Appendix A

Computation of the low-skilled wage

As was outlined in chapter 5, we compute the 'skilled wage' w_L as a weighted average of individuals who attained primary or none education, secondary vocational school (without 'maturita' exam) and secondary schools with 'maturita' exam. The calculation is described below:

Table A.1: Calculation of low-skilled wage

Education	**Average monthly wage**	**Population**
Primary/none	18 450	121 518
Secondary without 'maturita'	21 804	570 414
Secondary with 'maturita'	28 494	637 916
Total 'unskilled'	—	1 329 848

Source: Author based on (CZSO, 2011a)

We now follow the formula for the weighted average:

$$weighted\,avg_{w_L} = \frac{\sum_{i=1}^{3} w_i x_i}{\sum_{i=1}^{3} w_i}$$

where x_i is the monthly average wage for each level of education and w_i is the weight, *i.e.* population that attained the corresponding level of education.

$$weighted\,avg_{w_L} = 24\,706$$

The weighted average per month is 24 706 CZK, so the *annual* unskilled wage is 296 479 CZK.

Appendix B

Precise calculations for the TS calibration

The fact that the real participation in higher education for the TS scheme is 59% means that 59% of the respective age cohort have ability above certain threshold ability level. This ability, as measured by the IQ test, is normally distributed with mean 100 and standard deviation 15. The threshold ability which we call $\hat{a}^{TS}$ is such that the probability that a randomly chosen person from the age cohort will have ability above $\hat{a}^{TS}$ is 59%. In other words, the probability that a randomly chosen person from the age cohort will be *below* $\hat{a}^{TS}$ is 41%. We will use the latter formulation to proceed. Therefore, we look for $\hat{a}^{TS}$ such that

$$P(a^{TS} < \hat{a}^{TS}) = 0.41$$

where a^{TS} is a random variable drawn from the IQ scores distribution. In the text, we calculate $\hat{a}^{TS}$ using a computerized statistical system (HyperStat, 2014). Here we provide a more detailed 'manual' calculation of $\hat{a}^{TS}$. Because we want to use statistical tables for the Standard Normal Distribution, we need to normalize the problem, i.e. rewrite it as follows:

$$P(a^{TS} < \hat{a}^{TS}) = 0.41 \Leftrightarrow P\left(z < \frac{100 - \hat{a}^{TS}}{15}\right)$$

where

$$Z = \left(\frac{100 - \hat{a}^{TS}}{15}\right)$$

is a standard normal random variable. This follows from

$$z = \frac{\mu - X}{\sigma}$$

where μ is the mean and σ is standard deviation - see (Bartoszynski and Niewiadomska-Bugaj, 2007). Using statistical tables for normal distribution, we find that

$$z = \left(\frac{a^{TS} - 100}{15}\right) = -0.23$$

$$\hat{a}^{TS} = 96.55.$$

For completeness, the result when using (HyperStat, 2014) was 96.593.

Appendix C

Additional tables

Figure C.1: Trends in entry rates at the tertiary level type 5A (1995-2011)

