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A Hidden Market: The Purchasing Power of Working-Age Adults With Disabilities

APRIL 2018

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American Institutes for Research

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Executive Summary

The American Institutes for Research (AIR) produced this report to help business, industry, and community leaders understand the purchasing power of the approximately 20 million U.S. working-age adults with disabilities and begin a discussion of how to leverage this market. People with disabilities offer diverse skill sets and unique insights that can help shape design and development for industry, resulting in products and services that appeal to a broader market share. Employment for people with disabilities not only builds a more diverse workforce but also leads to greater purchasing power for this population.

The breakdown of disposable and discretionary income for people with disabilities gives industries a starting point for thinking about how to interact with each market segment. Among our findings:

- The total after-tax disposable income for working-age people with disabilities is about \$490 billion, which is similar to that of other significant market segments, such as African Americans (\$501 billion) and Hispanics (\$582 billion);
- Discretionary income for working-age people with disabilities is about \$21 billion, which is greater than that of the African-American and Hispanic market segments combined; and
- Disposable and discretionary income varies by disability type and by state—information that can help business leaders as they make plans for accessing the disability market.

We conclude our findings with a discussion of the implications for business; next steps for accessing this market; and examples of U.S. companies that have witnessed the strategic benefits of employing, marketing to, and developing products for people with disabilities. Importantly, people with disabilities are not a solitary market; they are surrounded by family members and friends who also recognize the value in products and services that accommodate all people in society. We hope this report will encourage more research to help business and industry better understand this complex market.

Introduction

People with disabilities present business and industry with a twofold opportunity. First, businesses benefit from hiring people with disabilities because they provide unique abilities to enhance labor force diversity, improve productivity, and inspire innovation. Despite historically low labor participation and employment rates for people with disabilities, there has been a recent rise in interest from businesses to engage the talents of this population to meet their labor supply shortages. In addition, federal and state laws encourage full participation of people with disabilities in the workforce. Employing people with disabilities also improves public perception. One study found that 92% of consumers have a more favorable perception of companies that hire people with disabilities and more than 33% of respondents prefer to give their business to companies that employ people with disabilities (Siperstein, Romano, Mohler, & Parker, 2006).

Second, people with disabilities represent a large consumer market for high-quality services and products. The U.S. Office of Disability Employment Policy (ODEP) noted that people with disabilities are “the third largest market segment in the United States” (ODEP, 2012). That market size more than doubles when considering family members, caregivers, and others who prioritize goods and services that are inclusive of people with disabilities.

What is not well known, though, is the economic power of this population. There has been less focus from the private sector on the market potential of people with disabilities—a market with a desire for creative services and products that meet their specific needs.

This report examines the growing economic power of the disability market through the lens of disposable and discretionary income and provides facts that can motivate businesses to enter this market. The percentage of people with disabilities in the U.S. population rose from 11.9% in 2010 to 12.6% in 2015¹ and will continue to rise as baby boomers age into disability. To understand the purchasing power of the growing market of people with disabilities, we examined American Community Survey (ACS) data to answer three questions:

Disposable income is the amount of money available to a household for both saving and spending, after taxes.

Discretionary income is money remaining after deduction of taxes, other mandatory charges, and spending on necessary items such as food and housing.

1. How much disposable income do people with disabilities represent?

¹ Authors' calculation using data from the American Community Survey (ACS).

2. How much discretionary income do people with disabilities represent?
3. How does disposable and discretionary income among people with disabilities vary by state and disability type?

The data from this study inform businesses about a population that has not been a primary focus despite its potential impact on profits, employment, and public perceptions. Greater attention to people with disabilities as a diverse market segment will encourage the customization of products, services, and advertisements. Building on an already significant market while increasing brand recognition and loyalty is a win-win proposition for businesses and this important and growing market.

The Disability Market

Who Are People With Disabilities?

People with disabilities range from children and youth to adults and the elderly. Approximately one in five people in the United States, or 64 million, have a disability. Of that number, 22 million, or 35%, are of prime working age (ages 16 to 64) and have at least one disability.² People with disabilities fare worse in educational attainment and income compared with their nondisabled peers. In 2011, about 10% of working-age adults with disabilities in the United States had a bachelor's degree or higher, compared with more than 25% of working-age adults without disabilities. In addition, people with disabilities of prime working age earn 37% less than those without disabilities with comparable educational attainment and demographic characteristics (Yin, Shaewitz, & Megra, 2014).

Although people with disabilities are often referred to as a single population, this is not a homogenous group because there are many different types of disabilities, among these cognitive difficulties (because of a physical, mental, or emotional problem; having difficulty remembering, concentrating, or making decisions); ambulatory difficulties (having serious difficulty walking or climbing stairs); vision difficulties (blind or having serious difficulty seeing, even when wearing glasses); hearing difficulties (deaf or having serious difficulty hearing); and self-care difficulties (having difficulty bathing or dressing).³ Two individuals with the same type of disability also can be affected in different ways. And more than half of disabilities are hidden or not easy to observe. People with disabilities vary in number by type of disability, from 36% of

² Authors' calculation using data from the 2014 ACS.

³ See Appendix A for detailed descriptions of these six disability categories in the ACS, organized by functional and activity limitations.

people with independent living disabilities (the most frequently reported) to 23% with cognitive and 22% with physical disabilities. They also vary by population size from state to state. As of 2014, the states with the highest rates of people with disabilities in their prime working age were West Virginia, Kentucky, Mississippi, Arkansas, and Maine.⁴

Similar to adults without disabilities, this population earns disposable income—either through employment or supplemental support and benefits—which is the amount of money, after taxes, available to their households for spending and saving. A smaller percentage of people with disabilities also have discretionary income after spending on necessary items such as food, housing, clothing, and basic health care. People with disabilities are financial decision makers who select investments, including savings accounts and retirement accounts. They shop for homes, cars, and furniture as well as video games, hairstylists, and breakfast cereal. They also may have needs such as accessible technology, long-term care services, transportation and housing accommodations, and other disability-related items. Businesses and industries would do well to understand these disability types and unique consumer needs to better design, develop, and market products and services for people with disabilities.

How to Measure Purchasing Power

Market researchers and businesses often estimate the disposable and discretionary income of a group to assess market size, growth, and population characteristics. To understand the purchasing power of the market segment of consumers with disabilities as a whole, we need to know how much money they have available after taxes and after their basic day-to-day needs are met.

Disposable income is the amount of money available to a household for both saving and spending, after taxes. This is the net income after taxes or the take-home pay that an individual can choose to spend or save. For example, people may use their disposable income to pay bills, the rent or mortgage, and other essential living costs. They also can use this money to build their savings. (In some cases, asset limits may pose an additional barrier to savings because of policies affecting those receiving supplemental supports.)

Discretionary income is the amount of money remaining after the deduction of taxes, other mandatory charges, and expenditures on necessary items. It is the money that people spend on nonessential goods or services. This spending goes beyond basic needs (adequate food, housing, health care, assistive devices, and clothing) to include a variety of luxury items that may include dining out, travel, entertainment, and other nonessential products or services.

⁴ The states with the lowest rates of disabled population in their prime working age were Maryland, California, North Dakota, Hawaii, and New Jersey.

