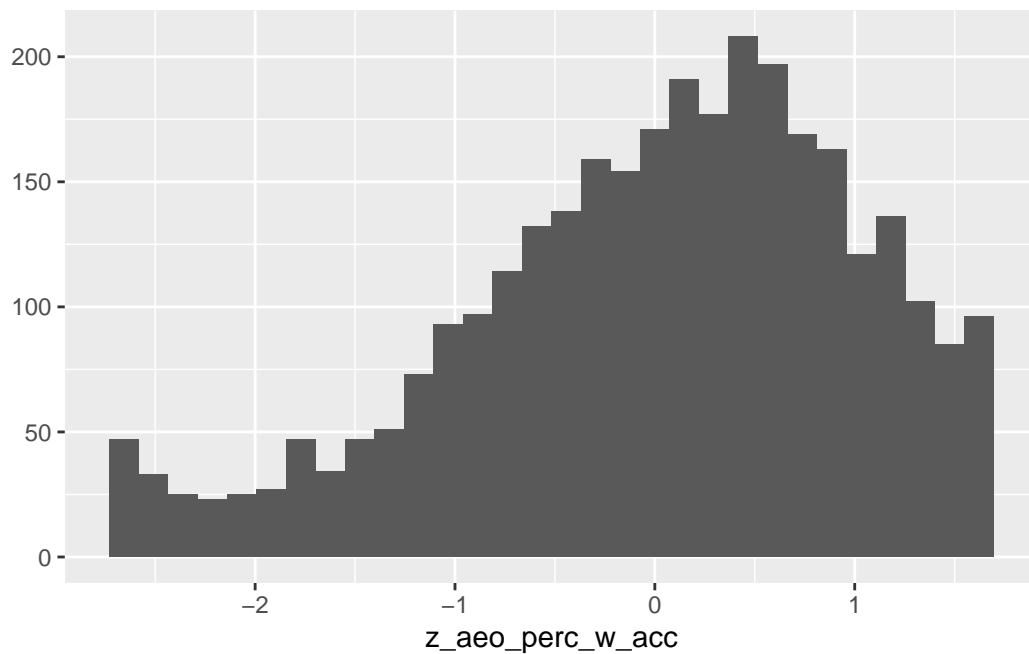


Government Model

S.Kelly

DV Histogram (Access to Exercise Opportunities)

```
ggplot(data = Z_and_Final_Variables_10.28.22, mapping = aes(x = z_aeo_perc_w_acc)) +  
  geom_histogram() + labs(y = NULL)
```



```
options(scipen = 990) #turning off scientific notation for coefficients
```

Government Model Groupings

Outcome: Access to Exercise Opportunities

IVs: Demographics Only (9 variables)

```
z_aeo_just_demos <- lm(formula = z_aeo_perc_w_acc ~ z_ACS_PCT_BLACK +  
  z_ACS_PCT_HISPAN + z_SVI_RPL_THEME1_SOCIECO + z_SVI_RPL_THEME2_HH_DISB +  
  z_SVI_RPL_THEME3_MINO + z_SVI_RPL_THEME4_HH_TRANS + z_ACS_PCT_ENGL_NOT_WELL +  
  z_ACS_PCT_NON_CITIZEN + z_ACS_MEDIAN_AGE, data = Z_and_Final_Variables_10.28.22)  
summary(z_aeo_just_demos)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_ACS_PCT_BLACK + z_ACS_PCT_HISPAN +  
  z_SVI_RPL_THEME1_SOCIECO + z_SVI_RPL_THEME2_HH_DISB + z_SVI_RPL_THEME3_MINO +  
  z_SVI_RPL_THEME4_HH_TRANS + z_ACS_PCT_ENGL_NOT_WELL + z_ACS_PCT_NON_CITIZEN +  
  z_ACS_MEDIAN_AGE, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-3.4116	-0.4552	0.1058	0.5560	2.4980

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.0009264	0.0153111	0.061	0.951759
z_ACS_PCT_BLACK	-0.1575983	0.0206763	-7.622	0.00000000000000329
z_ACS_PCT_HISPAN	-0.1318212	0.0276019	-4.776	0.0000018723684352
z_SVI_RPL_THEME1_SOCIECO	-0.4032064	0.0247732	-16.276	< 0.00000000000000002
z_SVI_RPL_THEME2_HH_DISB	-0.0539570	0.0210128	-2.568	0.010280
z_SVI_RPL_THEME3_MINO	0.1901056	0.0277886	6.841	0.000000000000094155
z_SVI_RPL_THEME4_HH_TRANS	0.2712781	0.0204611	13.258	< 0.00000000000000002
z_ACS_PCT_ENGL_NOT_WELL	-0.0074097	0.0437330	-0.169	0.865469
z_ACS_PCT_NON_CITIZEN	0.1482130	0.0395776	3.745	0.000184
z_ACS_MEDIAN_AGE	-0.0570775	0.0183681	-3.107	0.001904

(Intercept)

z_ACS_PCT_BLACK	***
z_ACS_PCT_HISPAN	***
z_SVI_RPL_THEME1_SOCIECO	***
z_SVI_RPL_THEME2_HH_DISB	*

```

z_SVI_RPL_THEME3_MINO      ***
z_SVI_RPL_THEME4_HH_TRANS ***
z_ACS_PCT_ENGL_NOT_WELL
z_ACS_PCT_NON_CITIZEN      ***
z_ACS_MEDIAN_AGE           **

```

```
---
```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8571 on 3124 degrees of freedom

(7 observations deleted due to missingness)

Multiple R-squared: 0.2676, Adjusted R-squared: 0.2655

F-statistic: 126.8 on 9 and 3124 DF, p-value: < 0.000000000000000022

Confidence Intervals for Demographic IVs

