COLORADO
Office of Economic Security
Division of Employment & Benefits

May 20, 2018

Dear community partner,

The Colorado Department of Human Services (CDHS) is pleased to present the Economic and Fiscal Impact of Refugees in Colorado report. Through its publication, CDHS hopes that community members, policymakers, government agencies, researchers, and other interested parties gain needed insight into the refugee resettlement program.

Global crises, all of them manmade, create refugees-- individuals and families forced from their homes due to violence and persecution. Refugees leave everything behind in their pursuit of safety and sanctuary, and some, after a long and intense process, find themselves rebuilding their lives here in Colorado. Refugees may arrive with limited English skills, a high degree of trauma, or lack of transferrable work skills. CDHS, with its partners, invests in the stabilization and success of refugees. Previous research shows that refugees integrate into life here in Colorado as a result of that investment. What CDHS wanted to further explore was the economic and fiscal impact of investment. Beyond by upholding American values by providing humanitarian protection for those fleeing violence, how does Colorado benefit from the refugees it welcomes?

It turns out, Colorado benefits a lot. The report provides an in-depth look at the data, the process, and the numbers, but the major takeaway from the study is that investing in refugees has net economic and fiscal impacts that benefit all of Colorado and all Coloradans. Refugees spend the assistance they receive and the wages they earn in local economies, generating local jobs (such as teachers and retail workers) that employ local workers; pumping tax revenue into local and state governments to help fund systems (such as roads); and producing economic ripple effects that help local businesses, industries and economies grow. All of this adds to shared prosperity that benefits all of Colorado. The report's findings include:

- Refugees' positive economic impact accrues over time. Helping refugees establish lives in Colorado, including through the delivery of programs by CDHS and its partners, lays the groundwork for net economic benefits. Through every $1 in assistance received, $1.68 is generated in output. Through every dollar a refugee earns, over $25 is generated in output.
- Employing refugees can have the twofold benefit of generating tax revenue and economic activity while also allowing refugees to gain financial stability. Local and state governments receive $1.23 in tax revenue for every $1 the state spends.

- Most of the economic activity created by refugees is from the wages they earn. In Colorado, most refugees join the workforce less than three months after they arrive. One of the three case studies in the report shows that most refugees work in industries that are expanding rapidly in today's economy; most of these industries report over 100% growth in terms of job openings. This means that refugees are not only working, but they are also filling critical gaps that local industries need to continue to prosper.

The data suggest that the U.S.'s humanitarian and economic desires unite in the refugee resettlement program. Colorado can be humanitarian and want local economies to be strong. It can be pro-refugee and pro-local jobs. It can provide assistance to refugee families and still desire to see a positive return on investment.

Attached to the report are also a few infographics that help summarize key findings. The information provided here helps support what CDHS has always known: investing in people is good business.

Sincerely,

Jerene Petersen

Jerene Petersen
Deputy Executive Director of Community Partnerships
Colorado Department of Human Services

Economic and Fiscal Impact of Refugees in Colorado

COLORADO
Department of Human Services

May 20, 2018

Submitted to:
Colorado Department of Human Services,
Colorado Refugee Services Program
Kit Taintor; Tirshana Regmi;
Noyes Combs

Submitted by:
Dominic Modicamore

ICF
9300 Lee Highway
Fairfax, VA 22031

Table of Contents

Executive Summary

Overview

Colorado is home to thousands of refugees from all over the world who fled violence and persecution to seek safety and sanctuary in the United States. As these individuals and families put down roots in Colorado, they spark a multitude of regional economic impacts through their spending and through the wages they earn working in industries across the economy. To better understand and quantify these economic implications, the Colorado Department of Human Services (CDHS) Refugee Services Program (CRSP) commissioned ICF to measure the economic impact of refugees in Colorado. ICF is a global consulting company with demonstrated experience in both the refugee and economic impact fields of study. The intent of this study is to understand the economic impact of the public support paid to refugees and their families as well as the economic impact of refugees' employment earnings over time.

This study is unique for four key reasons:

- first, unlike previous studies, this analysis relied on actual data on individual refugees' receipt of public services as well as their earnings;
- second, this study included not only the impact of public spending on refugees, but also assessed the impact of refugees' earnings in the economy – a critical component of understanding the full scope of impact;
- third, this analysis used a cohort approach in order to capture a static population of refugees across multiple years;
- fourth, this analysis accounted for the spending of Colorado taxpayer dollars on refugee assistance by subtracting the impact that would have been generated if the taxpayer had retained that income; and
- separate from the primary economic impact and fiscal analyses, this report also includes three case studies that provide additional insight into refugee resettlement in Colorado.

Methodology

The analysis assessed the economic impact of two unduplicated refugee cohorts: the 2007 cohort and the 2014 cohort. A "cohort" is defined as the set of refugees who accessed services through CRSP contractors during that federal fiscal year. The total impact of a cohort encompasses all spending directed towards any person in the cohort, for any year during which assistance was received. For example, if a person accessed English as a Second Language (ESL) classes in 2007, they are a member of the 2007 cohort. They may have also received Medicaid benefits in the year 2007 and in the years 2006 and 2008. All of this spending is captured in the 2007 cohort's total economic impact. The intent of this approach is to capture the total amount of economic activity generated by a discrete group of refugees over time.

To analyze the economic impacts of the 2007 and 2014 cohorts, ICF used IMPLAN (IMpact Analysis for PLANning), the most widely accepted economic impact model used in studies across many federal, state, and local government agencies, as well as by the private sector.

This analysis considers two categories of impacts: 1) assistance to refugees and 2) wages earned by refugees. Assistance to refugees captures the initial investments that help refugees establish security and a livelihood in Colorado, including (but not limited to) Medicaid, food assistance, and cash assistance programs. Colorado provided data on assistance to refugees in each cohort by year of assistance; this data represents actual dollars spent on refugee assistance.

The wages earned by refugees represent the other critical input into the IMPLAN model. When refugees earn wages, they have increased spending power. Not only does their spending initiate secondary activity throughout the economy, their earnings also contribute to tax revenue streams. Colorado provided Unemployment Insurance (UI) data for refugees in each cohort, covering each individual's wages earned by year and by industry. Using IMPLAN's Colorado dataset, this analysis estimates the total economic impacts of refugee spending activities in terms of employment, labor income, gross state product (GSP), and industry activity, as well as state and local tax revenue.

As a final step, ICF subtracted the economic impact that would have occurred if Colorado taxpayers had retained the money spent on assistance to both cohorts. The results demonstrate that there is an economic benefit in investing in refugees' stability and success through public assistance programs.

To estimate the fiscal Return on Investment (ROI) to Colorado government state and local taxes, the results from the economic impact analyses are compared to the public costs associated with the benefits that Colorado provides refugees. The Colorado portions of these costs are assumed to be supported by state taxpayers.

Findings

In total, the assistance provided to and wages earned by the 2007 cohort supported nearly $2.4 billion in output (or industry activity) across Colorado. This activity supported roughly 14,500 jobs and generated $611 million in labor income and $1.1 billion in Gross State Product (GSP). The assistance provided to and wages earned by the 2014 cohort supported roughly 9,400 jobs, and generated just under $400 million in labor income, over $721 million in GSP, and nearly $1.7 billion in output in Colorado. (Note that this is a conservative estimate, as UI wage data do not represent all refugees. In reality, the wages earned by refugees, and therefore the total economic impact, may be much greater.)

Accounting for impacts of assistance and wages, the 2007 cohort generated over $92 million in Colorado state and local tax revenue, while the 2014 cohort generated more than $57 million in Colorado state and local tax revenue.

For each dollar spent on assistance for the 2007 cohort, $1.68 is generated in industry activity throughout the Colorado economy. The same holds true for each dollar spent on the 2014 cohort. This is a critical finding as it indicates that even when only considering the assistance paid out (such as direct cash payments or supportive programs like Medicaid), refugees create a positive impact on the economy, generating more activity than payments and services they receive.

The differences between the two cohorts become apparent when including the impact of wages earned by refugees. When refugees are employed and earn income, their economic impact is even greater. **For each dollar of assistance spent on *and* wages earned by the 2007 cohort, $25.49 is generated throughout the economy, including ripple effects of both assistance spending and refugees' income. For each dollar of assistance spent on and wages earned by the 2014 cohort, $20.94 is generated throughout the economy.**

The value for the 2007 cohort is higher because these refugees have had more time to earn wages. Based on this trend, it is reasonable to assume that the 2014 cohort's impact will increase in future years as refugees continue to contribute to the labor force.

The results of the fiscal ROI analysis show that the 2007 cohort produced a positive ROI for state and local government of 1.23, meaning for every dollar spent by Colorado on refugees in this cohort, state and local governments have received $1.23 in return from taxes generated by

the refugees. A similarly positive return has not yet been realized for the 2014 cohort, currently providing $0.75 in tax revenue for each dollar spent. It is expected that the 2007 cohort would have a greater ROI than the 2014 cohort, since they have been in the state longer and have accumulated more earnings and thus, have provided more tax revenue to Colorado governments. It is expected that the 2014 cohort will follow the same trend and will provide a similarly positive return the longer they live in Colorado.

Two salient takeaways emerge from these findings:

- First, while both cohorts generate economic benefits, the 2007 cohort's greater contributions indicate that **refugees' positive economic impact accrues over time**. While the first few years of assistance spending may outweigh what refugees earn, helping refugees establish lives in Colorado will lay the groundwork for net economic benefits, as refugees are able to find employment and subsequently the assistance they receive decreases.

- Second, assistance spending generates economic activity even after accounting for the impacts on Colorado taxpayers. Therefore, **employing refugees can have the twofold benefit of generating tax revenue and economic activity while also allowing refugees to gain financial stability.**

Three case studies provide additional context for refugees' impact in Colorado. The first case study examines economic trends in ZIP Codes with high concentrations of refugee populations. The number of business establishments, payroll employees, and total payroll earnings in these ZIP Codes mirror the trends observed in the overall economy. The second case study compares refugee employment by industry and occupation to Colorado's overall employment. The findings suggest that refugees are filling a critical source of labor for employers in Colorado's growing industries. The third case study assesses the earnings gap between what refugees could expect to earn, based on their highest level of education, and what they actually earn. Over a 12-month period, the subset of refugees included in the analysis could have contributed an additional $2.5 million to Colorado's GSP if their earnings matched the average amount expected for their age group and educational level.

Conclusion

The results of the economic impact analysis demonstrate that refugees make measureable contributions to the Colorado economy, especially through their employment in a diverse array of industries. Colorado gains from the economic contributions of both refugee cohorts and would miss out on this activity if these refugees lived in other states. Similarly, Colorado would eschew positive economic activity were the number of new refugee arrivals to drop. Refugees contribute to Colorado's economic vibrancy and support jobs and income for refugees and non-refugees alike.

The case studies provide further evidence that refugees contribute to the economic vitality of the communities in which they live and the industries in which they work, on a scale similar to other workers.

The findings in this report show that **refugee resettlement can be viewed as a successful humanitarian program that also contributes to shared prosperity for local communities**. This supports previous research outcomes in this area but utilizes actual government data to support its findings. The report and its results can be used by the humanitarian, business and economic development communities to understand the positive economic and fiscal impacts that refugees can and do contribute.

1. Introduction

Since 2000, over 29,000 refugees and other populations of humanitarian concern have settled in Colorado from all over the world. While the primary focus of the refugee resettlement program is humanitarian, there are also economic implications. To better understand and quantify these economic implications, the Colorado Department of Human Services (CDHS) Refugee Services Program (CRSP) commissioned ICF to measure the economic impact of refugees in Colorado. Better insight into the economic implications of refugee resettlement helps CRSP and its partners understand how refugees fit into the fabric of Colorado's economy and how early investments into refugees and their families are balanced with income over time. CRSP also previously published research that studied refugee integration for five years post refugee arrival in the US[1]; the previous RISE report outlines the process of integration from the refugee perspective. This report reveals the economic impact of the process of refugee integration on the local communities.

As the debate has heightened in recent years over the impacts that refugees have on communities throughout the U.S., a number of economic impact studies have been completed; some predecessors to this report are summarized in the Literature Review section. Very few, however, have attempted to measure the impact of refugee "cohorts" instead of annual program-level spending. This study relies on a unique "cohort" methodology to account for long-term impacts of refugee resettlement. The cohort framework is described in greater detail in the Methodology section; it is essential to have an understanding of the approach to interpret the results correctly.

This analysis assessed the economic impact of two distinct refugee cohorts: the 2007 cohort and the 2014 cohort. The 2007 cohort can be understood as more established than the 2014 cohort. "Cohort" is defined as the set of refugees receiving assistance and/or services from CRSP contracted partners in a given federal fiscal year.[2] The total impact of a cohort encompasses all spending directed towards any person in the cohort, for any year during which assistance is received. For example, if a person received employment services in the year 2007, they are a member of the 2007 cohort. That person may also have received, for instance, Medicaid benefits in the years 2006, 2007, and 2008, and this spending would be captured in the 2007 cohort's total economic impact. The benefit of the cohort approach is that it allows for the analysis of the cumulative impacts over time of distinct groups of refugees. The Methodology Section that follows provides a detailed description of the analytical approach.

