

MEASURING THE IMPACTS OF CAREER TRAINING ON THE ECONOMY

A case study from St. Louis County, Minnesota

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Executive Summary

The Housing and Redevelopment Authority of Duluth, Minnesota (HRA) and True North Goodwill both have several career-training programs designed to bring individuals into the labor market and build career pathways for in-demand jobs. The two organizations asked the UMD Labovitz School of Business and Economics' research bureau, the Bureau of Business and Economic Research (BBER), to estimate the economic value of career advancement in the context of moving individuals and families from public assistance to a career.

Many career training programs are designed to serve low-income individuals—the same individuals most likely to receive public assistance. Research has found that adults and children who live in low-income households are more likely to face difficult circumstances like homelessness, unsafe neighborhoods, food insecurity, and inadequate health care. The authors added that these unfavorable circumstances have detrimental effects on children, including low academic performance and mental health issues.

Job training can provide numerous benefits for the participants. A study by Katz and colleagues (2022) found that sector-focused training programs generated substantial earnings gains (12%-34%) for participants. But research has also found that benefits extend beyond the individuals. A 2020 study conducted by Gasper et al. examined seven types of training programs in New York City. According to the study's authors, investing one dollar in industry-focused career training yielded "between \$2.80 and \$17.78 after five years compared to if that dollar had been invested in a standard job screening and matching program."

This study estimated the financial benefits of two career scenarios—Scenario 1, which represented a full-time career as a construction laborer, and Scenario 2, which represented a full-time career as a registered nurse—using data from the *Career Ladder Identifier and Financial Forecaster* (CLIFF) portal's *Snapshot* and *Dashboard* tools.

Data was collected and analyzed to compare the two career scenarios and a baseline scenario (a

part-time cashier job). The study analyzed the earnings and public assistance benefits for a single adult living in St. Louis County, Minnesota, for 35 years, during which the adult's age ranged from 30 to 64 and who had an infant (age 0).

Over the course of their lifetime, the person working as a part-time cashier will earn roughly \$460,000 in after-tax income, defined as earnings minus taxes paid. By comparison, the person working as a construction laborer or a registered nurse will earn roughly \$1.5 million and \$1.9 million, respectively.

Additionally, the person working as a part-time cashier could receive roughly \$733,700 in public assistance benefits over the 35-year period, whereas the person working as a construction laborer or registered nurse could receive \$127,300 and \$132,500, respectively.

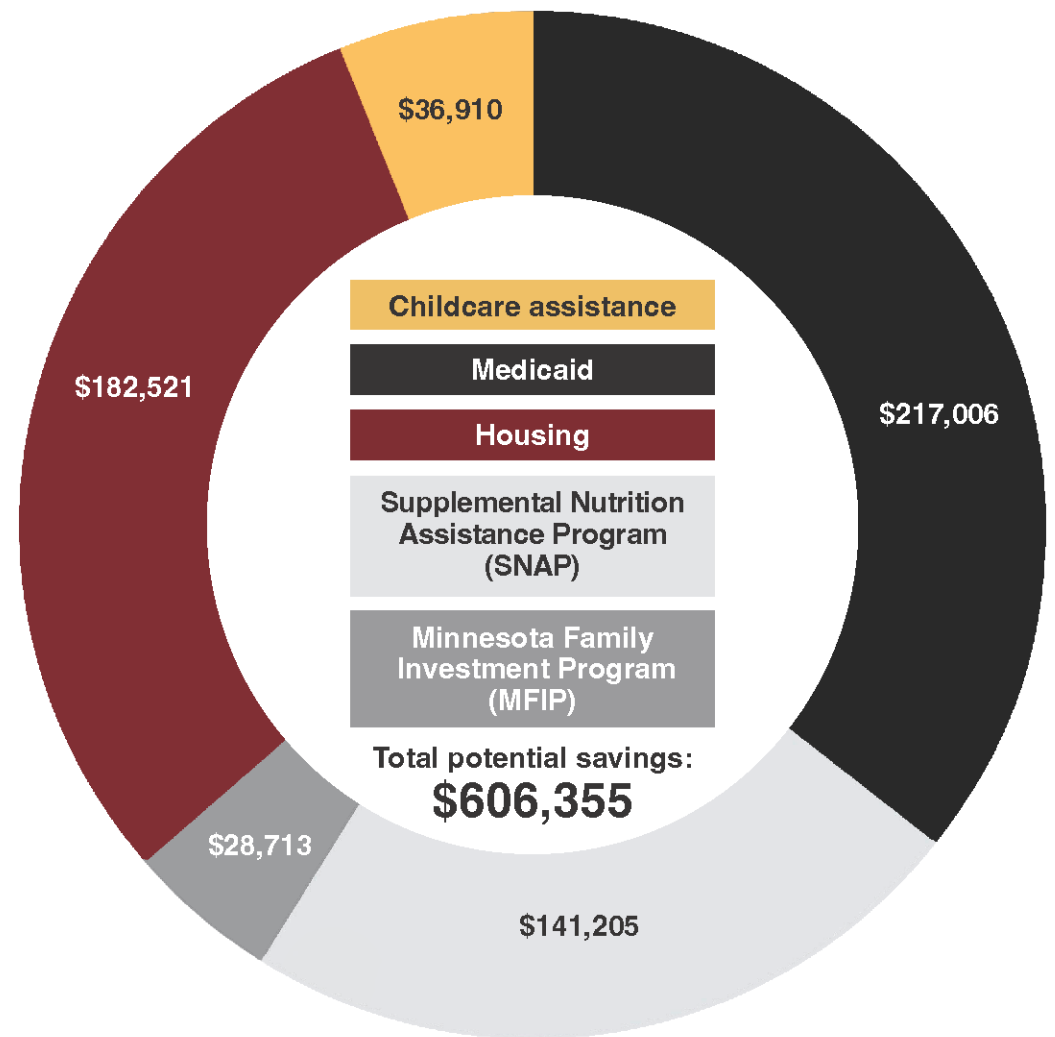
For both career scenarios (construction laborer and registered nurse), state and federal government programs could save more than \$600,000 in public assistance benefits over the course of the person's working lifetime, as compared to working as a part-time cashier. The largest public assistance savings would come from the Medicaid program (\$217,000 in savings), followed by Section 8/housing assistance (\$182,500), SNAP (\$141,200), and childcare assistance (\$36,900). Lifetime savings from the Minnesota Family Investment Program (MFIP) would equal roughly \$28,700.