```
confint(z_aeo_just_demos)
```

	2.5 %	97.5 %
(Intercept)	-0.02909447	0.03094720
z_ACS_PCT_BLACK	-0.19813876	-0.11705784
z_ACS_PCT_HISPAN	-0.18594096	-0.07770146
z_SVI_RPL_THEME1_SOCIECO	-0.45177985	-0.35463286
z_SVI_RPL_THEME2_HH_DISB	-0.09515738	-0.01275668
z_SVI_RPL_THEME3_MINO	0.13561977	0.24459144
z_SVI_RPL_THEME4_HH_TRANS	0.23115957	0.31139660
z_ACS_PCT_ENGL_NOT_WELL	-0.09315805	0.07833862
z_ACS_PCT_NON_CITIZEN	0.07061234	0.22581370
z_ACS_MEDIAN_AGE	-0.09309223	-0.02106269

VIF for Demographic IVs

```
vif(z_aeo_just_demos)
```

z_ACS_PCT_BLACK	z_ACS_PCT_HISPAN	z_SVI_RPL_THEME1_SOCIECO
1.825872	3.234385	2.616529
z_SVI_RPL_THEME2_HH_DISB	z_SVI_RPL_THEME3_MINO	z_SVI_RPL_THEME4_HH_TRANS
1.881629	3.294866	1.784910
z_ACS_PCT_ENGL_NOT_WELL	z_ACS_PCT_NON_CITIZEN	z_ACS_MEDIAN_AGE
8.170962	6.692005	1.434752

Outcome: Access to Exercise Opportunities

IVs: Food & Housing Only (14 variables)

```
z_aeo_just_foodhouse <- lm(formula = z_aeo_perc_w_acc ~ z_food_afford +
  z_fd_enviro_indx + z_fi_percent + z_ACS_PCT_FOOD_STAMP +
  z_childelig_lunch_perc + z_shp_percent + z_shcb_percent +
  z_ACS_PCT_NO_VEH + z_ACS_PCT_RENTER_HH_CHILD + z_ACS_PCT_RENT_COST_30PCT +
  z_ACS_PCT_MOBILE_HOME + z_ACS_PCT_OWNED_HH + z_ACS_PCT_OWNER_HH_CHILD +
  z_ACS_MEDIAN_HOME_VALUE, data = Z_and_Final_Variables_10.28.22)
summary(z_aeo_just_foodhouse)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_food_afford + z_fd_enviro_indx +
  z_fi_percent + z_ACS_PCT_FOOD_STAMP + z_childelig_lunch_perc +
  z_shp_percent + z_shcb_percent + z_ACS_PCT_NO_VEH + z_ACS_PCT_RENTER_HH_CHILD +
  z_ACS_PCT_RENT_COST_30PCT + z_ACS_PCT_MOBILE_HOME + z_ACS_PCT_OWNED_HH +
  z_ACS_PCT_OWNER_HH_CHILD + z_ACS_MEDIAN_HOME_VALUE, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-2.7239	-0.4281	0.0732	0.4704	3.2343

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.009889	0.014811	0.668	0.5044
z_food_afford	-0.158113	0.023467	-6.738	0.00000000001949 ***
z_fd_enviro_indx	0.178150	0.025642	6.948	0.00000000000461 ***
z_fi_percent	-0.012613	0.030099	-0.419	0.6752
z_ACS_PCT_FOOD_STAMP	0.143023	0.028570	5.006	0.00000059039281 ***
z_childelig_lunch_perc	-0.024963	0.026431	-0.944	0.3450
z_shp_percent	0.180585	0.027231	6.632	0.000000000003978 ***
z_shcb_percent	-0.059366	0.029680	-2.000	0.0456 *
z_ACS_PCT_NO_VEH	-0.022827	0.021007	-1.087	0.2773
z_ACS_PCT_RENTER_HH_CHILD	-0.121917	0.017814	-6.844	0.000000000000944 ***
z_ACS_PCT_RENT_COST_30PCT	0.085369	0.021227	4.022	0.00005931803594 ***
z_ACS_PCT_MOBILE_HOME	-0.268691	0.020331	-13.216	< 0.0000000000000002 ***
z_ACS_PCT_OWNED_HH	-0.180357	0.021050	-8.568	< 0.0000000000000002 ***
z_ACS_PCT_OWNER_HH_CHILD	0.037126	0.017481	2.124	0.0338 *
z_ACS_MEDIAN_HOME_VALUE	0.165154	0.022630	7.298	0.000000000000038 ***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.7708 on 2771 degrees of freedom

(355 observations deleted due to missingness)

Multiple R-squared: 0.4188, Adjusted R-squared: 0.4159

F-statistic: 142.6 on 14 and 2771 DF, p-value: < 0.000000000000000022

Confidence Intervals for Food & Housing IVs

```
confint(z_aeo_just_foodhouse)
```

	2.5 %	97.5 %
(Intercept)	-0.019153258	0.038930481
z_food_afford	-0.204126710	-0.112098921
z_fd_enviro_indx	0.127870925	0.228428668
z_fi_percent	-0.071632147	0.046406323
z_ACS_PCT_FOOD_STAMP	0.087002100	0.199043345
z_childelig_lunch_perc	-0.076790358	0.026864420
z_shp_percent	0.127189720	0.233980128
z_shcb_percent	-0.117563510	-0.001168741
z_ACS_PCT_NO_VEH	-0.064017698	0.018364657
z_ACS_PCT_RENTER_HH_CHILD	-0.156846181	-0.086987747
z_ACS_PCT_RENT_COST_30PCT	0.043746559	0.126990947
z_ACS_PCT_MOBILE_HOME	-0.308555631	-0.228826030
z_ACS_PCT_OWNED_HH	-0.221632490	-0.139081275
z_ACS_PCT_OWNER_HH_CHILD	0.002849079	0.071402754
z_ACS_MEDIAN_HOME_VALUE	0.120779788	0.209528216