Furthermore, this study factors in the costs to Colorado taxpayers through providing these human services programs. As will be described in further detail in the Methodology section, this economic impact study measures the contributions of refugees, weighed against the public costs that support refugees, in the form of cash assistance, medical care, and other assistance.

The findings in this report show that refugee resettlement can be viewed as a successful humanitarian program that also contributes to shared prosperity in local communities. This supports previous research outcomes in this arena with findings from analysis of actual government data and can be used by humanitarian, business and economic development communities to understand the positive fiscal impacts of being a place of safety, sanctuary and opportunity for refugees.

---

[1] The Refugee Integration Survey and Evaluation (RISE) study is at https://www.colorado.gov/pacific/cdhs/about-refugees.

[2] The federal fiscal year runs from October 1-September 30.

1.1 Refugee Resettlement in Colorado

Since the passage of the Refugee Act by Congress in 1980, Colorado has participated in the federal refugee resettlement program, welcoming an average of 1,650 individuals per year. Since that time, refugees have become part of the fabric of the state as valued co-workers, employees, neighbors, and friends. CDHS plays a large role as the entity responsible for the coordination and oversight of the statewide refugee resettlement program. CRSP, which resides within CDHS, works closely with partners to ensure that refugees are safe, healthy, and prepared to achieve their highest aspirations. Importantly, CDHS also oversees vital programs that support economic security, such as Temporary Assistance for Needy Families (TANF) and food assistance (Supplemental Nutrition Assistance Program or SNAP). These programs, in conjunction with programs funded directly by CRSP, provide the primary supports for refugees as they integrate into life in Colorado.

Through these programs, Colorado invests in opportunities for refugees to become contributing members of their local communities. Colorado's employment outcomes, the measures by which the federal government holds programs accountable, have traditionally been strong, which is an indication of robust programming as well as a healthy economy and community support.

1.1.1 Refugee Resettlement Overview

Refugee resettlement relies heavily on partnerships between federal, state, and local governments and strong relationships with the private sector, including resettlement agencies, nonprofits, community colleges, school districts, community health centers, housing providers, volunteers, faith communities, and businesses that hire refugees. This ecosystem (or "village") helps refugees, and the communities that welcome them, integrate together towards shared prosperity.

Refugees served by Colorado's resettlement program arrive in the US through the federal United States Refugee Admissions Program (USRAP). A refugee is an individual who, "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality, and is unable to, or owing to such fear, is unwilling to avail himself of the protection of that country."[3] While the United Nations High Commission for Refugees (UNHCR) estimates that there are over 22 million refugees worldwide, less than one percent of these are ever referred to third-country resettlement programs, such as the USRAP. Refugees referred to USRAP are oftentimes the most vulnerable in the world, but the process of referral is complicated and lengthy at best. Some refugees wait decades to be referred while all other durable solutions, such as return to one's home country, are explored and, ultimately, eliminated, prior to their application to USRAP. Details on this process can be found at http://www.unhcr.org/en-us/resettlement-in-the-united-states.html.

Once a refugee is referred by the UNHCR to USRAP, the average length of time for a resettlement application's approval is currently 18-24 months. The approval process involves multiple different federal agencies, including the Department of State and the Department of Homeland Security. Details on the application and screening process, which is an entirely federal effort, can be found at https://www.uscis.gov/refugeescreening and https://www.state.gov/j/prm/ra/admissions/

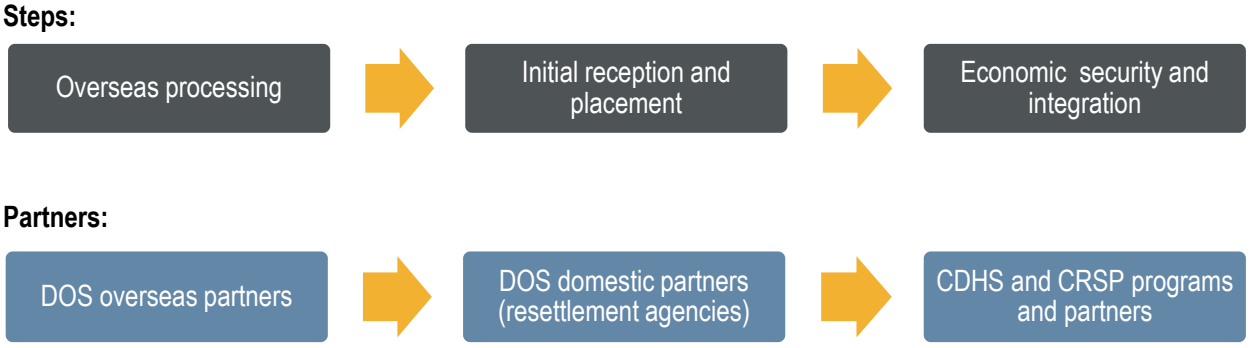
[3] As defined through the United Nations Geneva Convention of 1951.

In addition to refugees, USRAP (and Colorado's resettlement program) assists Special Immigrant Visa holders (SIVs) to resettle safely in the U.S. SIV is a special immigration status for individuals who supported U.S. military efforts in Afghanistan and Iraq and their families. Many of these SIVs served alongside U.S. forces as interpreters, and all of them faced danger due their involvement with the U.S.'s military objectives. While a separate immigration status, but similar reasons for seeking safety, approved SIV holders access refugee services through USRAP both overseas and domestically after arrival. In 2017, approximately 26% of those served through USRAP were SIVs.

At the national and international level, the Department of State (DOS) and its contractors serve as the bridge between overseas and domestic resettlement programs. DOS contractors assist in preparing approved refugees for resettlement overseas and in welcoming refugees once they arrive in the U.S. Refugees and SIVs arrive in the U.S. with legal status and authorization to work. Domestically, there are currently nine national resettlement agencies with cooperative agreements with DOS to implement the reception and placement program for refugees and SIVs. At present, the nine national agencies have networks of local offices and/or affiliates in approximately 160 communities across the U.S. These local offices work closely with state refugee coordinator offices (in Colorado, CRSP) and local communities. The national resettlement agencies, in consultation with their local offices, make placement decisions to determine where in the U.S., and where in Colorado, each refugee is resettled. The process for determining where SIVs relocate can be slightly different, but in each, factors such as family ties, existing community structures, and strong employment opportunities are considered.

Through the reception and placement program, local resettlement agencies help stabilize families and individuals upon arrival through such assistance as securing adequate housing and enrollment in services and public benefits. Such services are time-limited (30-90 days) but in Colorado, these stabilizing supports dovetail with longer-term services funded through CRSP (described briefly in Section 1.1.2) and other services for vulnerable populations, such as SNAP, Colorado Works (TANF), Adult Financial Programs (such as Supplemental Security Income (SSI), Aid to the Needy and Disabled (AND), and Old Age Pension (OAP)) and Health First Colorado (Medicaid). Refugees are eligible for these programs provided they meet income and other eligibility requirements, and these government programs play a vital role in supporting refugees as they re-build their lives.

Exhibit 1.1.1: Refugee Resettlement Process



1.1.2 Services and Assistance Provided in Colorado

Once the reception and placement period is over, refugees continue to access services that are supported by federal, state, and local governments. This includes resources from the federal Department of Health and Human Services (HHS) Office of Refugee Resettlement (ORR) and other critical federal programs that are run by states (such as Medicaid), and by state and local programs, such as OAP.

In partnership with ORR, CRSP coordinates a refugee resettlement model which leverages funding streams to ensure holistic and streamlined services for refugees. CRSP, which is 100% federally-funded,[4] oversees a one-stop shop model, in which local resettlement agencies provide initial (reception and placement) and longer-term supports (such as programs funded by CRSP and Colorado Works). These services help refugees and SIVs work towards economic security and integration.

In Colorado's model, resettlement agencies serve all refugees, including those participating in Colorado Works or other federal programs, with core services. These include time-limited cash assistance (Refugee Cash Assistance (8 months for those ineligible for Colorado Works) or Colorado Works' Basic Cash Assistance (up to 60 months lifetime benefits for low-income families with dependent children), case management, employment, and health access programming. The main goals of these programs are self-sufficiency and employment entry. Employable refugees work with career counselors to develop individualized plans with employment and educational goals. Job developers establish mutually beneficial partnerships with Colorado businesses, helping them find qualified refugees who meet their workforce needs. Refugees that are not employable, such as school-aged youth or older adults, receive services to link them with resources that meet their needs, such as public schools, older adult programs, or community-based healthcare centers.

Because refugees arrive with a variety of needs, CRSP also contracts with a matrix of local agencies to provide holistic services aimed at creating opportunity and fostering integration. These include English as a Second Language (ESL) programs, emotional and physical wellness services, vocational job training programs, services specific to refugee youth and older adults, and community navigation aimed at connecting refugees with mainstream systems (such as schools). Beyond CRSP's contractors, there are other important agencies that support refugees post arrival as part of their community-driven mission(s), such as agencies that work with youth or with the underemployed.

Other important programs that support refugees are mainstream programs aimed at low-income families and individuals. Because many refugees arrive with little to no assets, these safety-net programs provide vital assistance as refugees restart their lives. Colorado Works, Colorado's TANF program, provides time-limited cash assistance (up to 60 months over a lifetime) and supportive services (such as employment services and work supports) to families with dependent children who meet certain income and eligibility requirements. Because many refugees arrive with children under the age of 18 (see following section for more demographic information), between 50-60% of refugees who arrive in Colorado in any given year are eligible for Colorado Works. Colorado expanded Medicaid (now known as Health First Colorado locally) in 2014; many refugees, especially when they first arrive, are supported by this important program for their medical needs. If a refugee is found ineligible (usually due to income) for

[4] CRSP receives federal funding from ORR and a portion of Colorado's federal TANF funding to support refugees eligible for Colorado Works.

Medicaid, oftentimes they are able to gain support from the time-limited (8 months post arrival in the US) Refugee Medical Assistance program (which is funded by CRSP/ORR) and has a slightly higher poverty threshold. Food Assistance or SNAP provides food benefits to low-income households including refugees; this important benefit helps ensure that refugees, many of whom are working full-time, are able to meet basic needs. Adult Financial programs such as Aid to the Needy Disabled (AND) and Old Age Pension (OAP) provide cash assistance programs to low-income Coloradans, including refugees, who have a disability that prevents work or are aged 60 years or older. All of these programs are based on eligibility; eligibility is re-determined at set points in time to account for changes in family size or income. In addition, the largest of these programs (Colorado Works, Refugee Cash Assistance, and SNAP) are dependent on active participation in an employment plan, which may include job training, English as a Second Language classes, or actual employment.[5]

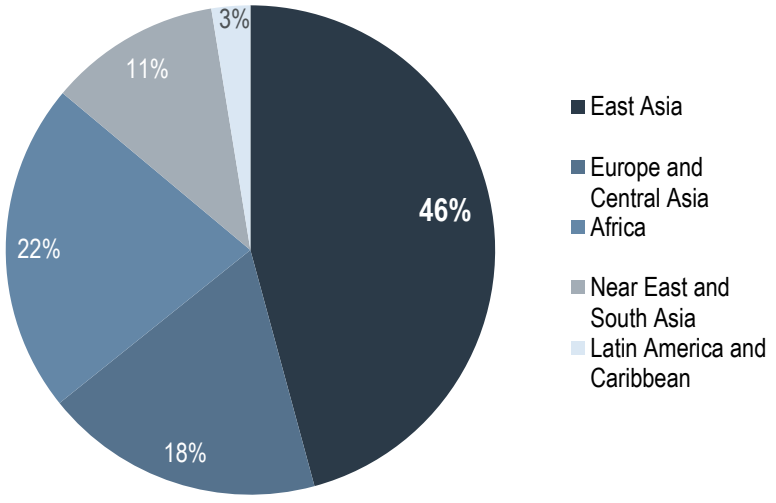
These important partners and programs help CRSP fulfill its vision of effective resettlement and the promotion of refugee advancement past self-sufficiency and to long-term integration. These investments fulfill the humanitarian aspect of the refugee resettlement program, support refugees' individual and communal achievements, ensure integration into local communities, and support both the refugee and the receiving community together.

1.1.3 Refugee Population in Colorado

Since 1980, the vast majority of refugees have arrived in metro Denver/Aurora (80% in 2017), while Colorado's second largest city, Colorado Springs, has welcomed a smaller proportion (7% in 2017). Starting in 2007, refugees began moving to the more rural communities of Greeley and Fort Morgan to seek employment; family members began to join these Northern Colorado residents from overseas in 2008. Currently, these communities welcome approximately 13% of Colorado's refugees. Statewide, refugees comprise less than one percent of Colorado's total population.

Historically, Colorado's refugee population closely mirrors national trends, and those trends have responded to global needs for safety and sanctuary. People from Vietnam, the former Soviet Union, Bosnia, Somalia, Laos, Burma, Bhutan, Cambodia, Ukraine, Ethiopia, Eritrea, Sudan, Iraq and Eritrea have all resettled in Colorado and have since come to call the state home. In recent years, most refugees have arrived from Afghanistan, Bhutan, Burma, Iraq, Somalia, and the Democratic Republic of the Congo.

