

# Measuring Impact in a Complex World: A Social Return on Investment Framework for JEVS Human Services

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# Executive Summary\*

Social Return on Investment (SROI) is a powerful tool for quantitatively expressing the social impact of human services programs. The technique compares the monetary value of the impacts of a program with the costs incurred to generate that value. JEVS Human Services is a provider of social services in the Greater Philadelphia area and is exploring SROI analysis as a tool to monitor and share the impact of its work with funders and the public. In this report, I examine the history of SROI analysis, compare different approaches to SROI analysis, and discuss methodological challenges and approaches to implementing it. I then apply SROI analysis to a case study of Orleans Technical College — one of the largest and longest-running programs in the JEVS portfolio — and close by discussing recommendations for expanding the use of SROI at Orleans and across the JEVS portfolio.

The SROI analysis of Orleans began as a participatory process and became increasingly analytical. In the early stages, I met with staff from JEVS and Orleans to identify the stakeholders who benefit from Orleans, and we decided to focus the analysis on benefits to graduates and government entities. Incorporating insights from in-depth interviews I conducted with two recent graduates, we decided that the SROI analysis would focus on the following set of outcomes: graduates earn higher wages, graduates experience greater job satisfaction, graduates are more satisfied with their financial situation, state and federal governments receive greater income tax receipts, and state and federal governments spend less on SNAP and Medicaid benefits.

I distributed a web-based outcomes survey to 831 students with active emails who graduated from Orleans between 2015 and 2018. I received 76 responses (9%), and the results demonstrated the following:

- **Orleans graduates secured jobs that provided a substantial boost in earnings — a boost that grew over time.** One year after graduation, students who graduated between 2015 and 2018 earned \$17,930 more annually, on average, than they did before attending Orleans. Over the subsequent two years, graduates saw their annual earnings increase an additional \$8,075.
- **Graduates were more satisfied with their employment and financial situation after attending Orleans.** In the survey, 82% of graduates indicated they were satisfied with their employment after graduating from Orleans — representing a 45

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percentage point increase from before attending Orleans. Also, 62% of graduates were satisfied with their financial situation after attending Orleans — representing a 41 percentage point increase from before attending Orleans.

- **Fewer students were enrolled in SNAP and Medicaid benefits one year after graduation.** While a small segment of graduates were enrolled in SNAP (17%) and Medicaid (14%) before attending Orleans, that segment declined by more than half so that only a small share were enrolled in SNAP (8%) and Medicaid (5%) one year after graduation.

To arrive at the final SROI figures, I multiplied outcomes by financial proxies to estimate their dollar value when outcomes were not already expressed in monetary terms. I then deducted value that would have been created in the absence of Orleans or that was attributable to other sources. Finally, I compared the net present value of the monetary benefits of an Orleans education with the cost to run the program.

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Orleans Technical College creates \$1.20 of social value for graduates and government entities one year after graduation for every \$1 invested in its trade programs. After three years following graduation, Orleans Technical College generates \$3.72 of social value.

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The SROI analysis of Orleans provided insights into how SROI analysis might be expanded to other programs in the JEVS portfolio. I propose the following recommendations:

- **Align outcome measurement needs from SROI analysis with existing data collection and reporting efforts.** The implementation of SROI analysis for any existing program will be most efficient when program staff can find ways to integrate SROI outcome questions into existing evaluation tools and where existing evaluation data may be sufficient for use in SROI analysis.
- **Engage stakeholders in conversation to collaboratively identify the most important outcomes of a program.** Stakeholders can highlight the largest benefits of a program, and this is valuable because resource constraints limit organizations' ability to collect outcome data on benefits.
- **Find systematic ways for measuring deadweight and attribution that mitigate the subjectivity of SROI analysis.**<sup>1</sup> Survey-based approaches to the measurement of deadweight and attribution — as used in this SROI analysis — can help mitigate the amount of subjectivity involved in the final SROI figures. These approaches

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<sup>1</sup> Deadweight represents the percent of the outcome that would have occurred in the absence of the program, while attribution represents the percent of an outcome that is due to other sources (Nicholls et al., 2012).

systematically ask stakeholders to opine on how much of the change they experienced was due to the program.

- **Consider using specialized software to track outcomes and automate the SROI calculation.** Managing multiple SROI analyses within spreadsheets may hinder collaboration and create opportunities for human error in performing calculations. Practitioners of SROI analysis have created several different specialized software packages that aim to improve this process.
- **Consider having SROI reports assured for quality by a third party.** Nonprofit scholars believe that one of the benefits of SROI analysis is that it demonstrates program legitimacy to funders. One way that benefit might be maximized is by having SROI reports assured for quality by a third party.

I propose the following recommendations for how Orleans might use SROI in the future.

- **Incorporate SROI outcome measurement into expanded intake and exit questionnaires.** Orleans currently collects verified student employment, benefits, and earnings data after graduation, but the data are incomplete and collected at variable points after graduation. Orleans might consider establishing a single follow-up period and incorporating additional outcome questions needed for the SROI analysis.
- **Consider expanding future SROI analysis to include the value created for local businesses and families of graduates.** Scope limitations prevented exploring the impact of Orleans on local business and families of graduates. In future use of SROI analysis, Orleans may benefit from conducting outreach with businesses and families of graduates to develop a deeper understanding of which specific outcomes are significant. Orleans could then incorporate these important stakeholder groups into future SROI analysis.

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# Part I: Synthesizing the Contemporary Practice of Social Return on Investment Analysis

## The Evolving Nonprofit Landscape in the Twenty-First Century

Nonprofit organizations are responding to ideologic changes in the third sector that are redefining how these organizations achieve financial sustainability in the 21<sup>st</sup> century.<sup>2</sup> Whereas in the past, philanthropic and corporate giving operated under the umbrella of charity, now these donors view themselves as investors in social outcomes. Like investors in other types of assets, social investors are concerned with how much social value will be created with their financial investment. Investors are seeking quantitative data on the ability of nonprofit organizations to translate their programming into social impact (Ralser, 2007; Moody et al., 2015). However, nonprofit researchers and practitioners have raised concerns about the extent to which excessive measurement can lead to mission drift or the stifling of innovation (MacIndoe & Barman, 2012).

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*While there is no question that most nonprofits are valuable to the community, the challenge is the demonstration, communication, and delivery of that value (Ralser, 2007, p. 21).*

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Changes in how state and local governments deliver human services have also impacted the ways that nonprofits operate. In the second half of the 20<sup>th</sup> century, federal social policy began to reflect the need for human services in addition to cash payments and relied on private nonprofit organizations to deliver these services. In recent years, decreases in government funding and the growth of for-profit service providers have created a competitive marketplace (Abramovitz & Zelnick, 2015). The Government Performance and Results Act of 1993 encouraged state governments to establish performance-based contracts with nonprofit service providers (Ebrahim, 2019, Chapter 1). Governments and other external funders are a driving factor for nonprofits to invest in outcome measurement.

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<sup>2</sup> The third sector refers to those charitable and nonprofit organizations that neither belong to the public nor private sectors (Hudson, 2009, Introduction).

Nonprofit administrators may struggle to quantify the impacts of complex human services programs. Human services — such as addiction treatment, job training, and in-home health support — generate ripple effects across society, benefiting not only the client directly but also the client’s family, neighbors, hospital systems, businesses, and governments. While tangible benefits (e.g., an increase in earnings after attending a skills training program) may be straightforward to measure, it can be more challenging to precisely capture intangible benefits (e.g., improvements in one’s perception of self-worth after obtaining employment). Some of these benefits may be short-lived, while others may take longer time horizons to materialize. Funders are increasingly looking for quantitative measures that describe these benefits and rely on these measures to make funding decisions.

Social return on investment (SROI) analysis is a versatile tool for measuring the complex impacts of human services programs. In SROI analysis, the financial value of outcomes that can be claimed by a program are compared to the financial resources needed to generate those outcomes. SROI analysis can respond to the trend towards investments in social outcomes by serving as both a performance management and evaluation tool (Maier et al., 2015). SROI analysis can capture benefits for multiple stakeholder groups, can value both tangible and intangible benefits, and can account for benefits occurring over varying time horizons.

JEVS Human Services is a social services organization that has served residents of the Greater Philadelphia area since 1941. According to its mission statement, “JEVS Human Services enhances the employability, independence, and quality of life of individuals through a broad range of programs.” JEVS is in the process of developing an organizational value proposition, a multi-faceted document which includes an assessment of the organization’s ability to translate its financial resources into desired outcomes. Having the knowledge and tools to calculate SROI figures for its programs will enhance how JEVS communicates its social impact to potential funders, and in doing so, reframe development narratives from that of financial support to that of financial investment in social outcomes.

The first part of this report explains the history and practice of SROI analysis and highlights the value it can provide to an organization. It details some of the methodological challenges with SROI analysis and offers best practices for overcoming them. Part two then details an SROI analysis of Orleans Technical College, one of the largest and longest-running programs in the JEVS Human Services portfolio. The third part considers how JEVS might best leverage SROI analysis within its organization.

## **What is SROI Analysis?**

SROI analysis is a technique for quantitatively expressing the social impact of a program. The analysis yields a ratio, which essentially, compares the monetized value of a program’s social impact to the cost required to create that impact. An SROI figure greater than 1 implies that

a program is generating more social impact than that impact costs to create; whereas an SROI figure less than 1 indicates that a program requires greater investment than the social value it is able to create. Analysts can perform a forecast SROI analysis to predict the value that will be created by a program in the future or an evaluative SROI analysis to determine the impact a program has already created. SROI analysis can also be performed at the organizational level by considering impacts and costs across multiple programs (Nicholls et al., 2012).

