

UTAH DATA  
RESEARCH CENTER

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# RESEARCH DOCUMENT STYLE GUIDE

Version 1.2



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# INTRODUCTION

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The Utah Data Research Center (UDRC) produces academic quality research documents to meet stakeholder demands. In these research documents, administrative data from the State of Utah is synthesized to inform state institutions and policy makers.

This document outlines writing style guidelines and research product formatting for UDRC research documents. Research documents should follow an academic social sciences format, including (at minimum) title page, abstract, introduction/literature review, methods, results, discussion, conclusion, and references.

This style guide serves to reduce the amount of time required for the peer review process and to maintain the brand of UDRC products. All final research documents drafts are formatted using the UDRC template, available as an R package at <https://github.com/UDRC/udrcTemplates>.

Colors and designs for figures used in UDRC research documents should follow guidelines set in the UDRC Design Style Guide.

# GENERAL GUIDELINES

## Writing Style and General Formatting Guidelines

**Cite uncommon knowledge:** Any information that is not considered common knowledge should be cited in text.

**Avoid jargon:** If jargon must be used, explain or define it at first use.

**Introduce abbreviations:** Abbreviations should be defined as they are introduced. e.g., "The Utah State Board of Education (USBE) is the cornerstone of public education in Utah." Once abbreviations are introduced, use them consistently throughout the research product.

**Do not use contractions or ampersands:** Do not use contractions or ampersands to maintain a formal voice.

**Include Oxford commas**

**Capitalize all races and ethnicities:** This includes Black, White, Native American, etc.)

**Avoid passive voice**

**Vary sentence structure throughout research documents:** Avoid run-on sentences or strings of independent clauses. Break up run-on sentences into two simple sentences.

**Avoid using a multisyllabic word:** Using a simpler, more well-known word will suffice. This will increase readability and make documents more accessible to the public.

**Avoid using long format quotations:** If they must be used, offset them in a separate paragraph with larger margins than the main text.

### Use APA Style

In-text citations and reference lists should follow official American Psychological Association (APA) citation format.

# TITLE & ABSTRACT

## Title Page

*A succinct and specific title should be given to every research product*

Include all author names and date of research product publication on the title page.

## Abstract

*Summary of the research product*

The abstract is a concise summary of each of the research product sections. Essentially, abstracts are the research document in an ultra-condensed form. Typically, abstracts are limited to 350 words or less and written for a non-expert audience. Research objectives, justification, basic methods, and main results should be included. Avoid using abbreviations and do not include citations.

1	Introduce the topic and provide essential background information	<p><b>Abstract</b></p> <p>Intergenerational poverty (IGP) affects over 70,000 individuals in the state of Utah. IGP is a major economic, legislative, and social concern. Exposure to toxic stress during childhood, cultural and geographic isolation, and inability to obtain a stable job or education, among other social and political factors increase the transmission of poverty from generation to generation. In Utah, IGP is defined by public assistance usage: 12 months or more of public assistance as both a child and adult.</p>
2	State main research objective	<p>This research aims to identify demographic, workforce, and education factors that increase the probability of experiencing IGP in Utah.</p>
3	Provide a brief summary of the methods used	<p>Specifically, adults experiencing IGP from the 2012-2018 cohort are compared to a reference group of adults that have used public assistance for a much shorter length of time during their lives than those experiencing IGP. Logistic regression is used to understand how predictors of IGP, such as racial/ethnic background, gender, age, and educational level impact the probability that an individual will experience IGP.</p>
4	State main results and provide a brief interpretation	<p>The results of this model suggest that being female, Native American, and/or having no education beyond the high school level increases the probability that an individual will experience IGP in the state of Utah. Furthermore, the longer an individual spends on public assistance as a child, the more likely they are to continue experiencing poverty in their adult lives.</p>
5	Provide general public policy recommendations	<p>This research suggests that children experiencing IGP, women, poorly educated people, and Native Americans should be the target of public policies intended to break the cycle of poverty and reduce IGP in Utah.</p>

# KEYWORDS & INTRODUCTION

## Keywords

*Four to eight searchable terms or phrases that describe the research*

This is how researchers outside of UDRC will find your work. Choose keywords carefully and consider your target audience. What terms will the target audience be searching for? Include synonyms that describe your research that may not be present in the abstract or title. It may be helpful to consider and include keywords used by other similar published research.

### Example Keywords

Intergenerational poverty; transmission of poverty;  
State of Utah; public assistance usage; welfare  
dependency

## Introduction

*Introduce the topic, provide justification for the research and relevant background information.*

Introductions cover broad background material first and subsequently narrow in on details relevant to the research objectives. Include a thorough yet concise literature review. Literature reviews introduce any reports/studies that answer similar or related questions to those being addressed. At the end of the introduction, state specific research objectives and/or questions addressed in the research.