The financial benefits estimated in this analysis were also used to model the economic impacts of Scenarios 1 and 2 on the state's economy overall. The results of modeling found that the economic impacts to the state resulting from the career advancement of just one individual with our parameters exceed the financial benefits to the individual. For example, the person choosing a career as a registered nurse would see a cumulative increase in their net financial resources of \$889,400. Yet, the state would see economic impacts of more than \$1.1 million because of increasing the person's household income.

Measuring the Impacts of Career Training on the Economy

30-year-old single parent with newborn in St. Louis County, Minnesota

- Working in a part-time minimum wage job, they would be eligible to receive more than \$730,000 in public assistance from age 30-64, averaging \$27,233 per year.
- Compared with the part-time minimum wage job, a career as a construction laborer could save \$606,355 in public assistance benefits over the course of their working lifetime; \$60,000 in the first three years of their career.
- If the cycle of poverty were broken, an additional \$750,000 in public assistance savings could be possible (assuming 46 years of benefits for the child).



Public Assistance Dollars Saved by Program Over 35-Year Working Span, Construction Laborer

Data source: Federal Reserve Bank of Atlanta CLIFF Portal

Measuring the Impacts of Career Training on the Economy

A Case Study from St. Louis County, Minnesota

Background

In 2020, the Housing and Redevelopment Authority of Duluth, Minnesota (HRA)—a local government agency that works to provide safe and affordable housing opportunities for everyone in the community—established its first career training program, called the Community Construction Program. In partnership with Community Action Duluth, the construction training program was designed to bring individuals with barriers to employment into the labor market, provide classroom and hands-on construction experience by rehabilitating blighted housing to build a career pathway for construction contractor jobs, and allow the newly renovated homes to be sold for home ownership to low- and moderate-income households.

True North Goodwill—based in Duluth with 11 retail stores and donation centers located across northern Minnesota and Wisconsin—also has several career training programs, including job-seeking support, job-coaching support, skills assessment, on-the-job evaluations, and employee development.

The Duluth HRA and True North Goodwill approached the UMD Labovitz School of Business and Economics' research bureau, the Bureau of Business and Economic Research (BBER), to estimate the economic value of career advancement, in the context of moving individuals and families from public assistance to a career.

This study estimates the return on investment from lifting an individual out of poverty into a career using data from the Federal Reserve Bank of Atlanta's Career Ladder Identifier and Financial Forecaster (CLIFF) portal.¹ Monetary benefits to the individual and public assistance savings are estimated, along with the economic impacts to the broader economy. The study also summarizes existing literature on the topic.

Literature

The purpose of the literature review is to highlight some of the research that exists about the economic value of career advancement. This includes financial benefits for individuals as well as savings from state and federal government programs and additional benefits to children and families.

Public assistance is meant to serve those experiencing poverty. And many career training programs are designed to serve low-income individuals—the same individuals most likely to receive public assistance. Wu and colleagues (2018) note that adults and children who live in low-income households are more likely to face difficult circumstances like homelessness, unsafe neighborhoods, food insecurity, and inadequate health care. The authors added that these unfavorable circumstances have detrimental effects on children, including low academic performance and dropping out of school, along with contributing to behavioral, psychological, physical, and mental health issues, both short- and long-term. For a single parent with two children, the poverty wage would be \$25,820 in 2024 (Healthcare.gov, n.d.) The official rate of poverty in the United States as of 2022 was 11.5%, meaning that approximately 38 million people were living below the poverty line (Shrider and Creamer, 2023).

Job training can provide numerous financial benefits for the participants. A study by Katz and colleagues (2022) found that sector-focused training programs generated substantial earnings gains (12%-34%) for participants. Another study, conducted by the California Senate Office of Research in 2013, found that

¹ For a list of terms and definitions used throughout this report, see Appendix A.

participants in workforce training programs earned almost \$2,000 more in annual earnings than participants in job search-and-placement programs.

In the U.S. in 2020, state and local governments spent \$791 billion on public assistance for low-income households (Urban Institute, 2023), the largest portion of which went to medical care. In Minnesota, state per capita expenditures on public welfare programs were roughly \$3,000 in 2021 (Stats America, n.d.). If even a fraction of the individuals receiving benefits from public assistance programs were able to increase their earnings through career advancement, there could be significant savings for state and federal government programs.

A 2021 study by Altig and colleagues estimated savings to the public from career training programs. Altig's study examined the career path for a hypothetical low-income single mother with two children who transitioned from a certified nursing assistant to a licensed practical nurse and finally to a registered nurse, showing the change in net financial resources. The authors estimated the public could save between \$283,000 and \$409,000 over the mother's working career, depending on which public benefits she receives.

Several studies have attempted to calculate the return on investment (ROI)—defined as net program benefits divided by the program costs—for job training programs. A 2020 study conducted by Gasper et al. examined seven types of training: individual grants, healthcare sector, industrial and construction sector, tech sector, customized, and on-the-job training. According to Gasper and colleagues, investing one dollar in industry-focused career training yielded “between \$2.80 and \$17.78 after five years compared to if that dollar had been invested in a standard job screening and matching program.” The study's authors also acknowledged that, in addition to the economic returns, there are many additional benefits to quality employment not factored into the analysis, such as positive impacts on children, mitigation of mental health impacts, and others.

A 2016 study, conducted by Hollenbeck and Huang in 2016, considered the ROI for 12 public workforce development programs administered in Washington state. The study found all the programs had discounted future benefits that far exceeded the costs for participants. For the public (i.e., government), benefits took longer to materialize, but when measured over the average participant's working lifetime, there was a positive return on investment for nine of the 11 programs.

Approach

The purpose of this analysis is to compare the cumulative financial benefits of a full-time career versus a 20-hour-a-week, near-minimum-wage job, over the course of our study individual's working life. Financial benefits include additional earnings for the individual as well as state and federal savings on the non-use of public assistance programs.

To estimate these benefits, the research team collected earnings and public assistance data from an interactive database designed by the Federal Reserve Bank of Atlanta called the *Career Ladder Identifier and Financial Forecaster* CLIFF portal. The CLIFF portal contains three separate tools: *Snapshot*, *Dashboard*, and *Planner*. *Snapshot* provides short-term information about the financial impacts of a new job or income change. *Dashboard* provides the user with the financial returns of different careers, and *Planner* gives budgeting tools to prepare for a career move. The three CLIFF tools were developed using data from the Atlanta Fed's [Policy Rules Database](#) (PRD), which contains data for every county in the U.S.

