

Appendix
Firearm Ownership and Domestic Versus Nondomestic Homicide in the U.S.
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Appendix Table 1. Mean Annual Gun Ownership and Firearm Homicide Rates in the U.S., 1990–2016

State	Gun ownership Mean (SE)	Firearm homicide rate per 100,000				
		Total Mean (SE)	Intimate partner Mean (SE)	Other family Mean (SE)	Friend/ acquaintance Mean (SE)	Stranger Mean (SE)
Alabama	48.3 (0.6)	5.8 (0.3)	0.8 (0.1)	0.6 (0.0)	3.1 (0.1)	1.3 (0.1)
Alaska	54.6 (0.8)	3.2 (0.2)	0.5 (0.1)	0.4 (0.1)	1.6 (0.1)	0.7 (0.1)
Arizona	37.1 (0.8)	5.1 (0.2)	0.6 (0.0)	0.3 (0.0)	2.2 (0.1)	1.9 (0.1)
Arkansas	52.0 (0.8)	5.1 (0.3)	0.8 (0.1)	0.5 (0.0)	2.9 (0.2)	0.9 (0.1)
California	25.1 (0.8)	5.3 (0.4)	0.4 (0.0)	0.3 (0.0)	2.6 (0.2)	2.0 (0.1)
Colorado	36.5 (0.8)	2.3 (0.1)	0.4 (0.0)	0.2 (0.0)	1.0 (0.1)	0.7 (0.0)
Connecticut	19.8 (0.9)	2.4 (0.2)	0.2 (0.0)	0.1 (0.0)	1.4 (0.1)	0.7 (0.1)
Delaware	26.9 (0.7)	2.8 (0.2)	0.4 (0.0)	0.3 (0.0)	1.4 (0.2)	0.7 (0.1)
Florida	29.8 (0.6)	4.0 (0.2)	0.6 (0.0)	0.4 (0.0)	1.9 (0.1)	1.1 (0.0)
Georgia	42.9 (0.8)	5.4 (0.2)	0.7 (0.0)	0.5 (0.0)	2.9 (0.1)	1.4 (0.0)
Hawaii	10.4 (0.7)	0.9 (0.1)	0.1 (0.0)	0.1 (0.0)	0.5 (0.1)	0.2 (0.0)
Idaho	57.4 (1.2)	1.3 (0.1)	0.3 (0.0)	0.2 (0.0)	0.7 (0.1)	0.2 (0.0)
Illinois	24.2 (0.6)	5.7 (0.3)	0.4 (0.0)	0.3 (0.0)	3.1 (0.2)	1.9 (0.1)
Indiana	36.4 (0.7)	4.4 (0.2)	0.5 (0.0)	0.4 (0.0)	2.5 (0.1)	0.9 (0.0)
Iowa	35.8 (0.8)	0.8 (0.1)	0.2 (0.0)	0.1 (0.0)	0.4 (0.0)	0.1 (0.0)
Kansas	39.6 (0.7)	2.9 (0.2)	0.5 (0.0)	0.4 (0.1)	1.4 (0.1)	0.6 (0.0)
Kentucky	46.7 (0.6)	3.5 (0.1)	0.6 (0.0)	0.4 (0.0)	1.7 (0.1)	0.7 (0.0)
Louisiana	46.6 (0.6)	10.5 (0.5)	1.0 (0.1)	0.7 (0.0)	6.0 (0.3)	2.7 (0.1)
Maine	46.4 (0.9)	0.8 (0.0)	0.3 (0.0)	0.1 (0.0)	0.3 (0.0)	0.1 (0.0)
