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August 17, 2022

Mr. R. Earl Lewis, Jr.
Deputy Secretary
Maryland Department of Transportation
7201 Corporate Center Drive
Hanover, MD 21076

Dear Deputy Secretary Lewis:

I was asked by your office to evaluate the data in the June 2022 report entitled "Analysis of the Sports Wagering Industry and Relevant North American Industry Classification System (NAICS) Code"[1] and to determine whether the State's 2017 Disparity Study[2] provides an evidentiary basis for applying race- and/or gender-conscious remedial measures, including the State's Minority Business Enterprise (MBE) Program, to the Sports Wagering and Event Wagering (SWEW) Industry in Maryland.

As detailed below, based on this review, I conclude that the 2017 Disparity Study does provide an evidentiary basis for applying the State's MBE Program to the SWEW Industry in Maryland. I cannot opine on whether the 2017 Disparity Study is sufficient to support any other type of race- and/or gender-conscious remedy in the SWEW Industry in Maryland.

I. Background

The 2017 Disparity Study for the State of Maryland provides a comprehensive analysis of the participation of minority- and women-owned businesses in state contracting and procurement and in the geographic and product markets within which the State conducts its contracting and procurement.

The 2017 Disparity Study was among the most thorough and comprehensive ever produced. The study collected and assembled a database of more than $22 billion in Maryland state spending over a five-year period across 16,931 prime contracts and 35,756 associated subcontracts.[3] From this database, combined with a survey distributed to 75,000

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[1]   Keen Independent Research, *Analysis of the Sports Wagering Industry and Relevant North American Industry Classification System (NAICS) Codes*, prepared for the Maryland Department of Legislative Services, June 2022.

[2]   NERA Economic Consulting, *Business Disparities in the Maryland Market Area* (February 8, 2017).

[3]   *Ibid.*, p. 26.

business establishments across the entire Maryland market area, the study made formal calculations of MBE availability, utilization, and disparity for five groups of minorities or women across six major procurement categories, 259 NAICS Industry Groups, and 695 NAICS Industries.[4] Further, the 2017 Disparity Study conducted extensive statistical analyses of private sector disparities using official statistical data from the *Survey of Business Owners* Program, the *American Community Survey* Program, and the *Survey of Small Business Finances*.[5] Additionally, the 2017 Disparity Study conducted extensive inquiries to document qualitative aspects of disparities and discrimination. Mail surveys were sent to more than 18,000 establishments, and 30 group interviews were convened throughout the State. The surveys and the interviews included both MBE and non-MBE firms, with firms ranging in size from large national businesses to smaller and newer firms in all major industry categories.[6]

In Chapter IX of the 2017 Disparity Study, entitled "Suggested Best Practices for Race- and Gender-Conscious Contracting Programs," (p. 322), NERA wrote:

> Maryland has a strong basis in evidence to implement a race- and gender-based program for contracting and procurement based upon the findings in this Study. This record establishes that minorities and women in the Maryland market area continue to experience statistically significant disparities in their access to State and private sector contracts and in those factors necessary for business success. Further, the anecdotal evidence provides vivid individual accounts of the discriminatory barriers, both overt and covert, to their full and fair participation in both State and private sector procurement and contracting expenditures. The statistical and anecdotal evidence presented in this Study is strong evidence that establishes Maryland's compelling interest in remedying race and gender discrimination. The evidence supports the conclusion that affirmative intervention is still needed to dismantle the exclusion of racial and gender groups from the private sector market. Maryland will likely be a passive participant in a discriminatory marketplace if it fails to continue to address the issue. Moreover, as found in Chapter VI, there remain large and statistically significant disparities between the availability of M/WBEs and their utilization on State contracts despite the State's aggressive current efforts. These results support the need for continued remedial action.

I was the Principal Investigator for the 2017 Disparity Study. NERA Economic Consulting submitted that study to the Maryland Department of Transportation (MDOT), which then provided the study to the Maryland General Assembly and posted it on MDOT's website.

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[4] *Ibid.*, pp. 90, 45, and Chapters III and VI, generally.

[5] *Ibid.*, Chapters IV and V.

[6] *Ibid.*, pp. 252, 270, and Chapter VII, generally.