In this study, we examine the disposable and discretionary income of people with disabilities compared with those without disabilities. These data are presented to better understand the spending abilities of people with disabilities and to identify the potential market for business and industry.

Data and Method

To calculate disposable and discretionary income, we used data from the 2014 ACS, a national survey conducted annually by the U.S. Census Bureau, to provide demographic, economic, and housing data on a nationally representative sample of U.S. residents. Using ACS disability definitions, we concentrated on six types of disabilities categorized by an individual's functional and activity limitations, and we calculated disposable and discretionary income by disability type and by state.

We followed the method created by the U.S. Census Bureau and the Consumer Research Center of the Conference Board (Linden, Gordon, & Coder, 1989) and calculated *disposable* and *discretionary income* using formulas (1) and (2). A more detailed discussion of the construction of the analytical sample and calculation step is presented in Appendix A.

$$\text{Disposable income} = \text{Total income} - \text{Federal and state income taxes} \quad (1)$$

$$\text{Discretionary income} = \text{Disposable income} - (1 + 30\%) \times \text{Average expenditure} \quad (2)$$

Key Findings

Findings from the data analysis provided answers to our research questions about the disposable and discretionary income of people with disabilities (see Table 2) and how those incomes vary by state and disability type.

How much disposable income do people with disabilities represent?

Our analysis revealed the following information regarding working-age people (ages 16 to 64):

- The total disposable income for working-age people with disabilities is about \$490 billion. This is only 7.2% of the disposable income of people without disabilities (\$6,787 billion), but it remains a sizable sum. It is closer to the total disposable income of other market segments including African Americans (\$501 billion) and Hispanics (\$582 billion), as shown in Appendix C.
- The average income for a person with a disability is \$26,487, which is 38% less than the average income for an individual without a disability.

- Average *disposable* income for a person with a disability (income after taxes) is approximately \$23,300. This is 35% less income after taxes than for people without disabilities.

How much discretionary income do people with disabilities represent?

Using a conservative approach to estimate discretionary income, we found the following:

- Approximately 5.5% of individuals with disabilities have discretionary income (\$21 billion), compared with more than 12% of those without disabilities (\$581 billion). The total discretionary income of \$21 billion is higher than the combined discretionary income of African-American (\$3 billion) and Hispanic populations (\$16 billion).
- Among people with disabilities who have discretionary income, the mean income before taxes was \$121,112; after taxes, it was \$86,954. This is 9% less discretionary income than their nondisabled counterparts have.

When we examined the incomes of people with disabilities by type, more details emerged:

- **Disposable income varies by disability type.** As shown in Figure 1, people with independent living difficulties have the highest level of income, a total of about \$25 billion more than the second level of income (persons with ambulatory difficulties). People with self-care difficulty have the lowest purchasing power at \$4 billion in disposable income.
- **Discretionary income varies by disability type.** As shown in Figure 2, individuals with hearing difficulties represent the disability category with the greatest amount of discretionary income, with 1.59% having discretionary income averaging \$25,737 per individual and totaling about \$9 billion. This is nearly \$6 billion more than the total of individuals with vision and ambulatory difficulties. Although people with independent living difficulties have a higher level of disposable income, they have a much lower amount of discretionary income. People with self-care difficulty have the lowest purchasing power of less than \$1 billion in discretionary income.

Figures 1 and 2 show disposable and discretionary incomes by type of disability.⁵

⁵ The current ACS covers six disability types (and their Public Use Microdata Sample variable): “hearing difficulty: deaf or having serious difficulty hearing (DEAR); vision difficulty: blind or having serious difficulty seeing, even when wearing glasses (DEYE); cognitive difficulty: because of a physical, mental, or emotional problem, having difficulty remembering, concentrating, or making decisions (DREM); ambulatory difficulty: having serious difficulty walking or climbing stairs (DPHY); self-care difficulty: having difficulty bathing or dressing (DDRS); independent living difficulty: because of a physical, mental, or emotional problem, having difficulty doing errands alone such as visiting a doctor’s office or shopping (DOUT). Respondents who report [any one] of the six disability types are considered to have a disability” (U.S. Census Bureau, n.d., “Current” section).