VIF for Food & Housing IVs

```
vif(z_aeo_just_foodhouse)
```

z_food_afford	z_fd_enviro_indx	z_fi_percent
2.570074	3.111423	4.287987
z_ACS_PCT_FOOD_STAMP	z_childelig_lunch_perc	z_shp_percent
3.754121	2.619590	3.414855
z_shcb_percent	z_ACS_PCT_NO_VEH	z_ACS_PCT_RENTER_HH_CHILD

	4.185768	1.910118	1.498304
z_ACS_PCT_RENT_COST_30PCT		z_ACS_PCT_MOBILE_HOME	z_ACS_PCT_OWNED_HH
	2.107373	1.967663	2.050265
z_ACS_PCT_OWNER_HH_CHILD		z_ACS_MEDIAN_HOME_VALUE	
	1.457420	2.345365	

Outcome: Access to Exercise Opportunities

IVs: Education (3 variables)

```
z_aeo_just_ed <- lm(formula = z_aeo_perc_w_acc ~ z_hsg_rate +
  z_sc_percent + z_ms_average, data = Z_and_Final_Variables_10.28.22)
summary(z_aeo_just_ed)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_hsg_rate + z_sc_percent + z_ms_average,
    data = Z_and_Final_Variables_10.28.22)
```

Residuals:

	Min	1Q	Median	3Q	Max
	-3.07770	-0.48716	0.09847	0.56034	2.64444

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.02608	0.01755	1.486	0.1375
z_hsg_rate	-0.14232	0.01918	-7.420	0.0000000000000163 ***
z_sc_percent	0.46617	0.01876	24.850	< 0.0000000000000002 ***
z_ms_average	0.03702	0.01821	2.033	0.0421 *

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8431 on 2323 degrees of freedom

(814 observations deleted due to missingness)

Multiple R-squared: 0.2377, Adjusted R-squared: 0.2367

F-statistic: 241.5 on 3 and 2323 DF, p-value: < 0.00000000000000022

Confidence Intervals for Education IVs

```
confint(z_aeo_just_ed)
```

	2.5 %	97.5 %
(Intercept)	-0.008338814	0.06048903
z_hsg_rate	-0.179928288	-0.10470569
z_sc_percent	0.429387250	0.50296091
z_ms_average	0.001318939	0.07272418

VIF for Education IVs

```
vif(z_aeo_just_ed)
```

z_hsg_rate	z_sc_percent	z_ms_average
1.022551	1.083295	1.098559

Outcome: Access to Exercise Opportunities

IVs: Technology (3 variables)

```
z_aeo_just_tech <- lm(formula = z_aeo_perc_w_acc ~ z_ACS_PCT_BROADBAND +  
  z_ACS_PCT_NO_PC + z_ACS_PCT_SMARTPHONE, data = Z_and_Final_Variables_10.28.22)  
summary(z_aeo_just_tech)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_ACS_PCT_BROADBAND + z_ACS_PCT_NO_PC +  
  z_ACS_PCT_SMARTPHONE, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-3.1461	-0.4706	0.1025	0.5333	3.1263

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-0.00005288	0.01506257	-0.004	0.997199

```

z_ACS_PCT_BROADBAND    0.35874824  0.04258707   8.424 < 0.00000000000000002 ***
z_ACS_PCT_NO_PC        -0.14308669  0.03904557  -3.665          0.000252 ***
z_ACS_PCT_SMARTPHONE   -0.07604987  0.01895769  -4.012          0.0000617 ***
---

```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8434 on 3131 degrees of freedom

(6 observations deleted due to missingness)

Multiple R-squared: 0.2894, Adjusted R-squared: 0.2887

F-statistic: 425.1 on 3 and 3131 DF, p-value: < 0.000000000000000022

Confidence Intervals for Technology IVs

```
confint(z_aeo_just_tech)
```

	2.5 %	97.5 %
(Intercept)	-0.0295864	0.02948064
z_ACS_PCT_BROADBAND	0.2752468	0.44224964
z_ACS_PCT_NO_PC	-0.2196442	-0.06652918
z_ACS_PCT_SMARTPHONE	-0.1132206	-0.03887912

VIF for Technology IVs

```
vif(z_aeo_just_tech)
```

z_ACS_PCT_BROADBAND	z_ACS_PCT_NO_PC	z_ACS_PCT_SMARTPHONE
7.996637	6.719928	1.568602

Outcome: Access to Exercise Opportunities

IVs: HWCC (7 variables)

```

z_aeo_just_HWCC <- lm(formula = z_aeo_perc_w_acc ~ z_pphd_avgnum +
  z_pmhd_avgnum + z_lbw_percent_lbw + z_pi_phy_inact + z_cip_perc +
  z_csph_perc + z_ACS_PCT_CHILD_DISAB, data = Z_and_Final_Variables_10.28.22)
summary(z_aeo_just_HWCC)

```


Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_pphd_avgnum + z_pmhd_avgnum +  
    z_lbw_percent_lbw + z_pi_phy_inact + z_cip_perc + z_csph_perc +  
    z_ACS_PCT_CHILD_DISAB, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-3.0287	-0.4542	0.0993	0.5463	3.2040

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.033768	0.015084	2.239	0.025245 *
z_pphd_avgnum	-0.188441	0.049731	-3.789	0.000154 ***
z_pmhd_avgnum	0.156031	0.044518	3.505	0.000463 ***
z_lbw_percent_lbw	-0.014634	0.020134	-0.727	0.467393
z_pi_phy_inact	-0.299119	0.018122	-16.505	< 0.0000000000000002 ***
z_cip_perc	-0.322107	0.029260	-11.008	< 0.0000000000000002 ***
z_csph_perc	0.224539	0.022430	10.011	< 0.0000000000000002 ***
z_ACS_PCT_CHILD_DISAB	-0.008469	0.016758	-0.505	0.613326

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8292 on 3024 degrees of freedom

(109 observations deleted due to missingness)

Multiple R-squared: 0.2618, Adjusted R-squared: 0.2601

F-statistic: 153.2 on 7 and 3024 DF, p-value: < 0.00000000000000022

Confidence Intervals for HWCC IVs