Philanthropic and nonprofit organizations developed the current practice of SROI analysis by modifying the traditional return on investment found in the financial sector to account for social outcomes. In current practice, professionals have three variants of SROI analysis from which to choose: the Roberts Enterprise Development Fund (REDF) blended value approach, the Robin Hood Foundation benefit-cost ratio, and the SROI Network stakeholder approach (Cooney & Lynch-Cerullo, 2014).

REDF was one of the earliest developers of SROI analysis and employed the technique to compare investments in employment-focused social enterprises. Its blended value ratio is designed for the analysis of social enterprises; it compares the profit generated from the business and savings accrued to government to the social costs incurred in furtherance of the social benefit (e.g., workplace supports for those employed by the social enterprise) (Cooney & Lynch-Cerullo, 2014).

The Robin Hood Foundation developed its own variant of SROI analysis — the benefit-cost ratio — to compare investments in poverty-reduction programs. In contrast to the other variants, the Robin Hood approach focuses only on benefits to the client which contribute to poverty reduction. In addition, the Robin Hood approach incorporated more rigorous social science practices that ensured the SROI analysis would only claim outcomes that were caused by the program itself (Cooney & Lynch-Cerullo, 2014).

Finally, the SROI Network variant builds on qualities of its predecessors but is more amenable to use by nonprofit organizations seeking to demonstrate their impact. It provides the flexibility to consider social impacts of a program experienced by any number of stakeholders. In essence, the SROI figure is calculated by asking what has changed for the stakeholder groups of interest, determining the monetary value of those benefits, and then subtracting out the portion of value created that is not the result of the program. The resulting net value is divided by the cost of the program (Cooney & Lynch-Cerullo, 2014).

$$\text{SROI} = \frac{\left[ \begin{array}{c} \text{change that} \\ \text{occurred} \end{array} \right] \times \left[ \begin{array}{c} \text{financial value} \\ \text{of that change} \end{array} \right] - \left[ \begin{array}{c} \text{change that cannot be} \\ \text{claimed by the program} \end{array} \right]}{\text{cost of the program}}$$

The process outlined by the SROI Network includes six steps which provide both the structure and flexibility to perform SROI analysis on a wide range of programs (Nicholls et al., 2012):

- Stage 1: Establishing Scope and Identifying Stakeholders
- Stage 2: Mapping Outcomes
- Stage 3: Evidencing Outcomes and Giving Them a Value
- Stage 4: Establishing Impact
- Stage 5: Calculating the SROI
- Stage 6: Reporting, Using, and Embedding

Even SROI analyses which follow the SROI Network model may place more emphasis on specific stages. Then et al. (2017, Chapter 1) have proposed a spectrum of SROI analyses that range in complexity and comprehensiveness. The four types are “lite,” “medium,” “advanced,” and “integrated,” and vary according to three factors: the degree of scientific rigidity, the scope of impacts taken into account, and alternatives to the intervention considered (Then et al., 2017, Chapter 1).

## **How can SROI Analysis Create Value for an Organization?**

Social return on investment analyses can be resource intensive, requiring advanced knowledge and time from both staff and clients. In a 2015 survey conducted by the accounting firm Marks Paneth, researchers found that only half (53%) of nonprofit executives surveyed indicate they have the capability to determine the SROI of their donors' investments (McNee, 2015). What, then, are the benefits to an organization investing resources in an SROI analysis of its programs?

### *SROI Analysis for Performance Management*

SROI analysis can be leveraged to monitor program performance and make strategic decisions about program growth. One Acre Fund (OAF) is a nonprofit social enterprise that supports farmers in six countries in Eastern and Southern Africa to achieve more plentiful harvests that can sustain families across the calendar year. The organization provides seeds and fertilizers as well as training on agricultural techniques and product sales to eliminate hunger seasons — the period after planting and before harvesting when food supplies are depleted (One Acre Fund, n.d.). OAF calculates SROI figures for each of the countries where it works and relies on these figures to monitor the performance of its programs and develop strategies for increasing performance. OAF's goal is to create at least \$4 dollars in profit for farmers for every \$1 spent on its core programming. The nonprofit recognized that it was not appropriate to compare programs at different maturities and scale levels; for example, its Kenya program is twelve years older than its Uganda program, and in 2017, had almost 200,000 more farmers enrolled. Recognizing these differences between programs, OAF

created a “healthy growth path” for its programs and interpreted under- and over-performance relative to that growth plan. If a program was under-performing, OAF believed that there may be efficiency challenges in how the program is operating. If the program was over-performing, OAF sought ways to accelerate scaling up (Forti & Calhoun, 2017).

### *SROI Analysis for Continuous Learning*

In some cases, the process of completing the SROI analysis may be even more beneficial than the outcome of the SROI analysis itself (Maier et al., 2015). Logic models, while research informed, are speculative and forward looking. The process of SROI analysis requires identifying what benefit is being created in the eyes of stakeholders. The process can help refine an organization’s overall theory of change by clarifying how value is created for stakeholders and what activities are most impactful (Maier et al., 2015).

### *SROI Analysis for Development*

SROI analysis can serve as an effective tool within the development officer’s toolbox. It is a tool that can bring legitimacy to nonprofits by allowing organizations to speak about impacts rather than outcomes and to report quantitative measures of impact rather than qualitative or story-based accounts, which may be less meaningful to some funders (Maier et al., 2015). In addition, SROI can then be leveraged for marketing purposes (Arvidson et al., 2013).

## **What are the Existing Challenges for Implementing SROI Analysis?**

Key criticisms of SROI analysis are that it is resource intensive and requires advanced knowledge to implement. One reason for this is that there are numerous research decisions required before one can arrive at an SROI figure. One of the most salient challenges affecting SROI analysis is translating outcomes to impact (Cooney & Lynch-Cerullo, 2014).

### *Moving from Outcomes to Impact*

One of the greatest challenges of SROI analysis is translating the outcomes generated by a program into impact. Whereas outcomes refer to changes in a target group after an activity, impact speaks to those changes that would not have occurred without the program and that are solely attributable to the program (Then et al., 2017, Chapter 4). Two dimensions help deconstruct the measurement of impact: deadweight and attribution. Deadweight represents the percent of the outcome that would have occurred in the absence of the program. Attribution represents the percent of an outcome that is due to other sources (e.g., other interventions, life circumstances, outside interactions) (Nicholls et al., 2012). SROI analysts can translate outcomes to impact using one of several strategies: randomized experiments, quasi-experimental methods, control groups, census data, and deadweight and attribution filters. While social scientists would assert that impact can only be

demonstrated using an RCT or well-identified quasi-experimental design, practitioners of SROI analysis use an expanded suite of tools to approximate impact.

The gold standard for obtaining estimates of impact is the use of experimental studies, such as a randomized-controlled trial (RCT). In a RCT, individuals are randomly assigned to either an intervention or a control group. Because each individual has an equal chance of being selected for the intervention, both observed and unobserved characteristics of individuals are distributed evenly across the groups, allowing any difference in a main outcome to be attributable to the one remaining difference: the intervention. In the case study of a skills program in Boston, the researchers use information from a previously completed RCT to construct estimates of deadweight (Cooney & Lynch-Cerullo, 2014). The challenge is that RCTs can be resource intensive to implement, require planning before the start of the program, and may not be feasible to implement because of practical or ethical reasons (Then et al., 2017, Chapter 6).

Quasi-experimental research designs are the next best alternative to experimental methods. They use contextual information to create experiment-like conditions from which a causal treatment effect might be identifiable. Experimental and quasi-experimental research methods may yield treatment effects that capture the effects of deadweight and attribution (Steed & Nicholles, 2011). However, in many contexts, programs may have small enrollments, resulting in too little statistical power to make quasi-experimental methods possible.

Even when randomized experiments or conditions are not possible, control groups can still serve as a valuable method for deriving the impact of an outcome. In the SROI analysis of the Talensi Farmer-Managed Natural Regeneration Project in Ghana, researchers compared households that participated in sustainable agriculture activities to nearby households that did not participate in the activities while living in the same climatic and economic zones. The magnitude of the outcome experienced by the control group was then subtracted from that of the treatment group (Weston & Hong, 2013).

In the absence of a traditional control group, it may still be possible to measure impact using a constructed control group defined using statistics from administrative or census data. When control groups are well-specified, they can account for the effects of both deadweight and attribution, however there could still be attribution effects that would need to be factored in separately (Steed & Nicholles, 2011).

Recognizing that contexts sometimes do not lend themselves well to randomized experiments or control groups, SROI practitioners use filters that represent the effects of deadweight and attribution to discount the monetized value of outcomes. For example, if a researcher identified a deadweight of 20% for an outcome, then 20% of the monetized value of the outcome would be subtracted from the valuation. Two main methods for specifying

filter values exist: a more subjective approach based on the opinions of researchers or program staff and a more systematic approach based on the opinions of stakeholders.

In the more subjective approach, deadweight and attribution filters are defined in a consensus-building process that can involve researchers, program staff, or others. In the SROI analysis of community schools in New York City, research and program staff reviewed each outcome measure and assigned a label of low, medium, and high to describe the extent to which the community schools program was responsible for outcomes observed. Because deadweight measures the residual of school impact — what would have happened anyway — low impact was assigned a deadweight value of 50%, medium impact assigned a value of 25%, and high impact assigned a value of 10%. The deadweight value is higher when community schools are less responsible for the outcome (Martinez & Hayes, 2013). Some researchers refer to the mapping of deadweight percentages onto written characterizations of impact as quantitative banding (Solórzano-García et al., 2019). The SROI analysis of a community sports program in London followed a similar approach (Butler & Leathem, 2014).