Maryland	29.6 (0.7)	6.7 (0.3)	0.5 (0.0)	0.4 (0.0)	3.6 (0.2)	2.1 (0.1)
Massachusetts	12.5 (0.7)	1.5 (0.1)	0.1 (0.0)	0.1 (0.0)	0.9 (0.0)	0.4 (0.0)
Michigan	38.5 (0.9)	5.1 (0.2)	0.5 (0.0)	0.4 (0.0)	3.0 (0.1)	1.2 (0.1)
Minnesota	38.8 (0.5)	1.4 (0.1)	0.2 (0.0)	0.1 (0.0)	0.7 (0.1)	0.3 (0.0)
Mississippi	50.9 (0.9)	6.9 (0.4)	0.9 (0.1)	0.6 (0.0)	4.1 (0.2)	1.3 (0.1)
Missouri	42.2 (0.7)	5.3 (0.2)	0.6 (0.0)	0.5 (0.0)	3.0 (0.1)	1.2 (0.1)
Montana	65.9 (1.4)	1.7 (0.1)	0.5 (0.1)	0.4 (0.1)	0.7 (0.1)	0.1 (0.0)
Nebraska	41.0 (0.6)	1.7 (0.1)	0.4 (0.1)	0.1 (0.0)	0.9 (0.1)	0.3 (0.0)
Nevada	36.0 (0.9)	5.0 (0.3)	0.7 (0.1)	0.3 (0.0)	2.4 (0.2)	1.6 (0.1)
New Hampshire	32.8 (1.0)	0.6 (0.1)	0.2 (0.0)	0.1 (0.0)	0.2 (0.0)	0.1 (0.0)
New Jersey	15.2 (0.6)	2.6 (0.1)	0.2 (0.0)	0.1 (0.0)	1.5 (0.1)	0.8 (0.0)
New Mexico	37.0 (1.0)	4.5 (0.2)	0.6 (0.0)	0.4 (0.0)	2.3 (0.1)	1.2 (0.1)
New York	20.5 (0.6)	3.9 (0.5)	0.3 (0.0)	0.2 (0.0)	2.1 (0.3)	1.3 (0.2)
North Carolina	40.4 (0.8)	4.5 (0.3)	0.6 (0.0)	0.4 (0.0)	2.4 (0.2)	1.0 (0.1)
North Dakota	52.1 (0.7)	0.9 (0.1)	0.2 (0.1)	0.1 (0.0)	0.5 (0.1)	0.1 (0.0)
Ohio	33.2 (0.7)	3.1 (0.1)	0.4 (0.0)	0.2 (0.0)	1.7 (0.1)	0.8 (0.0)
Oklahoma	44.8 (0.5)	3.8 (0.1)	0.6 (0.0)	0.5 (0.0)	1.9 (0.1)	0.8 (0.0)
Oregon	41.6 (1.5)	1.6 (0.1)	0.3 (0.0)	0.2 (0.0)	0.8 (0.1)	0.3 (0.0)
Pennsylvania	37.2 (0.6)	3.9 (0.1)	0.4 (0.0)	0.2 (0.0)	2.3 (0.1)	1.0 (0.1)
Rhode Island	15.0 (0.9)	1.7 (0.1)	0.1 (0.0)	0.1 (0.0)	1.0 (0.1)	0.5 (0.0)
South Carolina	42.8 (0.8)	5.4 (0.2)	0.9 (0.1)	0.5 (0.0)	2.8 (0.1)	1.2 (0.0)
South Dakota	60.5 (0.8)	0.9 (0.1)	0.3 (0.1)	0.2 (0.0)	0.5 (0.1)	0.0 (0.0)
Tennessee	49.5 (0.8)	5.2 (0.3)	0.7 (0.0)	0.4 (0.0)	2.8 (0.2)	1.3 (0.0)
Texas	39.6 (0.8)	4.8 (0.4)	0.6 (0.1)	0.4 (0.0)	2.3 (0.3)	1.4 (0.1)
Utah	39.9 (1.1)	1.3 (0.1)	0.3 (0.0)	0.1 (0.0)	0.5 (0.0)	0.3 (0.0)

