



## Retail and Opportunity

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## Introduction

Whether in a physical store or online, Americans make millions of purchases every day. Behind the union of consumer and product are millions of workers – the backbone of the retail industry. Retail provides domestic jobs for over 15 million workers, and the category of ‘retail salespersons’ is the largest occupation category in the U.S.<sup>1</sup> The job outlook for the retail sector is 7 percent growth between 2014 and 2024 – average compared to other sectors. Approximately one in three retail workers are part-time.<sup>2</sup> In 2015, the median pay for a retail cashier was \$19,310 per year and \$9.28 per hour.<sup>3</sup>

In recent years, a number of major retail companies have increased the wages offered to their lowest-paid employees, a welcome development; however, these wages still keep too many workers in poverty.<sup>4</sup> This research brief explores additional factors beyond wages for creating economic opportunity and long-term economic security for retail-sector workers and the communities they call home. One such approach is strengthening career pathways for employees within the sector by creating employment in which entry-level workers can gain a foothold in the labor market, stay in their jobs, and access routes to managerial positions. Providing opportunities and support benefits both workers and employers, who recoup training costs, experience less turnover, and build a more productive and loyal workforce. Ultimately, this stability and economic security has a tremendous benefit for these workers’ communities.

“People ask me, ‘What if you spend all this time and money on training and someone leaves?’ I ask them, ‘What if we don’t spend the time and money, and they stay?’”

- [CEO Thomas Crosby of Pal’s Sudden Service.](#)

## Background

Previous research on retail workers shows that there are large gaps in opportunity for economic development. A good way to improve one’s economic standing is through a promotion. Typically, companies in the retail sector promote from within, more so than other industries. But in both food and electronics retail, companies tend to recruit and/or promote college graduates for store supervisors, a trend that works against those without degrees. Studies have also shown that not everyone has the same chance of promotion and that race and ethnicity play roles in promotion. Research has found that the odds of advancement appear to be tilted against women in retail as whole. Blacks are severely under-represented among consumer electronics supervisors and slightly over-represented among grocery store supervisors. Latinos, however, are represented in managerial retail jobs to the same degree they are economy-

**The Bureau of Labor Statistics defines the retail sector to include the following categories:**

1. Merchant Wholesalers, Durable Goods
2. Merchant Wholesalers, Nondurable Goods
3. Wholesale Electronic Markets and Agents
4. Motor Vehicle and Parts Dealers
5. Furniture and Home Furnishings Stores
6. Electronics and Appliance Stores
7. Building Material and Garden Equipment

(cont’d on pg. 3)

<sup>1</sup> Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Employment and Wages, May 2015*  
<http://www.bls.gov/news.release/pdf/ocwage.pdf>.

<sup>2</sup> Bureau of Labor Statistics, U.S. Department of Labor, *Industries at a Glance*, June 08, 2016.  
[http://www.bls.gov/iag/tgs/iag44-45.htm#workplace\\_trends](http://www.bls.gov/iag/tgs/iag44-45.htm#workplace_trends).

<sup>3</sup> Lam, Bourree “Walmart Workers Get a Raise, but is that Enough?” *The Atlantic*, January 21<sup>st</sup>, 2016.



wide, but under-represented among consumer electronics and grocery store supervisors.<sup>5</sup> Furthermore, nearly one in five women working in a low-wage retail position worked part-time hours despite wanting a full-time position.<sup>6</sup> A survey of 251 retail workers at the Zara clothing chain in New York City found patterns of discrimination against black and minority employees compared to lighter-skinned employees. Darker-skinned employees were given less desirable hours and were less likely to receive promotions.<sup>7</sup> By exploring national datasets, we can see if at least some of these trends persist in the retail sector. Illustrating disparities and needs will shed light on the large gaps employers need to bridge in order for all of their employees to get an equal opportunity to navigate the retail career ladder.

8. Food and Beverage Stores
9. Health and Personal Care Stores
10. Gasoline Stations
11. Clothing and Clothing Accessories Stores
12. Sporting Goods, Hobby, Musical Instrument Stores
13. General Merchandise Stores
14. Miscellaneous Store Retailers
15. Non-store Retailers

### Research Questions

Past research on workers in the retail sector shows that individuals face many obstacles on the path to economic success. This research investigates how retail employment relates to broader community conditions and individual-level characteristics with the aim to answer three questions. The first is: **what is the relationship between state-wide opportunity and the rate of employment in retail across geographies?** Opportunity is defined using two methods; the first uses the [Opportunity Index](#) to measure state-level opportunity. The second method defines opportunity at the individual level and is discussed in the third research question. The Opportunity Index is an annual measure of conditions present in different communities that expand or constrict residents' opportunity, such as affordable housing, access to education, employment, and safety. It is designed to provide a snapshot of what opportunity looks like at the state-level and as a tool to help state and local leaders identify concrete strategies to address lagging conditions for opportunity and economic mobility. The Opportunity Index is a composite index of sixteen variables.

The second question of this research is: **what is the relationship between state-wide opportunity and turnover in retail.** Turnover rates are the rate at which stable jobs begin and end,

### Definitions of retail industry variables:

- **Retail employment rate** – the share of workers in a given state working in the retail industry.
- **Retail turnover rate**- The rate at which stable jobs begin and end. It is calculated by summing the number of stable hires in the reference quarter and stable separations in the next quarter, and dividing by the average full-quarter employment.
- **Retail replace and hire rate** (another measure of turnover) - Replacement hires as a percent of the average of beginning- and end-of-quarter employment.

<sup>5</sup> Carré, Françoise and Tilly, Chris, "America's Biggest Low-wage Industry: Continuity and Change in Retail Jobs" (2008). *Center for Social Policy Publications*. Paper 22. [http://scholarworks.umb.edu/csp\\_pubs/22](http://scholarworks.umb.edu/csp_pubs/22).

<sup>6</sup> Traub, Amy "Retail's Choice: How raising wages and improving schedules for women in the retail industry would benefit America." [Demos \(2014\)](#).

<sup>7</sup> Chaya Crowder, "Stitched with Prejudice: Zara USA's Corporate Culture of Favoritism." [The Center for Popular Democracy](#). June 2015.



and stable jobs are defined as the number of jobs that are held on both the first and last day of the quarter with the same employer. It is thought that turnover is driven by characteristics of the workers, tasks, the work environment, and markets.<sup>8</sup> However, a review of turnover studies suggests mixed results as to whether turnover is all good or all bad for the employer. The most obvious direct cost is the cost to replace an employee. One study suggests that replacing an employee making \$10 an hour can cost 16 percent of their annual salary, or approximately \$3,300.<sup>9</sup> There are also indirect costs, such as disruption in operations and loss in morale among co-workers. On the other hand, there may be positive effects, such as letting a disruptive employee go who was not a good fit, or for a worker, a chance at upward mobility in another establishment. Whether or not turnover is good or bad for the employer or employee is not clear-cut, but in general nets negative for both groups.<sup>10</sup>

Thirdly, this paper zeroes in on individuals in the retail workforce and defines opportunity a second way: as the chance to advance within the retail sector from a first-line retail worker (cashiers and retail salespersons) to a retail supervisor. We use national survey data to build a regression model to find out: **which individual-level characteristics are most closely associated with retail management versus which are more closely associated with first-line retail workers?**

What follows is a discussion of the results from this analysis and an examination of the problems and bright spots in the retail sector— companies that are working to provide greater opportunity for retail workers. Details on the methods and results can be found in the Appendix.