Figure 1. Aggregated Disposable Income by Disability Type

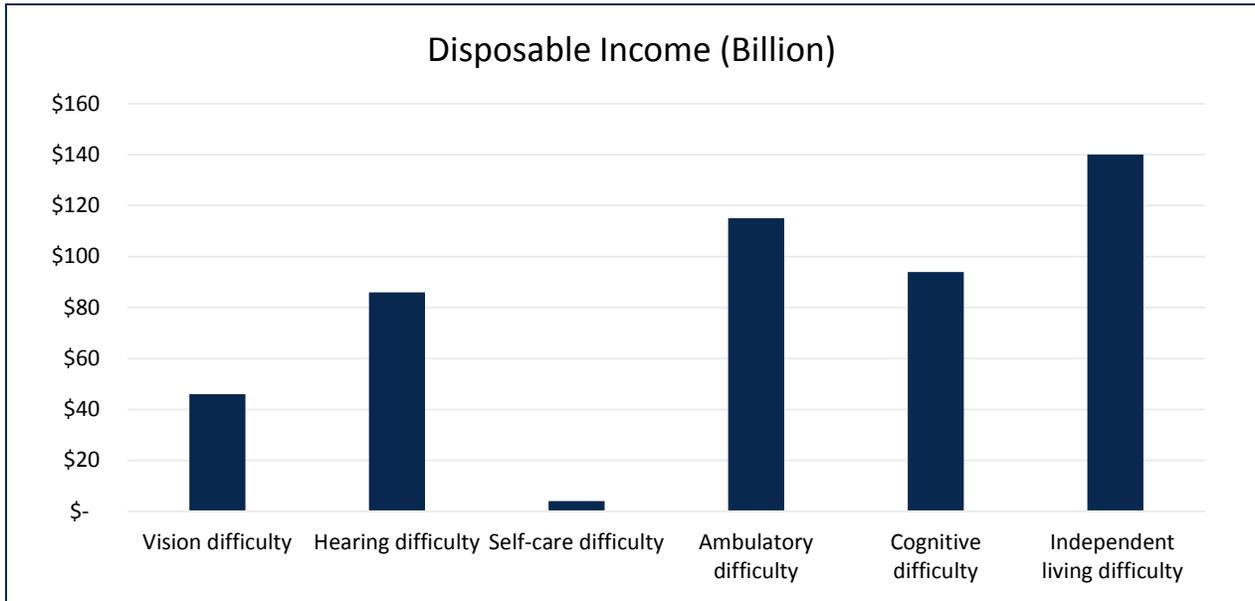


Figure 2. Aggregated Discretionary Income by Disability Type

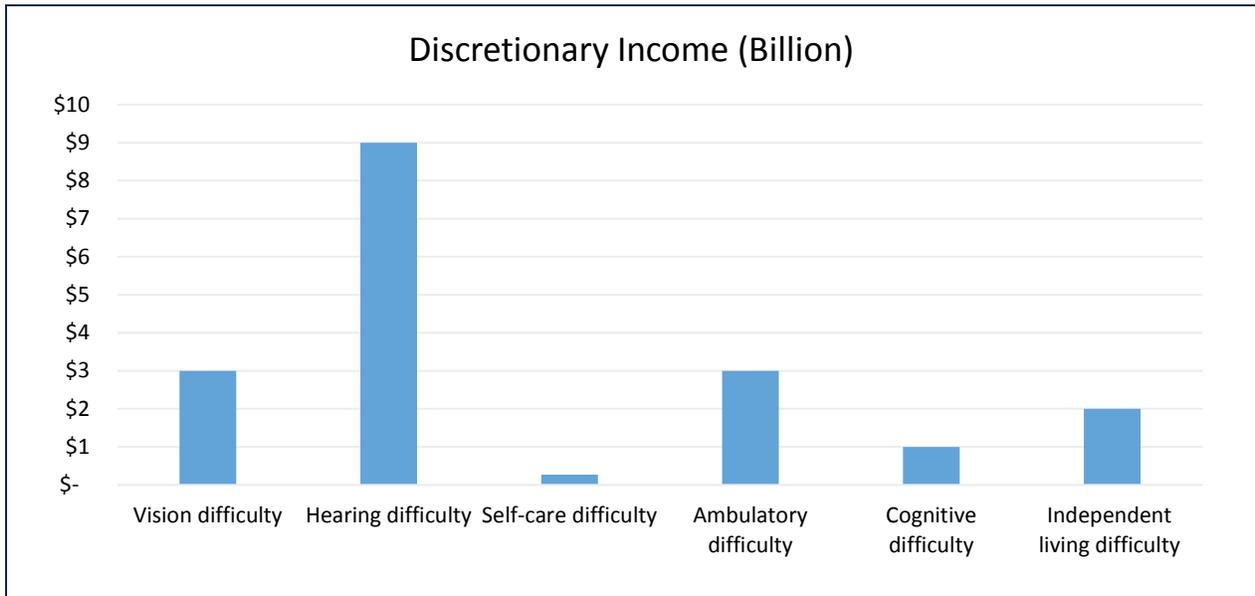


Table 1. Summary Income Statistics

	Without Disability	With Disability	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
All individuals								
Mean income before taxes	\$42,823	\$26,487	\$33,039	\$42,731	\$32,114	\$27,994	\$21,068	\$20,243
Mean income after taxes (disposable income)	\$36,094	\$23,300	\$28,977	\$36,719	\$28,218	\$24,974	\$19,366	\$18,679
Aggregate (billion)	\$6,787	\$490	\$46	\$86	\$4	\$115	\$94	\$140
Individuals With Discretionary Income								
Proportion of people with discretionary income	12.40%	5.30%	0.63%	1.59%	0.06%	1.39%	0.84%	0.86%
Mean income before taxes	\$133,620	\$121,112	\$127,522	\$134,160	\$123,135	\$113,448	\$109,134	\$115,336
Mean income after taxes (disposable income)	\$94,936	\$86,954	\$91,044	\$95,280	\$88,245	\$82,063	\$79,310	\$83,268
Discretionary income	\$25,392	\$17,410	\$21,501	\$25,737	\$18,702	\$12,519	\$9,766	\$13,725
Aggregate (billion)	\$581	\$21	\$3	\$9	\$0.27	\$4	\$2	\$3

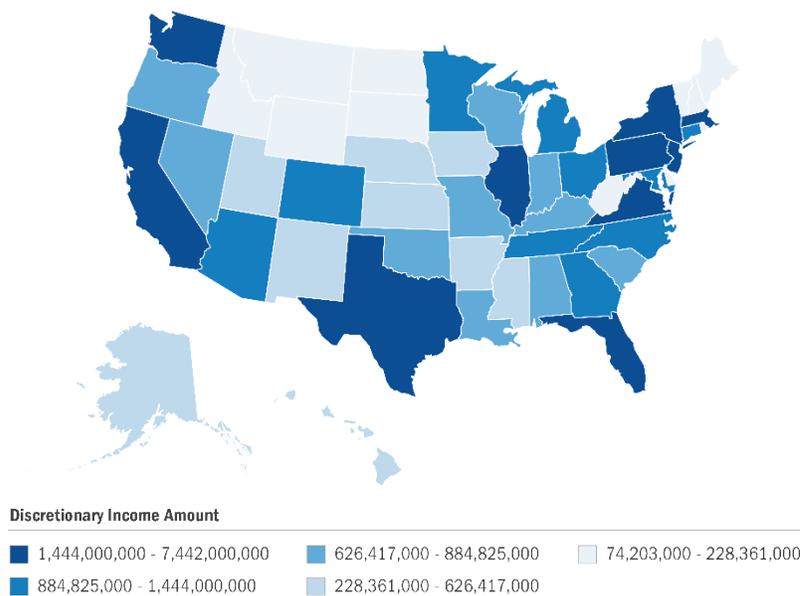
Note. Calculations based on data retrieved from the U.S. Census Bureau’s 2014 ACS and Internal Revenue Service, IRS Revenue Procedure 2013-35, in Internal Revenue Bulletin 2013-47; retrieved from <https://www.irs.gov/pub/irs-drop/rp-13-35.pdf>.

How do disposable and discretionary income vary by state?

People with disabilities live in all regions, states, and counties and in all settings—urban, suburban, and rural. The market size for people with disabilities varies significantly across the country as measured by total disposable and discretionary incomes, and this variation is driven partially by population size. For instance, California, Texas, New York, Florida, and Pennsylvania have the largest numbers of citizens with disabilities,⁶ as well as higher total amounts of disposable and discretionary incomes. The citizens with disabilities in these states may serve as important consumers for goods and services. A further breakdown of market segments (for example, urban versus suburban versus rural) may be necessary given the large geographic size of these states and the prevalence of different disability types. In Figure 3, we present the total amount of discretionary income by state (disposable incomes present similar patterns). Figure 4 shows the percentage of people with disabilities who have discretionary incomes. The two graphs present slightly different stories. The amount of discretionary income (Figure 3) is driven largely by population size, whereas the percentage of people with disabilities with discretionary incomes (Figure 4) describes both the higher income level of that group and the proportion of individuals with incomes that exceed the discretionary income threshold. Companies may target different states based on their own business models. For example, a firm might choose to target the disability market in California, which is home to a large number of people with disabilities with higher levels of disposable income.

Figure 3 shows how the distribution of discretionary incomes mirrors the distribution of the number of individuals with disabilities (Yin, Shaewitz, & Megra, 2014). States with the **highest** total amount of discretionary income are among the nation’s most populous states: California, Texas, New York, Florida, and Illinois. States with the **lowest** total amount of discretionary income include Vermont, Wyoming, North Dakota, South Dakota, and Idaho.

Figure 3. Total Amount of Discretionary Income by State



⁶ Specific age and disability patterns can be found through additional resources that provide demographic data on where people with disabilities live (www.disabilitystatistics.org).

Implications for Business

Although people with disabilities earn less than people without disabilities and represent a smaller share of the market, businesses should pay attention to this group for three reasons:

1. **Most businesses are not taking advantage of the nearly half a trillion dollars in market value of this population.** Given that people with disabilities are part of families and communities, the number of people who could purchase goods and services for this population more than doubles.
2. **Societal shifts point toward growing numbers and greater inclusion of people with disabilities.** Businesses that want to increase sales and positive brand recognition will invest in goods and services for this growing market. The return on investment is clear.
3. The findings outlined in this report are conservative estimates of the purchasing power of people with disabilities. **The market potential is even larger** when one considers the friends, family members, caregivers, colleagues, and others who are connected to consumers with disabilities.