FFY 1980-2017 Colorado Refugee Arrival by Region



On the whole, Colorado resettles approximately two percent of refugees arriving

[5] More information on these programs, including Colorado Works and CRSP-funded programs, see: https://www.colorado.gov/cdhs.

in the U.S. in any given year. In the 2016 federal fiscal (FFY) (which runs from October-September), 1,959 refugees and SIVs initially resettled in Colorado through USRAP; in FFY 2017, reflecting fewer arrival numbers nationwide, 1,516 newly arriving refugees and SIVs resettled in the state. CRSP and its partners also serve secondary migrants, refugees who initially resettle in another state but subsequently move to Colorado, and other humanitarian populations eligible for refugee services, such as asylees, who gain status once they are in the U.S. The number of people served in any given year therefore increases to 2,500-3,500 on average, depending on the number of new arrivals, secondary migrants, and individuals who arrived in previous years but are still in need of services.

While all of them fled persecution, refugees arrive from a variety of backgrounds, including diverse educational and employment experiences. Some arrive fluent in English, while others did not have the opportunity to learn English while they were overseas. Some refugees arrive with advanced degrees in medicine or engineering, while others relied on subsistence farming or entrepreneurial skills to make a living in their home countries. In 2017, 20% of newly arriving employable refugees came to Colorado with bachelor's degrees or higher.

Most refugees resettle with their families or join their family members already residing in Colorado once they arrive. Traditionally approximately between half to two-thirds of Colorado's refugees are families with children under the age of 18. Colorado's refugee population historically has been evenly split between males and females. The median age of newly arriving refugees is 24; many refugees arrive as school-aged children. In fact, most arrivals overall are between 0 to 24 years of age; the second largest age group of arrivals is 25-44. The fact that the population skews younger underscores the potential benefit to the labor force, as most arrivals either are of working age or will be within the next few years. Additionally, previous research has found that individuals arriving as children have economic, employment, and educational outcomes similar to the U.S.-born population.[6]

2. Project Methodology

2.1 Discussion of Cohort Approach

Accurate interpretation of the findings of the economic impact study requires an understanding of the cohort approach. This analysis assesses the economic and fiscal impact of two distinct refugee cohorts: the 2007 cohort and the 2014 cohort. "Cohort" is defined as the set of refugees who accessed services through CRSP contractors during that federal fiscal year. The cohorts are unduplicated. The total impact of a cohort encompasses all spending directed towards any person in the cohort, for any year during which assistance is received. For example, if a person accessed employment services in 2007, they are a member of the 2007 cohort. They may have also received SNAP benefits in the year 2007 and in the years 2014 and 2015. This spending would be captured in the 2007 cohort's total economic impact. The intent of this approach is to capture the total amount spent on a

The cohort approach shows the impact of a distinct group of refugees over time, paralleling their integration pathway, and quantifying the economic impact of their integration.

[6] Evans, W., & Fitzgerald, D. (2017). "*The Economic and Social Outcomes of Refugees in the United States: Evidence from the ACS*"(NBER Working Paper No. 23498). National Bureau of Economic Research. Available at: http://www.nber.org/papers/w23498
For additional data on refugees and refugee arrivals, see Refugee Services page at www.colorado/gov/cdhs.

discrete group of refugees over time. The 2007 cohort encompasses approximately 2,670 refugees and SIVs who arrived through the USRAP, while the 2014 cohort includes roughly 3,600 refugees and SIVs. A change in the structure of Colorado's programming (contractors instead of the counties providing TANF workforce services directly to clients) in part explains the increase in numbers served in the 2014 cohort, as does a larger number of new arrivals.

Analyzing only one year of service would give an incomplete snapshot of the timeframe of service and longer-term wage benefits generated as refugees rebuild their lives in Colorado. Analyses that rely on an annualized evaluation approach are oriented toward program impacts versus refugee impacts, as they often are not able to account for the activity of an established group of individuals over time. The key advantage of the cohort analysis approach is that it allows for a multi-year impact evaluation of a distinct group of refugees.

There are a few additional considerations that must be kept in mind when interpreting the results of this study; first, it is important to recognize that service year data within a cohort (e.g., when members of the 2007 cohort received support in 2009) cannot be viewed as representative of all services provided during that year. Service year data captures only the spending allocated towards refugees who *also* received services in their cohort year. For example, 2001 spending on Medicaid for the 2007 cohort amounted to $368 and covered one refugee. This should not be understood as "$368 is the total amount that Colorado spent on refugees' Medicaid in 2001." The appropriate interpretation is "$368 is the amount that Colorado spent in 2001 on refugees who *also* received services from a CRSP contractor in 2007." It is telling that the 2001 value is quite small, indicating that few refugees who received services in 2001 continued to receive services through 2007. A notable exception is that 2007 and 2014 do represent total year spending for Colorado, as these are the years for which all cohort members received services. Thus, all state spending on refugees for service years 2007 and 2014 is captured.

Additionally, it is important to note that the cohort approach does not lend itself well to analysis by arrival year or length of time in the U.S. as some other previous studies have done.[7] A member of the 2007 cohort (i.e., someone who received services in the year 2007) may have arrived in the U.S. in the year 2007, or may have arrived in an earlier year. The results of the economic impact analysis are presented in terms of the year of service provided to the refugee (i.e., "service year"). If a member of the 2007 cohort also received services in 2005, 2006, and 2007, the service years for the spending would be 2005, 2006, and 2007, and the impacts of this spending would be included in the cumulative 2007 cohort results. While data can be presented by arrival year, the economic impact model used in this analysis (IMPLAN) requires inputs to reflect the year that spending occurred in the economy. For example, while it may be valuable to say that $1,000,000[8] was spent on all refugees who arrived in the U.S. in the year 2001, it is not possible to model that spending in an input-output model without knowing the exact year of spending—the model is sensitive to whether all $1,000,000 of spending occurred in 2001, or if that spending was spread out across many years.

Data on spending on refugees and wages earned by refugees was collected for the 2007 cohort and the 2014 cohort. The data was then organized by service year within each cohort (or, more appropriately, "earning year" for wage data). Next, the impacts of both spending on refugees and wages earned by refugees were modeled in IMPLAN.

---

[7] A short review of previous studies appears in the Literature Review section of this report.
[8] Not an actual value. Provided for illustrative purposes only.

Throughout this analysis, ICF relied on the best available data provided by CDHS. Where data reliability or rigor issues occurred, ICF worked closely with the state to understand the implications and limitations of the data. Unemployment Insurance (UI) wage data, for instance, is a notable limitation. UI wage data is used in this study to estimate the amount of total wages earned by refugees, which drives a significant amount of their economic impact; however, it excludes some workers. Employees not covered in UI wage records data include agricultural workers, state and local governmental employees, domestic workers, and those in the military. The wages earned by refugees employed in any of these sectors are, thus, not captured in the economic impact analysis. Additionally, refugees that work informally (or 'off-the-books') are also not captured in the UI wage records and, thus, in this economic impact analysis. **Because of the limitations of UI wage data, it is important to note that this study underestimates the impact of wages earned by refugees, resulting in a smaller economic impact than they actually generate. The economic impact results in this study should, therefore, be considered a conservative estimate.**

2.2 Data Sets and Systems

This report differs as well from previous studies (outlined in the Literature Review) in that it uses actual data to support its findings. CRSP determined the individuals in each cohort by capturing all refugees who had a service during the selected federal fiscal years (2007 and 2014). For these cohorts, Colorado then gathered data related to government spending on the cohorts across all years in which a payment was made up and until 2017. This included pulling data from three distinct data systems: CDHS's Colorado Benefit Management System (CBMS), Colorado Department of Health Care Policy and Financing (HCPF)'s claims and payment database, and the Colorado Department of Labor and Employment's Colorado Unemployment Benefits System (CUBS). CBMS contains data related to cash payments to eligible participants in Colorado Works, SNAP, OAP, SSI, and AND; these payments would include direct cash payments (such as monthly Basic Cash Assistance based on case/family size), SNAP benefits (again, based on case/family size) and other work supports based on need and related employment plan(s), such as bus passes. HCPF data included payment data based on submitted claims; this can widely vary from person to person as medical needs, and their related costs, can be anything from ongoing medication to an emergency department visit to a life-saving operation. Unemployment data includes payroll earnings by quarter; utilization of this data ensures that income is accurately collected, even if an individual switches jobs or experiences a bout of unemployment. However, as mentioned previously, UI data has limitations as it does not capture all jobs.

Data sets included assistance spending and wages from 2001-2017. An individual in the 2007 cohort may have appeared in all years, while individuals in the 2014 cohort would not have. Because refugees are only eligible for CRSP-funded services for five years post their arrival in the U.S., the earliest an individual from the 2014 cohort could have appeared in the data would have been 2008.

2.3 Refugee Population in the Cohorts

Refugee populations change over time as a result of global need. The populations studied in the cohort analysis reflect national trends in 2007 and 2014 in terms of countries of origin. However, since the U.S. has traditionally resettled the most vulnerable of the world's refugee populations,

many being families and young children, the cohorts are similar in terms of other demographic markers and are representative of demographic trends year to year. Only those arriving through USRAP were included in the cohorts[9]; in 2007, this included only refugees. In 2014, this included refugees and SIVs, as the legislation designating the SIV status passed in 2008. Both cohorts included those who arrived initially in the U.S. to Colorado and those refugees and SIVs who moved to Colorado after initial resettlement in another state. The cohorts, again, encompass those individuals and the other members of their cases (for instance, children) who received services in 2007 and 2014.

The following tables compare the two populations in each cohort, based on country of origin, age, and gender.

Exhibit 2.3.1: Comparison of Cohorts based on Country of Origin

Top 5 Countries of Origin				
#	2007 Cohort		2014 Cohort	
1	Somalia	616	Iraq	906
2	Burma	464	Burma	815
3	former Soviet Union	283	Somalia	652
4	Ethiopia	212	Bhutan	573
5	Uzbekistan	101	Democratic Republic of the Congo	255

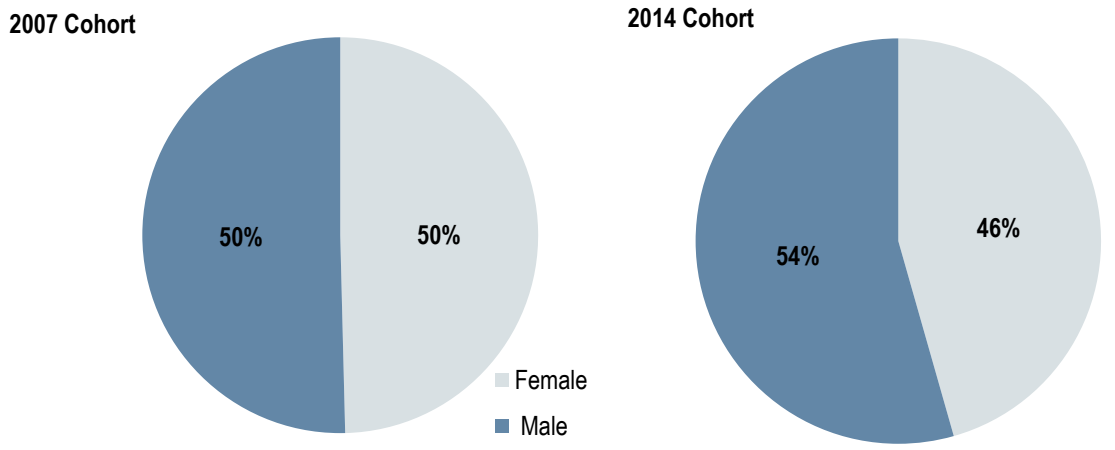
Source: Colorado Department of Human Services

In 2007, the top five countries of origin comprised 61% of the total number served (Somalia, 22%; Burma, 17%; former Soviet Union, 10%; Ethiopia, 8%; and Uzbekistan, 4%). Other refugee-producing countries whose citizens were served in 2007 include Bhutan, Burundi, Iraq, and Eritrea. In 2014, the top five countries comprised 80% of the total numbers served (Iraq, 23%; Burma, 20%; Somalia, 16%; Bhutan, 14%; and Democratic Republic of the Congo, 6%). Other populations include: Afghanistan, Ethiopia, Eritrea, and the Ukraine. Protracted conflict in many counties, such as Somalia and Burma, translates to individuals from these countries represented in both cohorts, not the same individuals appearing in both. Indeed, individuals would not appear in both cohorts based on eligibility time limits for the receipt of services.

While there is variation between the two cohorts in terms of country of origin, the 2007 and 2014 cohorts contain a similar diversity of educational and work experience. One of the largest variations in terms of economic impact between the two groups may instead be the economic conditions in the U.S., rather than their work-readiness and English proficiency. The 2007 cohort, like all Coloradans, experienced the Great Recession; the results of the data analysis would reflect the collective hardship of that time even as it shows the positive impacts related to the accumulation of wages over time. The 2014 cohort may in the end, contribute in greater degrees in terms of things like tax revenue and industry activity because they began their working years in the U.S. in a relatively healthier economic environment.

