Digital Divide Within the SCAG Region

Depiction of the Existing Digital Access Within Six Counties of the Region and Across Selected Demographic Indicators in Each Zip Code

January 2022

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Acknowledgments

I would like to express my sincere gratitude to Dr. Bill Simmons from Broadband Consortium of the Pacific Coast (BCPC), and Mr. Bruce Stenslie, President and Chief Executive Officer of the Economic Development Collaborative (EDC), for giving us the opportunity to conduct this study. I am grateful for the trust of the Southern California Association of Governments (SCAG) for authorizing this research.

I would like to acknowledge the vital contribution of Mr. Ruslan Korchagin, MBA, MSIT, in gathering the information for the preparation of this report. I am grateful for the contribution of Mr. Adam Erickson, M.Ed., M.A. in editing the manuscript of this study.

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Introduction:

The Southern California Association of Governments (SCAG) has a population of more than 19 million in its six counties: Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. Nearly half of the state's population is concentrated in the SCAG region. Tremendous growth is projected for the region over the next 25 years, when the population will also be expected to increase from over 19 million to over 24 million.[1] However, now more than ever, Southern California collectively faces challenges of unprecedented proportions.

Technological changes over the last two decades brought fundamental development and growth in the viability of phone and other mobile devices that can be used in various parts of the globe, and enable people from different parts of the world to have access to information and other key digital activities. These activities, over a relatively short period of time, expanded and included remote working, healthcare, education, and resulted in the growth of business sectors, such as e-commerce.[2]

The COVID-19 crisis has thrown into sharp focus the importance of digital connectivity in daily life. As many countries underwent lockdown periods, digital infrastructure was critical to mitigate the impact of stay-at-home restrictions. Connectivity players have contributed by taking short-term actions to ensure continued access during the crisis.

There are a number of reasons for the existing gaps in connectivity and access to digital services. A segment of such gaps goes back to the prevailing support for investing in projects strengthening the existing network. The other, even more important, segment of the gaps is due to the inability to purchase devices or to pay for the services through a fast and reliable Internet connection. The importance of digital exclusivity drew considerable attention from the United Nations and other international organizations and entities.

According to the study conducted by the World Economic Forum and Boston Consulting Group (2020), the post-COVID-19 "new normal" will likely include looking for viable ways that can result in increased speeds, better access to devices, and budgets to enable households and businesses to be able to afford having access to such services with the needed quality. As such, connectivity must become the top priority, and stakeholders must aim for United Nations targets: by 2025, broadband Internet user penetration should reach 75% worldwide, and by 2025, broadband should cost no more than 2% of earnings. Such a reduction in the cost of access requires a significant level of investment, which certainly has to take place in the United States.

The UN Secretary-General's Roadmap for Digital Cooperation is very important to include in any plan of action.[3] To achieve the goals of the roadmap, stakeholders should aim to drive the adoption of high-speed Internet beyond coverage targets, and take a "tech agnostic" approach,

[1] For more information see SCAG https://scag.ca.gov/
[2] For more information, see World Economic Forum in Collaboration with Boston Consulting Group (2020), Accelerating Digital Inclusion in the New Normal.
[3] For more information see United Nations (2020), United Nation's Secretary Generals' Roadmap for Digital Cooperation https://www.un.org/en/content/digital-cooperation-roadmap/

where traditional business cases are insufficient – this incorporates terrestrial and non-terrestrial infrastructure options for providing access to high-quality fixed broadband, wireless and satellite networks.[4]

The California Public Utility Commission's (CPUC) regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies, in addition to authorizing video franchises. Their five commissioners are appointed by California's governor and the organization ensures that consumers have safe, reliable utility service at reasonable rates, are protected against fraud, and are able to promote the health of California's economy.

This study takes a thorough review of access and affordability of digital services by household and individuals as a whole and across a selected number of demographic characteristics. In reaching such objectives, we have used and processed the available information and presented the data in two different ways:

- First, the proportion of households which do not have an Internet connection and/or computer. This is a measure of an absolute lack of access to digital services. However, we need to remember that having access does not mean that all households can afford it. When a service or good is not affordable, two possible economic consequences will follow it: firstly, they are using less than a sufficient level of service by opting for an inadequate level of access; secondly, they may be bearing the expenses and cutting back on their other necessities for a basic level of consumption. Either of the two possible developments is detrimental to the wellbeing of the household.

- Second, since affordability strongly correlates with the demographic characteristics of a population, we went further and presented access data based on selected demographic characteristics.

This study includes every zip code in which residents of the six counties of the SCAG region reside. In general, a zip code can consist of population centers or just P.O. boxes. There is nothing to be investigated in zip codes which identify a P.O. box. There are also zip codes with a relatively small total population. Very small populations have their own statistical problems which may impact the outcomes in some respects. The problem with small population zip codes is a high proportion of demographic groups when we cross-tabulate them across a number of population characteristics. There is also a large margin of error, which makes reporting any findings rather inaccurate and problematic.

In brief, information within this study is presented in two sections.

The first section of each county's information presents the following:

- Lack or computer and internet connection in households across the geographic location for the latest period of the last five years.

[4] Ibid.

- The percentage of households that cannot afford to have access will be estimated based on the annual household income and average yearly digital spending.
- The estimates will be presented as data tables and graphs.

The second section covers the following data.

- Lack of computer and internet connection for individuals in general data and across the following demographic characteristics.
    - Race
    - Ethnicity
    - Age, particularly children under 18 years of age)

In order to complete both sections of this study and carry them out with regard to each county of the region, we need to first look at the availability of devices and connections. They represent an essential need in our new living and working environment. However, we also need to go further and look into the population in each zip code based on their ability to afford the expenses, which consists of acquiring the device, and subscribing to the service needed.

In order to be able to estimate the affordability, we need to calculate a reasonable proportion of household expenses for buying the necessary equipment and having a connection to broadband Internet with reasonable efficiency. For the purpose of reaching such a level of expenditures, we use several sources of information. We first took the latest available information on the average American's spending on utilities in order to find how much on average is spent on Internet and electricity as a proportion of their total utility spending. This can be seen in the following charts and tables.

Table 1: *US Average Cost of Utilities per Month*

Source: Move.org, 2021

Taking this information, we established the following proportional spending on utilities, on average.

Breakdown of Basic Necessities of American Households (excluding Cable TV)

Electricity	$110.76	34%
Natural gas	$72.1	22%
Water	$70.4	22%
Internet	$60	18%
Trash/Recycling	$14	4%
Total	$327.26	100%

Table 2: *Breakdown of Basic Necessities of American Household (excluding Cable TV)*

We then used the latest available information for the average American's spending from Howmuch.net.[5] This can be seen below (the graph is copied and reported from its source). The cost of Internet alone is about 18% of the basic necessities of American households. Using computers and cell phones and taking a moderate proportion of the cost of electricity towards the equipment, and 50% of household equipment as a computer and cell phone, or other electronic devices, we arrived at the following estimated average annual expenditure for an average American household:

	Costs	Percentages	Costs after adjustment
Utility bill	$ 4,049.00	27%	$ 1,093.23
Household Equipment	$ 2,025.00	50%	$ 1,012.50
			$ 2,105.73

Source: Move.org and author's calculation

Table 3: *Estimated Average Expenditure for an Average American Household*

Source: Author's Calculation

This shows that, for an average American household, the cost of paying for Internet and equipment annually will amount to just over $2,100. This is based on the quantity of just about 3.5% of household income (disposable income). There are, however, other estimations based on the study conducted by the Boston Consulting Group for the World Economic Forum in 2020, which estimates the cost is considerably higher for developed countries and middle-income countries. In order to be mindful of other estimations and bearing in mind that the cost of access to the Internet is not set as a proportion of household income, we used the following several means of estimating the cost as a proportion of household income for our own study. The details can be seen in the respective table.

[5] For more information see: https://howmuch.net/articles/breakdown-average-american-spending

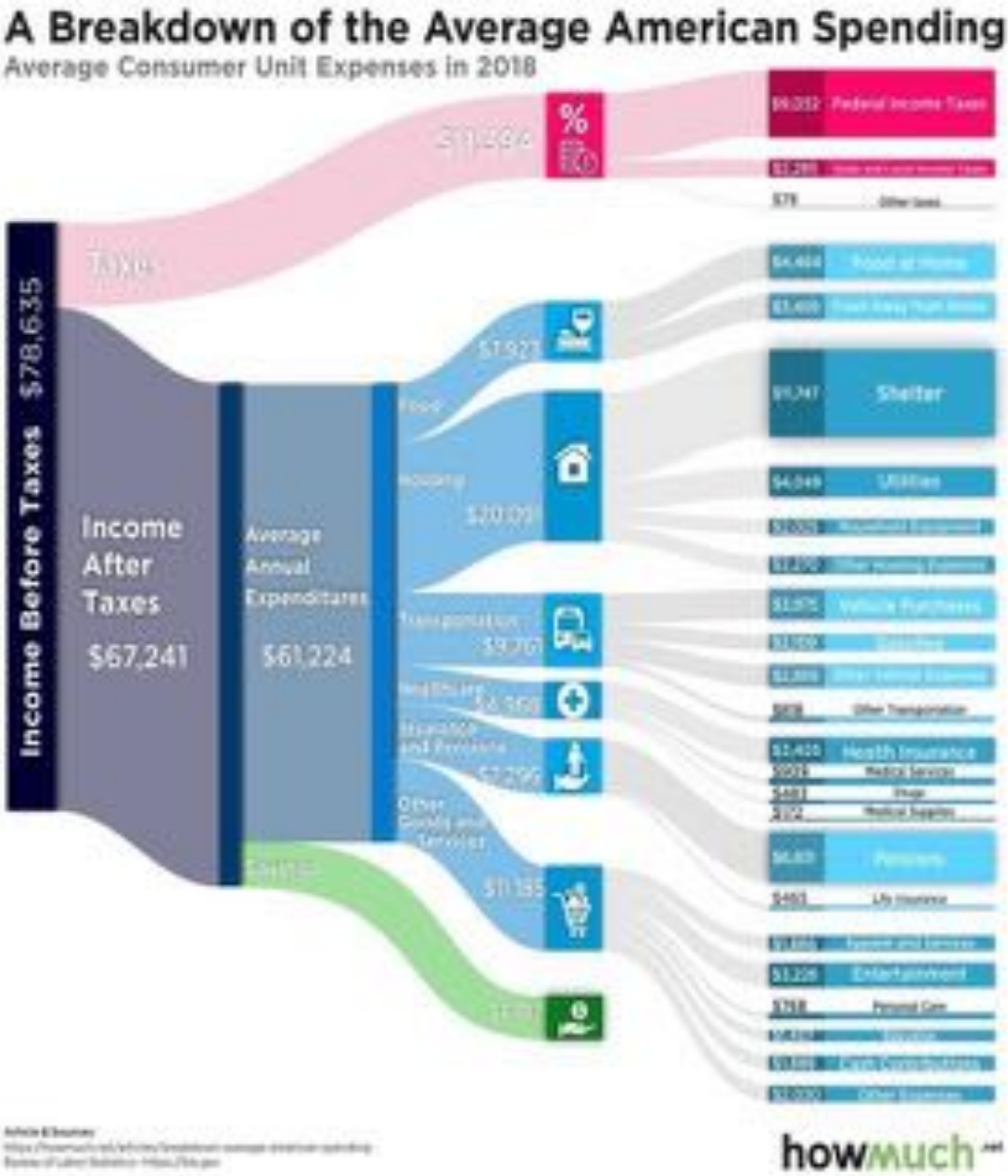

Table 4: *Breakdown of the Average American Spending*

	Digital Expenditures (based on calculation)	Assuming $4,000 as Digital Expenditures (Based on Study)	**Assuming $3,052 as Digital Expenditures (As an average of two previous categories)**
Digital Expenses	$ 2,105.00	$ 4,000.00	$ 3,052.00
Average Annual Expenditures	$ 61,224.00	$ 61,224.00	$ 61,224.00
Percentage	3.4%	7%	5%

Table 5: *Two Scenarios of Monthly Digital Expenditures*

Source: Author's Calculation

The above table shows that if we use Boston Consulting Group's estimate for developed countries, we end up with a percentage of 7% for an average American's annual spending on Internet service. This suggests that the ratio will be higher for the lower-than-average American income earners, and lower for the higher income earners. In order to come to a middle ground, we used the spending as calculated for the average and took the mean value of this and the estimates calculated for the 2020 World Economic Forum. This led to a calculation of 5% of a typical household's budget on equipment, electricity, and the cost of broadband Internet. Bearing in mind that the objective of the current discussion is for facilitating access to digital services to be around 2% of a household budget after considerable investment in the future, having a 5% as a rate of affordability is not far from the reality of today. If we take the level of affordability at 2%, we can certainly come to a clear conclusion that our estimates are a clear overestimation of the affordability by more 100%. In other words, the income level of residents of a county must have income levels more than twice their current levels for the estimated cost to be 2% and not 5% of their income. It may be more realistic to say that the percentage of those who cannot afford it in each location is twice as high than what we estimated and included in this study.

The inevitable conclusion from this study is that by investing in broadband Internet and utilizing a more upgraded technology, the U.S. can enjoy a great return on investment by enabling its population to have greater access to digital services. This will be further elaborated in the following part of this report.

We then used this estimate (an expense of around $3,000 for average digital spending) and applied it to various levels of household income and set 5% as the dividing line between affordability and unaffordability in a particular zip code. The outcome can be seen in the respective charts. The emerging picture shows a great level of inability to afford such services among residents across various counties within the SCAG region. The outcomes, as they will be presented within this study, indicate the overall lack of access to the services needed in a large number of areas and among hundreds of households and millions of individuals across the region.

Findings for Each County

As indicated before, SCAG represents six counties, 191 cities and more than 19 million residents. SCAG undertakes a variety of planning and policy initiatives to encourage a more sustainable Southern California. Striving for reduction in the digital divide is among the strongest goals of the organization, targeting a better economy and greater social equity. This section of the report presents the findings of the study for each county. The study covers nine zip codes with various levels of population density.

1. Digital Divide in Imperial County

Imperial County has a population of 179,702, according to the 2020 U.S. Census. Its population grew 3.0% between 2010 and 2020.[6] Some 85% of the county population is Hispanic. The white population is about 10%. The percentage of the population under 18 years of age is 28.5%. Some 18.1% of the population lives under poverty line.

1.1. Households Without Computer and/or Internet Connection

The following two charts present the number and the percentages of families without computer and/or Internet in the county. The raw numbers can be impacted by the size of the population in different parts of the county, and they also in some way reflect the population density in the areas. The percentages show the level of deprivation or isolation when it comes to having access to either a computer or Internet. The percentages vary significantly from the lowest level of 8.2% to 51.8%. In total, nearly 23% of the households within the county suffer from a lack of a computer and/or Internet connection.

[6] For more information see US Census (2020) QuickFacts; https://www.census.gov/quickfacts/fact/table/imperialcountycalifornia/POP010220#POP010220

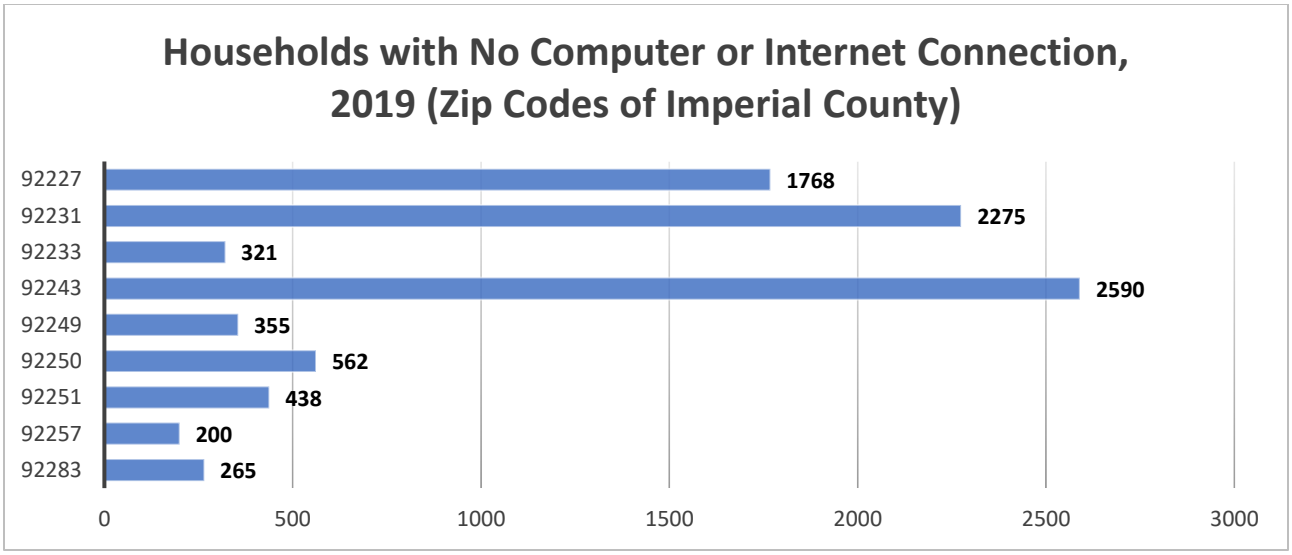

Figure 1: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Imperial County)*

Source: U.S. Census (2019) Source: B28003

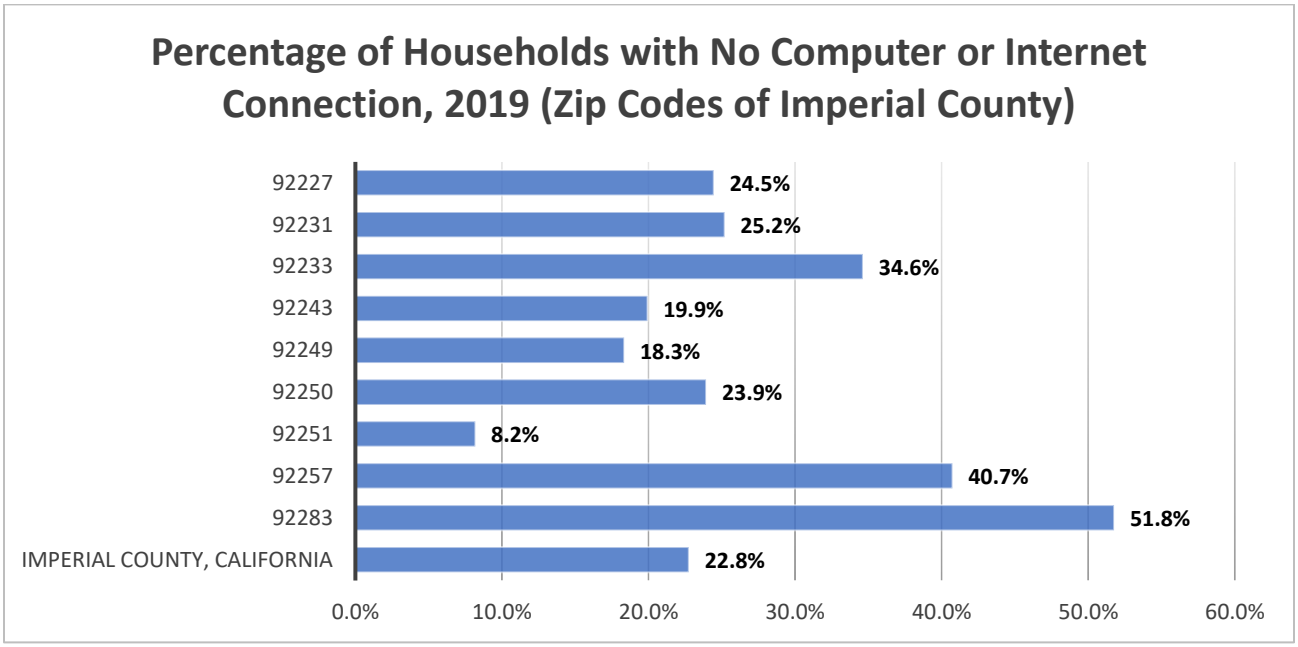

Figure 2: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Imperial County)*

Source: U.S. Census (2019) B28003

1.2. Population Without Computer or Internet Connection Across Race & Ethnicity

Race and ethnicities are unfortunately important bases for observing inequity among different groups of individuals and households. Paying attention to such an important observation will allow better understanding of the existing problems and hopefully lead to determinations of better local and regional policies within a meaningful geographic affirmative and supportive differentiation. The following charts present the prevailing picture with regard to the population without access to the Internet and/or a computer across various races and ethnicities in the county.

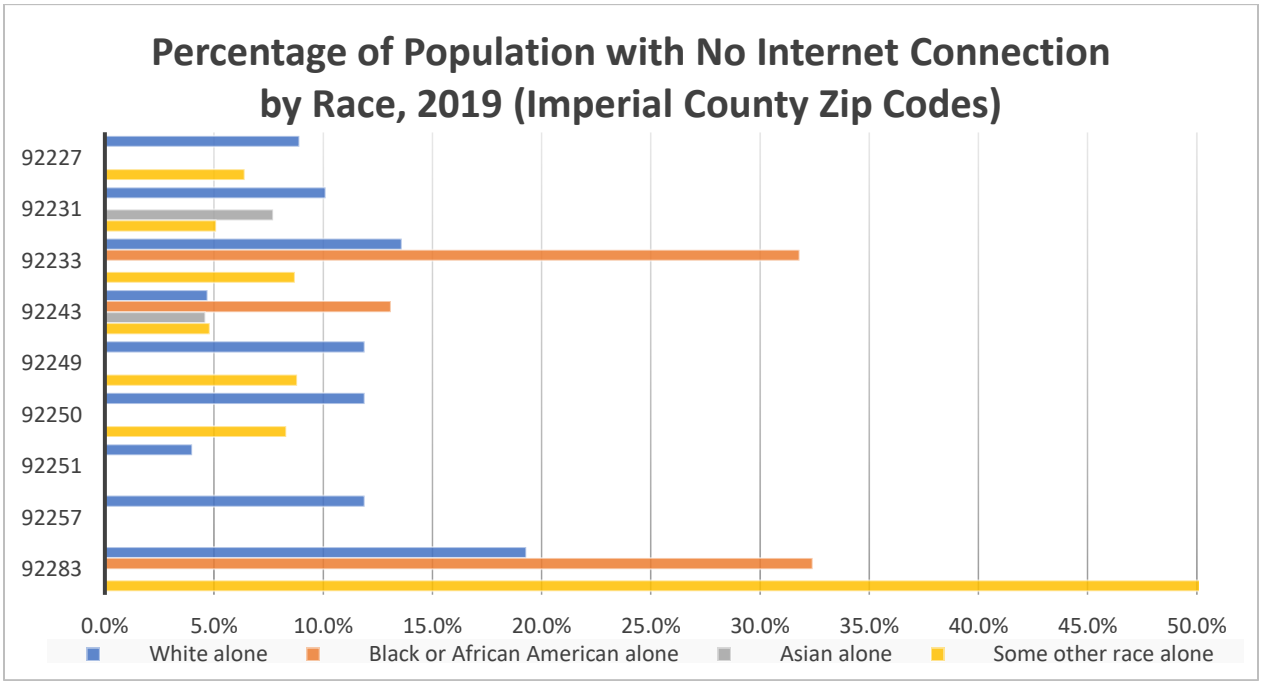

Figure 3: *Percentage of Population with No Internet Connection by Race, 2019 (Imperial County Zip Codes)*

Source: U.S. Census (2019) S2802

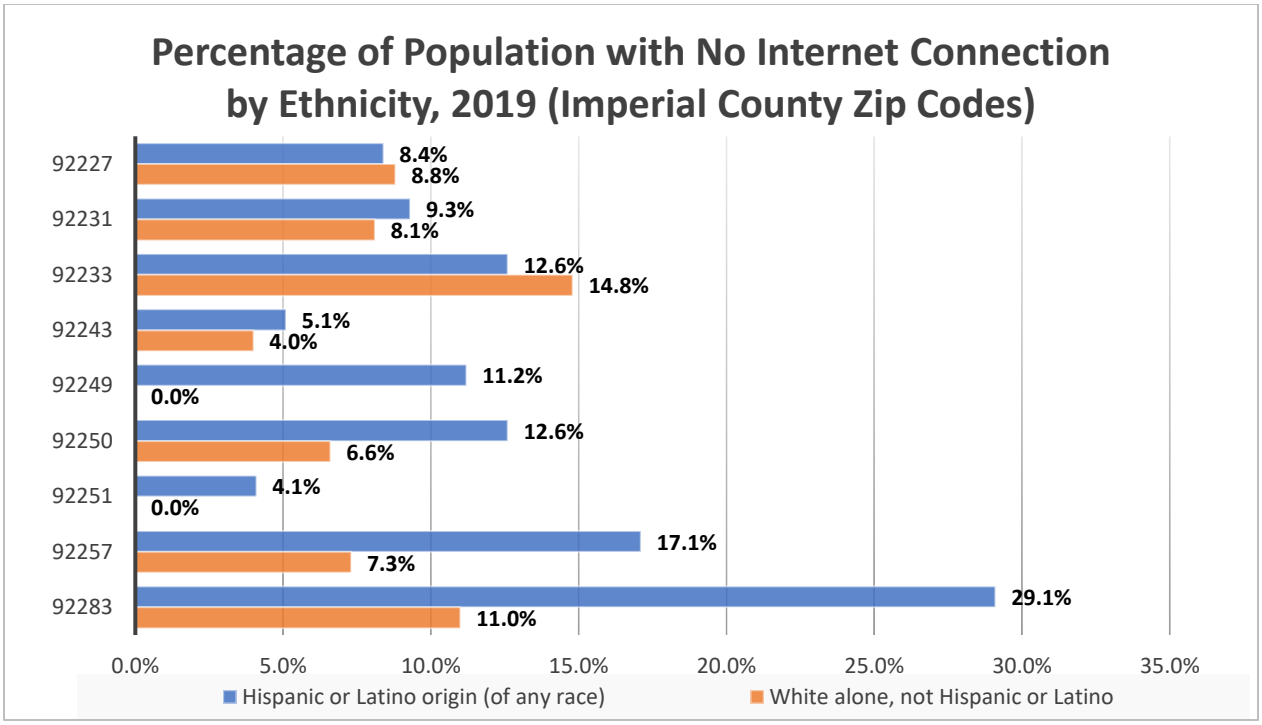

Figure 4: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Imperial County Zip Codes)*

Source: U.S. Census (2019) S2802

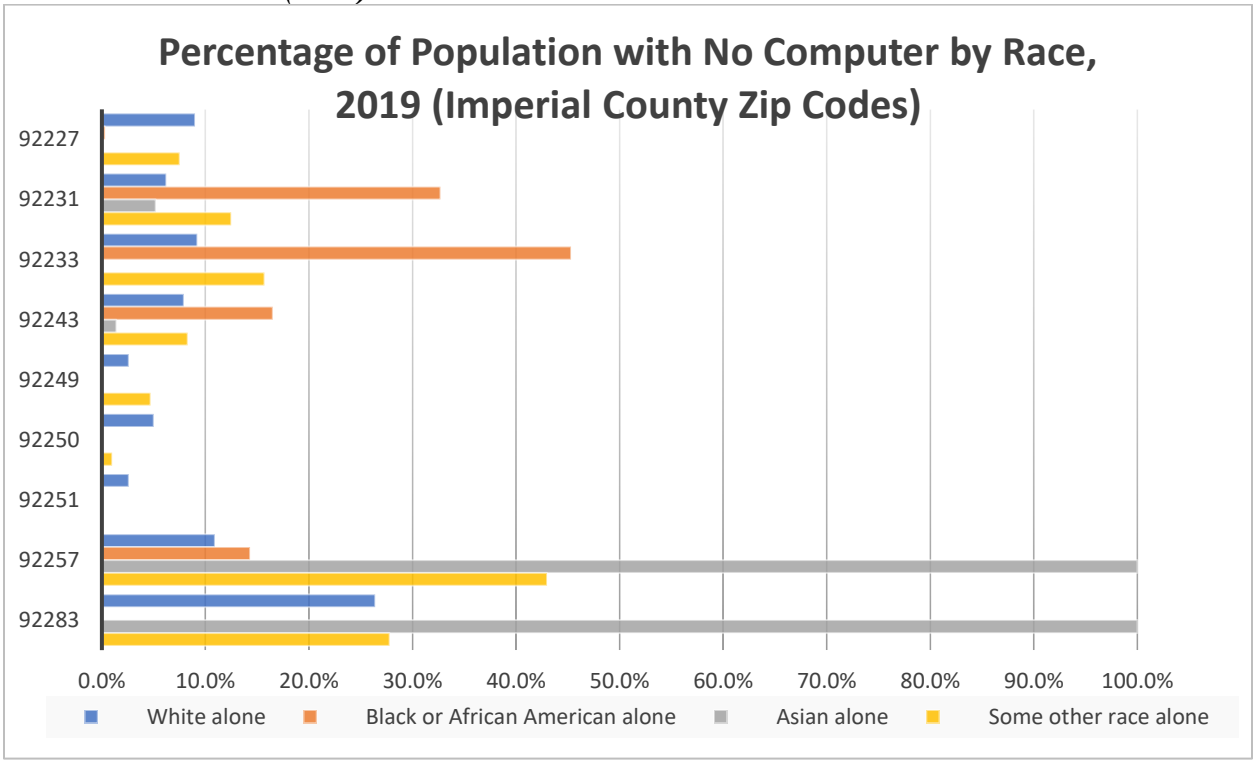

Figure 5: *Percentage of Population with No Computer by Race, 2019 (Imperial County Zip Codes)*

Source: U.S. Census (2019) S2802

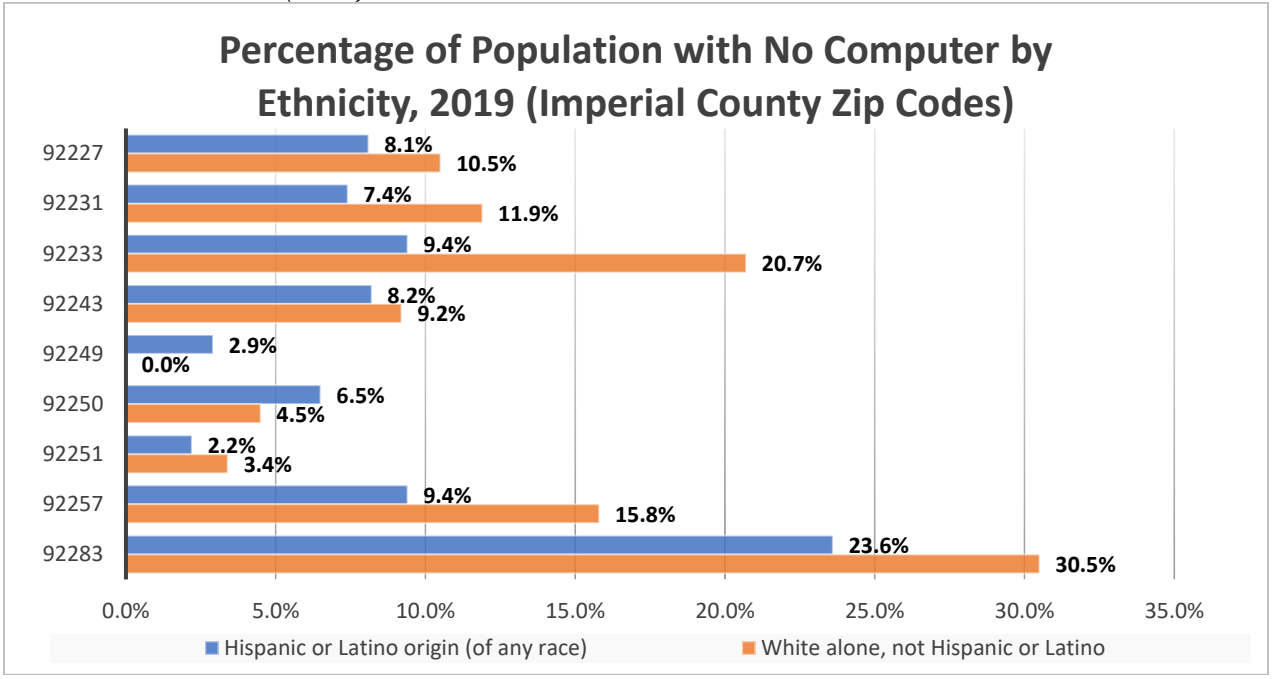

Figure 6: *Percentage of Population with No Computer by Ethnicity, 2019 (Imperial County Zip Codes)*

Source: U.S. Census (2019) S2802

The above charts show some level of disparity among race and ethnicities with regard to having a computer or access to the Internet in Imperial County. However, there is an important observation which may have been impacting the proportions: the impact of small populations in some races or ethnicities. These numbers and percentages also come with a large margin of error.

1.3. Lack of Access to Computer & Internet Connection Among Children Under 18 Years of Age

The digital divide is debilitating for any population group, regardless of their age, race, ethnicity or other determining demographics. The focus on the population under 18 years of age has emerged as a more pressing shortcoming since, for a considerable part of the recent past, the ability to receive educational services has been a function of one's ability to access the needed devices and a high-speed broadband connection in various parts of the region. The following chart brings attention to these prevailing conditions in Imperial County.

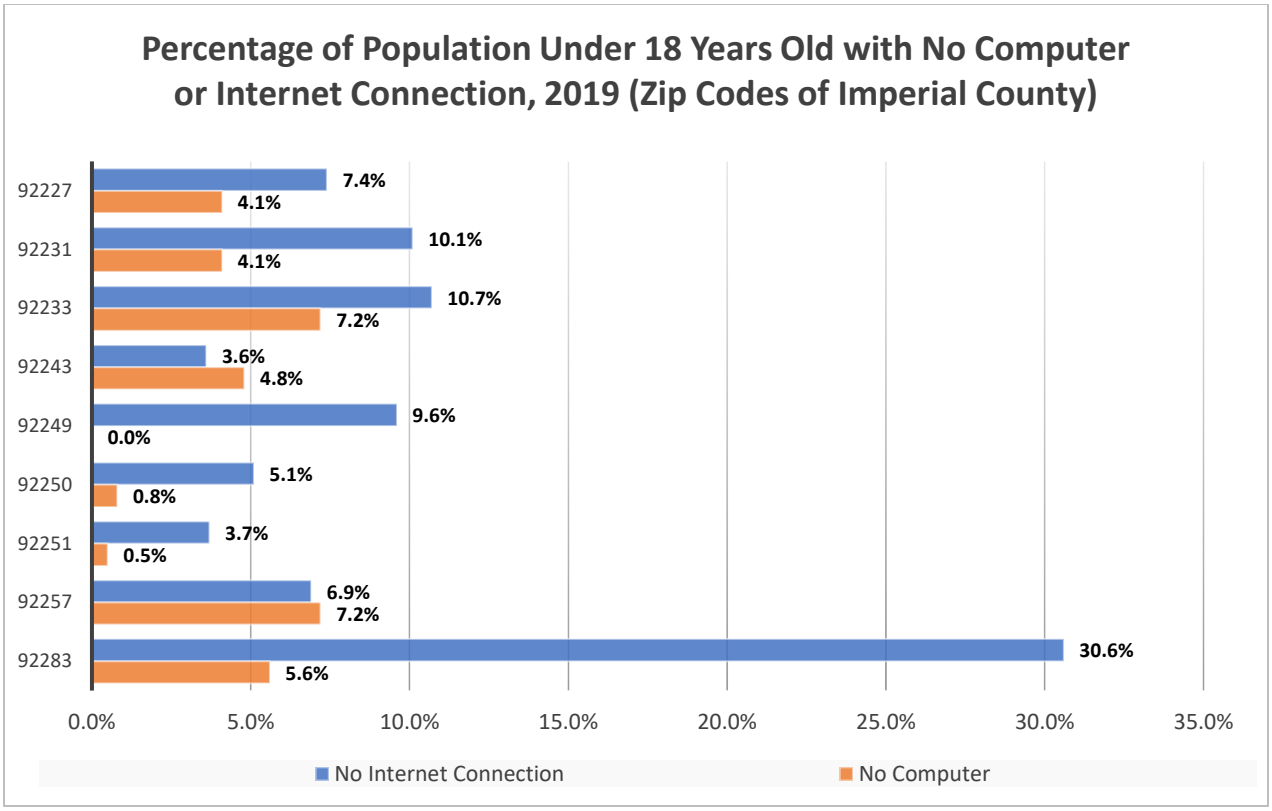

Figure 7: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Imperial County)*

Source: U.S. Census (2019) S2802

The proportion of population under 18 years of age without a computer or an Internet connection is significant in some zip codes. We have known that socioeconomic conditions have an important impact on children's ability to learn. Food, housing, environmental quality, violence in neighborhoods, and many other socioeconomic constraints have traditionally been identified as impediments for children to meet their potential from a young age. The inability to have access to broadband Internet and a standard quality of equipment for a good connection is a new additional element, which deserves urgent attention. Addressing the digital divide is now an important part of creating greater equity in our communities and success for our children in their academic lives.

1.4. Affordability of Access to Necessary Devices and Internet Connection Across Neighborhoods

The following chart shows the rate of affordability for digital expenses based on setting it as 5% of household incomes across the county.

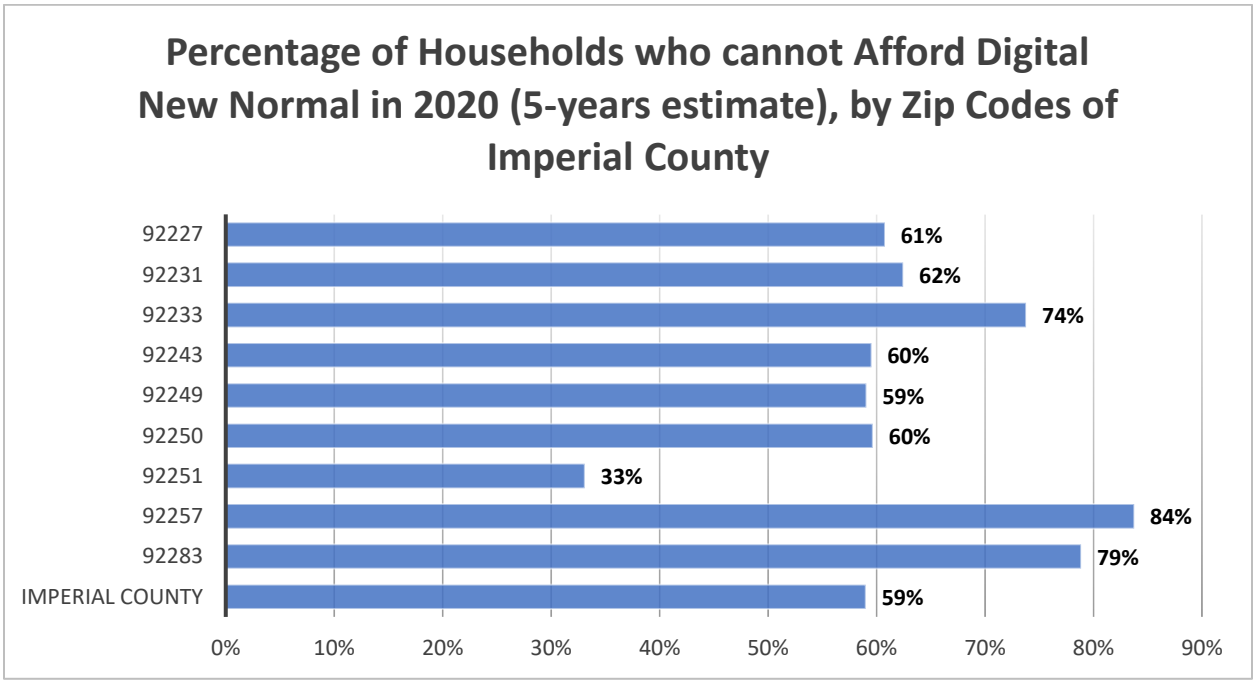

Figure 8: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Imperial County*

Source: U.S. Census S1901 and Author's calculation

The above picture is rather alarming. It shows that in some location around 85% of the households cannot afford to enjoy digital services within the new normal.[7]

2. Digital Divide in Los Angeles County

Los Angeles County is the largest county in the State of California. In April of 2020, Los Angeles County registered a total population of 10,014,009, which represents an increase of 2% since 2010. LA County has a diverse population. 48.6% of LA County's population are Hispanics. The proportion of white alone is around 26.1%. It has a rate of poverty of 13.2%. The proportion of the population under 18 years of age is 21.4%. This study covers some 270 zip codes. Data are presented with six segments each presenting a portion of the information. The

[7]. The "new normal" refers to the social and economic conditions that made having access to digital services among the basic needs of the population. Having access to the Internet and digital service can be compared with having access to electricity in the decades before. In the turn of the 20th century, electrification of population centers was rare. However, by 1920s most cities and towns were covered and had access to electricity, either through private companies, or their own municipalities. Having access to Internet services and being able to enjoy this service is the new normal.

first five segments each present 50 zip codes, and the sixth one contains the remaining 20 zip codes. This is by far the biggest segment of this report.

2.1. Households Without a Computer and/or Internet Connection

The following charts present the number and proportion of households without a computer and/or Internet.