What's Next?

The implications for business and industry go beyond simply knowing the data on earnings, spending, disability type, and regional variation. To maximize revenue opportunities, the private sector can reassess its business strategy in terms of not only where people with discretionary income live but also whether products and services are developed specifically for these consumers. In other words, how are goods and services developed in collaboration with people who have disabilities and then marketed to them and their related consumer markets? And have businesses considered the return on investment of hiring more people with disabilities to attract brand loyalty? In an increasingly tight labor market, employers are finding that with low-cost accommodations, they can increase their supply of high-quality workers with disabilities.

Increasing market share can be accomplished by developing products that meet the needs of people with disabilities, marketing products to people with disabilities, and employing people with disabilities. Companies that have increased their inclusive hiring practices include Starbucks, Northrop Grumman, AT&T, and Ernst & Young.⁷ Companies recognize that hiring people with disabilities improves their bottom line while increasing customer loyalty.

⁷ As ranked by the U.S. Business Leadership Network's Disability Equality Index and referenced in Blahovec (2016).

So, what will help the bottom line, and which business strategies will increase profits while including and supporting people with disabilities?

Design and Inclusion

Diversity in the workplace has shifted from a human resources consideration to an intentional business strategy, while corporations strengthen their intellectual capital by expanding and diversifying their human capital. As with other traditionally underrepresented groups, people with disabilities offer diverse skill sets and unique insights that can help shape design and development for industry, resulting in products and services that appeal to a broader market share. In particular, people with disabilities provide a perspective on consumers with disabilities that helps businesses refine their products and services while broadening their reach.

Considering the usability needs of people with disabilities during the design process can result in more desirable and competitive products for the masses. For example, voice recognition software has been used in assistive technology devices for people with disabilities since the 1980s. Today, this technology is embedded in mainstream products such as Amazon's Alexa, Apple's Siri, Google's Assistant, and Microsoft's Cortana. Applying universal design principles at the start of any new product or service development saves the costs of retrofitting later in the process and ensures that people with disabilities are potential customers. In fact, some people with disabilities are regarded as extreme users—those first adapters who discover new ways of using the most advanced technologies and who often spark innovation for all consumers. Involving people with disabilities early in product conceptualization, design, and testing phases can result in products that are useful to a larger number of consumers. This process is a mutually beneficial one in which businesses learn how to make competitive products and services while people with disabilities benefit from increased access to products for purchase.

More examples of inclusive design come from the fashion industry, in which industry leaders have been designing for specific disability types. Tommy Hilfiger developed an accessible clothing line that is adapted with magnetic closures instead of buttons, adjustable pant legs to fit lower extremity braces, and adjustable sleeves for different limb sizes. Zappos launched a dedicated website, Zappos Adaptive, which offers shoes and clothing that are easily used by people with physical disabilities and sensory-friendly clothing for people on the autism spectrum and those who live with nerve pain and tenderness. In response to a request from a customer with cerebral palsy, Nike developed FlyEase technology for its shoes that offers a wraparound zipper and adjustable top.

These examples show how companies have begun to recognize the untapped market of people with disabilities and how providing accessible goods and services can enhance their bottom line through inclusive product design. By proactively involving people with disabilities in design, development, and testing, businesses can avoid inadvertent barriers to this market. From airport travel to shopping, from car buying to dining out, and from financial services to home buying—businesses that consider how to accommodate their customers with disabilities can better serve them and their families.

Marketing

Historically, people with disabilities have not been widely embraced as a target market by the private sector (Hastings, 2009). But with \$490 billion in disposable income, the amount of money that people with disabilities have to spend on everyday necessities is significant. Businesses that serve individuals with disabilities might direct their marketing efforts in states with higher potential customers. States also vary in terms of other demographics—that is, types of disabilities, age, and education of individuals with disabilities. Further market research can help a business identify target states based on its business goals, products, and services. A Nielsen study (2016) found that households with people with disabilities made more shopping trips and spent more money per trip on average than households without a person with disabilities. The same study indicated that people with disabilities tend to be more brand loyal.

Some businesses have already recognized the market value of people with disabilities through inclusive advertising. For example, Walgreens has featured a model with Down syndrome in store advertising (Diament, 2017). T. J. Maxx, Target, and SunTrust run ads showing people with observable disabilities engaged in everyday activities. Proctor & Gamble television ads include people with physical limitations able to perform household tasks with the Swiffer product.

These examples show how businesses stand out from their competition by embracing direct and inclusive advertising approaches. In fact, a survey commissioned by the Marketing Anthropology Project suggests that people with disabilities are a market of interest to all U.S. consumers (National Business & Disability Council, 2017). The survey found that 66% of consumers will purchase goods and services from a business that features individuals with disabilities in their advertising, while 78% will purchase goods and services from a business that takes steps to ensure easy access for individuals with disabilities at their physical locations. This finding is salient for small businesses, which make up about 85% to 90% of businesses in the United States and accounted for 54% of all sales in 2012 (Small Business Administration, n.d.). Focused marketing to consumers with disabilities and their families may lead to a stronger bottom line for local businesses and greater options for local consumers. Businesses can use

this report's findings by disability type and geography to refine their marketing strategies and maximize their investments.

Training and Resources

How can large and small businesses serve the market of people with disabilities well? Businesses might invest in training for staff on disability awareness to promote understanding of the types of disabilities that exist and the most respectful ways to provide services to this population. A number of resources exist to provide supports both in hiring people with disabilities and in understanding how to accommodate them. These resources often are free or low cost as offered by the 80 state vocational rehabilitation agencies, which provide job preparation and placement services for people with disabilities, state and local employment specialists, and private job placement firms. These professionals offer an array of supports and processes to help private businesses, including job preparation, job readiness assessments, and varied on-the-job options. They work with small business employers and human resources offices within large businesses to ensure the right fit.

Also, there is a growing number of online and in-person training programs in which businesses can learn how to serve and work with people with disabilities. These include programs for human resources managers who recruit, train, and hire new staff. This training can help businesses understand the disability population, including their underutilized potential, and support their needs at work and in the community.

Conclusion

The challenges that exist for consumers with disabilities have become opportunities for businesses to serve them. Companies that want to target this significant market would benefit from breaking down this pool into customer markets to better understand their needs, interests, and purchasing power. The data included in this report can help businesses look at states with higher numbers of potential customers with disabilities to initiate targeted opportunities for growth. Small businesses may investigate local or regional population data to better understand the types of customers in their area; larger national businesses may consider a more complex demographic mapping of consumers by disability type to target their efforts.

Importantly, people with disabilities are part of a larger network of family members, friends, communities, and institutions that may look favorably on businesses that serve this population. People with disabilities and their family members determine where and how to spend their disposable and discretionary income based on many factors.