	Tertiary-type 5A[1]												
	1995	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
OECD countries													
Australia	m	59	75	72	71	70	82	84	86	87	94	96	96
Austria	27	34	34	31	34	37	37	40	42	47	45	53	52
Belgium	m	m	32	33	33	34	33	35	30	31	31	33	33
Canada	m	m	m	m	m	m	m	m	m	m	m	m	m
Chile	m	m	m	m	m	m	46	42	41	46	44	47	45
Czech Republic	m	25	30	30	33	38	41	50	54	57	59	60	60
Denmark	40	52	54	53	57	55	57	59	57	59	55	65	71
Estonia	m	m	m	m	m	m	55	41	39	42	42	43	43
Finland	39	71	72	71	73	73	73	76	71	70	69	68	68
France	m	m	m	m	m	m	m	m	m	m	m	m	39
Germany	26	30	32	35	36	37	36	35	34	36	40	42	46
Greece	15	30	30	33	35	35	43	49	43	42	m	m	40
Hungary	m	55	56	62	69	68	68	66	63	57	53	54	52
Iceland	m	66	61	72	83	79	74	78	73	73	77	93	81
Ireland	m	32	39	39	41	44	45	40	44	46	51	56	51
Israel	m	48	50	57	58	58	55	56	57	60	60	60	60
Italy	m	39	44	50	54	55	56	56	53	51	50	49	48
Japan	31	40	41	42	43	42	44	45	46	48	49	51	52
Korea	41	45	46	46	47	49	51	59	61	71	71	71	69
Luxembourg	m	m	m	m	m	m	m	m	m	25	31	28	m
Mexico	m	24	24	25	26	27	27	28	29	30	31	33	34
Netherlands	44	53	54	54	52	56	59	58	60	62	63	65	65
New Zealand	83	95	95	101	107	86	79	72	76	72	80	80	76
Norway	59	67	70	75	75	72	73	70	70	71	77	76	76
Poland	36	65	68	71	70	71	76	78	78	83	85	84	81
Portugal	m	m	m	m	m	m	m	53	64	81	84	89	98
Slovak Republic	28	37	40	43	40	47	59	68	74	72	69	65	61
Slovenia	m	m	m	m	m	m	40	46	50	56	61	77	75
Spain	m	47	47	49	46	44	43	44	43	43	46	52	53
Sweden	57	67	69	75	80	79	76	76	73	65	68	76	72
Switzerland	17	29	33	35	38	38	37	38	39	38	41	44	44
Turkey	18	21	21	23	24	26	27	31	29	30	40	40	39
United Kingdom	m	47	46	48	48	52	51	57	55	57	61	63	64
United States	57	58	59	61	63	63	64	64	65	64	70	74	72
OECD average	39	48	49	51	53	53	54	55	55	55	58	61	60
EU21 average	35	46	47	49	50	52	53	54	54	54	56	59	59
Other G20													
Argentina	m	m	m	m	m	m	m	m	m	47	56	60	m
Brazil	m	m	m	m	m	m	m	m	m	m	m	m	m
China	m	m	m	m	m	m	m	m	m	m	17	17	19
India	m	m	m	m	m	m	m	m	m	m	m	m	m
Indonesia	m	m	m	m	m	m	m	m	m	m	22	22	24
Russian Federation	m	m	m	65	63	68	67	66	66	68	69	66	72
Saudi Arabia	24	23	25	28	43	42	37	39	40	42	43	48	53
South Africa	m	m	m	m	m	m	m	m	m	m	m	m	m
G20 average	m	m	m	m	m	m	m	m	m	m	51	52	52

Note: Columns showing entry rates for the years 2001-04, 06, 07 (i.e. Columns 3-6, 8-9, 16-19, 21-22) are available for consultation on line (see StatLink below).
Please refer to Annex 1 for information on the method used to calculate entry rates (gross rates versus net rates) and the corresponding age of entry.
1. The entry rates for tertiary-type A programmes include advanced research programmes for 1995 and 2000-03 (except for Belgium and Germany).
2. Break in time series between 2009 and 2010 due to methodological changes (see Annex 3 for more details).
3. Break in time series between 2008 and 2009 due to a partial reallocation of vocational programmes into ISCED 2 and ISCED 5B.
4. Entry rates may be overestimated as it includes students who enrolled in the first year of a programme, instead of for the first-time in tertiary-type A or B programmes.

Source: (OECD, 2013, p. 301)

Figure C.2: Public support for households and other private entities as a percentage of total public expenditure on education, for tertiary education (2010)