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Vermont	49.0 (1.6)	1.1 (0.1)	0.3 (0.0)	0.1 (0.0)	0.5 (0.1)	0.1 (0.1)
Virginia	38.6 (0.9)	4.1 (0.2)	0.6 (0.0)	0.4 (0.0)	2.2 (0.2)	1.0 (0.0)
Washington	32.7 (0.8)	2.0 (0.1)	0.3 (0.0)	0.2 (0.0)	1.0 (0.1)	0.5 (0.0)
West Virginia	53.6 (0.9)	2.7 (0.2)	0.6 (0.0)	0.4 (0.0)	1.3 (0.1)	0.3 (0.0)
Wisconsin	41.8 (0.8)	2.2 (0.1)	0.2 (0.0)	0.1 (0.0)	1.2 (0.1)	0.6 (0.0)
Wyoming	68.8 (1.7)	1.6 (0.2)	0.5 (0.1)	0.3 (0.1)	0.6 (0.1)	0.2 (0.0)

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Appendix Table 2. Percent of Female Homicide Victims by Relationship to Perpetrator and Firearm Use, U.S., 1990–2016

State	All cause homicides					Non-firearm homicides					Firearm homicides				
	All victim–perpetrator relations	Intimate partners	Other family	Stranger	Friend/acquaintance	All victim–perpetrator relations	Intimate partners	Other family	Stranger	Friend/acquaintance	All victim–perpetrator relations	Intimate partners	Other family	Stranger	Friend/acquaintance
Alabama	23.4	66.0	29.5	13.9	11.5	32.8	58.7	42.8	25.8	18.2	19.3	70.6	18.7	10.0	3.9
Alaska	30.5	72.3	35.9	15.9	20.0	36.3	67.0	44.7	25.8	25.2	25.9	77.1	26.4	10.0	6.5
Arizona	22.2	75.1	39.8	9.8	12.7	33.9	77.5	52.0	18.1	19.6	17.4	73.7	26.4	7.8	4.2
Arkansas	26.1	67.2	26.6	15.8	15.9	38.2	69.1	38.8	31.8	27.3	20.9	66.2	17.9	11.1	3.8
California	18.3	74.6	36.5	8.2	10.0	31.8	77.2	45.6	14.8	19.5	12.5	72.4	24.1	6.3	3.0
Colorado	30.4	79.1	41.1	12.0	16.8	38.5	79.5	44.7	19.8	24.5	24.6	78.7	34.2	8.6	6.1
Connecticut	23.6	79.0	34.8	9.4	12.5	40.6	81.7	42.1	23.7	26.1	14.3	75.7	23.9	5.2	2.5
Delaware	26.1	74.5	34.5	11.4	14.0	42.4	84.3	54.1	23.4	25.2	17.0	65.9	17.5	7.2	3.3
Florida	25.4	77.9	32.7	10.5	13.9	35.2	77.1	37.9	20.6	22.3	20.0	78.5	26.7	6.7	6.6
Georgia	24.1	66.9	34.8	11.4	14.3	39.1	66.8	44.6	25.9	28.5	17.8	66.9	25.9	8.2	4.6
Hawaii	33.7	84.1	43.1	15.7	19.9	36.5	82.3	44.2	20.0	21.4	28.4	87.8	38.8	6.5	6.6
Idaho	34.8	76.8	31.6	23.1	19.9	40.8	78.9	35.0	36.0	27.3	29.7	75.2	26.7	13.2	7.7
Illinois	16.5	61.3	31.0	8.5	10.5	36.4	63.8	45.0	22.6	27.1	9.3	58.4	13.2	5.7	1.3
Indiana	25.2	67.5	35.1	13.2	16.1	40.5	67.3	44.1	29.5	31.9	19.2	67.7	26.9	9.2	4.2
Iowa	38.6	78.4	43.7	21.5	22.8	44.4	76.7	45.8	32.0	30.2	32.1	80.3	38.9	12.0	9.0
Kansas	32.1	73.8	41.1	16.7	19.0	45.1	76.1	48.7	30.0	33.1	23.7	72.0	32.1	10.5	8.0
Kentucky	27.6	71.6	33.0	12.3	16.4	38.5	74.7	42.7	24.2	27.5	22.3	70.1	24.1	8.0	5.8
Louisiana	19.8	64.3	30.1	10.5	12.5	35.6	63.6	43.6	26.5	25.3	15.0	64.7	20.2	8.0	2.6
Maine	45.1	81.7	45.1	25.2	28.0	49.1	80.3	52.2	33.7	37.8	40.5	82.8	34.3	11.5	14.4
Maryland	18.5	66.5	31.7	8.1	11.8	36.0	74.1	43.7	19.8	25.7	11.4	60.1	18.0	5.2	2.2