For example, people with disabilities and their families spend money on travel and entertainment but often are limited by accessibility challenges in airports, stores, hotels, and restaurants. Businesses that provide reasonable accommodations can ensure access and increase their opportunities to better serve this population and their families. Accessible housing opens the real estate market to more potential homebuyers. Improving access to private transportation can help people with disabilities reach their jobs and move freely in their communities. Easing travel options also decreases social isolation while increasing discretionary spending in those areas where food and fun are available to all customers. Accommodations need not be expensive, and they often benefit the general public. Some low-cost accommodations may include telecommunications devices in airports, interactive screens in shopping malls, Braille reading materials, handrails in bathtubs in homes and hotels, ramps to enter and exit apartment buildings, and power-assist doors for public restrooms.

Although diversity in disability is more complex than the categories presented in this report, the breakdown of disposable and discretionary income by these broad disability types gives industries a starting point for thinking about how to interact with each market segment. As noted earlier, people with disabilities are not a solitary market; they are surrounded by family members and friends who also recognize the value in products and services that accommodate all people in society. More research would benefit business and industry to better understand this complex market. Business and industry will want to understand how people with disabilities spend their money, their purchasing preferences, and how their preferences vary by disability type and by region.

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Appendix A. Detailed Data and Method

To calculate disposable and discretionary income, we used data from the 2014 American Community Survey (ACS), a national survey conducted annually by the U.S. Census Bureau to provide demographic, economic, and housing data on a nationally representative sample of U.S. residents. Using ACS disability definitions, we concentrated on six types of disabilities categorized by an individual’s functional and activity limitations,⁸ and we calculated disposable and discretionary income by disability type and by state.

1. **Cognitive difficulty**—Individuals with cognitive difficulties (such as learning, remembering, concentrating, or making decisions) because of a physical, mental, or emotional condition.
2. **Ambulatory difficulty**—Individuals with a condition that substantially limits one or more basic physical activities, such as walking, climbing stairs, reaching, lifting, or carrying.
3. **Vision difficulty**—Individuals with a long-lasting condition of blindness, deafness, or a severe vision impairment.
4. **Hearing difficulty**—Individuals who are deaf or who have a long-lasting condition of hearing impairment.
5. **Independent living difficulty**—Individuals with difficulty doing errands alone, such as visiting a doctor’s office or shopping because of a physical, mental, or emotional problem.
6. **Self-care difficulty**—Individuals with any physical or mental health condition that has lasted at least 6 months and makes it difficult for them to take care of their own personal needs, such as bathing, dressing, or getting around inside the home. This excludes such temporary health conditions as broken bones or pregnancies.

We also limited our sample to individuals between the ages of 16 and 64 to focus on the working-age population for two reasons:

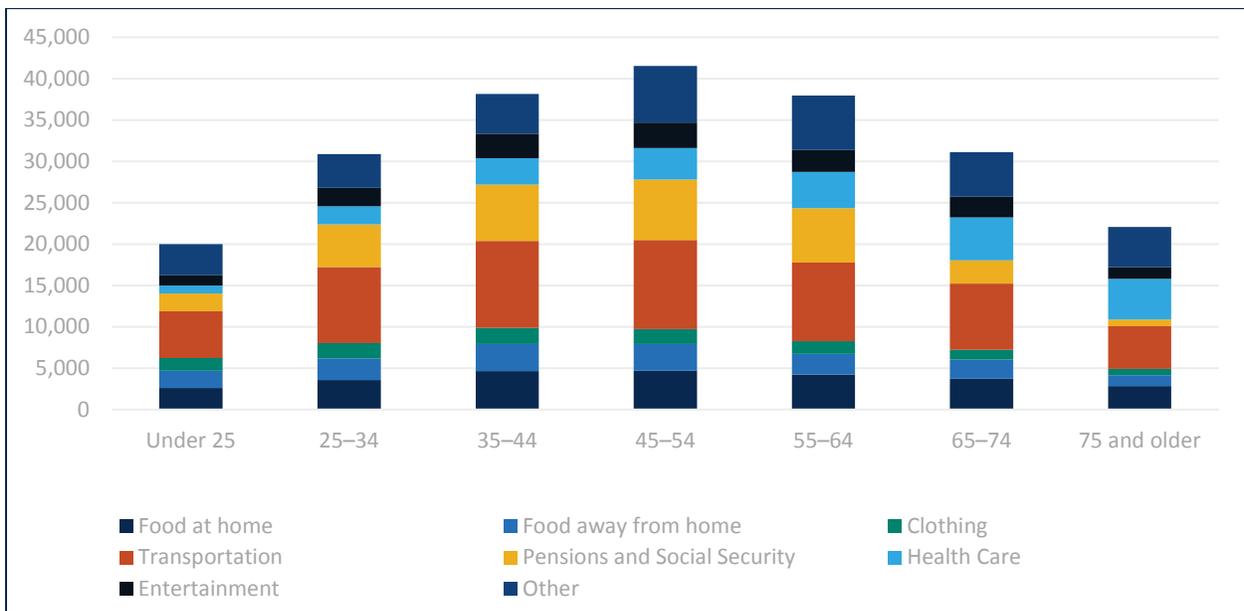
1. Disability policies have shifted from a primary focus on income support to policies that encourage labor-market participation. As more individuals with disabilities transition into employment, we desire to understand the size of this growing market and its increased spending power.
2. Individuals age 65 and older have different expenditure patterns from those in their prime working age. Drawing from data from the 2013 Consumer Expenditure Survey,

⁸ The current ACS covers six disability types (and their Public Use Microdata Sample variable): “hearing difficulty: deaf or having serious difficulty hearing (DEAR); vision difficulty: blind or having serious difficulty seeing, even when wearing glasses (DEYE); cognitive difficulty: because of a physical, mental, or emotional problem, having difficulty remembering, concentrating, or making decisions (DREM); ambulatory difficulty: having serious difficulty walking or climbing stairs (DPHY); self-care difficulty: having difficulty bathing or dressing (DDRS); independent living difficulty: because of a physical, mental, or emotional problem, having difficulty doing errands alone such as visiting a doctor’s office or shopping (DOUT). Respondents who report [any one] of the six disability types are considered to have a disability” (U.S. Census Bureau, n.d., “Current” section).

Figure A1 indicates that most expenditure and consumption categories are “hump” shaped during the life cycle, meaning that people tend to spend more money between ages 45 and 54. For those age 65 and above, the average expenditure is around \$40,000, compared with \$56,000 for those younger than age 65. Health care expenditure grows with the age of the reference person⁹ while other expenditure categories start to shrink.

About 40% of individuals age 65 and older have at least one disability, and they are an important consumer market for study. In this study, however, we focused on the working-age population with disabilities.

Figure A1. Major Expenditure and Consumption Categories, by Age of Reference Person, 2013



Source. Authors’ calculation using data retrieved from the U.S. Bureau of Labor Statistics: <https://www.bls.gov/opub/btn/volume-4/consumer-expenditures-vary-by-age.htm>.