The research team used data from the CLIFF's *Snapshot* and *Dashboard* tools to estimate the cumulative financial benefits for the two career scenarios. Scenario 1 represents a full-time career as a construction laborer and Scenario 2 as a full-time registered nurse. The baseline scenario represents part-time

employment as a cashier (near minimum wage job). The scenarios were chosen by the Duluth HRA and True North Goodwill representatives. The baseline scenario (a single adult, age 30 with an infant) is typical of participants entering the entities' career training programs. Scenario 1 (full-time construction laborer) is a typical career pathway for participants of the Duluth HRA career training program, which is designed specifically to prepare participants for a career in construction. Scenario 2 (full-time registered nurse) is meant to represent a high-growth, high-demand career; as of July 2023, registered nurses were ranked as the second most in-demand career in northeast Minnesota, according to the Minnesota Department of Employment and Economic Development *Occupations in Demand* data tool.

The inputs used in comparing the two career scenarios (full-time construction laborer and registered nurse) and a baseline scenario (part-time cashier job) are shown in Table 1, below. For both career scenarios, earnings and public assistance benefits were estimated for a single adult with an infant (age 0) living in St. Louis County, Minnesota, over the course of a 35-year period (from ages 30 to 64 for the adult).² Hourly earnings for both positions (for St. Louis County) are calculated by the CLIFF *Dashboard* tool using Bureau of Labor Statistics data for the specific occupation in the specific county.

Table 1. Career Scenario Details

	<i>Baseline Scenario (Part-time cashier)</i>	<i>Scenario 1 (Full-time construction laborer)</i>	<i>Scenario 2 (Full-time registered nurse)</i>
Family characteristics	Single adult (30 years) with infant (0 years)	Single adult (30 years) with infant (0 years)	Single adult (30 years) with infant (0 years)
Location	St. Louis County, Minnesota	St. Louis County, Minnesota	St. Louis County, Minnesota
Career	Cashier	Construction Laborer	Registered Nurse
Starting Wage	\$11.87	\$17.75	\$31.63
Hours worked	20	40	40

SOURCES: BBER, CLIFF PORTAL

For each scenario, we assumed the individual will receive public assistance from the Supplemental Nutrition Assistance Program (SNAP), the Minnesota Family Investment Program (MFIP),³ childcare assistance from the Childcare and Development Fund (CCDF), a Section 8 Housing Voucher, Medicaid for Children, and Medicaid for Adults, if they met the eligibility criteria.⁴

² The CLIFF *Dashboard* tool allows for a side-by-side career comparison but assumes the individual is working 40 hours per week in both scenarios. Since we assumed part-time employment for Scenario 1, we relied on data from the *Snapshot* tool for that scenario. Also, the *Dashboard* estimates are only for a 25-year period, so we extrapolated the income for the remaining 10 years and used that data to collect earnings and public assistance benefits from the *Snapshot* tool. We used the tools' estimates for housing costs, assumed no money in checking or savings accounts, and no other sources of income.

³ Minnesota Family Investment Program (MFIP) is a state-specific program that relies on federal funding from the Temporary Assistance for Needy Families (TANF) program but has its own unique policy rules. As a national dataset, the CLIFF portal refers to all TANF-funded state programs as TANF, whereas we refer to the program as MFIP throughout this study.

⁴ While MFIP and SNAP both have lifetime participation limits, there are numerous reasons why a family might be eligible to receive benefits beyond the time limit. Therefore, we assumed the family would receive benefits as long as they continued to meet the income eligibility requirements.

Results

An individual like the one selected for our study (single parent with one child) who chooses either of the two full-time career scenarios (construction laborer or registered nurse) could see significant positive financial benefits, compared to having a career in a part-time, near-minimum-wage job (cashier).⁵

Cumulative Benefits

Table 2 below shows the cumulative benefits over the 35-year period for the baseline scenario and the two career scenarios.

Over the course of their 35-year work life, the study's individual working as a part-time cashier could earn \$460,000 in after-tax income, defined as earnings minus taxes paid. By comparison, the individual working as a construction laborer or registered nurse could earn roughly \$1.5 million and \$1.9 million, respectively.

Additionally, the person working as a part-time cashier could receive roughly \$733,700 in public assistance benefits over the 35-year period, whereas the person working as a construction laborer or registered nurse could receive \$127,300 and \$132,500, respectively.⁶

One of the metrics reported by the CLIFF portal is "net financial resources." This measure is the sum of after-tax income plus public assistance minus the family's living expenses (referred to in the CLIFF portal as the minimum household budget), which includes the expected cost of childcare, health care, food, rent, and transportation. When net financial resources are positive, it means that income and public assistance together provide enough to cover basic expenses, whereas having negative net financial resources implies a family does not earn enough income and public assistance to cover their basic expenses.

Table 2. Thirty-five-Year Work Life Change in Financial Resources for Career Scenarios and Comparison with Baseline Scenario (in Thousands of Dollars)

<i>(Age 30-64)</i>	<i>Baseline Scenario (Part-time cashier)</i>	<i>Scenario 1 (Full-time construction laborer)</i>	<i>Scenario 2 (Full-time registered nurse)</i>
After-tax income	\$460.5	\$1,529.4	\$1,891.3
Public assistance received	\$733.7	\$127.3	\$132.5
Living expenses	\$1,304.6	\$1,186.8	\$1,134.4
Net financial resources	-\$110.4	\$470.0	\$889.4
Net financial resources gained (compared with baseline)	-	\$580.4	\$999.8
Public assistance saved (compared with baseline)	-	\$606.4	\$601.2

SOURCES: BBER, CLIFF PORTAL

⁵ For detailed results, showing annual net resources and public assistance savings for the two scenarios, see Appendix C.

⁶ The Registered Nurse career (Scenario 2) receives slightly more public assistance than the construction laborer due to the four years of education required to be a registered nurse. During this period, the individual is assumed to be working part-time as a cashier while pursuing their degree. There is no such lag for the construction laborer career.