II. Data and Methods

The State provided me with data regarding the types of work that would likely be part of the SWEW Industry and an estimate of how the dollars spent in the SWEW industry might be distributed into various types of industries according to NAICS codes.[7] I was asked to examine the Keen Study regarding the types of work that are anticipated to be performed by approved facility licensees as well as by approved mobile licensees for Sports Wagering and make a determination as to whether the industry codes relevant to that work were different in any consequential way from the industry codes examined in NERA's analysis of state contracting and procurement for the 2017 Disparity Study and whether that study could provide an evidentiary basis for applicability of the MBE Program to the proposed expansion of SWEW in Maryland.

The NAICS uses a six-digit coding system to identify particular industry sectors, subsectors, industry groups and industries and their placement in a hierarchical classification structure. The first two digits identify the industry sector, the third designates the subsector, the fourth digit designates the industry group, and the last two digits designate the industry. In order to provide insight into the broader composition of firms involved in the SWEW Industry, I reviewed the NAICS codes in the Keen Study at both the industry group (four-digit) level and the industry (six-digit) level and compared them to the NAICS codes that were included in the 2017 Disparity Study.

A. Facility Sports Wagering

The 2017 Disparity Study published its results at the industry group (*i.e.,* four-digit NAICS code) level.[8] The Keen Study identified a total of 69 NAICS industry groups applicable to Facility SWEW. Of the 69 NAICS codes identified, 66, or 95.7 percent, also appear in the 2017 Disparity Study. These 66 NAICS industry groups account for 99.3 percent of the expected Facility SWEW spend identified by the Keen Study.[9]

The Keen Study also identified a total of 109 NAICS industries (*i.e.,* 6-digit NAICS codes) applicable to Facility SWEW. Of these, 103, or 94.5 percent, also appear in the 2017 Disparity Study. Further, these 103 NAICS industries account for 85.1 percent of the expected Facility SWEW spend identified by the Keen Study.[10]

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[7] Keen, *op cit*. It is important to note that the SWEW industry in Maryland is newly emerging. As such, the data available to Keen Independent Research in performing their study was more speculative than would be expected in studying a more established segment of the state economy.

[8] NERA, *op. cit*., pp. 45-58.

[9] The Keen Study presented its analysis only in terms of six-digit NAICS codes. The conversion to 4-digit NAICS codes was performed by the author.

[10] The 2017 Disparity Study also produced additional, unpublished, results at the six-digit NAICS level. *See* NERA, *op. cit*., p. 373, fn. 420.

B. Mobile Sports Wagering

For Mobile SWEW, the Keen Study identified a total of 72 applicable NAICS industry groups. Of the 72 NAICS codes identified, 68, or 94.4 percent, also appear in the 2017 Disparity Study. These 68 NAICS industry groups as well account for 99.5 percent of the expected Mobile SWEW spend identified by the Keen Study.

The Keen Study also identified a total of 106 NAICS industries applicable to Mobile SWEW. Of these, 100, or 94.3 percent, also appear in the 2017 Disparity Study. Further, these 103 NAICS industries account for 95.4 percent of the expected Mobile SWEW spend identified by the Keen Study.

Availability percentages for minority-owned and women-owned firms are already present in the 2017 Disparity Study for virtually all of the NAICS industry groups and industries identified in the Keen Study as relevant to SWEW. Availability figures for the remaining NAICS industry groups and industries could be estimated using methods comparable to those from the 2017 Disparity Study.

III. Supplementary Statistical Analyses

In the 2017 Disparity Study, I used a large dataset from the Census Bureau's *American Community Survey* Program coupled with the statistical technique of regression analysis to evaluate the extent of disparities affecting minority- and women-owned businesses in the geographic market area and industries that are relevant to State of Maryland contracting activity. We considered disparities in three distinct but related areas: (1) wage and salary earnings, (2) business owner earnings, and (3) business formation rates.

With respect to disparities in wage and salary earnings, the 2017 Disparity Study concluded:

> … [M]inorities and women earn substantially and significantly less than their nonminority male counterparts in the State of Maryland market area. Such disparities are consistent with race and gender discrimination in the labor force that, in addition to its direct effect on workers, also reduces the future availability of M/WBEs by stifling opportunities for minorities and women to progress through those internal labor markets and occupational hierarchies that are most likely to lead to entrepreneurial opportunities. These disparities reflect more than mere "societal discrimination" because they demonstrate the nexus between discrimination in the job market and reduced entrepreneurial opportunities for minorities and women. Other things equal, these reduced entrepreneurial opportunities in turn lead to

lower M/WBE availability levels than would be observed in a race- and gender-neutral market area.[11]

With respect to disparities in business owner earnings, the 2017 Disparity Study concluded:

