

## **Supplemental tables and figures**

**Supplemental Table S1.** Proportion of various types of schools in the measured samples, by county.

County ( <i>županija</i> )	Available schools				Measured schools			
	<i>Gimnazije</i> <sup>1</sup>	'Mixed high schools' <sup>2</sup>	Other schols	TOTAL	<i>Gimnazije</i> <sup>1</sup>	'Mixed high schools' <sup>2</sup>	Other schols	TOTAL (% of all schools)
Split-Dalmacija	8	9	27	44	2	2	13	17 (38.6%)
Dubrovnik-Neretva	4	5	7	16	2	2	3	7 (43.8%)
Šibenik-Knin	2	2	9	13	1	2	7	10 (76.9%)
Zadar	5	5	12	22	1	2	3	6 (27.3%)
Primorje-Gorski Kotar	5	8	20	33	2	0	4	6 (18.2%)
Istra	4	9	13	26	2	1	5	8 (30.8%)
Lika-Senj	1	3	1	5	0	3	1	4 (80.0%)
Karlovac	3	2	9	14	2	0	7	9 (64.3%)
<b>TOTAL</b>	<b>32</b>	<b>43</b>	<b>98</b>	<b>173</b>	<b>12</b>	<b>12</b>	<b>43</b>	<b>67 (38.7%)</b>

Notes: <sup>1</sup>*Gimnazije* = elite high schools. <sup>2</sup> 'Mixed high schools' (*Srednje škole*) = schools combining several different classes, usually *gimnazije* and economic schools.

**Supplemental Table S2.** Means of the measured schools. The data include both domestic high schoolers (Supplemental dataset, Sheets 1-2) and high schoolers coming from other regions (Supplemental dataset, Sheet 3-4).