As shown in the table, cumulative net financial resources for the study individual in a part-time cashier job are negative, which means that the money earned along with public assistance funds are less than the individual’s cumulative living expenses. In other words, throughout the person’s 35-year work life, they earn less than they need to cover their basic expenses.⁷

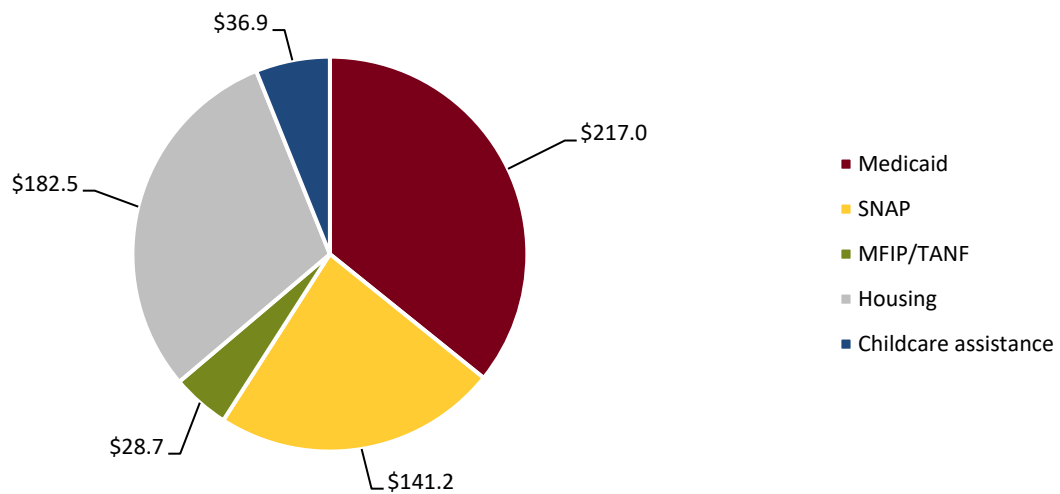
The row labeled “Net Financial Resources Gained” shows the cumulative dollars accumulated for the two career scenarios compared with the baseline scenario. Therefore, the individual choosing the construction laborer career path would earn \$580,400 more than someone working in a part-time cashier position, over the course of their 35-year working life. The individual choosing a career as a registered nurse would earn \$1 million more in net financial resources than the part-time cashier position.

Public Assistance Savings

The last row of Table 2, labeled “Public Assistance Saved,” shows public assistance savings for both career scenarios (construction laborer and registered nurse), as compared with working as a part-time cashier. In both cases, state and federal government programs could save more than \$600,000 in public assistance benefits over the course of the individual’s working life.

The largest public assistance savings would come from Medicaid for Children and Medicaid for Adults that when combined equal \$217,000 (see Figure 1). Section 8/housing assistance is the next program with the highest level of savings, \$182,500, followed by SNAP (\$141,200), and childcare assistance (\$36,900). Working life savings from MFIP equals \$28,700.

Figure 1. Public Assistance Dollars Saved by Program over 35-Year Working Span, Construction Laborer (in Thousands of Dollars)



SOURCES: BBER, CLIFF PORTAL

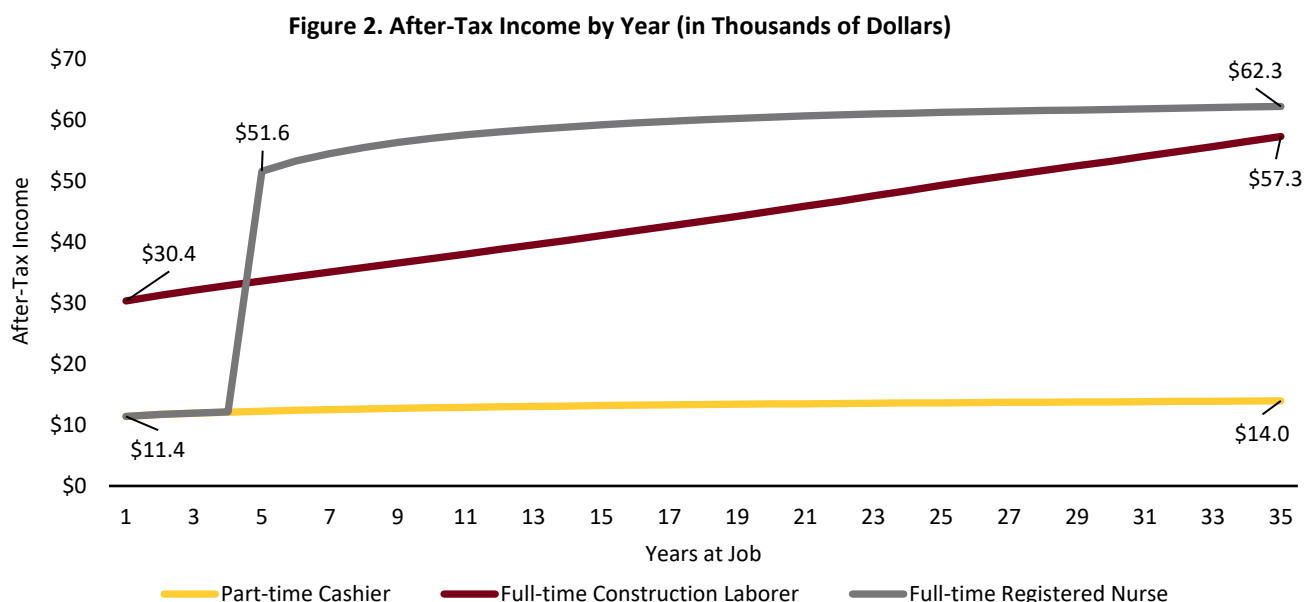
⁷ It should be noted that despite using the same family characteristics for all three scenarios, the living expenses for the three career scenarios are slightly different. The difference is due primarily to the CLIFF portal’s assumptions related to health care coverage and how much the household is expected to pay in health care expenses for their chosen plan.

If the cycle of poverty were broken, and the individual’s child never received public assistance as an adult, an additional \$750,000 in public assistance savings could be possible (assuming 46 years of benefits for the child).

Figures 2 through 4 on the following pages show after-tax income, public assistance received, and net financial resources for the three career scenarios over the course of our study individual’s working life.

After-Tax Income

Figure 2 shows after-tax income our study individual would earn in the three career scenarios for each year worked over the 35-year span. (ages 30-64).