## Discussion

This analysis shows that comparing the [Opportunity Index](#) by state to state-wide retail employment rates has a moderate and positive correlation (Figure 1). This means that as the state-level Opportunity Index goes up, retail employment tends to increase at a similar rate. In contrast, the correlation between retail turnover and the Opportunity Index at the state level is weak. This suggests that the two variables are not a good linear fit, meaning that as one variable changes, the other variable does not increase or decrease at a constant rate. However, the replace and hire rate has a moderate and negative correlation with the Opportunity Index and a better linear fit compared with the turnover rates. This means that, as the rate of replacing and hiring retail employees goes up, the score for the Opportunity Index at the state-level tends to go down.

As a next step, this analysis investigates each of the 16 component variables that make up the Opportunity Index in relation to retail turnover and employment rates to see which variables at the state level have the strongest correlations. These variables are grouped into three dimensions, Jobs and Economy; Education; and Community Health and Civic Life<sup>11</sup>. Results from the correlations can be found in Table 1. These results suggest that there is an association between higher retail employment rates

<sup>8</sup> Ton, Zeynep *Managing the Impact of Employee Turnover on Performance: The Role of Process Conformance*. Organizational Science. Vol. 19, No. 1, January-February 2008, pp. 56-68.

<sup>9</sup> Boushey and Glynn, *There are Significant Business Costs to Replacing Employees*. The Center for American Progress. November 16, 2012.

<sup>10</sup> Jean martin and Conrad Schmidt, "How to Keep Your Top Talent". The Harvard Business Review, May 2010 [https://hbr.org/2010/05/how-to-keep-your-top-talent?cm\\_sp=Topics-\\_-Links-\\_-Read%20These%20First](https://hbr.org/2010/05/how-to-keep-your-top-talent?cm_sp=Topics-_-Links-_-Read%20These%20First)

<sup>11</sup> Opportunity Nation and Measure of America. "The Opportunity Index Data and Scoring". November 2015. <http://opportunityindex.org/methods-sources/>.



and states with higher Opportunity Index component values, specifically for lower crime, lower poverty, and a greater share of on-time high school graduates. These variables are associated with stable communities providing a safer environment for businesses to thrive. In contrast, places with higher retail turnover and/or replace and hire rates are associated with lower on-time high school graduation rates, higher levels of income inequality, lower internet connectivity, and lower housing costs. Why could this be? This analysis cannot determine causality, but perhaps unstable retail jobs are associated with state-wide lack of educational opportunities, higher crime rates, and greater poverty rates. Possibly unstable retail jobs are unstable when they are of poor quality (i.e., when they have on-call hours or low wages), and perhaps employers in environments with many job seekers have less incentive to improve working conditions and pay. While this analysis doesn't reveal which comes first, stable jobs or a stable community, perhaps retailers are better able to support stable employment in communities with higher Opportunity Index values or the two develop, or deteriorate, over time in tandem. Strengths and limitations of this analysis are discussed in the Appendix.

A logistic regression model is used to answer the third question. This analysis is designed to reveal the demographic and socioeconomic differences between two categories in the retail sector, those who have supervisor jobs and those who are first-line retail workers, in order to provide insight as to what might help workers gain better opportunities and quality of life by moving up the career ladder in the retail sector.

The results from the regression model suggest that retail supervisors significantly differ from first-line retail workers (cashiers and salespersons), in some key areas: supervisors are more likely to be male, hold a bachelor's degree, have private health insurance, and earn a higher income compared to first-line retail workers. Across the retail sector, more men are supervisors and more women are first-line retail workers. Research shows that there is a history of discriminating against women in the retail sector.<sup>12</sup> With this understanding, retailers should help address this gender imbalance in their promoting practices. There are also major gaps in terms of proportionate racial representation amongst supervisors. Blacks were 31 percent and Latinos were roughly 25 percent less likely to be managers than their white peers. Asians were 19 percent less likely to be supervisors than their white peers. Supervisors are more likely to hold a bachelor's degree; this shows the importance of education status for moving up in the ranks within the retail sector. Access to quality education is not only important for advancing within the retail sector, but is also important for retail workers looking to pivot to different sectors outside of retail. Supervisors are also more likely to have private health insurance, something that is often not afforded to retail workers if they are working part-time. Having a secure and reliable health plan for employees and their families reduces the amount of mental and financial stress that can come with the lack of health insurance.

First-line workers are more likely to live in poverty, something that is difficult to overcome while working at minimum wage. There is substantial research on this issue, but it is nonetheless important to note that data consistently show that a large portion of retail workers have earnings below the federal poverty threshold and are struggling to make ends meet.<sup>13 14 15</sup> By bringing to light the gaps and

<sup>12</sup> Frank, Ellen G., Susan J. Lambert, and Julia R. Henly. 2015. "Age, wage, and job placement: Older women's experiences entering the retail sector." *Journal of Women and Aging* 27(2): 157-173.

<sup>13</sup> Lambert, Susan. 1999. "Lower-wage workers and the new realities of work and family." *Annals of the American Academy of Political and Social Sciences* 562: 174-190.



barriers that retail workers face, retail employers will be better equipped to create a work environment that helps overcome these gaps. In the next section we provide examples of retail employers addressing the gaps we see in the analysis with employee programs and management strategies.

## Problems and Solutions

### Livable Wages

Retail wages are relatively low when compared to other job sectors, and avoiding poverty is something that many full-time retail workers are unable to do.<sup>3</sup> Progress at the state level has been made, especially in California and New York, to raise the state minimum wage. In addition, there are some retail employers leading the way who, according to monster.com, provide median wages nearing the \$15.00 mark, the minimum wage promoted by livable wage advocates.

- Solution: MIT business professor Zeynep Ton argues that investing in employees can boost an organization's operational efficiency, sales, and profits.<sup>16</sup> Several large retail employers are leading the way, providing livable wages that allow employees to better support their families and reduce the need to hold jobs with multiple employers. They include [Nordstrom - \\$14.96/hour; Amazon - \\$14.65/hour; and Costco - \\$13.14/hour.](#)

### Education Disparities

The retail sector hires first-line workers who did not complete high school at a greater rate compared to all other employment categories.<sup>5</sup> As we saw from our analysis above, higher turnover/replace and hire rates are associated with lower rates of on-time high school graduation and the educational dimension of the Opportunity Index overall. Our investigation of individuals working in retail showed that supervisors were more likely to have higher levels of educational attainment than the cashiers or equivalent retail workers. This is especially true for cashier-level grocery store workers.<sup>5</sup> On one hand, it is great that there are jobs for people who have not had the opportunity to finish their high school degree. On the other hand, according to this analysis, those who identify as retail supervisors are likely to have higher levels of educational attainment compared with those who identify as cashiers or the equivalent. Therefore, having the opportunity to move up in the retail sector and in the workforce overall is associated with higher educational attainment.