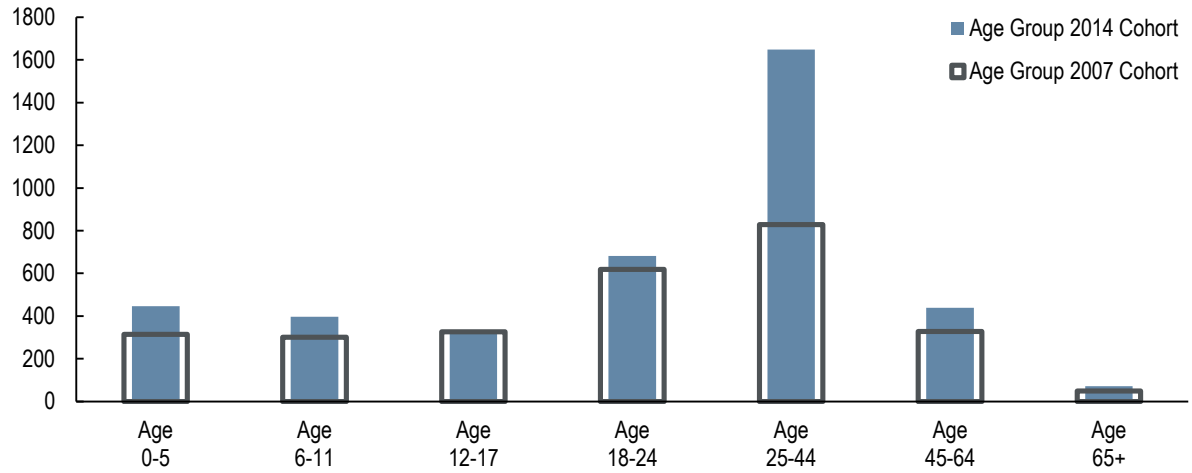
[9] While Colorado's refugee and other critical programs serve other populations, such as asylees, that are eligible for refugee services under 45 CFR 400.43, this study only included those populations arriving through USRAP.

Exhibit 2.3.2: Comparison of Cohorts based on Gender[10]



There is little variation based on gender; the slightly higher proportion of males in the 2014 cohort is based on the addition of the SIV population. This population, nationally and in Colorado, has a larger proportion of single males; however, the majority of SIVs still arrive with their wives and children.

Exhibit 2.3.3: Comparison of Cohorts based on Age[11]



The larger number of individuals in the 25-44 age range is again reflective of the addition of the SIV population. It must be noted that the larger distribution of working-age adults in the 2014 cohort may translate to greater economic benefits and a larger return on investment for Colorado.

Overall, the 2014 cohort is approximately one and a half times larger than the 2007 cohort. The larger number of individuals in the 2014 cohort over the 2007 cohort is not necessarily because of a larger number of arrivals, though that is a contributing factor. It is also because between

[10] Source: Colorado Department of Human Services
[11] Source: Colorado Department of Human Services

2007 and 2014, CRSP's contractors began to provide Colorado Works employment services to all refugees enrolled in the program; this shift extended the time period that resettlement agencies (CRSP's largest contracting partners) work with refugees. Resultant of a larger refugee population, Colorado may see a larger net impact from this cohort as they establish themselves in Colorado.

2.4 Introduction to the IMPLAN Model

To analyze the secondary impacts of the 2007 and 2014 cohorts, ICF used IMPLAN (IMpact Analysis for PLANning), the most wildly accepted economic impact model used in studies across many federal, state, and local government agencies, as well as by the private sector.

Input-output models describe and predict the economy-wide impact of an economic stimulus occurring in a subset of sectors. ICF used the IMPLAN version 3.1 input-output model to calculate the indirect and induced impacts associated with refugee activity in Colorado. IMPLAN is regarded as a reliable tool for conducting economic impact analyses. The model is created and maintained by the Minnesota IMPLAN Group (MIG), and was developed in the 1970s through a collaboration with the USDA Forest Service and the University of Minnesota.

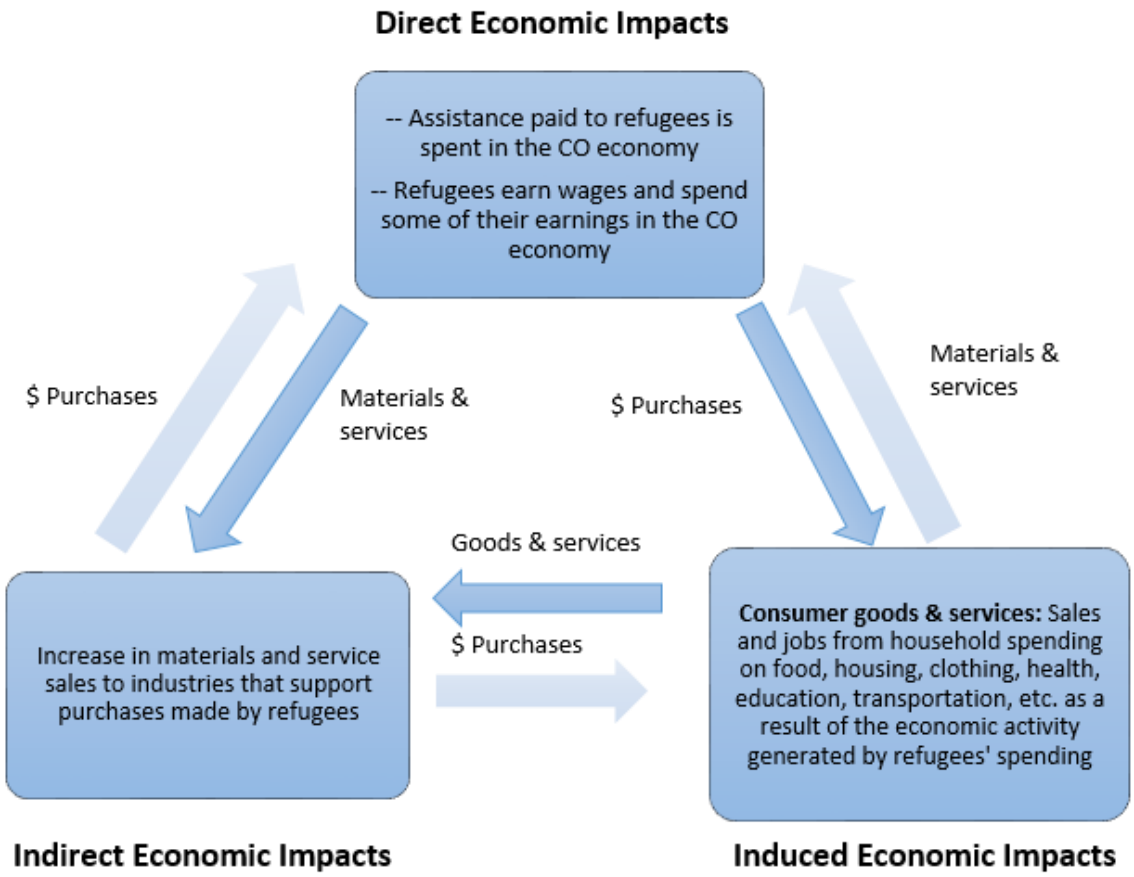
This analysis uses a state of Colorado data set. The IMPLAN data set is constructed of data from the U.S. National Income and Product Accounts (NIPA) and the Bureau of Economic Analysis, among a variety of other data sources. The model includes 536 industry sectors based on the North American Industry Classification System (NAICS). The model uses region-specific multipliers to trace and calculate the flow of dollars from the industries that originate the impact to supplier industries. Three types of impacts are calculated in IMPLAN:

- **Direct Impacts** are impacts in the primary industries in which refugees earn wages or where assistance spending is focused (e.g., medical sectors for Medicaid spending).

- **Indirect Impacts** are impacts in the industries that supply or interact with the primary industries. For example, when a medical office expands and purchases new equipment, the industry sectors supplying the equipment experience indirect impacts.

- **Induced Impacts** represent increased spending by workers who earn money due to increased economic activity, such as when healthcare providers use their wages to purchase goods from local shops.

Exhibit 2.4.1: Relationship between Direct, Indirect, and Induced Impacts



Whenever new industry activity or income is injected into an economy, it starts a ripple effect that creates a total economic impact that is much larger than the initial input. This is because the recipients of the new income spend some percentage of it and the recipients of that share, in turn, spend some of it, and so on. The *total impact* of the new activity or income is the sum of these progressively smaller rounds of spending within the economy. This total economic impact creates a certain level of GSP, jobs, and tax revenue for governments. The total impact is the sum of the multiple rounds of secondary indirect and induced impacts that remain in Colorado. IMPLAN then uses this total impact to calculate subsequent impacts such as total jobs created and tax revenue.

The results of this analysis are reported using commonly used metrics, consistent with best practices. A summary of each metric is provided below:

- **Employment**: Represents the jobs created by industry, based on the industry activity per worker and industry.[12]

[12] Due to the static nature of the IMPLAN model, the employment impacts are presented in terms of annual job-years as the model calculates the annual impact of annual activity. It is likely that once the job is created, it will be sustained; however, to ensure that the impact is not overstated, it is conservatively assumed that the job impact is annual.

- **Labor Income**: Includes all forms of employment income, including Employee Compensation (wages and benefits) and Proprietor Income.
- **Gross State Product (GSP)**: Gross State Product (GSP) measures the total value-added generated by all of Colorado's industries, and is the state-level counterpart to Gross Domestic Product (GDP).
- **Output**: In this report, output is used interchangeably with Industry Activity and represents the total industry activity generated by the direct spending. This includes the value of all goods and services produced by an industry.
- **Tax Impact**: Taxes collected by state and local government.

2.5 Analyzing Model Inputs

2.5.1 Assistance to Refugees

A refugee arriving in Colorado will often need initial investments in order to establish security and a livelihood in their new home. For this analysis, Colorado provided data on the following programs' contributions to refugees in each cohort by year of assistance:

- Medicaid and Refugee Medical Assistance (RMA)
- Refugee Cash Assistance (RCA) and other direct payments to refugees
- Adult Financial (e.g. Supplemental Security Income, Old Age Pension, Aid to Needy and Dependent)
- Colorado Works (TANF), including Basic Cash Assistance and supportive services
- Food Assistance (SNAP)

Refugees in both the 2007 and 2014 cohorts constitute less than half of one percent of Colorado's total 2017 Medicaid enrollment. Similarly, these refugees account for less than half of one percent of Colorado's 2016 spending on Medicaid. The per-enrollee spending amount for refugees in the 2014 cohort is roughly 45% lower than the per-enrollee spending for the general Colorado Medicaid recipient population in 2013.

Sources: Colorado data on Medicaid spending; Colorado Legislative Council Staff Memorandum. November 17, 2016; Medicaid Spending in Colorado, Ballotpedia, Accessed November 3, 2017.

Spending in each of these programs served as one of the two primary inputs into the IMPLAN model. First, ICF matched the assistance type to the appropriate sector in IMPLAN. Assistance that goes directly to an industry is modeled in sectors related to that industry. For example, because Medicaid funding is spent in healthcare sectors and food assistance spending is spent on food, spending on these programs is modeled in a related set of IMPLAN sectors. Spending on programs that provide a cash payment are modeled as a household income change in IMPLAN. The model accounts for spending patterns as defined by the Bureau of Labor Statistics (BLS) Consumer Expenditure Survey (CES) and makes further adjustments to account for factors like personal savings rates and tax rates.[13] Spending across assistance types is combined to constitute one of the key model inputs for each cohort.

[13] IMPLAN Knowledge Base. Personal Consumption Expenditure (PCE) Distribution. http://oldsupport.implan.com/index.php?option=com_content&view=article&id=380:380-transferred&catid=227:227

2.5.2 Wages Earned by Refugees

The wages earned by refugees represent the other critical input into the IMPLAN model. When refugees earn wages, they have increased spending power, and not only does their spending initiate secondary activity throughout the economy, their earnings also contribute to tax revenue streams.

Colorado provided wage information for refugees in each cohort, covering each individual's wages earned by year. The data included information on refugees' industry of employment, organized by North American Industry Classification System (NAICS) code. ICF aggregated this data by cohort and by year of earnings to calculate the IMPLAN model inputs. Each NAICS code is matched to the appropriate IMPLAN industry sectors using a crosswalk provided by IMPLAN. Then, refugees' earnings are modeled for each year in the corresponding industry sectors as employee compensation to account for the industry-specific impact of refugees' earnings. Finally, results are combined by cohort to demonstrate the total impact generated by each cohort's earnings.

All wage estimates presented in this analysis likely undercount the actual wages earned by refugees in each cohort. This estimate is conservative because the wage data provided by the state, while the best available on the population of refugees, does not capture all employed refugees. Wage data used in this analysis rely on Unemployment Insurance (UI) data, which excludes a number of workers. As mentioned earlier, employees not covered in UI wage records include agricultural workers, state and local governmental employees, domestic workers, and those in the military. Additionally, refugees that work informally are also not captured in the UI wage records. Without additional information, it is impossible to determine the wages earned by refugees in either cohort who do not fall into the parameters of the UI data set. For these reasons, the actual wages earned by refugees in both cohorts are assumed to be greater than the conservative estimates presented here.

For both assistance and wages, model inputs were constructed using nominal dollars aligning with the year in which the spending or earnings occurred. In IMPLAN, inputs are modeled using the corresponding event years. For example, any refugee wages that were earned in 2010 are calculated in 2010 dollars and run with a 2010 event year. All model results are shown in 2017 real dollar values.