SOURCES: BBER, CLIFF PORTAL

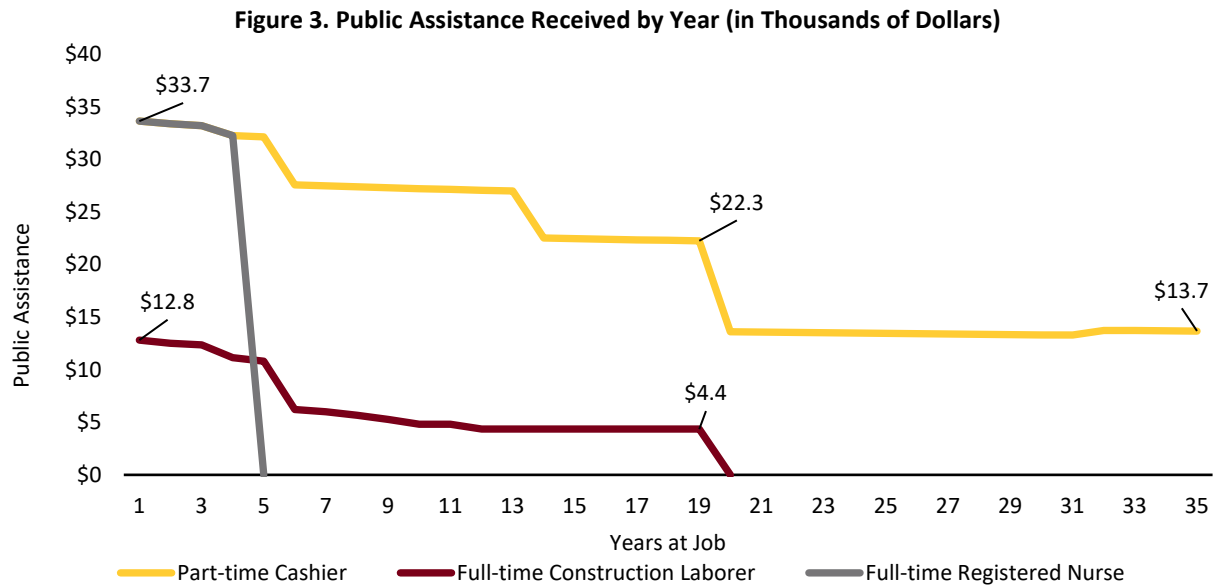
As shown in the figure, after-tax income for the part-time cashier position starts at \$11,400 in year one and remains relatively flat throughout the person’s career. By age 64, it is assumed that the individual would earn just over \$14,000 (an increase of 22.8% over the 35-year period). By comparison, a construction laborer with our study demographics begins their career earning \$30,400 in after-tax income and reaches \$57,300 in after-tax earnings by the end of their career (an increase of 88%). A career as a registered nurse requires four years of education, so the earnings for that scenario begins at the same level as the part-time cashier, but then quickly increases to \$51,600 in year four and continues to increase to \$62,300 by the end of the person’s 35-year working life.⁸

⁸ The *Dashboard* tool’s projected results, including income, are in 2024 dollars and are not adjusted for inflation. According to the Federal Reserve Bank of Atlanta, wage growth has historically matched the overall rate of inflation. Because many of the charts shown in the CLIFF portal include living expenses, all values are presented in current dollars. Instead, the wage growth shown in Figure 2, for example, represents an “experience” premium. In other words, the tool accounts for the trajectory of wages as a worker gains more experience. This premium varies by occupation.

When considering lifetime earnings for the two scenarios, it's important to note that starting wages (and wage growth) can vary widely, especially for occupations in construction and healthcare, where there is a large union presence. According to the Duluth HRA, most of the students that complete their training begin their career earning wages well above the \$30,400 assumed in Scenario 1.

Public Assistance Received

Figure 3 shows the amount of public assistance our study individual would receive in each career scenario each year, over the course of their working lifetime.



SOURCES: BBER, CLIFF PORTAL

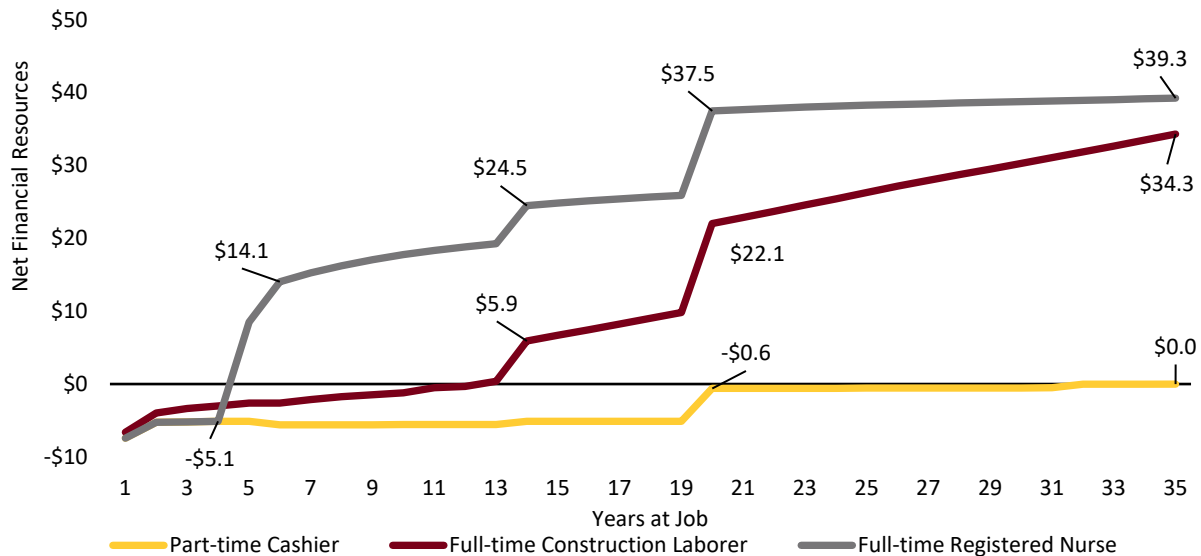
As shown in the figure, our study individual working as a part-time cashier is eligible to receive roughly \$33,700 a year in public assistance. The value decreases gradually over time, with larger decreases coinciding with the age of the person's child (e.g., when the child enters school, turns 18, etc.). Even at the end of the person's working lifetime, their income remains low enough that they are still eligible to receive roughly \$13,500 in public assistance per year. On average, the individual would receive roughly \$27,200 each year over the course of their working life.

By comparison, a person working as a construction laborer is eligible for approximately \$12,800 in public assistance when they begin their career. Once their child turns 19, they no longer receive any public assistance. With the registered nurse career path, the only public assistance used is during the four-year period of schooling with a part-time job. Once employed as a nurse, the person's income is high enough that they are no longer eligible.

Net Financial Resources

Figure 4 below shows the annual net financial resources for the three career scenarios by year. As mentioned previously, this measure represents the sum of after-tax income plus public assistance dollars minus the family's living expenses. When net financial resources are positive, it means that income and public assistance together provide enough to cover basic expenses.

Figure 4. Yearly Net Financial Resources (in Thousands of Dollars)



SOURCES: BBER, CLIFF PORTAL

As shown in the figure, our study individual working as a part-time cashier could see negative net financial resources until after their child reaches age 19. This means that they do not earn enough to cover their basic expenses until their child becomes an adult. By comparison, the single parent with one child trained as a registered nurse could see positive net resources as soon as they are hired (around year four). The same person working as a full-time construction laborer could have positive net financial resources after about 12 years.