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Massachusetts	23.4	76.4	36.8	10.6	11.4	36.4	79.7	44.7	17.0	20.0	13.2	69.9	21.5	6.7	2.1
Michigan	22.8	65.1	32.5	13.7	16.9	39.4	68.3	44.9	28.3	32.9	15.9	62.8	19.6	9.9	2.3
Minnesota	29.3	76.8	41.9	15.3	17.7	37.6	72.6	47.5	25.5	26.1	22.2	81.0	31.1	9.4	5.0
Mississippi	21.6	58.2	27.6	11.0	13.9	34.6	56.5	34.3	34.4	26.6	16.7	59.2	23.1	6.2	3.9
Missouri	22.7	65.5	33.8	11.6	14.4	38.9	68.1	44.8	25.6	29.4	16.2	63.8	23.5	8.3	3.7
Montana	37.2	70.7	40.7	17.7	22.9	36.2	62.6	46.1	13.8	29.3	37.9	75.3	37.4	24.1	19.7
Nebraska	36.1	76.9	42.6	20.9	20.9	42.4	79.9	50.9	22.3	26.0	30.6	74.4	22.4	20.3	4.1
Nevada	26.1	78.0	38.0	11.3	15.7	36.6	82.6	40.8	18.3	25.4	19.4	74.1	33.4	8.3	4.9
New Hampshire	42.3	77.9	52.7	17.4	22.8	43.9	77.5	55.8	25.5	27.0	40.0	78.2	44.3	4.9	13.7
New Jersey	22.4	72.3	38.6	10.1	13.1	38.8	76.6	45.7	19.1	28.0	12.4	66.3	24.8	6.2	2.5
New Mexico	23.9	70.2	35.1	14.8	13.6	28.5	67.6	36.6	20.7	18.0	20.3	72.5	32.9	11.1	5.8
New York	20.8	67.9	38.1	8.9	11.2	34.7	69.9	46.3	15.2	22.1	11.4	64.6	20.2	5.7	1.7
North Carolina	24.9	67.6	27.1	14.4	14.5	33.5	64.5	38.6	22.2	23.7	19.9	69.8	16.8	10.8	3.1
North Dakota	33.5	77.4	38.0	30.3	13.6	35.8	79.7	34.9	35.3	19.7	29.9	75.0	45.7	17.0	9.5
Ohio	26.0	70.4	40.3	14.7	17.2	39.5	73.1	49.6	25.5	29.4	18.5	68.1	27.5	10.6	3.8
Oklahoma	28.8	68.2	32.9	26.1	15.9	37.4	70.5	39.5	40.2	24.8	22.8	66.9	25.5	16.0	6.2
Oregon	34.0	80.5	44.3	16.6	19.6	39.5	79.8	48.5	21.6	27.9	29.4	81.0	38.1	12.8	8.8
Pennsylvania	21.4	73.3	39.5	8.7	12.0	39.6	73.0	47.0	22.3	29.5	14.0	73.6	29.2	5.2	2.9
Rhode Island	25.7	79.1	43.3	12.0	14.4	40.4	83.5	46.6	26.4	25.3	13.3	70.0	37.6	3.1	4.2
South Carolina	26.7	70.1	29.4	13.7	14.3	38.4	66.0	40.3	25.1	27.3	21.4	72.7	19.8	10.5	4.1
South Dakota	36.5	71.3	36.6	21.7	21.7	37.2	66.5	33.9	29.4	26.0	35.3	78.3	40.2	0.0	15.6
Tennessee	22.7	67.2	30.9	10.5	13.7	33.2	69.1	41.8	16.4	22.3	17.8	66.0	20.5	8.9	3.5
Texas	26.5	79.3	36.1	10.8	12.6	34.4	77.2	45.1	17.6	18.9	22.4	80.4	26.7	8.6	7.8
Utah	37.0	78.4	42.2	20.8	21.9	42.7	78.2	42.8	31.1	29.8	32.0	78.5	41.3	15.0	10.9
Vermont	44.0	78.2	48.2	39.6	27.1	47.2	77.4	46.3	34.1	37.4	41.2	78.7	51.2	43.2	14.7
Virginia	26.2	70.0	34.4	11.9	15.8	39.8	70.7	46.8	24.4	29.1	19.9	69.7	22.5	8.2	3.8
Washington	31.1	80.9	44.3	16.4	17.6	39.1	82.2	48.7	24.2	24.9	24.8	79.6	38.1	12.1	7.6
West Virginia	29.9	68.5	33.6	14.4	16.6	37.8	73.2	43.7	25.6	25.4	25.4	66.3	25.8	8.4	7.7
Wisconsin	26.6	74.1	35.5	12.7	19.2	39.6	72.4	41.5	26.7	29.6	18.7	76.3	26.6	9.1	3.7
Wyoming	35.3	73.6	38.7	13.9	20.3	34.4	76.9	49.5	21.9	20.2	36.0	72.6	27.6	8.0	14.6
State, mean	28.1	72.9	36.9	14.9	16.4	38.2	73.5	44.3	24.8	26.1	22.4	72.2	28.2	10.0	6.2
State, SD	6.7	5.8	5.6	6.1	4.2	3.9	6.7	4.9	6.0	4.5	8.3	6.6	8.5	6.3	4.2