> … [M]inority and female entrepreneurs earned substantially and significantly less from their efforts than similarly situated nonminority male entrepreneurs. These disparities are a symptom of discrimination in commercial markets that directly and adversely affect M/WBEs. Other things equal, if minorities and women cannot earn remuneration from their entrepreneurial efforts comparable to that of nonminority males, growth rates will slow, business failure rates will increase, and business formation rates may decrease. Combined, these phenomena result in lower M/WBE availability levels than would otherwise be observed in a race- and gender-neutral market area.[12]

With respect to disparities in business formation rates, the 2017 Disparity Study concluded:

> … [M]inorities and women in general are substantially and statistically significantly less likely to own their own businesses than would be expected based upon their observable demographic characteristics including age, education, geographic location, industry and trends over time. Moreover, as demonstrated in previous sections, these groups also suffer substantial and significant earnings disadvantages relative to comparable nonminority males whether they work as wage and salary employees or as entrepreneurs. These findings are consistent with results that would be observed in a discriminatory market area.[13]

As a check on my findings above, I re-created the regression analyses that were performed for the 2017 Disparity Study using the most current data and customized them to reflect the NAICS codes identified in the Keen Study that are relevant to Sports Wagering.

The results of these analyses are summarized below in Tables 1F and 1M. Each table consists of three columns, one for each type of regression analysis performed, and seven rows, one for each MBE group, one for all MBE groups combined, and one for all minorities and non-minority women combined. "Adverse/Significant" in a given cell indicates that the corresponding regression coefficient was negative and statistically significant – a result consistent with the presence of discrimination. Of the 21 different coefficients summarized in Table 1F, 19 (90.5%) are consistent with the presence of

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[11] NERA Economic Consulting, *Business Disparities in the Maryland Market Area* (February 8, 2017), p. 6.

[12] *Ibid.*

[13] *Ibid.*, p. 165.

discrimination. Of the 21 different coefficients summarized in Table 1M, 19 (90.5%) are consistent with the presence of discrimination.[14]

Table 1F. Regressions Analysis Results on NAICS Codes for Facility Sports Wagering

	Wages and Salaries	Business Owner Earnings	Business Formation Rate
African American	Adverse / Significant	Adverse / Significant	Adverse / Significant
Hispanic	Adverse / Significant	Adverse / Significant	Adverse / Significant
Asian/Pacific Islander	Adverse / Significant	Not Adverse / Not Significant	Not Adverse / Significant
Native American	Adverse / Significant	Adverse / Significant	Adverse / Significant
Minorities	Adverse / Significant	Adverse / Significant	Adverse / Significant
Non-minority Female	Adverse / Significant	Adverse / Significant	Adverse / Significant
Minorities & Women	Adverse / Significant	Adverse / Significant	Adverse / Significant

Table 1M. Regressions Analysis Results on NAICS Codes for Mobile Sports Wagering

	Wages and Salaries	Business Owner Earnings	Business Formation Rate
African American	Adverse / Significant	Adverse / Significant	Adverse / Significant
Hispanic	Adverse / Significant	Adverse / Significant	Adverse / Significant
Asian/Pacific Islander	Adverse / Significant	Not Adverse / Not Significant	Not Adverse / Significant
Native American	Adverse / Significant	Adverse / Significant	Adverse / Significant
Minorities	Adverse / Significant	Adverse / Significant	Adverse / Significant
Non-minority Female	Adverse / Significant	Adverse / Significant	Adverse / Significant
Minorities & Women	Adverse / Significant	Adverse / Significant	Adverse / Significant

IV. Conclusions Regarding the Applicability of the Maryland MBE Program to Spending in the Sports Wagering Industry

After reviewing and analyzing the data received from the State, bearing in mind that the 2017 Disparity Study concluded that discrimination continues to adversely impact minority-owned and women-owned firms throughout the Maryland economy, I conclude that an additional study is not required in order to apply the MBE Program, or a substantially similar program, to contracting and procurement expenditures by facility and mobile licensees in the SWEW industry.

This is because the 2017 Disparity Study provides a strong basis in evidence, consisting of both quantitative and qualitative findings that would support the use of race- and gender-

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[14] Detailed regression results for Tables 1F and 1M are provided in the Appendix, Tables A.1F through A.3F and Tables A.1M through A.3M, respectively. *See also* Chapter IV of the 2017 Disparity Study (pp. 121-176) for additional documentation of the data and methods used in these analyses.

based measures to remediate discrimination affecting minority- and women-owned businesses in the types of industries in which an approved facility or mobile licensee for SWEW is likely to expend contracting and procurement funds, based on the NAICS codes identified in the Keen Study.