- Solution: Retail employers can provide financial incentives and programs for employees to complete their high school or advanced degrees. For example, The Home Depot offers [tuition reimbursement](#) for salaried, hourly and part-time hourly workers. Starbucks offers free tuition to the [Arizona State University](#) online program to all employees.

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<sup>14</sup> Frank, Ellen G., Susan J. Lambert, and Julia R. Henly. 2015. "Age, wage, and job placement: Older women's experiences entering the retail sector." *Journal of Women and Aging* 27(2): 157-173.

<sup>15</sup> Lambert, Susan J., and Julia R. Henly. 2009. "Work schedules in hourly jobs." In *The Low-Wage Labor Market for the Twenty-First Century Economy*. Washington DC: The Mobility Agenda.

<sup>16</sup> Ton, Zeynep "Why "Good Jobs" Are Good for Retailers". Harvard Business Review. January-February 2012. <https://hbr.org/2012/01/why-good-jobs-are-good-for-retailers>.



### Health Insurance

According to a DC-based think tank The Urban Institute, the retail sector employs one quarter of all uninsured employees.<sup>17</sup> One reason could be that many of their employees are part-time, either voluntarily or, in many cases, involuntarily. Often these companies only offer health insurance to full-time employees. A survey of Fortune 500 retail employers found retail companies five times less likely to offer health insurance to their employees compared to non-retail Fortune 500 companies.<sup>18</sup> When large retail companies do offer coverage, the plans tend to be bare-bones coverage that cost the employees a significant amount out-of-pocket.

- Solution: [Lowe's](#) offers immediate health insurance to both full-time and part-time employees. It controls costs by grouping health insurance rates into smokers vs. non-smokers.

### Scheduling and Paid Leave

A national longitudinal study of early career workers found that nearly 90 percent of retail workers experienced schedules that fluctuated from one week to the next.<sup>19</sup> At the same time, retail stores are staying open longer to accommodate shoppers' schedules. But with added hours, there is an expectation that entry level staff work weekends and evenings, and/or early morning hours, particularly in food retail, where women are over represented. In the past, stores offered pay premium for weekend work, but these incentives are being rolled back.<sup>5</sup> In addition, just-in-time scheduling also puts unneeded pressure on the retail worker; according to the [Retail Action Project](#), such unpredictable scheduling practices affect many aspects of workers' lives and their ability to care for themselves and their families. An erratic schedule can determine whether a worker receives health benefits, earns a livable take home pay, or has the ability to manage life obligations such as childcare.<sup>20</sup> In addition, only 53 percent of sales and related industries offer paid sick leave. Only 22 percent of all workers who are in the bottom 10 percent of wages get any paid sick leave, compared to 89 percent of those who earn wages in the highest 10 percent of the national income scale.<sup>21</sup> These policies put pressure on the employee to work through illness.

- Solutions: [QuikTrip](#) invests in "relief employees," staff who are able to fill in for workers who get sick, take a vacation, or have an emergency at a number of stores in their radius. "Relief employees" ensure that the stores are never understaffed. QuikTrip cross-trains employees for multiple functions, making it possible to shift employees

<sup>17</sup> B. Garrett, L. Nichols, and E. Greenman, "Workers without Health Insurance: Who Are They and How Can Policy Reach Them?" (Washington: Urban Institute, 2001).

<sup>18</sup> James Maxwell, Peter Temin and Saminaz Zaman "The Benefits Divide: Health Care Purchasing In Retail Versus Other Sectors." Health Affairs September 2002 vol. 21 no. 5 224-233.

<sup>19</sup> Susan J. Lambert, Peter J. Fugiel, and Julia R. Henly, [Precarious Work Schedules among Early Career Employees in the US: A National Snapshot](#), University of Chicago, 2014.

<sup>20</sup> Jennifer E. Swanberg, Jacquelyn B. James, and Sharon P. McKechnie. "Flexible Workplace Solutions for Low-wage Hourly Workers," "Can Business Benefit By Providing Workplace Flexibility to Hourly Workers?" University of Kentucky Institute for Workplace Innovation [http://www.uky.edu/Centers/iwin/citisales/\\_pdfs/IB3-HourlyWorkers.pdf](http://www.uky.edu/Centers/iwin/citisales/_pdfs/IB3-HourlyWorkers.pdf).

<sup>21</sup> Bureau of Labor Statistics, *Employee Benefits in the United States – March 2015*. <http://www.bls.gov/news.release/pdf/ebs2.pdf>.



depending on the need.<sup>22</sup> A relief employee willingly signs up for early, late, and weekend shifts, and is called upon to fill-in for absent staff. Because of the employee's flexibility and broad skill level, they are compensated appropriately.

### *Supporting Women, Minorities, and Workers of All Ages*

Women make up the majority of the low wage retail workforce,<sup>23</sup> yet as we saw from our analysis, are under-represented in managerial positions. Supporting women, especially during pregnancy, is a basic right. The income that a retail job provides is crucial to support growing families, and forcing women to take unpaid leave pushes the female workforce further into poverty. The [current policy](#) at Walmart, for example, only provides accommodations to pregnant women with impaired health; providing reasonable accommodations to healthy pregnant women, as well, would help ensure that healthy pregnancies don't turn into unhealthy ones.

According to a recent study, a disproportionate number of minority women are involuntarily working part time. Black and Latino women make up 14% of the retail workers, but they make up 21% of all adults involuntarily working part time<sup>24</sup>. Our regression results, along with previous studies<sup>25</sup>, show that minorities are under-represented in supervisor positions. Women and minorities should be supported and represented in the managerial and executive staff.

- Solutions: Women make up more than half the supervisors and executive staff at [Build-A-Bear Workshop](#). The firm provides on-site lactation programs and adoption benefits. The [Container Store](#) offers eight weeks paid maternity leave, over 64% of its executives are women, and over 60% of its staff is over the age of thirty-five. CarMax boasts a workforce consisting of over 45% minorities and was voted among the top ten places to work for Latinos and blacks by [Fortune](#) when asked about fairness of promotion, opportunities for advancement, and access to professional development.

## Conclusion

Retail is an important and growing sector in the U.S. economy and labor market. It provides jobs to millions of Americans with varying degrees of experience and education. This Measure of America analysis found that higher rates of stable retail employment correlate with lower rates of poverty, lower crime and higher on-time high school graduation. In contrast, higher rates of turnover/replace and hire correlate with higher poverty, higher income inequality, and lower on-time high school graduation rates. When comparing individual retail supervisors to first-line retail workers, we saw significant gaps by gender and race; supervisors were more likely to be white and male, first-line workers to be female and black or Latino.