2.5.3 Accounting for Colorado Taxpayers

A unique aspect of this analysis was the consideration of costs to Colorado taxpayers in quantifying the model inputs. Services such as food assistance are funded in part by Colorado's tax dollars, and while employed refugees contribute to Colorado's tax revenues, the money spent on refugee assistance is considered "lost" income to Colorado taxpayers, who could have spent that income on other goods and services in the economy. In an effort to account for these costs to Colorado taxpayers, this analysis accounts for a refugee's net impact. To achieve this, the analysis calculated the portion of the total spending that is funded by Colorado tax revenue and analyzed the impact of that cost on the Colorado economy.

3. Economic Impact Findings

3.1 Assistance & Wage Impact

Refugees generate substantial economic impact not only through the wages they earn, but also because of the assistance dollars that they spend in the local economy (much of which originates at the federal level). This analysis compared a more established group of refugees (2007 cohort) to a more recent group of refugees (2014 cohort), allowing for a longer-term perspective of how refugees' earnings and assistance impact the local economy. An individual in the 2007 cohort, for example, may or may not be receiving state assistance in 2017, but has had 10 years of income generation, and has contributed to the Colorado tax revenue and the overall economy through their income generation. Similarly, a refugee who received assistance in 2007 has had time to build skills and perhaps earn a raise, increasing the economic impact of their income. A more concrete discussion of these impacts are presented below.

Employment: Represents the number of jobs supported by direct spending. Refugee economic activity, such as through consumer purchases, spurs job creation. This could be jobs like teachers, retail workers, landlords, and construction managers.

Labor Income: Includes all forms of employment income such as wages, benefits, and proprietor income. Refugee economic activity also supports labor income for Colorado families. For example, when refugees buy consumer goods, businesses make money and spend some of that income on wages for employees. Wages earned are part of labor income.

GSP: Gross State Product (GSP) measures the total value-added output generated by all of Colorado's industries and is the state-level counterpart to gross domestic product (GDP). The GSP is used to measure the size of Colorado's economy, in monetary terms. A growing GSP indicates a healthy and expanding economy. By adding value to the GSP, refugee earnings support positive economic activity; effects of a healthy economy are often wage growth and low unemployment.

Output: Represents the total industry activity generated by direct spending. This includes the value of all goods and services. Output as reflected in this report represents all Colorado industries combined. Increased output is a reflection a growth in the economy, one that is generating jobs and income for Coloradans; as refugee economic activity, such as purchasing consumer goods or paying for services, creates output, this output, in turn, puts Coloradans to work and wages in families' pockets.

Between 2001 and 2017, assistance spending on refugees in the 2007 cohort supported $157 million in industry activity. This activity supported roughly 1,300 annual jobs and approximately $69 million in labor income across Colorado. The 2007 cohort spending created nearly $96 million in Gross State Product (GSP) to the Colorado economy. Even more impressively, wages earned by the 2007 cohort generated over $2.2 billion in output or industry activity across Colorado. These wages generated approximately 13,200 annual jobs and $542 million in labor income, while generating an additional $994 million in GSP. In total, the assistance provided to and wages earned by the 2007 cohort supported nearly $2.4 billion in industry activity in Colorado. This activity supports roughly 14,500 jobs, and generated $611 million in labor income, and $1.1 billion in GSP. Wages earned by refugees generated the bulk of this impact, constituting between 89% and 93% of the 2007 cohort's total impact. This is a conservative estimate, as UI wage data do not represent all refugees, as explained above. Exhibit 3.1.1 presents a summary of the results for the 2007 cohort, shown in 2017 dollars.

Exhibit 3.1.1: Summary of Total Economic Impact – 2007 Cohort ($2017)[14]

	Employment	Labor Income (millions)	GSP (millions)	Output (millions)
Assistance Spending[15]	1,300	$69.2	$95.7	$157.0
Wages Earned by Refugees	13,200	$542.0	$993.6	$2,231.1
Total Refugee Impact	**14,500**	**$611.2**	**$1,089.3**	**$2,388.1**

Source: Source: IMPLAN analysis, compiled by ICF. Note: numbers may not sum due to rounding.

Although the 2014 cohort has had considerable less time to generate economic activity in Colorado, they still have initiated significant impacts. Between 2008 and 2017, assistance spending on refugees in the 2014 cohort supported roughly 1,100 jobs and generated approximately $58 million in labor income in Colorado. Additionally, this spending created nearly $82 million in GSP and over $134 million in industry activity. Wages earned by the 2014 cohort supported nearly 8,300 jobs and $341 million in labor income, while generating an additional $640 million in GSP and over $1.5 billion in industry activity in Colorado. In total, the assistance provided to and wages earned by the 2014 cohort supported roughly 9,400 jobs, and generated just under $400 million in labor income, over $721 million in GSP, and nearly $1.7 billion in industry activity in Colorado. As with the 2007 cohort, the **majority of the 2014 cohort's impact is generated through wages earned by refugees**, with wage impacts constituting between 85% and 92%of the 2014 cohort's total impact. Looking at the 2007 cohort's impact, as a reference, it is reasonable to assume that the 2014 cohort's impact will only increase over time. Exhibit 3.1.2 presents a summary of results for the 2014 cohort, shown in 2017 dollars.

Exhibit 3.1.2: Summary of Total Economic Impact – 2014 Cohort ($2017)

	Employment	Labor Income (millions)	GSP (millions)	Output (millions)
Assistance Spending	1,100	$58.1	$82.8	$134.2
Wages Earned by Refugees	8,200	$341.1	$639.9	$1,543.3
Total Refugee Impact	**9,400**	**$399.2**	**$721.6**	**$1,677.5**

Source: IMPLAN analysis, compiled by ICF. Note: numbers may not sum due to rounding.

To provide context, total employment generated by both the 2007 and 2014 cohorts represents roughly 28% of the total 2016 employment in Weld County and approximately one percent of Colorado's total 2016 employment.

Comparing the economic impact results to the model inputs can help illustrate the per-dollar impact of economic activity generated for each dollar spent. This relationship tells an important piece of the overall economic impact story, and can be used to roughly estimate the impacts of future spending. Exhibit 3.1.3 summarizes the impact of refugees from a per-dollar spent on perspective.

For each refugee served, approximately 4 jobs were supported in Colorado's economy.

For each dollar spent on assistance for the 2007 cohort, $1.68 is generated in industry activity throughout the Colorado economy. The same holds true for each dollar spent on the 2014 cohort. The differences between the two cohorts become apparent when including the impact of wages earned by refugees. Refugee wages are appropriately considered part of the total impact, and as discussed previously, a key goal of this study was to account for the fact

[14] Note that these results represent the total economic impact, which is the sum of direct, indirect, and induced impacts, as defined in section 3.2 - Introduction to the IMPLAN Model.
[15] This represents the assistance paid to refugees.

that refugees' are employed and earn income that drives further economic benefit. For each dollar of assistance spent on and wages earned by the 2007 cohort, $25.49 is generated throughout the economy, including ripple effects of both assistance spending and refugees' income. For each dollar of assistance spent on and wages earned by the 2014 cohort, $20.94 is generated throughout the economy. The value for the 2007 cohort is higher because these refugees have had more time to earn wages. Based on this trend, it is reasonable to assume that the 2014 cohort's impact will increase in future years as refugees continue to contribute to the labor force.

Exhibit 3.1.3: Summary of Impacts

	2007 Cohort	2014 Cohort
Industry Activity Generated from Assistance Spending	$1.68	$1.68
Industry Activity of Total Refugee Impact*	$25.49	$20.94

Source: IMPLAN analysis, compiled by ICF. Note: numbers may not sum due to rounding.
*Total Refugee Impact = Assistance + wage impact.

Two salient takeaways emerge from these findings:

- First, while both cohorts generate economic benefits, the 2007 cohort's greater contributions indicate that refugees' economic impacts accrue more benefits over time. While the first few years of assistance spending may outweigh what refugees earn, **helping refugees establish lives in Colorado will lay the groundwork for net economic benefits** in future years, as refugees are able to find employment and decrease the assistance they receive from the state.
- Second, assistance spending generates economic activity even after subtracting the impacts on Colorado taxpayers, but wages earned by refugees drive the majority of the impact. Therefore, **employing refugees can have the twofold benefit of generating tax revenue and economic activity while also allowing refugees to gain financial stability**.

3.2 Fiscal Impact

In addition to economic impacts that refugees have in Colorado, there are also fiscal implications on state government finances. When refugees spend their assistance dollars or wages in the local economy, some of that spending is returned to Colorado in the form of state and local tax revenue. Exhibit 4.2.1 summarizes the total state and local tax impact of refugees in Colorado for the 2007 and 2014 cohort. In total, spending in support of the 2007 cohort generated $7.8 million in tax revenue for Colorado's state and local governments, while refugees contributed over $84 million in state and local tax revenue through their wages. In total, the 2007 cohort generated over $92 million in Colorado state and local tax revenue between the years 2001 and 2017.

State and local communities receive a net benefit in tax revenues generated by refugees' participation in local economies.

Although the 2014 cohort has had less time to receive services and earn income than the 2007 cohort, their tax impact is still significant. Assistance paid to refugees in the 2014 cohort has generated roughly $6.8 million in Colorado state and local tax revenue, while refugees have contributed over $50 million in state and local taxes through their wages. In total, the 2014 cohort generated more than $57 million in Colorado state and local tax revenue between the

years 2008 and 2017. As the members of the 2014 cohort continue to accumulate income, they will contribute even more in taxes in the years to come.

It is important to also re-iterate that the median age of arriving refugees is 24. Since refugees are relatively young when they arrive, their contribution in terms of tax revenue will rise as they become established workers. Even at this relatively young age, the 2007 and 2014 cohorts, while representing less than one half of one percent of Colorado's population, contributed 0.2% of the total net income tax revenue collected by the state between 2001 and 2017.

Exhibit 3.2.1: Summary of Total State and Local Tax Impact

	2007 Cohort (millions)	2014 Cohort (millions)
Investments in Refugees	$7.8	$6.8
Wages Earned by Refugees	$84.4	$50.6
Total Refugee State & Local Tax Impact	**$92.3**	**$57.5**

Source: IMPLAN analysis, compiled by ICF. Note: numbers may not sum due to rounding.

3.2.1 Return on Investment for State and Local Government

A fiscal Return-On-Investment (ROI) for the state is measured by comparing the state tax impact results from the IMPLAN analysis to the public costs associated with the benefits that Colorado provides refugees. As noted above, these public costs include Medicaid, RCA Payments, Adult Financial, Colorado Works, and Food Assistance. The ROI calculation only includes the costs to Colorado taxpayers and excludes the direct federal portion of these costs. The Colorado portion of federal tax collections in assumed to be 1.4% , based on the Internal Revenue Service data analyzed by the Tax Policy Center.[16]

Exhibit 4.2.1 shows the results of the ROI analysis for each cohort, including the costs to Colorado taxpayers for the public benefits provided to refugees. The 2007 cohort has a positive ROI for State and local government (1.23), meaning for every dollar spent by Colorado on refugees in this cohort, State and local government receive $1.23 in return from taxes generated by the refugees. The 2007 cohort received $55.3 million in public service by Colorado during their years of service (2001-2017) and has generated $68.1 million in tax revenue for the state. The 2014 cohort received $59.1 million in public service by Colorado during their years of service (2008-2017) and has generated $44.6 million in tax revenue for the state for an ROI of 0.75. As expected, the 2007 cohort has a greater ROI than the 2014 cohort, since they have been in the state longer and have accumulated more earnings, and thus, provided more tax revenue to Colorado government. There is expectation that the 2014 cohort will follow the same trend and hit a positive ROI soon. These findings reveal that as refugees become settled in Colorado and attain employment and earning, and consequently are provided less in public services, the state realizes a positive ROI.

For every dollar spent on assistance on refugees in the 2007 cohort, the state receives $1.23 in return.

[16] Tax Policy Center, Urban Institute and Brookings Institution. http://www.taxpolicycenter.org/statistics/irs-collections-state-and-type-1998-2016

Exhibit 4.2.1: Summary of Return on Investment (ROI) Findings

Refugee Cohort	Cost to Colorado in Public Benefits	Colorado State and Local Tax Revenue	ROI
2007	$55,342,563	$68,135,826	1.23
2014	$59,108,156	$44,590,803	0.75

Source: IMPLAN analysis, compiled by ICF. Note: numbers may not sum due to rounding.

3.3 Overhead Spending Impacts

This analysis also provides a snapshot of two years of program spending (employment services, case management supports) for CRSP. Information on salaries and program expenses other than direct payments to refugees are provided by the state for two discrete years: 2007 and 2014. It is important to note that this information is not representative of cohorts; that is, the program spending occurring in each year is just for that year, not for all the years that each cohort was served. It is possible to derive a per-refugee amount for these years, as the total number of refugees served in 2007 and 2014 is known from the cohort analysis. However, it is not possible to determine overhead spending impacts in any year other than the two years provided. It is also not possible to account for these impacts in the overall cohort analysis, as doing so would require annual program information for each year that refugees of the 2007 and 2014 cohort have been supported (2001-2017). Therefore, the results presented below should be viewed as a valuable snapshot of the program's economic impact in a given year.