# INTRODUCTION EXAMPLE

<p><b>1</b></p> <p>Introduce the topic using broad background information</p>	<p>Intergenerational Poverty (IGP) is a global social and economic concern that has been studied by a variety of political and social science groups. The predictors of IGP and its modes of persistence in society are varied, context and population dependent, and consist of social, geographic, and financial circumstances. Furthermore, it is probable that a combination of these factors leads to an increase in IGP rates.</p>
<p><b>2</b></p> <p>Provide a literature review of relevant primary literature</p>	<p>In the primary literature, IGP has been theorized to persist in four different ways (Corcoran 1995). The first theory of IGP persistence is the Resources model. This theory predicts that disadvantaged schools, neighborhood isolation, and female hardship lead to increases in IGP rates. The second model, the Correlated Disadvantages model, posits that it is not poverty itself that creates disadvantages for people, but instead that the associated disadvantages of poverty increase transmission across generations, ultimately through lack of transmission of human capital. Thirdly, the Welfare Culture model predicts that when the social stigma of using assistance is removed in isolated-geographically or demographically-populations, rates of use increase, which ultimately increases rates of poverty. Further, economic incentives for using welfare may be high as a result of policy decisions and lack of economic opportunity in some locations. However, the existence of a 'welfare culture' is difficult to prove due to the cyclical nature of poverty in people that experience IGP. Lastly, the Underclass model hypothesizes that IGP exists due to discrimination against minorities that inhibits their upward societal mobility (Corcoran, 1995).</p>
<p><b>3</b></p> <p>Provide specific background information as needed to introduce research objectives</p>	<p>In Utah, people are said to experience IGP if they spend 12 or more months using public assistance as an adult and 12 months or more using public assistance as a child. As of 2012, there were 30,503 adults in Utah meeting these criteria. Children experiencing IGP are those that received at least one month of public assistance in 2012 and have an adult on their case file that is in the IGP cohort. As of 2012, there were 44,261 children in the state of Utah at risk of experiencing IGP. Intergenerational poverty is of increasing public and legislative concern statewide. While Utah as a whole continues to experience high economic growth, high job growth, and low unemployment rates compared to the rest of the country, many people in Utah still suffer from IGP. Demographic circumstances and limited access to public assistance programs contributes to transmission of poverty from generation to generation.</p>
<p><b>4</b></p> <p>At the end of the introduction, state specific research objectives and questions/ hypotheses addressed</p>	<p>This report leverages data from multiple state agencies to identify demographic, educational, and workforce predictors of IGP in Utah. Ultimately, many of these predictors, or factors, influence the transmission, or lack of transmission, of human capital from one generation to the next, which impacts workforce success in adulthood. This research also examines how IGP impacts earnings (wages) and workforce attachment in the Utah economy. Specifically, the following questions are addressed: 1) what demographic circumstances lead to increased occurrence of IGP in the State of Utah? 2) What level of education do those experiencing IGP obtain? 3) What degree/certificate types are adults experiencing IGP earning and how do they perform in higher education (GPA)? 4) How do adults experiencing IGP perform in the Utah workforce? Finally, a summary of data available on children experiencing IGP is also provided.</p>

# METHODS

## Methods

*Report how the data were gathered and analyzed*

First, include a detailed description of the source for all data types: which government bodies collected these data? Second, provide details about statistical approaches, data transformations, and software used/ libraries used. Cite both statistical software and any packages used. Include enough details that the analyses can be repeated by another researcher were they to have access to the dataset. If any categorical data were collapsed, be sure to describe this. Details specific to the layout of the UDRC database or SQL tables are not included. Do not report any results in the methods section.