<sup>22</sup> Hanna, Julia "QuickTrip's Investment in Retail Employees Pays Off" Harvard Business School Working Knowledge. May 25, 2011. <http://hbswk.hbs.edu/item/quiktrips-investment-in-retail-employees-pays-off>.

<sup>23</sup> Traub, Amy "Retail's Choice: How raising wages and improving schedules for women in the retail industry would benefit America." [Demos \(2014\)](#).

<sup>24</sup> McKenna, Claire "Data Points: A Look at Involuntary Part-Time Work in Retail", National Employment Law Project. March 4<sup>th</sup>, 2015. <http://www.nelp.org/blog/data-points-a-look-at-involuntary-part-time-work-in-retail/>

<sup>25</sup> Ruetschlin, Catherine "The Retail Race Divide: How the Retail Industry is Perpetuating Racial Inequality in the 21<sup>st</sup> Century." [Demos \(2015\)](#).



Livable wages are one of the most important factors in providing financial security and avoiding poverty for retail workers. In addition, supervisors were more likely to have health insurance, have full-time status, and higher educational attainment. To address these gaps retail, employers can follow the lead of the highlighted cases and actively work to provide livable wages, programs that support women and minorities, educational opportunities, reasonable schedules and regular working hours, reliable health insurance, and paid maternity, family, and sick leave to full- and part-time workers; these steps are central to the ability of workers to climb the retail career ladder, enjoy economic security, and care for their families. In addition, public policies that benefit all families, such as paid parental leave, paid time off for elder care, and paid sick leave, are particularly helpful for low-wage retail workers trying to balance care-giving and work, the majority of whom are women; California's Paid Family Leave is a good example.

### Acknowledgements:

Thank you to Andrew Garon for building and running the regression model for this report and Alex Powers for editing support. Thank you to Paul Osterman of MIT for a thoughtful discussion and resource recommendations. Special thanks to Amy Traub of Demos for early consultations and reviewing a draft of the report.

### Appendix:

#### Data and Methods

This research approaches the above questions with two methods. The first method compares the state level Opportunity Index and its components to employment and turnover rates. The second compares supervisors vs. first-line retail employees at the individual level using data from national surveys.

#### Method I:

To measure local opportunity we use the composite [Opportunity Index](#). The Index is designed to provide a broad snapshot of community well-being and in this case, at the state level. It captures local economic factors, academic factors, and civic engagement. It measures 50 states plus Washington DC on 16 indicators, scaled from 0-100. We use both the Index as a whole and its components to tease out the relationship between retail and opportunity.

To measure the rate of retail employment at the state level, we use the U.S. Census/ Department of Commerce Quarterly Workforce Indicators (QWI).<sup>26</sup> The source data for the QWI is the Longitudinal Employer-Household Dynamics (LEHD) linked employer-employee microdata. The LEHD data is a longitudinal database covering over 95% of U.S. private sector jobs. This data is collected via a unique federal-state data-sharing collaboration, the Local Employment Dynamics (LED) partnership, and is a cooperative venture between the LEHD program at the U.S. Census Bureau and the state agencies of all 50 states<sup>27</sup>. We take the arithmetic mean of the measure across four quarters in 2013 to generate an average quarterly measure. Performing

<sup>26</sup> U.S. Census Bureau. 2014. Quarterly Workforce Indicators Data. Longitudinal-Employer Household Dynamics Program <http://lehd.ces.census.gov/data/#qwi>.

<sup>27</sup> Quarterly Workforce Indicators 101: Local Employment Dynamics. United States Census Bureau. 2016



this calculation over four quarters will reduce the variations in the data resulting from seasonal employment patterns.

**Retail Employment Rates** are derived from the Full-Quarter Employment (Stable) Counts of employees in the retail sector for all working ages (14-99). It represents the number of employees holding a stable position for a full three months of a quarter. The estimate of stable jobs is defined as the number of jobs that are held on both the first and last day of the quarter with the same employer. This is often, but not necessarily, the same as being employed for a full quarter. For example an on-call employee may have earnings in each of three consecutive quarters, but works intermittently. We first plot retail employment rates vs. the Opportunity Index as a whole, and the Opportunity Index components.

To measure the rate of progress through the retail pathways, we use turnover rates as a proxy. Turnover rates are the rate at which stable jobs begin and end. It is calculated by summing the number of stable hires in the reference quarter and stable separations in the next quarter, and dividing by the average full-quarter employment. Equation:

**Turnover** = (All Hires) + (Separations in the Next Quarter)/(2 X End of Quarter Employment Counts).

We use a second measure of turnover called the Replacement Hire Rate. This is defined as the count of hires that take place in excess of net increases in employment divided by the average beginning and end of quarter employment rate. Equation:

Replacement Hires = (End-of-Quarter Hires)- (Job Creation)

**Replacement Hire Rate** = (Replacement Hires)/ (Average of Beginning and End of Quarter Employment).<sup>28</sup>

The Turnover Rate and the Replace and Hire rate are two different methods for estimating the rate of job change. Neither is a perfect measurement, but having two methods that define turnover in two different ways is a useful approach. High turnover rates could result from several conditions dependent on the retail employer and/or the retail employee. Here we are assuming that turnover means that a retail employee will average a shorter tenure for the employer and is therefore less likely to be advancing their career up the retail ladder in one particular establishment. We are assuming that turnover is the opposite of opportunity for upward mobility within a particular retail establishment. We realize that this is a reductive interpretation, but for the purposes of this analysis, we see turnover as an overall negative. By plotting retail turnover rates vs. the Opportunity Index and its components in U.S states, we expect to see an inverse relationship between the two. Through this investigation we can see which community level factors may be associated with lower and higher levels of turnover.

**Warning: Comparing the overall Opportunity Index to rates of employment should be interpreted with caution. These two measures are not completely independent. Rates of employment are not independent from the unemployment component of the Opportunity**

<sup>28</sup> U.S. Census "New Measures for Accessions, Separations, and Turnover in the Quarterly Workforce Indicators" March 19<sup>th</sup>, 2013. [http://lehd.ces.census.gov/doc/Memo\\_changes\\_to\\_QWI.pdf](http://lehd.ces.census.gov/doc/Memo_changes_to_QWI.pdf)