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Appendix Table 3. Effects of Gun Ownership Utilizing the FS/S Proxy on Victim-Specific Homicide Rates, U.S., 1990–2016

Homicide rates	All victims		Male victims		Female victims	
	IRR (95% CI)	p-value	IRR (95% CI)	p-value	IRR (95% CI)	p-value
Total, all cause	1.003 (1.000, 1.006)	0.06	1.003 (0.999, 1.007)	0.20	1.006 (1.003, 1.009)	<0.001
Total, firearm	1.004 (0.998, 1.009)	0.17	1.003 (0.996, 1.009)	0.44	1.013 (1.008, 1.017)	<0.001
Total, non-firearm	1.002 (0.997, 1.007)	0.42	1.001 (0.997, 1.006)	0.53	1.002 (0.997, 1.007)	0.50
Intimate partner, all cause	1.010 (1.007, 1.013)	<0.001	1.014 (1.007, 1.021)	<0.001	1.010 (1.006, 1.014)	<0.001
Intimate partner, firearm	1.016 (1.012, 1.021)	<0.001	1.020 (1.012, 1.029)	<0.001	1.021 (1.016, 1.026)	<0.001
Intimate partner, non-firearm	1.003 (0.998, 1.009)	0.20	1.010 (1.002, 1.018)	0.01	0.999 (0.994, 1.005)	0.84
Other family, all cause	1.009 (1.004, 1.014)	<0.001	1.012 (1.005, 1.018)	<0.001	1.012 (1.007, 1.018)	<0.001
Other family, firearm	1.020 (1.010, 1.031)	<0.001	1.021 (1.009, 1.033)	0.001	1.031 (1.022, 1.039)	<0.001
Other family, non-firearm	1.004 (0.999, 1.009)	0.14	1.006 (0.998, 1.014)	0.13	1.005 (0.999, 1.012)	0.10
Friend/acquaintance, all cause	1.005 (1.001, 1.009)	0.03	1.005 (1.001, 1.010)	0.03	1.006 (1.001, 1.012)	0.02
Friend/acquaintance, firearm	1.006 (1.000, 1.012)	0.06	1.006 (1.000, 1.012)	0.06	1.010 (1.003, 1.018)	0.008
Friend/acquaintance, non-firearm	1.004 (0.998, 1.009)	0.18	1.003 (0.998, 1.009)	0.24	1.008 (1.001, 1.014)	0.02
Stranger, all cause	0.998 (0.993, 1.004)	0.50	0.997 (0.992, 1.002)	0.27	1.004 (0.998, 1.011)	0.21
Stranger, firearm	0.997 (0.991, 1.004)	0.42	0.995 (0.988, 1.001)	0.10	1.013 (1.000, 1.026)	0.05
Stranger, non-firearm	0.995 (0.989, 1.002)	0.16	0.995 (0.988, 1.001)	0.66	0.997 (0.989, 1.005)	0.48
Domestic and nondomestic homicide rates						
Domestic, all cause	1.008 (1.005, 1.011)	<0.001	1.009 (1.002, 1.016)	0.01	1.009 (1.006, 1.012)	<0.001
Domestic, firearm	1.015 (1.009, 1.020)	<0.001	1.015 (1.004, 1.027)	0.008	1.022 (1.018, 1.026)	<0.001
Domestic, non-firearm	1.003 (0.999, 1.007)	0.18	1.006 (0.999, 1.013)	0.08	1.000 (0.996, 1.005)	0.86
Nondomestic, all cause	1.003 (0.999, 1.007)	0.18	1.003 (0.999, 1.008)	0.14	1.004 (0.999, 1.009)	0.13
Nondomestic, firearm	1.003 (0.997, 1.008)	0.33	1.002 (0.997, 1.008)	0.37	1.007 (0.998, 1.015)	0.11
Nondomestic, non-firearm	1.002 (0.996, 1.008)	0.51	1.002 (0.996, 1.007)	0.60	1.004 (0.997, 1.011)	0.23

Notes: Boldface indicates statistical significance ($p < 0.05$). Models include fixed effects for year, errors are adjusted for clustering within states, and controls for region, non-homicide violent crime rate, percentage of African American, young (15–24 years), and male.