I do not have sufficient evidence before me to opine on whether the Disparity Study is sufficient to support any other type of race- and/or gender-conscious remedy for the SWEW Industry in Maryland.

It is important to note that the 2017 Disparity Study also contains evidence suggesting that minority- and women-owned businesses are even more disadvantaged in the context of competing for prime contracts as opposed to subcontracts. Moreover, the 2017 Disparity Study details a range of race- and gender-neutral activities that the State has already undertaken to address existing disparities. The 2017 Disparity Study found that, notwithstanding these race- and gender-neutral activities, many of which have been in place for a number of years, disparities continue to exist in both public and private contracting in the same geographic and industry markets in which an approved licensee for SWEW is likely to operate. These disparities are for the most part large, adverse, and statistically significant. In addition, the 2017 Disparity Study contains both qualitative and quantitative evidence to suggest that economy-wide contracting disparities in the relevant markets are even greater than disparities in the public sector. This difference may be due to the fact that the State has, for a number of years, operated an assertive MBE Program in an attempt to remedy discrimination. This Program has reduced, though not yet eliminated, the effects of discrimination in public procurement. Absent such affirmative remedial efforts by the State, I would expect to see evidence in the relevant markets in which the State's approved facility and mobile SWEW licensees will operate that is consistent with the continued presence of business discrimination.

V.   Closing

In closing I would note that I am an economist, but not a lawyer. I hold a doctorate in economics, and I am well qualified to review the economic and statistical data presented to me and to opine on its significance. I am currently in private practice, after retiring from my position at NERA as Managing Director, the chair of its national affirmative action consulting practice, a member of its labor and employment practice, and the head of its Austin, Texas office. I have conducted numerous disparity and availability studies in my career as well as many other studies concerning various aspects of business markets and labor markets. These studies are often done in the context of litigation involving business enterprise or employment discrimination. I have acted as an expert witness in MBE program and other discrimination-related litigation on several occasions. I have testified and been accepted as an expert economist and statistician in federal district courts in California, Florida, Georgia, Illinois, Minnesota, Texas, and Wyoming, in the U.S. Court of Federal Claims, in state courts in Illinois and Texas, and before both chambers of the U.S. Congress.

As an expert in disparity studies and the economics of business discrimination, I have a high level of expertise concerning how economic data relates to the law that has been applied to MBE and related programs by courts and legislatures. I have not been asked to review the specific details of Maryland House Bill 940 and I do not offer any opinion about the specifics of that legislation. I would note, however, that even where a strong basis in evidence exists to support a race- or gender-based program, that fact alone should not end the inquiry. Specifically, it is imperative that any race- or gender-conscious goals or other mechanisms applied to the SWEW Industry be carefully established and implemented in a manner consistent with the law.

Sincerely,

Jon Wainwright, Ph.D.
Consulting Economist

Table A.1F. Annual Wage Earnings Regressions, NAICS Codes for Facility Sports Wagering, 2015-2019

Independent Variables	Specification		
	(1)	(2)	(3)
African American	-0.343 (138.54)	-0.344 (133.78)	-0.344 (134.03)
Hispanic	-0.212 (101.57)	-0.211 (99.82)	-0.212 (101.53)
Asian	-0.237 (88.9)	-0.235 (85.54)	-0.235 (85.78)
Native American	-0.255 (30.3)	-0.256 (30.25)	-0.255 (30.3)
Two or more races	-0.239 (56.79)	-0.238 (55.03)	-0.239 (56.77)
Nonminority Female	-0.286 (191.99)	-0.286 (188.18)	-0.286 (192.0)
Age	0.178 (438.4)	0.178 (438.41)	0.178 (438.4)
Age^2	-0.002 (377.3)	-0.002 (377.31)	-0.002 (377.3)
MDMA	0.356 (40.08)	0.367 (36.26)	0.358 (39.35)
MDMA*African American		0.023 (2.08)	0.029 (2.75)
MDMA*Hispanic		-0.017 (1.4)	n/a
MDMA*Asian		-0.039 (3.22)	-0.034 (2.87)
MDMA*Native American		0.125 (1.23)	n/a
MDMA*Two or more races		-0.036 (1.66)	n/a
MDMA*Nonminority Female		-0.008 (1.0)	n/a
Education (16 categories)	Yes	Yes	Yes
Geography (51 categories)	Yes	Yes	Yes
Industry (255 categories)	Yes	Yes	Yes
N	1,654,665	1,654,665	1,654,665
Adj. R^2	.4963	.4963	.4963

Source: NERA calculations from the 2015-2019 ACS Public Use Microdata Sample. *See* 2017 Disparity Study, pp. 127-131 for a description of specifications 1 through 3.