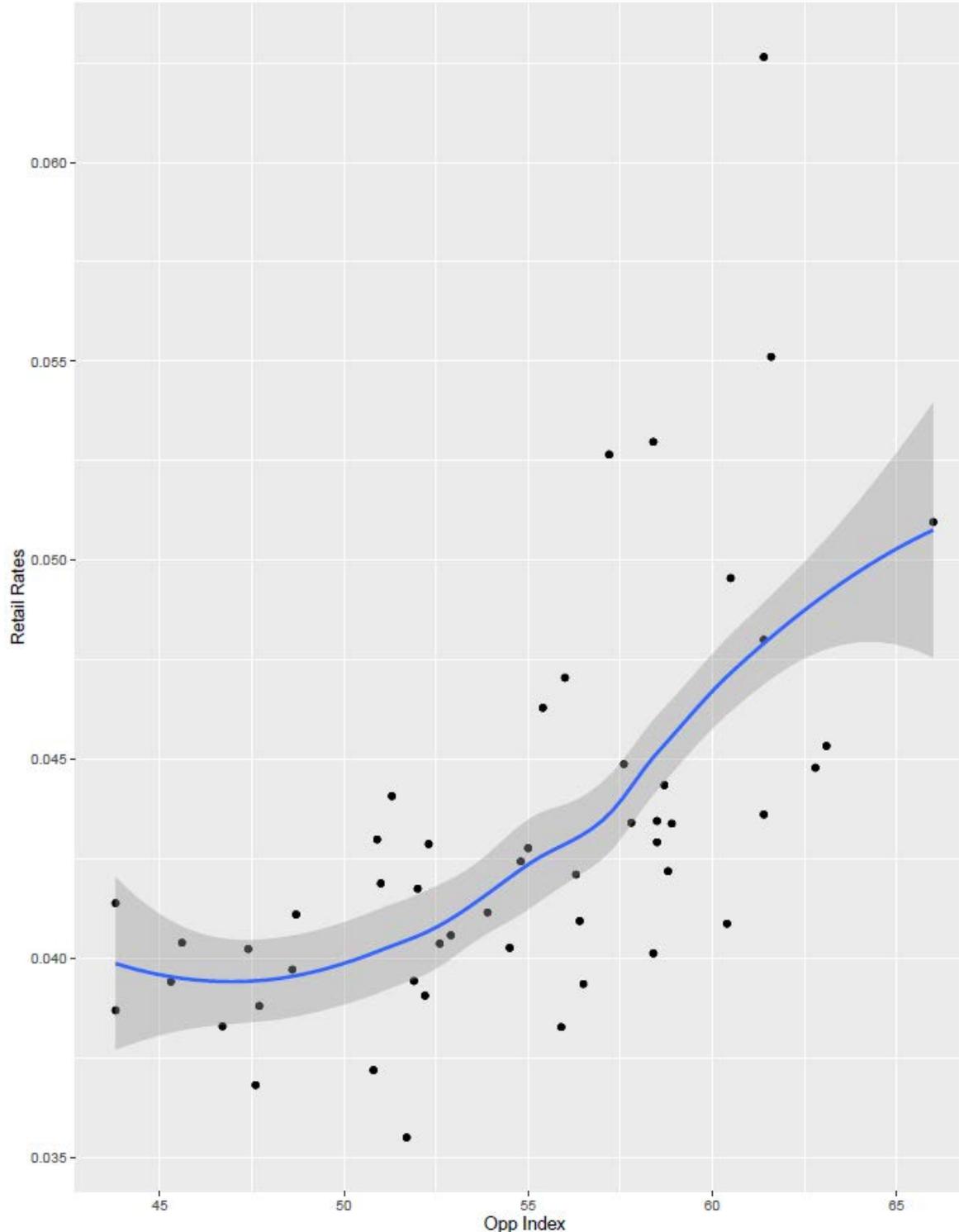
**Index.** This breaks an assumption of the Pearson correlation, which states that the two variables are completely independent. In other words, unemployment rates are related to retail employment rates and therefore a correlation between the two will clearly show a relationship. That is why it is important to run the correlations on all the individual variables within the Opportunity Index so that we can investigate the other components.

In the third step of Method I, we run a correlation between the sixteen components of the Opportunity Index and the retail employment variables. We put more weight on these results than on the results from the overall index because this approach allows us to exclude the unemployment variable and focus on the other independent variables within the Index.

## Results:

The Pearson's correlation measures the linear relationship between two variables and yields an  $r$  value ranging from  $-1$  to  $+1$ . If  $r$  is positive, the linear relationship between the two variables is positive, meaning that as one variable increases across the states the other also tends to increase. If  $r$  is negative, that means that as the Opportunity index increases, the rate of the retail measure decreases. This creates a slope in the opposite direction. The closer the value is to  $-1$  or  $1$ , the closer it is to a linear relationship. This is not to say that one is causing the other; we cannot say that retail rates increase the Opportunity Index, or vice versa.

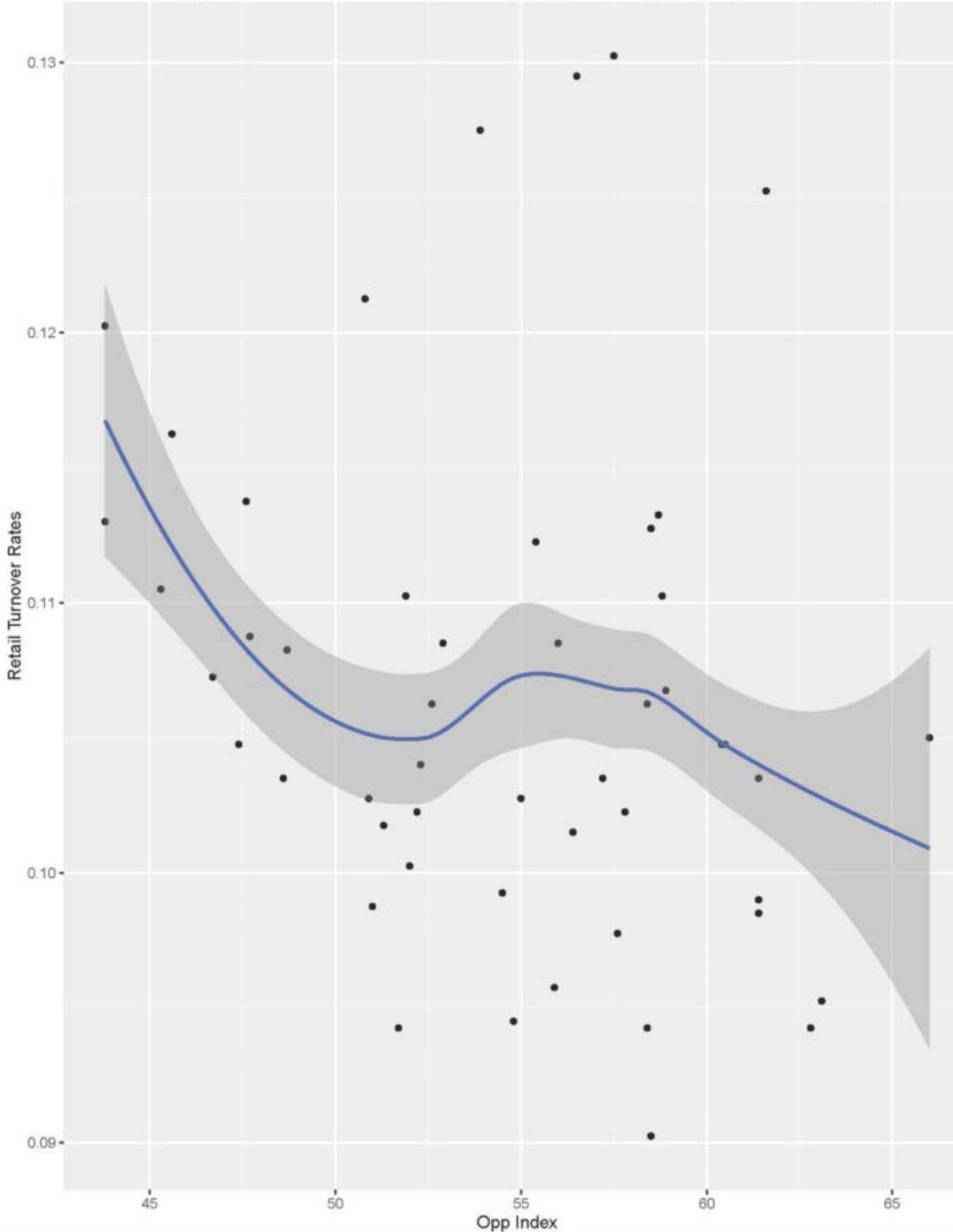
Figure 1. plots the relationship between the state-wide four quarter average of retail employment rates for 2013 versus the Opportunity Index with 2013 data. The District of Columbia was removed because it was an extreme outlier due to population size, a government-focused economy, and low rates of retail employment. The  $r$  value in this Pearson's correlation is 0.613. This can be interpreted as a moderate relationship, meaning that states with a higher Opportunity Index value tend to have higher rates of retail employment. In other words, across the states, as the retail rate increases the Opportunity Index tends to increase.