We followed the method created by the U.S. Census Bureau and the Consumer Research Center of the Conference Board (Linden et al., 1989) and calculated the *disposable* and *discretionary income* using formulas (1) and (2).

$$\text{Disposable income} = \text{Total income} - \text{Federal and state income taxes} \quad (1)$$

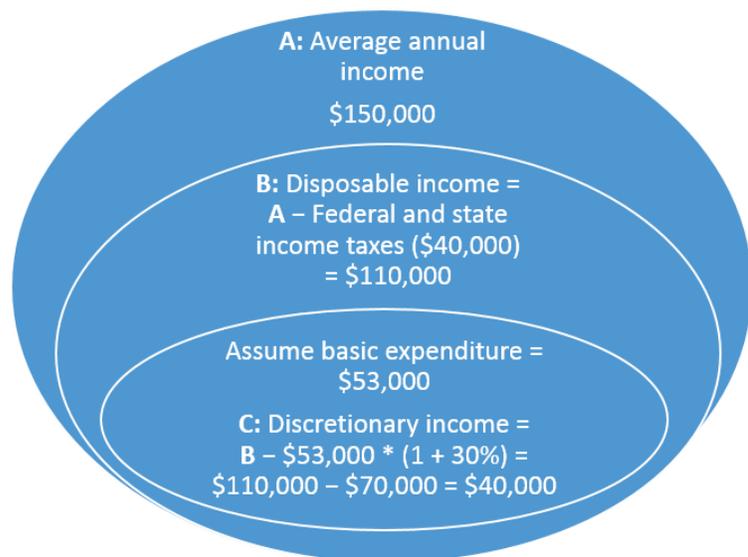
$$\text{Discretionary income} = \text{Disposable income} - (1 + 30\%) \times \text{Average expenditure} \quad (2)$$

⁹ Detailed data for the age of the reference person are available at <https://www.bls.gov/cex/2013/combined/age.pdf>.

1. Using the ACS variable for total income, we first estimated the average income for each disability group at the state and national levels.
2. Second, we calculated federal and state income taxes using the 2014 income tax schedule¹⁰ for each disability group at the state and national levels. We deducted both the federal and state tax from the average income amount to define as the average disposable income.
3. Next, we used data reported on the Bureau of Labor Statistics' Consumer Expenditure Survey to determine expenditures in 2014.¹¹ Households with disposable income at least 30% higher than average expenditures for their group were considered to have discretionary income. Therefore, the average discretionary income was defined as the total amount of disposable income in excess of the 30% cutoff figure.

An example of this method is shown in Figure A2. For calculation simplicity, assume that an individual earns an annual income of \$150,000, pays \$40,000 in federal and state income taxes, and has an annual expenditure of \$53,000 to maintain a reasonably comfortable standard of living. Her disposable income equals the annual income minus income taxes, or \$110,000 ($150,000 - 40,000$). And the discretionary income equals the disposable income in excess of 30% of \$53,000, or \$40,000 ($\$110,000 - [53,000 + 53,000 * 30\%]$).

Figure A2. Example of Calculation of Disposable and Discretionary Incomes



¹⁰ We estimated the average federal and state income taxes using rates for single individuals obtained from <http://taxfoundation.org/data>. We included both standard and personal exemptions, where applicable, to calculate state income taxes.

¹¹ Reported data were classified by consumer units: married with children, married with no children, other married, one parent with children, and single. Therefore, our calculations of discretionary income also take into account consumer units.

Appendix B. State Tables

Table B1. Percentage of People With Disability, by State and Disability Type

State	% Disabled	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
Alabama	14%	0.9%	1.3%	0.1%	3.6%	3.3%	5.0%
Alaska	9%	0.6%	2.2%	0.1%	1.8%	2.4%	2.5%
Arizona	11%	0.8%	1.1%	0.0%	2.5%	2.5%	3.7%
Arkansas	15%	1.0%	1.7%	0.1%	3.8%	3.0%	5.1%
California	8%	0.7%	0.9%	0.1%	1.7%	1.8%	3.1%
Colorado	9%	0.8%	1.3%	0.1%	1.8%	2.1%	3.1%
Connecticut	9%	0.6%	0.9%	0.1%	1.8%	2.4%	3.2%
Delaware	9%	0.7%	0.8%	0.0%	2.0%	2.4%	3.6%
District of Columbia	10%	0.8%	0.9%	0.1%	2.6%	2.7%	2.8%
Florida	10%	0.8%	1.0%	0.1%	2.4%	2.2%	3.8%
Georgia	11%	1.0%	1.1%	0.1%	2.6%	2.4%	3.9%
Hawaii	8%	0.5%	1.1%	0.0%	1.7%	1.9%	3.0%
Idaho	11%	0.9%	1.3%	0.1%	2.3%	2.6%	3.6%
Illinois	9%	0.7%	1.0%	0.1%	1.9%	1.8%	3.3%
Indiana	12%	0.9%	1.6%	0.1%	2.8%	2.5%	4.3%
Iowa	9%	0.6%	1.4%	0.1%	1.8%	2.4%	3.2%

State	% Disabled	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
Kansas	11%	0.7%	1.4%	0.1%	2.3%	2.6%	3.8%
Kentucky	16%	1.0%	1.7%	0.1%	3.9%	3.6%	5.7%
Louisiana	13%	1.1%	1.2%	0.1%	3.0%	2.9%	4.8%
Maine	14%	0.8%	1.4%	0.1%	2.5%	4.0%	5.6%
Maryland	9%	0.6%	0.9%	0.1%	2.0%	2.1%	2.9%
Massachusetts	9%	0.5%	1.1%	0.1%	1.6%	2.4%	3.4%
Michigan	12%	0.7%	1.2%	0.1%	2.6%	3.0%	4.9%
Minnesota	9%	0.5%	1.2%	0.1%	1.5%	2.3%	3.3%
Mississippi	15%	1.1%	1.4%	0.1%	3.5%	3.3%	5.5%
Missouri	13%	0.9%	1.3%	0.1%	2.9%	3.1%	4.7%
Montana	12%	0.7%	1.9%	0.1%	2.8%	2.5%	3.7%
Nebraska	9%	0.6%	1.3%	0.0%	1.8%	2.4%	2.9%
Nevada	12%	1.3%	1.5%	0.1%	3.0%	2.4%	3.5%
New Hampshire	9%	0.6%	1.2%	0.1%	1.9%	2.7%	2.9%
New Jersey	8%	0.8%	0.9%	0.1%	1.8%	1.6%	2.9%
New Mexico	13%	1.2%	1.5%	0.1%	2.4%	2.8%	5.0%
New York	9%	0.7%	0.9%	0.1%	2.1%	1.9%	3.3%
North Carolina	12%	0.8%	1.2%	0.1%	2.7%	2.3%	4.4%
North Dakota	8%	1.0%	1.4%	0.1%	1.7%	1.5%	2.4%