Notes: (1) Universe is all private sector wage and salary workers between the ages of 16 and 64; observations with imputed values to the dependent variable and all independent variables are excluded; (2) Reported number is the percentage difference in annual wages between a given group and nonminority men; (3) Number in parentheses is the absolute value of the associated t-statistic. Using a two-tailed test, t-statistics greater than 1.64 (1.96) (2.58) are statistically significant at a 90 (95) (99) percent confidence level; (4) Geography is defined based on place of residence; (5) "MDMA" is shorthand for "State of Maryland Market Area," which includes the State of Maryland, the State of Delaware, the District of Columbia, and the Virginia and West Virginia portions of the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area; (6) "n/a" in Specification 3 means that the category was not included in the regression because it was not statistically significant in Specification 2, as described in the 2017 Disparity Study, pp. 129-131; (7) The "Yes" values next to the "Education," "Geography" and "Industry" rows indicate that control variables were included in the regression specification for these factors; (8) For any race or sex group that has a statistically significant MDMA interaction, the formula for the net impact for that group is as follows: ln(main coefficient+1)+ln(interaction term+1). In Table A.1F, the net impact for African Americans is ln(-0.344 + 1) + ln(0.029 + 1) = -0.393. For Asians, the net impact is -0.302. Both net figures are statistically significant.

Table A.1M. Annual Wage Earnings Regressions, NAICS Codes for Mobile Sports & Event Wagering, 2015-2019

Independent Variables	Specification		
	(1)	**(2)**	**(3)**
African American	-0.338 (138.72)	-0.340 (134.15)	-0.340 (134.43)
Hispanic	-0.211 (101.53)	-0.211 (99.73)	-0.211 (101.5)
Asian	-0.236 (88.07)	-0.234 (84.82)	-0.234 (85.07)
Native American	-0.258 (30.76)	-0.258 (30.66)	-0.258 (30.76)
Two or more races	-0.241 (57.4)	-0.239 (55.61)	-0.240 (57.38)
Nonminority Female	-0.285 (191.49)	-0.284 (187.63)	-0.285 (191.49)
Age	0.177 (438.2)	0.177 (438.2)	0.177 (438.2)
Age^2	-0.002 (377.36)	-0.002 (377.37)	-0.002 (377.36)
MDMA	0.356 (40.33)	0.366 (36.34)	0.357 (39.37)
MDMA*African American		0.029 (2.64)	0.036 (3.48)
MDMA*Hispanic		-0.020 (1.69)	n/a
MDMA*Asian		-0.032 (2.62)	-0.025 (2.15)
MDMA*Native American		0.087 (0.88)	n/a
MDMA*Two or more races		-0.036 (1.64)	n/a
MDMA*Nonminority Female		-0.010 (1.23)	n/a
Education (16 categories)	Yes	Yes	Yes
Geography (51 categories)	Yes	Yes	Yes
Industry (255 categories)	Yes	Yes	Yes
N	1,680,140	1,680,140	1,680,140
Adj. R^2	.4898	.4898	.4898

Source: NERA calculations from the 2015-2019 ACS Public Use Microdata Sample. *See* 2017 Disparity Study, pp. 127-131 for a description of specifications 1 through 3.

Notes: (1) Universe is all private sector wage and salary workers between the ages of 16 and 64; observations with imputed values to the dependent variable and all independent variables are excluded; (2) Reported number is the percentage difference in annual wages between a given group and nonminority men; (3) Number in parentheses is the absolute value of the associated t-statistic. Using a two-tailed test, t-statistics greater than 1.64 (1.96) (2.58) are statistically significant at a 90 (95) (99) percent confidence level; (4) Geography is defined based on place of residence; (5) "MDMA" is shorthand for "State of Maryland Market Area," which includes the State of Maryland, the State of Delaware, the District of Columbia, and the Virginia and West Virginia portions of the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area; (6) "n/a" in Specification 3 means that the category was not included in the regression because it was not statistically significant in Specification 2, as described in the 2017 Disparity Study, pp. 129-131; (7) The "Yes" values next to the "Education," "Geography" and "Industry" rows indicate that control variables were included in the regression specification for these factors; (8) For any race or sex group that has a statistically significant MDMA interaction, the formula for the net impact for that group is as follows: ln(main coefficient+1)+ln(interaction term+1). In Table A.1M, the net impact for African Americans is ln(-0.340+ 1) + ln(0.036 + 1) = -0.380. For Asians, the net impact is -0.292. Both net figures are statistically significant.