**Figure 1. Pearson’s Correlation for The Opportunity Index vs. 2013 Retail Employment Rates** The District of Columbia is removed as an outlier.

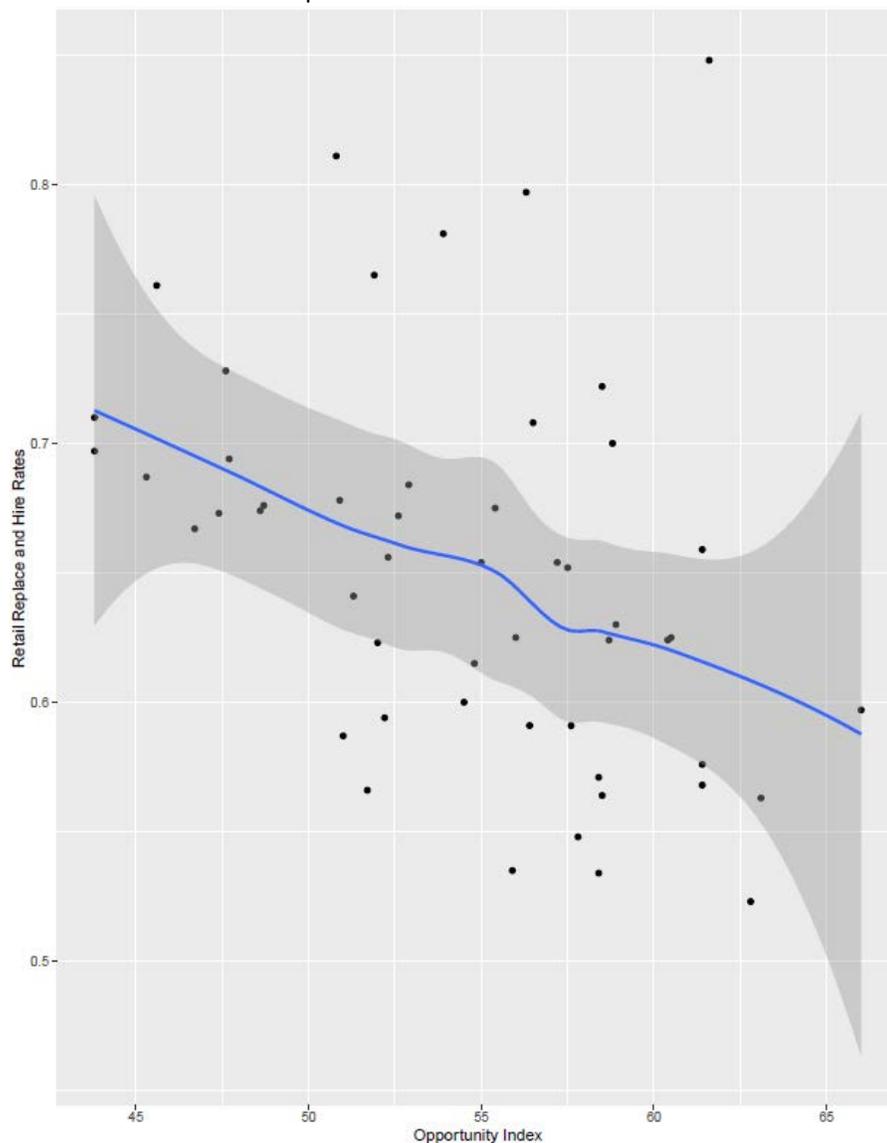
Figure 2. plots the relationship between the state-wide four-quarter average of retail employment turnover rates for 2013 versus the Opportunity Index with 2013 data. The r value in this Pearson’s

correlation is -0.234. This can be interpreted as a weak negative association, and therefore not much weight should be put on interpreting this relationship. It is not a good linear fit.



**Figure 2. Pearson’s Correlation for The Opportunity Index vs. 2013 Retail Turnover Rates. Wyoming is removed as an outlier.**

Figure 3. plots the relationship between the state-wide four quarter average of retail employment replace and hire rates for 2013 versus the Opportunity Index with 2013 data. The  $r$  value in this Pearson's correlation is  $-0.394$ , a slightly stronger and more linear relationship than the turnover correlation. This can be interpreted as a moderate negative association and therefore perhaps this is a better measure of attrition in the retail sector. In other words, as the rate of replace and hire goes up, at the state-level, the Opportunity Index tends to decrease. The negative relationship may be indicative that replacing and hiring, in general, is not associated with positive state-level opportunity.



**Figure 3. Pearson's Correlation for The Opportunity Index vs. 2013 Retail Replace and Hire Rate**



Table 1. See attached spreadsheet for full list of correlation results for retail rates vs the Opportunity Index components.

Interpreting the spreadsheet: The bottom-left half of the spreadsheet are the r scores for the Pearson correlations (red and blue), the top-right half are the p-values for these scores (blue to light pink). All correlations represent only associations; correlations are not causation.