County (županija) TOWN, school	Males				Females			
	n	Age in years (SD)	Height (cm)		n	Age in years (SD)	Height (cm)	
			Mean (SD)	Maximum Minimum			Mean (SD)	Maximum Minimum
<b>Split-Dalmacija</b>	<b>449</b>	<b>18.2±0.4</b>	<b>184.0±6.9</b>	<b>165.0-204.5</b>	<b>155</b>	<b>18.5±0.5</b>	<b>169.0±5.8</b>	<b>151.5-186.0</b>
IMOTSKI, Gimnazija & Ekonomska <sup>1</sup>	24	18.5±0.3	185.7±6.8	171.2-201.8	28	18.7±0.3	170.6±5.8	151.5-179.6
SPLIT, Graditeljsko-geodetska tehnička	34	18.4±0.5	185.5±5.8	174.4-200.4				
SINJ, Tehnička i industrijska	63	18.4±0.3	185.1±7.4	165.0-204.5	8	18.1±0.2	167.0±4.8	158.2-174.0
MAKARSKA, Srednja strukovna	18	18.2±0.5	184.8±6.1	174.2-200.7	23	18.3±0.6	169.4±5.1	162.4-181.5
TROGIR, SŠ Ivana Lučića	29	18.1±0.3	184.4±6.1	168.6-196.6				
MAKARSKA, Srednja škola	28	18.6±0.3	184.4±7.0	169.0-200.6				
IMOTSKI, Tehnička	21	18.6±0.4	184.2±7.9	165.8-204.5				
SPLIT, Ekonomsko-birotehnička	61	18.3±0.5	184.2±7.6	166.3-202.4				
SPLIT, Prva gimnazija	41	18.1±0.3	184.0±7.2	168.5-203.8				
SPLIT, Zdravstvena	10	18.8±0.5	183.5±4.9	175.1-183.5	41	18.7±0.6	169.4±5.8	155.0-180.7
SINJ, Strukovna bana J. Jelačića	22	18.3±0.4	183.1±6.1	173.9-196.0	49	18.4±0.3	168.0±6.1	158.6-186.0
IMOTSKI, Obrtničko-industrijska	16	17.9±0.2	182.6±4.4	172.8-190.5	6	17.6±0.2	167.1±2.9	163.5-171.3
SPLIT, Tehnička škola za strojarstvo	14	17.9±0.3	182.4±6.3	171.9-192.7				
SPLIT, Pomorska	40	17.9±0.2	182.1±6.7	167.0-192.5				
SPLIT, Škola za dizajn, grafiku	19	17.9±0.4	182.0±7.3	168.8-196.5				
SPLIT, Likovnih umjetnosti	9	18.3±0.4	181.1±5.5	168.3-187.0				
<b>Dubrovnik-Neretva</b>	<b>242</b>	<b>18.4±0.4</b>	<b>183.7±6.7</b>	<b>166.6-201.8</b>	<b>39</b>	<b>18.4±0.2</b>	<b>169.1±7.1</b>	<b>156.2-188.0</b>
METKOVIĆ, Gimnazija	29	18.1±0.3	185.2±7.7	169.9-197.7	39	18.4±0.2	169.1±7.1	156.2-188.0
DUBROVNIK, Pomorsko-tehnička	88	18.6±0.4	184.3±6.5	170.0-201.8				
METKOVIĆ, Srednja škola	30	18.0±0.2	183.7±5.8	172.4-196.8				
DUBROVNIK, Turistička i ugostiteljska	21	18.5±0.3	183.3±5.0	175.0-193.9				
DUBROVNIK, Ekonomska i trgovačka	16	18.7±0.5	183.2±7.2	172.5-198.1				
DUBROVNIK, Gimnazija	47	18.6±0.3	182.4±6.9	166.6-197.8				
PLOČE, SŠ fra Andrije Kačića Miošića	11	18.0±0.3	181.7±7.2	175.1-196.2				
<b>Šibenik-Knin</b>	<b>209</b>	<b>18.5±0.4</b>	<b>183.4±6.6</b>	<b>163.5-205.5</b>	<b>74</b>	<b>18.9±0.6</b>	<b>167.9±5.1</b>	<b>156.0-179.2</b>
KNIN, Srednja škola Lovre Montija	14	18.6±0.4	185.0±5.9	176.8-195.7				
DRNIŠ, SŠ I. Mestrovića	42	18.4±0.3	184.4±7.2	167.2-203.4				
ŠIBENIK, Ekonomska	30	18.3±0.4	184.4±5.2	175.0-195.6				
ŠIBENIK, Gimnazija A. Vrančića	26	18.4±0.3	184.1±5.7	167.1-193.5				
ŠIBENIK, Prometno-tehnička	34	18.5±0.4	184.0±7.7	169.8-205.5				
ŠIBENIK, Turističko-ugostiteljska	19	18.4±0.4	182.5±5.9	172.0-192.5	23	18.3±0.3	167.9±5.3	158.5-179.2
ŠIBENIK, Medicinska	13	19.3±0.4	182.0±5.5	171.5-189.0	43	19.2±0.4	167.7±5.2	156.0-178.9
KNIN, Sr. struk. škola Kralja Zvonimira	25	18.5±0.3	181.6±5.8	169.0-195.4				
ŠIBENIK, Srednja strukovna	1	18.2	178.6		8	19.0±0.7	168.8±4.0	161.8-174.3
ŠIBENIK, Industrijsko-obrtnička	5	18.4±0.2	175.7±7.3	163.5-184.4				
<b>Zadar</b>	<b>251</b>	<b>18.4±0.4</b>	<b>182.7±6.1</b>	<b>167.1-200.7</b>	<b>19</b>	<b>18.3±0.5</b>	<b>168.1±6.8</b>	<b>151.4-183.0</b>
ZADAR, Gimnazija J. Barakovića	39	18.4±0.3	184.6±5.6	173.8-195.0				
BENKOVAC, Sr. škola kneza Branimira	30	18.5±0.3	184.0±7.1	167.1-200.7				
ZADAR, Pomorska	57	18.5±0.5	182.5±5.1	170.9-190.9				
ZADAR, Strukovna V. Vlatkovića	50	18.5±0.4	182.4±6.3	168.6-197.0				
ZADAR, Tehnička	62	18.4±0.3	182.0±6.1	171.5-198.0				
GRAČAC, Srednja škola	13	18.0±0.6	178.8±5.9	172.0-192.0	19	18.3±0.5	168.1±6.8	151.4-183.0

<sup>1</sup> Gimnazija and Ekonomska škola Imotski are located in the same building and their results are merged together.