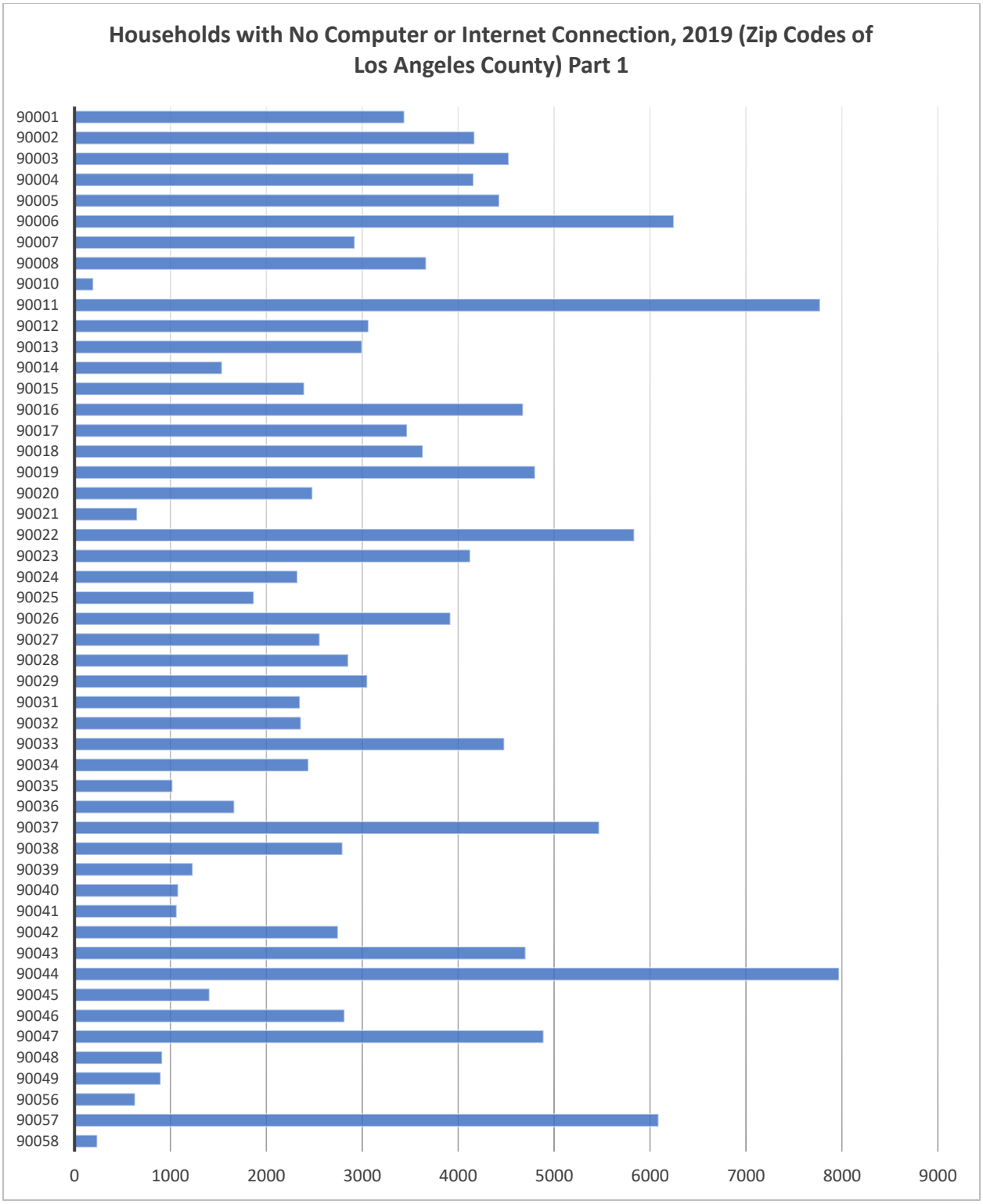

Figure 9: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 1*

Source: U.S. Census (2019), B28003

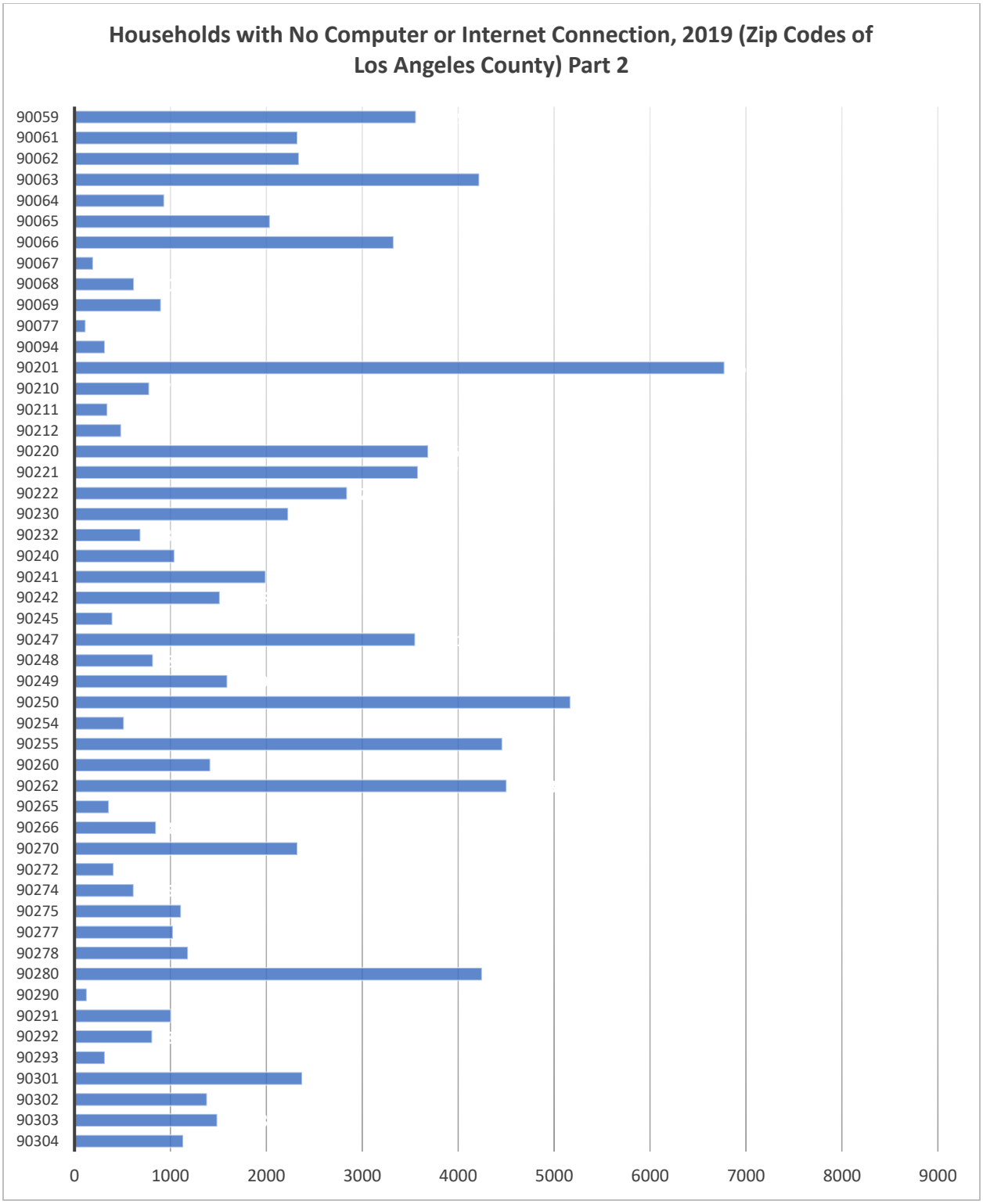

Figure 10: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 2*

Source: U.S. Census (2019), B28003

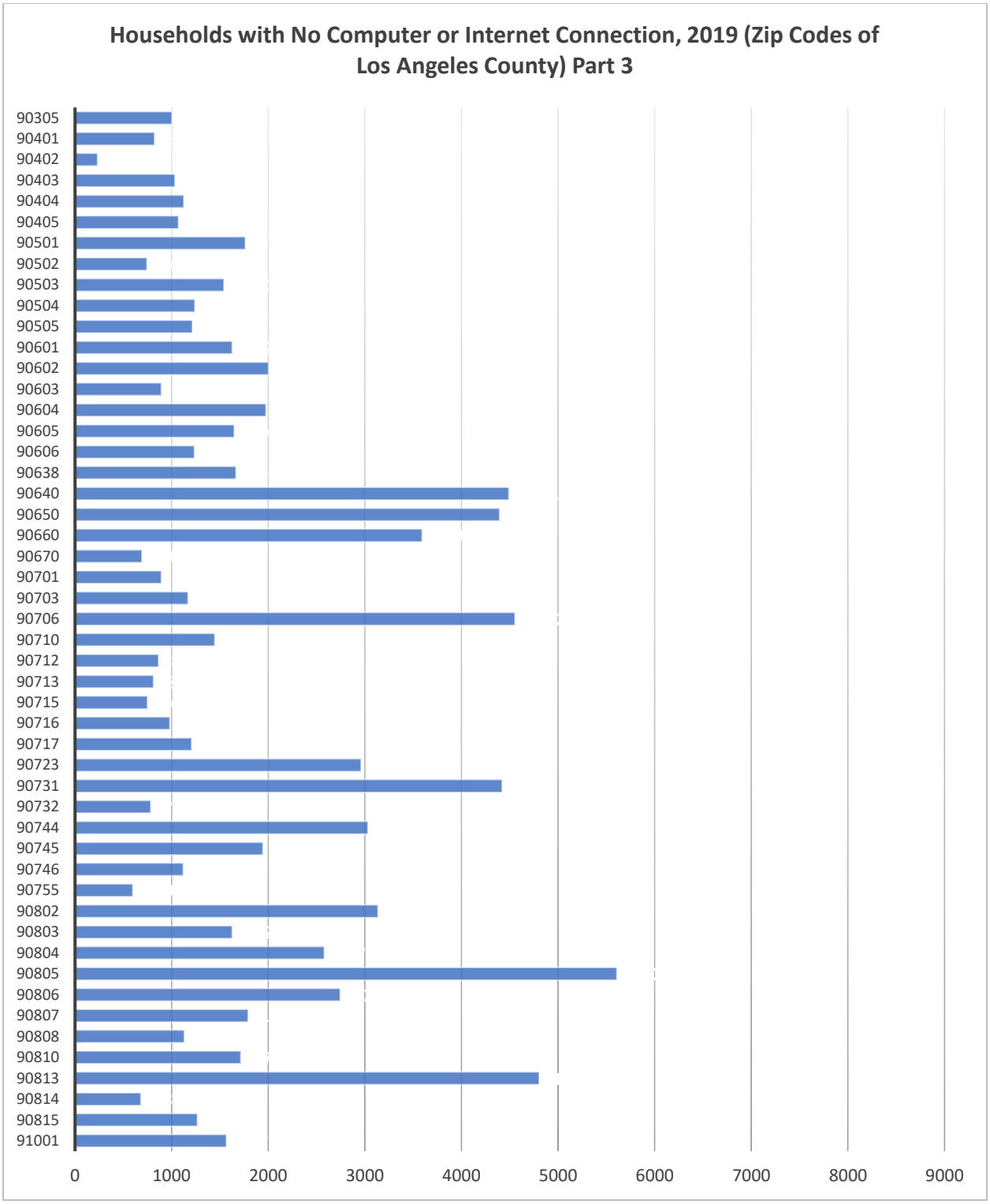

Figure 11: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 3*

Source: U.S. Census (2019), B28003

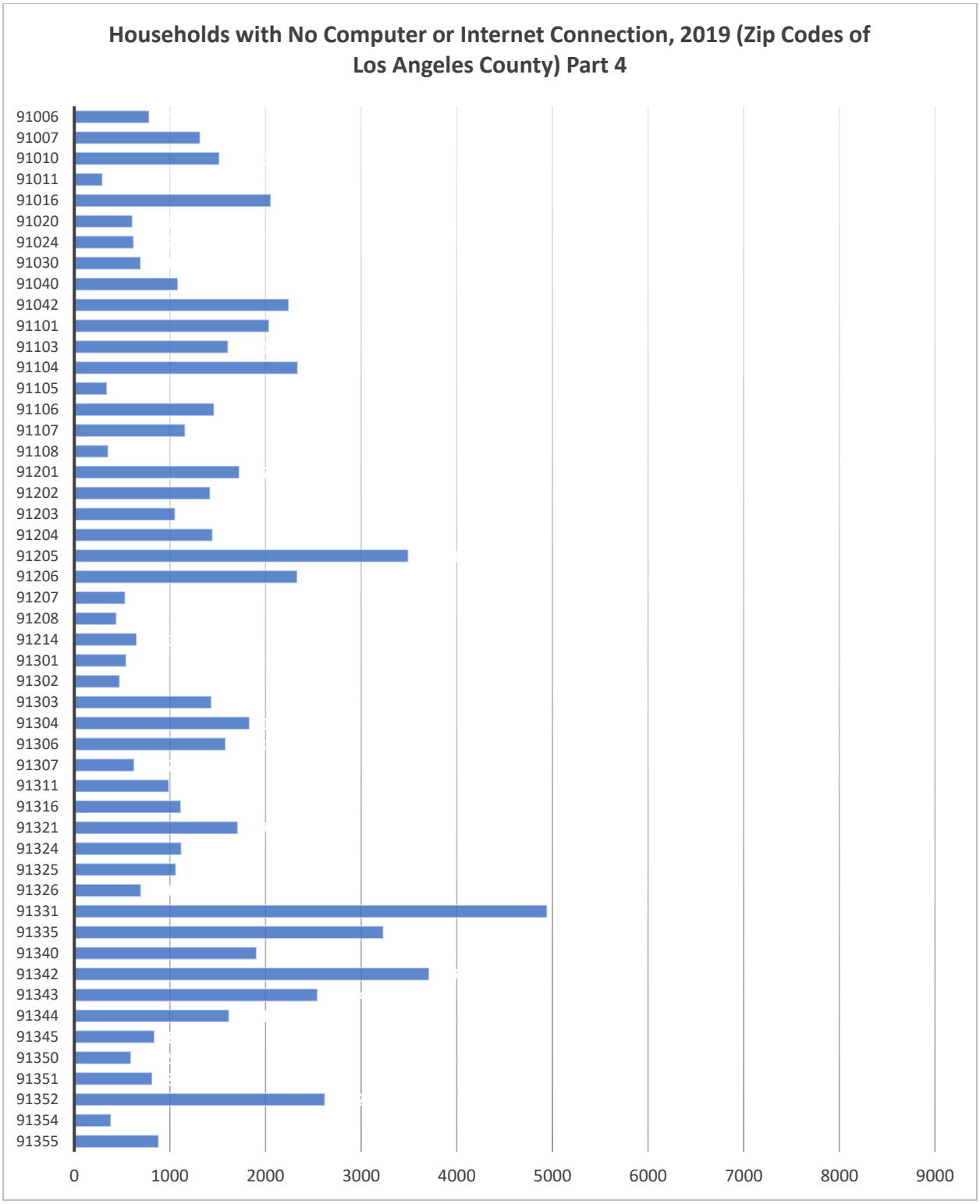

Figure 12: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 4*

Source: U.S. Census (2019), B28003

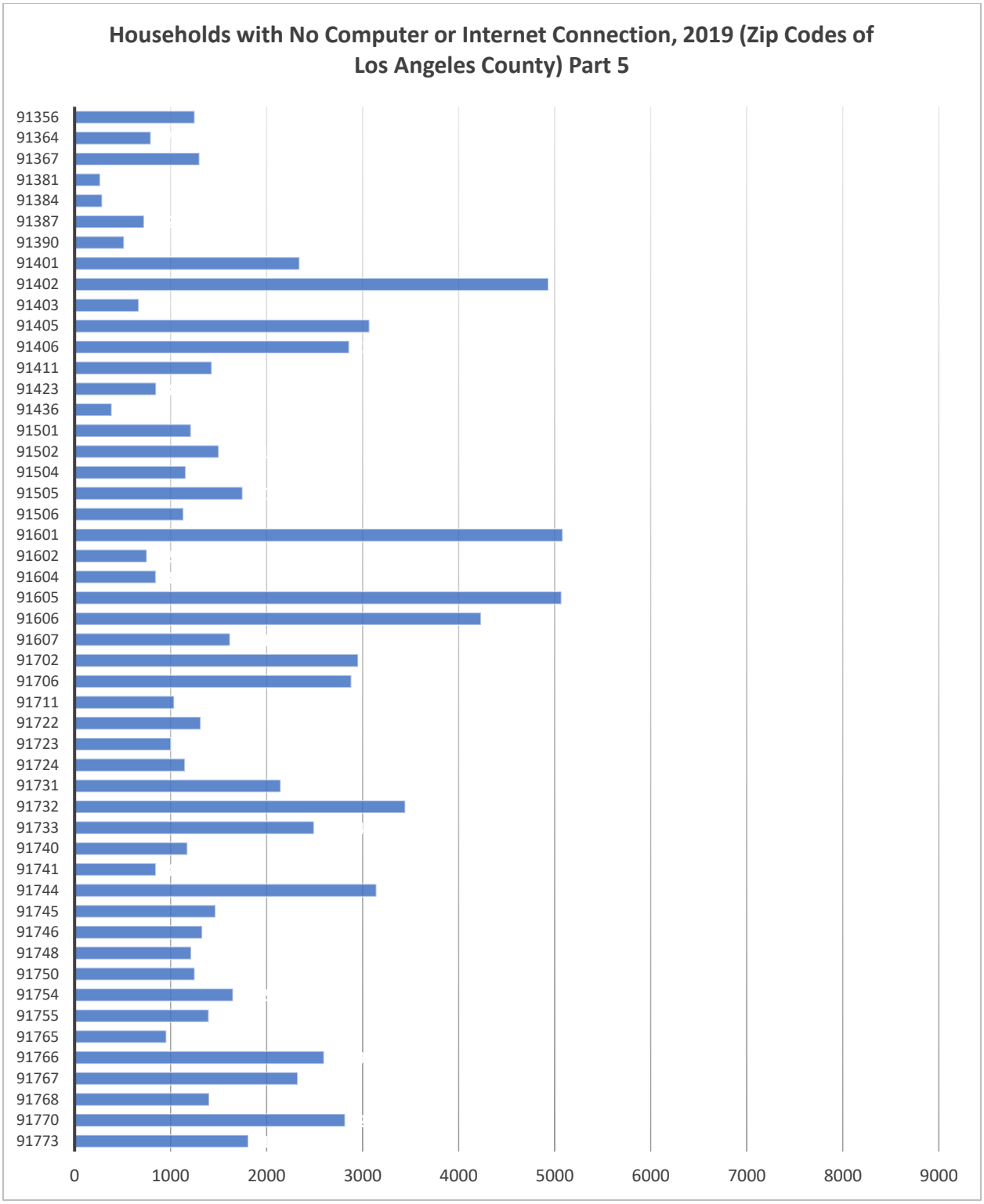

Figure 13: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 5*

Source: U.S. Census (2019), B28003

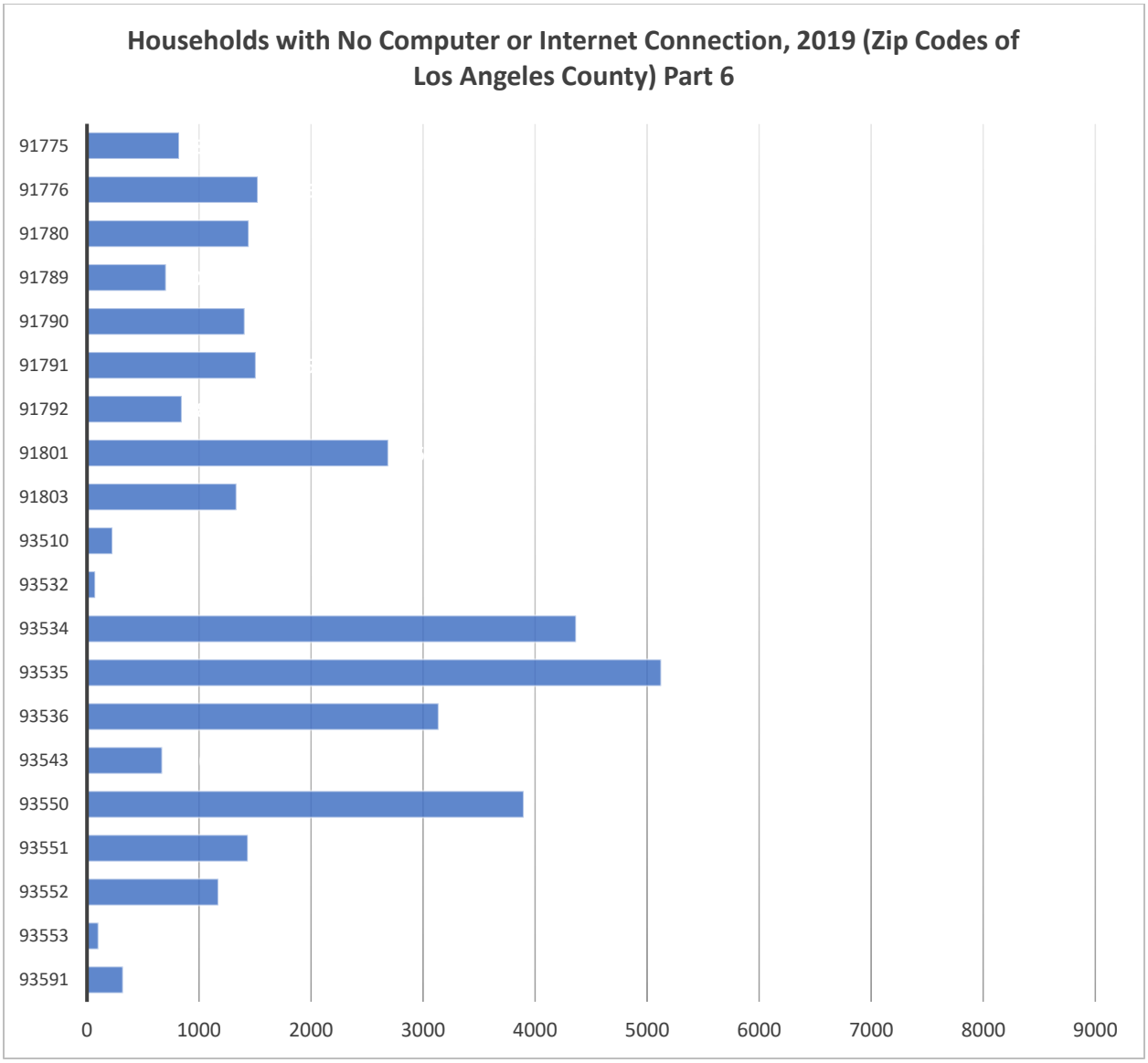

Figure 14: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 6*

Source: U.S. Census (2019), B28003

The above charts present the number of households who do not have computers or reliable Internet connections. The numbers reflect a combination of a lack of digital devices and connections and the size of households in each zip code. The following charts provide a percentage of the lack of access to such services and facilities per zip codes, which reflect the degree of the digital divide in each zip code.

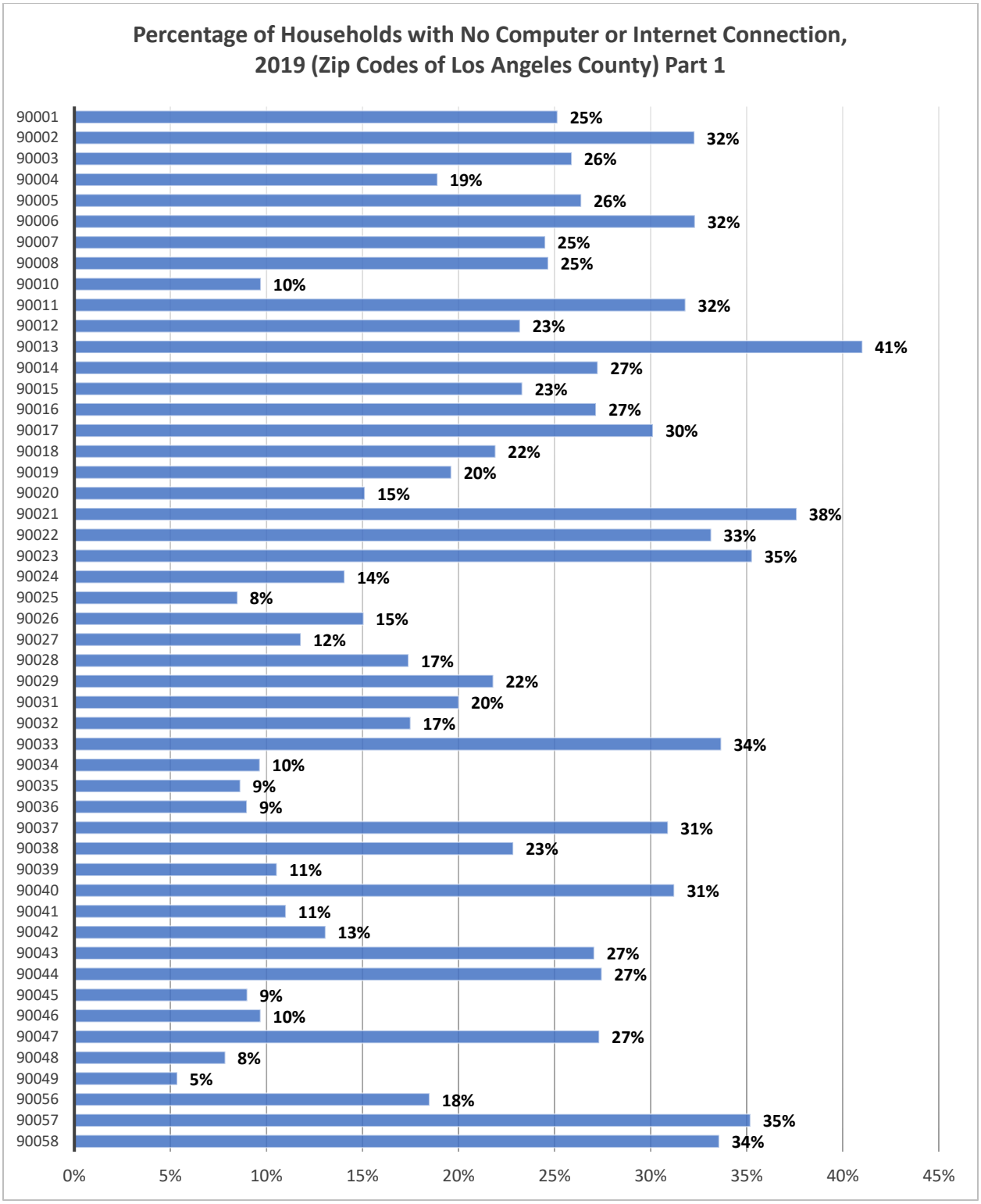

Figure 15: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 1*

Source: U.S. Census (2019), B28003

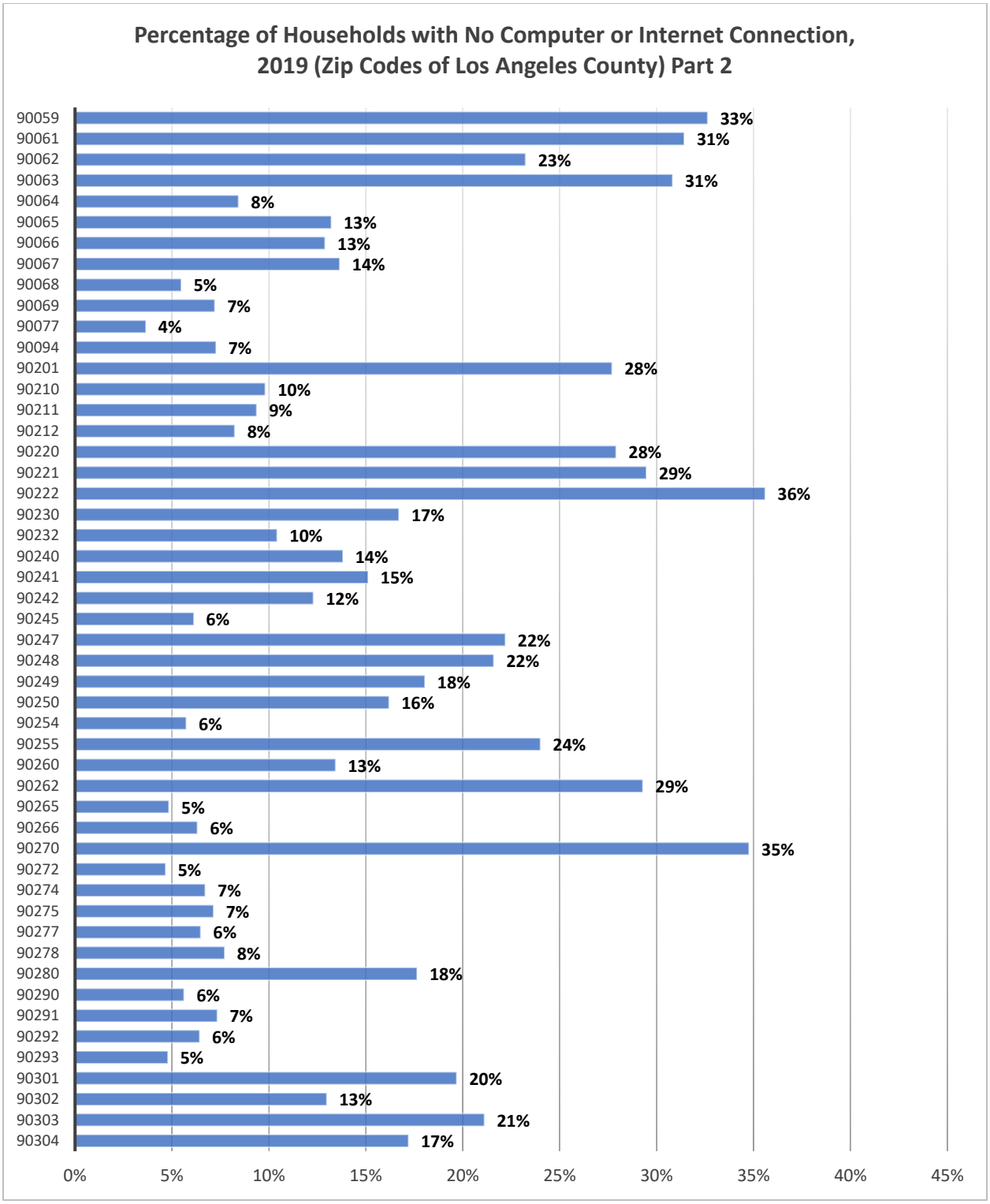

Figure 16: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 2*

Source: U.S. Census (2019), B28003

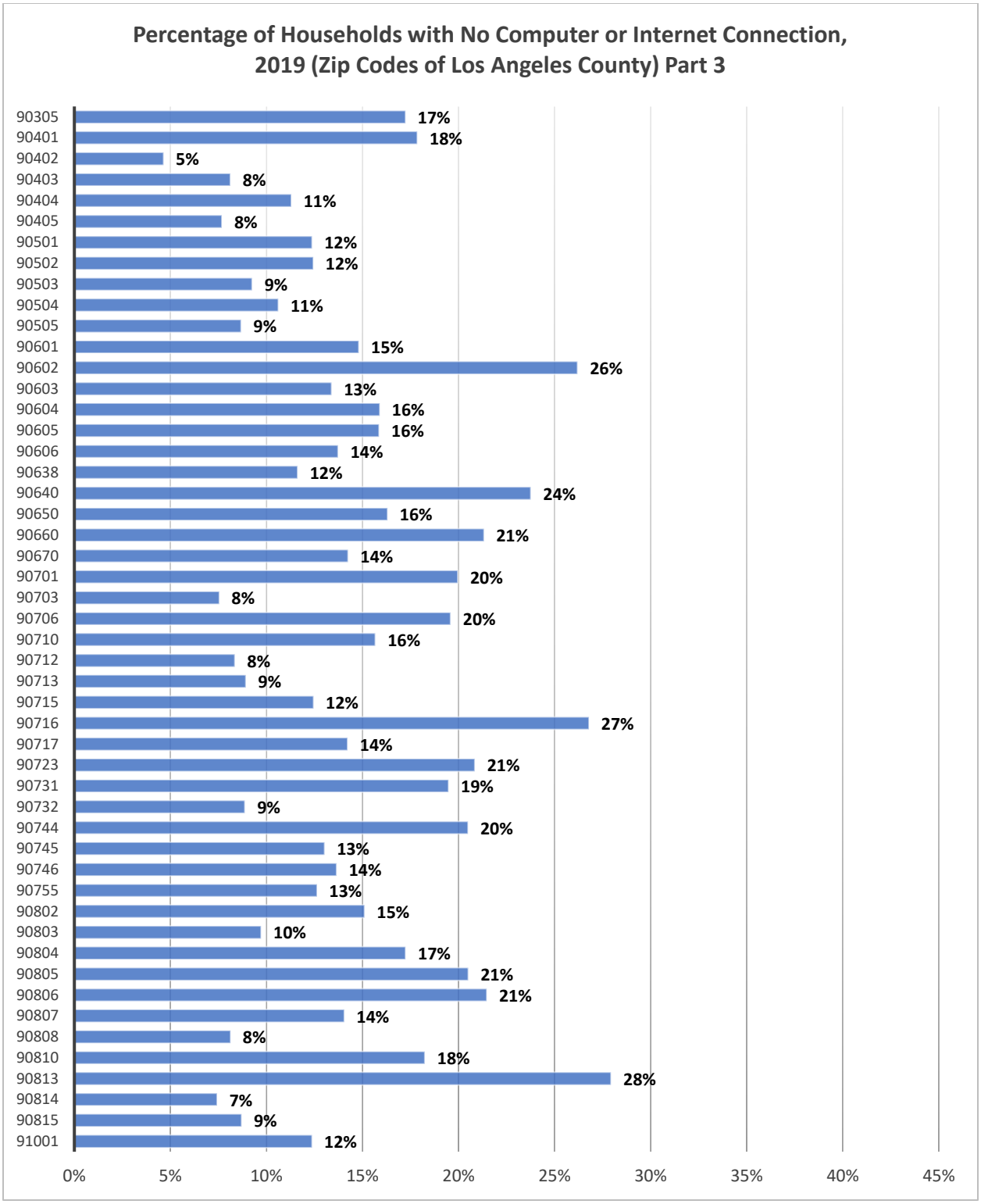

Figure 17: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 3*

Source: U.S. Census (2019), B28003

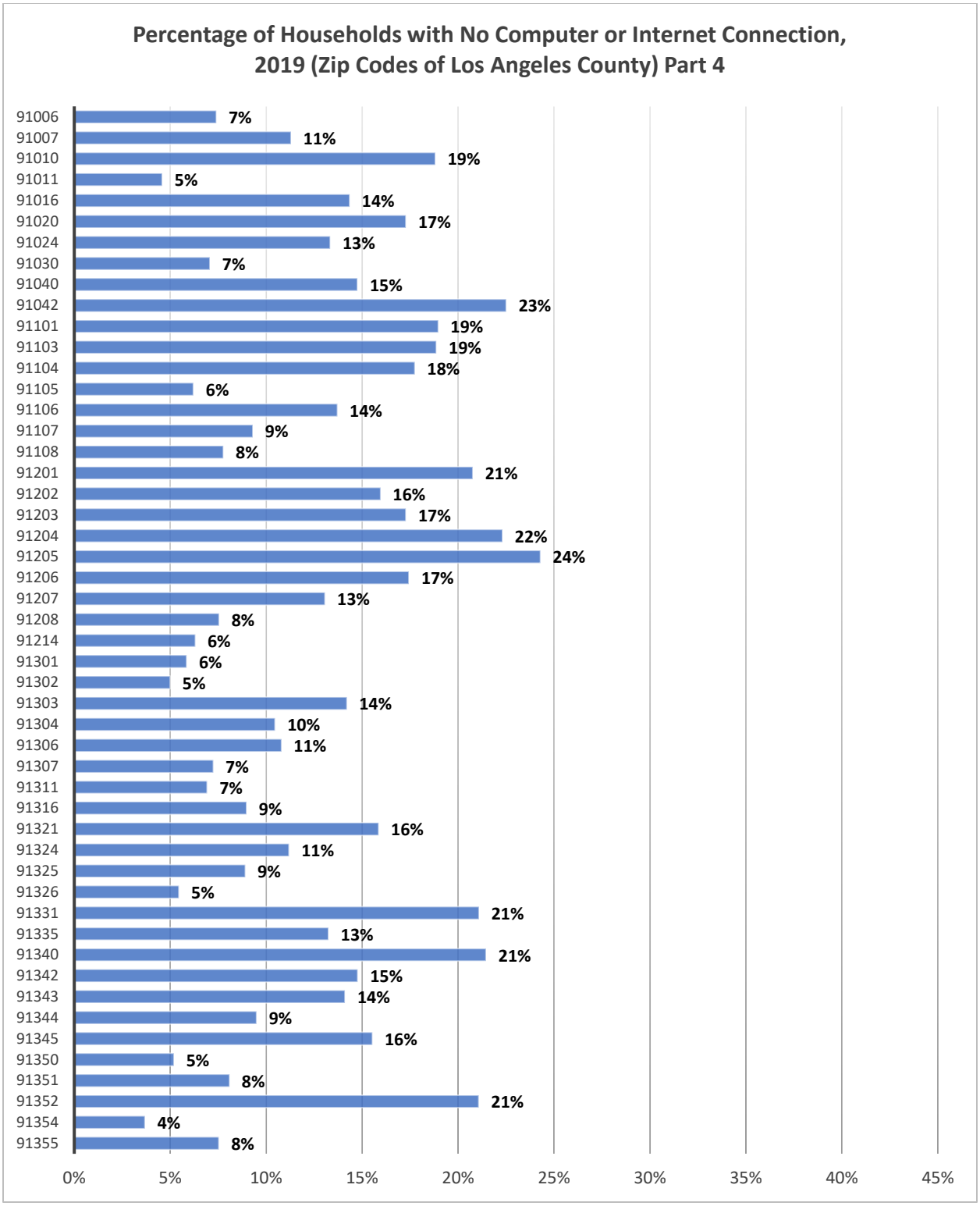

Figure 18: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 4*

Source: U.S. Census (2019), B28003

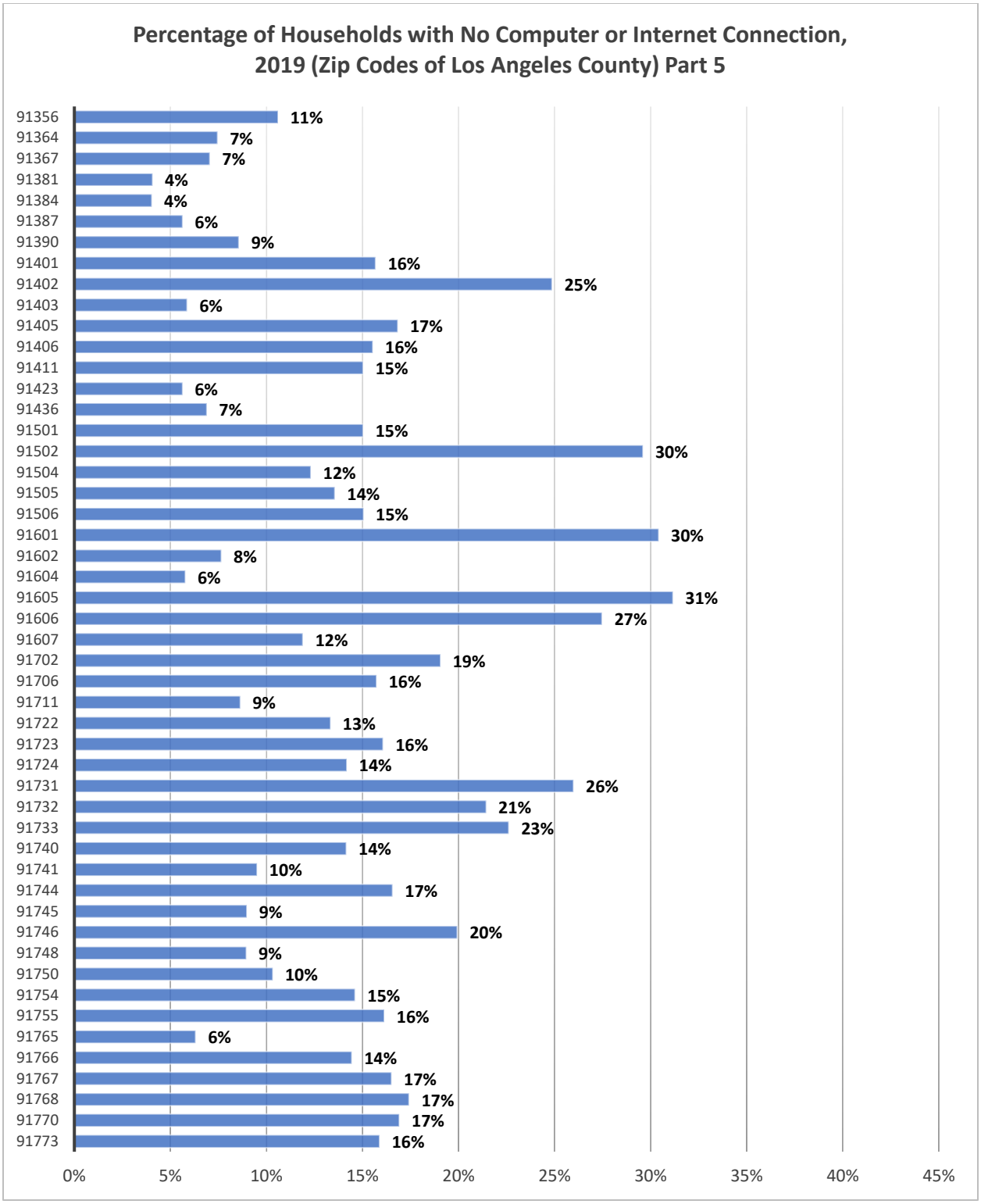

Figure 19: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 5*

Source: U.S. Census (2019), B28003

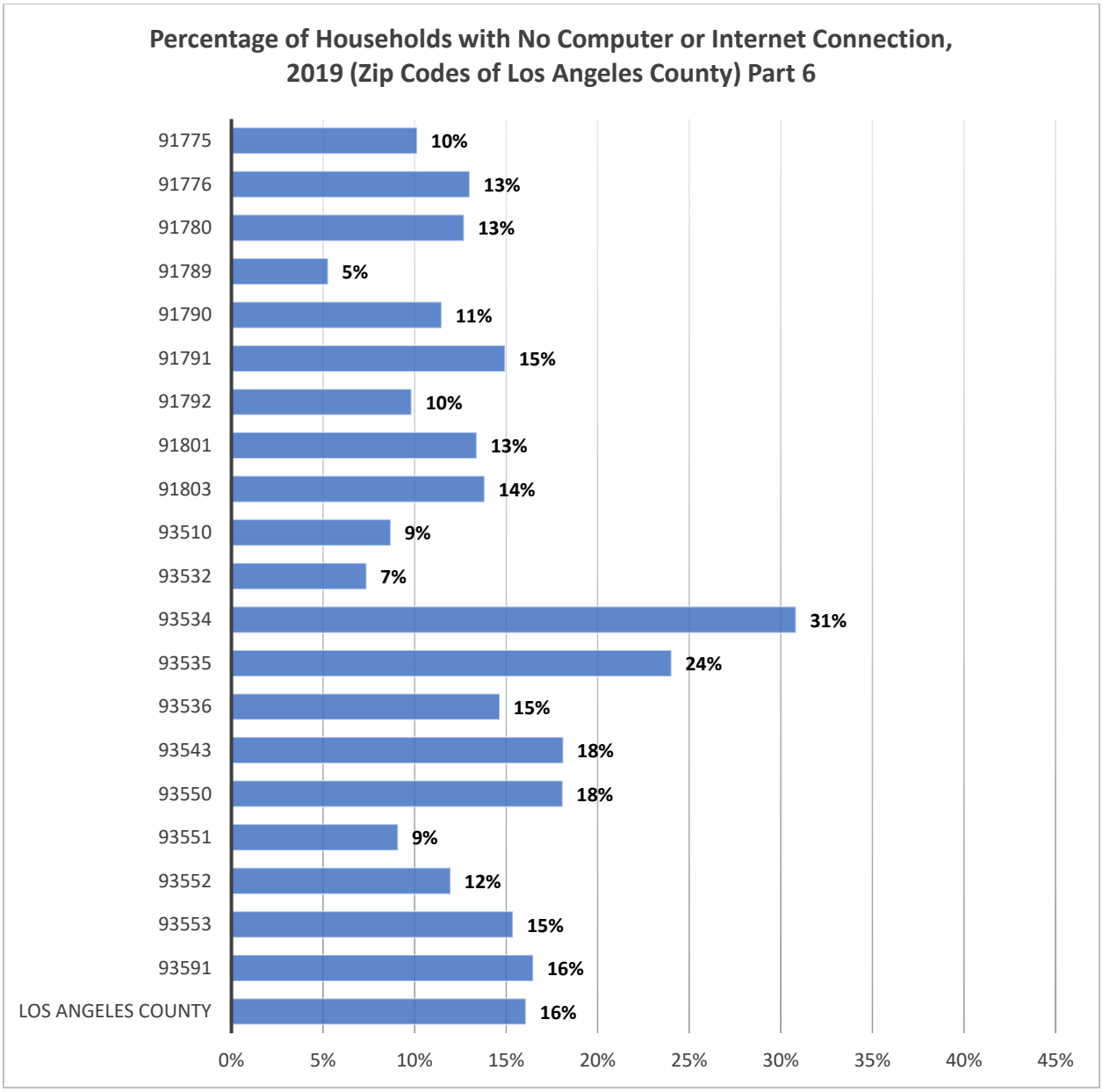

Figure 20: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 6*

Source: U.S. Census (2019), B28003

A glance at the above charts show a significant level of disparities within Los Angeles County with regard to the digital divide. The overall average percentage of those without a computer or an Internet connection is 16%, which is very significant. The range of unavailability varies from as low as 4% to as high as 41%. A large number of zip codes suffer from a more than 20% lack of access.

2.2.Population Without Computer or Internet Connection Across Race & Ethnicity

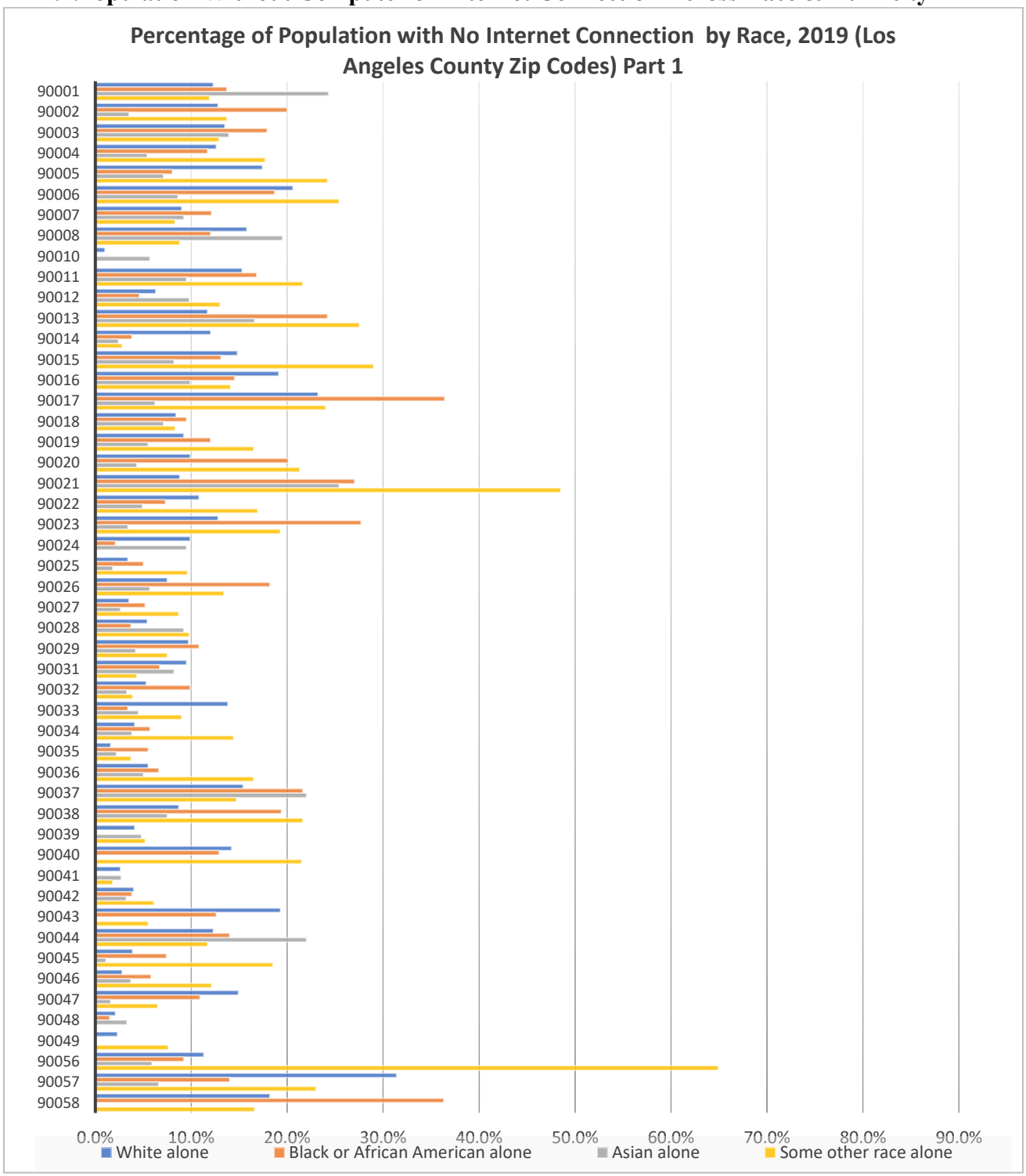

Figure 21: *Percentage of Population with No Internet Connection by Race, 2019 (Los Angeles County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

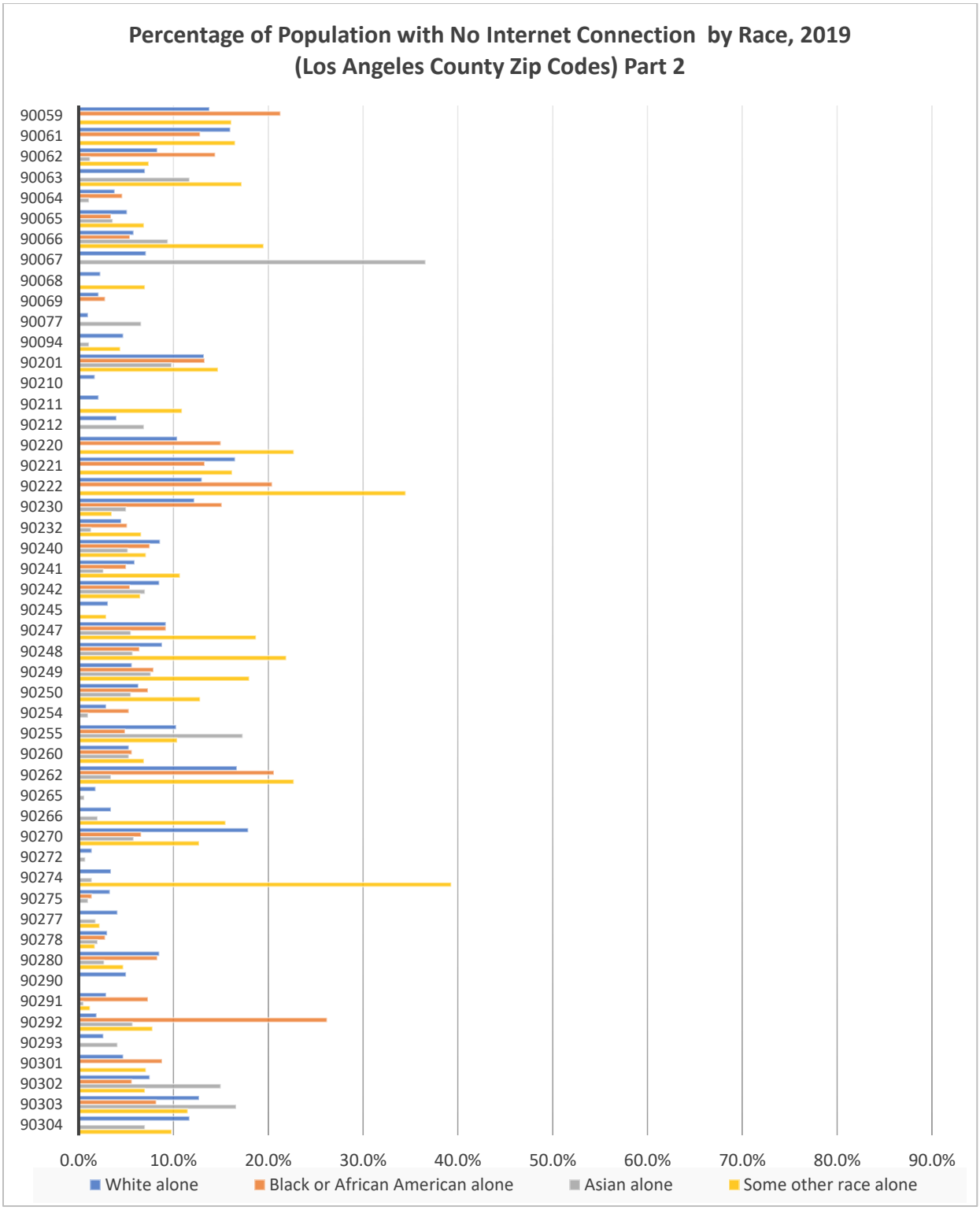

Figure 22: *Percentage of Population with No Internet Connection by Race, 2019 (Los Angeles County Zip Codes) Part 2*

Source: US Census (2019) S2802

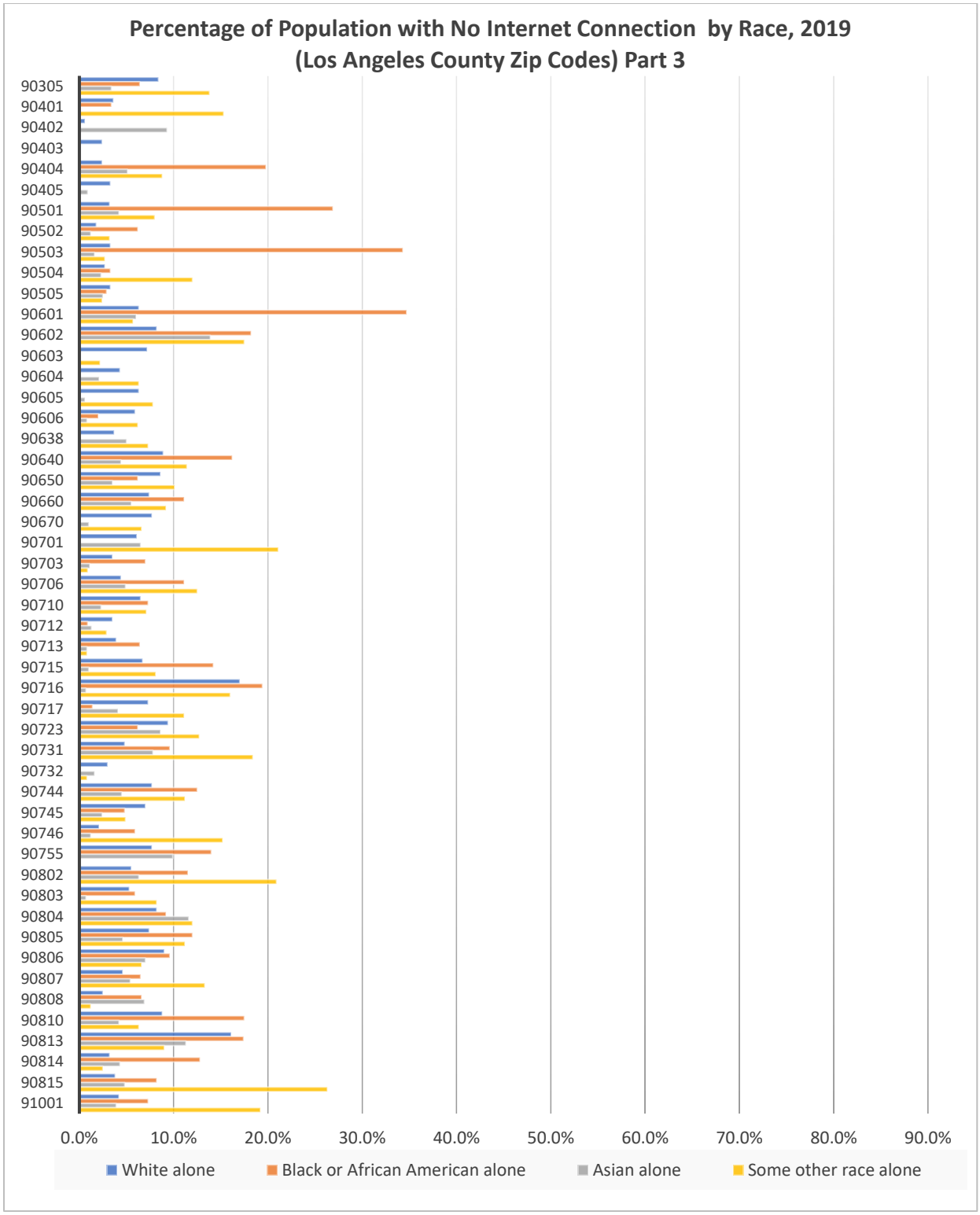

Figure 23: *Percentage of Population with No Internet Connection by Race, 2019 (Los Angeles County Zip Codes) Part 3*