In 2007, CRSP program operational spending generated nearly $304,000 in state and local tax revenue for Colorado, and supported approximately 80 jobs throughout direct, indirect, and induced spending in the economy. Additionally, this spending created over $8 million in industry activity. In 2014, CRSP program operational spending contributed over $820,000 to Colorado's state and local tax revenue, while supporting over 200 jobs throughout the economy and driving roughly $22 million in industry activity.

4. Case Studies

Separate from the economic and fiscal impact analyses, three case studies provide additional quantitative context for refugees' experience in Colorado. Developed in coordination with the state in order to identify relevant themes that could benefit from additional research, these case studies are independent of the methodology and results described previously in this report. Most notably, the cohort methodology does not apply to the case studies. The first case study examines economic trends in areas (ZIP Codes) with relatively high concentrations of refugees. The second case study examines the industries and occupations that refugees workers are employed in and the statewide trends in these industries and occupations. The third case study investigates the economic impact of the earnings gap faced by many refugees who are employed in jobs below their educational attainment level.

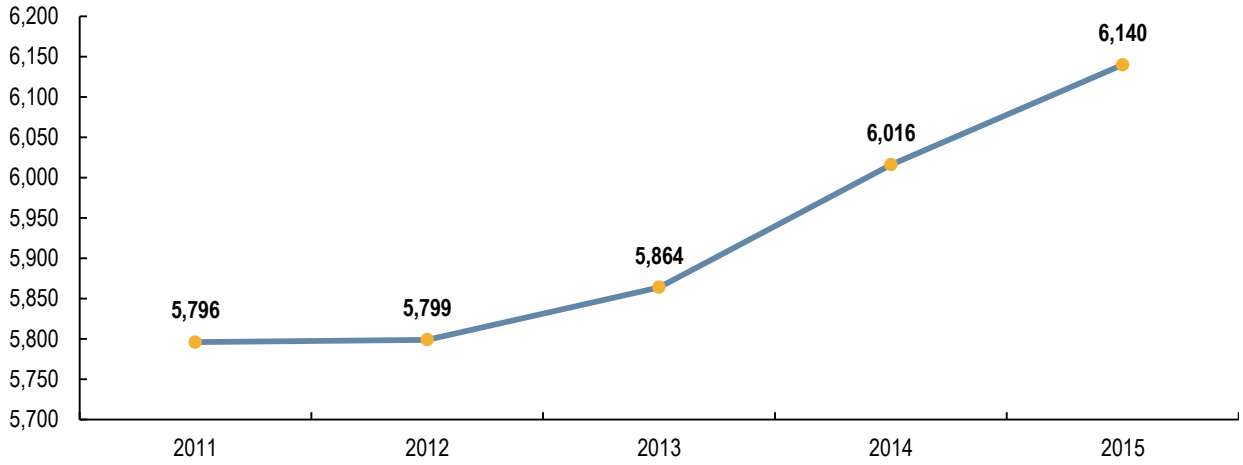
4.1 Economic Trends in Refugee Neighborhoods

For the first case study, to examine economic trends in refugee concentrated neighborhoods, CDHS provided a set of ZIP Codes with relatively high concentrations of newly arrived refugees. Most refugees in these ZIP Codes began to move into those neighborhoods in 2012, attracted to relatively affordable housing options and accessible transportation. Business establishment and payroll data from the U.S. Census is used to examine how these ZIP Codes have changed over time, from 2011 to 2015. In general, 2011 through 2015 was a period of growth in Colorado and throughout much of the U.S., as the economy recovered from the national recession beginning in 2008. The refugee ZIP Codes showed a similar pattern of growth. The ZIP Codes

(and city) that were identified by CDHS as having large concentrations of refugees were 80220 (Denver), 80631 (Greeley), 80012 (Aurora), 80011 (Aurora), 80010 (Aurora), 80014 (Aurora), and 80247 (Denver). Business establishment and payroll data for these ZIP Codes are aggregated to show trends as a whole. Exhibits 4.1.1 through 4.1.3 show the business trends over this time for each metric.

Exhibit 4.1.1 shows the total combined number of business establishments in ZIP Codes with a high concentration of refugees between 2011 and 2015. After flat growth in 2011, the number of business establishments grew moderately between 2012 and 2015, mirroring the general pattern in the Denver-Aurora and Greeley Metropolitan Areas. Between 2011 and 2015, the number of business establishments in these ZIP Codes grew by 6%.

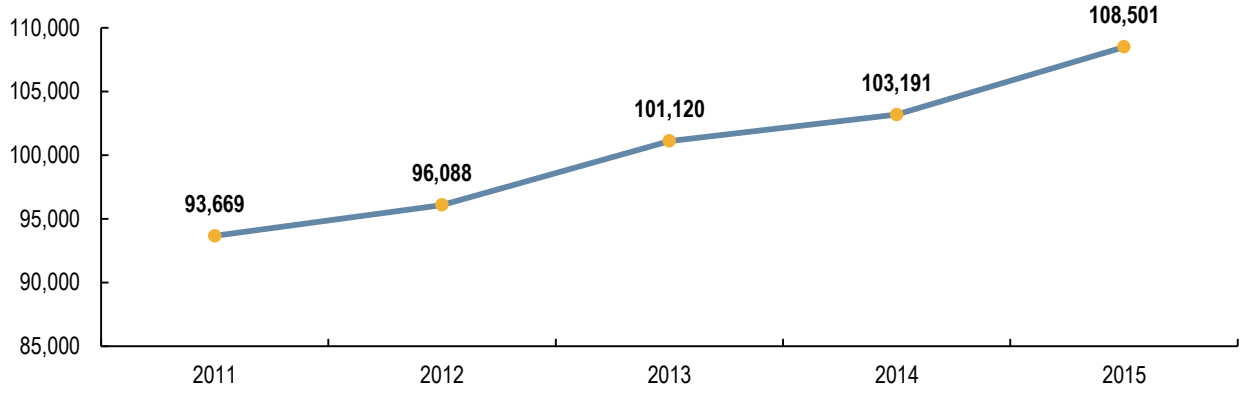
Exhibit 4.1.1: Number of Business Establishments in ZIP Codes with a High Concentration of Refugees[17]



The growth in the number of payroll employees in ZIP Codes with a high concentration of refugees is stronger than that of business establishments, growing by about 16% between 2011 and 2015 (Exhibit 4.1.2).

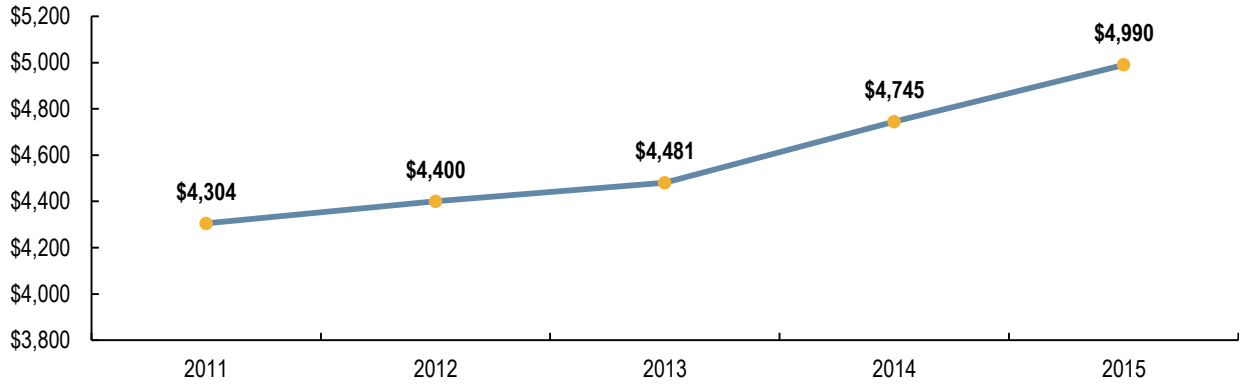
[17] Source: U.S. Census Bureau, American Community Survey 2007-2015, for ZIP Codes, 80220, 80631, 80012, 80011, 80010, 80014, 80247.

Exhibit 4.1.2: Number of Payroll Employees in ZIP Codes with a High Concentration of Refugees[18]



The total payroll earnings trends (exhibit 5.1.3) in ZIP Codes with a large concentration of refugees largely mirror that of business establishment and payroll employee growth. Between 2011 and 2015, payroll employment in these ZIP Codes increased by 16% in fixed 2015 dollars. This is a reflection of the increase in employment in these ZIP Codes over this time period (shown above).

Exhibit 4.1.3: Total Payroll Earnings in ZIP Codes with a High Concentration of Refugees (Millions of Fixed 2015 $'s)[19]



The business trends findings for ZIP Codes with high concentrations of refugees signifying that these areas largely mirror the overall economy and provide evidence that **refugees contribute to the shared prosperity of their communities.**

[18] Source: U.S. Census Bureau, American Community Survey 2007-2015, for ZIP Codes, 80220, 80631, 80012, 80011, 80010, 80014, 80247.
[19] Source: U.S. Census Bureau, American Community Survey 2007-2015, for ZIP Codes, 80220, 80631, 80012, 80011, 80010, 80014, 80247.

4.2 Refugees in Colorado's Growing Industry Sectors

For the second case study, CDHS provided information on the number of refugees employed by industry and occupation for 2011 and 2016, to examine where refugees were concentrated. This data is compared to overall statewide employment by industry and occupation for those same years, collected from the Bureau of Labor Statistics, to examine trends. The purpose of this analysis is to examine whether refugees help to support growing industries and occupations in Colorado. Although a gap analysis that would measure the degree to which refugees fill workforce gaps was beyond the scope of this study, this data does provide evidence that **refugees are filling a critical source of labor for employers in industries and occupations that are growing in the state**. This case study is also particularly relevant given Colorado's relatively low unemployment rate (as compared to other states). Business growth, and thus the economy, is highly dependent on an adequate labor force, both in number of available workers and the skills of those workers.

Exhibit 4.2.1 shows the top industries of employment for refugees in Colorado by industry in 2016 and total Colorado employment in those industries in 2011 and 2016. The refugees that were included were those that received services from CRSP contractors in 2016. The top industries of employment for refugees in Colorado include a diverse set of sectors across the economy, including sectors in manufacturing, accommodations and food services, transportation, administrative services, and retail. Roughly 55% of all refugees included in this analysis are employed in food manufacturing, accommodations (hotels), administrative and support services, and food services and beverage places (made up largely of restaurants). All of the top industry sectors that employed the greatest number of refugees grew in Colorado between 2011 and 2016, ranging from a 20.4% growth in food services and beverage places to a 1.5% growth in general merchandise stores.

Exhibit 4.2.1: Refugee and Colorado Employment by Industry

Industry	2016 Employment- Refugees	2011 Employment - Colorado	2016 Employment - Colorado	Percent Change
Food Manufacturing	339	19,941	22,427	12.5%
Accommodation	204	41,463	45,540	9.8%
Administrative and Support Services	188	145,832	164,403	12.7%
Food Services and Beverage Places	100	188,182	226,533	20.4%
Wood Product Manufacturing	48	2,985	3,398	13.8%
Air Transportation	41	12,358	14,136	14.4%
General Merchandise Stores	37	50,734	51,509	1.5%
Nursing and Residential Care Facilities	36	40,709	43,599	7.1%
Fabricated Metal Product Manufacturing	31	13,584	15,121	11.3%
Waste Management and Remediation Services	31	7,533	8,173	8.5%
Other	463	1,689,738	1,957,664	15.9%
Total	**1,518**	**2,213,059**	**2,552,503**	**15.3%**

Source: Colorado DHS (refugee employment) and Bureau of Labor Statistics (Colorado employment).

Exhibit 4.2.2 shows the top occupations in which refugees in Colorado are employed. This data is consistent with the industry data shown above. Among the top occupation categories,

production represents occupations in manufacturing, while building and grounds cleaning and maintenance represents occupations in administrative and support services, and finally, food preparation and serving workers represent occupations in the accommodations and food service sector. As with the industry sectors, all the top refugee occupations grew in Colorado between 2011 and 2016. Material moving occupations (32.9%) and construction and extraction (19.4%) led this growth.

Exhibit 4.2.2: Refugee and Colorado Employment by Occupation

Occupation Category	2016 Employment Refugees	2011 Employment Colorado	2016 Employment Colorado	Percent Change
Production	514	98,594	109,572	11.1%
Building and Grounds Cleaning & Maintenance	233	97,669	109,088	11.7%
Food Preparation & Serving Related	189	210,801	249,865	18.5%
Material Moving	112	43,280	57,530	32.9%
Transportation	96	66,000	74,600	13.0%
Sales & Related	58	284,691	317,069	11.4%
Construction & Extraction	36	133,220	159,083	19.4%
Protective Service	34	54,260	58,349	7.5%
Farming, Fishing, & Forestry	24	14,975	17,491	16.8%
Installation, Maintenance, & Repair	22	95,158	107,127	12.6%
Other	200	1,114,411	1,292,729	16.0%
Total	**1,518**	**2,213,059**	**2,552,503**	**15.3%**

Source: Colorado DHS (refugee employment) and Bureau of Labor Statistics (Colorado employment).