2013 Data	OPPORTUNITY SCORE	Unemployment	HI Income	Poverty	Inequality Ratio	Banks	Affordable Housing	Internet	Jobs and Local Economy	Preschool	On-time HS	Associates Degree or Higher	Education Dimension	Disconnected Youth	Group Membership	Volunteer	Volunteer	Diabetes	Grocery Stores	Community Health and Civic Life	Population Estimate	Retail Turnover	Retail Employment	Retail Hire Replace
Geography	0.29	0.10	0.45	0.54	0.23	0.63	0.19	0.96	0.35	0.11	0.15	0.80	0.80	0.20	0.14	0.03	0.14	0.50	0.66	0.12	0.58	0.79	0.12	0.76
<b>OPPORTUNITY SCORE</b>	NA																							
Unemployment	-0.56	NA																						
HI Income	0.65	0.06	NA																					
Poverty	-0.31	0.43	-0.78	NA																				
Inequality Ratio	-0.18	0.52	0.01	0.49	NA																			
Banks	0.45	-0.46	-0.12	-0.15	-0.07	NA																		
Affordable Housing	-0.13	-0.34	-0.47	0.10	-0.41	0.53	NA																	
Internet	0.69	-0.19	0.78	-0.71	-0.06	-0.11	-0.62	NA																
Jobs and Local Economy	0.84	-0.67	0.60	-0.92	0.59	0.40	0.17	0.68	NA															
Preschool	0.43	0.14	0.50	-0.15	0.67	0.10	-0.53	0.39	0.02	NA														
On-time HS	0.53	0.59	0.00	-0.40	-0.42	0.39	0.29	0.11	0.49	-0.11	NA													
Associates Degree or Higher	0.72	-0.23	0.77	-0.56	0.22	0.12	-0.49	0.74	0.57	0.63	-0.08	NA												
Education Dimension	0.87	-0.46	0.54	-0.59	0.08	0.38	-0.23	0.56	0.58	0.62	0.64	0.64	NA											
Disconnected Youth	-0.86	0.71	-0.43	0.76	0.47	-0.44	-0.77	-0.53	-0.65	-0.10	-0.59	-0.52	-0.69	NA										
Group Membership	0.17	0.03	-0.02	0.01	0.10	0.11	0.01	-0.03	-0.02	0.07	0.05	0.04	0.09	0.02	NA									
Volunteer	-0.33	0.53	0.09	0.35	0.59	-0.09	-0.16	-0.16	-0.42	0.32	-0.58	0.13	-0.22	0.54	-0.03	NA								
Diabetes	0.53	-0.58	0.25	-0.48	-0.49	0.41	0.30	0.16	0.63	-0.16	0.23	0.40	0.26	-0.62	0.00	-0.28	NA							
Grocery Stores	0.32	0.26	0.46	-0.06	0.78	0.11	-0.42	0.34	-0.03	0.75	-0.36	0.67	0.35	0.05	0.18	0.59	0.01	NA						
Community Health and Civic Life	0.47	0.09	0.33	-0.24	0.39	0.18	-0.37	0.45	0.19	0.44	-0.01	0.40	0.35	-0.23	0.12	0.01	-0.04	0.41	NA					
Population Estimate	0.58	-0.33	0.55	-0.60	0.05	0.37	-0.23	0.61	0.60	0.46	0.24	0.72	0.67	-0.68	0.38	-0.21	0.45	0.51	0.67	NA				
Retail Turnover	-0.12	0.15	0.03	0.18	0.25	-0.45	-0.40	0.15	-0.26	0.13	0.03	-0.02	0.07	0.11	-0.12	0.06	-0.35	-0.03	0.11	-0.13	NA			
Retail Employment	-0.18	0.03	0.02	0.07	0.03	0.12	0.41	-0.31	-0.02	-0.07	-0.39	0.00	-0.31	0.19	0.02	0.37	0.13	0.10	-0.11	-0.13	-0.28	NA		
Retail Hire Replace Rate	0.52	-0.57	0.09	-0.55	-0.56	0.43	0.20	0.34	0.67	-0.17	0.55	0.09	0.36	0.02	-0.03	-0.58	0.33	-0.37	0.13	0.31	-0.28	-0.26	NA	
Retail Hire Replace Rate	-0.31	-0.03	-0.20	0.18	-0.11	0.19	0.63	-0.51	-0.07	-0.30	-0.14	-0.34	-0.37	0.25	0.01	0.26	0.02	-0.20	-0.28	-0.36	-0.25	0.94	-0.16	

The following Opportunity Index components most closely correlate with Retail Employment Rates:

- Higher retail employment rates correlate with lower crime rates, higher on-time HS grads, lower income inequality, lower poverty rates, and the Opportunity Index overall.

The following Opportunity Index components most closely correlate with measures of turnover:

- High retail turnover rates correlates with higher poverty rates, higher income inequality, lower high school graduation rates, and higher rates of violent crime.
- High retail replace and hire rates correlate with low housing costs, lack of internet and lower values for the educational summary dimension.

### Strengths and Limitation

There are several limitations to this analysis. First, we are looking at state-level units of geography for one year of data (2013). This is a snapshot of a complicated and dynamic relationship. Second, the correlations between the Opportunity Index as a whole and rates of retail employment, turnover, and replace and hire are not completely independent measures from one another because the Opportunity Index contains data on unemployment rates. Correlations between the Opportunity Index components and the retail data are more statistically independent. Third, this analysis can only show us correlations, and correlation is not causation. However, by showing these associations, we do see that stable retail employment is associated with positive Opportunity Index components and rates of turnover and replacement and hires are associated with negative Opportunity Index components. This provides a



foundation for more in-depth analysis on the retail sector using national survey data. Finally, the Bureau of Labor Statistics added the replace and hire rate in 2013 to supplement their turnover rate; both estimates aim to quantify the rate of retail cycling through workers and neither measure alone tells the full story.

### Method II:

The second method aims to measure characteristics of the retail workforce at the individual level. We will use the [Public Use Microdata Sample](#) (PUMS) from the U.S. Census, which contains weighted population averages. We used data from the one-year 2013 sample for comparability with the analysis in Method I. Here we investigate the difference between first-line retail supervisors and first-line retail workers on a variety of demographic, economic, social, health, and educational characteristics. The goal of this analysis is to identify the differences between these two groups and provide insight for where employers could step in to fill the opportunity gaps.

Using this data, we analyzed the variables from the survey results that that might illustrate the difference in individual opportunity. Below is a table summarizing the difference between retail supervisors compared to cashiers or other front-line workers. Supervisors are defined as somebody in retail who is a “First-Line Supervisor of Retail Sales Workers.” First-line retail workers are defined as either a “Cashier” or “Retail Sales Person.”

Table 2 shows the variable distribution among supervisors compared to first-line retail workers. There are over an estimated 13 million retail workers included in this study, with over 3.5 million supervisors and over 9.8 million first-line retail workers. This first level of analysis shows us that education status, health insurance coverage, and full-time/part-time status differ between the two groups of retail workers. In contrast, the percent of women who are mothers and the disability status of workers are similar between the two groups. We will use a regression model to show which of these variables are statistically significant.