```
confint(z_aeo_just_HWCC)
```

	2.5 %	97.5 %
(Intercept)	0.004193255	0.06334368
z_pphd_avgnum	-0.285951216	-0.09093000
z_pmhd_avgnum	0.068742880	0.24331846
z_lbw_percent_lbw	-0.054112119	0.02484425
z_pi_phy_inact	-0.334652152	-0.26358522
z_cip_perc	-0.379479145	-0.26473518
z_csph_perc	0.180559793	0.26851756
z_ACS_PCT_CHILD_DISAB	-0.041327484	0.02438903

VIF for HWCC IVs

```
vif(z_aeo_just_HWCC)
```

z_pphd_avgnum	z_pmhd_avgnum	z_lbw_percent_lbw
10.774927	8.539125	1.785515
z_pi_phy_inact	z_cip_perc	z_csph_perc
1.468884	3.796455	2.123869
z_ACS_PCT_CHILD_DISAB		
1.165504		

Outcome: Access to Exercise Opportunities

IVs: Health A (7 variables)

```
z_aeo_just_healthA <- lm(formula = z_aeo_perc_w_acc ~ z_phys_per_cap +  
  z_mhp_per_cap + z_dents_per_cap + z_uninsur_perc + z_uc_percent +  
  z_opcp_rate + z_TeenBirths, data = Z_and_Final_Variables_10.28.22)  
summary(z_aeo_just_healthA)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_phys_per_cap + z_mhp_per_cap +  
  z_dents_per_cap + z_uninsur_perc + z_uc_percent + z_opcp_rate +  
  z_TeenBirths, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-4.1036	-0.4460	0.0902	0.5192	2.7269

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.0002098	0.0150688	0.014	0.989
z_phys_per_cap	0.1872139	0.0215409	8.691	<0.0000000000000002 ***
z_mhp_per_cap	0.0128896	0.0196495	0.656	0.512
z_dents_per_cap	0.3217579	0.0207014	15.543	<0.0000000000000002 ***
z_uninsur_perc	-0.1434398	0.0171982	-8.340	<0.0000000000000002 ***
z_uc_percent	0.0208872	0.0166340	1.256	0.209
z_opcp_rate	-0.0039723	0.0175003	-0.227	0.820

```
z_TeenBirths      0.1353542  0.0157047   8.619 <0.0000000000000002 ***
```

```
---
```

```
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
Residual standard error: 0.819 on 2950 degrees of freedom
```

```
(183 observations deleted due to missingness)
```

```
Multiple R-squared:  0.3355,    Adjusted R-squared:  0.3339
```

```
F-statistic: 212.8 on 7 and 2950 DF,  p-value: < 0.00000000000000022
```

Confidence Intervals for Health A IVs

```
confint(z_aeo_just_healthA)
```

	2.5 %	97.5 %
(Intercept)	-0.02933662	0.02975631
z_phys_per_cap	0.14497716	0.22945072
z_mhp_per_cap	-0.02563854	0.05141772
z_dents_per_cap	0.28116727	0.36234850
z_uninsur_perc	-0.17716153	-0.10971812
z_uc_percent	-0.01172819	0.05350268
z_opcp_rate	-0.03828638	0.03034175
z_TeenBirths	0.10456098	0.16614746

VIF for Health A IVs

```
vif(z_aeo_just_healthA)
```

z_phys_per_cap	z_mhp_per_cap	z_dents_per_cap	z_uninsur_perc	z_uc_percent
2.024947	1.687670	1.908508	1.312576	1.222784
z_opcp_rate	z_TeenBirths			
1.349878	1.147781			

Outcome: Access to Exercise Opportunities

IVs: Health B (5 variables)

```
z_aeo_just_healthB <- lm(formula = z_aeo_perc_w_acc ~ z_phs_rate +  
  z_ms_perc_ann + z_AMFAR_AMATFAC + z_MP_PERCPEN + z_AHRF_RURAL_H_CLINIC,  
  data = Z_and_Final_Variables_10.28.22)  
summary(z_aeo_just_healthB)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_phs_rate + z_ms_perc_ann +  
  z_AMFAR_AMATFAC + z_MP_PERCPEN + z_AHRF_RURAL_H_CLINIC, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-3.0361	-0.5071	0.1211	0.6290	2.7206

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.02023	0.01632	1.240	0.2150
z_phs_rate	-0.22077	0.01707	-12.933	< 0.0000000000000002 ***
z_ms_perc_ann	0.14752	0.01727	8.541	< 0.0000000000000002 ***
z_AMFAR_AMATFAC	0.19320	0.01627	11.873	< 0.0000000000000002 ***
z_MP_PERCPEN	0.08252	0.01689	4.887	0.00000108 ***
z_AHRF_RURAL_H_CLINIC	-0.03141	0.01634	-1.922	0.0547 .

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8978 on 3024 degrees of freedom

(111 observations deleted due to missingness)

Multiple R-squared: 0.1509, Adjusted R-squared: 0.1495

F-statistic: 107.5 on 5 and 3024 DF, p-value: < 0.00000000000000022

Confidence Intervals for Health B IVs