	Notes	Direct public expenditure for institutions	Public support for education to private entities						Public support for education to private entities as a percentage of GDP
			Financial aid to students				Transfers and payments to other private entities	Total	
			Scholarships/ other grants to households	Student loans	Total	Scholarships/ other grants to households attributable for educational institutions			
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
OECD									
Australia		**65,9**	12,2	21,9	34,2	0,7	n	**34,1**	0,39
Austria		**81,8**	11,0	a	11,0	m	7,2	**18,2**	0,30
Belgium		**86,3**	13,7	n	13,7	4,2	n	**13,7**	0,20
Canada	1	**81,3**	4,3	12,7	17,1	m	1,6	**18,7**	0,35
Chile	2	**59,6**	15,5	20,3	35,8	15,2	4,6	**40,4**	0,36
Czech Republic		**97,4**	**2,6**	**a**	**2,6**	**m**	**n**	**2,6**	**0,02**
Denmark	3	**72,1**	23,9	3,9	27,9	n	n	**27,9**	0,67
Estonia		**86,8**	4,7	8,5	13,2	m	n	**13,2**	0,16
Finland		**84,8**	14,9	n	14,9	a	0,3	**15,2**	0,33
France		**92,3**	7,7	m	7,7	2,8	a	**7,7**	0,10
Germany		**m**	m	m	m	m	m	**m**	m
Greece		**m**	m	m	m	m	m	**m**	m
Hungary		**85,7**	14,3	m	14,3	n	n	**14,3**	0,14
Iceland		**69,0**	m	31,0	31,0	a	n	**31,0**	0,51
Ireland		**86,9**	13,1	n	13,1	n	n	**13,1**	0,19
Israel		**89,5**	10,1	0,4	10,5	9,7	n	**10,5**	0,11
Italy		**77,5**	22,4	n	22,5	10,3	n	**22,5**	0,19
Japan	3	**70,8**	0,7	28,5	29,2	m	n	**29,2**	0,22
Korea		**91,5**	3,4	4,8	8,1	3,0	0,3	**8,5**	0,07
Luxembourg		**m**	m	m	m	m	m	**m**	m
Mexico		**93,0**	3,9	3,1	7,0	1,8	a	**7,0**	0,07
Netherlands		**72,8**	10,4	16,5	26,9	n	0,3	**27,2**	0,45
New Zealand		**53,4**	14,2	32,4	46,6	m	n	**46,6**	0,91
Norway		**62,5**	10,7	26,8	37,5	m	n	**37,5**	0,98
Poland		**87,8**	11,7	0,4	12,1	m	n	**12,2**	0,14
Portugal		**83,4**	16,6	m	16,6	m	m	**16,6**	0,19
Slovak Republic	3	**77,1**	19,3	1,2	20,5	m	2,4	**22,9**	0,19
Slovenia		**76,6**	23,4	n	23,4	m	n	**23,4**	0,32
Spain		**90,6**	9,2	0,3	9,4	2,0	n	**9,4**	0,11
Sweden		**75,5**	9,6	14,9	24,5	a	a	**24,5**	0,50
Switzerland		**93,4**	2,0	n	2,0	m	4,6	**6,6**	0,09
Turkey		**m**	m	m	m	m	m	**m**	m
United Kingdom		**32,3**	0,3	33,5	33,8	x(4)	33,9	**67,7**	0,69
United States		**72,3**	24,0	3,7	27,7	m	m	**27,7**	0,39
OECD average		**78,3**	**11,4**	**9,8**	**19,8**	**3,1**	**2,0**	**21,7**	**0,31**
Other G20									
Argentina		**98,8**	1,2	n	1,2	m	0,1	**1,2**	0,01
Brazil		**92,4**	3,9	2,7	6,6	x(2)	1,0	**7,6**	0,07
China		**m**	m	m	m	m	m	**m**	m
India		**m**	m	m	m	m	m	**m**	m
Indonesia	2	**m**	m	m	m	m	m	**m**	m
Russian Federation		**m**	m	m	m	m	m	**m**	m
Saudi Arabia		**m**	m	m	m	m	m	**m**	m
South Africa		**m**	m	m	m	m	m	**m**	m
G20 average		**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**

Source: (OECD, 2013, p. 236)

Figure C.3: Expenditure on education institutions, by service category, as a percentage of GDP, tertiary level (2010)