County (županija) TOWN, school	Males				Females			
	n	Age in years (SD)	Height (cm)		n	Age in years (SD)	Height (cm)	
			Mean (SD)	Maximum Minimum			Mean (SD)	Maximum Minimum
<b>Primorje-Gorski Kotar</b>	<b>243</b>	<b>18.7±0.4</b>	<b>181.9±6.7</b>	<b>163.0-199.3</b>				
RIJEKA, Prometna	19	18.8±0.5	183.5±7.5	172.7-198.4				
RIJEKA, Prva riječka hrvat. gimnazija	60	18.7±0.5	183.3±6.6	166.6-199.3				
RIJEKA, Građevinska tehnička	35	18.8±0.6	182.0±6.9	166.9-194.4				
RIJEKA, Prva sušacka hrvat. gimnazija	27	18.6±0.3	181.5±6.6	169.3-193.3				
RIJEKA, Prirodoslovna i grafička	43	18.7±0.4	181.4±6.4	167.8-198.0				
BAKAR, Pomorska	59	18.7±0.4	180.4±6.3	163.0-191.5				
<b>Lika-Senj</b>	<b>82</b>	<b>18.5±0.4</b>	<b>181.2±7.0</b>	<b>165.5-196.7</b>	<b>49</b>	<b>18.5±0.4</b>	<b>167.6±5.8</b>	<b>152.3-180.2</b>
KORENICA, Sr. škola Plitvička jezera	11	18.5±0.4	183.5±4.4	174.5-191.0	16	18.6±0.3	167.9±6.3	153.6-180.2
SENJ, Srednja škola P. Rittera	15	18.6±0.3	183.0±5.2	172.2-191.4				
OTOČAC, Srednja škola	19	18.6±0.5	181.3±8.0	166.5-196.7	22	18.5±0.4	167.0±5.4	152.3-177.1
GOSPIĆ, Strukovna	37	18.5±0.3	179.7±7.3	165.5-192.9	11	18.5±0.3	168.4±5.9	160.0-179.0
<b>Istra</b>	<b>139</b>	<b>18.6±0.4</b>	<b>181.1±6.6</b>	<b>166.4-203.5</b>	<b>225</b>	<b>18.5±0.5</b>	<b>166.7±6.7</b>	<b>148.2-182.6</b>
PULA, Tehnička	13	18.4±0.3	183.0±4.9	171.7-190.5	5	18.5±0.3	158.8±3.1	152.9-162.2
PULA, Primijenjenih umjetnosti, dizajna	4	18.4	182.9	175.0-187.8	21	18.0±0.7	164.1±4.5	152.8-171.2
PULA, Ekonomska	22	18.5±0.3	182.3±7.1	171.4-194.5	53	18.5±0.4	167.2±6.5	151.6-181.0
PULA, Priv. gimnazija "Juraj Dobrila"	3	18.5	182.0	175.1-194.3				
PULA, Strukovna	2	19.7	181.4	179.2-183.5	24	18.7±0.5	168.8±8.1	148.2-178.9
PULA, Medicinska	18	18.9±0.4	180.6±4.7	166.4-187.7	30	19.0±0.7	167.0±6.9	150.3-182.6
PULA, Gimnazija	67	18.5±0.3	180.5±6.9	167.8-203.5	92	18.5±0.3	166.8±6.3	153.3-182.4
PULA, Talijanska srednja	10	18.4±0.3	180.1±7.2	167.9-190.4				
<b>Karlovac</b>	<b>212</b>	<b>18.6±0.5</b>	<b>180.4±6.2</b>	<b>162.0-195.3</b>	<b>231</b>	<b>18.6±0.4</b>	<b>166.6±6.0</b>	<b>151.2-181.3</b>
KARLOVAC, Prirodoslovna	8	18.3±0.3	185.3±6.6	175.0-195.3	27	18.6±0.4	167.3±5.3	157.8-176.0
KARLOVAC, Ekonomsko-turistička	23	18.6±0.3	181.7±7.0	162.6-193.2	64	18.6±0.4	165.3±6.0	155.0-180.9
KARLOVAC, Trgovačko-ugostiteljska	4	18.9	181.5	176.6-186.7	16	18.8±0.6	167.3±7.2	155.0-181.3
KARLOVAC, Gimnazija	40	18.5±0.4	180.9±6.7	163.8-194.2	56	18.5±0.3	168.1±6.1	153.4-180.6
OGULIN, Obrtnička i tehnička	41	18.4±0.3	180.4±6.2	167.8-195.2				
KARLOVAC, Medicinska	27	18.9±0.5	180.1±4.8	172.2-190.6	38	18.5±0.4	164.7±5.0	151.2-173.3
KARLOVAC, Tehnička	42	18.8±0.5	179.8±5.7	168.6-190.5	1	18.6	166.9	
KARLOVAC, Šumarska i drvodjeljska	21	18.7±0.6	178.7±5.6	162.0-190.3	4	18.7	166.1	161.6-170.1
OGULIN, Gimnazija B. Frankopana	6	18.8±0.3	175.6±3.4	171.1-180.7	25	18.4±0.3	168.1±6.0	155.4-178.5
<b>TOTAL</b>	<b>1827</b>	<b>18.5±0.5</b>	<b>182.7±6.7</b>	<b>162.0-205.5</b>	<b>792</b>	<b>18.6±0.5</b>	<b>167.4±6.2</b>	<b>148.2-188.0</b>