Table A.2F. Annual Business Owner Earnings Regressions, NAICS Codes for Facility Sports & Event Wagering, 2015-2019

Independent Variables	Specification		
	(1)	(2)	(3)
African American	-0.484 (32.32)	-0.483 (30.79)	-0.482 (32.16)
Hispanic	-0.171 (14.38)	-0.172 (14.31)	-0.171 (14.43)
Asian	-0.123 (7.28)	-0.137 (7.91)	-0.137 (7.9)
Native American	-0.380 (8.73)	-0.388 (8.89)	-0.381 (8.75)
Two or more races	-0.345 (15.5)	-0.345 (15.18)	-0.345 (15.49)
Nonminority Female	-0.391 (51.32)	-0.395 (51.0)	-0.395 (51.04)
Age	0.184 (72.31)	0.184 (72.28)	0.184 (72.28)
Age^2	-0.002 (62.94)	-0.002 (62.91)	-0.002 (62.91)
MDMA	0.212 (4.5)	0.129 (2.55)	0.137 (2.82)
MDMA*African American		0.007 (0.09)	n/a
MDMA*Hispanic		0.033 (0.44)	n/a
MDMA*Asian		0.302 (3.67)	0.292 (3.64)
MDMA*Native American		1.013 (1.67)	n/a
MDMA*Two or more races		0.013 (0.1)	n/a
MDMA*Nonminority Female		0.146 (2.96)	0.138 (2.95)
Education (16 categories)	Yes	Yes	Yes
Geography (51 categories)	Yes	Yes	Yes
Industry (255 categories)	Yes	Yes	Yes
N	186,892	186,892	186,892
Adj. R^2	.1382	.1383	.1383

Source: NERA calculations from the 2015-2019 ACS Public Use Microdata Sample. *See* 2017 Disparity Study, pp. 139-141, for a description of specifications 1 through 3.

Notes: (1) Universe is all persons in the private sector with positive business earnings between the ages of 16 and 64; observations with imputed values to the dependent variable and all independent variables are excluded; (2) Reported number is the percentage difference in annual business earnings between a given group and nonminority men; (3) Number in parentheses is the absolute value of the associated t-statistic. Using a two-tailed test, t-statistics greater than 1.64 (1.96) (2.58) are statistically significant at a 90 (95) (99) percent confidence level; (4) Geography is defined based on place of residence; (5) "MDMA" is shorthand for "State of Maryland Market Area," which includes the State of Maryland, the State of Delaware, the District of Columbia, and the Virginia and West Virginia portions of the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area; (6) "n/a" in Specification 3 means that the category was not included in the regression because it was not statistically significant in Specification 2; (7) The "Yes" values next to the "Education," "Geography" and "Industry" rows indicate that control variables were included in the regression specification for these factors; (8) For any race or sex group that has a statistically significant MDMA interaction, the formula for the net impact for that group is as follows: ln(main coefficient+1)+ln(interaction term+1). In Table A.2F, the net impact for Asians is ln(-0.137 + 1) + ln(0.292 + 1) = 0.109 and is not statistically significant. For nonminority females, the net impact is -0.373 and is statistically significant.

Table A.2M. Annual Business Owner Earnings Regressions, NAICS Codes for Mobile Sports & Event Wagering, 2015-2019