Source: U.S. Census (2019) S2802

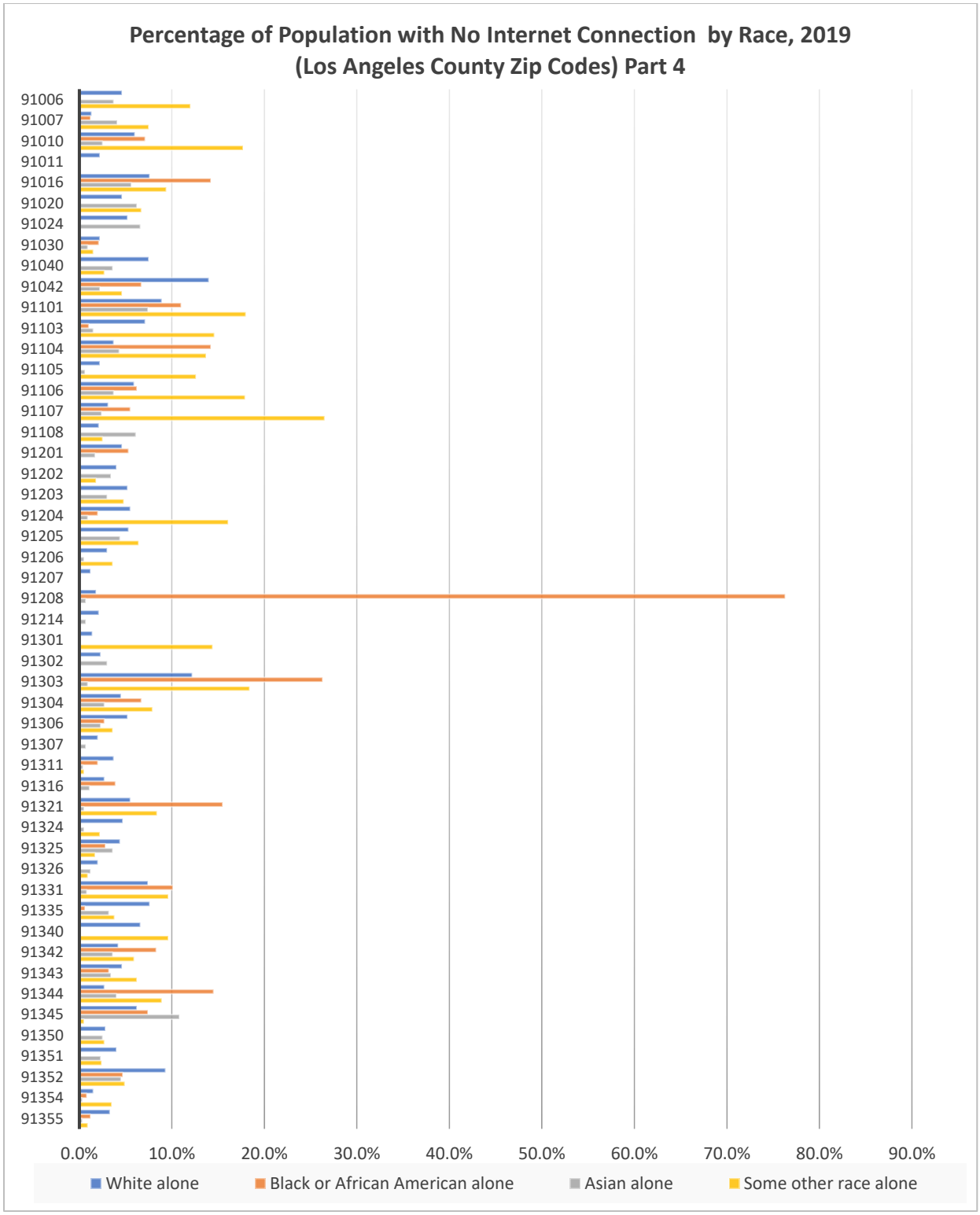

Figure 24: *Percentage of Population with No Internet Connection by Race, 2019 (Los Angeles County Zip Codes) Part 4*

Source: U.S. Census (2019) S2802

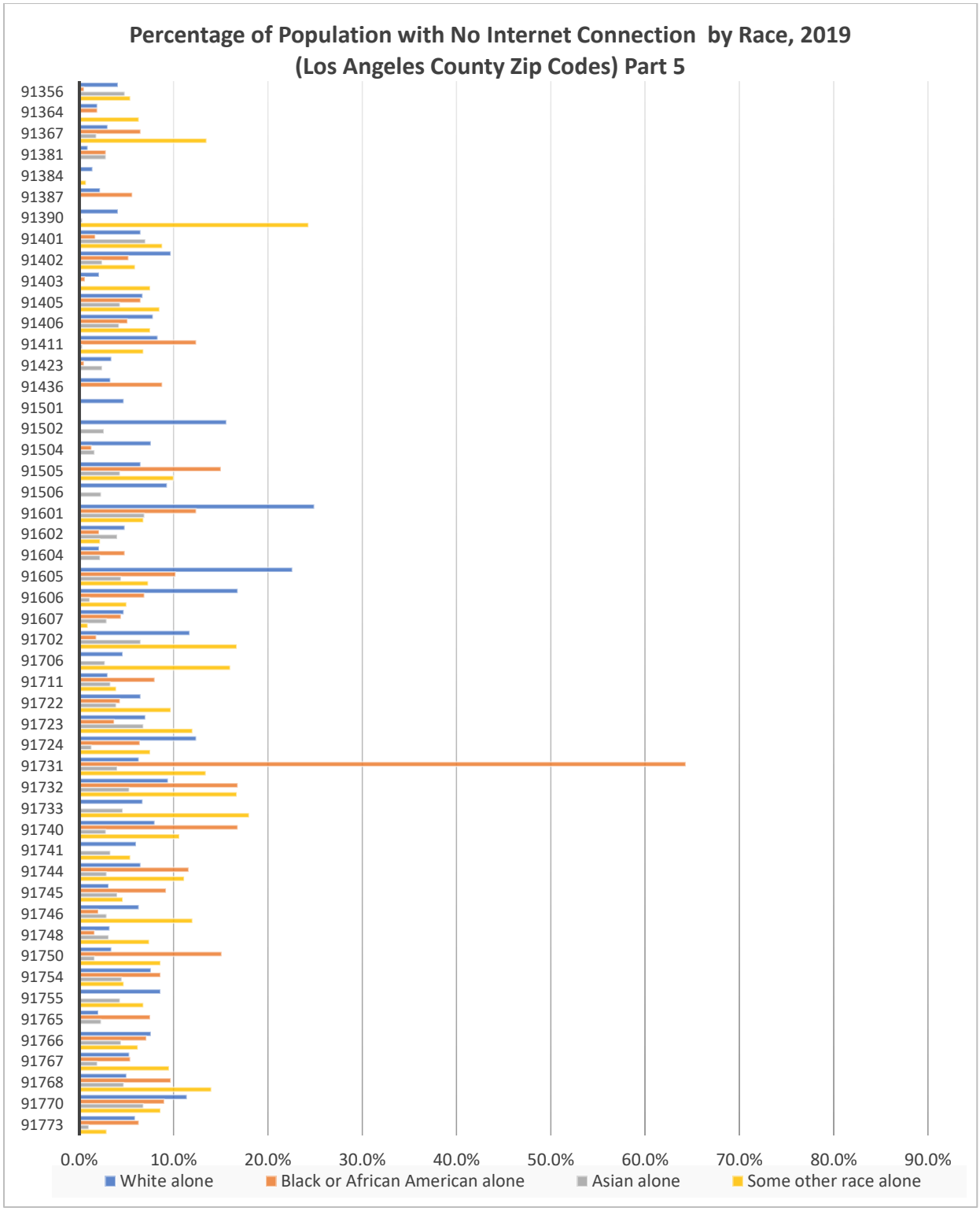

Figure 25: *Percentage of Population with No Internet Connection by Race, 2019 (Los Angeles County Zip Codes) Part 5*

Source: U.S. Census (2019) S2802

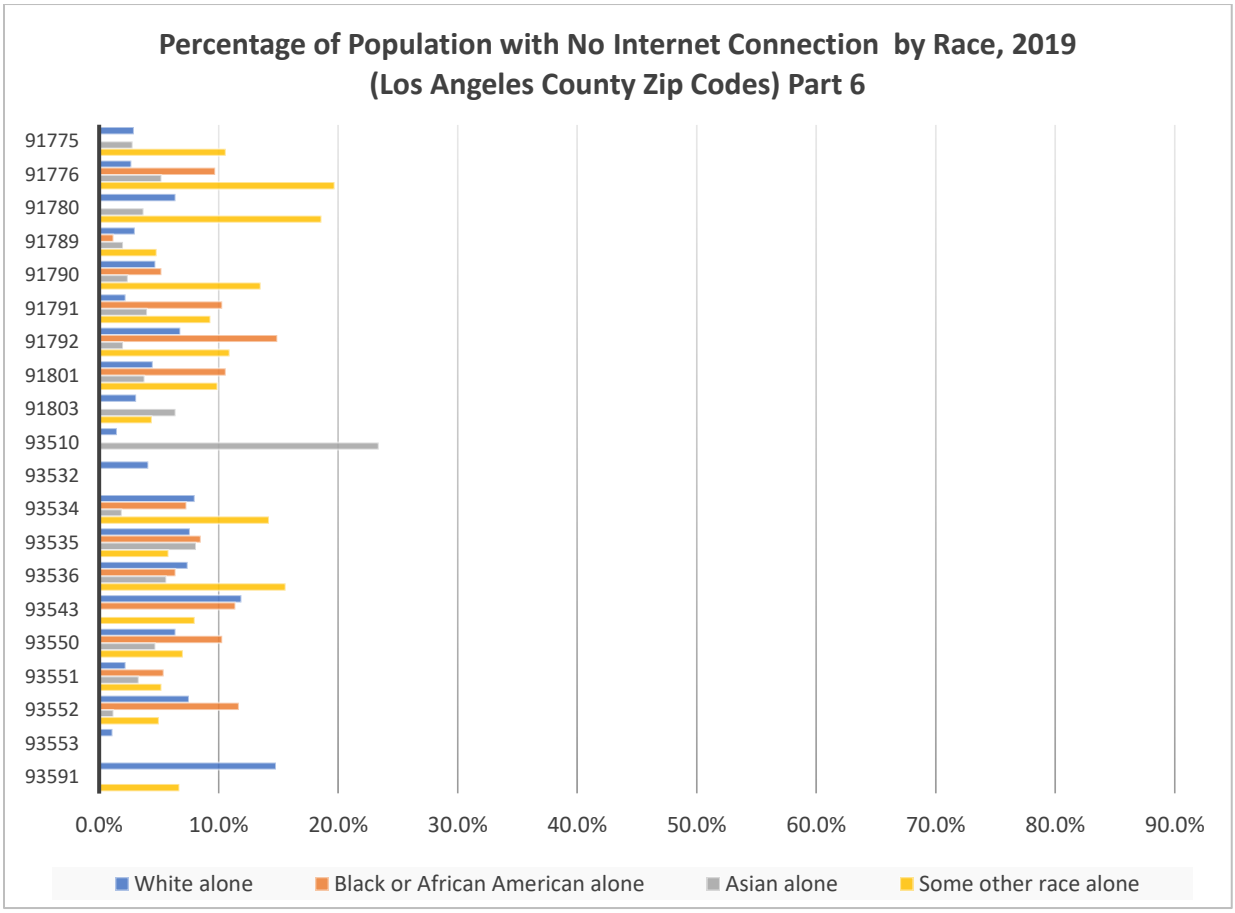

Figure 26: *Percentage of Population with No Internet Connection by Race, 2019 (Los Angeles County Zip Codes) Part 6*

Source: U.S. Census (2019) S2802

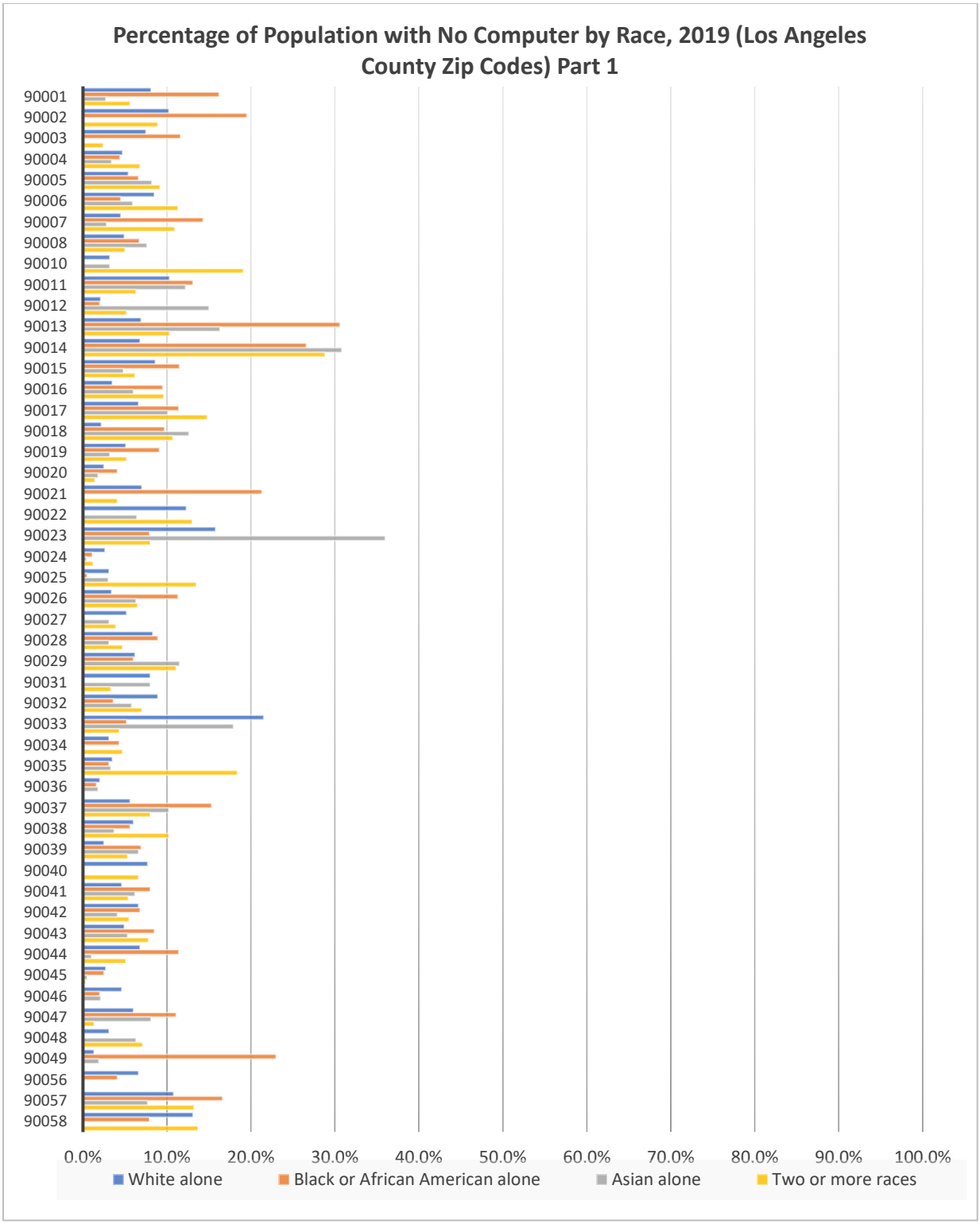

Figure 27: *Percentage of Population with No Computer by Race, 2019 (Los Angeles County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

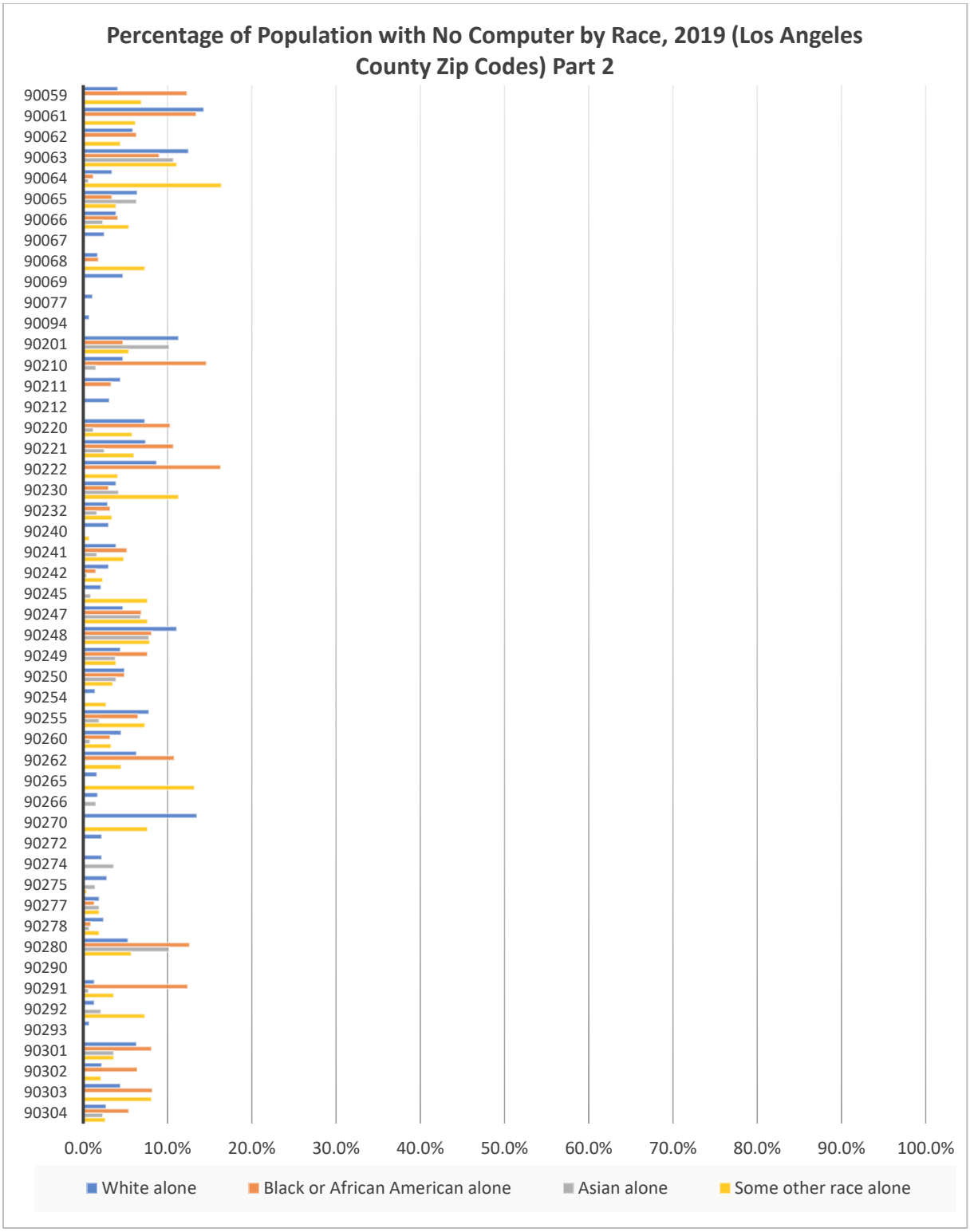

Figure 28: *Percentage of Population with No Computer by Race, 2019 (Los Angeles County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

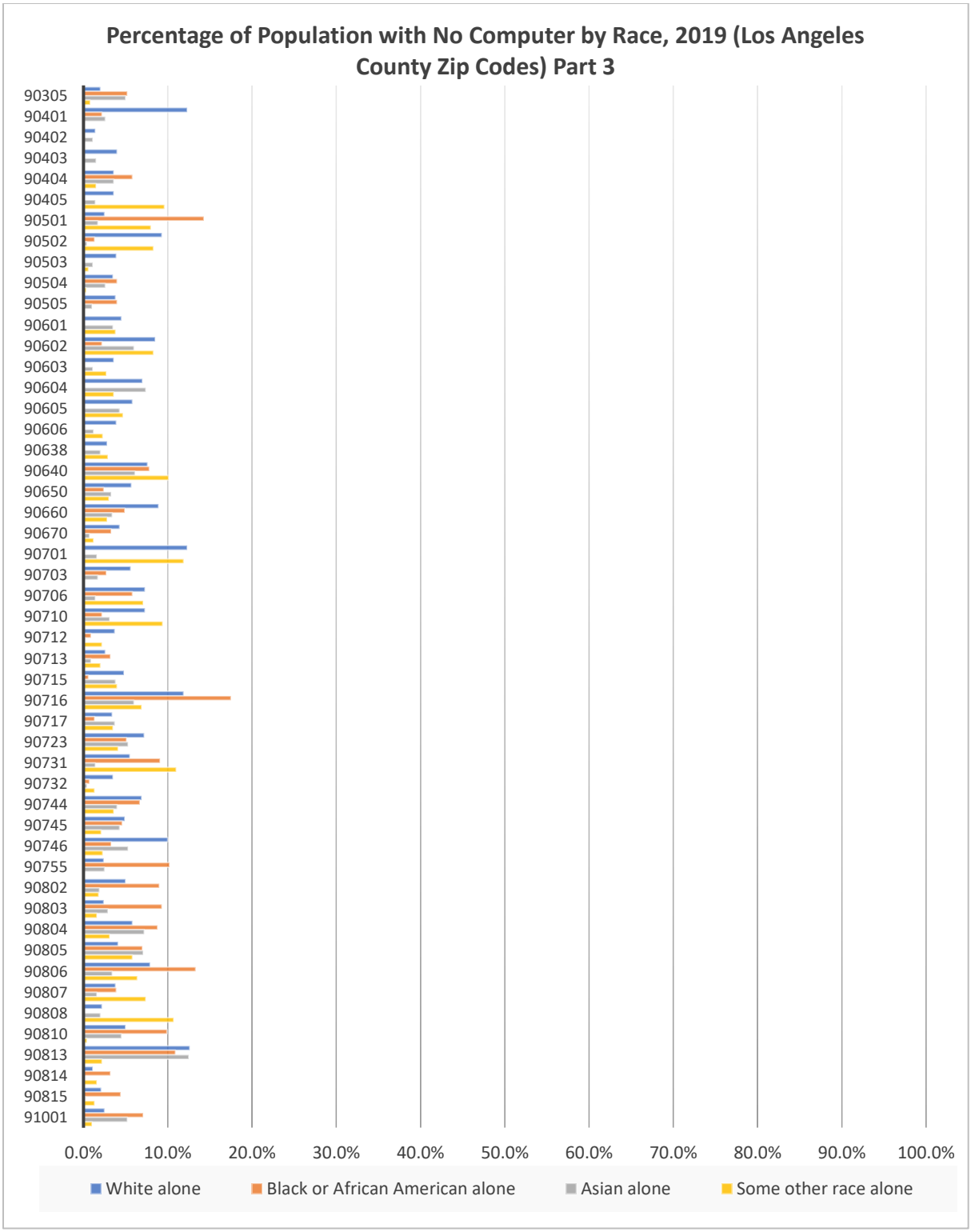

Figure 29: *Percentage of Population with No Computer by Race, 2019 (Los Angeles County Zip Codes) Part 3*

Source: U.S. Census (2019) S2802

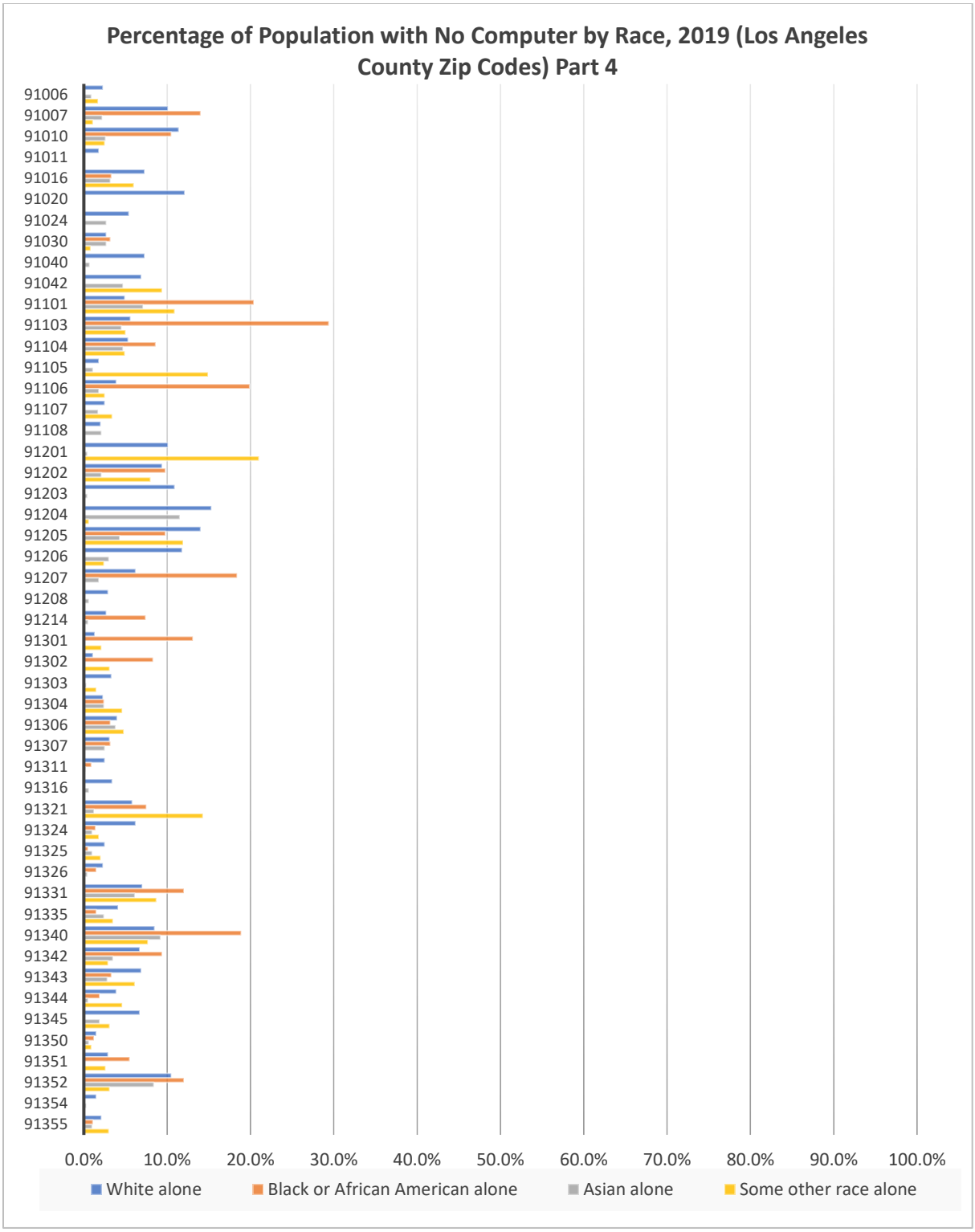

Figure 30: *Percentage of Population with No Computer by Race, 2019 (Los Angeles County Zip Codes) Part 4*

Source: U.S. Census (2019) S2802

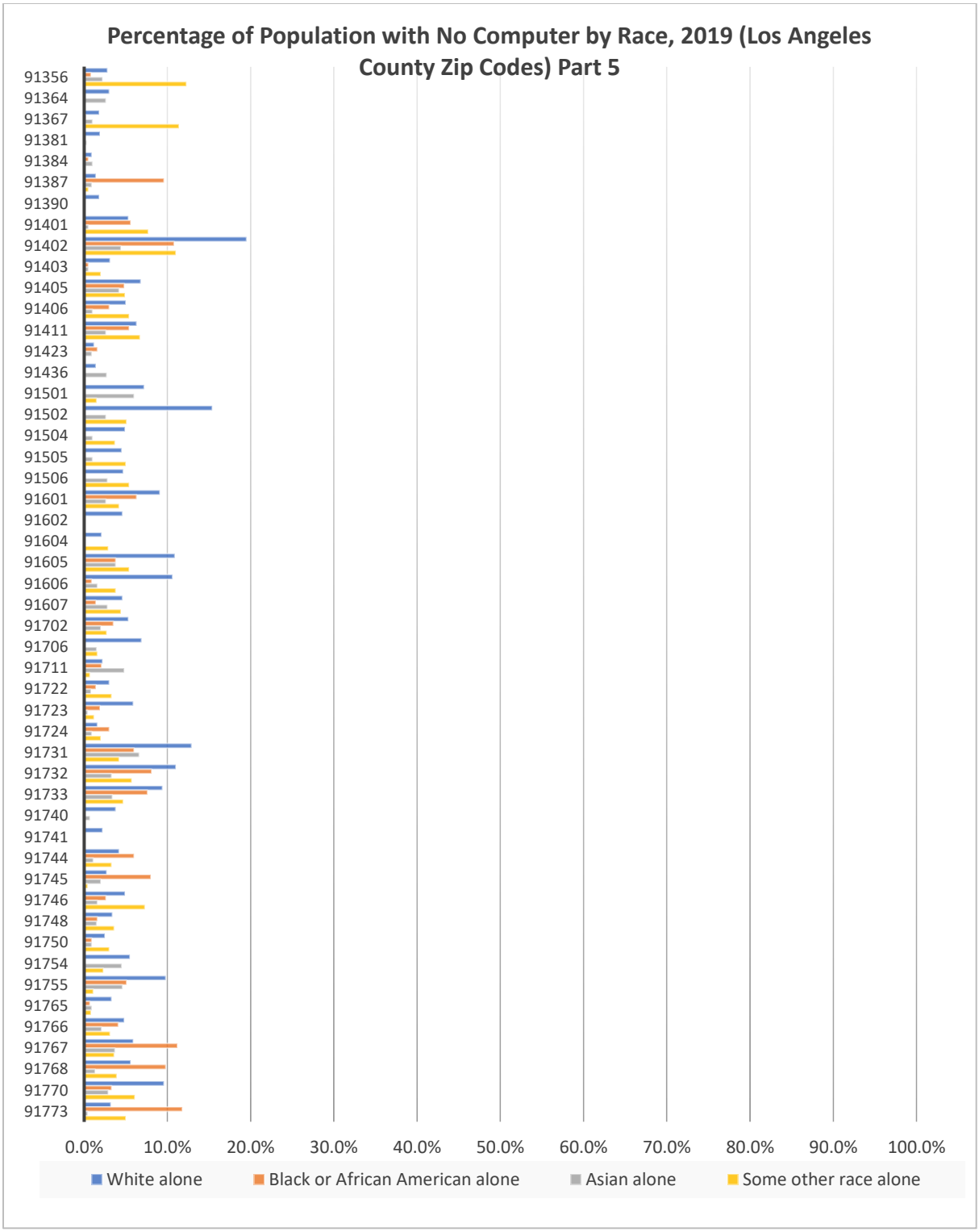

Figure 31: *Percentage of Population with No Computer by Race, 2019 (Los Angeles County Zip Codes) Part 5*

Source: U.S. Census (2019) S2802

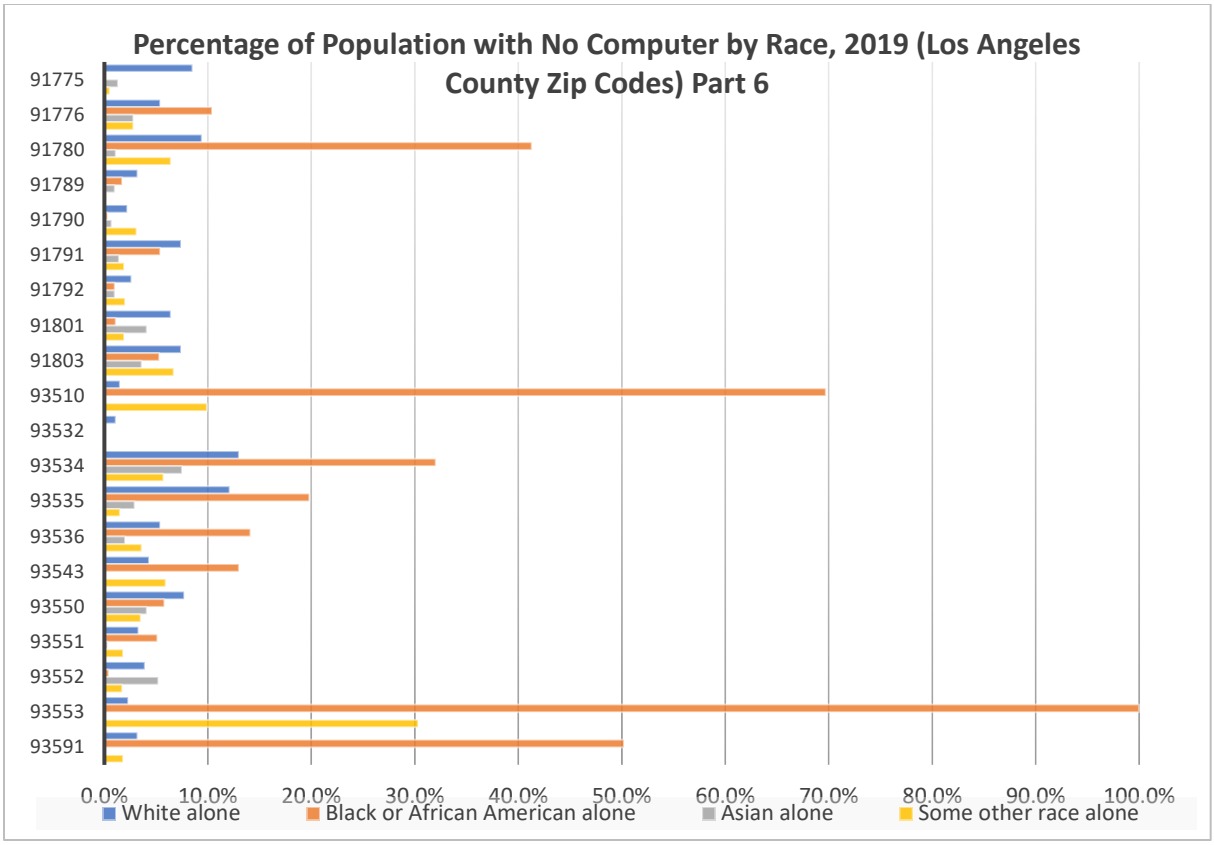

Figure 32: *Percentage of Population with No Computer by Race, 2019 (Los Angeles County Zip Codes) Part 6*

Source: U.S. Census (2019) S2802

The above charts provide good information among various racial groups with regard to the impact of the digital divide on their lives. However, Hispanics form a significant proportion of the population in the State of California, and reside within almost all of its population centers. Looking into the magnitude of the digital divide on them provides a relevant and important angle to seeing the pattern of the divide in a meaningful manner. The following charts provide this information.