State	% Disabled	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
Ohio	12%	0.8%	1.3%	0.1%	2.6%	3.1%	4.3%
Oklahoma	14%	1.5%	1.8%	0.1%	3.4%	3.0%	4.5%
Oregon	13%	0.9%	1.6%	0.1%	2.7%	3.3%	4.7%
Pennsylvania	12%	0.8%	1.3%	0.1%	2.3%	2.9%	4.1%
Rhode Island	12%	0.5%	1.1%	0.1%	2.3%	3.9%	4.3%
South Carolina	13%	0.9%	1.2%	0.1%	3.0%	2.9%	4.5%
South Dakota	11%	1.1%	1.5%	0.1%	1.7%	3.3%	2.9%
Tennessee	14%	1.0%	1.4%	0.1%	3.4%	3.1%	5.3%
Texas	10%	0.9%	1.3%	0.1%	2.3%	2.2%	3.3%
Utah	9%	0.7%	1.3%	0.0%	1.8%	2.2%	2.7%
Vermont	13%	0.4%	1.6%	0.1%	2.3%	3.4%	5.3%
Virginia	9%	0.8%	1.0%	0.1%	2.2%	2.3%	3.1%
Washington	11%	0.8%	1.5%	0.1%	2.2%	2.8%	3.5%
West Virginia	17%	1.0%	2.1%	0.1%	4.2%	3.8%	5.8%
Wisconsin	10%	0.6%	1.3%	0.1%	1.9%	2.5%	3.6%
Wyoming	10%	0.7%	2.1%	0.0%	2.6%	2.2%	2.8%
U.S. Total	11%	0.8%	1.2%	0.1%	2.4%	2.5%	3.9%

Table B2. Mean Income and Disposable Income, by Disability Status and State

State	Income Without Disability	Disposable Income	Total—Without Disability	Income With Disability	Disposable Income	Total—With Disability
Alabama	\$37,140	\$31,728	\$82,466,135,433	\$22,714	\$20,188	\$8,609,203,698
Alaska	\$45,211	\$40,405	\$17,469,998,516	\$35,525	\$32,172	\$1,459,392,609
Arizona	\$40,368	\$35,053	\$129,153,064,274	\$27,217	\$24,316	\$10,637,180,374
Arkansas	\$35,553	\$30,027	\$46,669,502,620	\$23,320	\$20,684	\$5,578,126,080
California	\$48,152	\$39,624	\$919,878,472,743	\$28,259	\$25,120	\$52,842,212,110
Colorado	\$47,266	\$39,942	\$125,361,671,364	\$29,665	\$25,818	\$8,112,019,455
Connecticut	\$57,535	\$46,918	\$97,956,283,781	\$30,930	\$26,921	\$5,481,258,423
Delaware	\$43,978	\$36,894	\$19,438,060,464	\$30,667	\$26,318	\$1,453,561,728
District of Columbia	\$66,126	\$51,855	\$22,410,452,131	\$32,068	\$27,510	\$1,327,942,692
Florida	\$39,721	\$35,739	\$389,010,141,897	\$26,154	\$24,207	\$29,899,266,561
Georgia	\$41,225	\$34,734	\$199,074,494,402	\$24,032	\$21,151	\$14,987,693,167
Hawaii	\$43,303	\$35,941	\$29,571,671,016	\$31,793	\$27,054	\$1,965,573,856
Idaho	\$36,943	\$30,929	\$26,644,641,477	\$25,320	\$21,759	\$2,260,591,662
Illinois	\$46,471	\$39,153	\$294,456,190,858	\$27,597	\$24,054	\$17,332,672,878
Indiana	\$38,157	\$33,112	\$121,295,848,087	\$24,223	\$21,742	\$11,121,574,580
Iowa	\$40,421	\$34,168	\$58,207,743,272	\$26,023	\$22,895	\$4,053,473,301
Kansas	\$41,578	\$35,637	\$56,104,687,150	\$26,770	\$23,761	\$4,654,030,156
Kentucky	\$36,583	\$31,014	\$72,497,945,955	\$21,905	\$19,389	\$8,658,417,251

State	Income Without Disability	Disposable Income	Total—Without Disability	Income With Disability	Disposable Income	Total—With Disability
Louisiana	\$39,970	\$34,602	\$88,590,204,560	\$23,182	\$21,004	\$8,044,085,143
Maine	\$39,303	\$32,562	\$23,030,922,352	\$22,970	\$19,978	\$2,370,331,786
Maryland	\$53,498	\$44,316	\$156,523,600,067	\$32,272	\$27,927	\$9,204,823,874
Massachusetts	\$53,878	\$44,288	\$176,198,526,778	\$27,309	\$23,769	\$9,537,416,708
Michigan	\$39,656	\$33,998	\$185,892,865,721	\$24,313	\$21,609	\$16,807,292,459
Minnesota	\$46,053	\$38,294	\$119,124,800,610	\$28,192	\$24,372	\$7,363,251,613
Mississippi	\$34,138	\$29,387	\$46,386,989,447	\$20,545	\$18,512	\$5,131,772,588
Missouri	\$39,274	\$33,228	\$109,185,604,283	\$23,734	\$20,951	\$10,249,642,630
Montana	\$36,817	\$31,263	\$17,233,659,559	\$26,656	\$23,327	\$1,680,251,971
Nebraska	\$39,250	\$33,185	\$34,549,284,913	\$26,998	\$23,842	\$2,460,840,966
Nevada	\$39,803	\$35,809	\$56,389,568,946	\$28,210	\$25,955	\$5,440,245,832
New Hampshire	\$47,651	\$42,420	\$33,223,248,115	\$28,946	\$26,580	\$2,158,671,766
New Jersey	\$55,114	\$45,782	\$241,558,522,042	\$30,174	\$27,166	\$12,482,345,508
New Mexico	\$36,732	\$31,678	\$35,815,245,079	\$24,279	\$21,703	\$3,660,529,831
New York	\$50,538	\$41,651	\$483,551,220,516	\$26,538	\$23,147	\$26,553,813,183
North Carolina	\$39,478	\$33,243	\$185,118,698,010	\$24,038	\$21,014	\$15,318,792,434
North Dakota	\$44,824	\$39,447	\$16,469,931,791	\$29,416	\$26,621	\$983,112,308
Ohio	\$39,840	\$34,892	\$223,791,391,262	\$23,305	\$21,370	\$19,187,822,785
Oklahoma	\$39,053	\$33,332	\$69,162,099,612	\$26,471	\$23,297	\$8,053,212,617
Oregon	\$40,701	\$33,140	\$71,751,703,126	\$25,451	\$21,550	\$7,101,240,950

State	Income Without Disability	Disposable Income	Total—Without Disability	Income With Disability	Disposable Income	Total—With Disability
Pennsylvania	\$42,703	\$36,963	\$265,284,808,284	\$25,061	\$22,509	\$21,246,478,050
Rhode Island	\$44,733	\$38,322	\$22,944,031,744	\$24,449	\$21,841	\$1,813,888,199
South Carolina	\$37,492	\$31,364	\$82,922,733,564	\$23,678	\$20,589	\$7,923,816,030
South Dakota	\$38,655	\$34,833	\$15,932,529,286	\$26,412	\$24,427	\$1,317,897,303
Tennessee	\$38,312	\$34,542	\$122,084,146,639	\$23,184	\$21,682	\$12,673,062,780
Texas	\$44,144	\$39,498	\$605,708,041,055	\$26,462	\$24,469	\$42,016,973,543
Utah	\$40,500	\$34,361	\$56,340,293,733	\$26,479	\$23,327	\$3,688,862,246
Vermont	\$40,951	\$35,199	\$12,176,981,249	\$25,031	\$22,364	\$1,159,030,523
Virginia	\$50,438	\$41,737	\$204,155,411,111	\$29,039	\$25,117	\$12,756,636,627
Washington	\$47,461	\$42,277	\$168,424,741,264	\$29,652	\$27,180	\$13,248,028,808
West Virginia	\$35,025	\$30,297	\$28,890,926,204	\$21,432	\$19,436	\$3,780,663,255
Wisconsin	\$39,726	\$33,346	\$108,600,015,419	\$24,836	\$21,624	\$7,767,930,248
Wyoming	\$42,555	\$38,148	\$12,406,805,748	\$27,920	\$25,709	\$979,804,107
U.S. Total	\$42,823	\$36,094	\$6,787,086,557,527	\$26,487	\$23,300	\$494,596,759,253