Economic Impacts

Economic impact analysis tracks an initial economic shock or activity (like increased household earnings) through multiple rounds of industry and consumer spending to show the multiplier or ripple effects through a local economy.⁹ The initial shock or activity is considered the direct effect, the resulting increase in industry spending is the indirect effect, and the resulting increase in consumer spending is the induced effect. This section summarizes the economic impacts for the two career scenarios developed for this study, using the cumulative net financial resources (i.e., the individual’s increased spending power) as inputs for modeling. Results are measured in employment, output, labor income, and value added.

Economic impact analysis requires the analyst to select a study area—the boundary of the local economy. The geographic scope for this economic impact analysis is the state of Minnesota. Though most of the direct effects of our two career scenarios would likely be felt in St. Louis County (where our hypothetical family resides), the ripple effects that arise from increased household spending are often distributed more broadly and are based on the location of local suppliers, the labor market, and other factors.

Table 3. Cumulative Economic Impacts from Increase in Net Financial Resources, in Thousands of Dollars (Construction Laborer and Registered Nurse Careers Compared to Baseline)

	<i>Full-Time Construction Laborer</i>	<i>Full-Time Registered Nurse</i>
Employment	3.3	5.8
Labor Income	\$212.6	\$378.0
Value Added	\$376.2	\$663.0
Output	\$646.8	\$1,140.8

SOURCE: BBER, IMPLAN

Table 3 shows the cumulative economic effects for the two scenarios compared to the baseline scenario. These impacts represent the increase in economic activity statewide resulting from the increased financial resources (i.e., increased spending power) our study’s individual would earn over their working lifetime. The first row in the table, labeled “Employment,” shows the number of jobs that would be added to the economy as a result of the individual’s increased earnings. The row labeled “Labor Income” is the total of all employee compensation. This includes wages, benefits, and payroll taxes for full- and part-time workers. The row labeled “Value Added” refers to the contribution to the GDP made by an individual producer, industry, or sector. And the last row in the table, Output, is the total value of all new spending added to the economy because of the increased financial benefits to the individual from career advancement.

In total, the economic impacts (as measured by output) resulting from the career advancement of just one individual exceed the financial benefits to the individual themselves. For example, a person with our study demographics choosing a career as a registered nurse would see a cumulative increase in their net financial resources of \$889,400. Yet the state would see economic impacts of more than \$1.1 million. In other words, for every \$1 of increased net financial resources earned by the individual, another \$0.28 is added to the state’s economy. Adding to this economic benefit is that these results do not include the savings from state and federal government programs due to reduced reliance on public assistance—an additional \$600,000 over the 35-year career of a construction laborer or registered nurse, as shown in Table 2 on page 4.

⁹ For more details on the assumptions and methodology used in input-output modeling, see Appendix B.

Conclusions

To estimate the financial benefits gained from career advancement, the research team collected earnings and public assistance data from an interactive database designed by the Federal Reserve Bank of Atlanta called the CLIFF portal.

The research team used data from the CLIFF's *Snapshot* and *Dashboard* tools to estimate the cumulative financial benefits for the two career scenarios—Scenario 1 representing a full-time career as a construction laborer and Scenario 2 representing a full-time registered nurse for a single adult, age 30 with an infant. A baseline scenario representing a part-time cashier (near minimum wage job) was used.

Based on the results of our analysis, an individual with the demographics depicted in our study who chooses either of the two full-time career scenarios (construction laborer or registered nurse) could see significant positive financial benefits, compared to a career in a part-time, near-minimum-wage job.

Over the course of the study individual's working life, the individual choosing the construction laborer career path would earn \$580,400 more than someone working in a part-time cashier position, over the course of their 35-year working life. The individual choosing a career as a registered nurse would earn \$1 million more in net financial resources than the part-time cashier.

In both cases, state and federal government programs could save more than \$600,000 in public assistance benefits over the course of the individual's working life. More than \$60,000 of the overall savings would occur within the first three years of the individual working in a construction or registered nurse career (as opposed to a part-time minimum wage job).

The economic impacts to the state resulting from the career advancement of just one individual exceed the financial benefits to the individual. For example, a person choosing a career as a registered nurse would see a cumulative increase in their net financial resources of \$889,400. Yet the state would see economic impacts of more than \$1.1 million.

Appendix A. Definitions Used in this Report

After-tax income: The net amount of income available to invest, save, or consume after federal, state, and withholding taxes have been applied

Benefits: The assistance that one receives from public assistance programs

Career training programs: Vocational training, field training, on-the-job training, or any other recognized job readiness training programs focused upon the acquisition of knowledge and skills that prepare the participant for employment.

Childcare assistance: A form of benefit, provided by the Childcare Development Fund (CCDF), in which the individual receives financial assistance to pay for childcare

CLIFF portal: An online tool created by the Federal Reserve Bank of Atlanta designed to provide data and information on the potential short- and long-term financial impacts of a new job, income change, or career pathway

Dashboard Tool: One of three tools in the CLIFF portal, developed by the Federal Reserve Bank of Atlanta, designed to assist with long-term career planning and financial barriers to career advancement

Economic impact analysis: A technique that allows an analyst to trace spending through an economy and measure the cumulative effects of that spending. Also referred to as Input-Output Analysis.

Employment: Estimates (from U.S. Department of Commerce secondary data) that are in terms of jobs, not in terms of full-time equivalent employees. Therefore, these jobs may be temporary, part-time, or short-term.

Federal Reserve Bank of Atlanta (Atlanta Fed): Serves the Sixth Federal Reserve District, which encompasses Alabama, Florida, Georgia, and sections of Louisiana, Mississippi, and Tennessee. As part of the nation's central banking system, the Atlanta Fed participates in setting national monetary policy, supervises numerous commercial banks, and provides a variety of financial services to depository institutions and the U.S. government.

Full-time: Involved or working 40 hours a week

Gross Domestic Product (GDP): The market value of all goods and services produced in a nation in a certain time frame (typically a year)

IMPLAN: A software system that uses a backward-linkage model that allows a user to develop models that can estimate the economic impacts of different varieties in a study area, such as when a new firm starts, recreation and tourism, development, and more.

Labor income: All forms of employment income, including employee compensation (wages and benefits) and proprietor income

Living expenses: Money that has to be spent on food, housing, clothes, transport etc.; referred to as the minimum household budget in the CLIFF portal

Medicaid: A program of medical aid designed for those unable to afford regular medical service and financed by the state and federal governments

Minimum-wage: The lowest wage paid or permitted to be paid

Minnesota Family Investment Program (MFIP): Minnesota’s state welfare program for low-income families with children

Net financial resources: Total dollar amount value of after-tax income plus public assistance available after living expenses are deducted

Output: The value of local production required to sustain activities

Part-time: Involving or working less than customary or standard hours. In the case of our baseline scenario, part-time employment is equal to 20 hours per week.