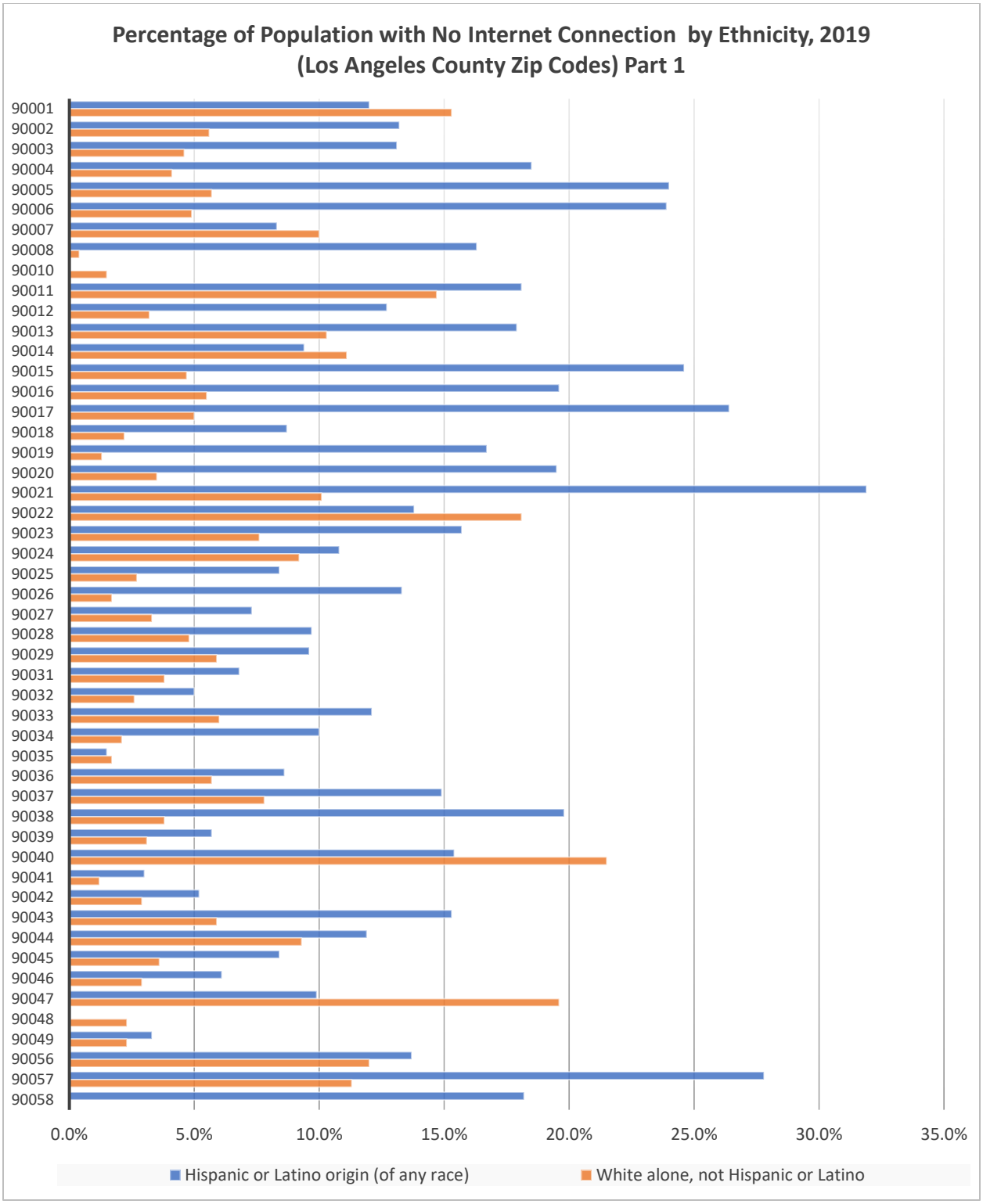

Figure 33: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

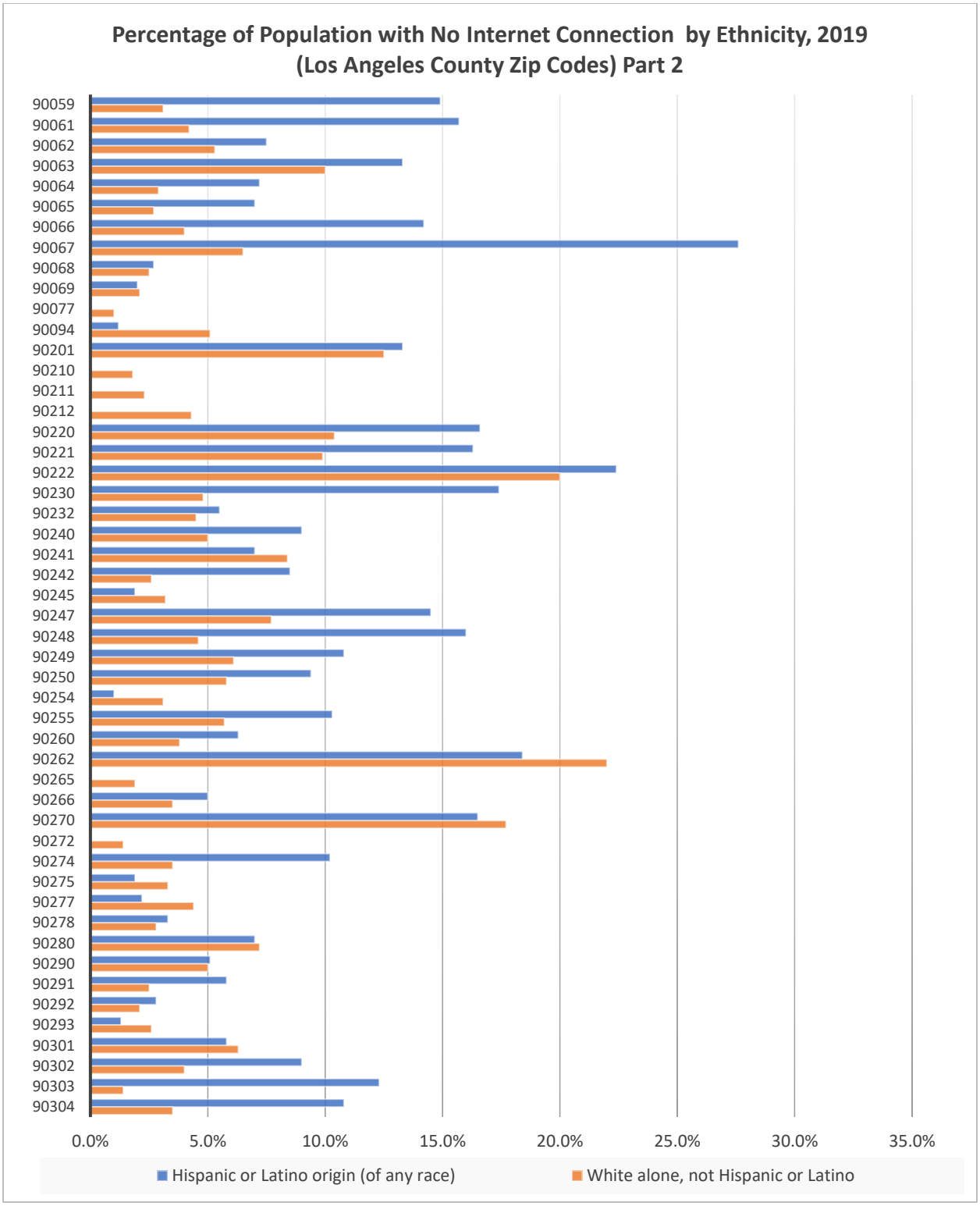

Figure 34: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

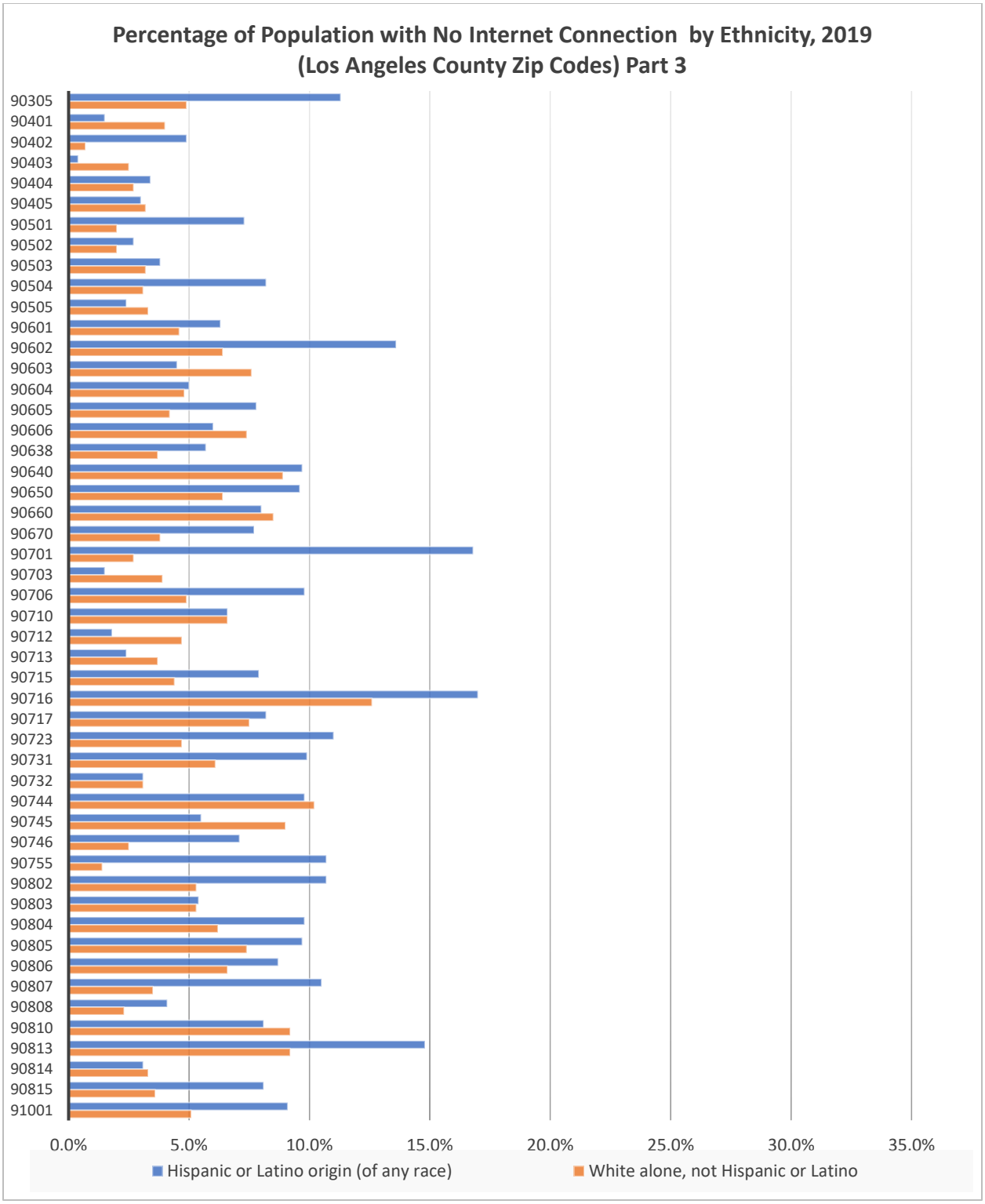

Figure 35: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 3*

Source: U.S. Census (2019) S2802

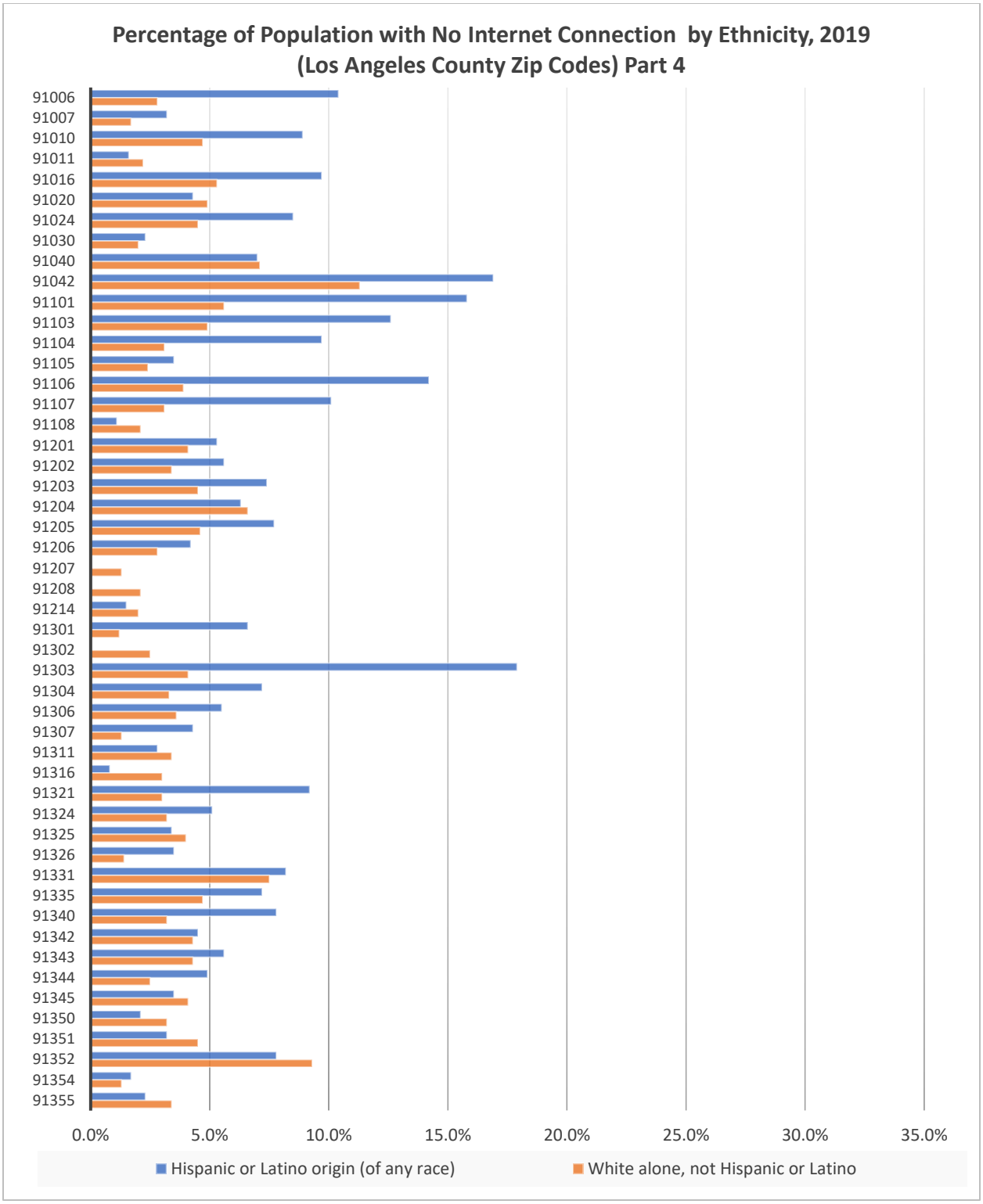

Figure 36: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 4*

Source: U.S. Census (2019) S2802

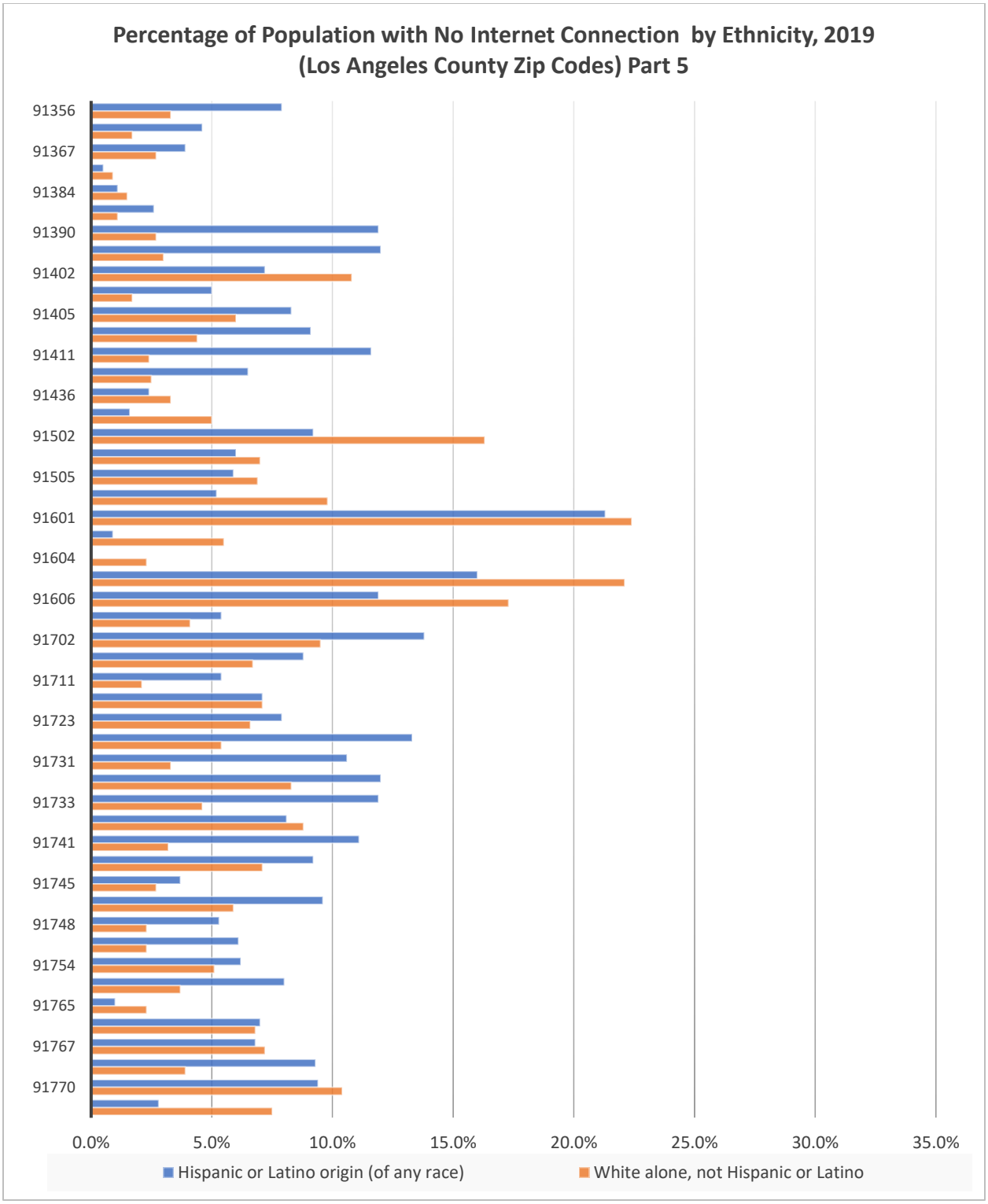

Figure 37: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 5*

Source: U.S. Census (2019) S2802

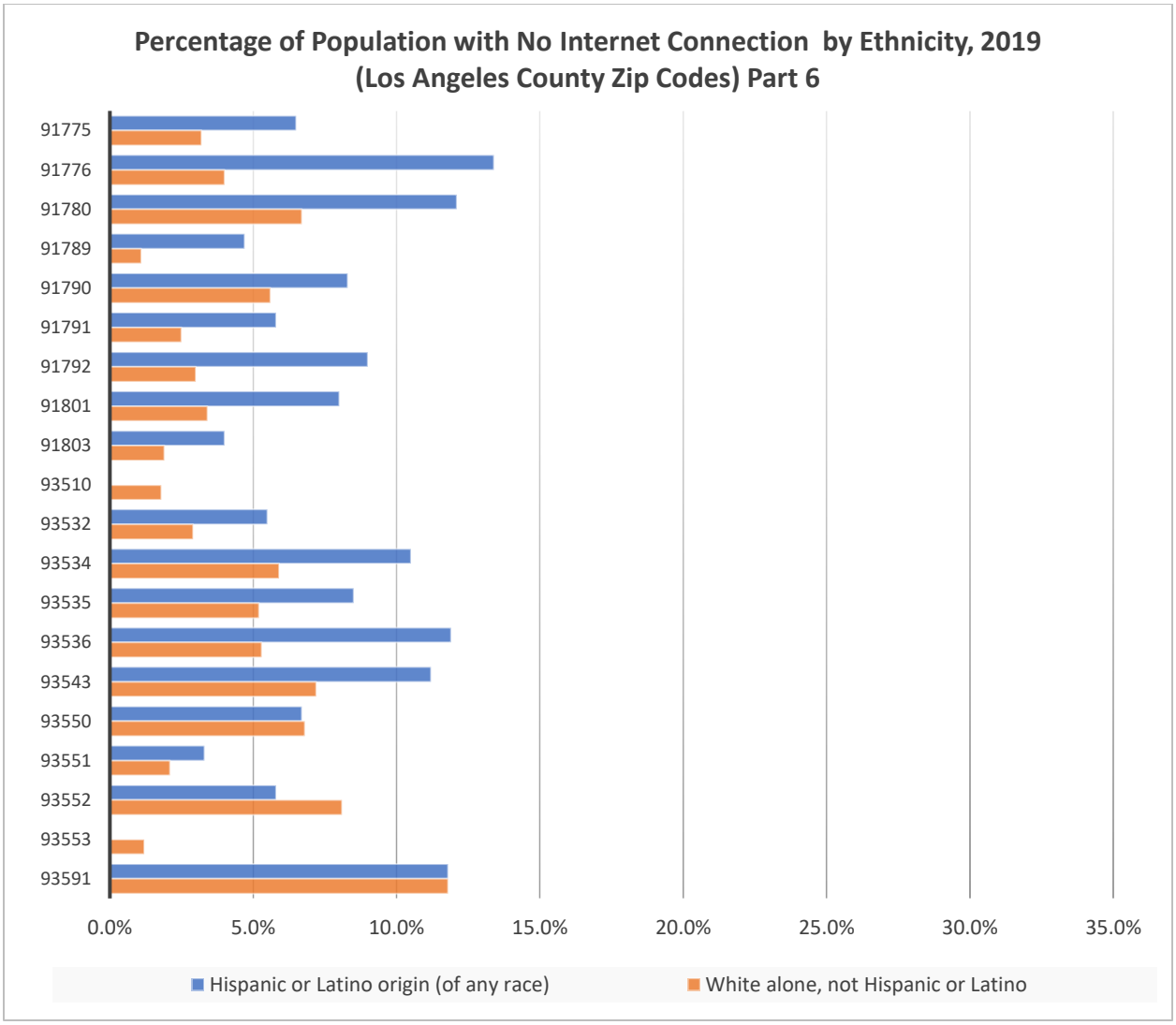

Figure 38: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 6*

Source: U.S. Census (2019) S2802

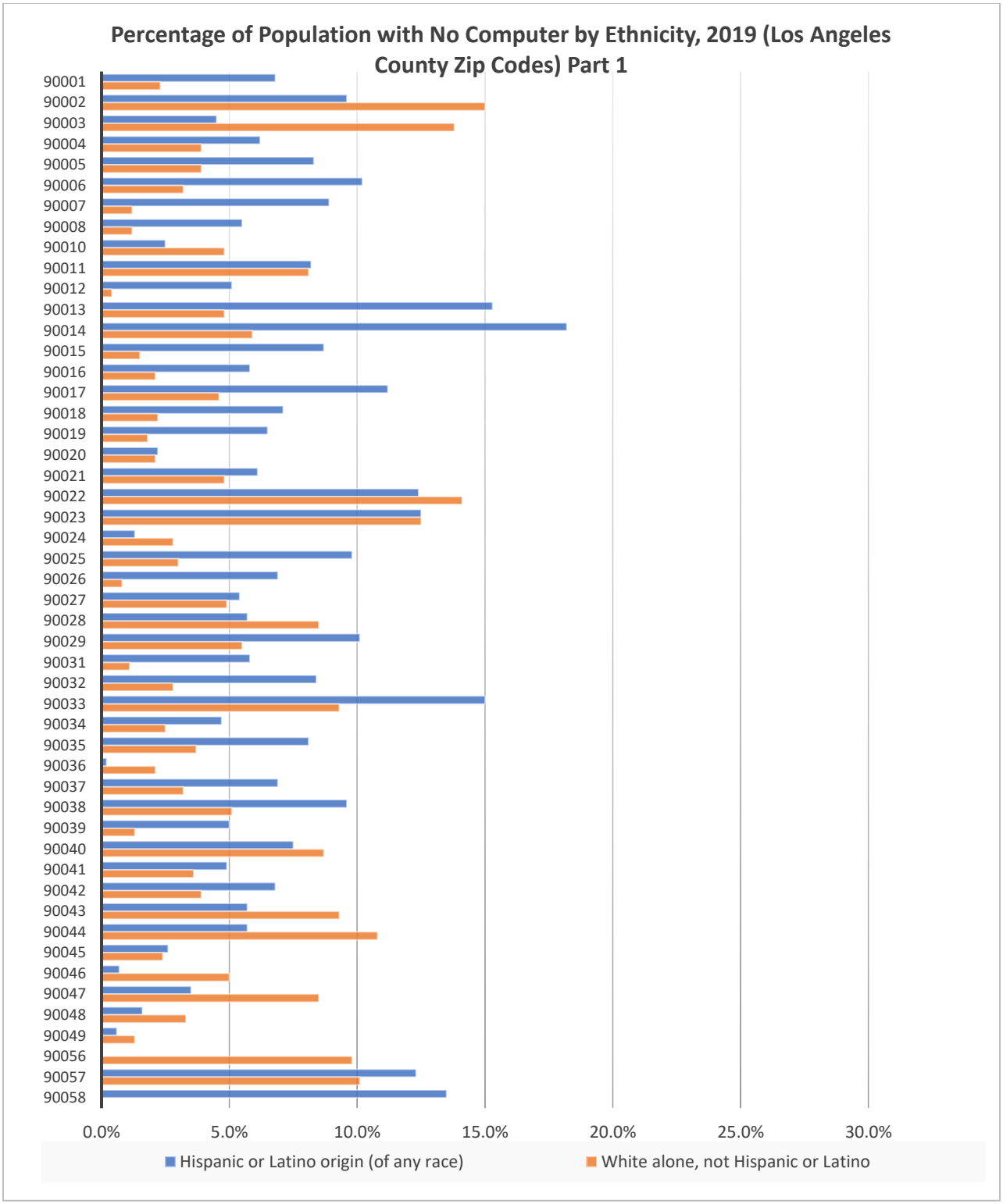

Figure 39: *Percentage of Population with No Computer by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

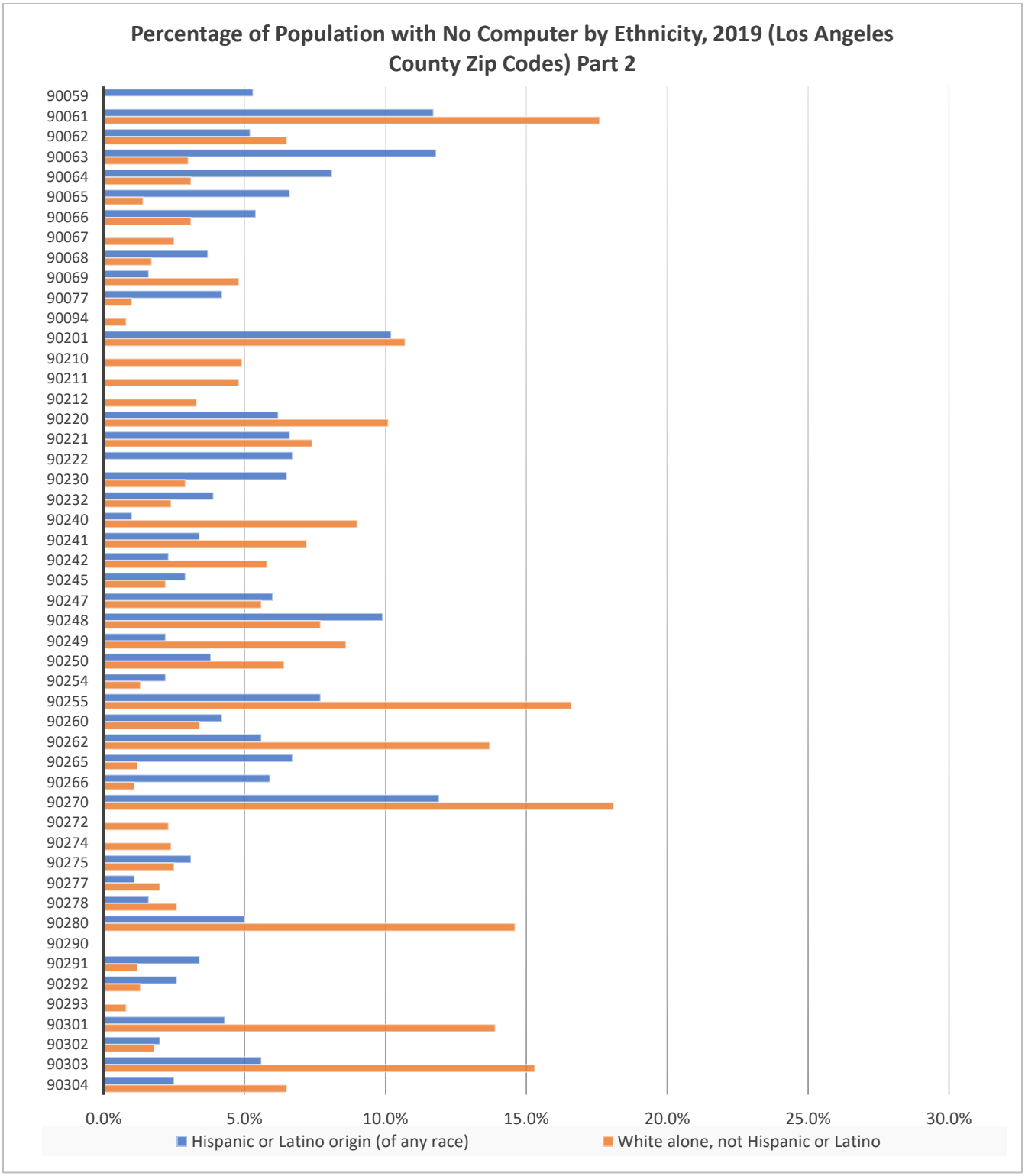

Figure 40: *Percentage of Population with No Computer by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

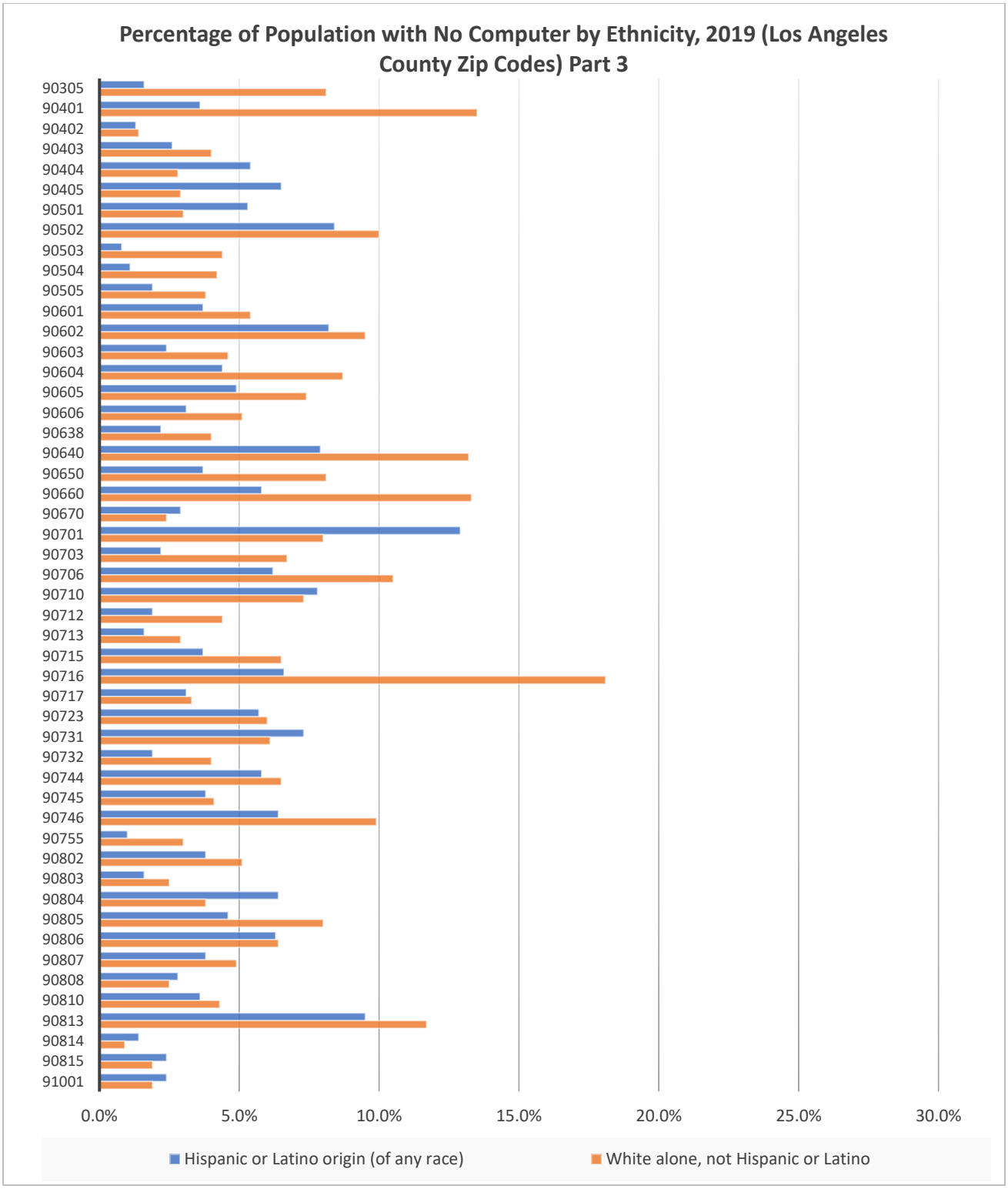

Figure 41: *Percentage of Population with No Computer by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 3*

Source: U.S. Census (2019) S2802

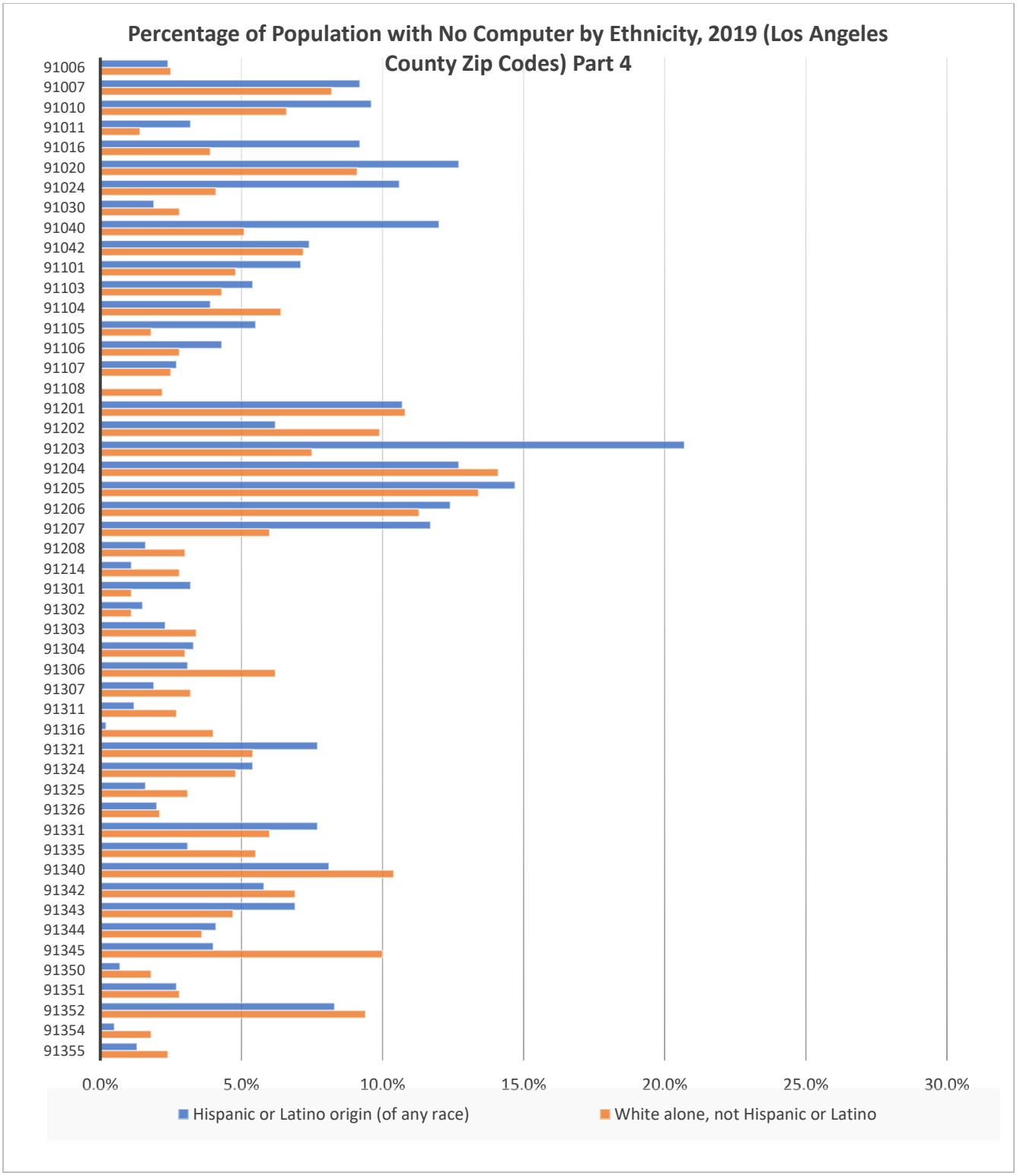

Figure 42: *Percentage of Population with No Computer by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 4*

Source: U.S. Census (2019) S2802

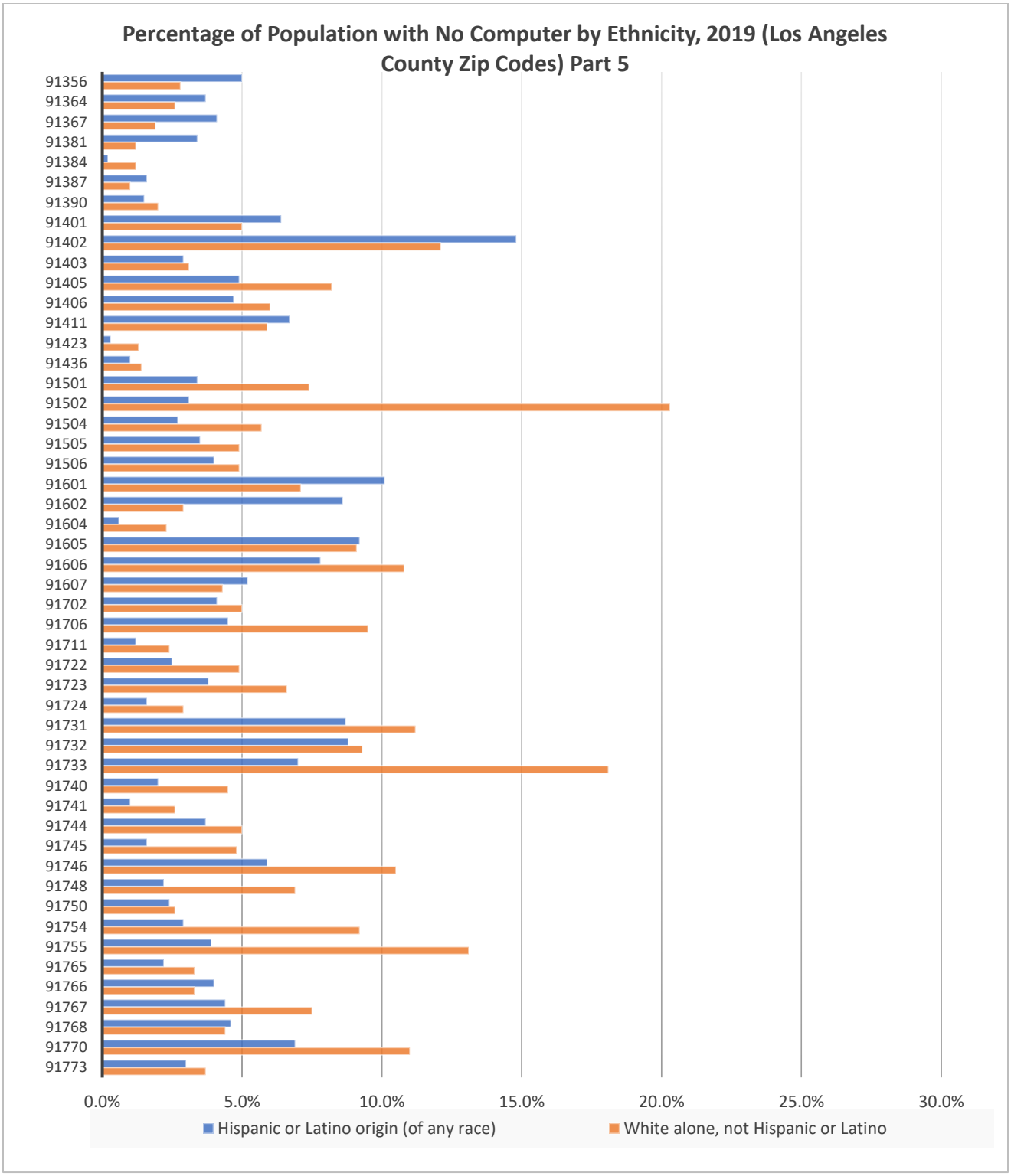

Figure 43: *Percentage of Population with No Computer by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 5*

Source: U.S. Census (2019) S2802

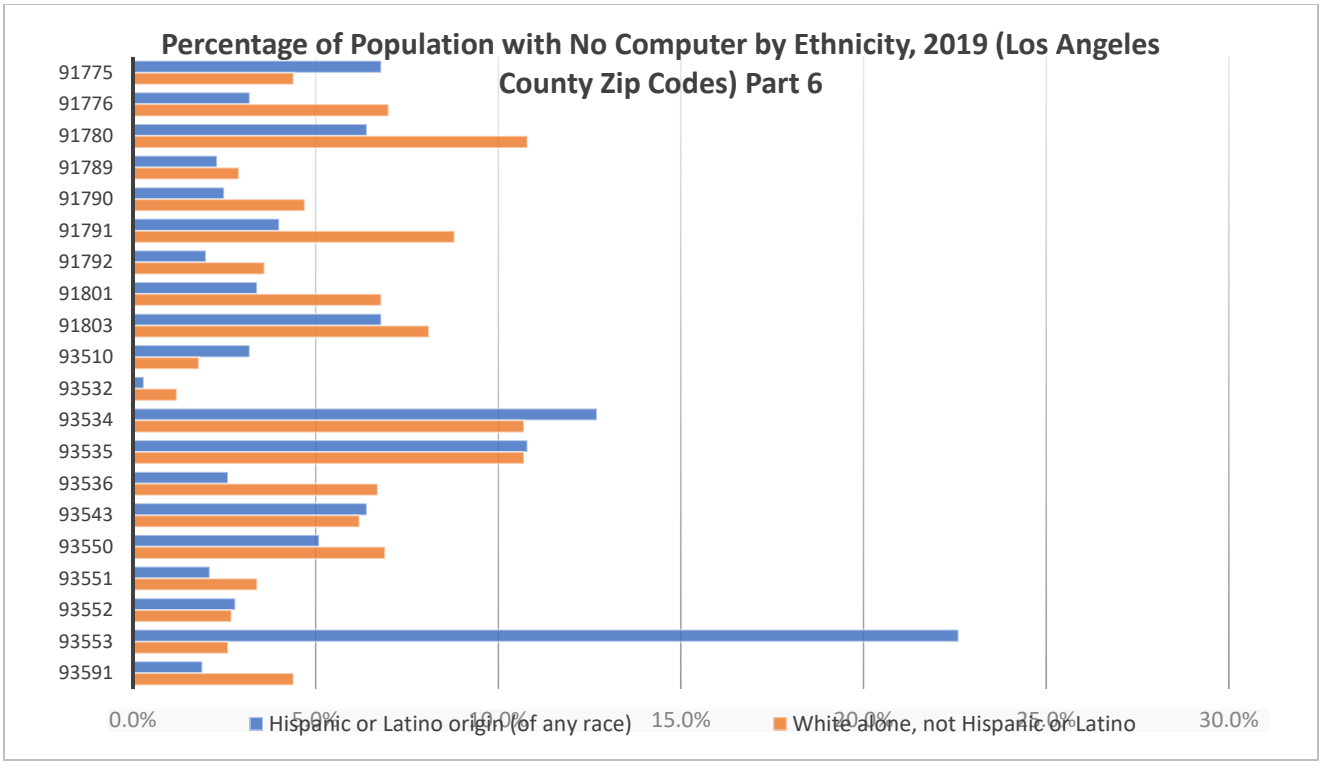

Figure 44: *Percentage of Population with No Computer by Ethnicity, 2019 (Los Angeles County Zip Codes) Part 6*

Source: U.S. Census (2019) S2802

The above tables assist in making a number of relevant observations for pertinent public policy implications. In general, the rates of not having computers or Internet connections are much higher among Hispanics, and the rate for Black or African Americans alone is higher than that for the White alone group. The level of lack of computers or an Internet connection differs highly among various zip codes. In zip codes where the digital divide is higher, the level of deprivation is lower, regardless of the race or ethnicities, and this may also be impacted by the structure of racial and ethnic makeup of various population centers reflected in the above zip codes.[8]

2.3. Lack of Access to Computer & Internet Connection Among Children Under 18 Years of Age

The importance of having access to a computer and Internet connection has been brought up and discussed at length in the previous section. The following charts present the level of the digital divide among young children in various communities in Los Angeles County.

[8] Some of the findings are impacted by the size of the population in those areas, which brings a higher margin of error to the accuracy of the information presented. They can be found in areas where there is no information reported. These areas cannot be included in this particular segment of the study.

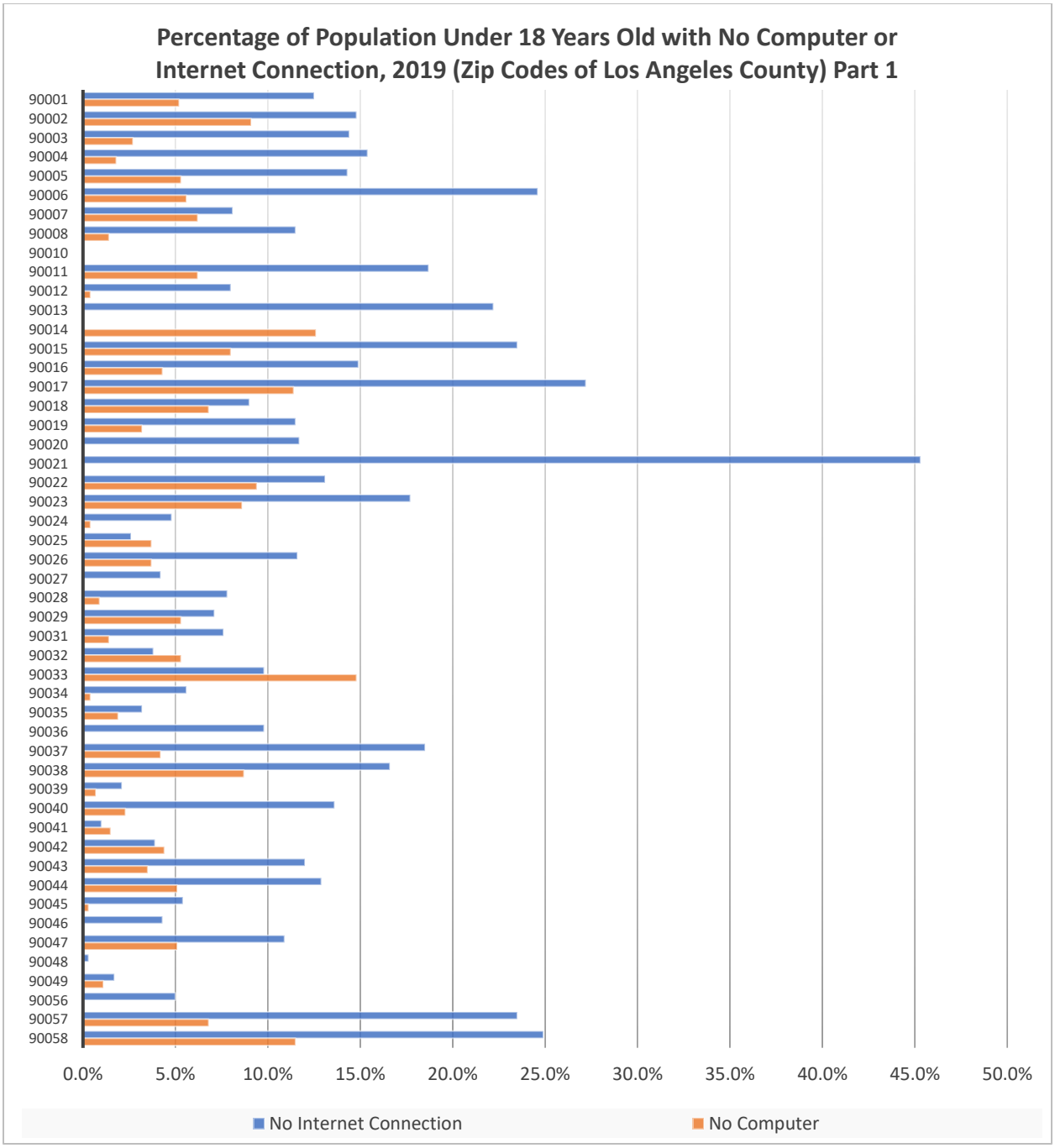

Figure 45: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 1*

Source: U.S. Census (2019) S2802

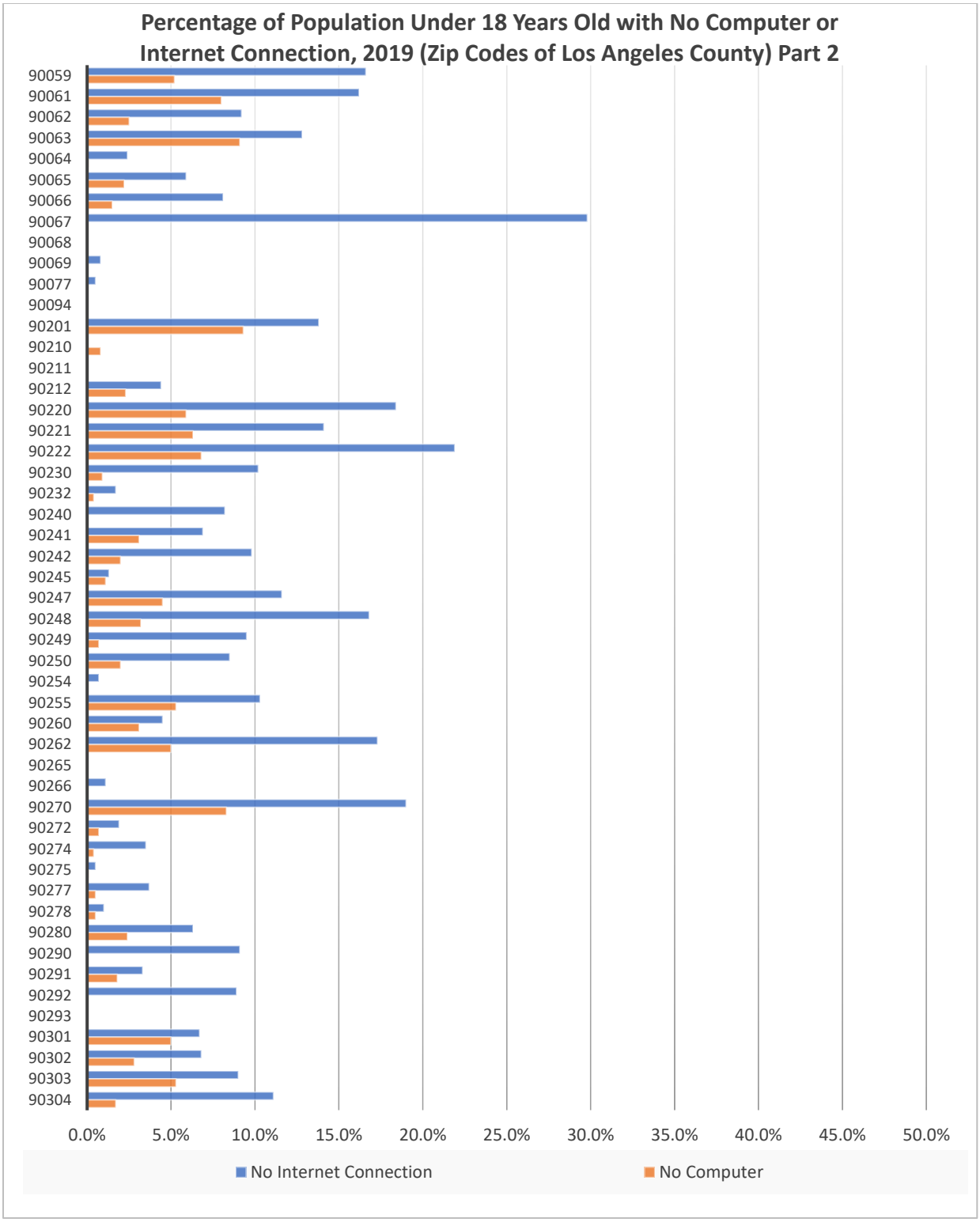

Figure 46: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 2*

Source: U.S. Census (2019) S2802

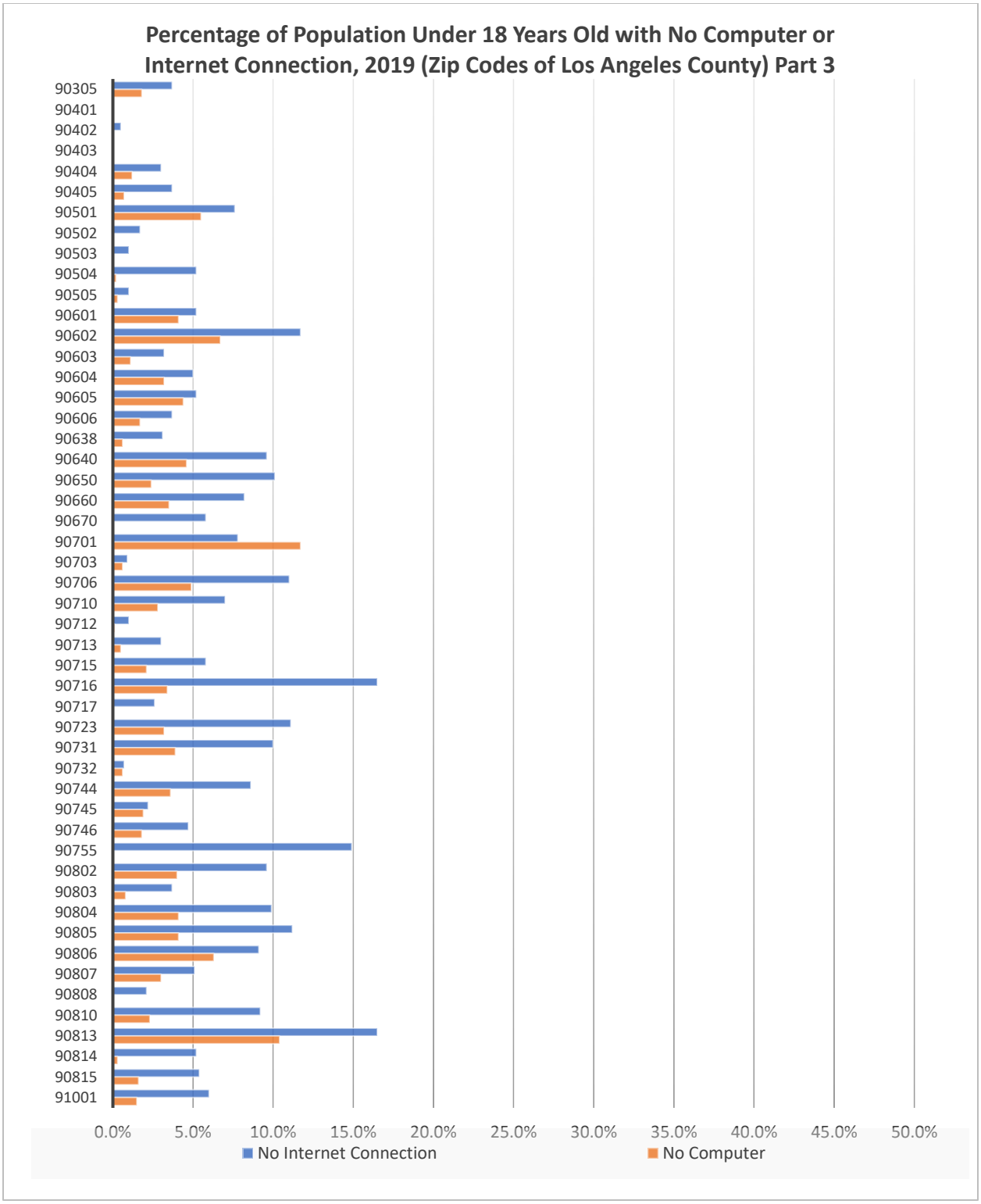

Figure 47: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 3*

Source: U.S. Census (2019) S2802

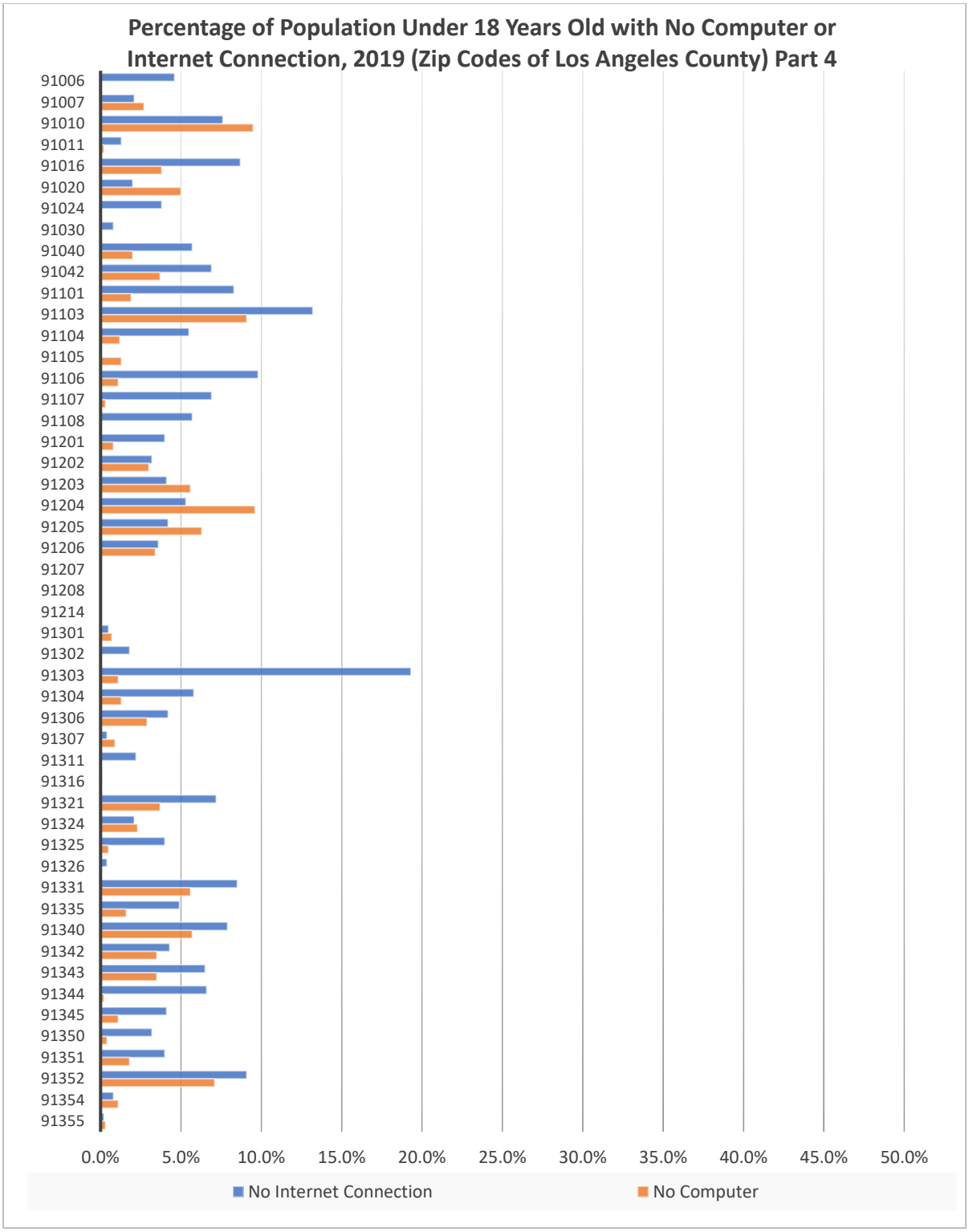

Figure 48: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 4*

Source: U.S. Census (2019) S2802

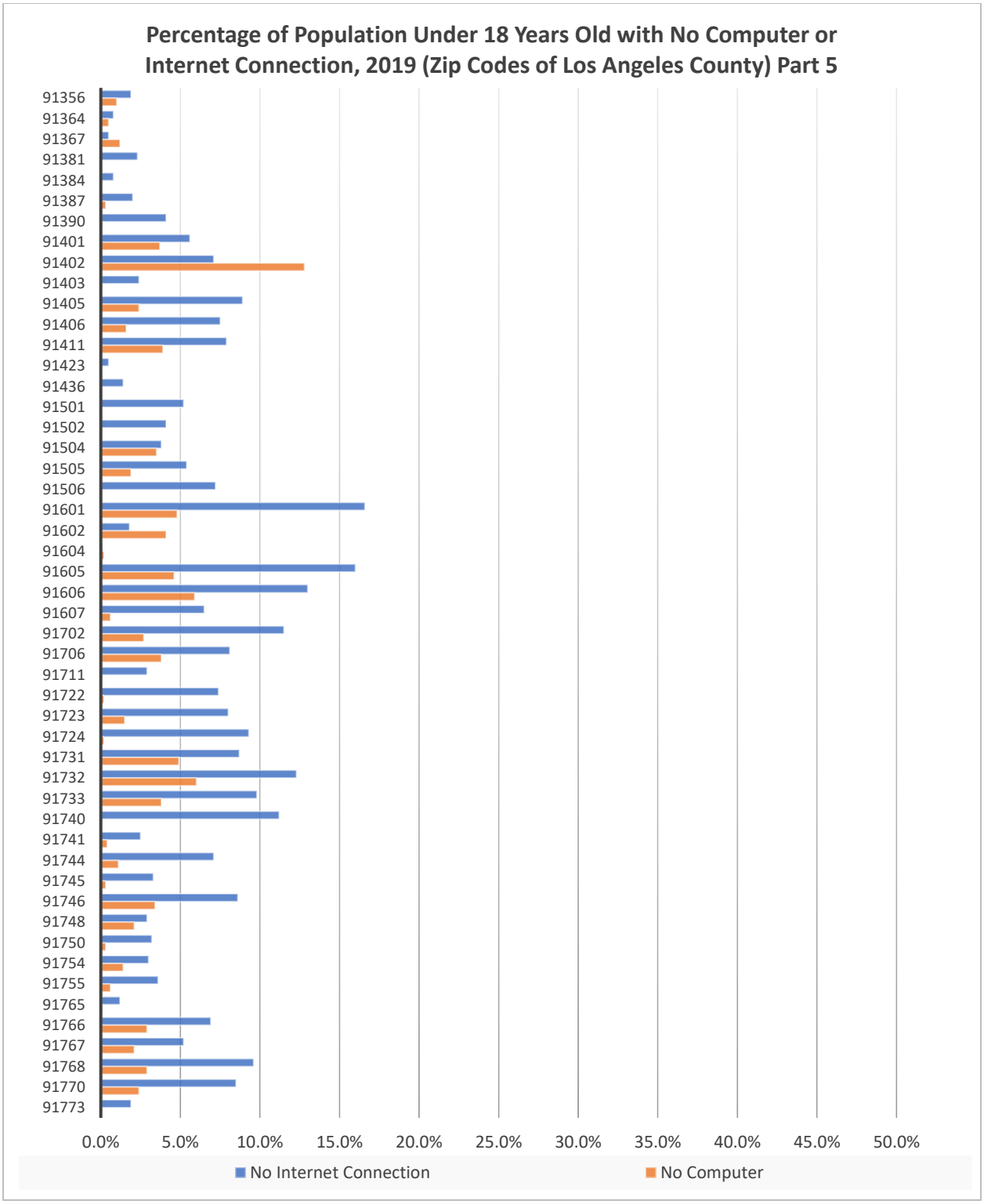

Figure 49: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 5*

Source: U.S. Census (2019) S2802

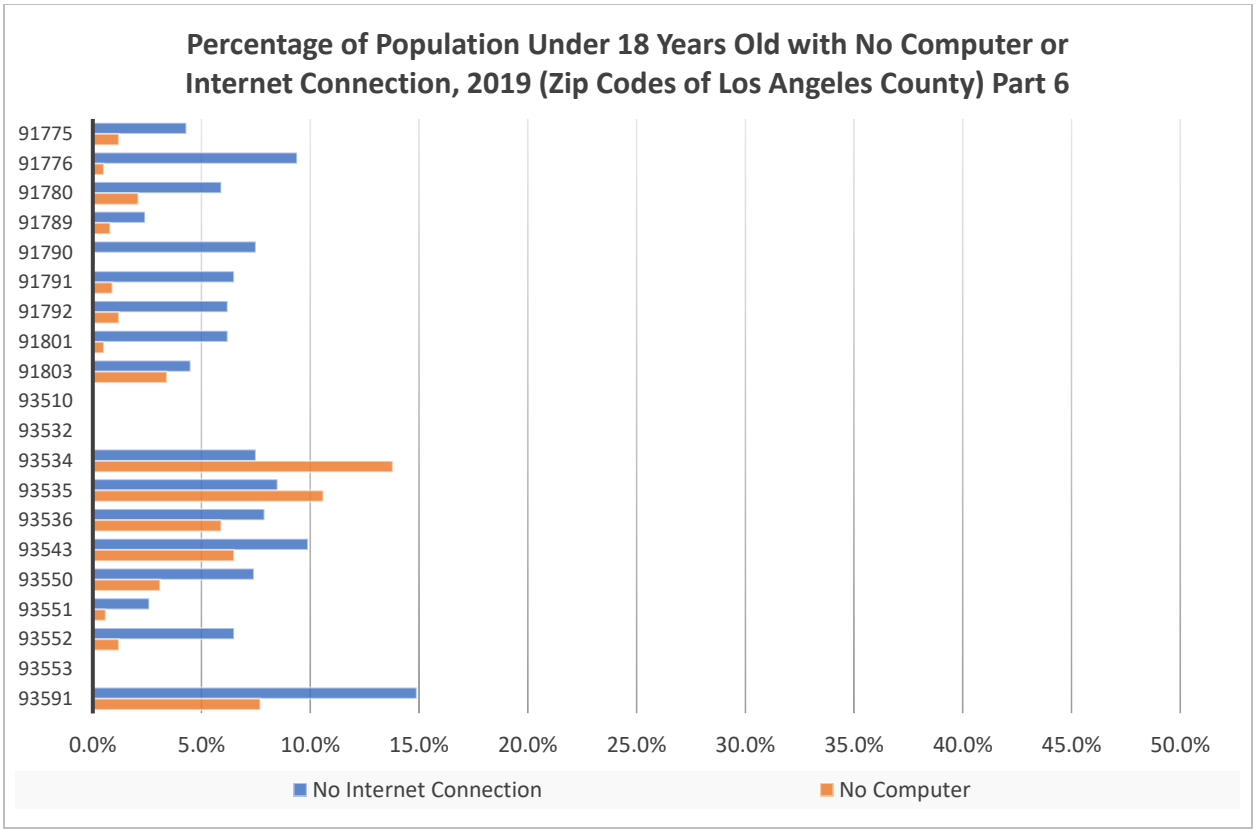

Figure 50: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Los Angeles County) Part 6*

Source: U.S. Census (2019) S2802

The above six tables show that a significant proportion of our young children live within a significant digital divide. In general, the level of those who do not have a reliable Internet connection is higher than those who lack a computer. However, in most places, the lack of a computer and an Internet connection go hand in hand.