Independent Variables	Specification		
	(1)	(2)	(3)
African American	-0.438 (30.34)	-0.439 (29.1)	-0.436 (30.18)
Hispanic	-0.166 (14.35)	-0.167 (14.26)	-0.166 (14.4)
Asian	-0.101 (6.21)	-0.114 (6.8)	-0.113 (6.78)
Native American	-0.377 (8.86)	-0.385 (8.99)	-0.378 (8.87)
Two or more races	-0.330 (15.38)	-0.330 (15.05)	-0.330 (15.38)
Nonminority Female	-0.384 (51.71)	-0.387 (51.28)	-0.387 (51.32)
Age	0.181 (73.31)	0.181 (73.27)	0.181 (73.29)
Age^2	-0.002 (63.99)	-0.002 (63.96)	-0.002 (63.97)
MDMA	0.230 (4.99)	0.155 (3.11)	0.167 (3.49)
MDMA*African American		0.052 (0.76)	n/a
MDMA*Hispanic		0.021 (0.29)	n/a
MDMA*Asian		0.259 (3.37)	0.245 (3.28)
MDMA*Native American		0.780 (1.47)	n/a
MDMA*Two or more races		0.004 (0.03)	n/a
MDMA*Nonminority Female		0.117 (2.47)	0.104 (2.34)
Education (16 categories)	Yes	Yes	Yes
Geography (51 categories)	Yes	Yes	Yes
Industry (255 categories)	Yes	Yes	Yes
N	197,228	197,228	197,228
Adj. R^2	.1349	.1349	.1349

Source: NERA calculations from the 2015-2019 ACS Public Use Microdata Sample. *See* 2017 Disparity Study, pp. 139-141, for a description of specifications 1 through 3.

Notes: (1) Universe is all persons in the private sector with positive business earnings between the ages of 16 and 64; observations with imputed values to the dependent variable and all independent variables are excluded; (2) Reported number is the percentage difference in annual business earnings between a given group and nonminority men; (3) Number in parentheses is the absolute value of the associated t-statistic. Using a two-tailed test, t-statistics greater than 1.64 (1.96) (2.58) are statistically significant at a 90 (95) (99) percent confidence level; (4) Geography is defined based on place of residence; (5) "MDMA" is shorthand for "State of Maryland Market Area," which includes the State of Maryland, the State of Delaware, the District of Columbia, and the Virginia and West Virginia portions of the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area; (6) "n/a" in Specification 3 means that the category was not included in the regression because it was not statistically significant in Specification 2; (7) The "Yes" values next to the "Education," "Geography" and "Industry" rows indicate that control variables were included in the regression specification for these factors; (8) For any race or sex group that has a statistically significant MDMA interaction, the formula for the net impact for that group is as follows: ln(main coefficient+1)+ln(interaction term+1). In Table A.2M, the net impact for Asians is log(-0.113 + 1) + log(0.245 + 1) = 0.099 and is not statistically significant. For nonminority females, the net impact is -0.390 and is statistically significant.

Table A.3F. Business Formation Regressions, NAICS Codes for Facility Sports & Event Wagering, 2015-2019

Independent Variables	Specification		
	(1)	**(2)**	**(3)**
African American	-0.043 (52.51)	-0.043 (51.18)	-0.043 (51.17)
Hispanic	-0.028 (45.13)	-0.028 (45.16)	-0.028 (45.14)
Asian	-0.017 (20.57)	-0.019 (21.74)	-0.019 (21.72)
Native American	-0.031 (12.92)	-0.031 (13.01)	-0.031 (12.98)
Two or more races	-0.015 (10.65)	-0.015 (10.66)	-0.015 (10.65)
Nonminority Female	-0.027 (56.32)	-0.027 (56.25)	-0.027 (56.24)
Age	0.011 (87.59)	0.011 (87.57)	0.011 (87.57)
Age^2	-0.000 (56.56)	-0.000 (56.53)	-0.000 (56.53)
MDMA	-0.018 (8.92)	-0.025 (11.45)	-0.025 (11.37)
MDMA*African American		0.017 (4.26)	0.017 (4.16)
MDMA*Hispanic		0.011 (2.85)	0.011 (2.75)
MDMA*Asian		0.033 (7.99)	0.033 (7.91)
MDMA*Native American		0.028 (0.97)	n/a
MDMA*Two or more races		0.009 (1.18)	n/a
MDMA*Nonminority Female		0.013 (5.12)	0.013 (4.99)
Education (16 categories)	Yes	Yes	Yes
Geography (51 categories)	Yes	Yes	Yes
Industry (255 categories)	Yes	Yes	Yes
N	1,790,546	1,790,546	1,790,546
Pseudo R^2	.1960	.1960	.1961

Source: NERA calculations from the 2015-2019 ACS Public Use Microdata Sample. *See* 2017 Disparity Study, pp. 153-154, for a description of specifications 1 through 3.