**Table 2. Descriptive Statistics for Retail Supervisors vs. Retail First-Line Workers, PUMS 2013**

Retail Workers						
	USA	USA Standard Error	Supervisor	Supervisor Standard Error	First-Line	First-line Standard Error
Study Population (%)			26.59	0.17	73.41	0.17
Total Study Population			3,567,975	25,932	9,848,753	42,815
High School Drop-out (%)	12.18	0.09	6.18	0.16	14.36	0.11
High School Drop-out Total	1,634,761	13,456	220,425	6,020	1,414,336	12,164
High School Diploma (%)	64.02	0.18	59.23	0.37	65.76	0.18
High School Diploma Total	8,589,875	39,532	2,113,290	19,120	6,476,585	32,549
Bachelor Degree (%)	13.46	0.11	20.94	0.28	10.75	0.13
Bachelor Degree Total	1,805,473	16,436	747,048	11,813	1,058,425	14,061
Private Health Insurance Coverage (%)	63.88	0.18	76.07	0.3	59.46	0.2
Private Health Insurance Coverage Total	8,570,542	40,375	2,714,074	23,636	5,856,468	31,648
Public Health Insurance (%)	19.89	0.14	13.51	0.22	22.21	0.16

	USA	USA Standard Error	Supervisor	Supervisor Standard Error	First-Line	First-line Standard Error
<b>Public Health Insurance Total</b>	2,668,828	21,075	481,900	9,296	2,186,928	17,524
<b>Poverty (%)</b>	18.98	0.14	7.44	0.18	23.16	0.17
<b>Poverty Total</b>	2,546,085	19,473	265,447	6,619	2,280,638	18,073
<b>Mothers (%)</b>	15.77	0.12	15.36	0.21	15.91	0.14
<b>Mothers Total</b>	2,115,499	18,894	548,144	9,105	1,567,355	15,077
<b>Disability (%)</b>	8.08	0.09	7.21	0.16	8.390849	0.11
<b>Disability Total</b>	1,083,792	12,319	257,398	5,754	826,394	11,191
<b>Full-time (%)</b>	47.61	0.16	79.77	0.26	35.95797	0.22
<b>Full-time Total</b>	6,387,684	33,001	2,846,272	23,414	3,541,412	27,815
<b>Part-time (%)</b>	52.39	0.16	20.23	0.26	64.04203	0.22
<b>Part-time Total</b>	7,029,044	32,846	721,703	10,416	6,307,341	33,346
<b>White (%)</b>	63.03	0.18	71.66	0.34	59.90	0.21
<b>White Total</b>	8,456,498	41,134	2,556,952	23,656	5,899,546	33,056
<b>Black (%)</b>	12.73	0.12	8.48	0.20	14.27	0.15
<b>Black Total</b>	1,708,515	17,137	302,652	7,446	1,405,863	16,082
<b>Latino (%)</b>	15.91	0.13	11.82	0.25	17.39	0.15
<b>Latino Total</b>	2,134,270	17,472	421,641	8,742	1,712,629	16,050
<b>Asian (%)</b>	5.38	0.08	5.64	0.16	5.29	0.09
<b>Asian Total</b>	722,153	11,140	201,127	6,153	521,026	9,780
<b>Native American (%)</b>	0.56	0.02	0.44	0.05	0.61	0.03
<b>Native American Total</b>	75,432	3,086	15,739	1,641	59,693	2,792
<b>Other Race (%)</b>	0.25	0.02	0.21	0.04	0.27	0.02

	USA	USA Standard Error	Supervisor	Supervisor Standard Error	First-Line	First-line Standard Error
<b>Other Race Total</b>	33,864	2,628	7,415	1,382	26,449	2,383
<b>Two or More Races (%)</b>	2.13	0.05	1.75	0.08	2.27	0.06
<b>Two or More Races Total</b>	285,996	6,365	62,449	2,967	223,547	5,984
<b>Male (%)</b>	40.00	0.14	52.40	0.30	35.51	0.18
<b>Male Total</b>	5,367,129	28,468	1,869,742	15,410	3,497,387	25,417
<b>Female (%)</b>	60.00	0.14	47.60	0.30	64.49	0.18
<b>Female Total</b>	8,049,599	33,994	1,698,233	17,856	6,351,366	29,257

Using the PUMS data from 2013 for the U.S., we constructed a regression model comparing retail cashiers and first-line workers to retail supervisors. The model's purpose is to estimate which factors are more present amongst supervisors as opposed to first-line workers. To achieve this, a logistic regression with a binary dependent variable of supervisor status was created. In the model, we controlled for income, bachelor's degree status, private health care coverage, gender, full-time employment status, and race. All variables were found to be statistical significant at the .05 level, and there was no substantial evidence of multicollinearity across the independent variables. The model itself was significant as well, indicating that the results can inform which indicators have the strongest relationship with management status.

**Equation:**

**First Line Retail Supervisor/ Cashier or equivalent ~ (Male v. Female), (Black), (Latino), (Asian), (Bachelor's Degree), (Age over 25), (Part-time v. Full-time), ((Health Insurance Private), & (Income)**

**Results:**

Odds ratios from the best-fitting regression model:

Table 3.

Income	1.22	Bachelor's	1.53	Private	0.79	Health Insurance	Female
1.00000527							
Full-Time	4.04	Black	0.69	Latino	0.75	Asian	0.81
							Over Age 25
							3.77

The greatest predictor of management status was maintaining full-time employment. Those who were working 35 hours or more were found to be more than four times more likely to hold management positions, all else constant. Those who held private health care coverage were one and a half times more likely to hold management positions, while those who obtained a bachelor's degree were 1.2 times more likely to hold a managerial position. Workers over the age of twenty-five were over three



and a half times more likely to be supervisors compared to workers ages sixteen to twenty-four. White men were overwhelming most likely to hold managerial positions. For each \$1 increase in wages, likelihood to hold managerial status increased by 1.00000527 times. Women were found to be 19 percent less likely to hold supervisor roles, while blacks were 31 percent and Latinos were roughly 25 percent less likely to be managers than their white peers. Asians were 19 percent less likely to be supervisors than their white peers.

The model's area under the curve using the ROC test statistic of model fit was .79, indicating a good, not great, fit; this is to be expected when working with such broad categories and positions and the substantial variation present across a national data set.

Another way of evaluating the model output is a method called the confusion matrix. The confusion matrix provides documentation of where the model accurately predicted a workers' status and where the model failed to predict a worker's status. Observed profiles the actual status of an employee and predicted is what the model projected their employment status to be based on their demographic responses to the survey.

Table 4: Confusion Matrix	Observed: First-line worker	Observed: Supervisor
Predicted: First-line worker	80,364	19,564
Predicted: Supervisor	10,241	14,521

When analyzing Table 4, the model predicted 80,364 workers' status correctly, and 14,521 supervisors' status correctly. The model also predicted 19,564 observations held supervisor status who were actually workers. Conversely, the model predicted only 10,241 observations to hold worker status who were actually supervisors. The model accurately predicted the category of 80 percent of workers, and 58 percent of supervisors. This inaccuracy is largely to be expected when attempting to model across the varying socio-economic climates across the country. Supervisors are likely to have different levels of education and income dependent on the region and city, not to mention differing hiring / promoting practices by corporations.

### Strengths and Limitations

There are several strengths to this regression study: it uses national survey data from the U.S. Census, it is able to quantify several quality of life measures related to well-being and opportunity, and it investigates these relationships at the individual level. However, there are several limitations to this research, particularly when considering omitted variable bias. We have to compare across the entire retail industry and can't subset types of retail companies, we are lacking detailed information about work history and schedules, and we are lacking work training information and other measures of opportunity specific to retail.