2.4. Affordability of Access to Necessary Devices and Internet Connection Across Neighborhood

Not having Internet connection or computer in most cases are indicative of the existing digital divide.[9] Having access does not mean being able to afford the services and the device at a level of household income. The following charts present such cases as they prevail in the 270 zip codes in Los Angeles county.

[9] In some circumstances inability to have connection can be related to the prevailing infrastructural conditions of the place or some level of social isolation. However, the most important reason is inability to receive the services due to economic condition of potential users and inability to afford.

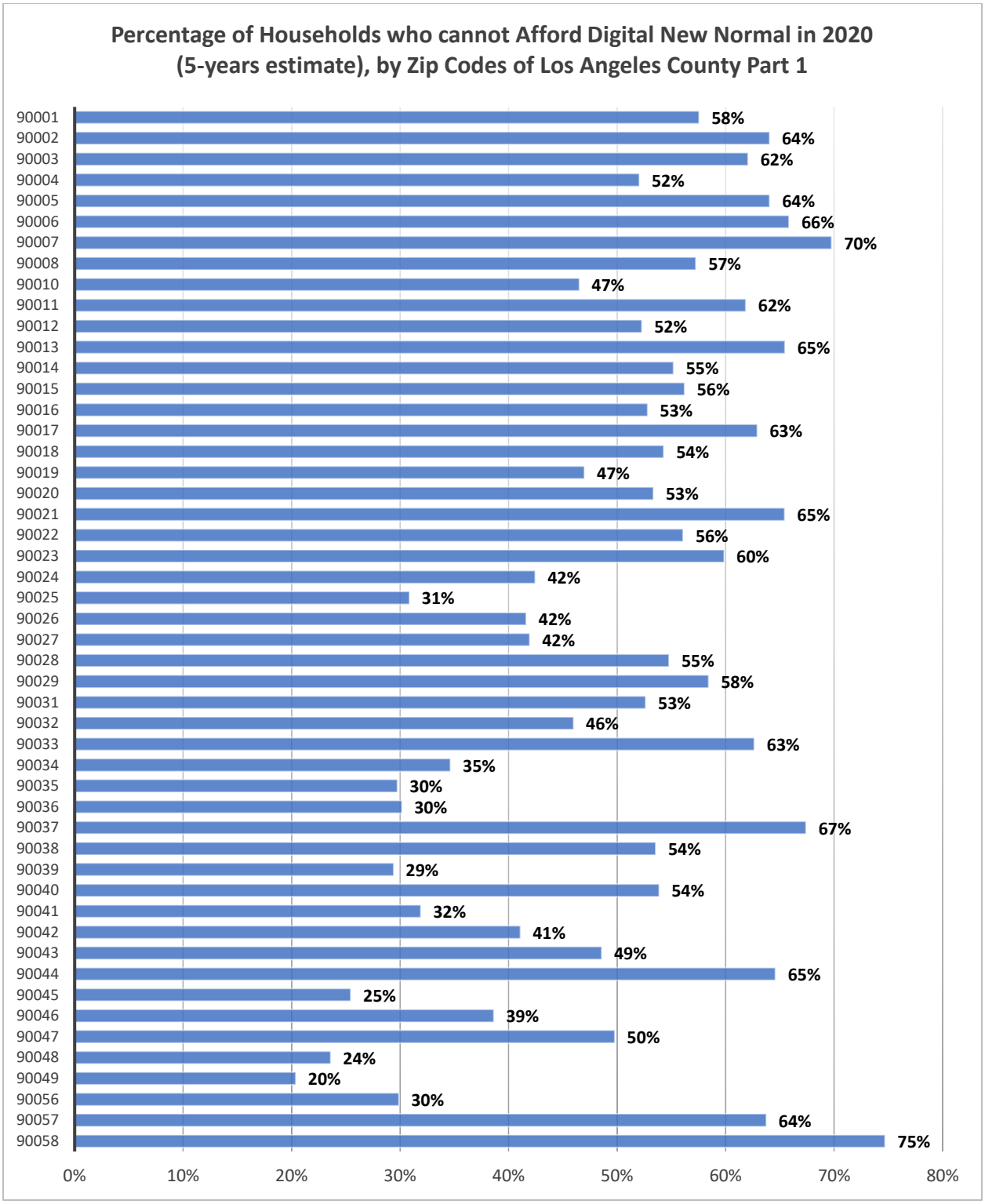

Figure 51: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Los Angeles County Part 1*

Source: U.S. Census (2019) S1901

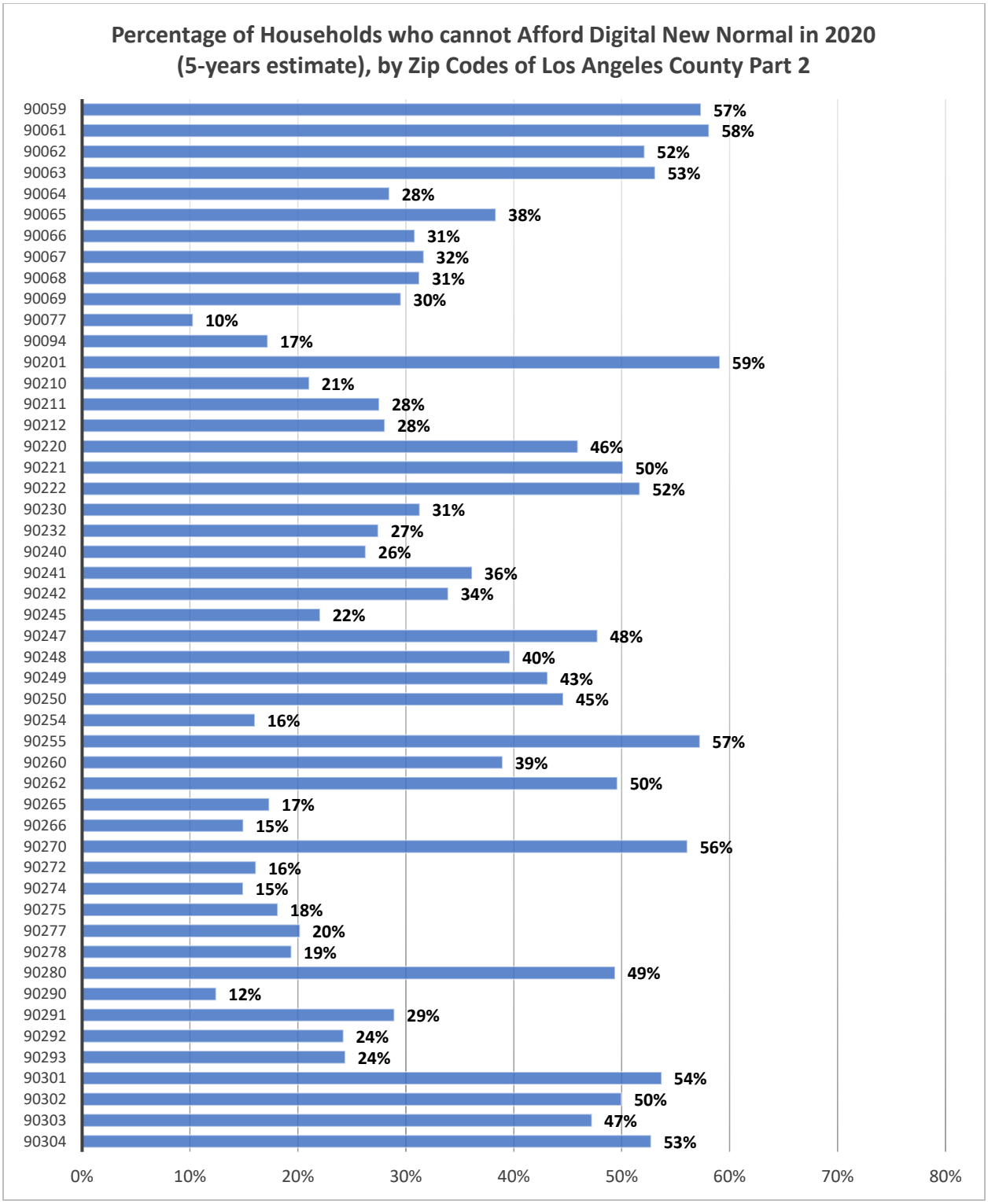

Figure 52: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Los Angeles County Part 2*

Source: U.S. Census (2019) S1901

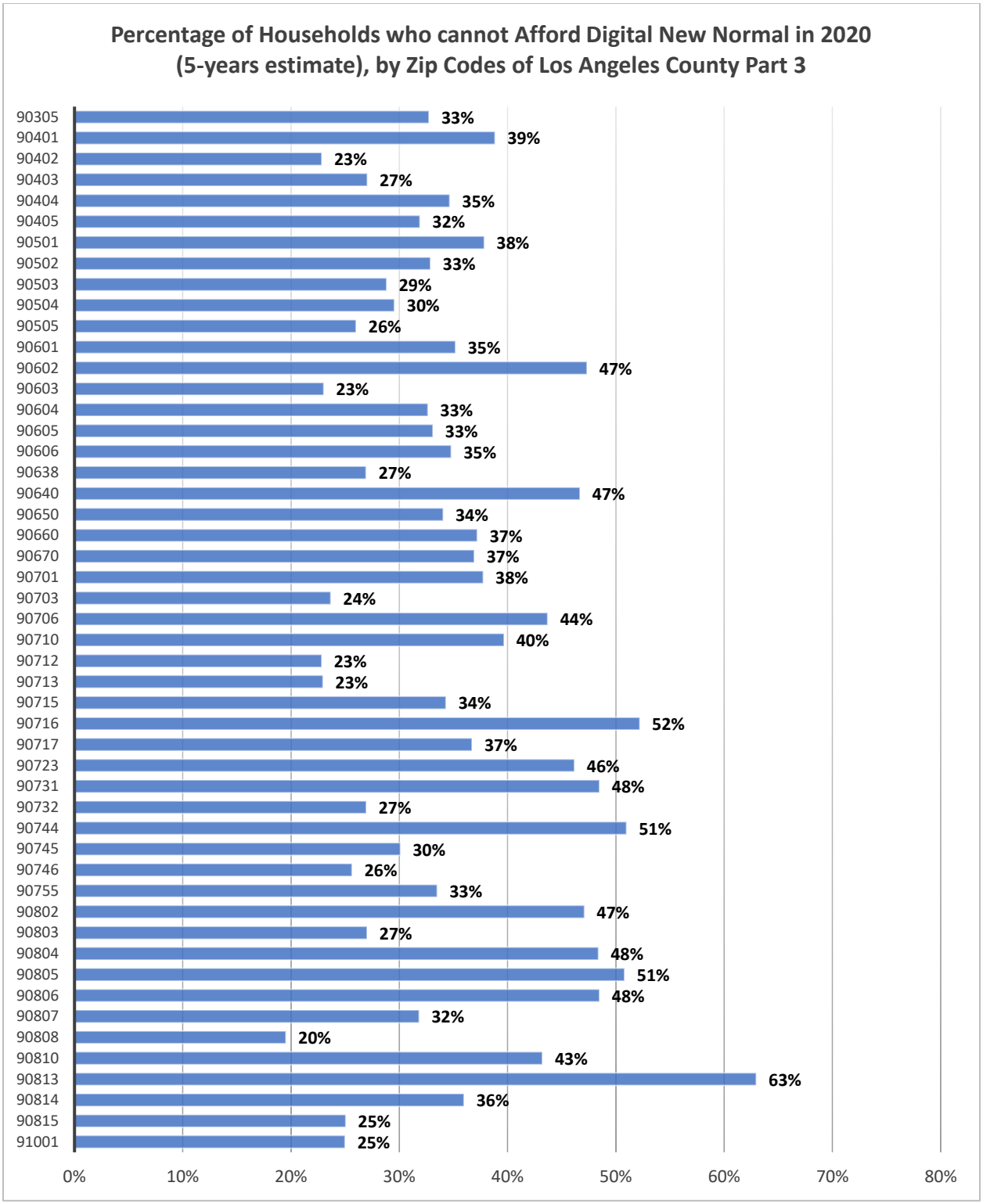

Figure 53: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Los Angeles County Part 3*

Source: U.S. Census (2019) S1901

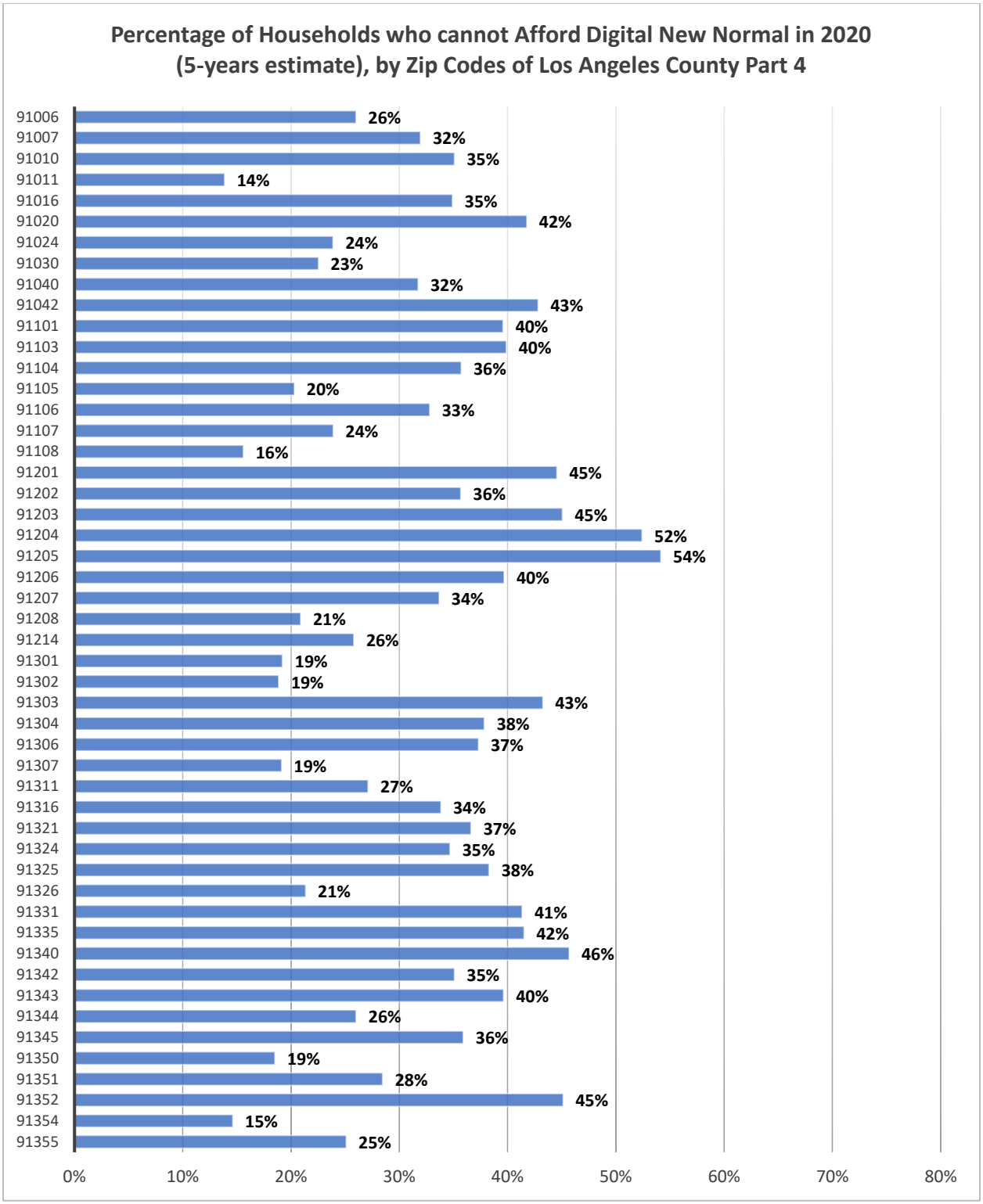

Figure 54: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Los Angeles County Part 4*

Source: U.S. Census (2019) S1901

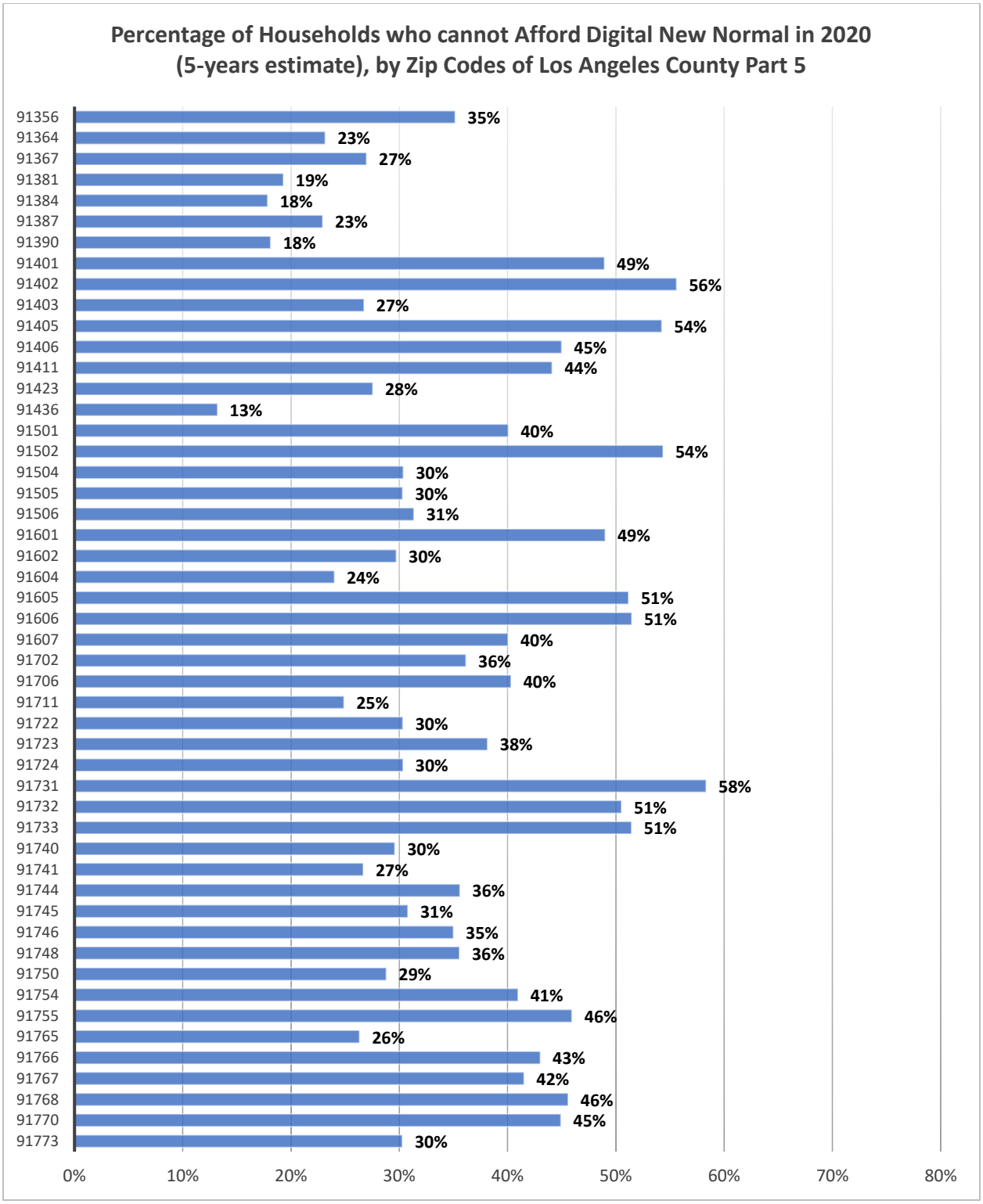

Figure 55: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Los Angeles County Part 5*

Source: U.S. Census (2019) S1901

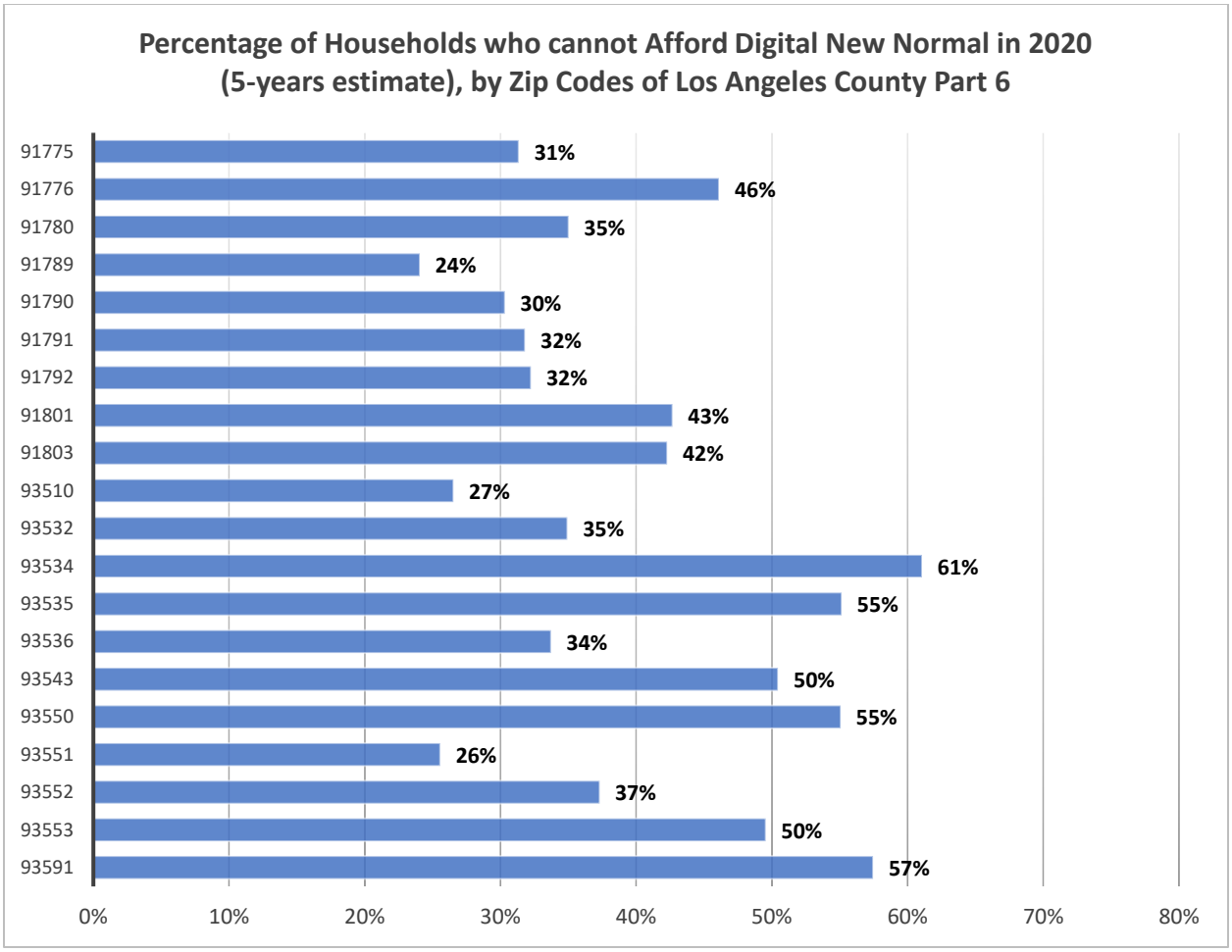

Figure 56: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Los Angeles County Part 6*

Source: U.S. Census (2019) S1901

A lack of affordability is an important indicator of the degree of the digital divide in various population centers within each county and across its zip codes. The lowest level is 10%, but it goes as high as 63%. The level of affordability in a large number of zip codes is higher than 40%. The results show an urgent call for all possible efforts which can reduce the cost, or make it more tolerable through subsidies or other feasible economic means.

3. Digital Divide in Orange County

Orange County is one of the most populated counties in Southern California. According to the U.S. Census, in 2020, Orange County had a population of 3,186,989 people. Its population grew by 5.9% from 2010. Orange County enjoys significant diversity within its population. According to the 2020 U.S. Census, the proportion of the Hispanic population was 34.8%, and White alone

(not Hispanic or Latino) formed 39.8% of its population. People under 18 years of age were 21.7% of county's population. The rate of persons in poverty was 9.0%.

The following segments provide a comprehensive body of information with regard to the digital divide across various groups within the population in the county and within 84 zip codes.

3.1. Households Without a Computer and/or Internet Connection

The following charts show the lack of access to as a combination of a lack of a computer and/or a stable Internet connection. The information is set into two different tables for all the 84 zip codes. They are organized in Tables 1 and 2 for this section. The information provides both the total of number of households with a lack of computers and/or an Internet connection, and their percentages within the total number of households in each area.

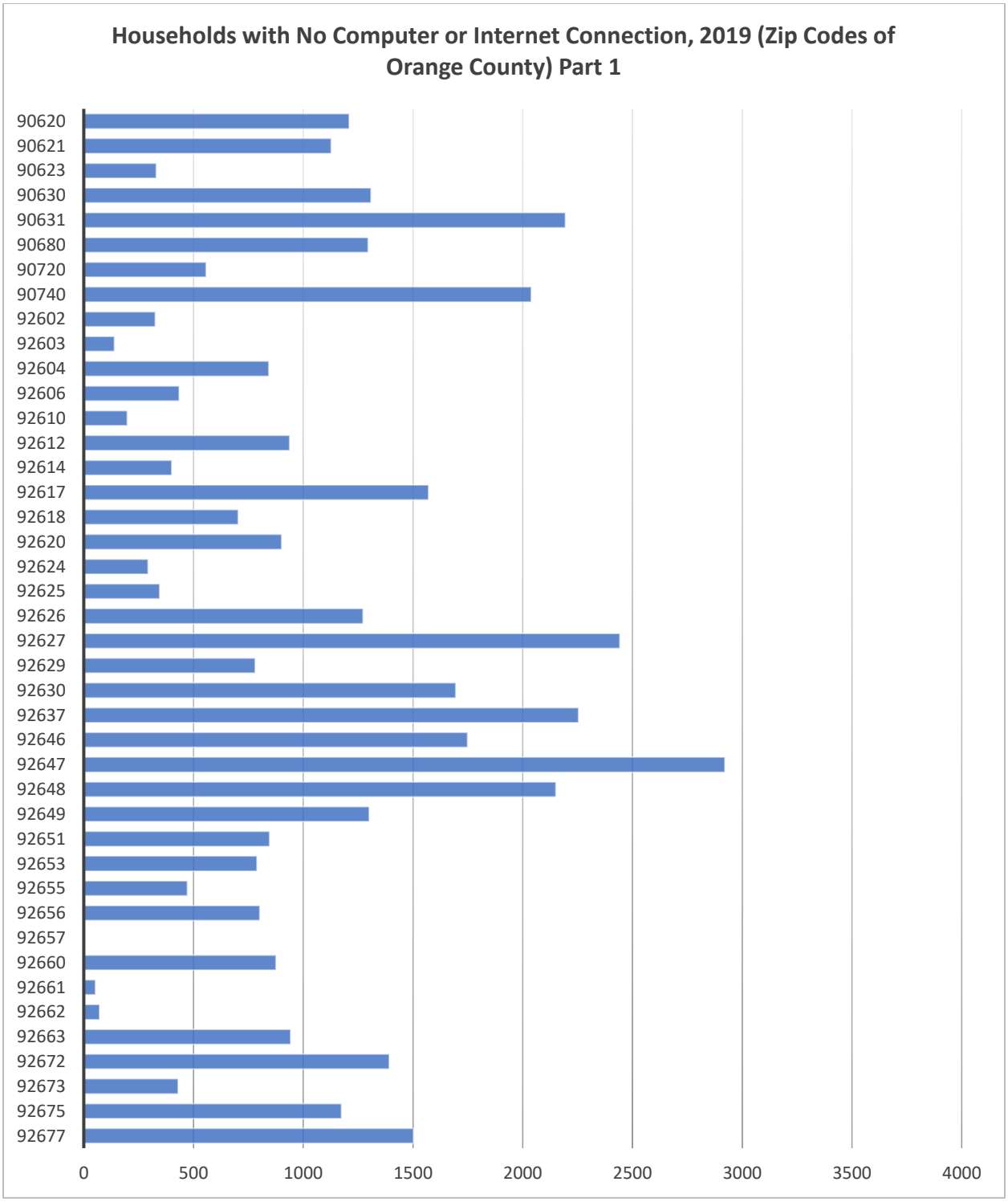

Figure 57: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Orange County) Part 1*

Source: U.S. Census (2019) B28003

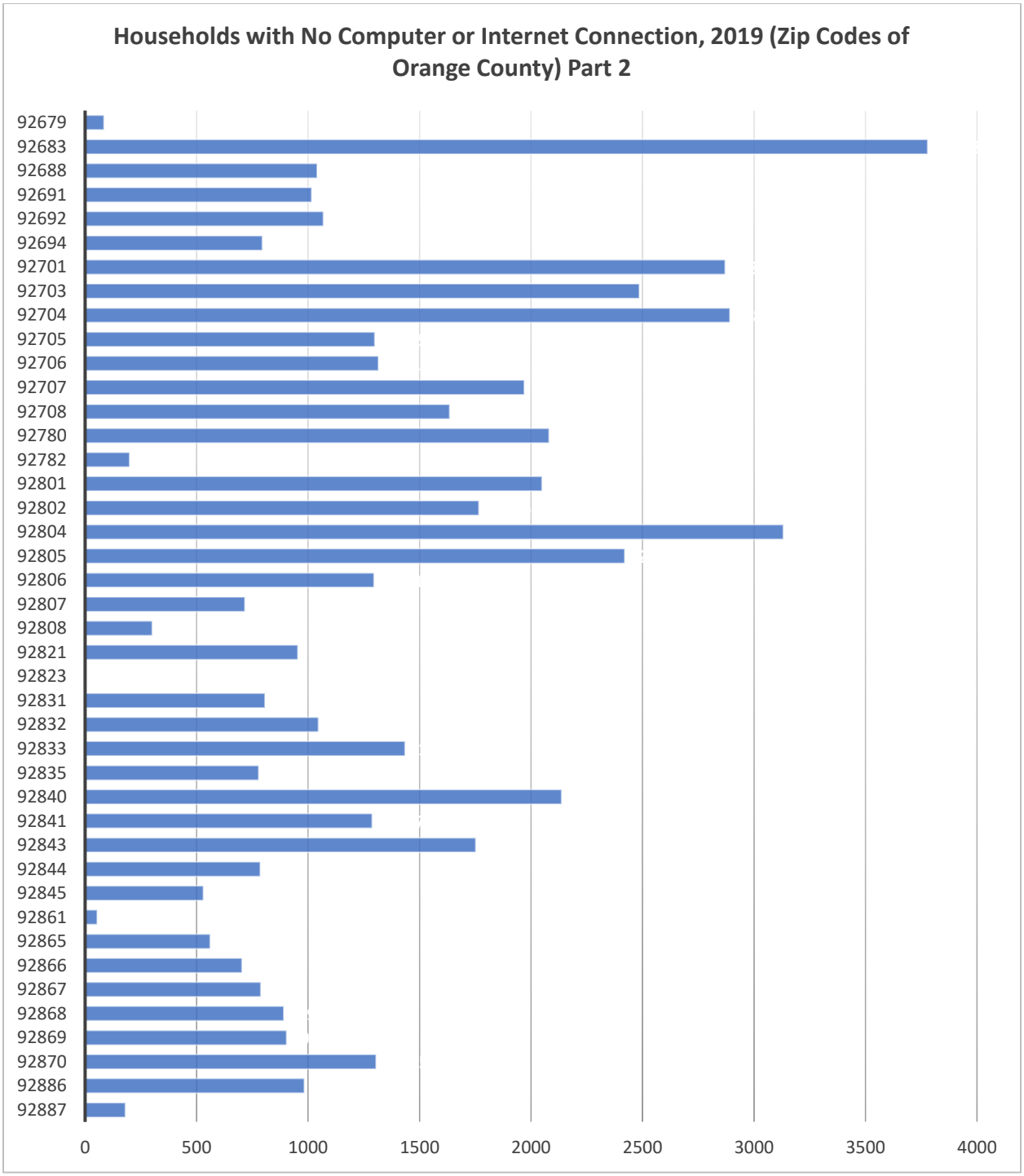

Figure 58: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Orange County) Part 2*

Source: U.S. Census (2019) B28003

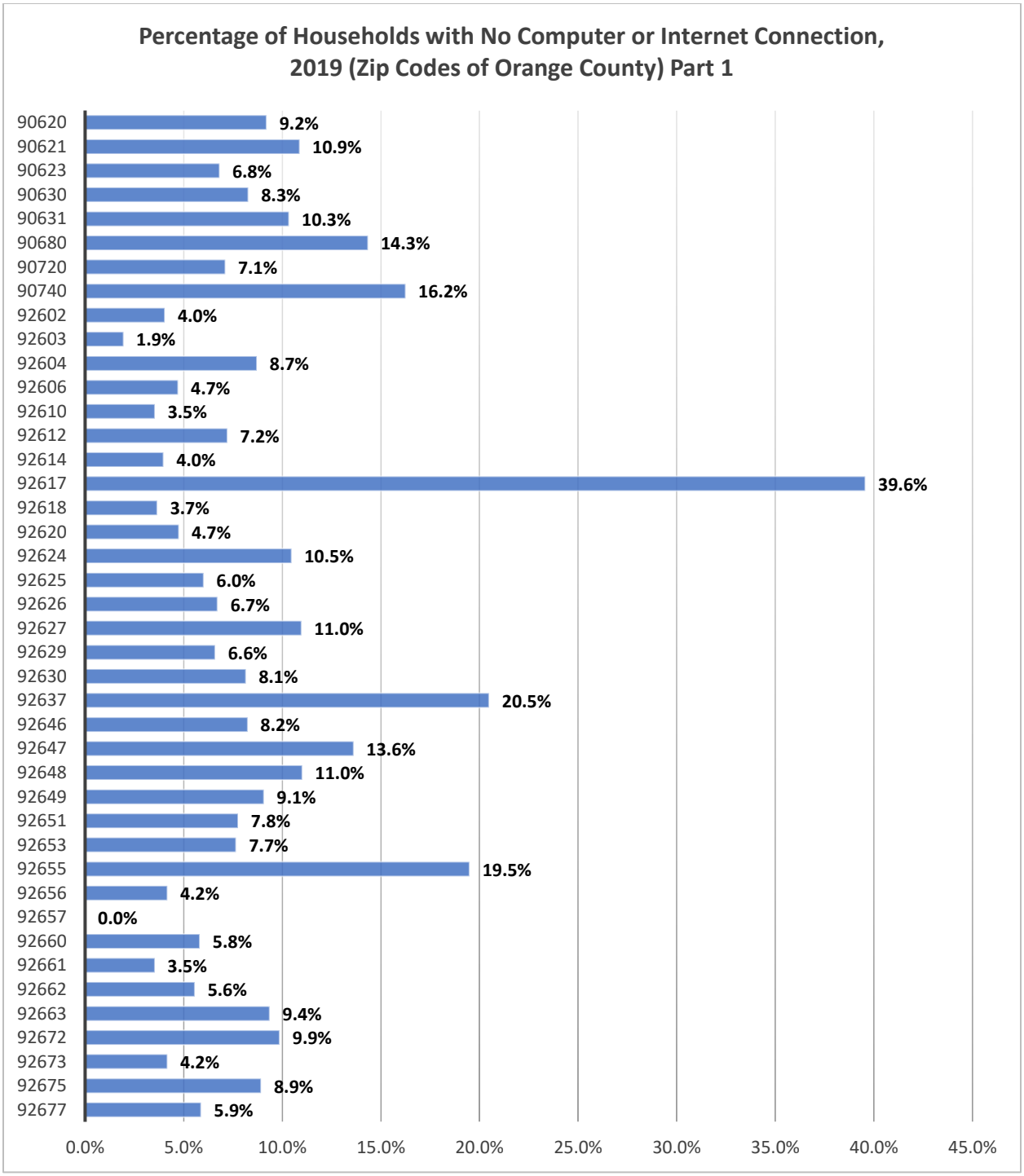

Figure 59: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Orange County) Part 1*

Source: U.S. Census (2019) B28003

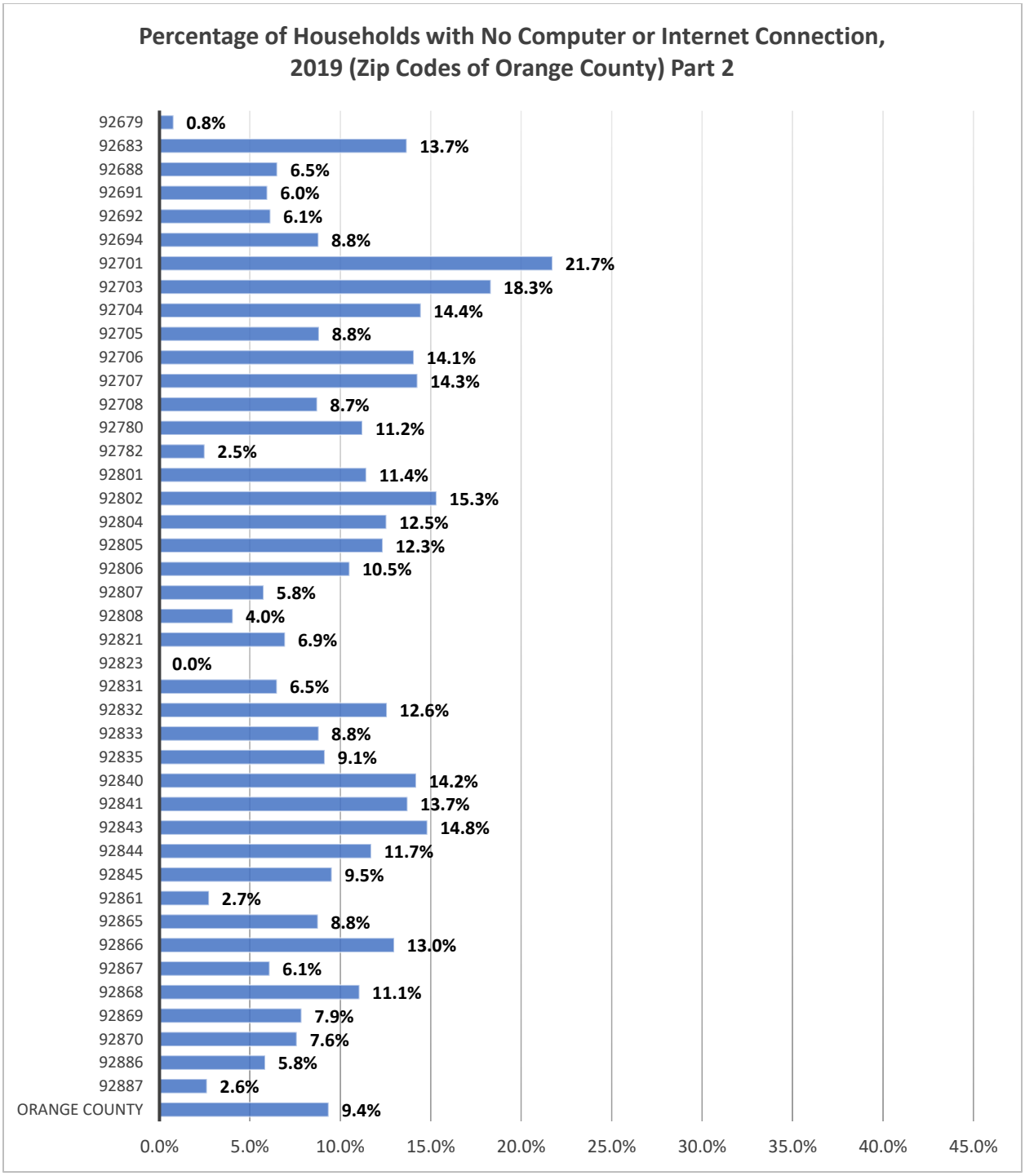

Figure 60: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Orange County) Part 2*

Source: U.S. Census (2019) B28003

The above charts present the same story which we have seen in other segments of this report. In total, some 9.4% of Orange County's total households do not have computers and/or access to an Internet connection. The rate varies from zero, to nearly 40% in some zip codes. Most locations within the county have a lack of access rate below 10%. There are, however, some zip codes in which the rate for them falls between 10% and 15%. By comparison, there are fewer zip codes in which the rate exceeds 15%.

The other important issue to bear in mind when we are observing the differing rates is that within cities, we have a remarkable level of difference in economic status of the residents. Affluence, and a lack thereof, can be found within a relatively small geographic area. Examples of such differences can be found in cities such as Irvine.

3.2. Population Without a Computer or Internet Connection Across Race & Ethnicity

The following charts look into the differences in having access to a computer and an Internet connection across various zip codes among the population of Orange County in various zip codes. Again, we looked into racial differences and their status with regard to the digital divide and also within ethnicities based on White alone (not Hispanics or Latino), and Hispanic and Latino. This was an effort to allow us observe the existing differences across a full spectrum of the racial and ethnic divide.