In contrast, some SROI studies take a more systematic approach where they survey stakeholders and use a similar system of applying percentages. In the SROI analysis of Family Action's ESCAPE mental health program in the UK, researchers surveyed participants and volunteers and asked them to estimate deadweight and attribution for questions on which they reported a change (RM Insight, 2014).

While filtering approaches to measuring deadweight and attribution hold the bias of those consulted, filters can be improved by minimizing the degree of human subjectivity in their development and using quantitative bands to standardize responses across subjects (Solórzano-García et al., 2019).

# Part 2: SROI Analysis of Orleans Technical College

Located in Northeast Philadelphia, Orleans Technical College is one of the largest and longest-running programs in the JEVS Human Services portfolio. The college prepares graduates for life-long careers in five building trades: air conditioning, refrigeration, and heating; building maintenance; carpentry; plumbing and heating; and residential and commercial electricity. All trade programs are offered in six-month day programs, and in recent years, all but carpentry were also available in 12-month evening programs. By graduation, students can obtain industry-recognized credentials, 24 to 46 college credits, and a technical diploma. Orleans staff also educate students on how to conduct themselves in the workplace and how to prepare and execute a successful job search. Through one-on-one job search assistance and career fairs, Orleans staff actively work to connect graduates to area employers.

In this case study, I conduct an evaluative SROI analysis of Orleans Technical College to uncover how investment in Orleans has created value for graduates and society. To structure my analysis, I use the six stages of an SROI analysis as outlined by the SROI Network (Nicholls et al., 2012). Details of the methodology are available in Appendix 1.

## Stage 1: Establishing Scope and Identifying Stakeholders

Early in the research process, I met with staff from JEVS Human Services to discuss the scope of the analysis and generate a list of stakeholders. We began by discussing the various stakeholders who derive benefit from Orleans' programs. Central to that list were the students themselves. We then considered who else might be impacted. Families of graduates might benefit from additional income earned through a higher-paying job held by the graduate. This higher income could translate into better housing and financial stability, better access to healthcare, and better quality of life. State and federal governments might receive additional tax revenue when Orleans graduates obtain higher-paying jobs. They might also benefit if Orleans graduates earn enough money to no longer need to use public benefits programs. Local trades businesses might benefit from a constant stream of skilled graduates that enable them to pursue more work, generate more revenue, and achieve a lower employee turnover rate.

Once we generated the list of stakeholders, we made decisions about which stakeholder groups feasibly could be included in the study. Part of that decision process included considering the time available to complete the study and one of the principles of SROI analysis — only value what is material (Nicholls et al., 2012). While the benefits accrued to

businesses and families could be quite substantial, rigorously measuring outcomes of material value required more time than was available. In addition, these stakeholders could be included at a later date. We decided that this analysis would focus on material outcomes for graduates and state and federal government.

During this stage, we also made the important decision that the analysis would focus on Orleans students who had graduated at least one year before the COVID-19 pandemic began to affect the economy. This decision ensured that the findings of the analysis would not be swayed by the effects of the pandemic on the economy. We decided to focus on Orleans students who had graduated between 2015 and 2018, allowing the research to include employment and earnings outcomes as late as December 2019.

## **Stage 2: Mapping Outcomes**

### *Identifying Outcomes*

During this phase, I met with staff at JEVS Human Services and Orleans Technical College to understand how Orleans prepares students for successful careers in the trades. I complemented these discussions with two in-depth interviews with recent Orleans graduates (see Appendix 2 for the interview script). These conversations helped to distinguish the ways in which administrators perceived Orleans to be impactful from the ways in which students felt Orleans was impactful. As a result of this process, we decided that the SROI analysis would focus on three outcomes for graduates: (1) graduates earn higher wages, (2) graduates are more satisfied with their financial situation, and (3) graduates have greater job satisfaction. We decided that outcomes for state and federal governments would include additional income tax receipts and reductions in spending on public benefits programs. Specifically, we chose to look at four outcomes for these government entities: (1) state government receives greater income tax receipts, (2) federal government receives greater income tax receipts, (3) government entities spend less on Supplemental Nutrition Assistance Program (SNAP) benefits, and (4) government entities spend less on Medicaid benefits.

### *Program Cost*

To capture the cost of the trade programs at Orleans Technical College, I analyzed financial statements for the 2014 to 2019 fiscal years. These statements included the direct costs of running the five trade programs, the direct cost of smaller non-trade programs operating during the study period, and the total costs for operating the college. First, I identified the direct cost of the trade programs for each fiscal year. Second, to determine the amount of overhead cost generated by the trade programs, I allocated total overhead cost according to the proportion of students in each fiscal year attending one of the trade programs. Third, I translated fiscal year spending on the trade programs to calendar years to align with the

outcome data. Table 1 presents the calendar year costs of operating the trade programs at Orleans. With a total of 946 degrees earned during the study period, this amounts to an expense of \$16,827 per program graduate.

**Table 1. Calendar year cost of operating trade programs at Orleans Technical College**

<b>Year</b>	<b>Calendar year expense</b>
2015	\$3,444,921
2016	\$3,921,758
2017	\$3,952,430
2018	\$4,599,151
Total	\$15,918,259

Source: author's calculations using Orleans financial statements and administrative data (2014-2019)

Orleans' financial statements account for several factors necessary to consider when valuing program investments in an SROI analysis. First, the statements include the cost of services that JEVS — the parent organization — provides to Orleans. Second, the statements differentiate the cost of the trade programs from the cost of other activities Orleans performs that do not relate to preparing students for careers in the trades. Third, Orleans staff include on their statements the monetized value of donated equipment (e.g., machines or tools) or services (e.g., volunteer time) that are of material accounting value.

### **Stage 3: Demonstrating Outcomes and Giving Them a Value**

Once we came to consensus on which outcomes to measure, I developed the Orleans Graduate Outcomes Survey to measure the extent to which graduates experienced those outcomes (see Appendix 3 for the survey instrument). While Orleans already collects data on the employment outcomes of graduates, the existing administrative data was incomplete, was collected at inconsistent periods after graduation, and did not include information on the other outcomes of interest. I designed an online, retrospective pretest survey and distributed it by email to graduates from 2015 to 2018. The survey asked graduates about their earnings and experiences both one month before attending Orleans and one year following graduation. Retrospective pretests are a powerful tool when no pre-program data exist and can have some advantages over the traditional pretest-posttest survey design; graduates may be better able to accurately judge their condition once they've experienced change from the program (Klatt & Taylor-Powell, 2005).

To achieve high survey completion rates, I asked graduates only questions relating to outcomes. I used unique survey links to merge the collected outcome data with available administrative data containing demographic and attendance information. In the survey, I asked all graduates to estimate their annual income from jobs they held in the month before the program and one year after graduating from the program. Similarly, I asked students

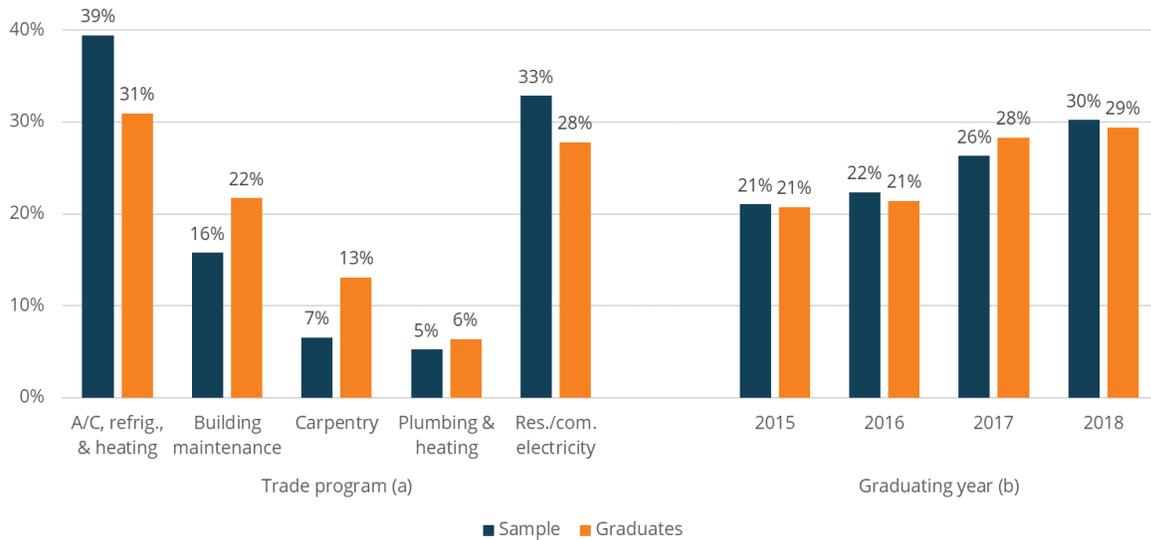
who graduated in 2015 and 2016 to estimate their annual income from jobs they held three years after graduating. In addition to the wage questions, I asked graduates about their job satisfaction and satisfaction with their financial situation one month before and one year after graduating from Orleans. Finally, I asked graduates about their use of public benefit programs one month before and one year after graduating from the program. I designed the survey to avoid the effects of the COVID-19 pandemic on graduates' labor market outcomes; a student who graduated in December 2018 would only report their employment status one year later in December 2019, one to two months before the pandemic began to affect the economy.