**Supplemental Table S3.** Population size in the targeted counties and mean height in the whole area, corrected for population size in counties.

	<b>Population</b>	<b>% of total</b>	<b>Mean male height (cm)</b>	<b>Mean female height (cm)</b>
Istra	208,055	13.5	181.1	166.7
Karlovac	128,899	8.4	180.6	166.6
Primorje-Gorski Kotar	296,195	19.2	181.9	-
Lika-Senj	50,927	3.3	181.0	168.0
Zadar	170,017	11.0	182.8	167.5
Šibenik-Knin	109,375	7.1	183.4	167.9
Split-Dalmacija	454,798	29.5	184.1	168.9
Dubrovnik-Neretva	122,568	8.0	183.6	169.1
<b>TOTAL</b>	<b>1,540,834</b>	<b>100.0</b>	<b>183.6</b>	<b>168.0*</b>

Note: \*The female mean does not include the county of Primorje-Gorski Kotar, from which only five girls were measured. After the inclusion of this county, the mean female height would marginally increase to 168.2 cm.

**Supplemental Table S4. Proportion of parents with university education.** Comparison of data reported by high schoolers with the official data from the Croatian Bureau of Statistics for 2011 ([www.dzs.hr](http://www.dzs.hr)).

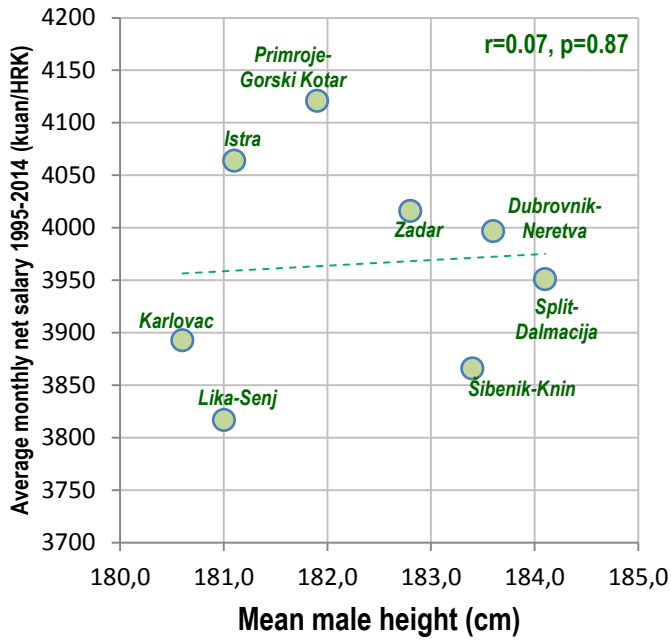
County (županija)	DATA REPORTED BY HIGH SCHOOLERS				DATA BY <a href="http://www.dzs.hr">www.dzs.hr</a> (for 2011)			
	Males		Females		% of adults with higher education in the county			
	<i>n</i>	% univ. educated parents	<i>n</i>	% univ. educated parents	All forms <sup>1</sup>		University only	
				35-39 years	40-44 years	35-44 years	40-44 years	
Split-Dalmacija	359*	27.7	54*	23.1	22.9	18.9	14.8	11.2
Dubrovnik-Neretva	241	34.0	38*	30.3	26.8	20.1	15.6	11.4
Šibenik-Knin	193*	21.5	23*	34.8	18.8	14.5	11.3	7.7
Zadar	249	18.9	20	0.0	21.6	15.8	14.5	10.0
<b>Four Dalmatian counties</b>	<b>1042</b>	<b>27.3</b>	<b>135</b>	<b>23.7</b>	<b>22.7</b>	<b>17.9</b>	<b>14.4</b>	<b>11.0</b>
Primorje-Gorski Kotar	238	29.6	5	50.0	27.0	22.9	18.2	14.4
Istra	143	32.9	225	30.0	22.7	18.4	14.4	10.3
Lika-Senj	86	16.3	48	12.5	15.0	11.9	8.1	6.1
Karlovac	199	25.1	221*	21.0	17.4	14.6	10.3	8.0
<b>Four northern counties</b>	<b>666</b>	<b>25.9</b>	<b>499</b>	<b>24.5</b>	<b>23.1</b>	<b>19.2</b>	<b>14.9</b>	<b>11.3</b>
<b>TOTAL</b>	<b>1708</b>	<b>26.4</b>	<b>634</b>	<b>24.4</b>	<b>22.9</b>	<b>18.5</b>	<b>14.6</b>	<b>11.1</b>