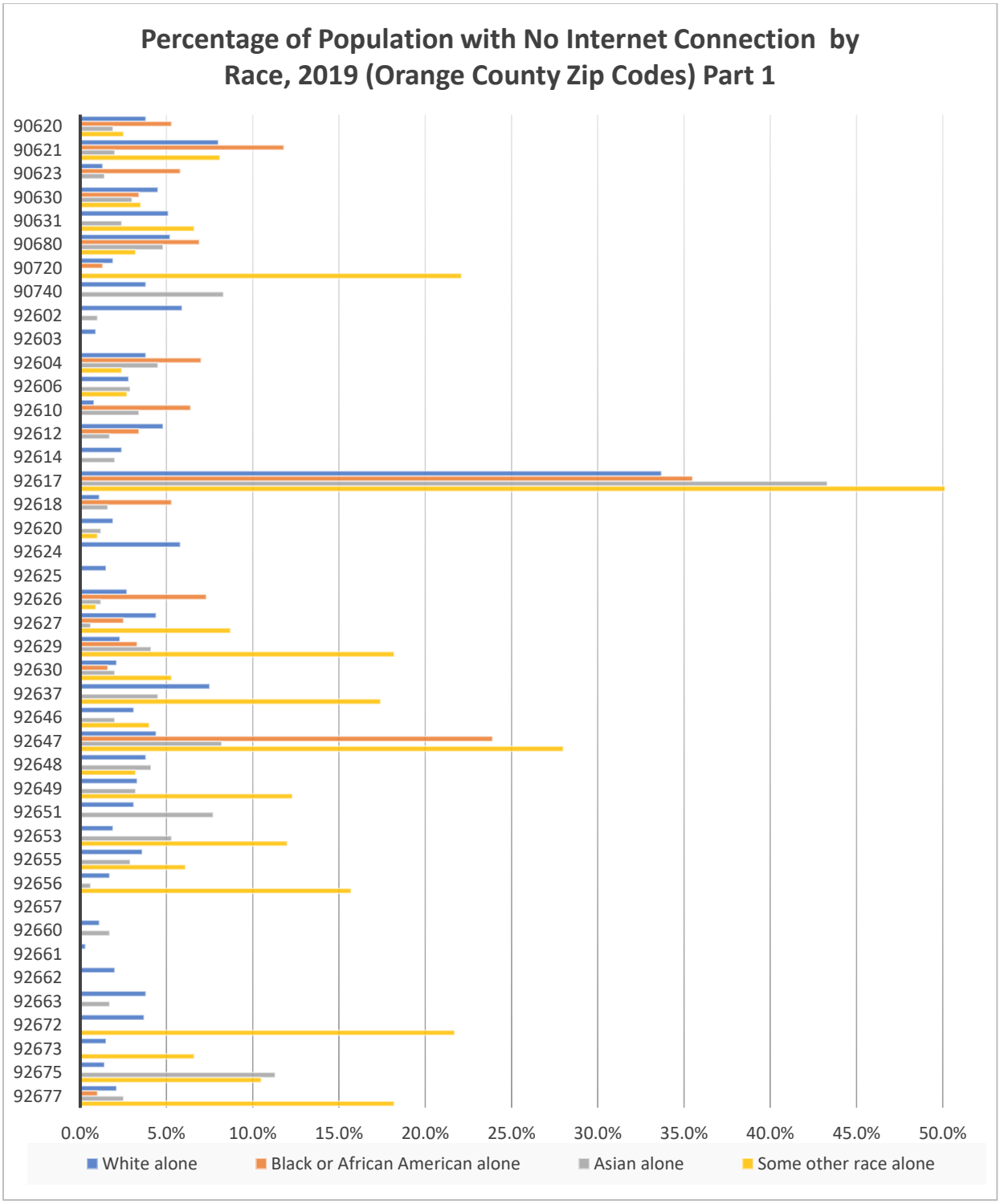

Figure 61: *Percentage of Population with No Internet Connection by Race, 2019 (Orange County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

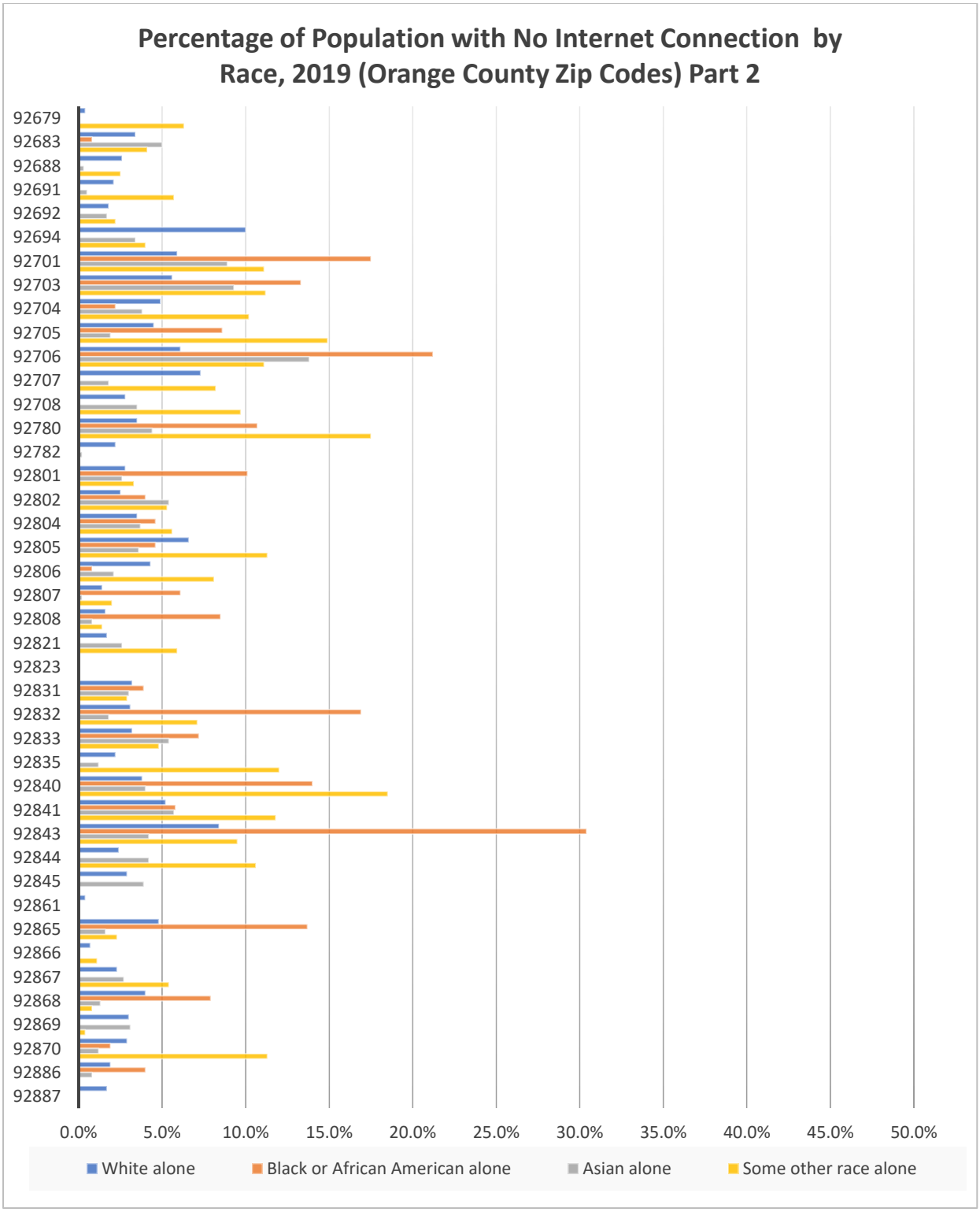

Figure 62: *Percentage of Population with No Internet Connection by Race, 2019 (Orange County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

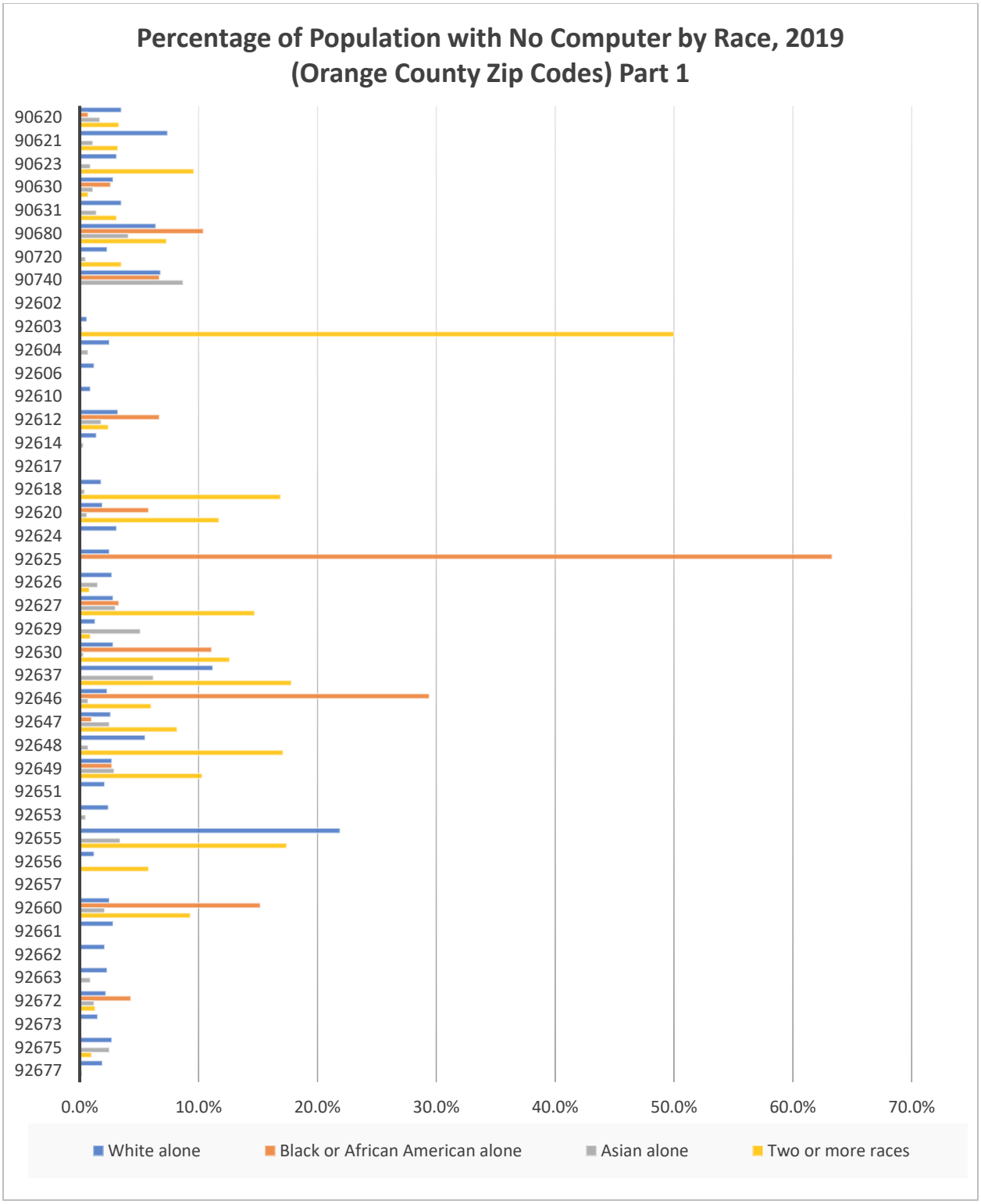

Figure 63: *Percentage of Population with No Computer by Race, 2019 (Orange County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

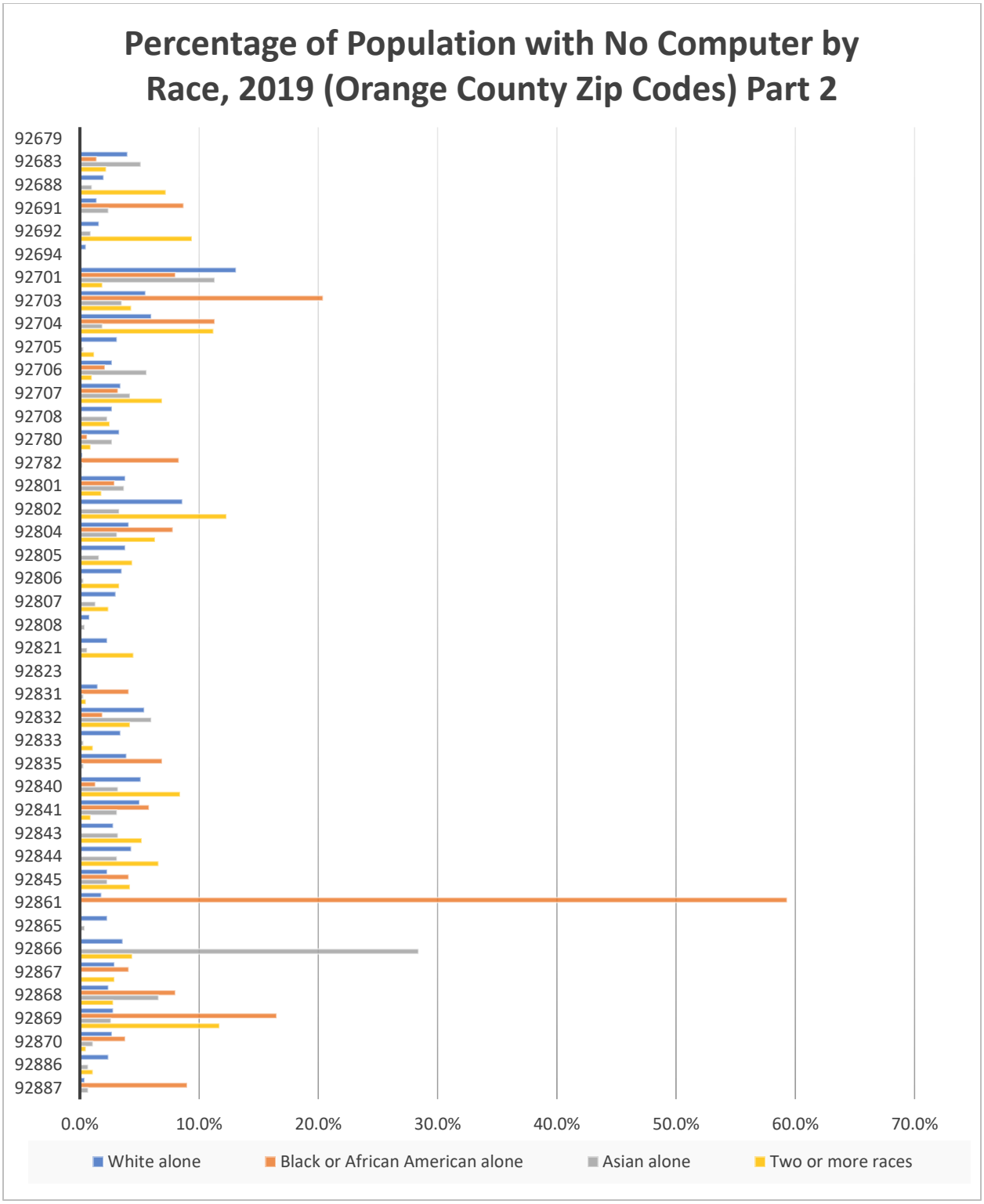

Figure 64: *Percentage of Population with No Computer by Race, 2019 (Orange County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

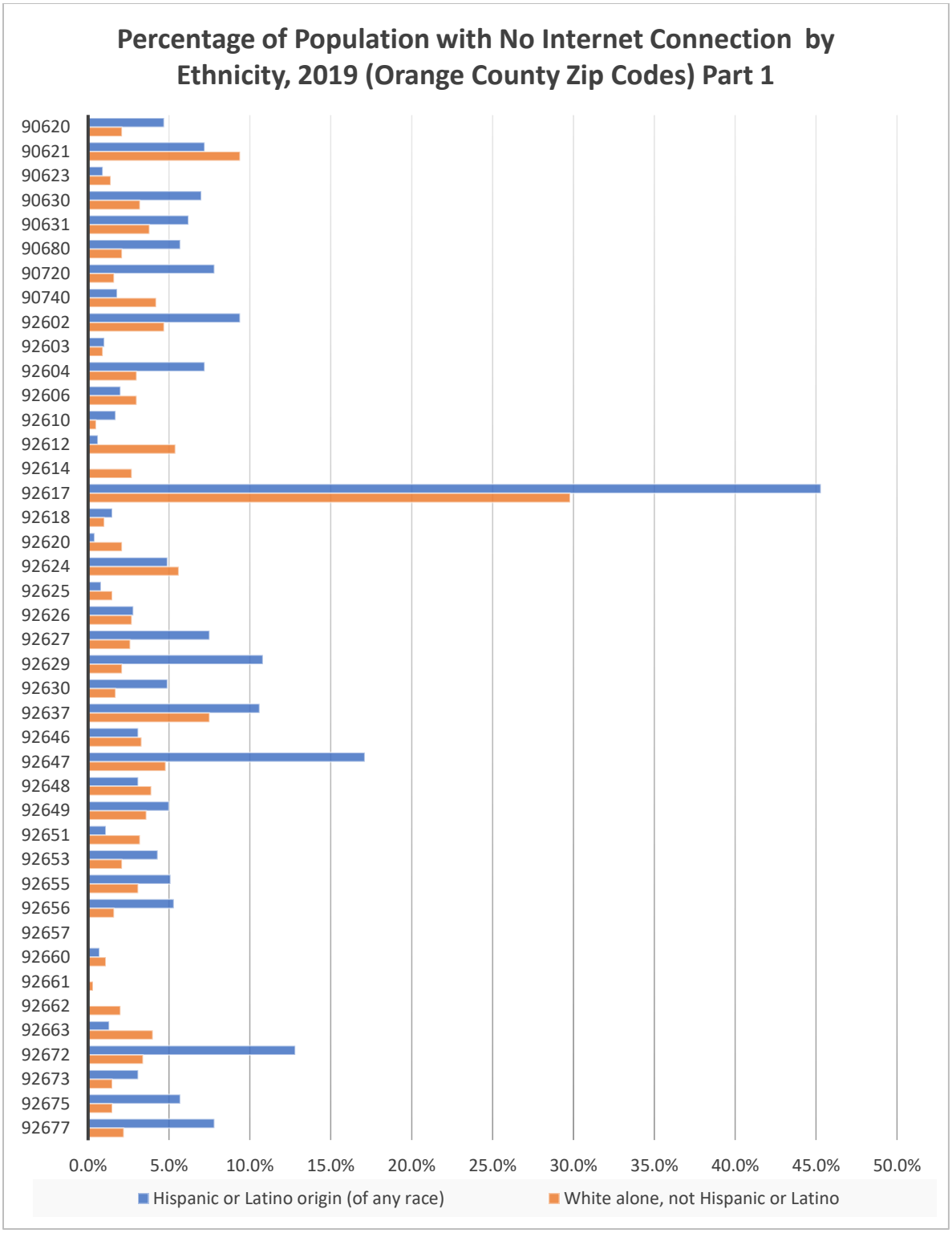

Figure 65: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Orange County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

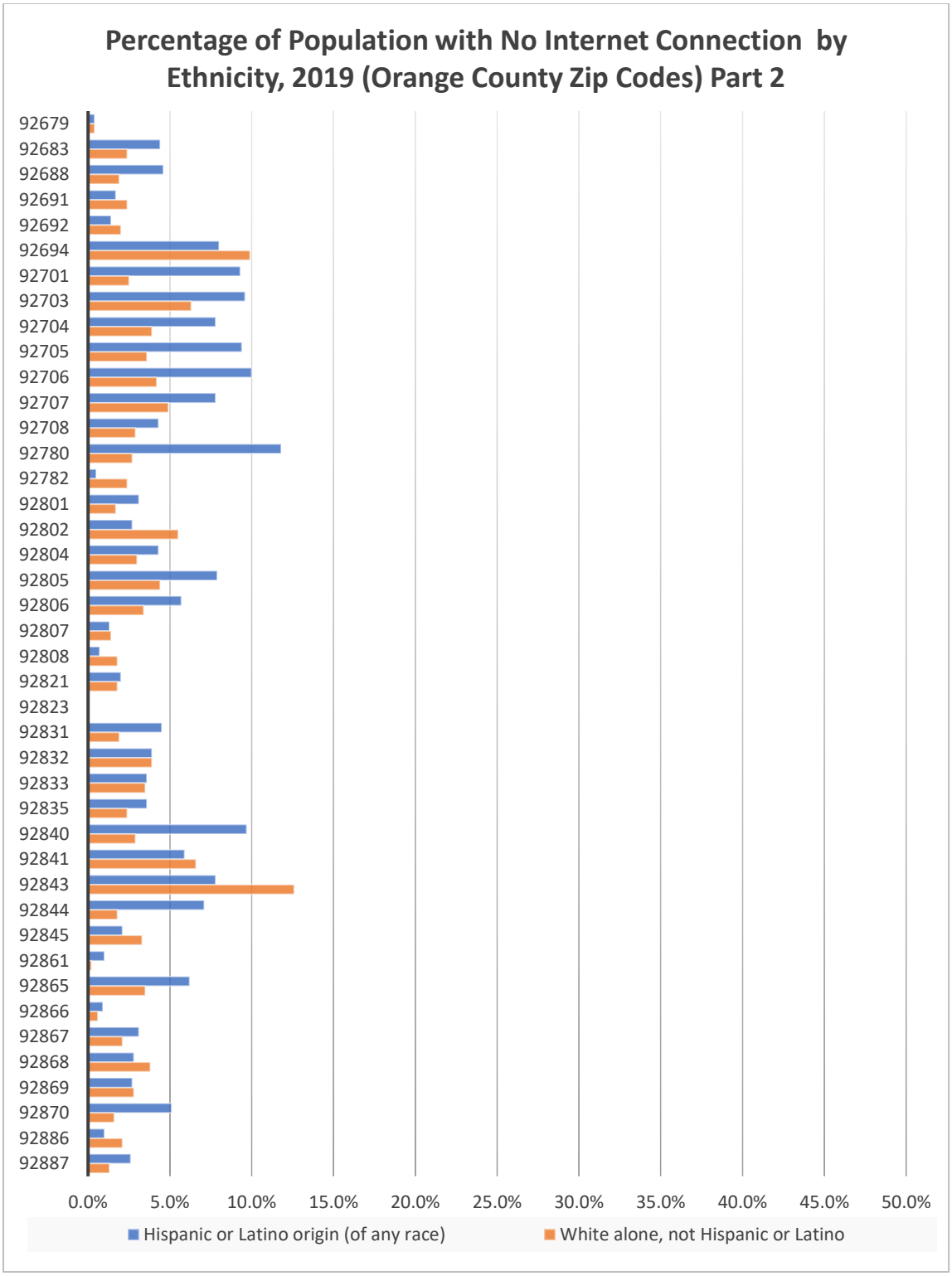

Figure 66: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Orange County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

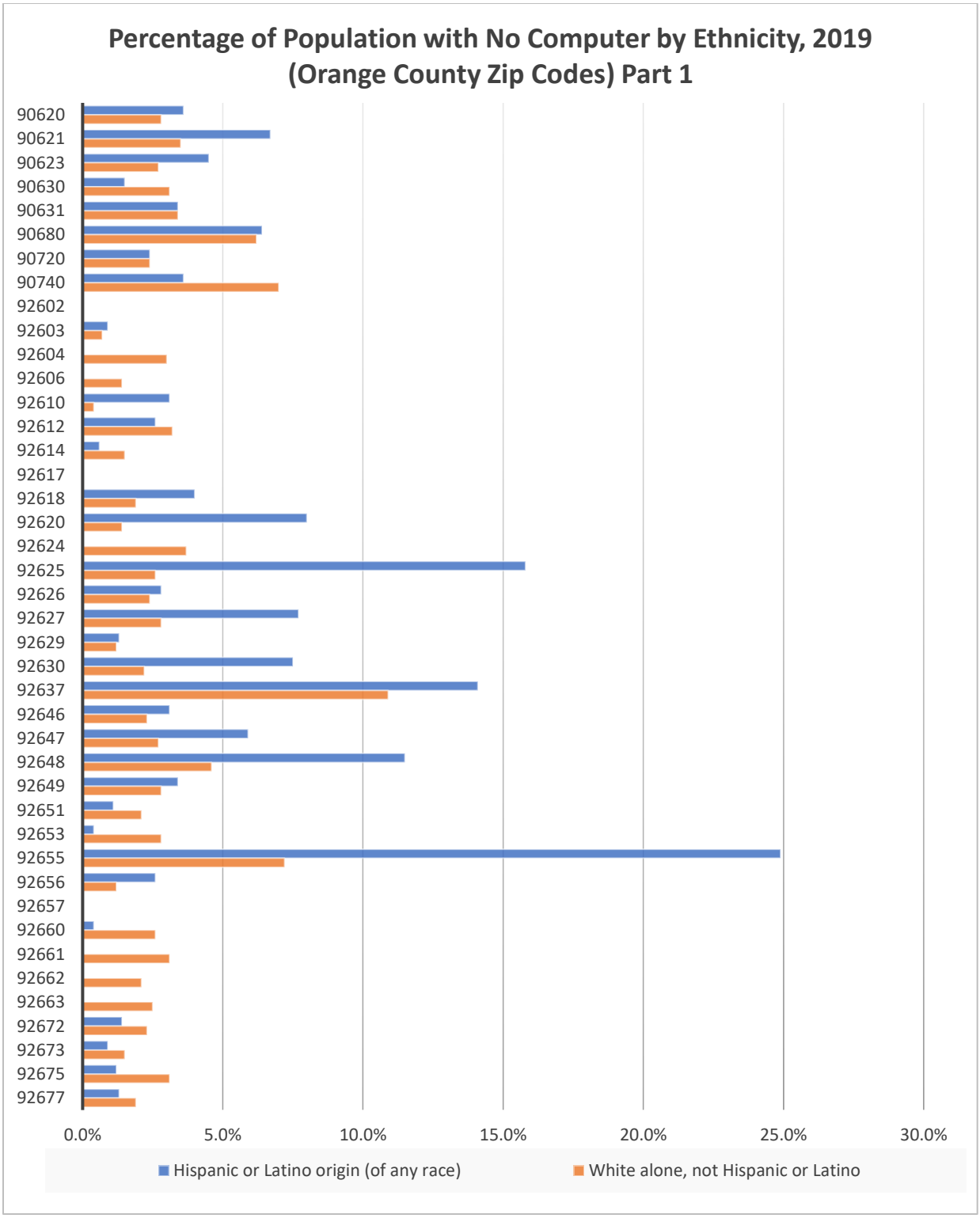

Figure 67: *Percentage of Population with No Computer by Ethnicity, 2019 (Orange County Zip Codes) Part 1*

Source: U.S. Census (2019) S2802

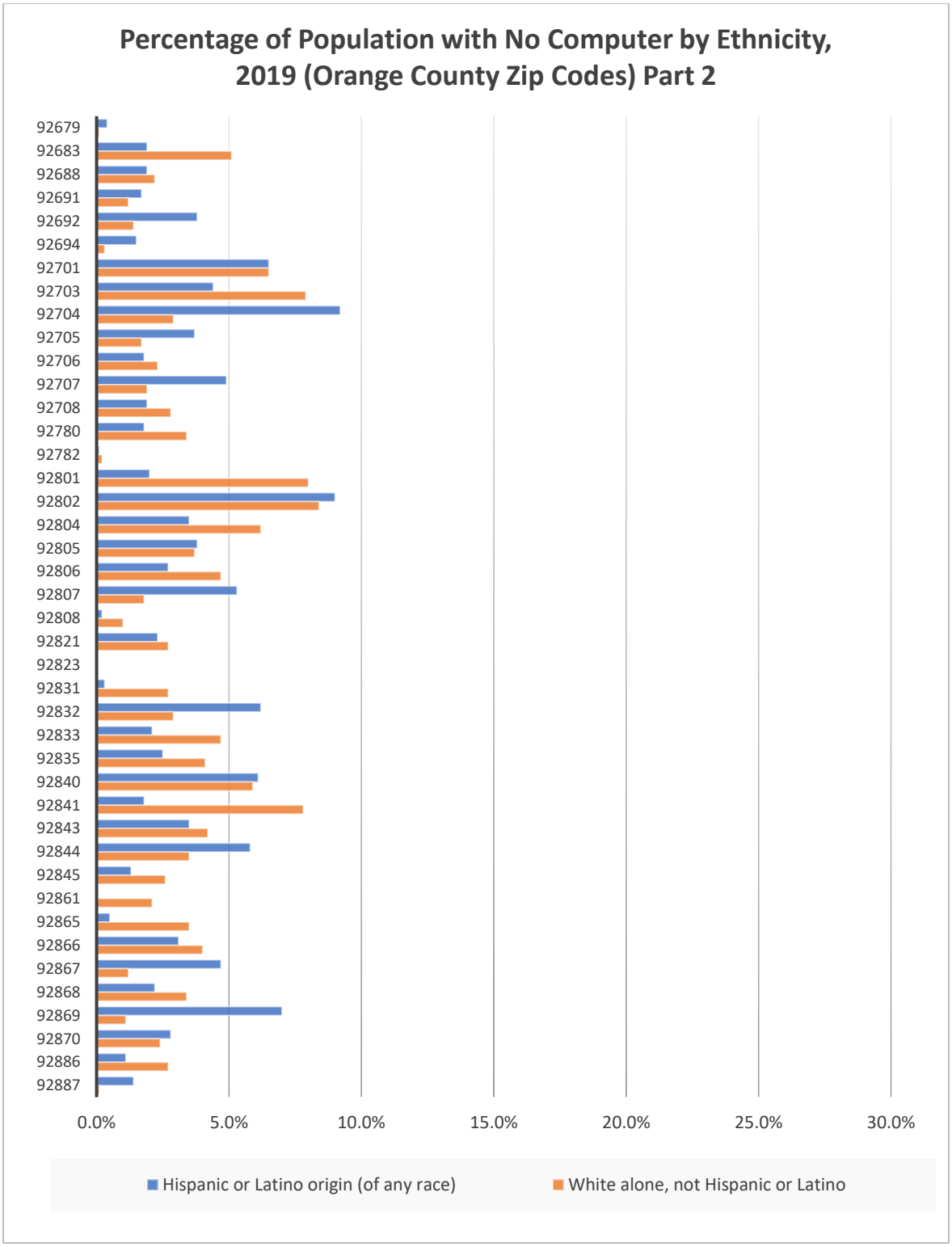

Figure 68: *Percentage of Population with No Computer by Ethnicity, 2019 (Orange County Zip Codes) Part 2*

Source: U.S. Census (2019) S2802

The above charts show a wide gap in the rate of access to computers and Internet connections across various racial and ethnic groups. In some zip codes, there is no lack of computers or Internet connection at all. However, the number of such zip codes is minuscule. In such zip codes, there are no significant differences in access across races or ethnicities. In other zip codes, the level is quite significant.

In general, Hispanics and Black or African American show a higher level of lack of access.

3.3. Lack of Access to Computer & Internet Connection Among Children Under 18 Years of Age

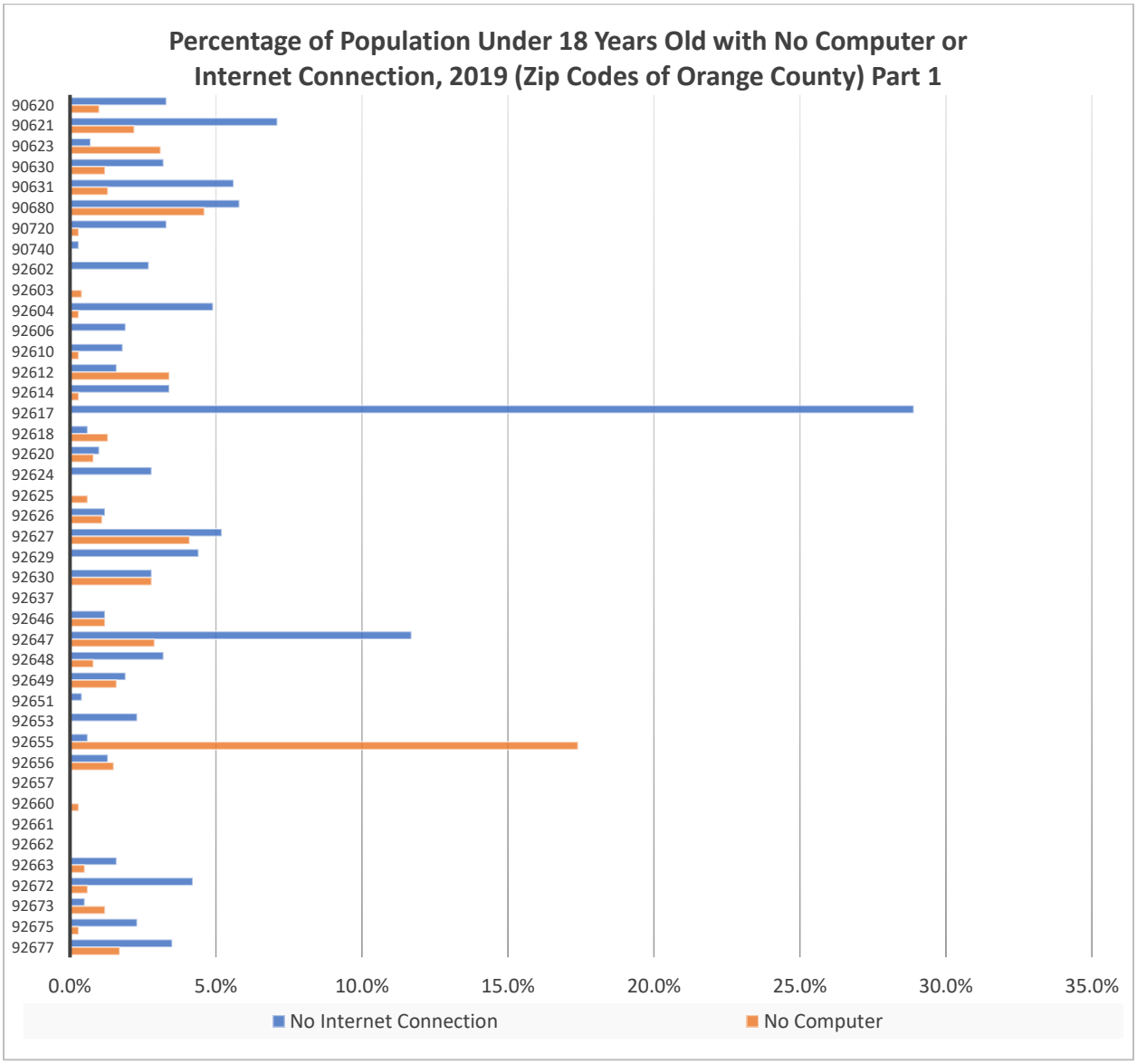

Figure 69: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Orange County) Part 1*

Source: U.S. Census (2019) S2802

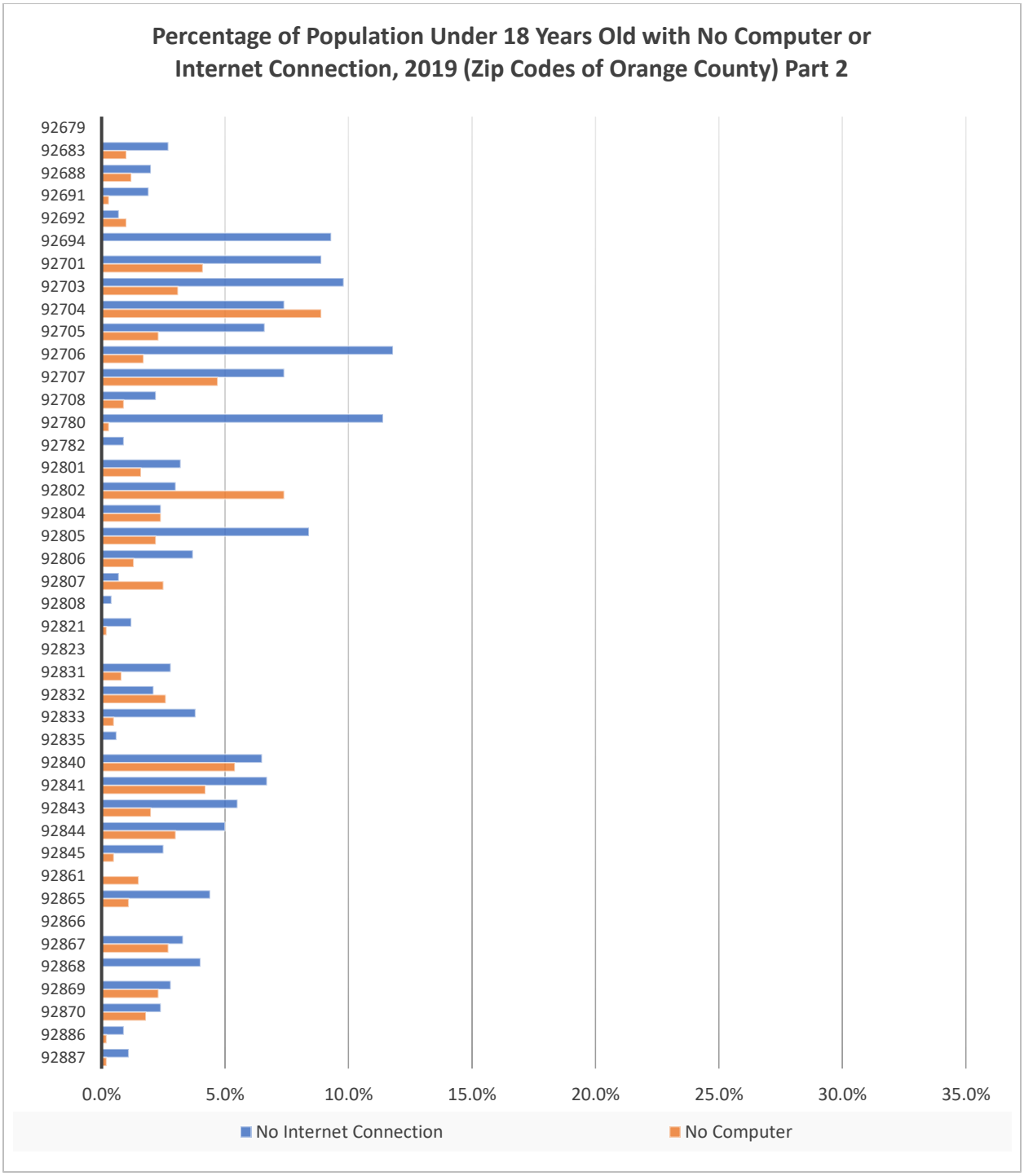

Figure 70: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Orange County) Part 2*

Source: U.S. Census (2019) S2802

Similar to our findings in other counties, there is a considerable level of difference between access to a computer and an Internet connection for people under 18 years of age across the county.

3.4. Affordability of Access to Necessary Devices and Internet Connection Across Neighborhood

Finally, in the following two charts, we look at the level of affordability to have and maintain a computer and access to digital services across the zip codes in various parts of Orange County.

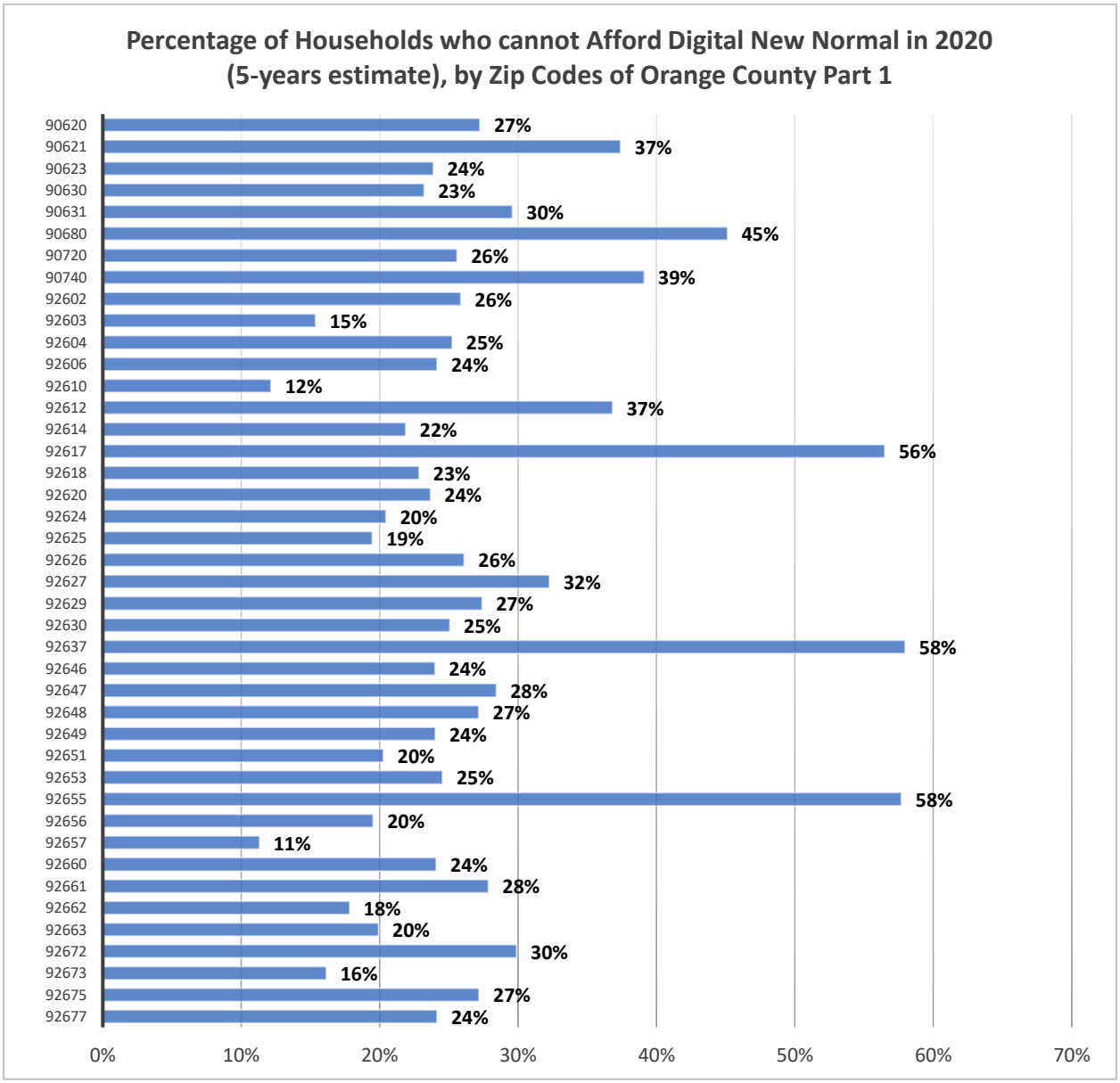

Figure 71: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Orange County Part 1*

Source: U.S. Census (2019) S1901

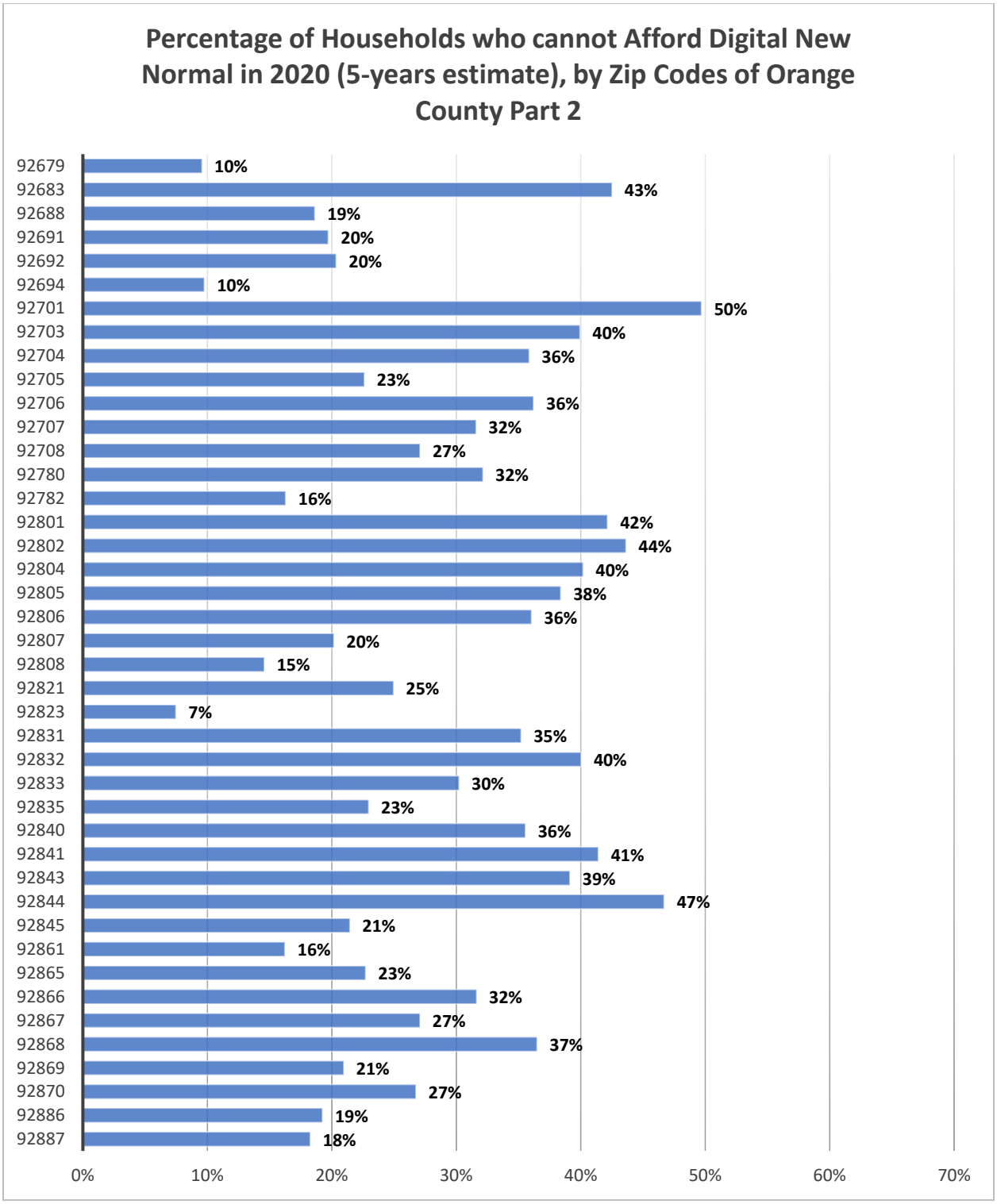

Figure 72: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Orange County Part 2*

Source: U.S. Census (2019) S1901

The last two charts show a wide range of differences among the zip codes. They change from as little of 7%, to as high as 58%. A large number of zip codes' affordability exceeds 20% of residents. Among in a significant number of zip codes, affordability goes beyond 30%.

4. Digital Divide in Riverside County

According to the Census report, in 2020, Riverside county's population was 2,418,185, which presented a rate of growth of 10.4% in its population from 2010. This makes Riverside County hold the highest rate of population growth in the SCAG region over the last 10 years. The proportion of young people under age 18 in 2020 was 26.1%. Riverside County's population breakdown includes 50.0% Hispanic, and 27.3% White alone (not Hispanic or Latino). The proportion of persons under the poverty line is 14.3% based on the latest information. We have gathered the information for all 64 zip codes within the county.

4.1.Households Without a Computer and/or Internet Connection

The following chart shows the number and percentages of households without computers and/or an Internet connection in the county.

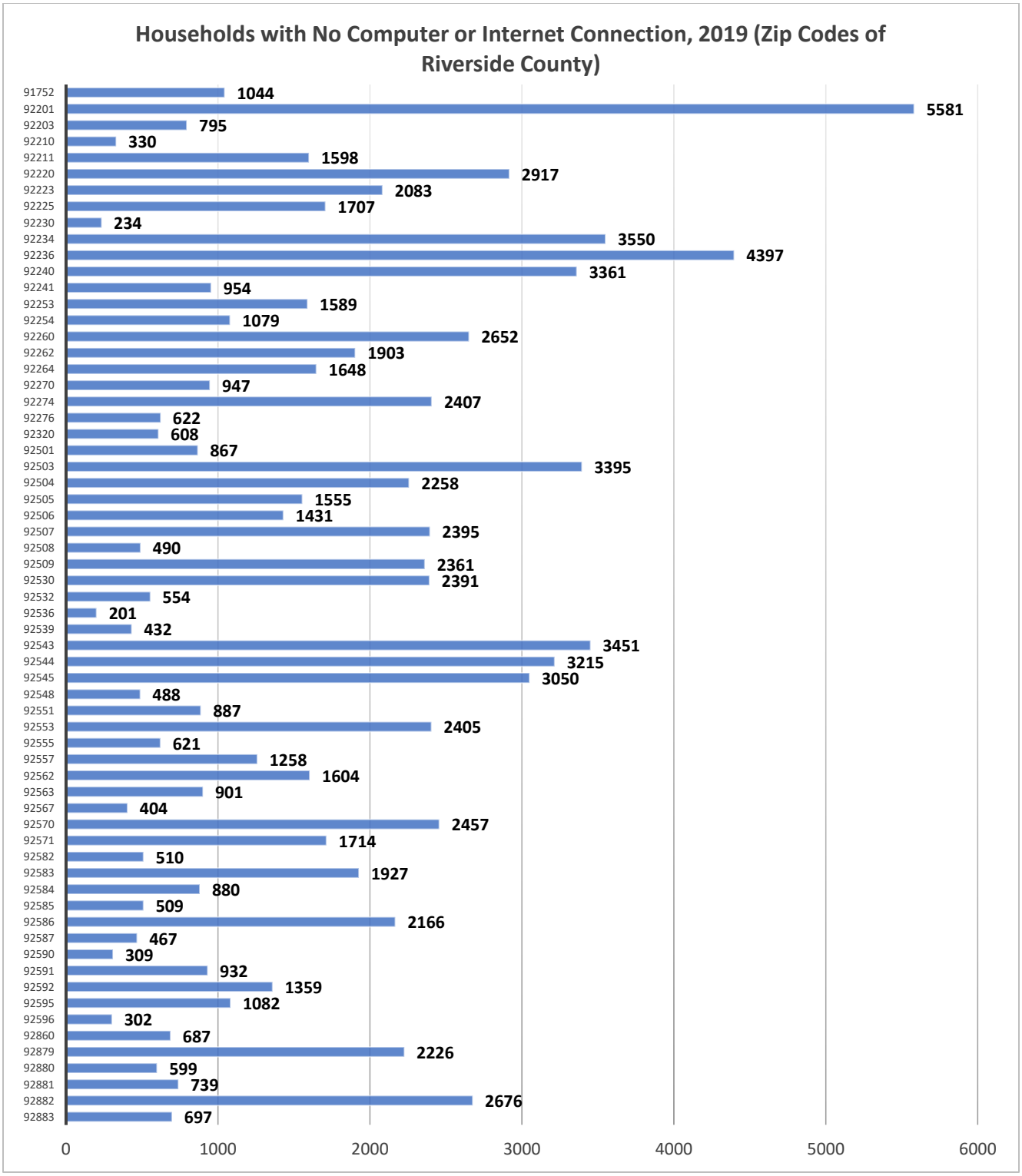

Figure 73: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Riverside County)*

Source: U.S. Census (2019) B28003

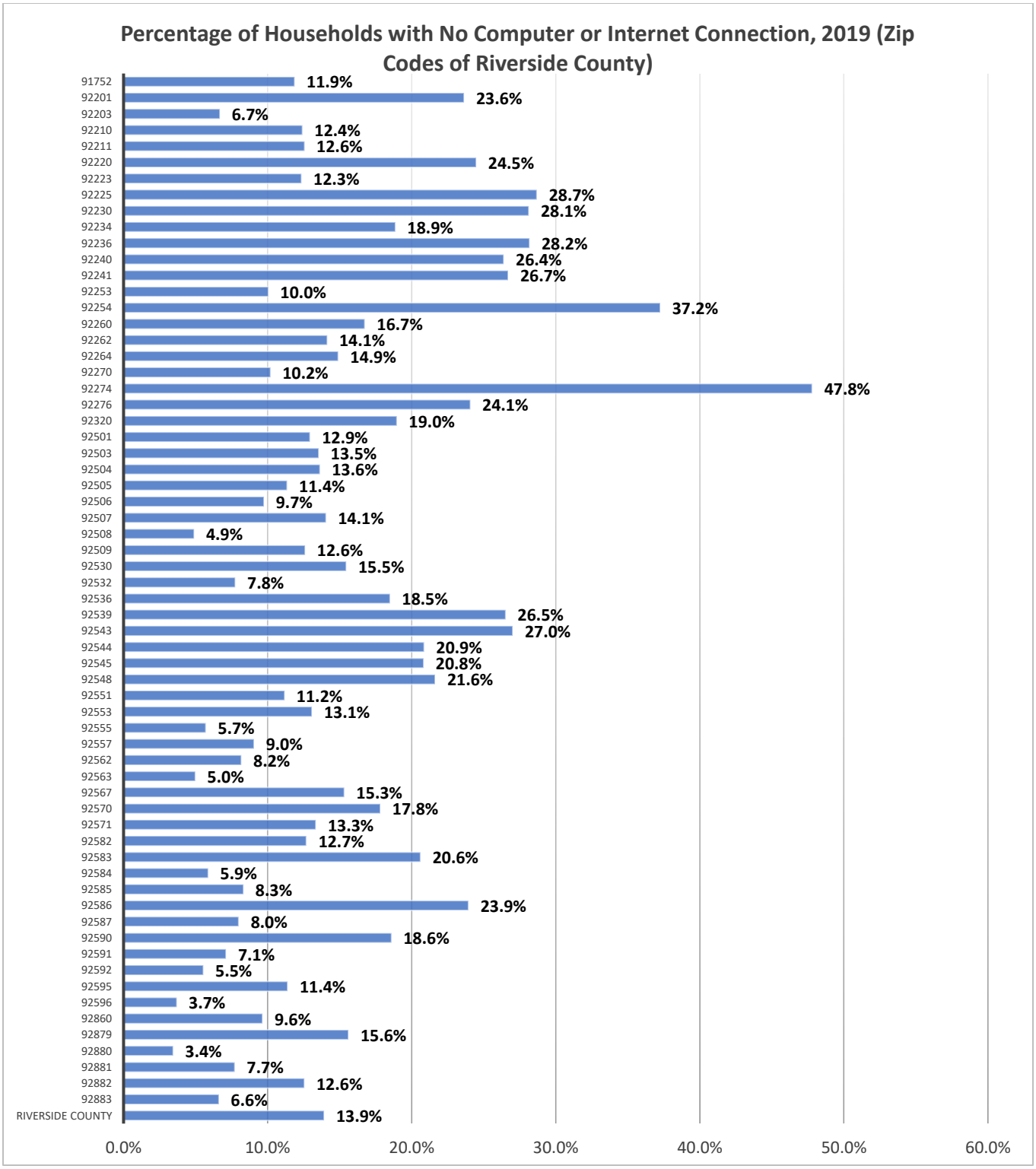

Figure 74: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Riverside County)*

Source: U.S. Census (2019) B28003

Looking into the emerging pattern shows that the overall rate of not having a computer or Internet connection is 13.9%. However, the rate varies considerably among different areas. It can be as low as 3.4%, and as high as 47.8%.

Looking further shows that a greater number of households have a lack of access rate of more than 10%, and among them, a higher proportion have a rate of more than 20%.