While the survey response rate was somewhat low, the quality of the data received was high and there was strong representation across graduating years. The sampling frame consisted of 924 unique students who graduated between 2015 and 2018.<sup>3</sup> Nearly every graduate (883 or 96%) had an email address on file, and of those, 831 (94%) successfully received a link to the survey. Of those who received the survey, 76 completed the survey, yielding a survey response rate of 9%. The quality of the survey data collected was high in that all but two respondents provided sufficient wage information to calculate an earnings difference, and all respondents completed other questions in the survey. Furthermore, survey responses were balanced across years. Figure 1 compares the distribution of respondents and graduates across graduating years and trade programs. While carpentry and plumbing and heating graduates are slightly underrepresented in the sample, each graduating year is roughly equally represented. To mitigate the challenge of underrepresentation across programs, I weighted all outcome measures so that the composition of the sample by trade program matched the population distribution of graduates across trade programs.

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<sup>3</sup> Twenty-two students completed more than one program during the study period. For the purposes of this analysis, these students are only counted once and were asked about their experience before and after the last program they completed.

**Figure 1. Composition of sample and graduates by trade program (a) and graduating year (b)**



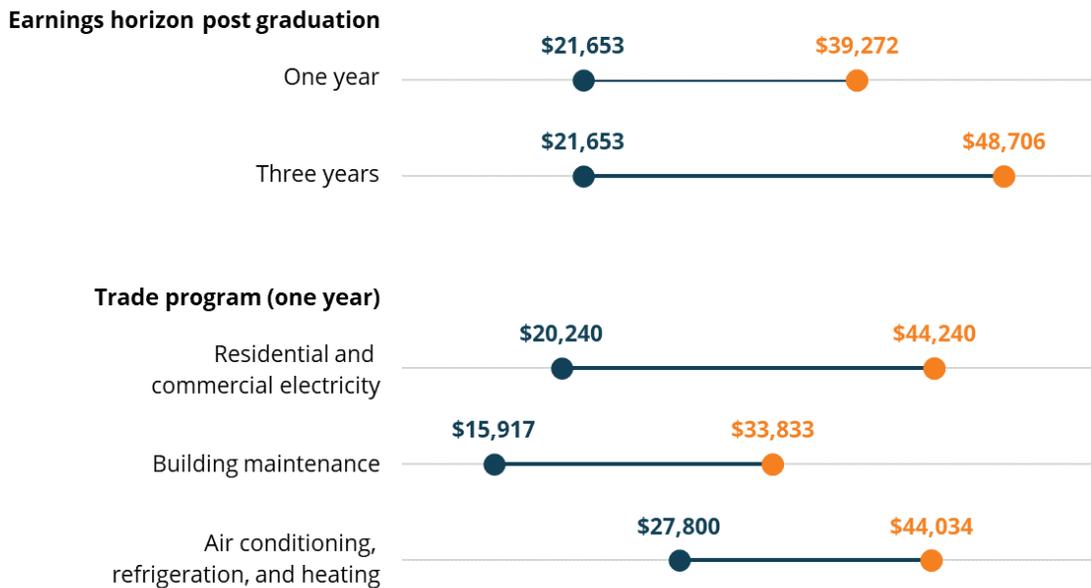
Source: author's calculations using the Orleans Graduate Outcomes Survey (2015–2018) and Orleans administrative data (2015–2018)

### *Results from the Orleans Graduate Outcomes Survey*

The results of the Orleans Graduate Outcomes Survey quantify the ways in which attending Orleans has benefited graduates. In this section, I will detail how attending Orleans has affected graduates' earnings, job satisfaction, satisfaction with their financial situation, and use of public benefits programs.

**Orleans graduates secured jobs that provided a substantial boost in earnings — a boost that grew over time.** The Orleans Graduate Outcomes Survey revealed that students who graduated between 2015 and 2018 earned \$17,930 more annually, on average, one year after graduation. On average, a student earned \$21,653 per year before starting the program and earned \$39,272 per year one year after graduating (figure 2). Furthermore, students saw their earnings increase by an average of \$8,075 more during the interval from one to three years after graduation. While there are insufficient observations to precisely estimate wage growth for graduates of the carpentry (n=5) and plumbing and heating programs (n=4), residential and commercial electricity graduates saw a larger average earnings increase (\$24,000) than did air conditioning (\$17,034) and building maintenance (\$17,917) graduates.

**Figure 2. Average annual earnings before and after attending Orleans by years since graduation and trade program**



Source: author's calculations using the Orleans Graduate Outcomes Survey (2015–2018)

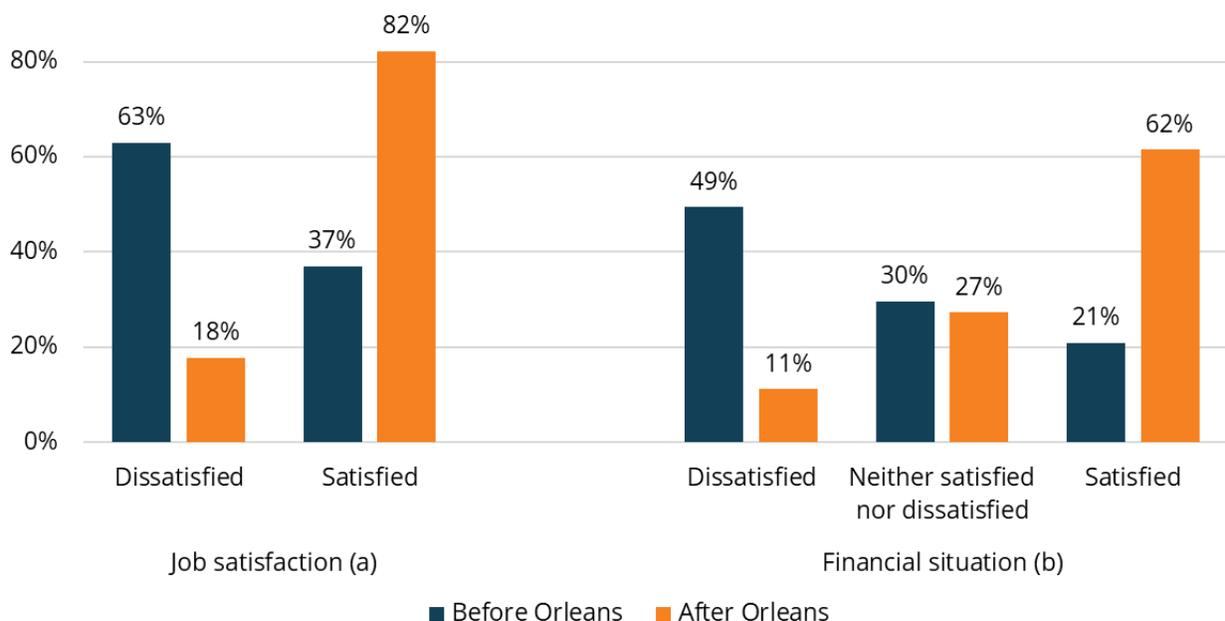
Note: Earnings growth estimates are not presented for the carpentry and plumbing and heating programs because of an insufficient number of observations. Increases in average earnings differ from the average increase in earnings used in SROI calculations.

**Orleans graduates were more satisfied with their employment and financial situation after attending the college.** Text responses to the Orleans Graduate Outcomes Survey corroborated what I had heard from Orleans staff and the two students with whom I spoke during the outcome mapping stage of the SROI analysis — that the Orleans education creates opportunity for students to not only pursue a career about which they are passionate but also achieve a greater degree of financial well-being. One student expressed this succinctly in saying that Orleans, “started me on a better career with a better future.” For some, that future entailed considering opening a new business: “Attending Orleans opened doors for me in the trades that I otherwise would not have considered. It has played a major role in my decision to open my own business.” Others indicated that Orleans provided them the skills to secure a better financial future for their family: “I was able to meet some lifetime goals of becoming an electrician. The experience gave me confidence in myself and ability to provide better for my family.”

These sentiments were also reflected in the survey response to the job and financial satisfaction questions. The proportion of graduates who reported they were satisfied with

their employment increased substantially from before attending Orleans (37%) to one year after graduation (82%) (figure 3a). This improvement is reflected in the percent of Orleans graduates who reported at least a one level increase in their job satisfaction (69%). Likewise, there was a sizeable increase in the percent of graduates reporting satisfaction with their financial situation from before attending Orleans (21%) to one year after graduation (62%) (figure 3b). Overall, three-fifths (60%) of respondents reported at least a one level increase in their satisfaction with their financial situation.

**Figure 3. Changes in graduate satisfaction with employment (a) and financial situation (b) before and after attending Orleans**



Source: author’s calculations using the Orleans Graduate Outcomes Survey (2015–2018)

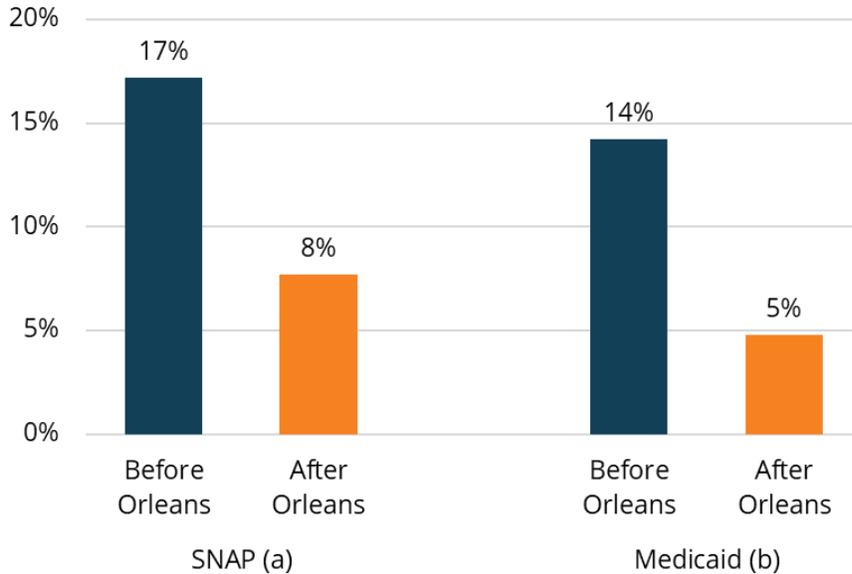
Note: the bars representing the percent of graduates who were satisfied with their financial situation include those who responded that they were “satisfied” or “very satisfied”.