	Notes	Primary, secondary and post-secondary non-tertiary education				Tertiary education				
		Expenditure on education institutions			Private payments on instructional services/goods outside education institutions	Expenditure on education institutions				Private payments on instruction services/goods outside educational institutions
		Core education services	Ancillary services (transport, meals, housing provided by institutions)	Total		Core education services	Ancillary services (transport, meals, housing provided by institutions)	Research & development at tertiary institutions	Total	
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OECD										
Australia		4,26	0,09	**4,35**	0,09	0,95	0,06	0,62	**1,63**	0,13
Austria		3,47	0,17	**3,64**	m	1,05	0,01	0,46	**1,52**	m
Belgium		4,28	0,12	**4,40**	0,15	0,88	0,03	0,52	**1,44**	0,22
Canada	1, 2, 3	3,66	0,20	**3,86**	m	1,92	0,13	0,68	**2,72**	0,12
Chile	4	3,16	0,23	**3,39**	m	2,27	x(5)	0,14	**2,41**	m
Czech Republic		**2,60**	**0,22**	**2,81**	**0,05**	**0,99**	**0,01**	**0,22**	**1,23**	**0,03**
Denmark	2	x(3)	x(3)	**4,80**	m	x(8)	a	x(8)	**1,88**	m
Estonia		x(3)	x(3)	**3,91**	m	0,97	x(5)	0,64	**1,62**	m
Finland		3,71	0,43	**4,15**	m	1,13	a	0,80	**1,93**	m
France		3,52	0,55	**4,07**	0,17	0,95	0,08	0,48	**1,51**	0,07
Germany		m	m	**m**	m	m	m	m	**m**	m
Greece		m	m	**m**	m	m	m	m	**m**	m
Hungary	3	2,50	0,30	**2,80**	m	0,55	0,11	0,18	**0,84**	m
Iceland		x(3)	x(3)	**4,92**	n	x(8)	x(8)	x(8)	**1,23**	n
Ireland	3	4,69	0,08	**4,77**	0,03	1,14	m	0,43	**1,57**	m
Israel		4,05	0,21	**4,26**	0,29	1,47	0,19	m	**1,66**	n
Italy	3	3,12	0,11	**3,23**	0,41	0,61	0,04	0,34	**0,99**	0,14
Japan	2	x(3)	x(3)	**2,96**	0,79	x(8)	x(8)	x(8)	**1,53**	0,04
Korea		3,77	0,46	**4,24**	m	2,12	0,02	0,45	**2,59**	m
Luxembourg		3,26	0,24	**3,50**	0,06	m	m	m	**m**	m
Mexico		x(3)	x(3)	**3,99**	0,19	1,16	m	0,22	**1,38**	0,05
Netherlands		4,10	n	**4,10**	0,15	1,09	n	0,64	**1,74**	0,07
New Zealand		x(3)	x(3)	**5,08**	0,03	1,34	x(8)	0,24	**1,58**	m
Norway		x(3)	x(3)	**5,09**	m	0,99	0,02	0,70	**1,70**	m
Poland	3	3,63	0,03	**3,66**	0,22	1,23	n	0,24	**1,46**	0,04
Portugal	3	3,83	0,07	**3,89**	0,11	0,87	x(8)	0,58	**1,45**	m
Slovak Republic	2	2,69	0,39	**3,08**	0,32	0,66	0,13	0,14	**0,93**	0,20
Slovenia		3,65	0,26	**3,91**	m	1,01	n	0,26	**1,27**	m
Spain		3,13	0,17	**3,30**	m	0,91	0,05	0,39	**1,35**	m
Sweden		3,57	0,42	**3,98**	m	0,82	a	0,94	**1,76**	m
Switzerland	3	x(3)	x(3)	**4,05**	m	0,54	x(8)	0,69	**1,23**	m
Turkey		2,41	0,10	**2,51**	m	x(8)	x(8)	m	**m**	m
United Kingdom		4,08	0,71	**4,78**	m	0,80	0,11	0,46	**1,37**	0,11
United States		3,71	0,32	**4,02**	a	2,15	0,34	0,31	**2,80**	a
OECD average		**3,53**	**0,24**	**3,92**	**0,18**	**1,13**	**0,06**	**0,45**	**1,61**	**0,08**
EU21 average		**3,52**	**0,25**	**3,83**	**0,17**	**0,92**	**0,04**	**0,45**	**1,44**	**0,11**
Other G20										
Argentina		x(3)	x(3)	**4,67**	m	x(8)	x(8)	x(8)	**1,47**	m
Brazil	3	x(3)	x(3)	**4,33**	m	0,83	x(5)	0,05	**0,88**	m
China		m	m	**m**	m	m	m	m	**m**	m
India		m	m	**m**	m	m	m	m	**m**	m
Indonesia		m	m	**m**	m	m	m	m	**m**	m
Russian Federation		x(3)	x(3)	**2,11**	m	x(8)	x(8)	x(8)	**1,60**	m
Saudi Arabia		m	m	**m**	m	m	m	m	m	m
South Africa		m	m	**m**	m	m	m	m	**m**	m
G20 average		**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**	**m**

Source: (OECD, 2013, p. 194)