## Methods Example

<p><b>1</b> Subheadings can be used to provide clarity for readings</p>	<p><b>Methods</b> <i>Data</i></p>
<p><b>2</b> State data sources and/or collection modes</p>	<p>Data for this project were gathered from a variety of sources. Demographic (race, gender, age, highest educational attainment level, location of residence, and mental health data points) and public assistance usage data (in number of months) were provided by Management Information Systems (MIS) in the Division of Workforce Research and Analysis in the Department of Workforce Services (DWS). Education performance and degree type data were provided by Utah State Higher Education (USHE) and Utah System of Technical Colleges (UTECH). Wage data were sourced from the DWS wage record database. To perform statistical analyses, a 'reference' group of adults that used public assistance for 11 months or less as adults was created.</p> <p>Reference group adults may also have used public assistance for 12 months as long as they used public assistance for less than 12 months as children. Aside from this restriction, adults in the reference group may have used public assistance for any length of time, including no time, as children. Children experiencing IGP are defined as those with an adult caregiver that is also experiencing IGP and that files for public assistance usage for them.</p>
<p><b>3</b> State main mode of analysis</p>	<p><i>Data Analysis</i> To determine the most important demographic, education, and workforce data predictors of IGP adult status, a logistic regression model was employed.</p>
<p><b>4</b> Explain factors/variables included in the analysis</p>	<p>IGP status was coded as 0/1, with 1 assigned to IGP individuals. Variables included in the regression model were: childhood months on public assistance (scaled by subtracting the mean and dividing by standard deviation), gender, age, educational attainment, average number of quarters worked per year from 2012-2018 (workforce attachment), race/ethnicity, felon status, criminal misdemeanor status, suspected domestic violence, suspected substance abuse, and veteran status (or spousal veteran status) (Y/N). For race and ethnicity, dummy variables were created since some individuals reported more than one race and ethnicity. For education level, no education/unknown education level was used as the reference factor in the logistic regression.</p>

# RESULTS

## Results

*Report how the data were gathered and analyzed*

First, include a detailed description of the source for all data types: which government bodies collected these data? Second, provide details about statistical approaches, data transformations, and software used/ libraries used. Cite both statistical software and any packages used. Include enough details that the analyses can be repeated by another researcher were they to have access to the dataset. If any categorical data were collapsed, be sure to describe this. Details specific to the layout of the UDRC database or SQL tables are not included. Do not report any results in the methods section.

## Results Example

1

State general results of each analysis performed in the research. In general, specific model parameters and statistics can be reported in a table.

### Results

A number of variables incorporated in the IGP regression model significantly increased the probability of an individual experiencing IGP when looking at a regression excluding interactive terms.

2

Refer to tables and figures as corresponding results are referenced.

Most strongly related with experiencing IGP was the number of months an individual spent on welfare as a child. Females are more than twice as likely to experience IGP as males. Obtaining a high level of education, specifically to a college level (associate, bachelor's or graduate level) significantly decreases risk of experiencing IGP (Fig. 1).

3

Provide a summary of the strongest or most topical results. Secondary results can be included in tables or figures.

However, possessing a post-secondary certificate increased risk of experiencing IGP by approximately 4%. Higher wage earning was also associated with reference adults – those experiencing IGP earn fewer wages than reference adults. Being Native American increases risk of experiencing IGP nearly twofold, while being Asian significantly decreases the risk of experiencing IGP. Lastly, those who were felons, had misdemeanors on their records, or were possible victims of domestic violence were much more likely to experience IGP.

**Do not bog down readers with long lists of results.**



Instead provide them with the essentials and point them toward more detailed results tables and figures if their purpose requires this information.

# TABLES & FIGURES

## Tables and Figures

Use figures or tables to highlight important research results. A caption is included for each table and figure. Reference figures and tables in context in the text as the results are introduced (eg, Fig. 1). If a single figure includes multiple graphs or facets, label them using a-z. (Fig. 1a, Fig. 1b, etc). Decimals in tables and figures should be reported to no more than three places (0.000).

**Figures:** Figure captions are always included beneath each figure. Label all figure axes (including units, if applicable) and use colors from the Design Style Guide. Legends should be provided for every figure using multiple colors, line styles, sizing, etc.

**Tables:** Table captions are always written above every table. Table design should be formatted using LaTeX (for examples, see tables in ‘library(stargazer)’ in R): include top and bottom table borders and a border below the column titles (see Table 1). The ‘kable’ function in R can also be used to create LaTeX tables in Markdown documents.

## Reporting Significance

Significance should be set, at maximum, at  $\alpha = 0.05$  for all analyses. If P-values are being reported, only report levels of significance (e.g.,  $P < 0.05$ ;  $< 0.01$ ;  $< 0.001$ ), not exact P-values. Significance levels are abbreviated by \*, \*\*, or \*\*\*, for  $P < 0.05$ ,  $< 0.01$ , and  $< 0.001$ , respectively (Table 1). Asterisks for significance levels should be reported next to model parameter estimates in model result or output tables.

Do not just report P-values as these do not report anything about the direction or strength of the parameter estimate. Ideally, 95% confidence intervals should be reported in addition to P-values if using a frequentist statistical approach. Report 95% credible intervals if employing a Bayesian analysis. Always report n, or total number of study individuals/samples.

### Levels of Significance

$P < 0.05^*$

$P < 0.01^{**}$

$P < 0.001^{***}$

# TABLE EXAMPLE

1

Give each table a number so that it can be referred to within the main text.