```
confint(z_aeo_just_healthB)
```

	2.5 %	97.5 %
(Intercept)	-0.01175744	0.0522222191
z_phs_rate	-0.25424598	-0.1873013325
z_ms_perc_ann	0.11365613	0.1813900061
z_AMFAR_AMATFAC	0.16129656	0.2251118336
z_MP_PERCPEN	0.04941105	0.1156329860
z_AHRF_RURAL_H_CLINIC	-0.06345071	0.0006339338

VIF for Health B IVs

```
vif(z_aeo_just_healthB)
```

z_phs_rate	z_ms_perc_ann	z_AMFAR_AMATFAC
1.086643	1.082685	1.030124
z_MP_PERCPEN	z_AHRF_RURAL_H_CLINIC	
1.073504	1.026653	

Outcome: Access to Exercise Opportunities

IVs: Business (4 variables)

```
z_aeo_just_bus <- lm(formula = z_aeo_perc_w_acc ~ z_unemp_perc +
  z_ACS_GINI_INDEX + z_ACS_MEDIAN_HH_INCOME + z_ACS_PCT_WORK_NO_CAR,
  data = Z_and_Final_Variables_10.28.22)
summary(z_aeo_just_bus)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_unemp_perc + z_ACS_GINI_INDEX +
  z_ACS_MEDIAN_HH_INCOME + z_ACS_PCT_WORK_NO_CAR, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-3.4053	-0.5016	0.1231	0.6190	2.3430

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.001558	0.015977	0.098	0.92234

z_unemp_perc	0.055460	0.018627	2.977	0.00293	**
z_ACS_GINI_INDEX	0.097526	0.017721	5.503	0.0000000402841	***
z_ACS_MEDIAN_HH_INCOME	0.475558	0.018510	25.692	< 0.0000000000000002	***
z_ACS_PCT_WORK_NO_CAR	0.122092	0.018445	6.619	0.0000000000424	***

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.8941 on 3128 degrees of freedom

(8 observations deleted due to missingness)

Multiple R-squared: 0.2013, Adjusted R-squared: 0.2003

F-statistic: 197.1 on 4 and 3128 DF, p-value: < 0.00000000000000022

Confidence Intervals for Business IVs

```
confint(z_aeo_just_bus)
```

	2.5 %	97.5 %
(Intercept)	-0.02976839	0.03288388
z_unemp_perc	0.01893845	0.09198231
z_ACS_GINI_INDEX	0.06277913	0.13227246
z_ACS_MEDIAN_HH_INCOME	0.43926486	0.51185157
z_ACS_PCT_WORK_NO_CAR	0.08592532	0.15825771

VIF for Business IVs

```
vif(z_aeo_just_bus)
```

z_unemp_perc	z_ACS_GINI_INDEX	z_ACS_MEDIAN_HH_INCOME
1.279680	1.224683	1.342457
z_ACS_PCT_WORK_NO_CAR		
1.094151		

Outcome: Access to Exercise Opportunities

IVs: Government (4 variables; removed AEO)

```
z_aeo_just_gov <- lm(formula = z_aeo_perc_w_acc ~ z_soc_assoc_num +  
  z_dwv_presence + z_ACS_PCT_HH_PUB_ASSIST + z_AHRF_TXC_SITE_NO_CNTRL,  
  data = Z_and_Final_Variables_10.28.22)  
summary(z_aeo_just_gov)
```

Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_soc_assoc_num + z_dwv_presence +  
  z_ACS_PCT_HH_PUB_ASSIST + z_AHRF_TXC_SITE_NO_CNTRL, data = Z_and_Final_Variables_10.28.22)
```

Residuals:

Min	1Q	Median	3Q	Max
-6.9391	-0.5332	0.1478	0.6587	1.8610

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	-0.01714	0.01667	-1.028	0.30391
z_soc_assoc_num	0.32408	0.01717	18.876	< 0.0000000000000002 ***
z_dwv_presence	0.07181	0.01687	4.257	0.0000214 ***
z_ACS_PCT_HH_PUB_ASSIST	0.04022	0.01722	2.335	0.01961 *
z_AHRF_TXC_SITE_NO_CNTRL	0.05357	0.01712	3.129	0.00177 **

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.9266 on 3086 degrees of freedom

(50 observations deleted due to missingness)

Multiple R-squared: 0.1328, Adjusted R-squared: 0.1317

F-statistic: 118.2 on 4 and 3086 DF, p-value: < 0.00000000000000022

Confidence Intervals for Government IVs

```
confint(z_aeo_just_gov)
```

	2.5 %	97.5 %
(Intercept)	-0.049824274	0.01554358

z_soc_assoc_num	0.290414558	0.35774060
z_dwv_presence	0.038732485	0.10488416
z_ACS_PCT_HH_PUB_ASSIST	0.006446064	0.07398680
z_AHRF_TXC_SITE_NO_CNTRL	0.020002243	0.08714361

VIF for Government IVs

```
vif(z_aeo_just_gov)
```

z_soc_assoc_num	z_dwv_presence	z_ACS_PCT_HH_PUB_ASSIST
1.073226	1.023884	1.009635
z_AHRF_TXC_SITE_NO_CNTRL		
1.060408		

Full Government Model

Outcome: Access to Exercise Opportunities

IVs: 56