Public assistance: Any program administered through government funding that provides financial or supplemental support to those in need

Return on investment: A performance measure used to evaluate the efficiency or profitability of an investment or compare the efficiency of a number of different investments; calculated as net program benefits divided by the program costs

Section 8 Housing Voucher: The Housing Choice Voucher Program (commonly known as Section 8) provides vouchers which reduce the cost of rent.

Snapshot Tool: One of three tools in the CLIFF portal, developed by the Federal Reserve Bank of Atlanta, designed to estimate the potential short-term financial impacts of a new job or income change

Supplemental Nutrition Assistance Program (SNAP): A federal program that provides nutrition benefits to low-income individuals to purchase food

Temporary Assistance for Needy Families (TANF): A federal program that provides temporary cash flows to families in need. The federal funding source for the Minnesota Family Investment Program

Value added: A measure of the impacting industry’s contribution to the local community that includes wages, rents, interest, and profits

Appendix B. Input-Output Modeling

Data Sources

This study uses the IMPLAN Group's input-output modeling data and software (IMPLAN version 3.1). The IMPLAN database contains county, state, zip code, and federal economic statistics, which are specialized by region, not estimated from national averages. Using classic input-output analysis in combination with region-specific Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate and adaptable model for its users. IMPLAN data files use the following federal government data sources:

- U.S. Bureau of Economic Analysis Benchmark Input-Output Accounts of the U.S.
- U.S. Bureau of Economic Analysis Output Estimates
- U.S. Bureau of Economic Analysis Regional Economic Information Systems (REIS) Program
- U.S. Bureau of Labor Statistics Covered Employment and Wages (CEW) Program
- U.S. Bureau of Labor Statistics Consumer Expenditure Survey
- U.S. Census Bureau County Business Patterns
- U.S. Census Bureau Decennial Census and Population Surveys
- U.S. Census Bureau Economic Censuses and Surveys
- U.S. Department of Agriculture Census

IMPLAN data files consist of the following components: employment, industry output, value added, institutional demands, national structural matrices, and inter-institutional transfers. Economic impacts are made up of direct, indirect, and induced impacts. The data used was the most recent IMPLAN data available, which is for the year 2022. All data are reported in 2024 dollars.

Economic impacts are made up of direct, indirect, and induced impacts. The following are suggested assumptions for accepting the impact model: IMPLAN input/output is a production-based model, and employment numbers (from U.S. Department of Commerce secondary data) treat both full- and part-time individuals as being employed.

Regional data for the impact models for value added, employment, and output are supplied by IMPLAN for this impact. Employment assumptions were provided to the model to enable construction of the impact model. From these data, social accounts, production, absorption, and byproducts information were generated from the national level data and was incorporated into the model. All region study definitions and impact model assumptions were agreed on before work with the models began.

Modeling Assumptions

The following are suggested assumptions for accepting the impact model:¹⁰

Backward-Linkages: IMPLAN is a backward-linkage model, meaning that it measures the increased demand on industries that produce intermediate inputs as a result of increases in production. However, if an industry increases production, there will also be an increased supply of output for other industries to use in their production. Models that measure this type of relationship are called forward-linkage models. To highlight this concept, consider the example of a new sawmill beginning its operations in a state. The increased production as a result of the sawmill's operations will increase the demand for lumber, creating an increase in activity in the logging industry, as well as other supporting industries such as electric transmission and distribution. IMPLAN's results will include those impacts but will exclude effects on any wood product manufacturers located nearby that might be impacted by the newly available supply of lumber.

Employment: IMPLAN input-output is a production-based model, and employment numbers (from U.S. Department of Commerce secondary data) treat both full- and part-time individuals as being employed.

Fixed prices and no supply constraints: IMPLAN is a fixed-price model. This means that the modeling software assumes no price adjustment in response to supply constraints or other factors. In other words, the model assumes that firms can increase their production as needed and are not limited by availability of labor or inputs and that firms in the local economy are not operating at full capacity.

Fixed production patterns: Input-output (I-O) models assume inputs are used in fixed proportion, without any substitution of inputs, across a wide range of production levels. This assumption assumes that an industry must double its inputs (including both purchases and employment) to double its output. In many instances, an industry will increase output by offering overtime, improving productivity, or improvements in technology.

Industry homogeneity: I-O models typically assume that all firms within an industry have similar production processes. Any industries that fall outside the typical spending pattern for an industry should be adjusted using IMPLAN's Analysis-by-Parts technique.

Leakages: A small area can have a high level of leakage. Leakages are any payments made to imports or value added sectors, which do not in turn re-spend the dollars within the region. What's more, a study area that is actually part of a larger functional economic region will likely miss some important linkages. For example, workers who live and spend outside the study area may actually hold local jobs.

¹⁰ Bureau of Economic Analysis https://www.bea.gov/papers/pdf/WP_IOMIA_RIMSII_020612.pdf