**Fewer students were enrolled in SNAP and Medicaid benefits one year after graduation.** While a small segment of graduates were enrolled in SNAP and Medicaid benefits before attending Orleans, that segment declined by more than half one year after graduation.<sup>4</sup> The share of graduates enrolled in SNAP before attending Orleans (17%) declined to 8% one year after graduation (figure 4a). Similarly, the share of graduates

<sup>4</sup> While outside the scope of this study, it is worthwhile to highlight that a similar portion of Orleans graduates (15%) were enrolled in unemployment insurance during the month before starting at the college.

enrolled in Medicaid before attending Orleans (14%) declined to 5% one year after graduation (figure 4b). These declines represent a 9 percentage point decrease in both SNAP and Medicaid enrollment.<sup>5</sup>

**Figure 4. Changes in graduate enrollment in SNAP (a) and Medicaid (b) before and after attending Orleans**



Source: author’s calculations using the Orleans Graduate Outcomes Survey (2015–2018)

### *Financial Proxies*

At the heart of SROI analysis is the assignment of monetary values to social outcomes. I selected a set of financial proxies to represent the monetary value of stakeholder outcomes. First, I calculated the average increase in annual earnings for graduates by comparing annual earnings from employment one month before attending Orleans to that from employment one year after graduation. The Orleans Graduate Outcomes Survey enabled analyzing longer-term outcomes for graduates. Using responses from 2015 and 2016 graduates, I estimated three-year earnings increases by comparing annual earnings from employment one month before attending Orleans to that from employment three years after graduation. Second, to approximate the value of an increase in satisfaction with one’s financial situation, I used the per-person program cost of financial empowerment coaching. The figure itself (\$765) is the program cost, as stated in a published SROI analysis of a financial empowerment coaching program offered by the Denver Office of Financial Empowerment in Colorado

<sup>5</sup> Reflected in these figures is the one percent of graduates that began receiving Medicaid benefits and the one percent that began receiving SNAP benefits one year after graduation.

(Corona Insights, 2019). Third, I used findings from a compensating wage differential study to estimate the financial value of an improvement in one's satisfaction with one's employment. Helliwell and Huang (2010) find that an improvement of one point on a ten-point scale of work satisfaction is associated with approximately 36 percent of income. The SROI analysis for the Houghton Project — a nonprofit organization that provides skill building opportunities for people with learning disabilities and mental health challenges — incorporated the findings from the Helliwell and Huang (2010) paper and applied them against the local minimum wage (Leck, 2012). In a similar fashion, to estimate the financial value of an improvement in job satisfaction, I took 36% of the pre-Orleans average annual earnings for those employed (\$33,366) to establish a financial value of \$12,012.

To estimate the savings to government entities from Orleans graduates who no longer use Medicaid and SNAP, I incorporated data points produced by the Kaiser Family Foundation in its State Health Facts platform. Specifically, I took the average per-person SNAP benefit amount in Pennsylvania in each fiscal year between 2015 and 2018, averaged the value across those years (\$121.25), and then multiplied by 12 months to arrive at a savings of \$1,455 (Kaiser Family Foundation, n.d.-a). I made the assumption that an Orleans graduate who had been using SNAP would qualify for monthly SNAP benefits; this assumption is reasonable because the study period predates a 2019 rule implementing stricter time limits on benefit receipt for “able-bodied adults without dependents” (Supplemental Nutrition Assistance Program, 2019). To estimate government savings on Medicaid, I used the average spending amount on Medicaid per full-benefit adult enrollee in Pennsylvania in fiscal year 2014 (\$4,139). This value takes into account both state and federal payments to Medicaid (Kaiser Family Foundation, n.d.-b).

Finally, I determined the financial value of additional state and federal income tax revenue generated. At the state level, I made the assumption that all Orleans graduates pay Pennsylvania income tax, which was 3.07% for each year in the study period (Pennsylvania Department of Revenue, n.d.). To estimate tax revenue generated, I took the average increase in annual earnings (\$17,930), subtracted the counterfactual amount (\$1,814), and applied the state income tax rate to obtain a per-person state income tax revenue increase of \$495. Modeling federal income tax is more complicated because of tax brackets, standard deductions, and different rates incurred by single versus married filers, all of which vary by year (Pomerleau, 2014; Pomerleau, 2015; Pomerleau, 2016; El-Sibaie, 2018). I used information on a survey respondent's enrollment dates and marital status — available in the Orleans administrative data — to estimate respondents' federal income tax at two points in time based on earnings one month before attending Orleans and one year after graduation. I subtracted the counterfactual earnings increase from the respondent's earnings at one year after graduation. This calculation took into account the tax year when the tax would have been due and applied the rates and standard deduction associated with the respondent's marital status. I then took the average increase in federal income tax across the sample to

estimate the additional federal income tax generated per graduate (\$1,646). I used the average annual earnings increase three years after graduation (\$26,005) to model the earnings and tax impacts in year three. I averaged the one-year and three-year earnings increases to arrive at a two-year wage increase of \$21,968, since I do not derive it directly from a survey question to graduates (see Appendix 4).

Before these outcomes could be monetized, I adjusted them so that only the value that could be claimed by Orleans was included. In the next section, I will discuss impact measurement — the process of translating outcomes into impact.

#### **Stage 4: Establishing Impact**

Several respondents to the Orleans Graduate Outcomes Survey emphasized that Orleans was responsible for the change in their lives: “Going to Orleans college really opened the doorway to where I am right now. It was worth every penny. I wouldn’t be where I am if it wasn’t for the training and support the school gave me.” However, across the board, to what extent are the outcomes observed solely due to an Orleans education? The answer to that question — the process of converting outcomes to impact — sits at the heart of SROI analysis. SROI analysis approaches impact assessment using two concepts that are applied to each outcome in a study: deadweight and attribution. Deadweight represents the portion of an outcome that would have happened anyway in the absence of the program; in statistical terms, it represents the counterfactual. Attribution is a separate concept that represents the portion of an outcome that is due to another activity or source. In some SROI analyses, researchers define each outcome’s deadweight and attribution factors collaboratively through a consensus-building process with stakeholders and program staff. In this case study, I estimated deadweight and attribution systematically using census data and the Orleans Graduate Outcomes Survey.

For the wage and tax outcomes, I think of deadweight and attribution jointly by asking the question how much would the annual earnings of graduates have increased if graduates had never attended Orleans. To estimate this, I used the Current Population Survey to estimate an individual’s earnings increase in dollars over a one-year period under the condition that their educational level did not change during that time. I calculated this counterfactual earnings increase jointly for year (2015 to 2018) and educational attainment (high school diploma or equivalent to master’s degree). By merging these estimates onto the sampling frame of Orleans graduates and taking the average, I was able to derive counterfactual average earnings increases that I used to discount observed earnings increases.

For the outcomes relating to job satisfaction, financial situation, and public benefits use, I relied on responses to a series of questions in the Orleans Graduate Outcomes Survey to estimate deadweight and attribution separately. If respondents noted a change in one of these outcomes after attending Orleans, the survey asked how responsible Orleans was for

that change. The responses (e.g., not responsible, slightly responsible, etc.) correspond to percentages (e.g., 0%, 25%). The residual of those responses — 100 minus the percent — represents the effect of deadweight, and I estimated the question’s deadweight value by taking the average across respondents. For example, if a respondent had claimed that Orleans was slightly responsible for a change in job satisfaction, then a value of 25% would be subtracted from 100% to yield an individual deadweight value of 75%, indicating that much of the change would have happened anyway. That was averaged across respondents who indicated a change in job satisfaction to determine the overall deadweight factor for job satisfaction. I followed a similar protocol using a question in the survey that asked about attribution — the extent to which other factors contributed to the change reported.

### **Stage 5: Calculating the SROI**

The impact map presented in Appendix 4 outlines the steps necessary to derive the SROI figure for Orleans. For each outcome, I multiplied the number of graduates who had experienced the outcome by that outcome’s financial proxy. For the earnings and tax outcomes, I subtracted counterfactual earnings increases before performing the multiplication. For the other variables, I subtracted the effects of deadweight and attribution after the multiplication. This yielded the total social value created between 2015 and 2018 for students and government entities one year following graduation: \$19.7 million. The total value created by Orleans over this period grew from \$19.7 million one year after graduation to \$23.2 million three years after graduation. I applied a 3.5% discount factor so that the benefits had the same time value of money as the total cost of the trade programs at Orleans over the same period: \$15.9 million. By dividing the total present values by the total cost, I derived the SROI figures for the periods one-year (\$1.20), two-years (\$2.38), and three-years (\$3.72) after graduation (figure 5).