FS/S, ratio of firearm suicides to total suicides; IRR, incidence rate ratio.

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Appendix Table 4. Effects of Gun Ownership Utilizing the New Proxy on Victim-Specific Homicide Rates and Non-Imputed SHR Data, U.S., 1990–2016

Homicide rates	All victims		Male victims		Female victims	
	IRR (95% CI)	p-value	IRR (95% CI)	p-value	IRR (95% CI)	p-value
Total, all cause	1.004 (0.997, 1.011)	0.24	0.997 (0.992, 1.003)	0.32	1.007 (1.000, 1.015)	0.06
Total, firearm	1.003 (0.997, 1.010)	0.34	0.995 (0.982, 1.009)	0.49	1.004 (0.994, 1.015)	0.44
Total, non-firearm	1.002 (0.994, 1.009)	0.70	0.993 (0.985, 1.002)	0.14	1.009 (0.977, 1.042)	0.58
Intimate partner, all cause	1.012 (1.004, 1.021)	0.005	1.012 (1.004, 1.021)	0.005	1.010 (1.001, 1.020)	0.02
Intimate partner, firearm	1.019 (1.012, 1.026)	<0.001	1.016 (1.004, 1.029)	0.01	1.019 (1.011, 1.028)	<0.001
Intimate partner, non-firearm	1.000 (0.990, 1.011)	0.97	1.010 (1.000, 1.019)	0.04	0.994 (0.986, 1.002)	0.13
Other family, all cause	1.011 (1.005, 1.016)	<0.001	1.011 (1.003, 1.019)	0.004	1.010 (1.002, 1.017)	0.01
Other family, firearm	1.026 (1.020, 1.033)	<0.001	1.022 (1.013, 1.032)	<0.001	1.024 (1.012, 1.037)	<0.001
Other family, non-firearm	1.003 (0.997, 1.009)	0.40	1.002 (0.995, 1.010)	0.55	1.002 (0.995, 1.009)	0.54
Friend/acquaintance, all cause	1.010 (1.001, 1.018)	0.03	1.009 (1.001, 1.017)	0.04	1.012 (1.002, 1.021)	0.01
Friend/acquaintance, firearm	1.006 (0.997, 1.015)	0.20	1.007 (0.998, 1.017)	0.13	1.008 (0.998, 1.019)	0.10
Friend/acquaintance, non-firearm	1.009 (0.999, 1.018)	0.08	1.005 (0.998, 1.013)	0.15	1.010 (1.000, 1.021)	0.05
Stranger, all cause	0.993 (0.985, 1.000)	0.06	0.988 (0.979, 0.997)	0.01	0.998 (0.990, 1.006)	0.64
Stranger, firearm	0.995 (0.985, 1.005)	0.29	0.989 (0.978, 1.001)	0.06	1.002 (0.987, 1.017)	0.79
Stranger, non-firearm	0.990 (0.983, 0.996)	0.002	0.987 (0.980, 0.994)	<0.001	0.993 (0.981, 1.004)	0.20
Domestic and nondomestic homicide rates						
Domestic, all cause	1.011 (1.005, 1.017)	<0.001	1.010 (1.002, 1.017)	0.01	1.010 (1.003, 1.018)	0.009
Domestic, firearm	1.021 (1.016, 1.027)	<0.001	1.019 (1.010, 1.029)	<0.001	1.021 (1.012, 1.030)	<0.001
Domestic, non-firearm	1.001 (0.994, 1.007)	0.88	1.004 (0.997, 1.011)	0.26	0.997 (0.990, 1.003)	0.34
Nondomestic, all cause	1.006 (0.998, 1.014)	0.17	1.003 (0.996, 1.011)	0.36	1.008 (1.000, 1.017)	0.05
Nondomestic, firearm	1.002 (0.993, 1.011)	0.71	0.993 (0.983, 1.004)	0.22	1.005 (0.996, 1.015)	0.28
Nondomestic, non-firearm	1.005 (0.996, 1.014)	0.32	1.001 (0.994, 1.008)	0.71	1.007 (0.997, 1.017)	0.19

Notes: Boldface indicates statistical significance ($p < 0.05$). Models include fixed effects for year, errors are adjusted for clustering within states, and controls for region, percentage of African American, young (15–24 years), non-homicide violent crime rate, and male.