4.2. Population Without a Computer or Internet Connection Across Race & Ethnicity

The following charts take this inquiry and sort the results into different race and ethnicities. They can be seen in the following two charts.

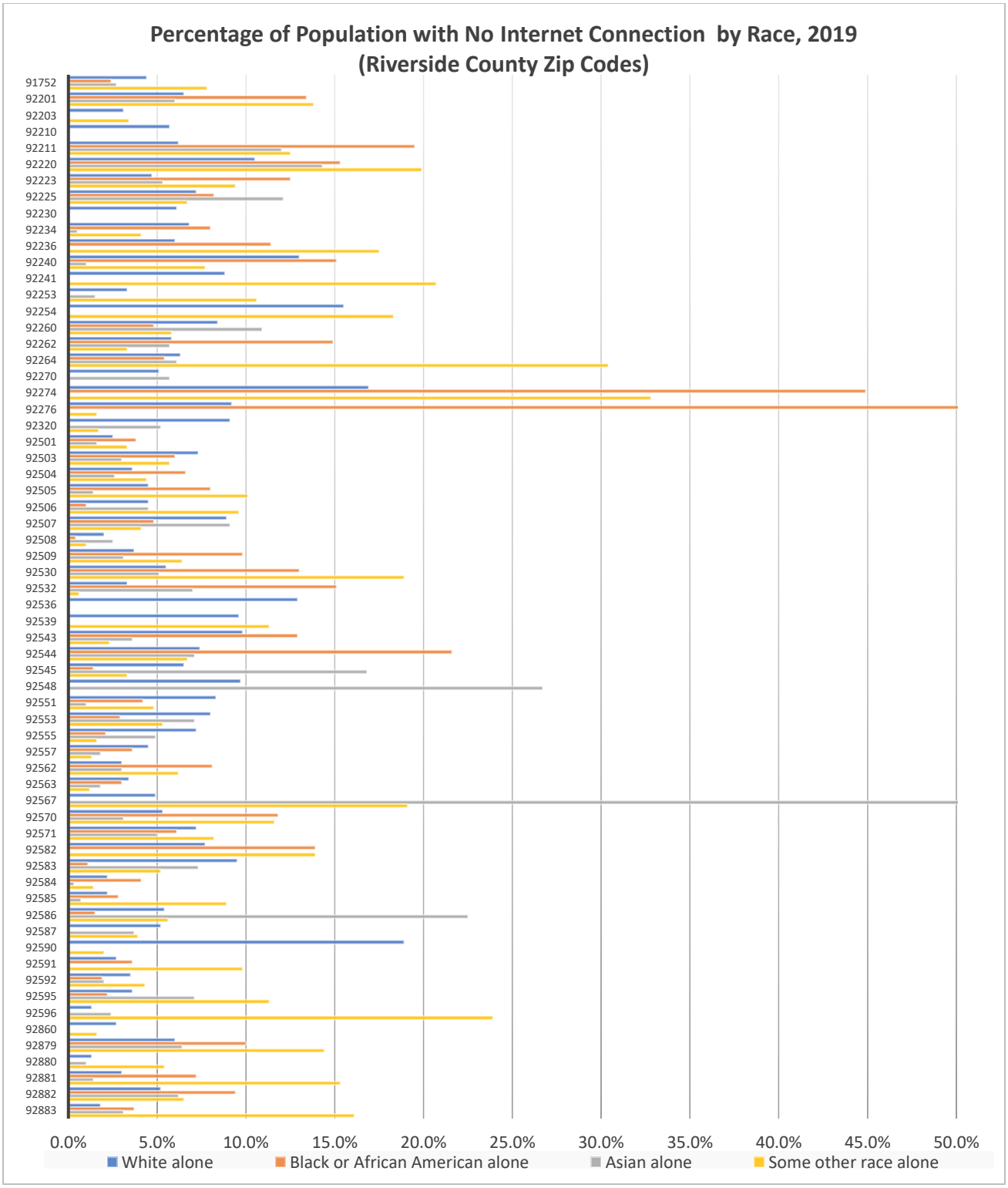

Figure 75: *Percentage of Population with No Internet Connection by Race, 2019 (Riverside County Zip Codes)*

Source: U.S. Census (2019) S2802

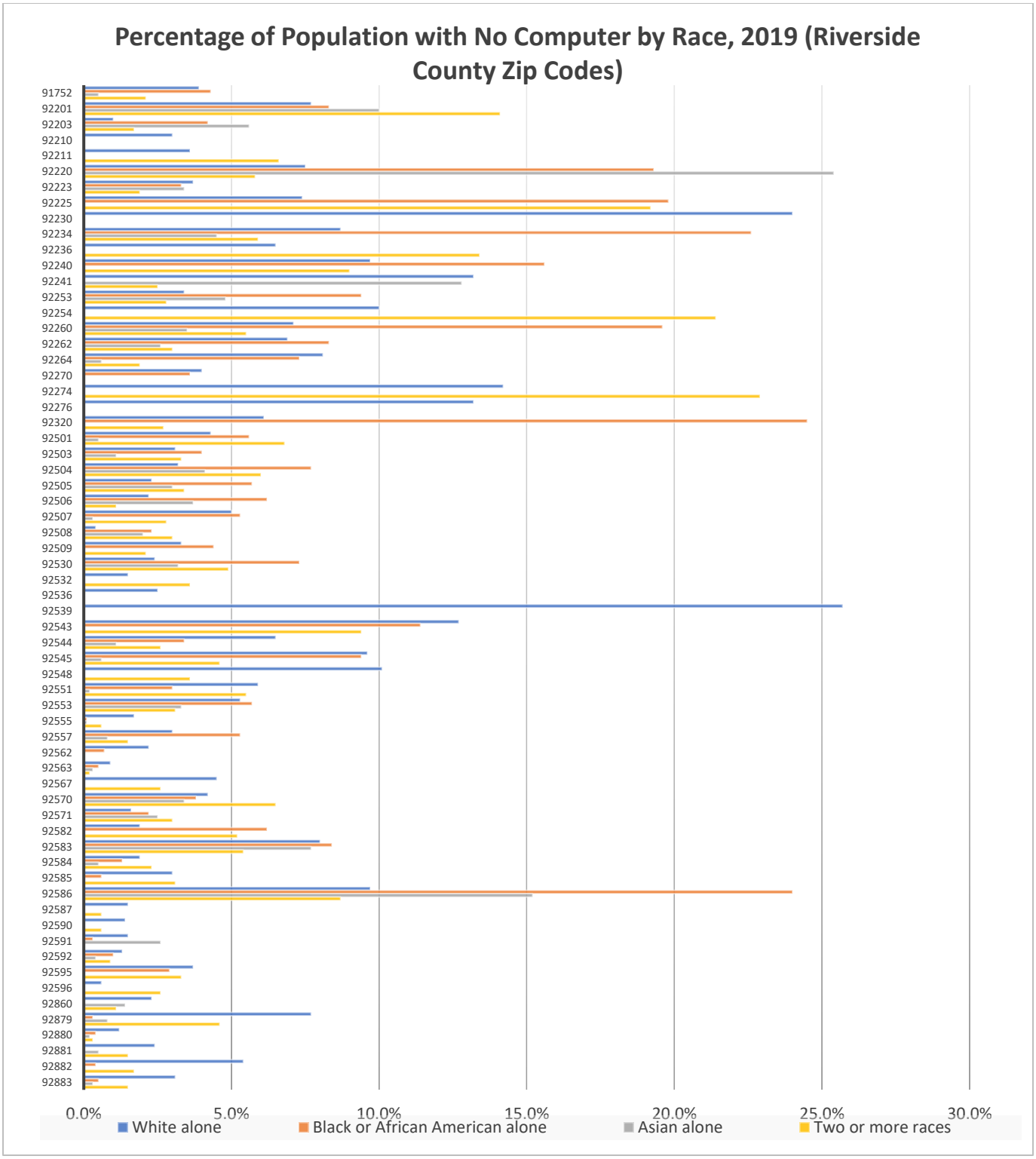

Figure 76: *Percentage of Population with No Computer by Race, 2019 (Riverside County Zip Codes)*

Source: U.S. Census (2019) S2802

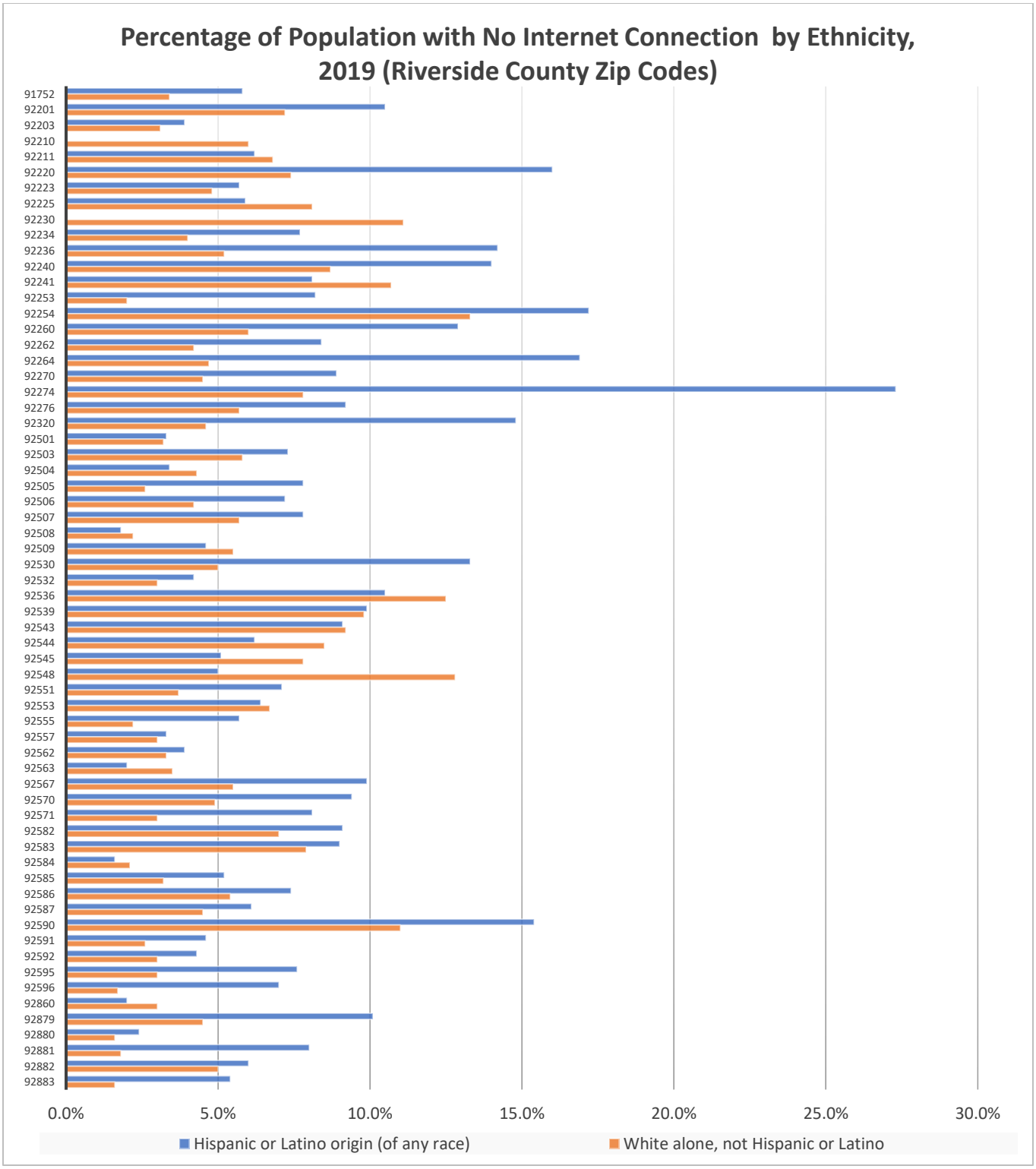

Figure 77: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Riverside County Zip Codes)*

Source: U.S. Census (2019) S2802

The last four charts show that a considerable proportion of the population do not have either computers or Internet connections across all races and ethnicities. However, in most areas, the percentage of Hispanics and Black or African American alone that lack these amenities is proportionally higher.

As mentioned a number of times throughout this report, the inability to connect to the Internet or have access to needed devices can be a source of inability to receive many services, to be able to work, and to study.

4.3. Lack of Access to a Computer & Internet Connection Among Children Under 18 Years of Age

The following chart looks at the digital divide among children under 18 years of age. The lack of access rate varies significantly among different zip codes. In some areas, the rate is very small. In a considerable number of areas, it varies between 5% and 10%. Within a smaller number of areas, the rate for either or both exceeds 10%. Overall, the rate of lack of access to the Internet is greater than a lack of access to a computer. The inability to have access to the Internet has an important impact on children who benefit from educational services. This has emerged as important impediments for the education of children in underserved families.

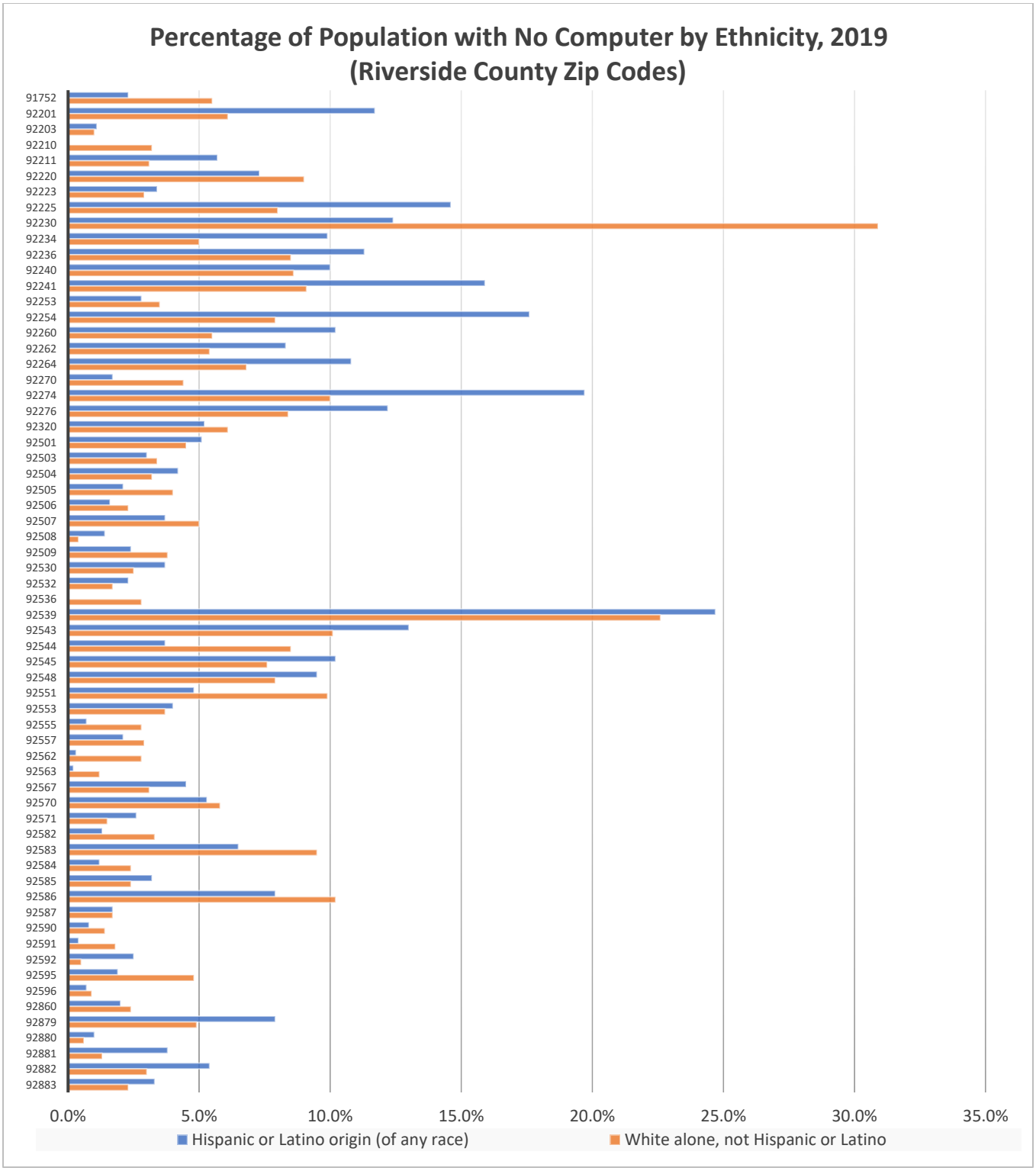

Figure 78: *Percentage of Population with No Computer by Ethnicity, 2019 (Riverside County Zip Codes)*

Source: U.S. Census (2019) S2802

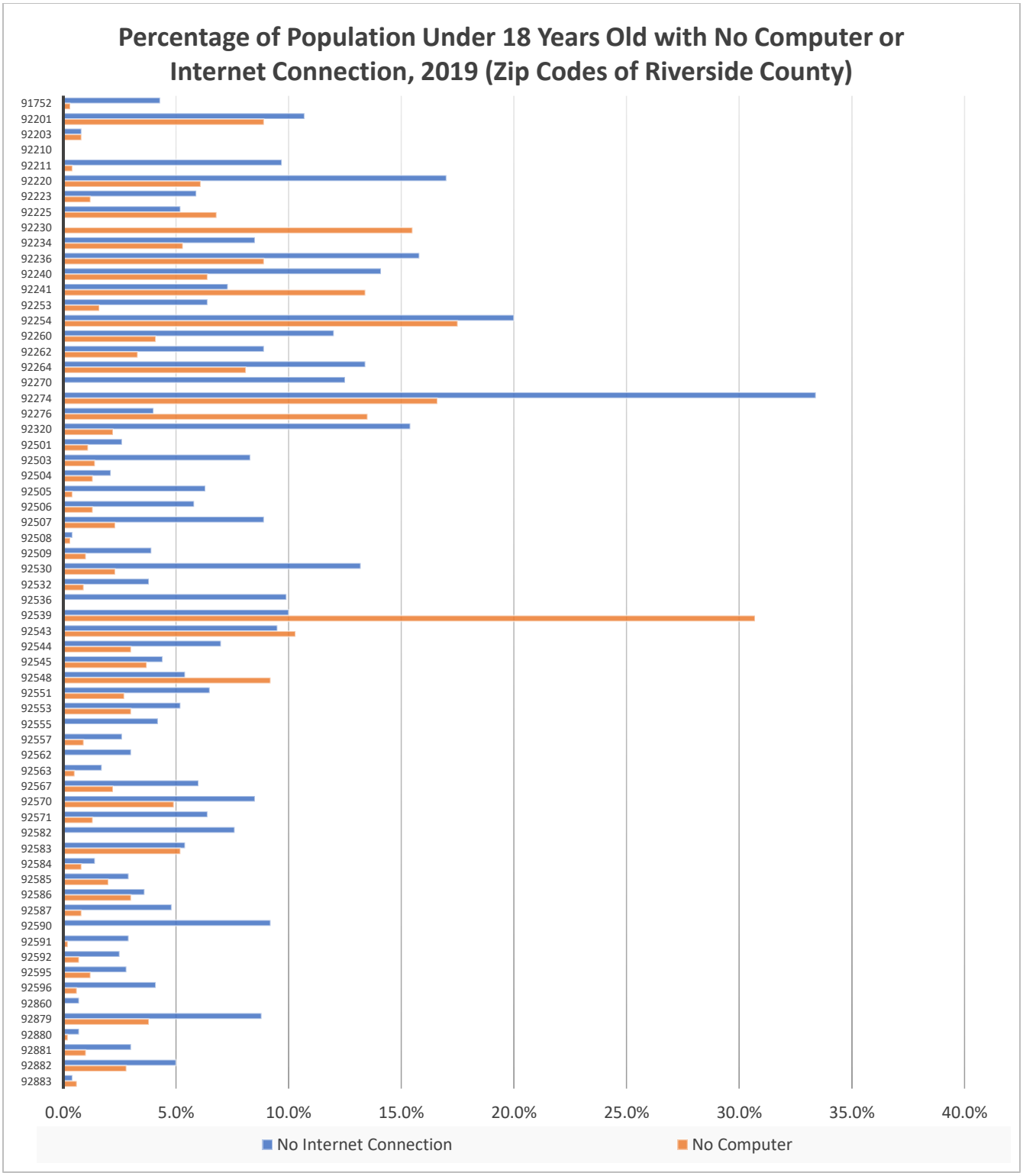

Figure 79: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Riverside County)*

Source: U.S. Census (2019) S2802

4.4. Affordability of Access to Necessary Devices and Internet Connections Across Neighborhoods

The following charts take up the question of affordability of access to digital services, and look into all zip codes to find what proportion of households cannot afford access to the Internet and the devices necessary to use it. Once again, the pattern is very significant and the gaps are enormous. The lowest rate of affordability is 17%. However, it can go as high as 82%. Overall, the rate of affordability for the overwhelming majority of the population centers is between 20% to 40%. In a good number of neighborhoods, the rate is greater than 40% of households who cannot afford digital access

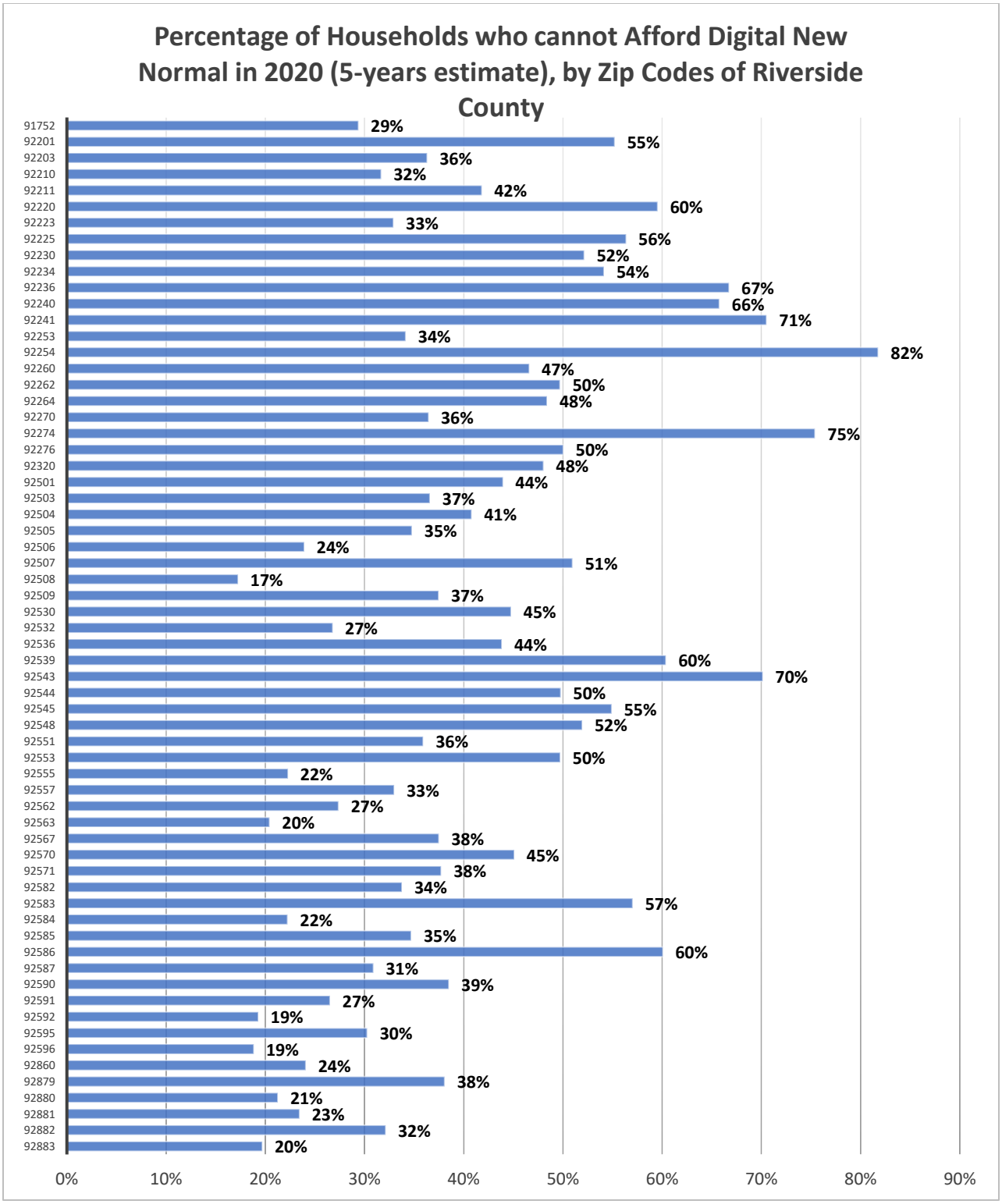

Figure 80: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Riverside County*

Source: U.S. Census (2019) S1901

5. Digital Divide in San Bernardino County

According to the 2020 U.S. Census, San Bernardino County had a population of 2,181,654, which shows a population growth of 7.2% from 2010. Some 54.4% of county residents are Hispanic. While alone (not Hispanic or Latino) form 27.3% of the county residents. The proportion of young people under 18 years of age forms 26.1% of the county inhabitants. Some 14.3% of county residents live under the poverty line.

We looked into information indicating the presence of the digital divide in 57 zip codes of the county. The information is presented in a number of graphs which can be found in the upcoming sections of this part of the study.

5.1. Households Without a Computer and/or Internet Connection

This section of the report shows what proportion of households in the 57 zip codes of the county either do not have computers or access to a stable Internet connection.

The overall rate of the lack of access to the Internet and/or a computer in the county reaches 16%. The range of change is as little as 2.2%, to as high as 37.8%. An overwhelming majority of households suffer from a rate of lack of access between 5% to 15%. A good number of them have a rate of more than 15%, and some go far beyond that, at more than15% of households.

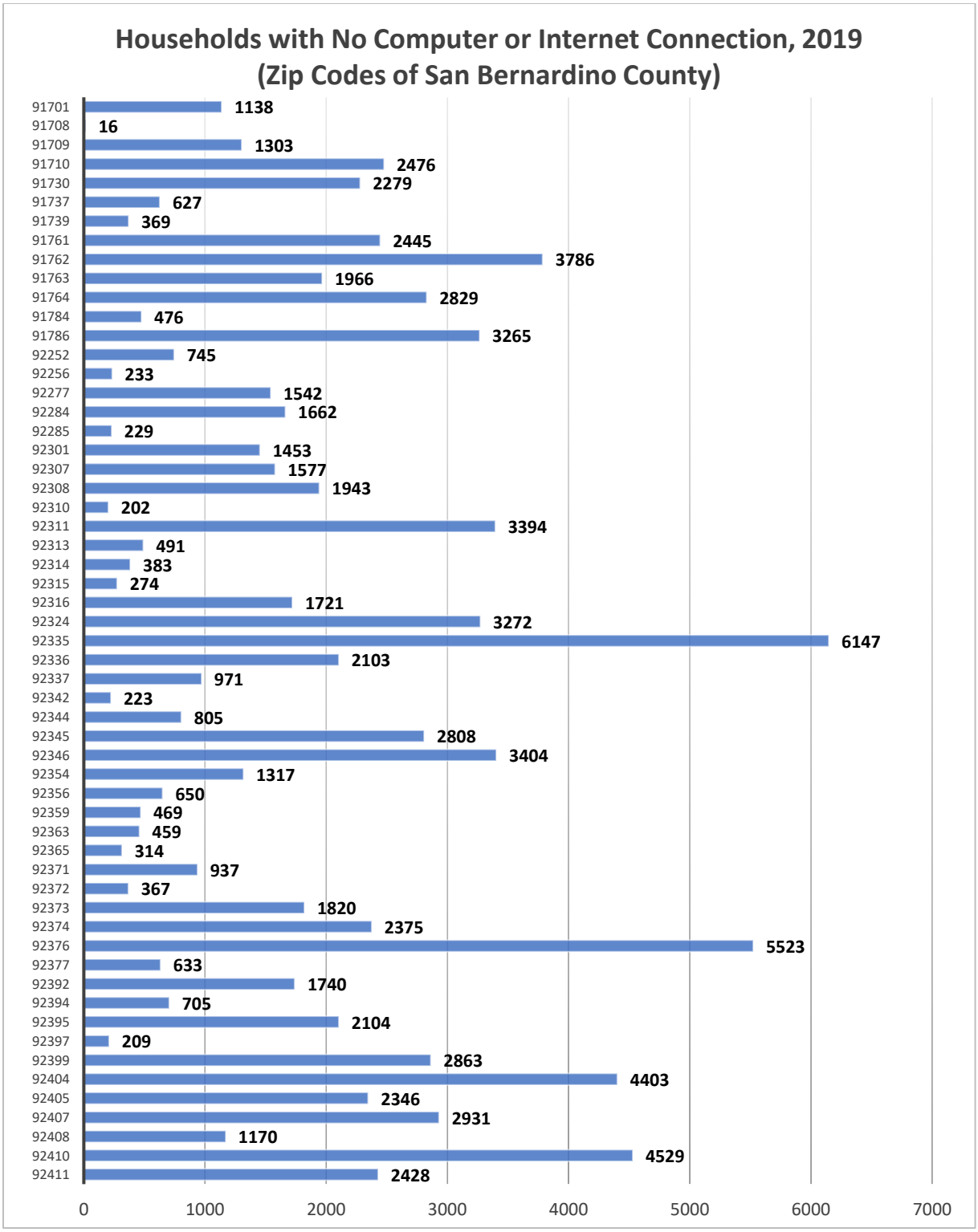

Figure 81: *Households with No Computer or Internet Connection, 2019 (Zip Codes of San Bernardino County)*

Source: U.S. Census, B28003

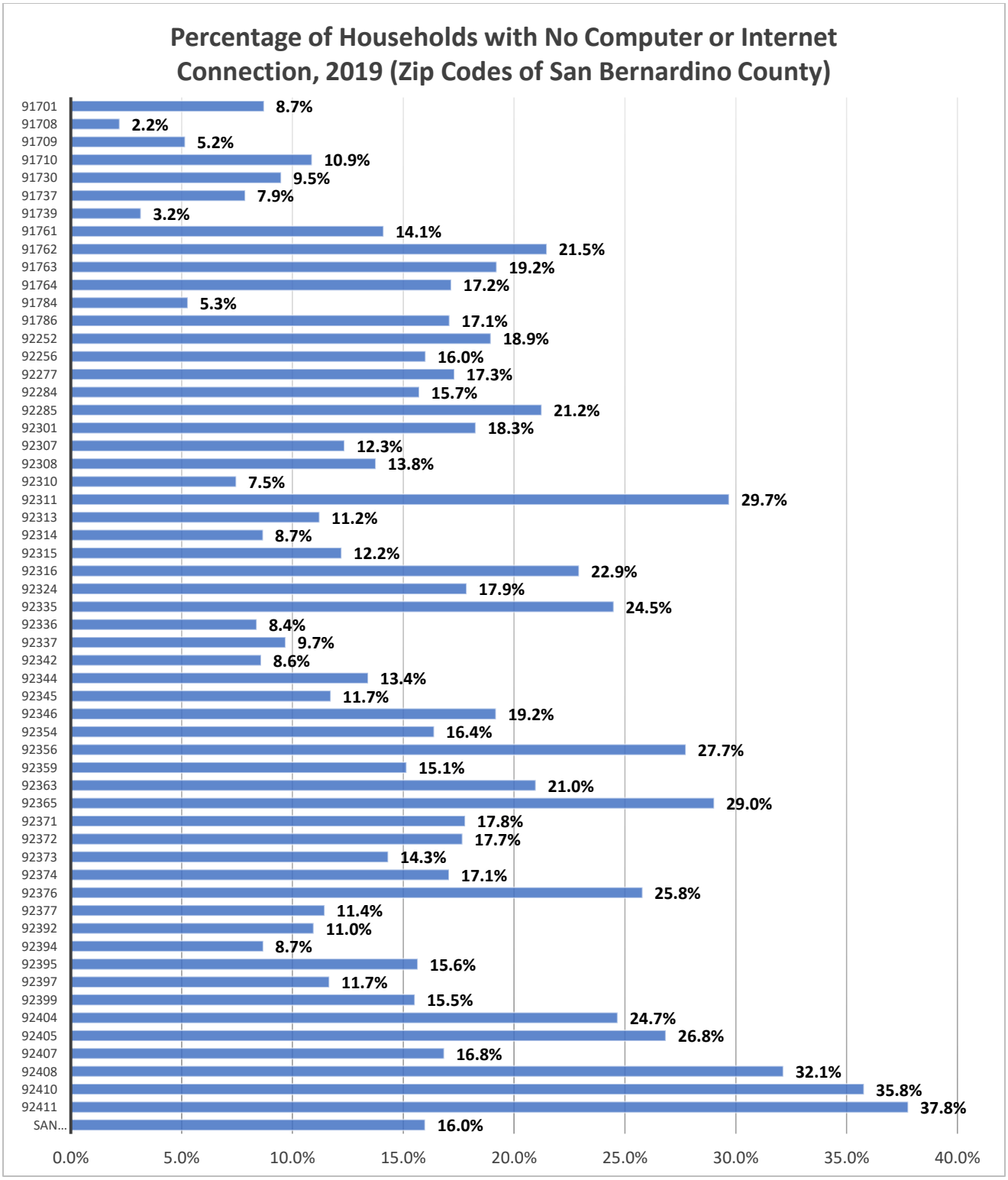

Figure 82: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of San Bernardino County)*

Source: U.S. Census, B28003

5.2.Population Without a Computer or Internet Connection Across Race & Ethnicity

In this section of the report, we will look at the digital divide across different races and ethnicities. The pattern shows large differences with regard to digital access in different zip codes. The percentages across different races and ethnicities are impacted by the small size of certain group of people. These numbers come with larger margins of error and make them somewhat statistically unreliable.

However, in a good number of zip codes, the rates of people's inability to connect to the Internet or access a computer appear to be higher among Hispanics and also the Black or African American alone group. In some zip codes, the proportion of While alone (not Hispanic or Latino) is facing a much greater digital divide than other demographic groups. Without a doubt, some very high rates of an inability to connect to the Internet or even having a computer are impacted by the small size of that demographic group.

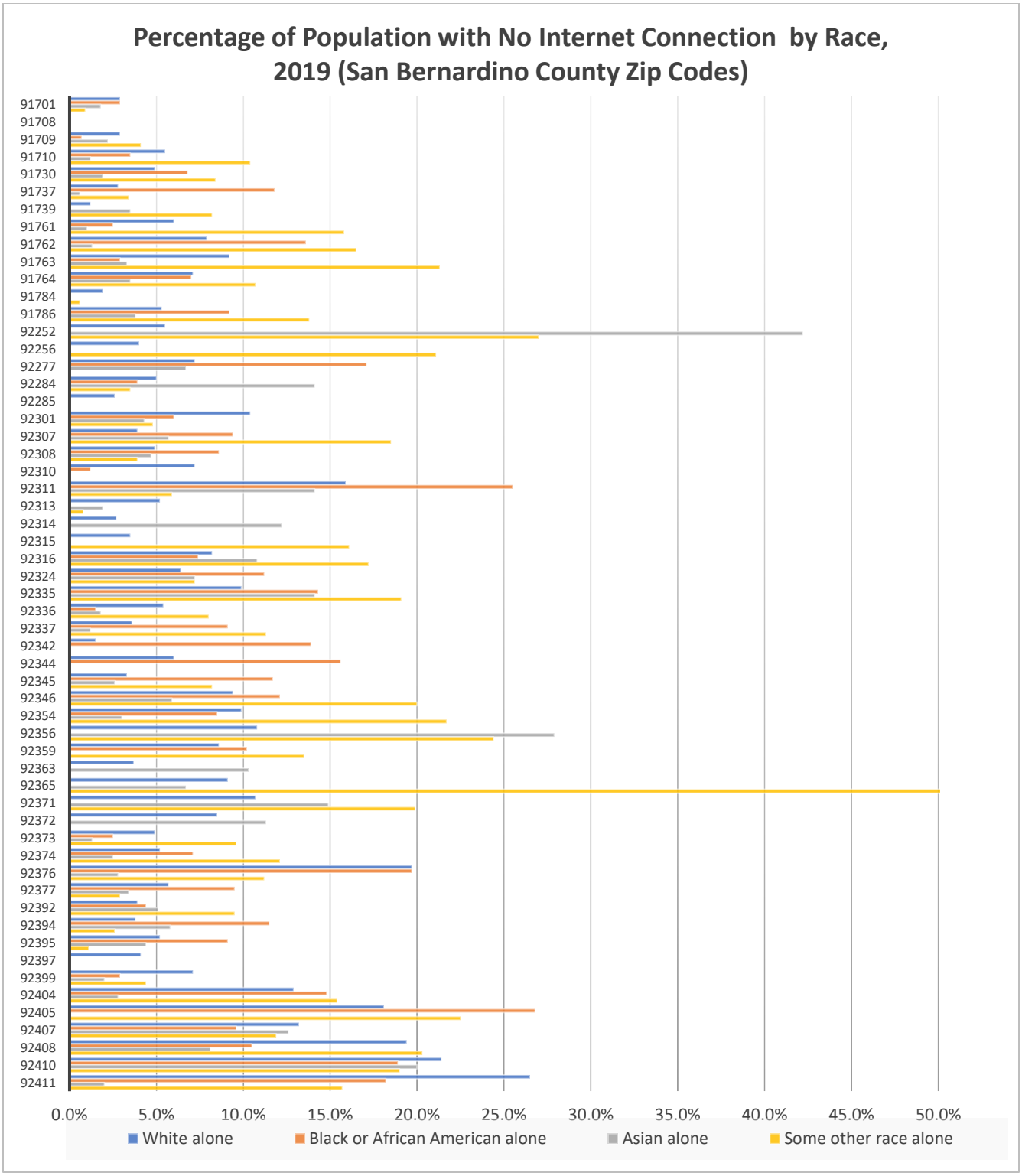

Figure 83: *Percentage of Population with No Internet Connection by Race, 2019 (San Bernardino County Zip Codes)*

Source: U.S. Census (2019) S2802

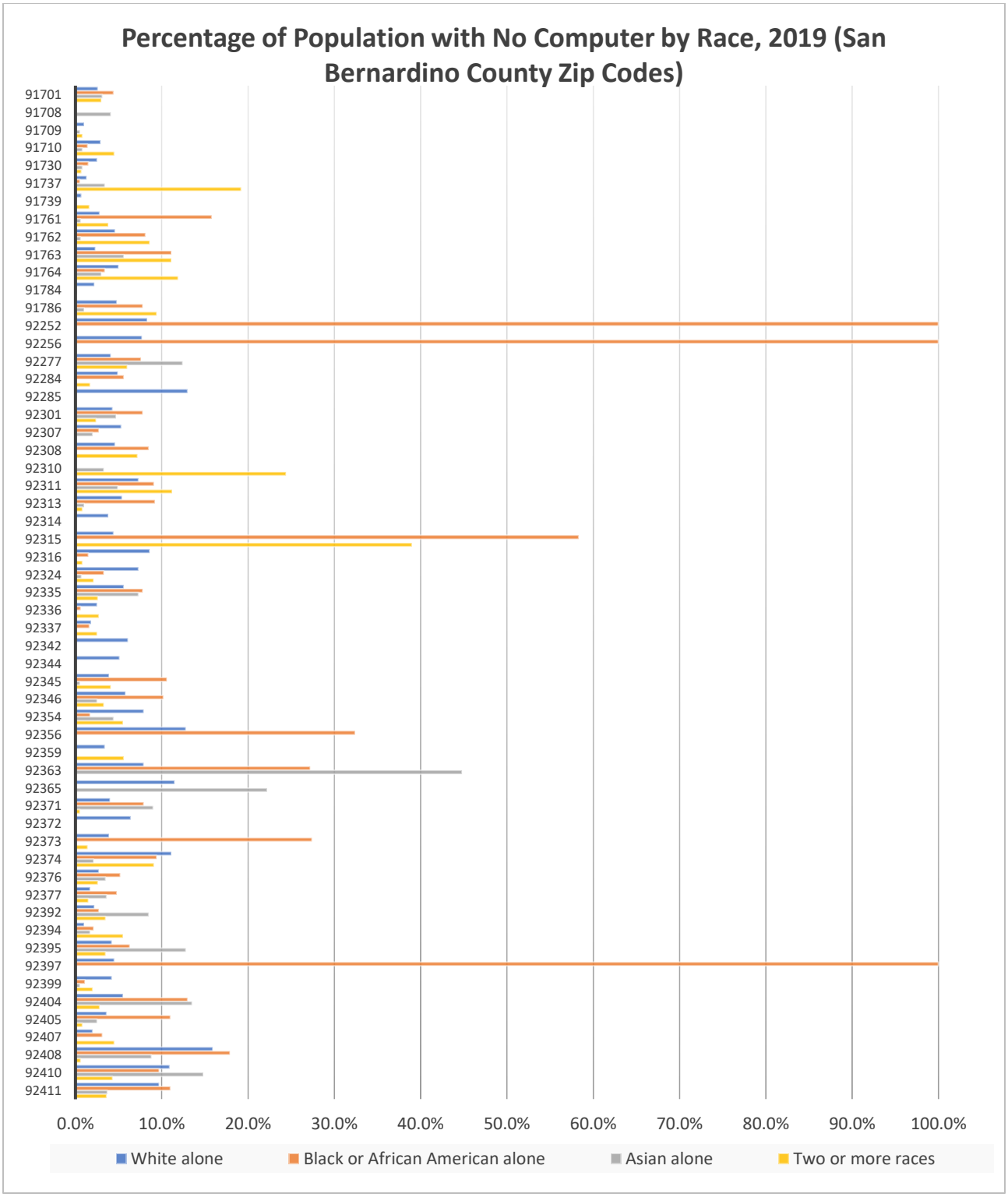

Figure 84: *Percentage of Population with No Computer by Race, 2019 (San Bernardino County Zip Codes)*

Source: U.S. Census (2019) S2802

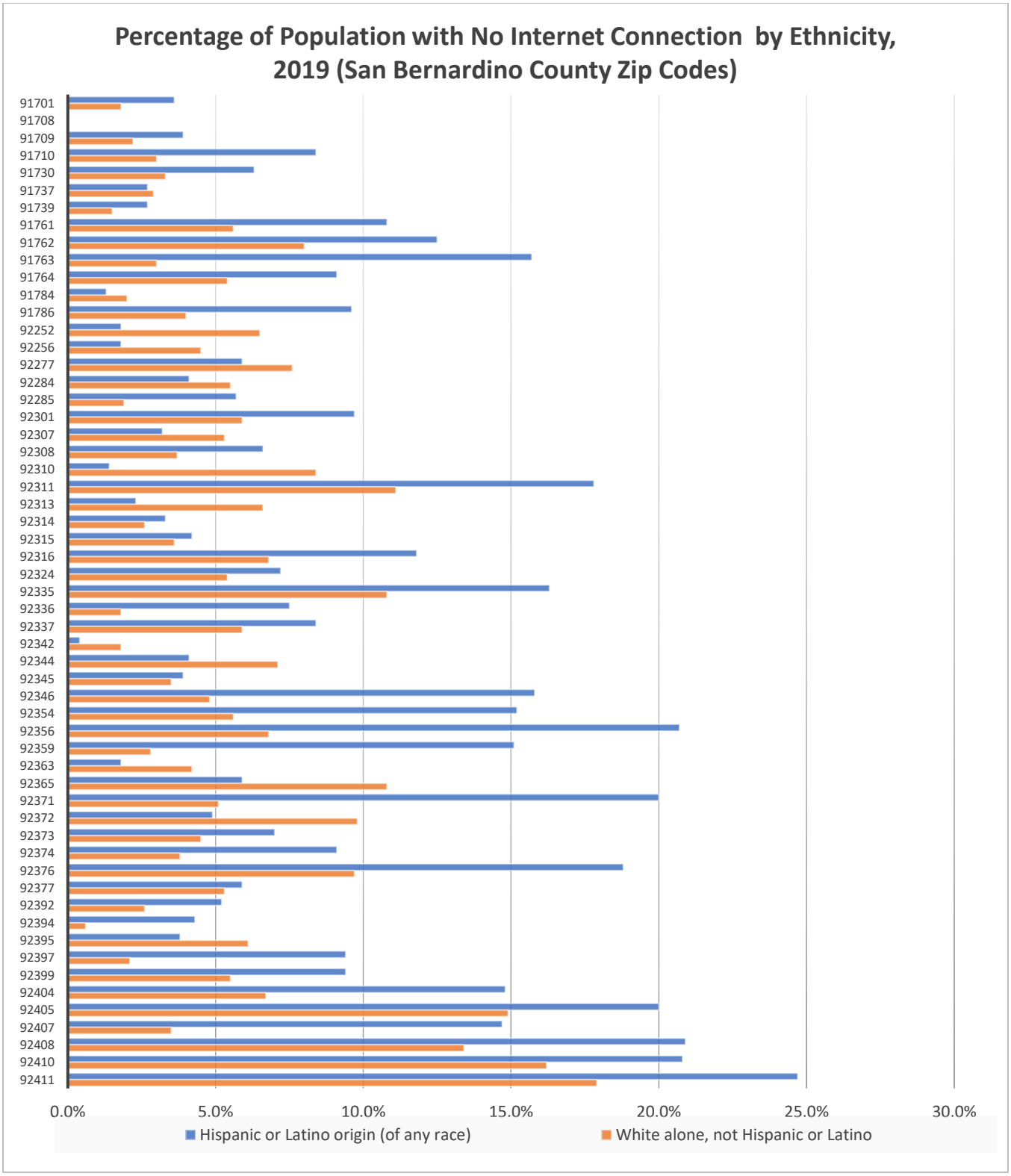

Figure 85: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (San Bernardino County Zip Codes)*

Source: U.S. Census (2019) S2802

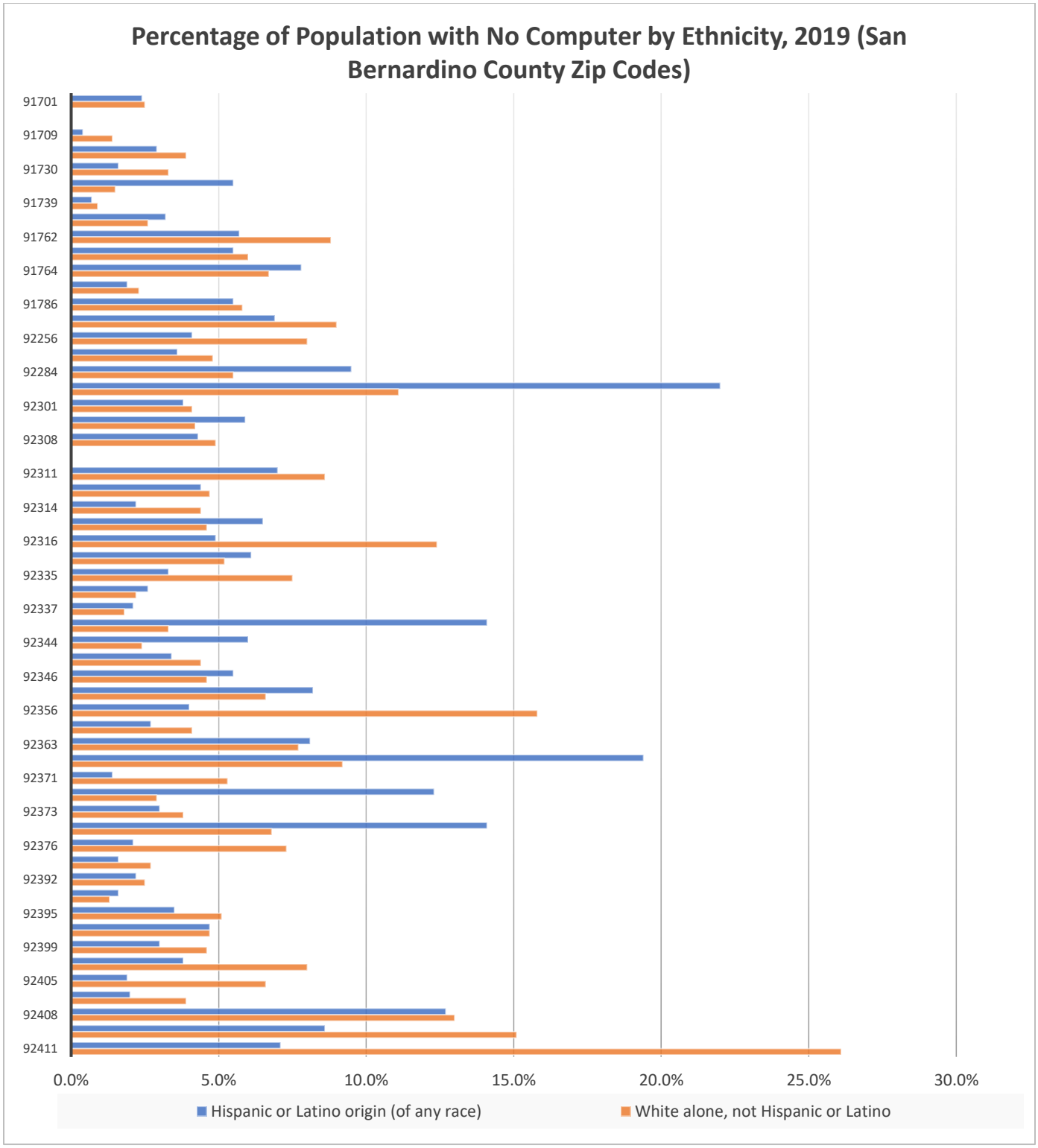

Figure 86: *Percentage of Population with No Computer by Ethnicity, 2019 (San Bernardino County Zip Codes)*

Source: U.S. Census (2019) S2802

5.3. Lack of Access to Computer & Internet Connection Among Children Under 18 Years of Age

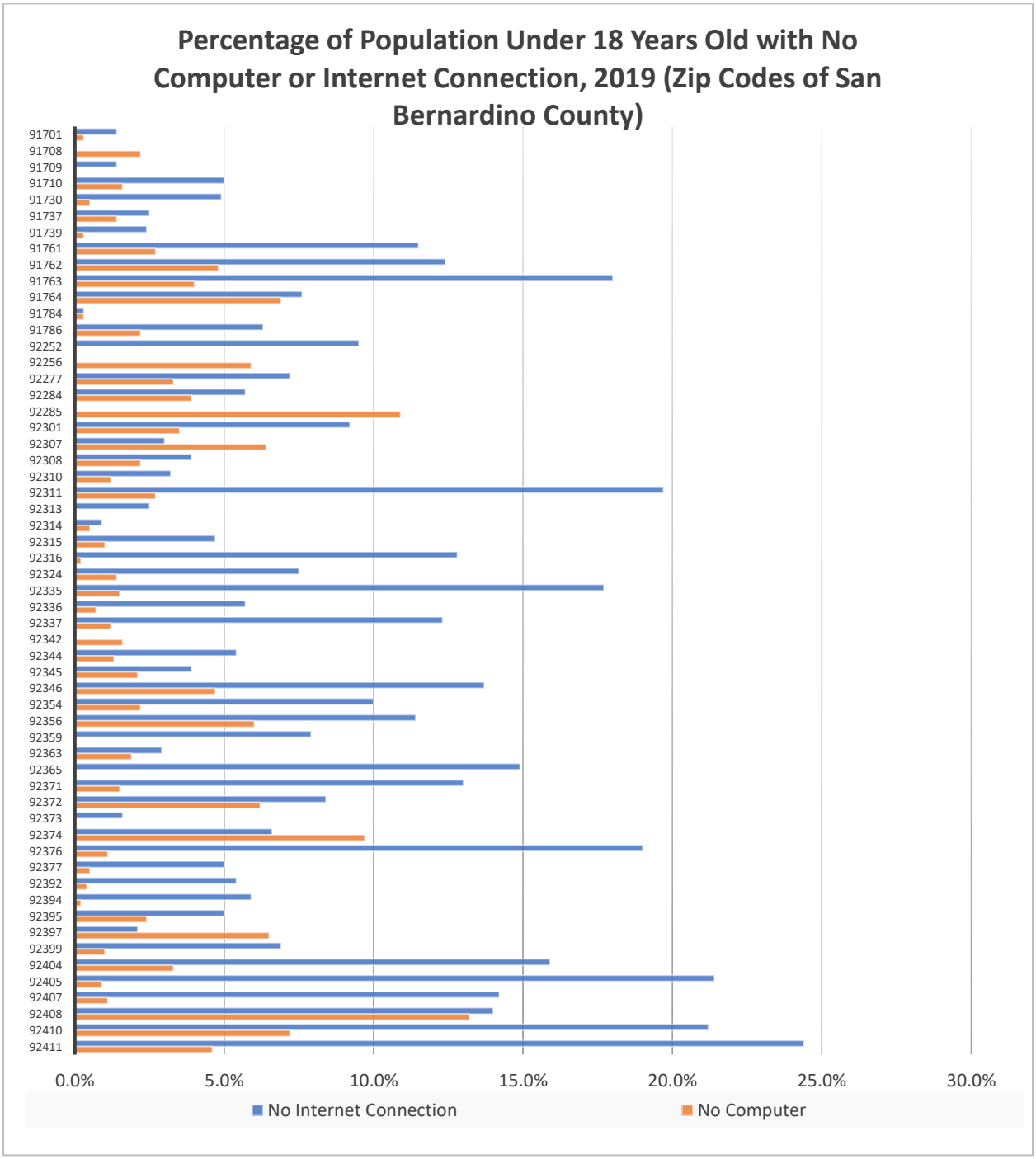

Figure 87: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of San Bernardino County)*

Source: U.S. Census (2019) S2802

The above chart shows that the lack of a connection to the Internet by comparison is a much larger problem than the inaccessibility of a computer for children under 18 years of age. This is very alarming, and the gap between those with digital access and those without is very significant in some areas. The inability to connect to the Internet for this segment of population has a direct bearing on their access to educational services.