2

Main column headings have borders above and below headings

3

Model fitted parameter and significance denoted using \*\*\*\*; the p-value of this parameter is <0.001.

4

95% confidence interval ranges

5

Independent variables are listed on the left side of model tables

6

Borders within the table can be used to break up sections

7

Number of model observations, or n

8

The bottom border of the table should be displayed

## Linear Regression Model Result Table

1 Table 1 : Results of model x, parameter significance, and 95% CIs are reported. (\*, \*\*, and \*\*\* represent  $P < 0.05$ , 0.01, and 0.001, respectively.)

	<i>Dependent variable:</i> Average Wage ('12-'18)	
	Model Parameters and 95% CI 2	
IGP(Y)	3	-8,410.93*** (-8,928.16, -7,893.70) 4
Gender(F)		-6,643.10*** (-7,001.73, -6,284.47)
White		1,255.62*** (839.05, 1,672.18)
Black		-3,991.85*** (-5,320.44, -2,663.26)
Native American		-4,102.74*** (-5,367.27, -2,838.20)
Hispanic		-651.04** (-1,222.68, -79.40)
Race - Other		-2,397.19* (-4,955.65, 161.27)
Pacific Islander		4,098.78*** (2,504.12, 5,693.44)
Asian		1,266.06* (-168.94, 2,701.05)
IGP(Y)*Gender(F)		6,276.64*** (5,815.45, 6,737.83)
IGP(Y)*White		-1,592.56*** (-2,126.92, -1,058.20)
IGP(Y)*Black		4,090.20*** (2,470.63, 5,709.77)
IGP(Y)*Native American		2,942.06*** (1,531.09, 4,353.03)
IGP(Y)*Hispanic		1,904.09*** (1,207.50, 2,600.69)
IGP(Y)*Race - Other		2,171.78 (-933.37, 5,276.93)
5 IGP(Y)*Pacific Islander		586.69 (-1,587.27, 2,760.65)
6 IGP(Y)*Asian		-1,349.70 (-3,463.54, 764.14)
Observations		48,176 7
R <sup>2</sup>		0.083 8

# FIGURE EXAMPLE

## Significant Interactions

1

Make sure each figure axis is labelled (tick marks and main title) and includes labels, if applicable.

2

Each facet has a different legend since there are multiple categories displayed in the panel.

3

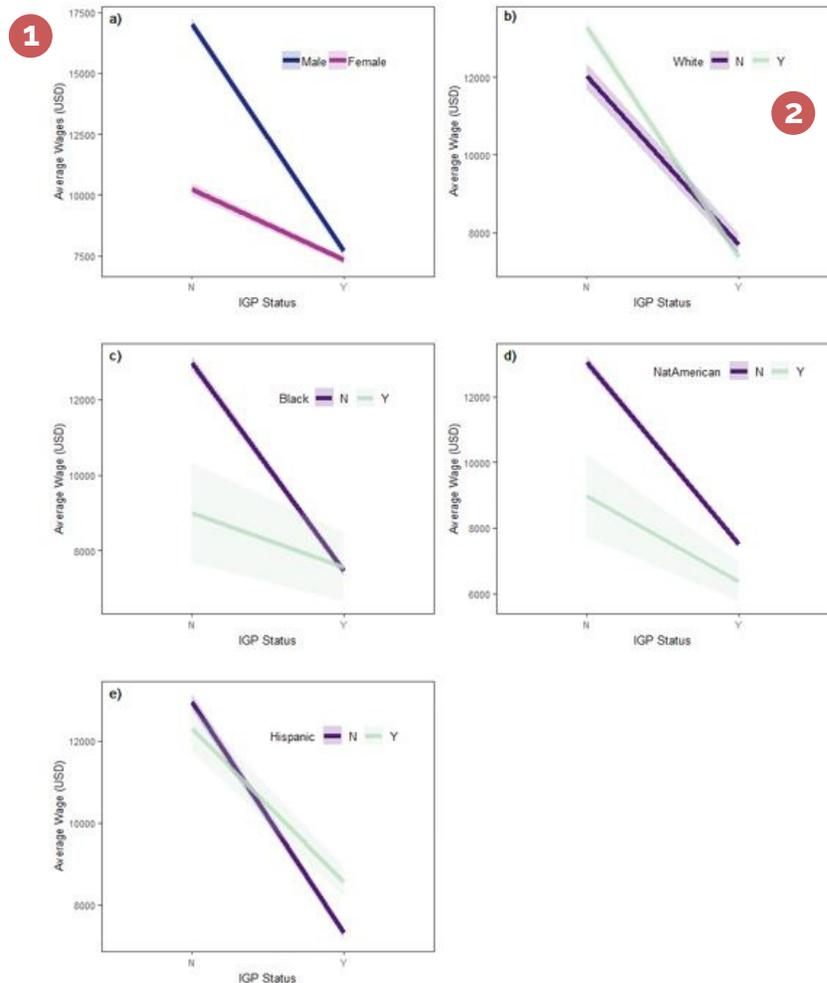
For figures in research documents, captions and titles should always be placed below the figure object.