Appendix C. Detailed Results

Table 4. Construction Laborer (Scenario 1) Annual Results Summary

<i>Year</i>	<i>Adult Age</i>	<i>Child Age</i>	<i>Baseline Net Resources</i>	<i>Scenario 1 Net Resources</i>	<i>Difference</i>	<i>Baseline Public Assistance</i>	<i>Scenario 1 Public Assistance</i>	<i>Difference</i>
1	30	0	-\$7,431	-\$6,620	\$811	\$33,660	\$12,821	\$20,839
2	31	1	-\$5,268	-\$3,953	\$1,315	\$33,396	\$12,535	\$20,861
3	32	2	-\$5,220	-\$3,360	\$1,860	\$33,216	\$12,379	\$20,837
4	33	3	-\$5,117	-\$3,006	\$2,111	\$32,268	\$11,140	\$21,128
5	34	4	-\$5,105	-\$2,611	\$2,494	\$32,136	\$10,828	\$21,308
6	35	5	-\$5,618	-\$2,610	\$3,008	\$27,600	\$6,225	\$21,375
7	36	6	-\$3,196	-\$2,111	\$1,085	\$27,504	\$6,017	\$21,487
8	37	7	-\$3,222	-\$1,744	\$1,478	\$27,396	\$5,679	\$21,717
9	38	8	-\$3,224	-\$1,454	\$1,770	\$27,312	\$5,263	\$22,049
10	39	9	-\$3,276	-\$1,213	\$2,063	\$27,228	\$4,821	\$22,407
11	40	10	-\$3,304	-\$525	\$2,779	\$27,156	\$4,821	\$22,335
12	41	11	-\$3,382	-\$328	\$3,054	\$27,084	\$4,351	\$22,733
13	42	12	-\$3,435	\$360	\$3,795	\$27,012	\$4,351	\$22,661
14	43	13	-\$14,817	\$5,912	\$20,729	\$22,548	\$4,351	\$18,197
15	44	14	-\$14,805	\$6,680	\$21,485	\$22,488	\$4,351	\$18,137
16	45	15	-\$14,793	\$7,456	\$22,249	\$22,440	\$4,351	\$18,089
17	46	16	-\$14,793	\$8,242	\$23,035	\$22,380	\$4,351	\$18,029
18	47	17	-\$14,793	\$9,037	\$23,830	\$22,320	\$4,351	\$17,969
19	48	18	-\$14,769	\$9,843	\$24,612	\$22,284	\$4,351	\$17,933
20	49	-	-\$1,957	\$22,051	\$24,008	\$13,932	-	\$13,932
21	50	-	-\$1,945	\$22,879	\$24,824	\$13,896	-	\$13,896
22	51	-	-\$1,933	\$23,718	\$25,651	\$13,872	-	\$13,872
23	52	-	-\$1,933	\$24,570	\$26,503	\$13,836	-	\$13,836
24	53	-	-\$1,909	\$25,433	\$27,342	\$13,812	-	\$13,812
25	54	-	-\$1,909	\$26,310	\$28,219	\$13,776	-	\$13,776
26	55	-	-\$1,897	\$27,158	\$29,055	\$13,752	-	\$13,752
27	56	-	-\$1,885	\$27,950	\$29,835	\$13,728	-	\$13,728
28	57	-	-\$1,873	\$28,742	\$30,615	\$13,704	-	\$13,704
29	58	-	-\$1,873	\$29,510	\$31,383	\$13,680	-	\$13,680
30	59	-	-\$1,861	\$30,278	\$32,139	\$13,656	-	\$13,656
31	60	-	-\$1,849	\$31,070	\$32,919	\$13,632	-	\$13,632
32	61	-	-\$1,489	\$31,862	\$33,351	\$13,968	-	\$13,968
33	62	-	-\$1,477	\$32,666	\$34,143	\$13,956	-	\$13,956
34	63	-	-\$1,465	\$33,494	\$34,959	\$13,932	-	\$13,932
35	64	-	-\$1,465	\$34,322	\$35,787	\$13,908	-	\$13,908

SOURCE: CLIFF PORTAL

*Bureau of Business and Economic Research
Labovitz School of Business and Economics
University of Minnesota Duluth*

Table 5. Registered Nurse (Scenario 2) Annual Results Summary

<i>Year</i>	<i>Adult Age</i>	<i>Child Age</i>	<i>Baseline Net Resources</i>	<i>Scenario 2 Net Resources</i>	<i>Difference</i>	<i>Baseline Public Assistance</i>	<i>Scenario 2 Public Assistance</i>	<i>Difference</i>
1	30	0	-\$7,431	-\$7,431	\$0	\$33,660	\$33,660	\$0
2	31	1	-\$5,268	-\$5,268	\$0	\$33,396	\$33,396	\$0
3	32	2	-\$5,220	-\$5,220	\$0	\$33,216	\$33,216	\$0
4	33	3	-\$5,117	-\$5,117	\$0	\$32,268	\$32,268	\$0
5	34	4	-\$5,105	\$8,508	\$13,613	\$32,136	-	\$32,136
6	35	5	-\$5,618	\$14,052	\$19,670	\$27,600	-	\$27,600
7	36	6	-\$3,196	\$15,276	\$18,472	\$27,504	-	\$27,504
8	37	7	-\$3,222	\$16,236	\$19,458	\$27,396	-	\$27,396
9	38	8	-\$3,224	\$17,064	\$20,288	\$27,312	-	\$27,312
10	39	9	-\$3,276	\$17,772	\$21,048	\$27,228	-	\$27,228
11	40	10	-\$3,304	\$18,360	\$21,664	\$27,156	-	\$27,156
12	41	11	-\$3,382	\$18,816	\$22,198	\$27,084	-	\$27,084
13	42	12	-\$3,435	\$19,248	\$22,683	\$27,012	-	\$27,012
14	43	13	-\$14,817	\$24,504	\$39,321	\$22,548	-	\$22,548
15	44	14	-\$14,805	\$24,828	\$39,633	\$22,488	-	\$22,488
16	45	15	-\$14,793	\$25,152	\$39,945	\$22,440	-	\$22,440
17	46	16	-\$14,793	\$25,428	\$40,221	\$22,380	-	\$22,380
18	47	17	-\$14,793	\$25,680	\$40,473	\$22,320	-	\$22,320
19	48	18	-\$14,769	\$25,896	\$40,665	\$22,284	-	\$22,284
20	49	-	-\$1,957	\$37,499	\$39,456	\$13,932	-	\$13,932
21	50	-	-\$1,945	\$37,688	\$39,633	\$13,896	-	\$13,896
22	51	-	-\$1,933	\$37,858	\$39,791	\$13,872	-	\$13,872
23	52	-	-\$1,933	\$38,013	\$39,946	\$13,836	-	\$13,836
24	53	-	-\$1,909	\$38,152	\$40,061	\$13,812	-	\$13,812
25	54	-	-\$1,909	\$38,278	\$40,187	\$13,776	-	\$13,776
26	55	-	-\$1,897	\$38,386	\$40,283	\$13,752	-	\$13,752
27	56	-	-\$1,885	\$38,486	\$40,371	\$13,728	-	\$13,728
28	57	-	-\$1,873	\$38,578	\$40,451	\$13,704	-	\$13,704
29	58	-	-\$1,873	\$38,671	\$40,544	\$13,680	-	\$13,680
30	59	-	-\$1,861	\$38,766	\$40,627	\$13,656	-	\$13,656
31	60	-	-\$1,849	\$38,861	\$40,710	\$13,632	-	\$13,632
32	61	-	-\$1,489	\$38,959	\$40,448	\$13,968	-	\$13,968
33	62	-	-\$1,477	\$39,058	\$40,535	\$13,956	-	\$13,956
34	63	-	-\$1,465	\$39,156	\$40,621	\$13,932	-	\$13,932
35	64	-	-\$1,465	\$39,256	\$40,721	\$13,908	-	\$13,908

SOURCE: CLIFF PORTAL

Bureau of Business and Economic Research
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