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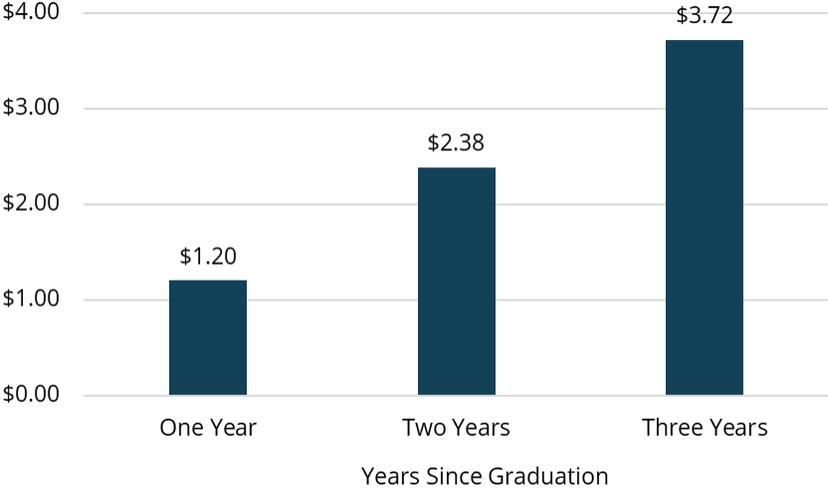
Orleans Technical College creates \$1.20 of social value for graduates and government entities for every \$1 invested in its trade programs. As graduates see their wages grow, so too grows the social value an Orleans education creates. Three years after graduation, Orleans Technical College creates \$3.72 of social value for every \$1 invested in its trade programs.

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### **Stage 6: Reporting, Using, and Embedding**

The SROI figures developed in this case study can be incorporated into JEVs organizational value proposition. The process itself also sheds light on effective strategies for expanding the use of SROI across the organization. I discuss these strategies in Part 3.

**Figure 5. The social return on investment (SROI) of Orleans Technical College one to three years following graduation**



Source: author’s calculations using data from the Orleans Graduate Outcomes Survey (2015–2018), Orleans administrative records, Current Population Survey (2015–2018), Kaiser Family Foundation State Health Facts, and Denver Office of Financial Empowerment.

**Limitations**

I acknowledge several potential limitations of this study. The Orleans Graduate Outcomes Survey is based on a non-random sample; voluntary respondents represent 9% of the population surveyed. While I have employed survey weighting to enhance the representativeness of the sample, non-response bias persists.

A limitation of this study design is that the findings cannot be considered causal impacts of an Orleans education. While I used several techniques common in SROI analysis to approximate causal effects, the methods I employed do not identify causal impacts. I have attempted to select conservative financial proxies for determining the monetary value of the benefits examined in this report; future research might include a sensitivity analysis to determine how much the SROI figures could fluctuate using different proxies and research decisions.

Finally, this study omits outcomes for local businesses and families of graduates. More extensive student engagement might identify other graduate outcomes to include in future analysis. As a result, the SROI figures included in this report may underestimate the impact of an Orleans education.

# Part 3: Strategies for Using SROI Across the Organization

## Recommendations for Expanding SROI Analysis Across JEVS

- **Align outcome measurement needs from SROI analysis with existing data collection and reporting efforts.** Collecting outcomes data can be resource intensive for staff, clients, and other stakeholders. Existing philanthropic or government support may entail extensive reporting. At the same time, clients and other stakeholders may be burdened by being required to complete surveys at multiple points in time and survey instruments may already contain numerous questions. The implementation of SROI analysis for any program will be most successful when program staff can find ways to integrate SROI outcome questions into existing evaluation tools and find opportunities where existing evaluation data may be sufficient to use in SROI analysis. Finding ways to incorporate SROI analysis into existing evaluation efforts, rather than duplicate them, will enable an organization to realize the benefits of SROI while mitigating burden.
- **Engage stakeholders in conversation to collaboratively identify the most important outcomes of a program.** At the beginning of the SROI analysis, JEVS had a well-developed logic model for Orleans that detailed a wide range of *anticipated* impacts of the college. Speaking with staff at Orleans and JEVS helped provide nuance and depth to the outcomes in the logic model. While I only spoke with two students, these conversations illuminated the ways in which the value students received from attending Orleans differed from the value hypothesized in the logic model. For example, while Orleans educates students on how to conduct a job search, the students I spoke with did not emphasize improvements in job search knowledge as a major impact of their experience. Because I was not able to reach saturation in speaking to more students, it is quite possible that others benefited from job search education. In contrast, the students did express how much more satisfied they are with their careers — an intangible benefit not emphasized in the logic model. The value of speaking to stakeholders is that they can highlight the largest benefits of a program, and this is valuable because resource constraints limit organizations' ability to collect outcome data on benefits.
- **Find systematic ways for measuring deadweight and attribution that mitigate the subjectivity of SROI analysis.** In the absence of a randomized evaluation, identifying the impact of a program can be challenging if not impossible. Recognizing

these challenges, the SROI method uses deadweight and attribution filters which adjust downward the magnitude of outcome claimed by the program. Previous SROI studies have attempted to derive deadweight and attribution values using educated guesses from research and program staff. While this can tap into the expertise of stakeholders and program staff, the impact stage of the SROI analysis then becomes a major contributor of subjectivity to the overall analysis. Survey-based approaches to the measurement of deadweight and attribution — as used in this SROI analysis — can help mitigate the amount of subjectivity involved in the final SROI figures. These approaches systematically ask stakeholders to opine on how much of the change they experienced was due to the program versus other intervening factors and then take averages across those responses.

- **Consider using specialized software to track outcomes and automate the SROI calculation.** The impact map included in this report underscores the complexity of the SROI calculation. This complexity occurs because outcomes may be measured using different data sources and techniques, a variety of different data points need to be managed, and the resultant SROI figures can require extensive use of discounting and summing functions. From an organizational perspective, these data management and analytic challenges are magnified when performing SROI analysis for a portfolio of programs; managing multiple SROI analyses within spreadsheets may hinder collaboration and create opportunities for human error in performing calculations. Practitioners of SROI analysis have created several different specialized software packages that aim to improve this process. Social Value International has created a software accreditation program to highlight those software packages that provide functionality in accordance with SROI best practices (Social Value International, n.d.). Several of these accredited software products are the Global Value Exchange, Sametrica (Sametrica, n.d.), and Sopact's Impact Cloud (Sopact, n.d.).
- **Consider having SROI reports assured for quality by a third party.** Nonprofit scholars believe that one of the benefits of SROI analysis is that it can demonstrate the legitimacy of programs to funders (Maier et al., 2015). One way that channel might be maximized is by considering whether SROI reports should be assured for quality by a third party. Social Value UK, a global thought leader on the use of SROI analysis, provides an assurance service. The accreditation process does not serve as an audit that the calculations were performed correctly, rather it ensures that the project is consistent with the principles of SROI analysis: involve stakeholders, understand what changes, value the things that matter, only include what is material, do not over-claim, be transparent, and verify the result (Nicholls et al., 2012; Social Value UK, n.d.).

## Recommendations for Future Use of SROI Analysis at Orleans

- **Incorporate SROI outcome measurement into expanded intake and exit questionnaires.** Orleans currently collects information on a wide variety of demographic variables during the admissions process. The availability and completeness of the demographic variables made it possible to avoid needing to ask those questions of respondents in the Orleans Graduate Outcomes Survey. A sustainable SROI practice at Orleans might consider expanding the existing intake survey to include the few student outcomes questions included in this study.

Obtaining outcome data from students after graduation may prove to be challenging, but there might be ways to align that data collection with other existing efforts. Orleans collects verified student employment, benefits, and earnings data but at variable points after graduation. If possible, Orleans might consider following up with students one year after graduation and incorporate the post-graduation outcome questions in that data collection process. By collecting outcome data for almost all graduates, Orleans would avoid needing to pursue future surveys and would have a more accurate assessment of graduate outcomes.

- **Consider expanding future SROI analysis to include the value created for local businesses and families of graduates.** During the stakeholder and outcome mapping phases of the Orleans SROI analysis, JEVS and Orleans staff and I discussed the value that Orleans creates for local trades businesses and the families of graduates. Employers who hire skilled graduates from Orleans may be able to take on more business by filling open positions quickly, lower turnover costs if Orleans graduates remain with a company longer than other employees, and command higher rates if the skilled workforce provided by Orleans helps build a company's brand and reputation. Benefits may also accrue to families if the employment and higher earnings of graduates enable families to find better housing, access better education and healthcare, or enjoy a higher quality of life. The scope constraints of this project limited my ability to include these possible benefits, and so the SROI figures included in this report may be an understatement of the true value Orleans creates. In future use of SROI analysis, Orleans may benefit from conducting outreach with businesses and families of graduates to develop a deeper understanding of which specific outcomes are significant. Orleans could then incorporate these important stakeholder groups into future SROI analyses.

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# Appendix 1: Detailed Data and Methods

## The Orleans Graduate Outcomes Survey

The Orleans Graduate Outcomes Survey is a survey of students who graduated from Orleans Technical College between 2015 and 2018. It asked respondents a series of questions relating to job satisfaction, financial situation, public benefits use, earnings, and employment both before and after attending Orleans.

### Sample Selection

The sampling frame consists of every student who graduated between January 2015 and December 2018.<sup>6</sup> The sampling frame ends in December 2018 because the survey asks graduates for their employment status one year after graduation, and December 2019 was one of the last months before the COVID-19 pandemic began to affect the economy. This decision ensured the impact of the pandemic on the labor market did not interfere with the study results. Appendix figure A1 indicates the number of graduates in the sampling scheme by month and year of graduation. It also shows which employment questions were posed to the graduates. A total of 924 graduates fell within the parameters of the study.