4

Give each figure a number.

5

Explain each figure in the panel.



4

Figure 1: Means of categorical variables with significant interactions ( $P < 0.05$ ) for effects on average wage in USD. 95% confidence intervals are indicated using faded colors around the bold mean lines. Non-significant interactions are not plotted. a) interaction between gender and IGP status; b) interaction between White racial status and IGP status; c) interaction between Black racial status and IGP status; d) interaction between Native American racial status and IGP status; e) interaction between Hispanic ethnicity status and IGP status.

3

5

# DISCUSSION

## Discussion

*Interpret the meaning of results*

Place results in the context of any previous studies, primary literature, or institutional reports. Discuss the strongest or most important result of the research first. Keep the goals of stakeholders in mind when interpreting results. Any ideas or studies cited in the discussion should be introduced in the introductory material. Finally, explain any major limitations or shortcomings of the research or analyses performed. Subheadings can also be used here to provide guidance for readers.

## Discussion Example

1

Provide interpretation of the results using necessary context.

### Discussion

This report illustrates many disparities among effects of poverty on different races. As a whole, Native Americans in Utah experience much higher rates of IGP than the other racial and ethnic groups. Many whites also experience IGP, though this is unsurprising given the vast majority of Utahns are white. While most individuals experiencing IGP live in the most populated counties in Utah, the highest rates of IGP occur in counties with lower total populations, such as San Juan, Grand, and Carbon counties.

2

Tie results back to primary literature on the topic to bring the research full circle. If any other studies on the research topic have found contradictory or similar results, be sure to reference those.

The primary literature also suggests that normalization of welfare usage in communities may reduce people's drive to end public assistance usage, though the data to support this hypothesis do not exist for Utah (Corcoran, 1995).

3

Provide information about shortcomings of the data or study.

Normalization of welfare usage may occur in poorer regions of Utah, though data to support this hypothesis are not currently available.

# CONCLUSION

## Conclusion

*Wrap-up research findings and make final interpretations of results*

State the main significance of the research findings. Reiterate any unexpected or strong results. Make suggestions for future research directions. Finally, a discussion of the findings as they might inform public policy can be included in this section.

## Conclusion Example

<p><b>1</b> Restate strongest or most important results</p>	<p><b>Conclusion</b> Being female, Native American, and/or having poor education increases the risk of experiencing IGP in the state of Utah. Furthermore, duration of time spend on public assistance as a child strongly impacts the likelihood that the child will grow up to experience IGP.</p>
<p><b>2</b> Provide public policy recommendations</p>	<p>These four groups (women, Native Americans, poorly educated people, and children), should be the target groups of policies aimed at mitigating the effects of intergenerational poverty.</p>
<p><b>3</b> Provide a concluding sentence to wrap up the research</p>	<p>In theory, if the lives of children living in poverty are improved, they will have increased skills to succeed as adults, both in their personal lives and in the workforce, which may ultimately break the cycle of poverty for many.</p>

## Acknowledgements (optional)

An optional section where authors can thank any major research contributors, peer reviewers, or partners.

## Appendices (optional)

Any supplementary information can be included in appendices.

# PRIMARY LITERATURE

## Examples

*Examples of research product structure, organization, and language style for research documents*

Cinner, J. E. and T. R. McClanahan. 2006. Socioeconomic factors that lead to overfishing in small-scale coral reef fisheries of Papua New Guinea. *Environmental Conservation* 33(1): 73-80. (Available on researchgate for free download.)

Kinzig, A. P., P. Warren, C. Martin, D. Hope, and M. Katti. 2005. The effects of human socioeconomic status and cultural characteristics on urban patterns of biodiversity. *Ecology and Society* 10(1): 23.  
<http://www.ecologyandsociety.org/vol10/iss1/art23/>

Poorter, H., C. Remkes, H. Lambers. 1990. Carbon and nitrogen economy of 24 wild species differing in relative growth rate. *Plant Physiology* 94: 621-627.  
<http://www.plantphysiol.org/content/plantphysiol/94/2/621.full.pdf>