To further examine the current demand for workers in occupations where refugee workers are concentrated, the analysis includes current hiring data from employers in Colorado, using the Burning Glass Technologies Labor Insight Tool.[20] Exhibit 4.2.3 shows the number of job postings in Colorado for the top refugee occupations. This is considered a measure of employer demand for these occupations in Colorado. As a whole, the occupations that employed the greatest number of refugees experienced over 100% growth in the number of job postings between 2011 and 2016, indicating significant employer demand for workers in those occupations.

The occupations that employed the greatest number of refugees experienced over 100% growth in the number of job postings between 2011 and 2016, indicating significant employer demand for workers in those occupations.

[20] Burning Glass Technologies is a leading provider of real-time employer hiring data. Data is collected from job postings and coded to provide the number of job postings by industry and occupation. Burning Glass Technologies utilizes proprietary methods to eliminate duplicate job posting as much as possible and relies on information within the postings to code the number of postings by job location and by industry and occupation.

Exhibit 4.2.3: Number of Job Postings in Colorado for Top Refugee Occupations

Occupation Category	Job Postings 2011	Job Postings 2016	% Change 2011-2016
Production	7,220	12,780	77%
Building and Grounds Cleaning & Maintenance	3,553	9,164	158%
Food Preparation & Serving Related	11,840	32,547	175%
Material Moving	2,816	9,853	250%
Transportation	211	492	133%
Sales & Related	42,814	76,213	78%
Construction & Extraction	2,995	7,485	150%
Protective Service	2,867	7,248	153%
Farming, Fishing, & Forestry	162	440	172%
Installation, Maintenance, & Repair	9,741	18,756	93%
Total	**84,219**	**174,978**	**108%**

Source: Burning Glass, Labor Insight.

Evidence suggests that there are critical labor shortages in a wide range of industries and occupations in the U.S., making it difficult for businesses to meet customer demand. These labor shortages can hinder economic growth and expansion and drive up consumer costs. In a recent study, Global Risk Insights (2017) notes that the labor shortage in the U.S. is becoming an increasingly dire issue.[21] Global Risk Insights notes that "according to a survey of small business owners by U.S. Bank, 61% said they were experiencing extreme to moderate difficulty in finding quality skilled workers in order to expand their businesses" and "the Federal Reserve Bank reported that labor shortages in combination with the need to pay higher wages are restraining growth in industries such as manufacturing, transportation, and construction."[22] Although this study does not measure the degree to which refugees are filling gaps or labor shortages experienced by Colorado employers, the data above does suggest that they represent a significant labor force for employers in industries and occupations that are growing in the state.

4.3 Refugee Educational Attainment Earnings Gap

The third case study examines the earnings gap between what refugees could expect to earn, based on their highest level of education, and what they actually earn. Refugees are often underemployed; the jobs they occupy often require a lower skill level or educational background than their qualifications. Such underemployment not only puts a financial strain on the refugee as they try to make ends meet, but also prevents Colorado from achieving maximum potential economic benefit of these employees in the workforce. The intent of this analysis is to quantify the annual economic activity that Colorado could realize if refugees are employed to their fullest potential.

Data provided by CDHS included detailed information on refugees' age, educational attainment, employment status, employer, start date, termination date (if applicable), hours worked per week, and wages earned. Only refugees who had the opportunity to work for the entirety of the past 12 months are counted. For example, a refugee who had arrived in the U.S. six months ago would not be included in this analysis because the individual has not had a chance to work

[21] Guarino, A. (2017). "*Labor shortage in the United States becoming an increasingly dire issue.*" Global Risk Insights. Available at: *https://globalriskinsights.com/2017/09/labor-shortage-united-states-dire-issue/*
[22] *Ibid*.

for a full year. Information on education level, wages, and employment status was available for approximately 330 unique refugees during the past 12 months. To calculate IMPLAN inputs, the research team aligned each refugee with an age group and education level matching the categories used by the U.S. Census Bureau's Current Population Survey. Next, cutoffs are applied so that the IMPLAN inputs represented exactly 12 months of data. This allowed for annual-level results. Then, the research team calculated the difference between actual earnings and average earnings for each education level and age group. U.S. Census Bureau educational attainment data is used as a source for average earnings.[23] Finally, the differences are modeled as labor income changes in IMPLAN to determine the impact that the unrealized earnings would have on the Colorado economy.

The analysis accounted for both employed and unemployed refugees. The three scenarios below provide examples of how specific situations are considered for IMPLAN inputs.

- If an individual was unemployed for the entire 12-month period, their earnings gap was the entire amount of the average annual earnings for their age group and education level.

- If an individual was employed for the entire year, their earnings gap is calculated as the difference between their actual annual earnings and the average annual earnings for their age group and education level.

    - Many individuals hold multiple jobs throughout the 12-month period, either concurrently (i.e., they are employed in multiple places at once) or sequentially (i.e., they left one job to take another job). In these cases, the earnings gap calculation is based on the total earnings received by the individual throughout the 12-month period, regardless of how many jobs they held.

- If an individual was employed for part of the 12-month period but unemployed for the remainder, the earnings gap calculation is based on the total earnings received by the individual throughout the 12-month period, inclusive of their periods of unemployment.

Refugees, on average, earn $15,000 less a year than the median wage for their age and educational background. This is roughly the equivalent of a down payment on a home.

Some individuals earned more than the average wage associated with their age group and education level, while others earned less than the average wage associated with their age group and education level. The net earnings gap is calculated by adding the earnings differentials across all individual refugees. While refugees who earned more than average offset some of the negative earnings of underemployed refugees, the negative total indicates that the population of refugees examined earned $4.8 million less than what would be expected if all refugees earned at the average level for their age group and education level for this 12-month period.

Exhibit 4.3.1 shows the unrealized economic activity that could be generated in Colorado in a 12-month period if refugees were earning the average amount expected for their age group and

[23] U.S. Census Bureau. Current Population Survey, 2017 Annual Social and Economic Supplement. PINC-04. Educational Attainment – People 18 Years Old and Over, by Total Money Earnings in 2016, Work Experience in 2016, Age, Race, Hispanic Origin, and Sex. https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pinc/pinc-04.html.

educational level. Over the 12-month period examined in this case study, refugees could have contributed an additional $1.4 million in labor income, $2.5 million in GSP, and $4.3 million in industry activity to the Colorado economy, as well as roughly a quarter million in state and local tax revenue.

Exhibit 4.3.1: Annual Total Economic Impact of Refugee Earnings Gap[24]

	Labor Income (millions)	GSP (millions)	Industry Activity (millions)	State & Local Tax (millions)
Total Impact of Earnings Gap (2017 $millions)	$1.4	$2.5	$4.3	$0.2

Source: IMPLAN analysis, compiled by ICF.

To the extent that earning trends for refugees are relatively consistent from year to year, these results can be extrapolated to other years. However, it is worth noting that a variety of variables are associated with underemployment, including changes in demand for higher-skilled jobs, regional variation in hiring patterns, overall job market conditions, and the unemployment or underemployment rates faced by the total population, not just refugees. One potential area for future study would be to assess refugees' earnings gap at the industry level, while accounting for average earnings in each industry. This analysis did not differentiate between a refugee who perhaps held three low-wage jobs and a refugee employed in one high-wage job, though both may have appeared to exceed the average earning level for their age group and education level. Additional analysis could also explore the skills that refugees should focus on attaining in order to land higher paying jobs (e.g., computer skills).

In summary, these findings provide a snapshot of the impacts of refugees' underemployment and hint at the long-term benefits that could be generated if refugees are able to contribute fully to the Colorado economy. While there are inherent aspects of the labor market that make it impossible to avoid some level of underemployment, Colorado can take certain steps to decrease underemployment among the refugee population. For example, increasing targeted job training efforts can help refugees gain the requisite certifications and skills for success in Colorado's labor market, and could specifically position refugees to fill the labor demand in industries identified in Case Study 2. In addition, many well-educated refugees could reenter the workforce to assist in industry demand through recertification programs, such as for foreign-trained healthcare professionals. Educational outreach to employers may help hiring managers and companies understand how best to recruit, hire, and retain refugee employees.

5. Literature Review

This study's novel approach necessitated a literature review to understand how refugee impacts had been quantified previously by other analyses. While varieties of studies are examined, five key reports contained information that was especially useful shaping this analysis. The summaries that follow frame how various studies accounted for costs and benefits, how methodology and data sources differed, and how results are presented. This analysis for Colorado contributes to the existing literature presented below by looking at a specific cohort of refugees across years, using actual data provided by CDHS, and implementing a modeling approach that accounts for net economic impact.

[24] Note that these results represent the total economic impact, which is the sum of direct, indirect, and induced impacts, as defined in section 3.2 - Introduction to the IMPLAN Model.

Economic Impact of Refugees in the Cleveland Area, Calendar Year 2012, 2016.

A study prepared by Chmura Economics & Analytics on behalf of Refugee Services Collaborative of Greater Cleveland in October 2013, and updated in August 2017, examined the impact of refugees residing in Cuyahoga County, OH. The analyses focused on calendar years 2012 and 2016, and used the IMPLAN (IMpact Analysis for PLANning) model to assess refugees' annual economic impact. Unlike the Colorado analysis presented in this report, Chmura's analysis focused on member organizations of the Refugee Services Collaborative of Greater Cleveland rather than exclusively government spending. Chmura's analysis also included impacts of refugee-owned businesses as well as household spending of refugees, which included both labor earnings and public assistance. A survey administered by the research team provided most of the data used in the analysis. Like in the Colorado analysis, cash assistance payments to refugees are considered a component of household income for modeling purposes. The 2016 study found that between 2000 and 2016, 7,649 refugees resettled in the Cleveland area. The total economic impact of refugees in the Cleveland area was estimated at $88.2 million and 1,222 jobs in 2016, with Cleveland's refugees contributing $4.5 million in state and local tax revenue in 2016.

Key differences between Chmura's analysis and the Colorado analysis are the time scale of analysis (the Colorado analysis looks at combined impact over a number of years) as well as data availability (the Colorado analysis benefits from access to actual government data). Additionally, the Colorado analysis captures the costs associated with public assistance, while Chmura's analysis focused only on the benefits.

The Economic and Social Outcomes of Refugees in the United States: Evidence from the ACS.

In June 2017, the National Bureau of Economic Research (NBER) released a study led by William N. Evans and Daniel Fitzgerald examining the economic outcomes of refugees. The researchers focused more on age, educational attainment, and other demographic indicators than the Colorado analysis. They also factor in slightly different inputs (e.g., job training costs), and rely on assumptions of per-person assistance costs (e.g., Medicaid), as government data is not available. Their study found that during their first 20 years in the U.S., refugees receive approximately $92,000 in benefits such as cash assistance, Medicaid, and food stamps, but contribute $129,000 in taxes (including federal taxes) during that same time period. A key conclusion of the NBER study was that, "on an annual basis, for the first eight years in the U.S., refugees receive more in benefits than they pay in taxes. After the eighth year, taxes paid tend to be greater than benefits received."

There are a few key differences between the NBER study and the Colorado analysis. The NBER study did not use IMPLAN and relied on estimation of refugee data from the 2010-2014 American Community Survey. Their methodology created synthetic cohorts using the best available information. The Colorado analysis attempts to add to this perspective by using actual state data, although the approaches and types of information measured differ between the two studies. Notably, the cohorting methodology was different in that the Colorado analysis is based on year of service rather than year of arrival. The NBER report notes that "The ACS provides data from only one point in time, a snapshot of the refugee's current life. Ideally, we would follow one cohort of refugees over time." The Colorado analysis begins to address this by analyzing a cohort of refugees based on service year rather than arrival year.

The Fiscal Costs of the U.S. Refugee Admissions Program at the Federal, State, and Local Levels, from 2005-2014.

A currently unpublished July 2017 draft report by the U.S. Department of Health and Human Services (HHS) explored the net fiscal costs of refugees at multiple levels of government, focusing on a ten-year period of impacts between 2005 and 2014. The analysis found that "From 2005 to 2014, government expenditures on refugees were an estimated $206.1 billion over the 10-year period, with an annual per refugee cost of $7,133.67… expenditures from the federal government represented 74% of the total, at $153.4 billion. State and local government expenditures were 26% of the total, at $52.6 billion in expenditures from state and local governments." The HHS analysis did encompass a broader range of spending categories than the Colorado study, such as the National School Lunch Program, K-12 Education, and Child Care Subsidies. The HHS analysis goes on to state that for the same 10-year period, refugees contributed an estimated $269.1 billion in revenue to all levels of government refugees. They contributed an estimated $194.4 billion to the federal government through payroll, income, and excise taxes, and $74.6 billion to state and local governments, through income, sales, and property taxes. Refugees paid $99.2 billion in federal FICA taxes, an amount greater than expenditures on refugees in Social Security and Medicare ($65.7 billion). Refugees contributed $87.1 billion in federal income taxes, and $24.5 billion in state income taxes. Property tax contributions to local governments were $32.5 billion. State and local sales taxes are estimated at $17.7 billion, and federal excise taxes at $8.1 billion.