Notes: (1) Universe is all private sector labor force participants between the ages of 16 and 64; observations with imputed values to the dependent variable and all independent variables are excluded; (2) Reported number represents the percentage point probability difference in business ownership rates between a given group and nonminority men, evaluated at the mean business ownership rate for the estimation sample; (3) Number in parentheses is the absolute value of the associated t-statistic. Using a two-tailed test, t-statistics greater than 1.64 (1.96) (2.58) are statistically significant at a 90 (95) (99) percent confidence level; (4) Geography is defined based on place of residence; (5) "MDMA" is shorthand for "State of Maryland Market Area," which includes the State of Maryland, the State of Delaware, the District of Columbia, and the Virginia and West Virginia portions of the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area; (6) "n/a" in Specification 3 indicates that the category was not included in the regression because it was not statistically significant in Specification 2; (7) The "Yes" values next to the "Education," "Geography" and "Industry" rows indicate that control variables were included in the regression specification for these factors; (8) For any race or sex group that has a statistically significant MDMA interaction, the formula for the net impact for that group is simply the sum of the main coefficient and the interaction term. In Table A.3F, the net impact for African Americans is -0.043 + 0.017 = -0.026. For Hispanics, the net impact is -0.017. For Asians, the net impact is 0.014. For nonminority females, the net impact is -0.014. All four net impact figures are statistically significant.

Table A.3M. Business Formation Regressions, NAICS Codes for Mobile Sports & Event Wagering, 2015-2019

Independent Variables	Specification		
	(1)	(2)	(3)
African American	-0.041 (51.07)	-0.042 (50.2)	-0.042 (50.19)
Hispanic	-0.028 (44.54)	-0.028 (44.6)	-0.028 (44.59)
Asian	-0.016 (18.89)	-0.017 (20.12)	-0.017 (20.1)
Native American	-0.032 (13.01)	-0.032 (13.12)	-0.032 (13.07)
Two or more races	-0.014 (10.0)	-0.014 (10.01)	-0.014 (10.0)
Nonminority Female	-0.027 (54.63)	-0.027 (54.54)	-0.027 (54.52)
Age	0.011 (89.09)	0.011 (89.06)	0.011 (89.06)
Age^2	-0.000 (57.95)	-0.000 (57.92)	-0.000 (57.92)
MDMA	-0.018 (8.54)	-0.025 (11.19)	-0.025 (11.11)
MDMA*African American		0.023 (5.79)	0.022 (5.69)
MDMA*Hispanic		0.012 (2.96)	0.011 (2.85)
MDMA*Asian		0.033 (8.03)	0.033 (7.94)
MDMA*Native American		0.037 (1.26)	n/a
MDMA*Two or more races		0.008 (1.12)	n/a
MDMA*Nonminority Female		0.013 (4.84)	0.012 (4.7)
Education (16 categories)	Yes	Yes	Yes
Geography (51 categories)	Yes	Yes	Yes
Industry (255 categories)	Yes	Yes	Yes
N	1,823,957	1,823,957	1,823,957
Pseudo R^2	.2040	.2040	.2040

Source: NERA calculations from the 2015-2019 ACS Public Use Microdata Sample. *See* 2017 Disparity Study, pp. 153-154, for a description of specifications 1 through 3.

Notes: (1) Universe is all private sector labor force participants between the ages of 16 and 64; observations with imputed values to the dependent variable and all independent variables are excluded; (2) Reported number represents the percentage point probability difference in business ownership rates between a given group and nonminority men, evaluated at the mean business ownership rate for the estimation sample; (3) Number in parentheses is the absolute value of the associated t-statistic. Using a two-tailed test, t-statistics greater than 1.64 (1.96) (2.58) are statistically significant at a 90 (95) (99) percent confidence level; (4) Geography is defined based on place of residence; (5) "MDMA" is shorthand for "State of Maryland Market Area," which includes the State of Maryland, the State of Delaware, the District of Columbia, and the Virginia and West Virginia portions of the Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Statistical Area; (6) "n/a" in Specification 3 indicates that the category was not included in the regression because it was not statistically significant in Specification 2; (7) The "Yes" values next to the "Education," "Geography" and "Industry" rows indicate that control variables were included in the regression specification for these factors; (8) For any race or sex group that has a statistically significant MDMA interaction, the formula for the net impact for that group is simply the sum of the main coefficient and the interaction term. In Table A.3M, the net impact for African Americans is -0.042 + 0.022 = -0.02. For Hispanics, the net impact is -0.017. For Asians, the net impact is 0.016. For nonminority females, the net impact is -0.015. All four net impact figures are statistically significant.