Table B3. Percentage of People With Disability With Discretionary Income, by State and Disability Type

State	Without Disability	With Disability	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
Alabama	9%	3.3%	0.3%	1.0%	0.0%	0.9%	0.6%	0.4%
Alaska	18%	8.8%	1.0%	5.7%	0.0%	0.9%	0.8%	0.5%
Arizona	11%	4.2%	0.4%	1.2%	0.0%	1.2%	0.6%	0.7%
Arkansas	7%	3.2%	0.4%	1.3%	0.0%	0.7%	0.4%	0.4%
California	15%	6.2%	0.9%	1.6%	0.1%	1.6%	1.0%	1.1%
Colorado	15%	6.3%	1.0%	2.0%	0.0%	1.4%	0.6%	1.2%
Connecticut	19%	6.2%	0.5%	1.7%	0.1%	2.0%	1.0%	0.9%
Delaware	14%	7.1%	0.4%	2.0%	0.0%	2.0%	0.8%	1.8%
District of Columbia	33%	9.0%	2.2%	2.4%	0.1%	2.4%	0.6%	1.2%
Florida	10%	4.2%	0.5%	1.1%	0.1%	1.3%	0.6%	0.6%
Georgia	11%	3.5%	0.4%	0.9%	0.1%	1.1%	0.6%	0.4%
Hawaii	12%	9.7%	1.1%	3.2%	0.1%	2.3%	1.0%	2.1%
Idaho	8%	3.3%	0.2%	0.9%	0.1%	0.8%	0.8%	0.4%
Illinois	14%	6.0%	0.9%	1.8%	0.0%	1.5%	0.8%	1.0%
Indiana	9%	3.5%	0.5%	1.3%	0.0%	0.9%	0.4%	0.4%
Iowa	10%	5.5%	1.1%	1.7%	0.0%	1.3%	0.7%	0.7%
Kansas	10%	4.5%	0.1%	1.4%	0.5%	1.0%	1.3%	0.3%
Kentucky	8%	2.8%	0.3%	0.8%	0.0%	0.9%	0.3%	0.5%

State	Without Disability	With Disability	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
Louisiana	10%	3.7%	0.5%	1.2%	0.0%	0.8%	0.4%	0.7%
Maine	10%	3.0%	0.3%	0.8%	0.0%	0.9%	0.6%	0.4%
Maryland	20%	9.5%	1.2%	2.2%	0.1%	3.0%	1.5%	1.5%
Massachusetts	20%	6.9%	0.7%	2.1%	0.1%	1.4%	1.5%	1.0%
Michigan	11%	3.5%	0.4%	1.0%	0.0%	0.9%	0.6%	0.6%
Minnesota	15%	5.7%	0.6%	2.1%	0.0%	1.0%	1.2%	0.8%
Mississippi	7%	2.4%	0.2%	0.7%	0.0%	0.5%	0.6%	0.3%
Missouri	10%	3.5%	0.5%	1.0%	0.0%	1.0%	0.4%	0.4%
Montana	9%	5.7%	0.9%	2.0%	0.2%	1.2%	1.1%	0.4%
Nebraska	10%	5.6%	0.8%	1.5%	0.2%	1.6%	1.0%	0.5%
Nevada	11%	5.9%	0.7%	2.3%	0.1%	1.5%	0.7%	0.5%
New Hampshire	16%	5.4%	0.8%	1.9%	0.1%	1.6%	0.6%	0.4%
New Jersey	19%	8.3%	1.2%	2.4%	0.1%	2.3%	1.2%	1.2%
New Mexico	10%	3.6%	0.2%	0.8%	0.0%	0.9%	0.4%	1.2%
New York	17%	6.2%	1.1%	1.4%	0.1%	1.6%	0.8%	1.1%
North Carolina	10%	3.9%	0.4%	1.2%	0.0%	1.0%	0.6%	0.7%
North Dakota	11%	7.9%	0.2%	4.7%	0.2%	1.7%	0.1%	0.8%
Ohio	11%	3.4%	0.4%	1.0%	0.1%	0.8%	0.7%	0.4%
Oklahoma	9%	4.7%	0.3%	1.7%	0.0%	0.9%	0.7%	1.1%

State	Without Disability	With Disability	Vision Difficulty	Hearing Difficulty	Self-Care Difficulty	Ambulatory Difficulty	Cognitive Difficulty	Independent Living Difficulty
Oregon	12%	4.1%	0.5%	1.2%	0.1%	0.8%	0.7%	0.8%
Pennsylvania	12%	4.3%	0.6%	1.2%	0.1%	1.0%	0.7%	0.8%
Rhode Island	14%	5.3%	0.3%	0.8%	0.0%	0.7%	2.5%	1.1%
South Carolina	9%	3.5%	0.2%	1.1%	0.2%	0.9%	0.5%	0.5%
South Dakota	9%	4.7%	0.1%	2.3%	0.0%	1.1%	0.7%	0.6%
Tennessee	9%	3.2%	0.5%	0.8%	0.0%	0.9%	0.5%	0.5%
Texas	12%	5.4%	0.7%	1.8%	0.0%	1.4%	0.8%	0.6%
Utah	10%	4.2%	0.4%	1.9%	0.0%	0.9%	0.6%	0.5%
Vermont	11%	3.9%	0.2%	1.1%	0.1%	1.1%	0.5%	0.8%
Virginia	18%	6.1%	0.7%	2.0%	0.0%	1.6%	1.1%	0.7%
Washington	16%	6.8%	0.4%	2.2%	0.1%	1.6%	1.4%	1.2%
West Virginia	8%	2.7%	0.2%	1.5%	0.0%	0.7%	0.1%	0.2%
Wisconsin	11%	4.1%	0.5%	1.3%	0.0%	0.6%	0.9%	0.9%
Wyoming	12%	8.6%	0.0%	2.9%	0.0%	0.9%	2.0%	2.7%
U.S. Total	12.4%	5.2%	0.6%	1.7%	0.1%	1.2%	0.8%	0.8%

Appendix C. Disposable and Discretionary Incomes for African-American and Hispanic Market Segments

	African American	Hispanic
Mean income before taxes	\$24,732	\$23,757
Mean income after taxes (disposable income)	\$20,974	\$20,225
Disposable income aggregate (billion)	\$501	\$582
Individuals With Discretionary Income		
Proportion with discretionary income	8.65%	6.27%
Mean income before taxes	\$96,963	\$107,842
Mean income after taxes (disposable income)	\$71,467	\$78,486
Discretionary income	\$1,923	\$8,942
Discretionary income aggregate (billion)	\$3	\$16



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