The main conclusion of the HHS analysis was that "the net fiscal impact of refugees was positive over the 10-year period, at $63.0 billion, meaning they contributed more in revenue than they cost in expenditures. Refugees' net fiscal benefit to the federal government is estimated at $40.9 billion, and the net fiscal benefit to state and local governments is estimated at $22.0 billion. The federal government spent over three times as much as state and local governments on programs and services for refugees, and received over two and a half times as much revenue." The Colorado study builds off this analysis, showing that over time, refugees' net positive contribution can play out on a state level, too. The Colorado study also accounts for the total economic impact, inclusive of direct, indirect, and induced effects using IMPLAN, whereas the HHS study did not appear to use this approach.

From Struggle to Resilience: The Economic Impact of Refugees in America

A June 2017 report produced by New American Economy assessed contributions of refugees that have arrived in the U.S. over the decades since the Second World War. The study relied on microdata from the American Community Survey to estimate the likely refugee population using arrival year and country of origin trends, similar to the NBER study. Using this technique, New American Economy identified a pool of 2.3 million likely refugees, and found that in 2015, this pool earned $77.2 billion of household income throughout the U.S. and contributed nearly $21 billion in taxes, resulting in $56 billion in spending power to use on goods and services throughout the economy. Specifically, the New American Economy report found that refugees in Colorado had $757 million of spending power in the year 2015, and observed that overall, refugees experienced steady upward mobility in terms of workforce participation and income while maintaining rates of entrepreneurship higher than those of the U.S.-born and non-refugee immigrant populations.

Another observation was that refugees might be taking less-desirable jobs that may have remained vacant otherwise. The New American Economy report shared a number of stories of employers who rely on the refugee workforce to keep their businesses running, especially in sectors where demand of jobs outpaces supply of willing employees. For example, the New American Economy report states that "refugees are more than twice as likely as U.S.-born

workers to hold jobs in general or 'other services'—a sector that includes a variety of service roles such as dry cleaning, housekeeping, or machine repair" as well as positions in the meatpacking or poultry processing industry. While the intent of the Colorado analysis was not specifically to quantify the number of refugees employed in each sector, the Colorado data does confirm that a large number of refugees are employed in industries like manufacturing or food processing. This is accounted for in the IMPLAN analysis, which allocated wage impacts based on specific industry sectors, and is touched upon in Case Study 2.

The Evaluation of the Refugee Social Service (RSS) and Targeted Assistance Formula Grant (TAG) Programs: Synthesis of Findings from Three Sites

A March 2008 analysis conducted by the Lewin Group on behalf of the ORR provided some insight on using Unemployment Insurance (UI) data for wage and employment information. While the study did use UI data to track refugees' outcomes, the authors noted that,

> "UI wage records do not capture work in a small number of sectors. Overall, it is estimated that about 98 percent of non-farm wage and salary employment is covered by unemployment insurance. Certain occupations and wages, however, are not captured by these data. Many employees not covered are agricultural workers, state and local governmental employees, domestic workers, and those in the Armed Forces [...]. Informal or 'off-the-books' employment will not be captured in the UI wage records."

Additionally, the report stated that "the UI wages reflect only employment within the state. If refugees moved to this state from another state, the estimate does not include their earnings in the other state."

6. Summary and Conclusion

This study took a unique approach to analyzing the impact of refugees on the state of Colorado. It was unique for four key reasons:

1) Unlike previous studies, this analysis relied on actual data on refugees' receipt of public services as well as their actual earnings;

2) This study included not only the impact of public spending on refugees, but also assessed the impact of refugees' earnings in the economy – a critical component of understanding the full scope of impact;

3) This analysis used a cohort approach in order to capture a static population of refugees across multiple years; and

4) This analysis accounted for the fact that Colorado taxpayer's contributions to refugee assistance could have been spent alternatively by the taxpayer on other goods and services in the economy by subtracting the impact that would have been generated if the taxpayer had retained that income.

Accounting for these factors, the analysis found that for each dollar spent assisting the 2007 cohort, $25.49 is generated in the Colorado economy due to the spending of assistance and wages earned. Similarly, each dollar spent assisting the 2014 cohort generated $20.94.

The Colorado taxpayers' contribution to assistance spending on refugees totaled approximately $29 million for the 2007 cohort and approximately $22 million for the 2014 cohort. This contribution accounts for roughly 31% of the total assistance spending on the 2007 cohort and 27% of the total assistance spending on the 2014 cohort. Refugees in the 2007 cohort have generated over $92 million in state and local tax revenue, while refugees in the 2014 cohort have generated over $57 million in state and local tax revenue. To provide context, the nearly $150 million in total state and local taxes generated by both cohorts is equivalent to over one percent of the total state and local tax revenue collected by Colorado in 2017. In addition, the assistance provided to and wages earned by the 2007 cohort supported roughly 14,500 jobs, and generated $611 million in labor income, $1.1 billion in GSP, and nearly $2.4 billion in industry activity in Colorado. Similarly, the assistance provided to and wages earned by the 2014 cohort supported roughly 9,400 jobs, and generated just under $400 million in labor income, over $721 million in GSP, and nearly $1.7 billion in industry activity in Colorado. Wage data undercounted refugees' actual earnings; therefore, the economic benefits exceed the results presented here for both cohorts.

These results demonstrate that refugees make measureable contributions to the Colorado economy, especially through their employment in a diverse array of industries. Colorado gains from the economic contributions of both refugee cohorts and would be missing out on this activity if refugees in these cohorts lived in other states. Similarly, Colorado would eschew positive economic activity were the number of new refugee arrivals to decrease. Refugees contribute to Colorado's economic vibrancy and support jobs and income for refugees and non-refugees alike.

References

Ballotpedia. (n.d.). *Medicaid spending in Colorado: Public policy in Colorado.* Retrieved from https://ballotpedia.org/Medicaid_spending_in_Colorado

Chmura Economics & Analytics. (2013). *Economic impact of refugees in the Cleveland area, calendar year 2012.* Retrieved from https://www.hias.org/sites/default/files/clevelandrefugeeeconomic-impact.pdf

Chmura Economics & Analytics. (2017). *Economic Impact of Refugees in the Cleveland Area, Calendar Year 2016*. Retrieved from https://ccswoh.org/assets/Economic-Impact-of-Refugees-in-the-Cleveland-Area.pdf

Colorado Legislative Council Staff. (2016). Memorandum: Colorado data on Medicaid spending. Retrieved from https://leg.colorado.gov/sites/default/files/medicaid_trends_and_cost_drivers_ip_memo_11092016.pdf

Colorado Department of Local Affairs. (2018). *GIS data.* Retrieved from https://demography.dola.colorado.gov/gis/gis-data/#gis-data

Evans, W. N., & Fitzgerald, D. (2017). *The economic and social outcomes of refugees in the United States: Evidence from the ACS* (NBER Working Paper No. 23498). Retrieved from http://www.nber.org/papers/w23498

Farrell, M., Barden, B., & Mueller, M. (2008). *The evaluation of the Refugee Social Service (RSS) and Targeted Assistance Formula Grant (TAG) programs: Synthesis of findings from three sites*. Retrieved from https://www.acf.hhs.gov/sites/default/files/orr/synthesisoffindingsfromthreesites.pdf

Guarino, A. (2017). *Labor shortage in the United States becoming an increasingly dire issue. Retrieved from https://globalriskinsights.com/2017/09/labor-shortage-united-states-dire-issue/*

IMPLAN Group, LLC. (2015). *Personal Consumption Expenditure (PCE) distribution.* Retrieved from http://oldsupport.implan.com/index.php?option=com_content&view=article&id=380:380-transferred&catid=227:227

New American Economy. (2017). From struggle to resilience: The economic impact of refugees in America. Retrieved from http://research.newamericaneconomy.org/report/from-struggle-to-resilience-the-economic-impact-of-refugees-in-america/.

Tax Policy Center, Urban Institute and Brookings Institution. (2017). IRS collections by state and type: 1998-2016. Retrieved from http://www.taxpolicycenter.org/statistics/irs-collections-state-and-type-1998-2016

U.S. Census Bureau. (2016). *American Community Survey: Selected economic characteristics. 2007-2015.* Retrieved from https://www.census.gov/programs-surveys/acs/

U.S. Census Bureau. (2017). *Current Population Survey: PINC-04 educational attainment, people 18 years old and over, by total money earnings in 2016, work experience in 2016, age, race, Hispanic origin, and sex*. Retrieved from https://www.census.gov/data/tables/time-series/demo/income-poverty/cps-pinc/pinc-04.html

U.S. Department of Health and Human Services. *(*2017). *The fiscal costs of the U.S. refugee admissions program at the federal, state, and local levels, from 2005-2014*. Retrieved from https://assets.documentcloud.org/documents/4056060/Refugee-Report-Draft.pdf

COLORADO REFUGEE SERVICES

ECONOMIC IMPACT SNAPSHOT

OVERVIEW The Economic and Fiscal Impact of Refugees in Colorado Report followed 2,700 refugees over a 10 year period (2007-2017) to understand their impact on the state's economy. **THE REPORT FOUND:**

REFUGEES IN COLORADO

2,700 REFUGEES STUDIED

Refugees are **LESS THAN HALF OF A PERCENT** of the total population in Colorado. At the same time, the study showed that they contribute more than **DOUBLE THEIR SHARE OF STATE TAX REVENUES.**

LOCAL JOBS GENERATED

13,200 JOBS IN COLORADO

Earned income from jobs attained by these refugees generated **13,200 JOBS** throughout Colorado during the last decade; that's **4 NEW JOBS** for every refugee welcomed.

INCOME GENERATED

$611 MILLION

Over a decade, these refugees' **ECONOMIC ACTIVITY GENERATED OVER $611 MILLION** in new salaries and wages for Colorado workers.

OUTPUT GENERATED

$1.1 BILLION

Economic activity from these refugees contributed over **$1.1 BILLION** in gross state product, and over **$2.4 BILLION** in industry activity in a decade, fueling Colorado's economic growth and statewide prosperity.

INDIVIDUAL OUTPUT GENERATED

$1.68 GENERATED

For every dollar spent on refugees, **$1.68** is generated in industry activity throughout Colorado's economy. For every dollar a refugee earns, **$25.49** is generated in industry activity.

RETURN ON INVESTMENT

$1 INVESTED $1.23 RETURNED

For every dollar the state invests in refugees, it gets back **$1.23** in the form of state and local tax revenue.

INDUSTRY CONTRIBUTION

OVER 100% GROWTH

Occupations employing the greatest number of refugees experienced growth of **OVER 100%** from 2011-2016; refugees fill critical labor gaps that otherwise would hinder economic growth and expansion of Colorado businesses.

COLORADO
Office of Economic Security
Division of Employment & Benefits

WWW.COLORADO.GOV/CDHS/REFUGEE-SERVICES

COLORADO REFUGEE SERVICES

REFUGEE UNDEREMPLOYMENT

OUR NEIGHBOR

Maya, a refugee from Bhutan, was a pediatric nurse before resettling in Colorado. Because her degree isn't recognized, she now works as a hotel receptionist.

OUR COMMUNITY

20% of refugees **HAVE A BACHELOR'S DEGREE** or higher.

50% of refugees report they are employed **BELOW THEIR EDUCATIONAL LEVEL**.

Refugee families, on average, **EARN $30,000 LESS** than their similarly educated counterparts.

OUR STATE

Underemployment of refugees results in **LOST ECONOMIC ACTIVITY**.

Accounting for refugees who arrived in a one-year timeframe, annual impacts to Colorado are:

- Loss of **$1.4 MILLION** in labor income.
- Loss of **$2.5 MILLION** in gross state product.
- Loss of **$4.3 MILLION** in output.
- Loss of a **QUARTER MILLION** in state and local tax revenue.

COLORADO
Office of Economic Security
Division of Employment & Benefits

WWW.COLORADO.GOV/CDHS/REFUGEE-SERVICES

COLORADO REFUGEE SERVICES

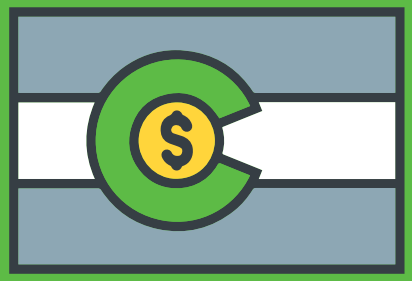
SUMMARY OF TOTAL ECONOMIC IMPACT

NEW JOBS

4 COLORADO JOBS ARE CREATED for each refugee resettled.

INDUSTRY GROWTH

For every $1 spent on refugee assistance, **$1.68** is generated in **INDUSTRY ACTIVITY** throughout the Colorado economy.



POSITIVE RETURN

For every $1 spent by Colorado on refugees, **$1.23** is returned to state and local governments from **TAXES GENERATED BY REFUGEES**.

ECONOMIC GAIN

For every $1 of assistance received and earned by refugees, **$25.49** is generated throughout the economy.

Investing in refugees to help them establish lives in Colorado lays the groundwork for net economic benefits in future years.

WWW.COLORADO.GOV/CDHS/REFUGEE-SERVICES

COLORADO
Office of Economic Security
Division of Employment & Benefits