```
z_aeo_levels_12345678 <- lm(formula = z_aeo_perc_w_acc ~ z_ACS_PCT_BLACK +
  z_ACS_PCT_HISPAN + z_SVI_RPL_THEME1_SOCIECO + z_SVI_RPL_THEME2_HH_DISB +
  z_SVI_RPL_THEME3_MINO + z_SVI_RPL_THEME4_HH_TRANS + z_ACS_PCT_ENGL_NOT_WELL +
  z_ACS_PCT_NON_CITIZEN + z_ACS_MEDIAN_AGE + z_food_afford +
  z_fd_enviro_indx + z_fi_percent + z_ACS_PCT_FOOD_STAMP +
  z_childelig_lunch_perc + z_shp_percent + z_shcb_percent +
  z_ACS_PCT_NO_VEH + z_ACS_PCT_RENTER_HH_CHILD + z_ACS_PCT_RENT_COST_30PCT +
  z_ACS_PCT_MOBILE_HOME + z_ACS_PCT_OWNED_HH + z_ACS_PCT_OWNER_HH_CHILD +
  z_ACS_MEDIAN_HOME_VALUE + z_hsg_rate + z_sc_percent + z_ms_average +
  z_ACS_PCT_BROADBAND + z_ACS_PCT_NO_PC + z_ACS_PCT_SMARTPHONE +
  z_pphd_avgnum + z_pmhd_avgnum + z_lbw_percent_lbw + z_pi_phy_inact +
  z_cip_perc + z_csph_perc + z_ACS_PCT_CHILD_DISAB + z_phys_per_cap +
  z_mhp_per_cap + z_dents_per_cap + z_uninsur_perc + z_uc_percent +
  z_opcp_rate + z_TeenBirths + z_phs_rate + z_ms_perc_ann +
  z_AMFAR_AMATFAC + z_MP_PERCPEN + z_AHRF_RURAL_H_CLINIC +
  z_unemp_perc + z_ACS_GINI_INDEX + z_ACS_MEDIAN_HH_INCOME +
  z_ACS_PCT_WORK_NO_CAR + z_soc_assoc_num + z_dwv_presence +
  z_ACS_PCT_HH_PUB_ASSIST + z_AHRF_TXC_SITE_NO_CNTRL, data = Z_and_Final_Variables_10.28)
summary(z_aeo_levels_12345678)
```


Call:

```
lm(formula = z_aeo_perc_w_acc ~ z_ACS_PCT_BLACK + z_ACS_PCT_HISPAN +
    z_SVI_RPL_THEME1_SOCIECO + z_SVI_RPL_THEME2_HH_DISB + z_SVI_RPL_THEME3_MINO +
    z_SVI_RPL_THEME4_HH_TRANS + z_ACS_PCT_ENGL_NOT_WELL + z_ACS_PCT_NON_CITIZEN +
    z_ACS_MEDIAN_AGE + z_food_afford + z_fd_enviro_indx + z_fi_percent +
    z_ACS_PCT_FOOD_STAMP + z_childelig_lunch_perc + z_shp_percent +
    z_shcb_percent + z_ACS_PCT_NO_VEH + z_ACS_PCT_RENTER_HH_CHILD +
    z_ACS_PCT_RENT_COST_30PCT + z_ACS_PCT_MOBILE_HOME + z_ACS_PCT_OWNED_HH +
    z_ACS_PCT_OWNER_HH_CHILD + z_ACS_MEDIAN_HOME_VALUE + z_hsg_rate +
    z_sc_percent + z_ms_average + z_ACS_PCT_BROADBAND + z_ACS_PCT_NO_PC +
    z_ACS_PCT_SMARTPHONE + z_pphd_avgnum + z_pmhd_avgnum + z_lbw_percent_lbw +
    z_pi_phy_inact + z_cip_perc + z_csph_perc + z_ACS_PCT_CHILD_DISAB +
    z_phys_per_cap + z_mhp_per_cap + z_dents_per_cap + z_uninsur_perc +
    z_uc_percent + z_opcp_rate + z_TeenBirths + z_phs_rate +
    z_ms_perc_ann + z_AMFAR_AMATFAC + z_MP_PERCPEN + z_AHRF_RURAL_H_CLINIC +
    z_unemp_perc + z_ACS_GINI_INDEX + z_ACS_MEDIAN_HH_INCOME +
    z_ACS_PCT_WORK_NO_CAR + z_soc_assoc_num + z_dwv_presence +
    z_ACS_PCT_HH_PUB_ASSIST + z_AHRF_TXC_SITE_NO_CNTRL, data = Z_and_Final_Variables_10.28.2
```

Residuals:

	Min	1Q	Median	3Q	Max
	-2.74184	-0.36372	0.04276	0.39016	2.47041

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.019617	0.017996	1.090	0.275792
z_ACS_PCT_BLACK	-0.250469	0.035469	-7.062	0.000000000000225 ***
z_ACS_PCT_HISPAN	0.032503	0.035600	0.913	0.361344
z_SVI_RPL_THEME1_SOCIECO	-0.070194	0.048375	-1.451	0.146925
z_SVI_RPL_THEME2_HH_DISB	-0.044988	0.026790	-1.679	0.093244 .
z_SVI_RPL_THEME3_MINO	0.041000	0.032644	1.256	0.209264
z_SVI_RPL_THEME4_HH_TRANS	0.069451	0.025749	2.697	0.007050 **
z_ACS_PCT_ENGL_NOT_WELL	0.102552	0.050955	2.013	0.044289 *
z_ACS_PCT_NON_CITIZEN	0.052248	0.046574	1.122	0.262067
z_ACS_MEDIAN_AGE	0.062291	0.037443	1.664	0.096338 .
z_food_afford	-0.064900	0.030262	-2.145	0.032104 *
z_fd_enviro_indx	0.141602	0.033732	4.198	0.00002810398722 ***
z_fi_percent	0.113452	0.048341	2.347	0.019025 *
z_ACS_PCT_FOOD_STAMP	0.095904	0.040857	2.347	0.019006 *
z_childelig_lunch_perc	-0.053883	0.033503	-1.608	0.107924
z_shp_percent	-0.079026	0.039737	-1.989	0.046863 *
z_shcb_percent	0.057208	0.037770	1.515	0.130018

z_ACS_PCT_NO_VEH	0.039585	0.057746	0.685	0.493107	
z_ACS_PCT_RENTER_HH_CHILD	-0.079079	0.022816	-3.466	0.000539	***
z_ACS_PCT_RENT_COST_30PCT	0.039873	0.024719	1.613	0.106888	
z_ACS_PCT_MOBILE_HOME	-0.178896	0.025386	-7.047	0.00000000000249	***
z_ACS_PCT_OWNED_HH	-0.106351	0.033340	-3.190	0.001445	**
z_ACS_PCT_OWNER_HH_CHILD	-0.009555	0.033287	-0.287	0.774092	
z_ACS_MEDIAN_HOME_VALUE	-0.051070	0.041396	-1.234	0.217464	
z_hsg_rate	-0.082079	0.019773	-4.151	0.00003445391345	***
z_sc_percent	0.024575	0.029863	0.823	0.410645	
z_ms_average	0.047833	0.034121	1.402	0.161107	
z_ACS_PCT_BROADBAND	0.035172	0.045953	0.765	0.444126	
z_ACS_PCT_NO_PC	-0.143291	0.046353	-3.091	0.002020	**
z_ACS_PCT_SMARTPHONE	-0.112150	0.024438	-4.589	0.00000472170236	***
z_pphd_avgnum	-0.197798	0.058004	-3.410	0.000662	***
z_pmhd_avgnum	0.167016	0.050943	3.278	0.001061	**
z_lbw_percent_lbw	0.109951	0.026630	4.129	0.00003792533330	***
z_pi_phy_inact	-0.021584	0.022162	-0.974	0.330215	
z_cip_perc	0.031956	0.045006	0.710	0.477755	
z_csph_perc	0.063379	0.031567	2.008	0.044796	*
z_ACS_PCT_CHILD_DISAB	-0.017990	0.017886	-1.006	0.314621	
z_phys_per_cap	0.082333	0.026300	3.131	0.001770	**
z_mhp_per_cap	-0.053653	0.023065	-2.326	0.020106	*
z_dents_per_cap	0.090457	0.026190	3.454	0.000564	***
z_uninsur_perc	0.210790	0.045742	4.608	0.00000431089445	***
z_uc_percent	-0.434903	0.066201	-6.569	0.00000000006389	***
z_opcp_rate	0.026204	0.020574	1.274	0.202924	
z_TeenBirths	-0.085532	0.052628	-1.625	0.104272	
z_phs_rate	-0.036179	0.018945	-1.910	0.056310	.
z_ms_perc_ann	-0.033029	0.022074	-1.496	0.134737	
z_AMFAR_AMATFAC	0.008827	0.022495	0.392	0.694809	
z_MP_PERCPEN	0.009263	0.017661	0.524	0.600007	
z_AHRF_RURAL_H_CLINIC	-0.011499	0.015459	-0.744	0.457066	
z_unemp_perc	0.089725	0.026019	3.448	0.000575	***
z_ACS_GINI_INDEX	-0.046777	0.023467	-1.993	0.046361	*
z_ACS_MEDIAN_HH_INCOME	0.040249	0.055533	0.725	0.468679	
z_ACS_PCT_WORK_NO_CAR	-0.011400	0.048654	-0.234	0.814768	
z_soc_assoc_num	0.105936	0.059232	1.788	0.073844	.
z_dwv_presence	-0.004916	0.016056	-0.306	0.759496	
z_ACS_PCT_HH_PUB_ASSIST	-0.039761	0.021178	-1.877	0.060600	.
z_AHRF_TXC_SITE_NO_CNTRL	0.019795	0.016488	1.201	0.230048	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.6683 on 2043 degrees of freedom
 (1041 observations deleted due to missingness)
 Multiple R-squared: 0.523, Adjusted R-squared: 0.5099
 F-statistic: 40 on 56 and 2043 DF, p-value: < 0.00000000000000022

Confidence Intervals for Full Government Model IVs

