply and Demand Analysis:**

   **Stock of Workers**: The "stock" of workers refers to the current or point-in-time measure of the existing supply of both available labor and current demand. On the supply side, the stock includes:

   **Currently Employed Workers**: Those already employed in a given occupation.

   **Unemployed Workers with Specific Skills**: Individuals who are actively seeking and available for work in that occupation at prevailing wages.

   **Recent Education and Training Graduates**: New graduates who are considered part of the stock since they are immediately entering the labor pool with acquired skills.

   **Workers in Related Occupations**: Incumbent workers in occupations requiring similar skill sets, making them potential candidates for the target occupation.

   **Flow of Workers**: The "flow" concept encompasses the ongoing dynamics affecting occupational supply and demand conditions. These dynamics include:

   **Positive Flows**: Additions to the supply pool, such as formal education and workforce program completers, individuals acquiring informal or employer-provided skills training, new labor force entrants or reentrants, occupational transfers, and geographic in-migrants.

   **Negative Flows**: Subtractions from the supply pool, such as labor force separations (death, retirement, family-centered stop-out), occupational transfers to different fields, and geographic out-migrants. [↑](#endnote-ref-1)
2. For more information, see Froeschle, R. "How Many is Enough? A Practitioner's Guide to Occupational Targeting and Supply/Demand Analysis" [↑](#endnote-ref-2)
3. [BLS typical education needed for entry](https://www.bls.gov/emp/tables/education-summary.htm) [↑](#endnote-ref-3)