SHR, Supplemental Homicide Reports of the Federal Bureau of Investigation's Uniform Crime Reports; IRR, incidence rate ratio.

Appendix
Firearm Ownership and Domestic Versus Nondomestic Homicide in the U.S.
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Appendix Table 5. Domestic and Nondomestic Homicide Rates by U.S. Census Bureau District, U.S., 1990–2016

Census district	Firearm ownership rate (mean)	All cause		Firearm		Non-firearm	
		IRR (95% CI)	<i>p</i> -value	IRR (95% CI)	<i>p</i> -value	IRR (95% CI)	<i>p</i> -value
Domestic homicide							
New England	29.2	(ref)		(ref)		(ref)	
Middle Atlantic	24.3	1.217 (0.991, 1.495)	0.06	1.223 (0.828, 1.808)	0.31	1.208 (1.084, 1.345)	0.001
East North Central	34.8	1.317 (1.030, 1.683)	0.03	1.609 (1.091, 2.373)	0.02	1.129 (0.973, 1.310)	0.11
West North Central	44.3	1.220 (0.920, 1.618)	0.17	1.411 (0.940, 2.117)	0.10	1.113 (0.911, 1.361)	0.30
South Atlantic	38.1	1.625 (1.201, 2.198)	0.002	2.172 (1.409, 3.349)	<0.001	1.237 (1.025, 1.494)	0.03
East South Central	48.9	1.924 (1.532, 2.415)	<0.001	2.653 (1.894, 3.718)	<0.001	1.418 (1.192, 1.687)	<0.001
West South Central	45.7	1.867 (1.483, 2.351)	<0.001	2.706 (1.925, 3.802)	<0.001	1.318 (1.110, 1.566)	0.002
Mountain	47.3	1.447 (1.153, 1.815)	0.001	2.003 (1.416, 2.834)	<0.001	1.113 (0.895, 1.383)	0.34
Pacific	32.9	1.123 (0.890, 1.416)	0.33	1.354 (0.859, 2.133)	0.19	0.986 (0.825, 1.180)	0.88
Nondomestic homicide							
New England	29.2	(ref)		(ref)		(ref)	
Middle Atlantic	24.3	1.549 (1.041, 2.306)	0.03	1.713 (0.982, 2.986)	0.06	1.306 (1.085, 1.571)	0.005
East North Central	34.8	1.507 (1.072, 2.119)	0.02	1.754 (1.114, 2.764)	0.02	1.168 (0.946, 1.442)	0.15
West North Central	44.3	0.975 (0.612, 1.555)	0.92	0.988 (0.539, 1.812)	0.97	1.013 (0.771, 1.330)	0.93
South Atlantic	38.1	1.019 (0.575, 1.807)	0.95	1.012 (0.468, 2.188)	0.98	1.106 (0.846, 1.446)	0.46
East South Central	48.9	1.220 (0.689, 2.161)	0.50	1.229 (0.564, 2.678)	0.60	1.331 (1.051, 1.686)	0.02
West South Central	45.7	1.360 (0.873, 2.119)	0.17	1.449 (0.820, 2.561)	0.20	1.256 (0.953, 1.656)	0.11
Mountain	47.3	1.314 (0.790, 2.185)	0.29	1.508 (0.838, 2.715)	0.17	1.169 (0.761, 1.796)	0.48
Pacific	32.9	1.133 (0.703, 1.826)	0.61	1.247 (0.642, 2.421)	0.52	1.093 (0.800, 1.494)	0.58

Note: Boldface indicates statistical significance ($p < 0.05$). Models include fixed effects for year, errors are adjusted for clustering within states, and controls for percentage African American, young (15–24 years), male, and non-homicide violent crime rate. New England is the reference region for all analyses.

IRR, incidence rate ratio.