5.4. Affordability of Access to Necessary Devices and Internet Connections Across Neighborhoods

In this section of the report for San Bernardino County, we look at the affordability of maintaining access to the Internet and computing devices. The picture shows a great difference in various zip codes, which is clearly related to levels of household income in those areas. The range is from 14% to 72% of people who have affordable access. This calls for appropriate policy intervention in support of households in need.

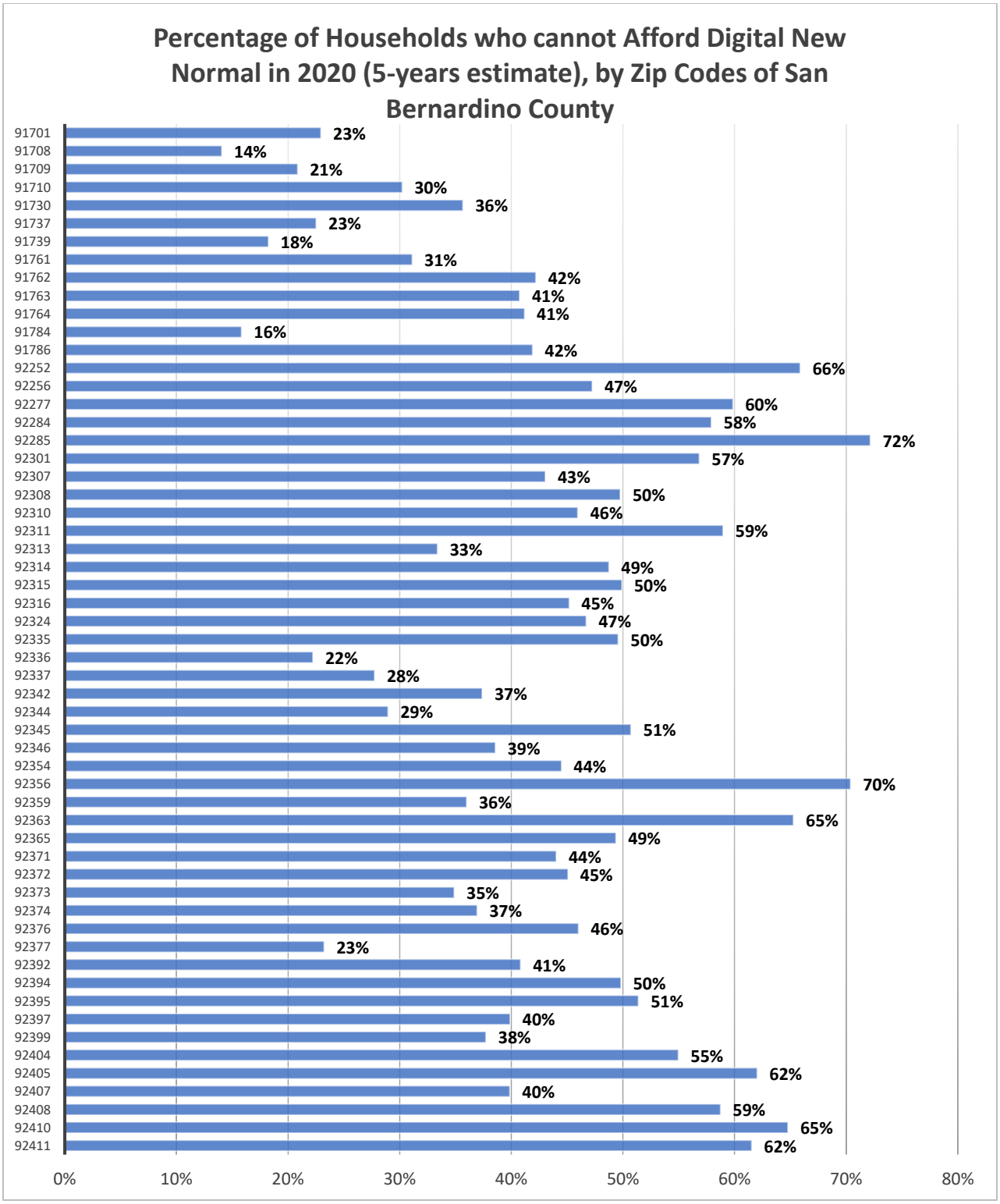

Figure 88: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of San Bernardino County*

Source: U.S. Census (2019) S 1901

6. Digital Divide in Ventura County

In 2020, Ventura County had a population of 843,843 people. Its population grew at a rate of 2.49% since 2010. Ventura County has a diverse population. Some 43.2% of its population are Hispanic. The percentage of White alone in April of 2020 was about 44.7%. Some 22.6% of its population are under 18 years of age. The poverty level in the county in 2020 was about 9.1%. The information gathered for this study includes 24 zip codes within the county.

6.1. Households Without a Computer and/or an Internet Connection

The following two charts present the total number and the percentages of households without a computer or Internet access within Ventura County zip codes.

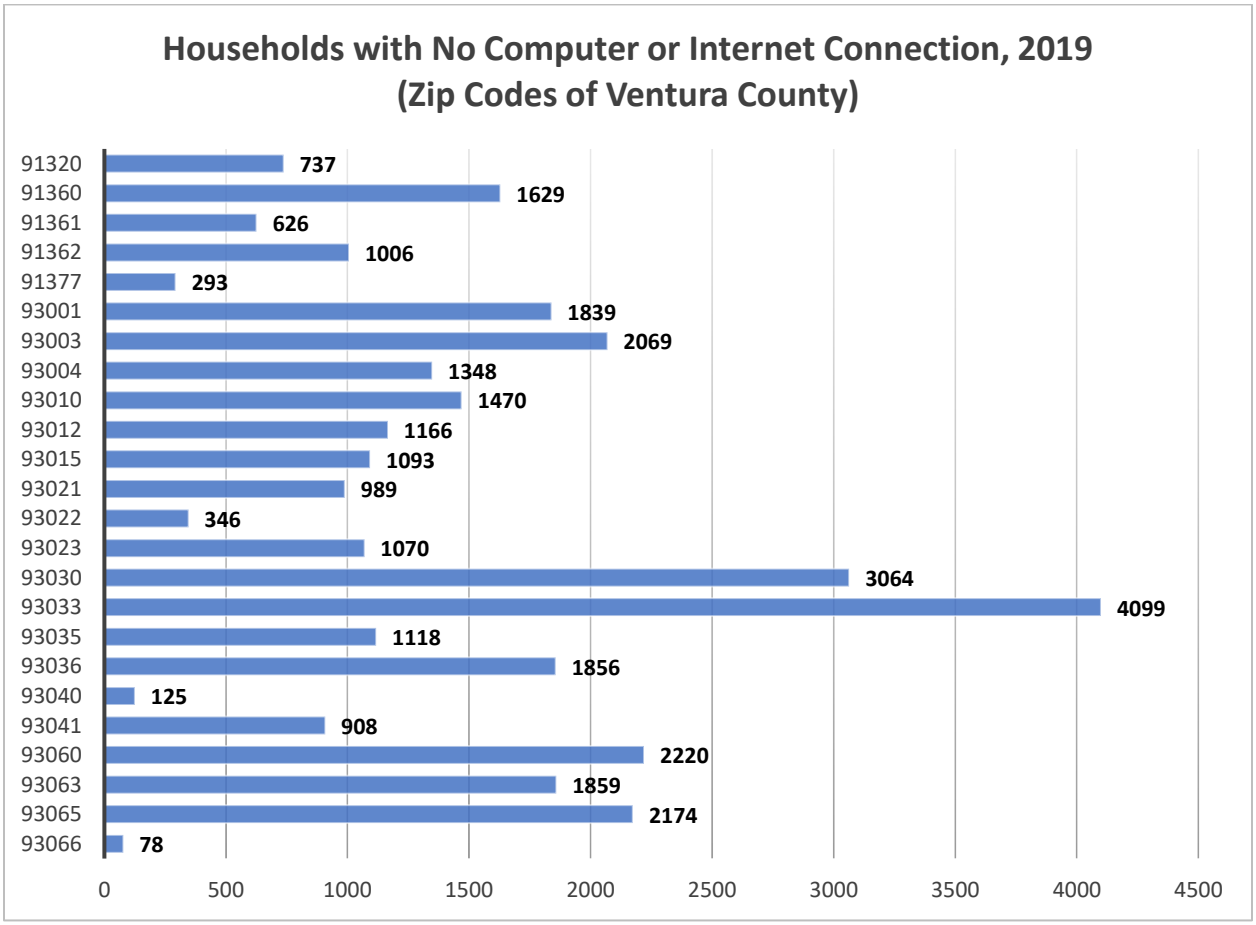

Figure 89: *Households with No Computer or Internet Connection, 2019 (Zip Codes of Ventura County)*

Source: U.S. Census, B28003

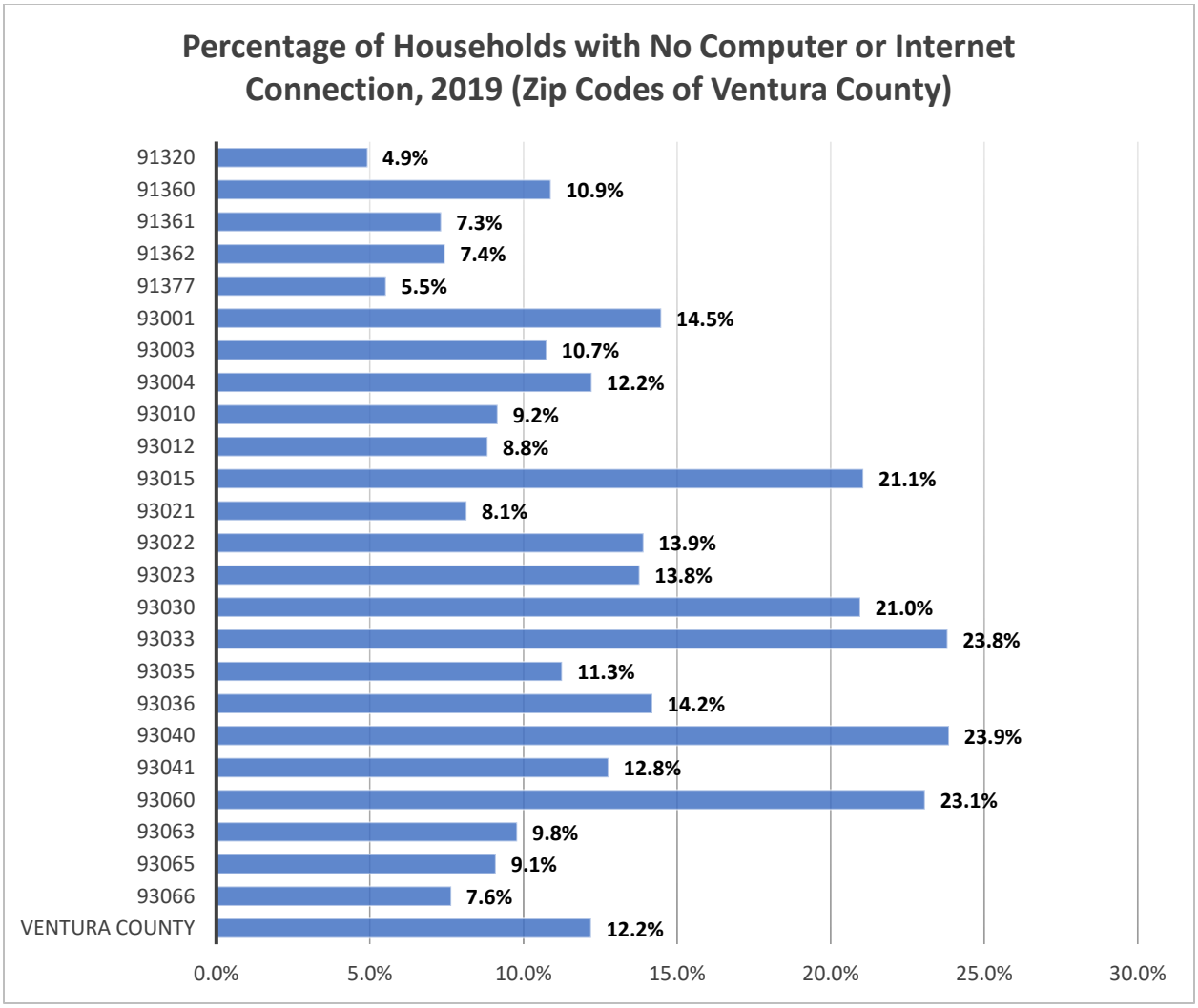

Figure 90: *Percentage of Households with No Computer or Internet Connection, 2019 (Zip Codes of Ventura County)*

Source: U.S. Census, B28003

The above charts show a considerable difference between different zip codes within Ventura County. The overall rate of those who do not have a computer or an Internet connection is 12.2%, which is considerably lower than Imperial County, which has a rate of 22.8%.

The percentage range of those without a computer or an Internet connection changes from 4.9% to 23.8%. The breakdown between different races and ethnicities can be seen in the following section.

6.2. Population Without a Computer or an Internet Connection Across Race & Ethnicity

The difference shown in having access to a computer or an Internet connection brings up the importance of having policy interventions based on demographic characteristics of populations in various areas within Ventura County.

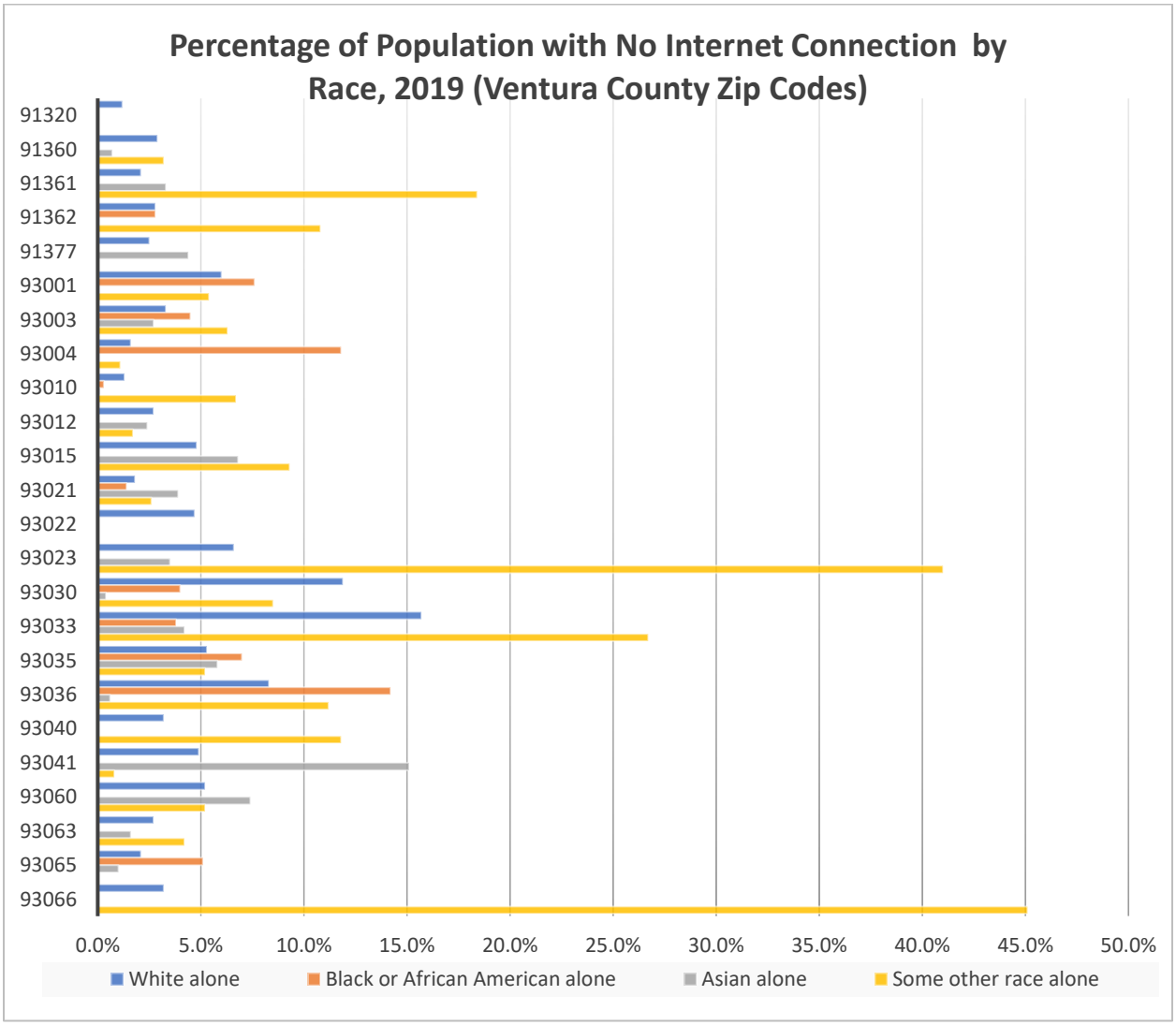

Figure 91: *Percentage of Population with No Internet Connection by Race, 2019 (Ventura County Zip Codes)*

Source: U.S. Census (2019) S2802

The above charts show a considerable difference between different zip codes within Ventura County. The overall rate of those who do not have a computer or an Internet connection is 12.2%, which is considerably lower than Imperial County, which has a rate of 22.8%.

The percentage range of those without a computer or an Internet connection changes from 4.9% to 23.8%. The breakdown between different races and ethnicities can be seen in the following section.

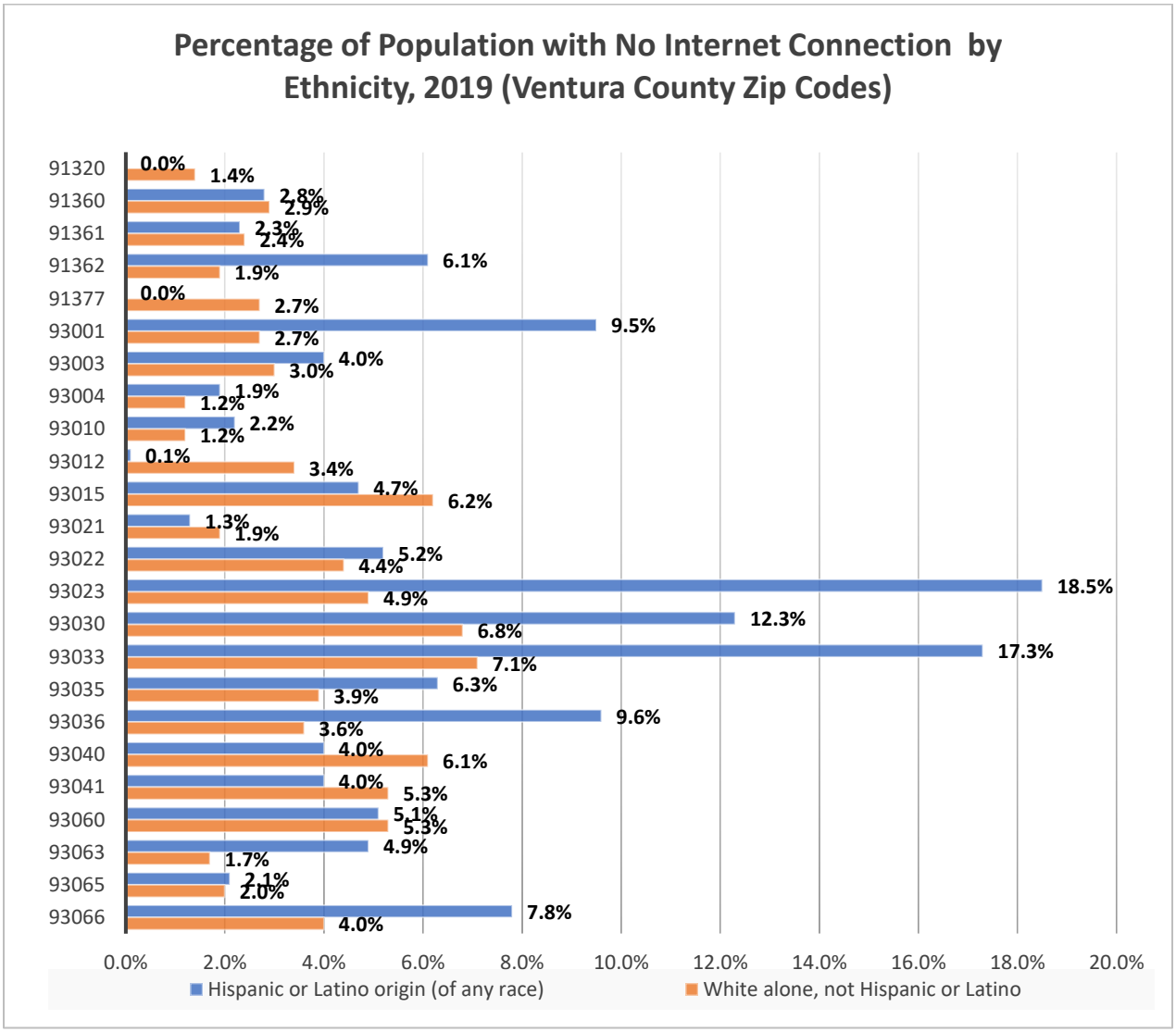

Figure 92: *Percentage of Population with No Internet Connection by Ethnicity, 2019 (Ventura County Zip Codes)*

Source: U.S. Census (2019) S2802

The above chart clearly shows that in most zip codes, Hispanics are more likely to be faced with a lack of a computer or an Internet connection.

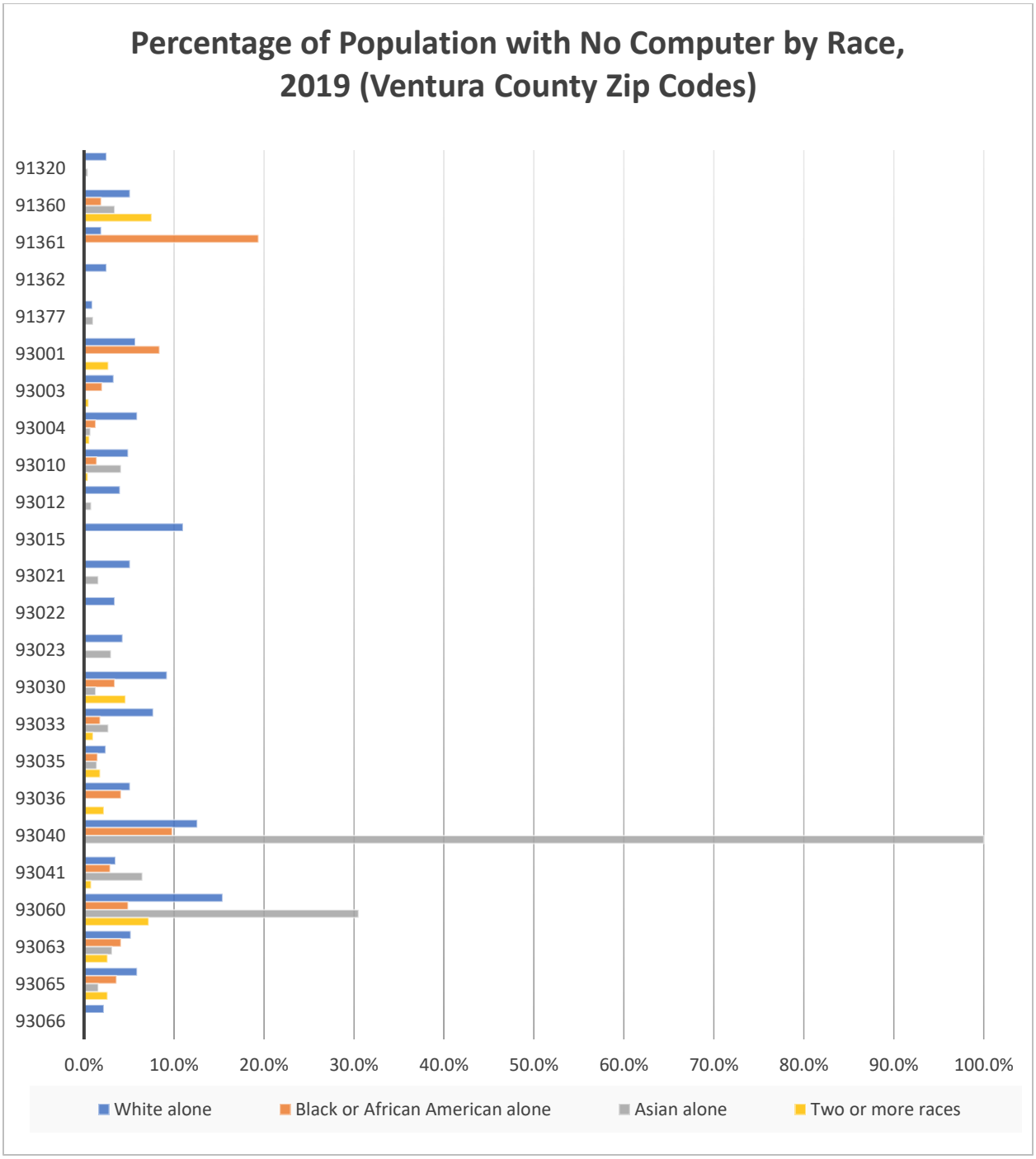

Figure 93: *Percentage of Population with No Computer by Race, 2019 (Ventura County Zip Codes)*

Source: U.S. Census (2019) S2802

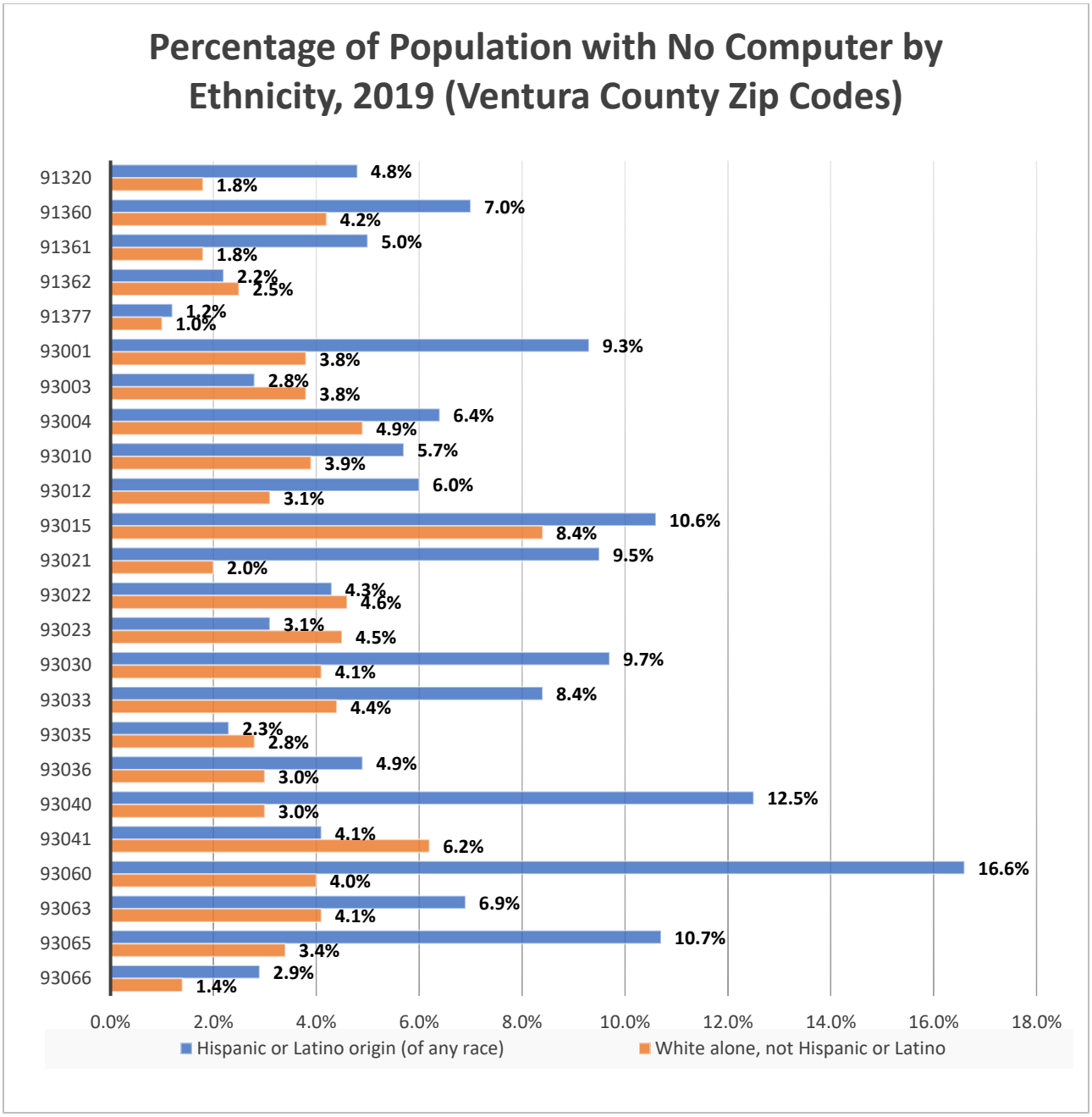

Figure 94: *Percentage of Population with No Computer by Ethnicity, 2019 (Ventura County Zip Codes)*

Source: U.S. Census (2019) S2802

Putting the above two charts together shows Hispanics in Ventura County are more likely to be faced with a lack of access to a computer and/or an Internet connection. It should also be mentioned that the small size of some racial minorities may cause large spikes with high margins of error.

6.3. Lack of Access to a Computer & Internet Connection Among Children Under 18 Years of Age

The following chart presents the lack of access to a computer and/or an Internet connection for children under 18 years of age in Ventura County.

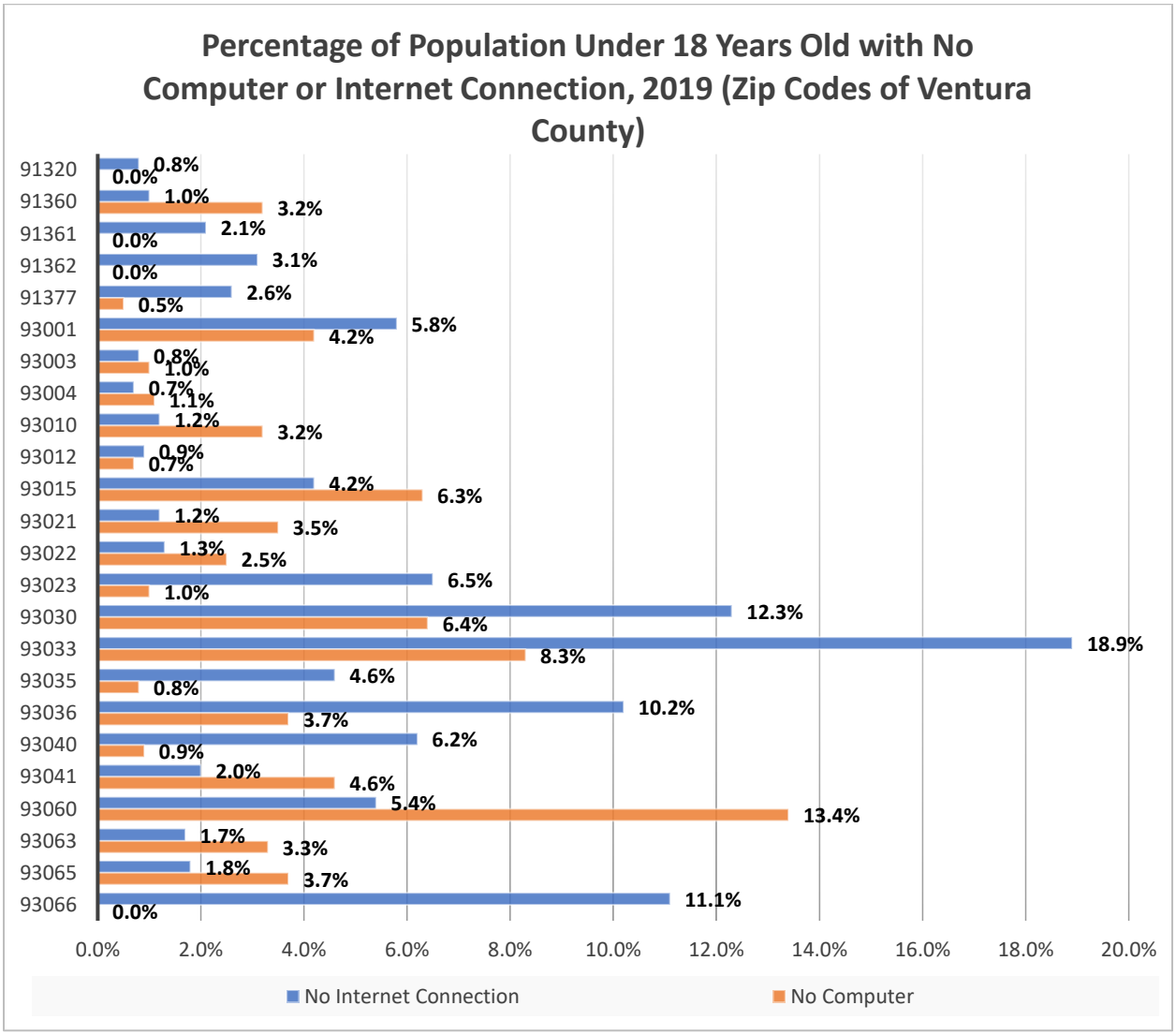

Figure 95: *Percentage of Population Under 18 Years Old with No Computer or Internet Connection, 2019 (Zip Codes of Ventura County)*

Source: U.S. Census (2019) S2802

The pattern shows a remarkable degree of difference in the population of various zip codes. In zip codes such as 91320, 91361, 91362, or 91377, and a good number of others, there are hardly any without a computer or an Internet connection. The picture changes diametrically when we

look at 93033 or 93030. These numbers bring with them a lack of equity among our younger people in having access to facilities that, in our emerging world of the "new normal," results in an inability to enjoy educational services and success in their academic tasks. This is another important layer of making every effort to bring greater equity to younger people in our neighborhoods across various counties.

6.4. Affordability of Access to Necessary Devices and Internet Connections Across Neighborhoods

In this section, as explained earlier, we will look into patterns of affordability by measuring the percentages of households whose cost of paying for digital devices and an Internet connection, as measured earlier, appear to exceed 5% of their household income.

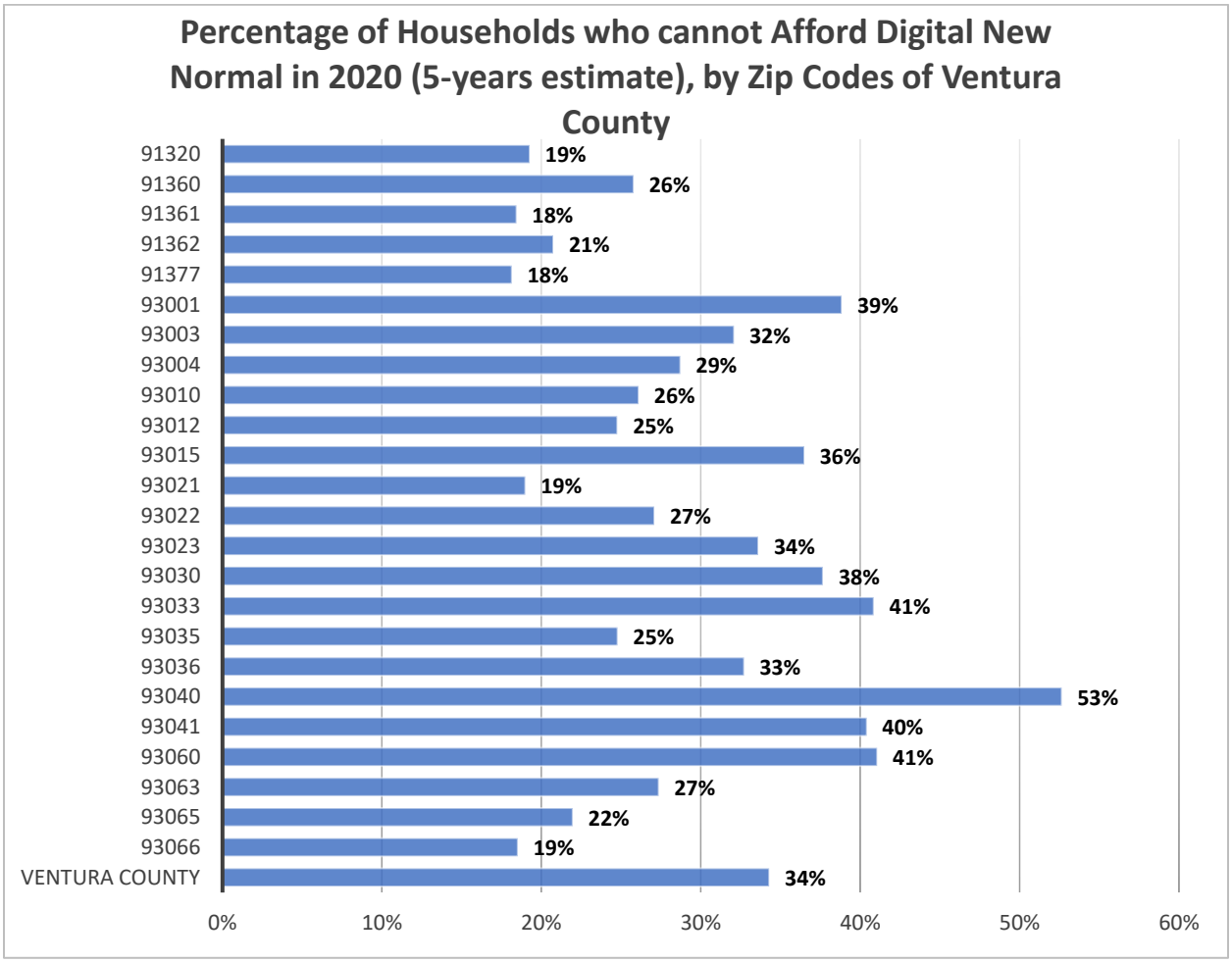

Figure 96: *Percentage of Households who cannot Afford Digital New Normal in 2020 (5-years estimate), by Zip Codes of Ventura County*

Source: U.S. Census S 1901 and Author's calculation

The information presented in the above chart shows that in total, some 34% of households face a lack of affordability to be able to pay for the annual cost of digital devices and a reliable Internet connection. This is a considerable percentage. However, the pattern is quite different from other counties in the SCAG region. The range of lack of affordability varies between 18% to 53%.

Summary of Findings

Technological changes over the last two decades brought fundamental development and growth in the viability of phones and other mobile devices that can be used in various parts of the globe, and enable people from different parts of the world to have access to information and other key digital activities. These activities, over a relatively short period of time, expanded and included remote working, healthcare, and education, and resulted in the growth of multiple business sectors, such as e-commerce.

The digital divide, and its impact on different demographic groups of individuals and families, has never been deeper than it is today. The gap between those with and without reliable digital access showed its face during current pandemic, and rose to the level of becoming a major indicator of prevalence of social and economic equity in our communities.

During the height of the pandemic, those with broadband Internet access could continue distance learning, seeing their doctor virtually, working remotely, and connecting with loved ones on video calls. It cannot be denied that it is the "new normal." But while it's become normal to assume that everyone has access to something as ubiquitous as the Internet, that couldn't be farther from the truth.[10] It is difficult to imagine that with COVID becoming less of a danger to our lives, the need for digital services and connectivity is going to diminish. Our communities need to meet this urgent need by ensuring everyone has the opportunities that access to broadband Internet affords. Essential computing devices will allow us to make use of digital services for our health, education, employment and social connection, and for receiving essential information and services that we depend on.

There are a number of reasons for the existing gaps in having connectivity and access to digital services. A possible remedy for such gaps goes back to the prevailing support for investing in projects that strengthen the existing network. The inequalities are caused by the inability of individuals and families to purchase the devices or to pay for the services through a fast and reliable Internet connection. The importance of digital exclusivity drew considerable attention from the United Nations and other international organizations and entities. The world community called for connectivity to become the top priority, and stakeholders must aim to reach the target set by the United Nations: by 2025, broadband Internet user status should reach 75% worldwide, and broadband Internet access should not cost more than 2% of household earnings. Such a reduction in the cost of access requires a significant level of investment, which certainly has to take place in the United States.

[10] For more information, see New America https://www.newamerica.org/the-thread/an-old-problem-in-the-new-normal-the-digital-divide/

This study took a thorough review of access status and affordability of digital services by household and individuals as a whole and across a selected number of demographic characteristics within the six counties of Southern California Association of Governments (SCAG) region.

We looked at each county within the region and recorded the availability of devices and Internet connections for households and individuals within each zip code. It includes 508 zip codes all together. Los Angeles County, with 270 zip codes, and Imperial County, with nine zip codes, have the highest and lowest numbers respectively.

The study looks at the digital divide from several perspectives. They are highlighted below:

- The first perspective is on having Internet connectivity or a computer together across all the zip codes based on households. This by itself is a good indicator of the digital divide within the SCAG region as it pertains to households.
- It then goes further and looks at the rate of having a computer or an Internet connection separately by individuals across the region and each zip code based on race and ethnicity. This angle serves a twin purpose. Measuring the rate of access to the Internet and/or a computer by individuals allows us to see the impact of the digital divide on each segment of the population, highlighting both the availability or deprivation on their own. However, it satisfies a second purpose, which is showing the extent of the deprivation according to location and our racial and ethnic makeup.
- The third angle is focusing solely on the lives of children under 18 years of age. As COVID has shown us, our social and economic status is a precursor of the extent of the loss suffered by adverse societal development. The impact of poverty is undeniable, and shows its face as an impediment of our progress and an enhancer of greater misery and suffering that people and communities have to endure. A lack of access to educational services has already been an important element impacting the school performance of our children. Lower educational performance is highly correlated with level of income and median income of household.[11] COVID made this distinction far clearer, as students living in the deprived side of the digital divide had to suffer much greater because of their inability to access educational services in a virtual environment. But having access to the Internet and the ability to use the necessary devices with high performance is, and will remain, as a condition for receiving educational services not for an indefinite period of time.
- Finally, the study brings attention to the importance of the ability of households to pay for their devices and Internet connections. We took the latest available information on the average American's spending on utilities in order to find how much, on average, is spent on Internet connections and electricity as a proportion of their total utility spending. Using computers and cell phones and taking a moderate proportion of the cost of electricity towards the equipment and 50% of household equipment as a computer, cell phone, or other electronic devices, we arrived at an average monthly expenditure per household. We then computed that level of spending as a percentage of household

[11] See Anna J. Egalite (2016), How Family Background Influences Student Achievement, Journal of Education Next https://www.educationnext.org/how-family-background-influences-student-achievement/

income in every zip code, and measured what proportion of households in that zip code pass the 5% mark, which is considered a rate of great unaffordability. It is true to say that in many such households the level of unaffordability is far greater than 5%, and we did not make any attempt to measure those additional as various levels of unaffordability. But the numbers can be incredibly, and sadly, high.

Our findings are sobering, and can be found in each section of the report for every county. There is no good substitute for reading each section (county) and making notes of the zip codes wherein the information is reported in its detail. The following table provides a summary of our findings which can draw attention to the existing landscape of the digital divide in the SCAG region.

Summary of Selected Findings Across Different Counties Within SCAG Region

	Name of the Counties						
Findings	Imperial	Los Angeles	Orange	Riverside	San Bernardino	Ventura	Total
# of Zip Codes with 20% or more of Households Without Computer and Internet Connection	6	70	3	17	14	5	115
# of Zip Codes with White Alone Population When 10% or More Are Without Computer	5	39	1	5	6	0	56
# of Zip Codes with White Alone Population when 10% or More Are Without Internet Connection	2	27	2	6	7	0	44
# of Zip Codes with Hispanic/Latino Population when 10% or More Are Without Computer	1	29	4	14	6	4	58
# of Zip Codes with Hispanic/Latino Population when 10% or More Are Without Internet Connection	5	83	7	13	18	3	129
# of Zip Codes with More than 5% Under 18- Year-Old Are Without Computer	3	54	4	16	10	4	91
# of Zip Codes with More than 5% of Under 18-Year-Old Are Without Internet Connection	7	154	19	37	37	8	262
# of Zip Codes with More than 30% of Households Who Cannot Afford to Pay for Devices and Internet Connection	9	188	29	49	47	10	332
Total Zip Codes Within the County	**9**	**270**	**84**	**64**	**57**	**24**	**508**

Table 6: *Summary of Selected Findings Across Different Counties Within SCAG Region*

The above table brings about a number of important deductions, which can help to form pertinent public policies with the aim or reducing and finally eliminating the digital divide in all communities. It should also be mentioned that more detailed observations within each county can be reached, and one can go further to make a number of viable conclusions which can demonstrate a much higher level of deprivation in every county. In most counties, there are a large number of communities that indicate far greater than 30% of their households are suffering from a lack of affordability of Internet connections or devices. The conditions of various ethnic and racial groups in some counties are far graver than not having only 10% of its population unable to afford to purchase computers or Internet connections. The condition of young people in some zip codes is far greater than only 5% of them being unable to have a computer or an Internet connection. The report can be used to reach a number of other conclusions, and in every case, one is able to list the zip codes with more challenges from the information provided.

Here is a list of the deductions that can be made from analyzing Table 6:

- A lack of an Internet connection is greater than the inability to have a computer or other digital devices.
- Hispanics are at a far greater disadvantage than the White alone ethnic group.
- Taking zip codes wherein 30% or more of its households cannot afford to pay for devices and/or an Internet connection shows that 65% of households in the SCAG region are faced with this problem. As mentioned earlier, in a significant proportion of zip codes, the percentage of households faced with unaffordability of these essential services is much greater.
- It is true that Los Angeles County houses more than 50% of the total population of the SCAG region. However, the severity of its local problems in most areas of observation brought up in the above table is proportionally larger and harder. Imperial County is also faced with a disproportionate level of problems and obstacles.