**Figure A1. Sampling frame for Orleans Graduate Outcomes Survey**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>2015</b>	8	6	27	33	8	15	14	13	30	5	7	26	192
	Employment and Earnings at One and Three Years Post-Graduation												
<b>2016</b>	16	6	22	25	13	16	16	33	28	13	10	0	198
	Employment and Earnings at One and Three Years Post-Graduation												
<b>2017</b>	41	7	49	37	8	16	20	30	12	30	12	0	262
	Employment and Earnings at One Year Post-Graduation												
<b>2018</b>	8	49	33	19	43	0	0	72	9	12	27	0	272
	Employment and Earnings at One Year Post Graduation												
													924

Source: author's calculations using Orleans administrative data (2015–2018)

<sup>6</sup> Twenty-two students completed two or more enrollments during the study period. If students completed two or more enrollments during the study period, students were counted once and surveyed about their experiences before and after the completion of their last enrollment.

### *Instrument Design*

I employed several survey design strategies to mitigate the burden of taking the survey and to maximize completion rates. First, I strategized to keep the survey as short as possible. Because of the richness of the demographic variables in the administrative dataset, I deployed a non-anonymous survey using unique survey links that allowed me to link survey responses back to student records. This enabled me to avoid asking a series of demographic questions at the end of the survey. Second, I ordered and asked questions to build trust and reduce non-response to sensitive questions pertaining to employment status and earnings history. While the employment and earnings questions were most important, I placed them in the second position after the less sensitive questions pertaining to job satisfaction. In addition, best practices for asking income questions informed how I asked earnings questions (Duncan & Petersen, 2001). The first question asked respondents to estimate their annual earnings from job or jobs held during the reference month within \$10,000 bins. Once a respondent selected a bin, the survey asked if the respondent could be more specific and offered a set of \$1,000 bins within the \$10,000 range. I was concerned that a fill-in box asking for a specific number would dissuade survey completion. The bin method was successful in attracting a response; only two respondents did not provide sufficient earnings data to calculate an increase. Overall, the survey achieved a high completion rate of 90 percent.

### *Deployment and Financial Incentive*

The Orleans Graduate Outcomes Survey was a web survey developed on the Qualtrics platform and was deployed in spring 2021. The president of Orleans mailed an announcement email to graduates in the sample on March 10, 2021, alerting them of the survey. The next day, on March 11, 2021, I deployed the survey to graduates and left the survey open for an approximately two-week period concluding on March 26, 2021. To encourage response, I offered a financial incentive whereby up to 250 people who completed the survey would be randomly selected to receive a \$15 gift card to their choice of Wawa, Dunkin' Donuts, or Starbucks. Because of an initially low response to the survey, in follow-up emails, I offered a \$20 gift card to the next 100 people who completed the survey. Later, I stratified the incentive to encourage responses from graduates of programs that had fewer than 10 survey responses to date; the next 10 graduates from the carpentry, building maintenance, and plumbing and heating programs to complete the survey were then offered a gift card of \$35. The next 30 graduates from the air conditioning and electricity programs were offered a \$20 gift card. By the close of the survey, I received a total of 76 responses, representing a response rate of 9%.

## Creating Counterfactual Earnings Increases

I used the Current Population Survey's (CPS) Annual Social and Economic Supplement (ASEC) to form the basis of an estimate for how much Orleans graduates would have earned if they had never attended the college.<sup>7</sup> The CPS is a monthly, longitudinal, nationally representative survey of the U.S. population, and the ASEC is collected each March and includes additional information on earnings. I downloaded the 2015 to 2019 ASECs and linked them together to observe how much a respondent's annual earnings increased from one year to the next. I looked specifically at civilian respondents aged 18 to 64 who were recorded at two points in time and whose education did not change from one year to the next. With these parameters, I calculated the average increase in annual earnings over a one-year period and produced a table of these averages by starting year and educational attainment of the respondent. I then merged these averages onto the sampling frame of 924 Orleans graduates using graduation year and educational attainment at time of admission as merge fields. I made an adjustment to account for the fact that the period one month before attending Orleans and one year following graduation would vary by student depending on the cohort and whether the student was enrolled in a day or evening program. I divided the CPS earnings increases by 12 to create monthly earnings increases. I then multiplied that monthly earnings increase by the number of months between the month before the expected start date and one, two, and three years after graduation. Finally, to create the counterfactual earnings increases used in the SROI analysis, I took the average of those one-, two-, and three-year earnings increases across the sampling frame.

## Determining Deadweight and Attribution from the Orleans Graduate Outcomes Survey

When students express a change in job satisfaction, financial situation, or public benefit use, the Orleans Graduate Survey asked a series of follow up questions that enabled me to quantitatively express deadweight and attribution for each outcome. This technique was inspired by the SROI analysis of Family Action's ESCAPE mental health program in the UK (RM Insight, 2014). The first question asks respondents how responsible Orleans was for the reported change. I assigned each answer choice a percent: not responsible (0%), slightly

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<sup>7</sup> I also considered constructing a control group composed of students who began at Orleans but ultimately did not graduate. The control group could comprise those who self-dropped from Orleans or who did not persist for administrative reasons. The number of students that would comprise this control group (around 92 students) is relatively small such that a realistic survey response rate of 10% for this hard-to-reach group would only yield around 10 responses. Reliable findings could not be obtained from such a small response. In addition, it could be considered inappropriate to ask non-completers to share their earnings history, and it might be argued that this control group is not a satisfactory counterfactual because students who persist and those who do not may be different in unmeasurable ways.

responsible (25%), half responsible (50%), mostly responsible (75%), and completely responsible (100%). Deadweight represents the opposite of the question asked. So, for each response, I subtracted the percent from 100. I then took the average across responses to create the estimates for deadweight used in the SROI analysis.

I performed a similar procedure to estimate attribution for outcomes. The attribution question asked how responsible factors other than attending Orleans were for the change reported. I assigned each answer choice a percent: not responsible (0%), slightly responsible (25%), half responsible (50%), mostly responsible (75%), and completely responsible (100%). I then took the average across respondents to derive the measures of attribution used in the SROI analysis.

# Appendix 2: Graduate Outcome Mapping Interview Script

## Section 1: Life Before Attending Orleans

1. Can you tell me a bit about your life before you started at Orleans?
  - a. Probe: Were you working?
  - b. Probe: How did you see your future?
  - c. Probe: Were you able to make ends meet?
2. What encouraged you to seek more education?
  - a. Probe: What were some of the options you were considering?
3. What attracted you to Orleans Technical College?

## Section 2: Experience at Orleans

4. What was your experience like as a student at Orleans?
5. What do you think were some of the most important things you learned as a student at Orleans?

## Section 3: Impact

6. How did attending Orleans change you as a person?
7. How has attending Orleans impacted your career?
  - a. What type of work have you pursued since graduating?
  - b. Have you seen your income grow since graduating?
8. How would you say your life is different now that you've graduated?
9. How much of these changes do you think are due to attending Orleans?
  - a. Probe: Were there outside experiences that contributed to this change?
10. Are there ways in which you feel your life is worse off because of attending Orleans?

## Section 4: Personal Finances

11. How did you pay for your classes at Orleans?
  - a. Did you work while attending Orleans?
  - b. Did you use any loans or financial aid?
12. I'm also interested in learning about if you have ever used any public financial assistance programs. I mean anything like food stamps, TANF, Medicaid, unemployment insurance, housing assistance. Any type of government assistance. Have you ever been enrolled in any of these programs?
  - a. Probe: When did you use them?

## Section 5: Concluding Thoughts

13. Is there anything we didn't get a chance to talk about that you think is important in understanding the impact Orleans has had on your life?

# Appendix 3: Orleans Graduate Outcomes Survey Instrument

## Orleans Value Study

Your participation in the Orleans Value Study will help Orleans prepare future generations for successful careers in the trades! This survey will ask you about the impact attending Orleans has had on your career and personal and financial well-being. The survey is expected to take 5 to 10 minutes.

**As a token of thanks, the next [##] people who complete the survey will receive a [\$\$] gift card of their choice to Wawa, Dunkin' Donuts, or Starbucks. Make your selection at the end of the survey.**

The research is being conducted by an independent researcher at the University of Pennsylvania. Your participation in the survey is voluntary, and your responses will be kept confidential: individual responses and identifying information will not be shared publicly or with staff of Orleans Technical College or JEVS Human Services.

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This survey will ask about your experiences before and after completing the [Day/Night] Program in [Grad Month] [Grad Year].

### ----- Work Satisfaction -----

First up, we'd like to ask you about changes in your job satisfaction over time.

**Q1. In the month before you started the program, how satisfied were you with your job(s)?**

- Very satisfied
- Moderately satisfied
- A little dissatisfied
- Very dissatisfied
- I was not employed.

**Q2. In your first year after graduating from the program, how satisfied were you with your job(s)?**

- Very satisfied
- Moderately satisfied
- A little dissatisfied
- Very dissatisfied

- I was not employed.

----- **Only shown if Q1 ≠ Q2** -----

**Q3.** How much was attending Orleans responsible for the change in work satisfaction you reported?

- Completely responsible
- Mostly responsible
- Half responsible
- Slightly responsible
- Not responsible

**Q4.** Did factors **other than attending** Orleans contribute to your change in work satisfaction?

- Yes
- No

**Q5.** How much were factors **other than attending Orleans** responsible for the change in work satisfaction you reported?

- Completely responsible
- Mostly responsible
- Half responsible
- Slightly responsible
- Not responsible

----- **Pre-Orleans Employment and Earnings History** -----

----- **Asked to All Graduates** -----

Next up, we'd like to learn more about your employment and earnings **before you started the [Day/Night] [Program] program**. Your response will be kept confidential.