```
confint(z_aeo_levels_12345678)
```

	2.5 %	97.5 %
(Intercept)	-0.015674617	0.0549095488
z_ACS_PCT_BLACK	-0.320028427	-0.1809097455
z_ACS_PCT_HISPAN	-0.037313209	0.1023201590
z_SVI_RPL_THEME1_SOCIECO	-0.165063941	0.0246760676
z_SVI_RPL_THEME2_HH_DISB	-0.097525540	0.0075496823
z_SVI_RPL_THEME3_MINO	-0.023018267	0.1050180453
z_SVI_RPL_THEME4_HH_TRANS	0.018953059	0.1199483439
z_ACS_PCT_ENGL_NOT_WELL	0.002622231	0.2024815378
z_ACS_PCT_NON_CITIZEN	-0.039089192	0.1435848874
z_ACS_MEDIAN_AGE	-0.011138769	0.1357215188
z_food_afford	-0.124247982	-0.0055517084
z_fd_enviro_indx	0.075449085	0.2077553848
z_fi_percent	0.018649077	0.2082553626
z_ACS_PCT_FOOD_STAMP	0.015777298	0.1760306533
z_childelig_lunch_perc	-0.119587703	0.0118209219
z_shp_percent	-0.156954484	-0.0010972363
z_shcb_percent	-0.016863799	0.1312804701
z_ACS_PCT_NO_VEH	-0.073661891	0.1528310300
z_ACS_PCT_RENTER_HH_CHILD	-0.123823963	-0.0343343935
z_ACS_PCT_RENT_COST_30PCT	-0.008604026	0.0883499255
z_ACS_PCT_MOBILE_HOME	-0.228681992	-0.1291107096
z_ACS_PCT_OWNED_HH	-0.171733889	-0.0409676796
z_ACS_PCT_OWNER_HH_CHILD	-0.074834396	0.0557236800
z_ACS_MEDIAN_HOME_VALUE	-0.132253466	0.0301136385
z_hsg_rate	-0.120855851	-0.0433013477
z_sc_percent	-0.033990395	0.0831411411
z_ms_average	-0.019082351	0.1147481345
z_ACS_PCT_BROADBAND	-0.054947209	0.1252911311
z_ACS_PCT_NO_PC	-0.234195291	-0.0523869831
z_ACS_PCT_SMARTPHONE	-0.160077248	-0.0642236880
z_pphd_avgnum	-0.311551058	-0.0840449368

z_pmhd_avgnum	0.067110630	0.2669217921
z_lbwt_percent_lbwt	0.057726073	0.1621750356
z_pi_phy_inact	-0.065047174	0.0218788768
z_cip_perc	-0.056305740	0.1202182578
z_csph_perc	0.001473345	0.1252851983
z_ACS_PCT_CHILD_DISAB	-0.053066689	0.0170865363
z_phys_per_cap	0.030755504	0.1339106316
z_mhp_per_cap	-0.098885341	-0.0084201101
z_dents_per_cap	0.039095428	0.1418180403
z_uninsur_perc	0.121084606	0.3004945649
z_uc_percent	-0.564731507	-0.3050747868
z_opcp_rate	-0.014143397	0.0665515956
z_TeenBirths	-0.188742010	0.0176784863
z_phs_rate	-0.073332817	0.0009740101
z_ms_perc_ann	-0.076320308	0.0102613773
z_AMFAR_AMATFAC	-0.035288841	0.0529427073
z_MP_PERCPEN	-0.025373226	0.0438989808
z_AHRF_RURAL_H_CLINIC	-0.041815712	0.0188181271
z_unemp_perc	0.038698220	0.1407519998
z_ACS_GINI_INDEX	-0.092799227	-0.0007550299
z_ACS_MEDIAN_HH_INCOME	-0.068659246	0.1491564395
z_ACS_PCT_WORK_NO_CAR	-0.106817818	0.0840173325
z_soc_assoc_num	-0.010224989	0.2220970853
z_dwv_presence	-0.036402851	0.0265709884
z_ACS_PCT_HH_PUB_ASSIST	-0.081294158	0.0017723212
z_AHRF_TXC_SITE_NO_CNTRL	-0.012539594	0.0521301398

VIF for Full Government Model IVs

```
vif(z_aeo_levels_12345678)
```

z_ACS_PCT_BLACK	z_ACS_PCT_HISPAN	z_SVI_RPL_THEME1_SOCIECO
6.912000	5.923113	11.027773
z_SVI_RPL_THEME2_HH_DISB	z_SVI_RPL_THEME3_MINO	z_SVI_RPL_THEME4_HH_TRANS
3.264065	4.704268	2.949966
z_ACS_PCT_ENGL_NOT_WELL	z_ACS_PCT_NON_CITIZEN	z_ACS_MEDIAN_AGE
11.380282	9.133795	5.883786
z_food_afford	z_fd_enviro_indx	z_fi_percent
4.123037	4.505994	11.057744
z_ACS_PCT_FOOD_STAMP	z_childelig_lunch_perc	z_shp_percent
7.013986	4.048457	4.658304

z_shcb_percent	z_ACS_PCT_NO_VEH	z_ACS_PCT_RENTER_HH_CHILD
5.463992	6.838275	2.243992
z_ACS_PCT_RENT_COST_30PCT	z_ACS_PCT_MOBILE_HOME	z_ACS_PCT_OWNED_HH
2.274295	3.173538	4.385062
z_ACS_PCT_OWNER_HH_CHILD	z_ACS_MEDIAN_HOME_VALUE	z_hsg_rate
4.721194	5.506602	1.558191
z_sc_percent	z_ms_average	z_ACS_PCT_BROADBAND
3.898371	1.830995	10.057862
z_ACS_PCT_NO_PC	z_ACS_PCT_SMARTPHONE	z_pphd_avgnum
10.179854	2.849985	15.772951
z_pmhd_avgnum	z_lbwh_percent_lbwh	z_pi_phy_inact
11.991613	3.415100	2.349140
z_cip_perc	z_csph_perc	z_ACS_PCT_CHILD_DISAB
9.979310	4.510358	1.376100
z_phys_per_cap	z_mhp_per_cap	z_dents_per_cap
2.673463	2.043484	2.550074
z_uninsur_perc	z_uc_percent	z_opcp_rate
10.282585	7.577170	1.775688
z_TeenBirths	z_phs_rate	z_ms_perc_ann
14.451073	1.639758	2.181154
z_AMFAR_AMATFAC	z_MP_PERCPEN	z_AHRF_RURAL_H_CLINIC
1.849017	1.383033	1.201331
z_unemp_perc	z_ACS_GINI_INDEX	z_ACS_MEDIAN_HH_INCOME
2.528939	2.490773	12.929434
z_ACS_PCT_WORK_NO_CAR	z_soc_assoc_num	z_dvw_presence
3.202944	15.968333	1.181746
z_ACS_PCT_HH_PUB_ASSIST	z_AHRF_TXC_SITE_NO_CNTRL	
1.498312	1.068575	