Note: \*Information on the education of parents was not available for all high schoolers in these counties. <sup>1</sup>Includes all forms of education higher than high school.

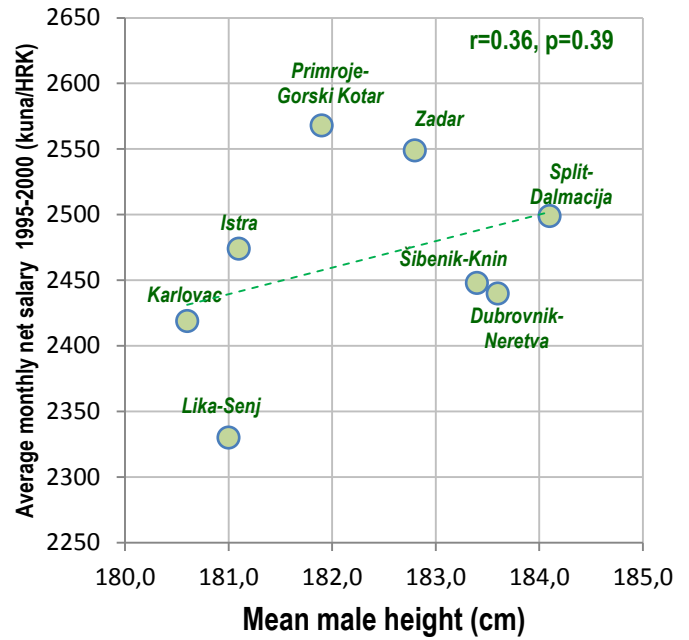
**Supplemental Table S5. Correlations between male and female height, and socioeconomic variables in eight counties. (See Supplemental Figures S1-S4 below)**

<b>County (<i>županija</i>)</b>	<b>Male height (cm) in 8 counties</b>	<b>Female height (cm) in 8 counties</b>
Net salary 1995-2000	0.36 (p=0.39)	0.19 (p=0.65)
Net salary 2000-2014	0.02 (p=0.97)	0.15 (p=0.72)
<b>Net salary 1995-2014</b>	<b>0.07 (p=0.87)</b>	<b>0.15 (p=0.73)</b>
Unemployment 1998-2000	0.41 (p=0.31)	-0.04 (p=0.93)
Unemployment 2000-2014	0.32 (p=0.45)	0.04 (p=0.93)
<b>Unemployment 1998-2014</b>	<b>0.33 (p=0.42)</b>	<b>0.03 (p=0.95)</b>