**Q6.** In the month before you enrolled in the program, what was your employment status?

- Employed
- Unemployed and looking for work
- Unemployed and not looking for work

**Q7.** What would you estimate your yearly income was based on the job(s) you held **in the month before starting the program**?

- Less than \$10,000
- \$10,000 - \$19,000
- \$20,000 - \$29,000
- \$30,000 - \$39,000
- \$40,000 - \$49,000
- \$50,000 - \$59,000
- \$60,000 - \$69,000

- \$70,000 - \$79,000
- \$80,000 - \$89,000
- \$90,000 - \$99,000
- \$100,000 - \$109,000
- \$110,000 - \$119,000
- \$120,000 or more
- I'm not sure.

----- **Q8 asks about the bin selected in Q7** -----

**Q8.** You selected less than \$10,000. Can you be more specific?

- \$1,000
- \$2,000
- \$3,000
- \$4,000
- \$5,000
- \$6,000
- \$7,000
- \$8,000
- \$9,000
- I'm not sure.

----- **One-Year Post-Graduation Employment and Earnings History** -----  
 ----- **Asked to All Graduates** -----

Now we'd like to ask you about your employment and earnings **one year after graduating from the [Day/Night] [Program] program**. Your response will be kept confidential.

**Q9.** One year after you graduated from the program, what was your employment status?

- Employed
- Unemployed and looking for work
- Unemployed and not looking for work

**Q10.** What would you estimate your yearly income was based on the job(s) you held **one year after graduating from the program?**

- Less than \$10,000
- \$10,000 - \$19,000
- \$20,000 - \$29,000
- \$30,000 - \$39,000
- \$40,000 - \$49,000
- \$50,000 - \$59,000
- \$60,000 - \$69,000
- \$70,000 - \$79,000
- \$80,000 - \$89,000

- \$90,000 - \$99,000
- \$100,000 - \$109,000
- \$110,000 - \$119,000
- \$120,000 or more
- I'm not sure.

----- **Q11 asks about the bin selected in Q10** -----

**Q11.** You selected less than \$10,000. Can you be more specific?

- \$1,000
- \$2,000
- \$3,000
- \$4,000
- \$5,000
- \$6,000
- \$7,000
- \$8,000
- \$9,000
- I'm not sure.

----- **Three-Years Post-Graduation Employment and Earnings History** -----

----- **Question asked to 2015 and 2016 graduates** -----

This next set of questions will ask you about your employment and earnings **three years after graduating from the [Day/Night] [Program] program**. Your response will be kept confidential.

**Q12.** Three years after you graduated from the program, what was your employment status?

- Employed
- Unemployed and looking for work
- Unemployed and not looking for work

**Q13.** What would you estimate your yearly income was based on the job(s) you held **three years after graduating from the program?**

- Less than \$10,000
- \$10,000 - \$19,000
- \$20,000 - \$29,000
- \$30,000 - \$39,000
- \$40,000 - \$49,000
- \$50,000 - \$59,000
- \$60,000 - \$69,000
- \$70,000 - \$79,000
- \$80,000 - \$89,000

- \$90,000 - \$99,000
- \$100,000 - \$109,000
- \$110,000 - \$119,000
- \$120,000 or more
- I'm not sure.

----- **Q14 asks about the bin selected in Q13** -----

**Q14.** You selected less than \$10,000. Can you be more specific?

- \$1,000
- \$2,000
- \$3,000
- \$4,000
- \$5,000
- \$6,000
- \$7,000
- \$8,000
- \$9,000
- I'm not sure.

----- **Satisfaction with Financial Situation** -----

Next, we'd like to ask you about changes in your satisfaction with your financial situation.

**Q15. Before attending Orleans,** how satisfied were you with your financial situation?

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

**Q16. In your first year after graduating from Orleans,** how satisfied were you with your financial situation?

- Very satisfied
- Satisfied
- Neither satisfied nor dissatisfied
- Dissatisfied
- Very dissatisfied

----- **Only shown if Q15 ≠ Q16** -----

**Q17.** How much was attending Orleans responsible for your change in satisfaction with your financial situation?

- Completely responsible
- Mostly responsible
- Half responsible

- Somewhat responsible
- Not responsible

**Q18.** Did factors **other than attending Orleans** contribute to your change in satisfaction with your financial situation?

- Yes
- No

**Q19.** How much were those **other factors** responsible for your change in satisfaction with your financial situation?

- Completely responsible
- Mostly responsible
- Half responsible
- Somewhat responsible
- Not responsible

----- **Public Benefits Use** -----

Finally, we'd like to ask you about changes in your use of public benefits programs. Your response will be kept confidential.

**Q20. In the month before you attended the program,** which public benefits programs did you use?

- Food stamps (SNAP)
- Medicaid
- General Cash Assistance
- Unemployment Insurance
- Earned Income Tax Credit (EITC)
- Other (please specify): \_\_\_\_\_

**Q21. One year after you graduated from Orleans,** which public benefits programs did you use?

- Food stamps (SNAP)
- Medicaid
- General Cash Assistance
- Unemployment Insurance
- Earned Income Tax Credit (EITC)
- Other (please specify): \_\_\_\_\_

----- **Only shown if Q20 ≠ Q21** -----

**Q22.** How much was attending Orleans responsible for the change in your use of public benefits programs?

- Completely responsible
- Mostly responsible
- Half responsible

- Somewhat responsible
- Not responsible

**Q23.** Did factors **other than attending Orleans** contribute to the change in your use of public benefits programs?

- Yes
- No

**Q24.** How much were those **other factors** responsible for the change in your use of public benefits programs?

- Completely responsible
- Mostly responsible
- Half responsible
- Somewhat responsible
- Not responsible

----- **General Comments** -----

**Q25.** Please use the space below if you would like to elaborate on any of the ways in which attending Orleans Technical College has had an impact on your life.

----- **Redeem Gift Card** -----

**Q26.** As a token of thanks, the next ## people who complete the survey will receive a \$\$ gift card of their choosing. If you are selected, which gift card would you like?

- Starbucks
- Wawa
- Dunkin' Donuts

**Q27.** If selected, the gift card will be delivered to you via email in a few weeks. Please enter an email address at which the gift card can be delivered to you.

----- **Thank You** -----

Thank you for participating in the study. Your responses have been recorded.

You can now close this page.

# Appendix 4: Impact Map for Full Sample (2015–2018)

Outcomes				Financial Proxy				Impact				Social Value				
Stakeholder	Outcome	Indicator	Source	Percent * Reference = Quantity			Financial Proxy	Value	Source	Deadweight	Attribution	Drop Off	Impact	Year 1	Year 2	Year 3
Orleans Graduates	Graduates earn higher wages	Average difference in before and after earnings * # of graduates	Graduate Survey and Administrative Data	NA	NA	924	Average difference in before and after earnings	\$17,930	Graduate Survey	\$1,814		3 Years	\$14,891,184	\$14,891,184	\$17,617,446	\$20,344,632
	Graduates experience greater satisfaction with their financial situation	% of survey respondents who report greater financial security * # of graduates	Graduate Survey and Administrative Data	60%	924	553	Per person cost of financial empowerment coaching	\$765	Market value	28%	23%	1 Year	\$234,536	\$234,536	0	0
	Graduates have greater job satisfaction	% of survey respondents who report having greater job satisfaction post graduation * # of graduates employed one month before and one year after the program.	Graduate Survey and Administrative Data	69%	594	410	Compensating differential value: 36% of average pre-Orleans annual earnings among employed	\$12,012	Helliwell and Huang, 2010.	28%	36%	1 Year	\$2,269,403	\$2,269,403	0	0
Government Entities	State government receives greater income tax receipts	Average difference in before and after earnings * state income tax rates	Graduate Survey and State Tax Rates	NA	NA	924	PA personal income tax rate (3.07% of average wage increase)	\$495				3 Years	\$457,159	\$457,159	\$540,856	\$624,580
	Government entities spend less on SNAP benefits	(% who report no longer using SNAP after graduation - % who began using SNAP) * # of graduates	Graduate Survey and Administrative Data	9.5%	924	88	Average monthly SNAP benefit for PA residents multiplied by 12 months	\$1,455	Kaiser Family Foundation State Health Facts	26%	13%	1 Year	\$82,432	\$82,432	0	0
	Government entities spend less on Medicaid benefits	(% who report no longer using Medicaid after graduation - % who began using Medicaid) * # of graduates	Graduate Survey and Administrative Data			87	Average Medicaid spending per full-benefit, adult enrollee in PA	\$4,139	Kaiser Family Foundation State Health Facts	26%	13%	1 Year	\$231,828	\$231,828	0	0
	Federal government receives greater income tax receipts	Average difference in before and after earnings * Federal income tax rates	Graduate Survey and Federal Tax Rates	NA	NA	924	Average increase in federal income tax	\$1,646				3 Years	\$1,520,904	\$1,520,904	\$1,863,383	\$2,205,862

	Earnings Increase	Counterfactual	Growth Rate
One-Year Increase	\$17,930	\$1,814	
Two-Year Increase	\$21,968	\$2,901	123%
Three-Year Increase	\$26,005	\$3,987	145%

	Total Value	Present Value	Total Present Value	Total Cost
	\$19,687,447	\$19,104,752	\$19,104,752	\$15,918,259
	\$20,021,685	\$18,854,049	\$37,958,800	\$15,918,259
	\$23,175,074	\$21,177,620	\$59,136,420	
SROI	\$1.20	\$2.38	\$3.72	