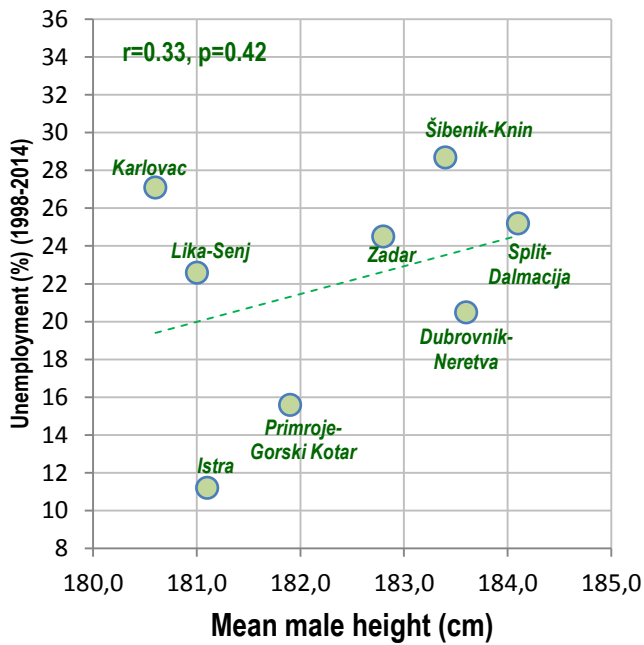
Source: Croatian Bureau of Statistics, [www.dzs.hr](http://www.dzs.hr)



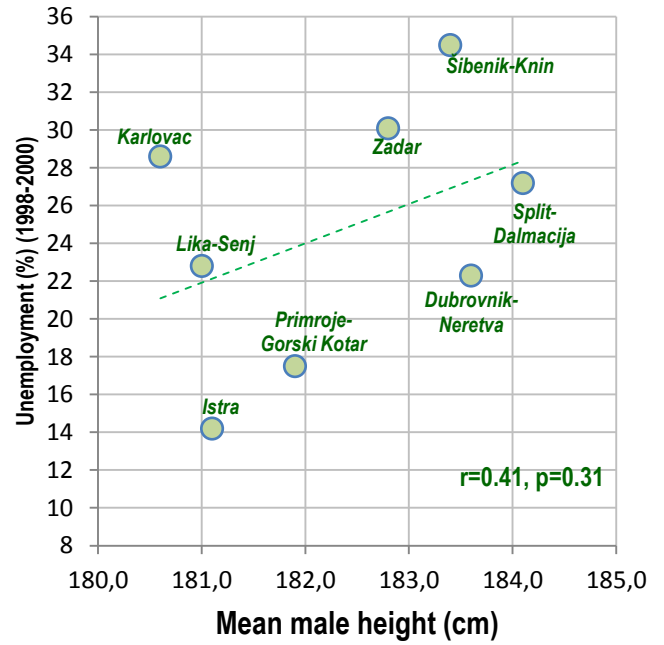
**Supplemental Figure S1.** Mean male height in eight counties and mean monthly net salary between 1995-2014.



**Supplemental Figure S2.** Mean male height in eight counties and mean monthly net salary between 1995-2000.



**Supplemental Figure S3.** Mean male height in eight counties and unemployment between 1998-2014.



**Supplemental Figure S4.** Mean male height in eight counties and unemployment between 1998-2000.



**Supplemental Table S6. Multiple regression models of male height and two socioeconomic variables in eight counties, by different time periods.**

MODELS	(1)	(2)	(3)
Net salary 1995-2000	$b^* = 0.47$ $r = 0.49$ $p = 0.27$		
Net salary 2000-2014		$b^* = 0.81$ $r = 0.50$ $p = 0.26$	
<b>Net salary 1995-2014</b>			<b><math>b^* = 0.67</math></b> <b><math>r = 0.48</math></b> <b><math>p = 0.27</math></b>
Unemployment 1998-2000	$b^* = 0.46$ $r = 0.47$ $p = 0.28$		
Unemployment 2000-2014		$b^* = 0.97$ $r = 0.57$ $p = 0.18$	
<b>Unemployment 1998-2014</b>			<b><math>b^* = 0.82</math></b> <b><math>r = 0.56</math></b> <b><math>p = 0.19</math></b>
<b>Adj. R<sup>2</sup></b>	<b>0.051</b>	<b>0.053</b>	<b>0.047</b>
<b>p-value</b>	<b><math>p = 0.37</math></b>	<b><math>p = 0.38</math></b>	<b><math>p = 0.38</math></b>

Note:  $b^*$  = beta coefficient (displays how many standard deviations a dependent variable will change, per 1 standard deviation increase in the independent variable);  $r$  = partial correlation in the model;  $p$  = probability value.