## ACTUARIAL NOTE

## SOCIAL SECURITY ADMINISTRATION

Number 2017.4 November 2017 Office of the Chief Actuary Baltimore, Maryland

# ILLUSTRATIVE BENEFITS FOR RETIRED WORKERS, DISABLED WORKERS, AND SURVIVORS SCHEDULED UNDER CURRENT LAW

by Michael Clingman, ASA, Kyle Burkhalter, FSA, and Chris Chaplain, ASA

The Social Security program provides monthly benefits to retired workers and their families, disabled workers and their families, and survivors of workers. The *progressivity* of the Social Security benefit formula provides individuals who have lower career-average earnings with monthly benefits that are a higher percentage of their career-average earnings than the percentage for those who have higher career-average earnings. For a group of *example workers* with a range of full-lifetime average earnings levels<sup>1</sup> at various ages in 2017, this note displays their current earnings at various ages in 2016, their full-lifetime average earnings, and the amounts they would expect to receive at benefit entitlement.

The assumptions underlying the attached tables are similar to those used in the annual Social Security Statement available online to workers and former workers aged 18 and older. The benefit amounts are calculated as specified in current law. The amounts reflect no increase in price levels or in average wage levels after 2016. Thus, the benefit estimates for workers at various ages in 2017 who would be retiring in future years are roughly comparable to their potential benefits as disabled workers and for their survivors, which both assume benefit entitlement in 2017.

All example workers, except the steady maximum worker,<sup>2</sup> have scaled earnings patterns beginning at age 21. These patterns reflect the actual average work experience of insured workers during 1994-

2013, which show relatively low wages and probability of work at young and old ages and higher relative wages and probability of work at mid-career.<sup>3</sup> After 2016, earnings levels for workers illustrated in this note increase or decrease due solely to the scaled earnings pattern, and not due to changes in the average wage level.

The following four tables show estimated future benefits consistent with earnings in 2016 and age in 2017. Each table lists *earnings in 2016* at various ages and *annual benefit amounts* at entitlement for example workers with full-lifetime average earnings levels<sup>1</sup> of \$10,000, \$20,000, \$30,000, \$40,000, \$50,000, \$60,000, and the taxable maximum. As mentioned above, the benefit amounts assume no increase in price levels or in average wage levels after 2016. Additional information about each table is provided below.

## • Table 1A: Retired Workers Who Become Entitled at Normal Retirement Age (NRA).

This table also shows the percentage of fully insured workers with full-lifetime average earnings at or below each of the seven fulllifetime average earnings levels. We base these percentages on the earnings of a onepercent sample of individuals, aged 25 through 65, who were fully insured in 2014. For this comparisons purpose. are made hypothetical scaled worker career average earnings at each of the applicable ages corresponding to the \$10,000, \$20,000, ... maximum full lifetime average earnings levels. The illustrative benefits are for workers only. Additional benefits may be available for auxiliary beneficiaries such as spouses and

<sup>&</sup>lt;sup>1</sup> The full-lifetime average earnings level reflects the average of the highest 35 years of wage-indexed earnings (wage-indexed to 2016) expected for the illustration assuming that the worker survives to age 65 without becoming disabled.

<sup>&</sup>lt;sup>2</sup> For the steady maximum worker, earnings start at age 22 and are assumed to equal the taxable maximum (the OASDI benefit and contribution base) for each year through 2016. Earnings after 2016 are assumed to equal the taxable maximum of \$118,500 for 2016.

<sup>&</sup>lt;sup>3</sup> For more details on development of the scaled earnings patterns, see Actuarial Note Number 2017.3 at: <a href="http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf">http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf</a>.

dependent children. The NRA increased to 66 for those attaining age 62 in 2005, and it is currently increasing further beginning with those attaining age 62 in 2017, reaching 67 for those attaining age 62 in 2022 and later.

- Table 1B: Retired Workers Who Become Entitled at Age 65. The only difference between table 1B and table 1A is that the example workers retire at age 65 rather than at NRA, resulting in lower benefit amounts due to reduction for early retirement. The illustrative benefits are for workers only. Additional benefits may be available for auxiliary beneficiaries such as spouses and dependent children.
- Table 2: Disabled Worker Annual Benefit Amounts. For the seven full-lifetime average earnings levels, table 2 provides benefit amounts assuming benefit entitlement in 2017 for disabled example workers aged 25, 35, 45, and 55. In addition, the table provides the percentage of disability insured workers with full-lifetime average earnings at or below each full-lifetime average earnings level. We base these percentages on the earnings of a one-percent sample of individuals, aged 25 through 65, who were disability insured in 2014. The illustrated benefits are for workers

only. Additional benefits may be available for auxiliary beneficiaries such as spouses and dependent children.

## • Table 3: Survivor Annual Benefit Amounts. For the seven full-lifetime average earnings levels, table 3 provides benefit amounts assuming that the deceased example workers would have attained ages 25, 35, 45, or 60 just before dying in 2017. In each case, we assume the surviving spouse is the same age as the deceased worker and that he or she becomes entitled to benefits in 2017. The table provides benefit estimates for three scenarios of survivor beneficiaries: (1) spouse and one child (spouse only for the age 60 case), (2) one child only, and (3) spouse and two children. Because of the family maximum benefit provision, annual benefit amounts for a spouse and two children are the same as, or only moderately higher than, benefit amounts for a spouse and one child. In addition, the table provides the percentage of fully insured workers with full-lifetime average earnings at or below each full-lifetime average earnings level. We base these percentages on the earnings of a one-percent sample of individuals, aged 25 through 65, who were fully or currently insured in 2014.

## Table 1A. Retired Worker Annual Benefit Amounts<sup>1</sup> Scheduled in Current Law

For Insured Workers at Various Ages Who Become Entitled at Normal Retirement Age (NRA) With Various Full-Lifetime Earnings Patterns<sup>2</sup>

Age in 2017	Age at benefit entitlement (NRA)	Earnings in 2016 and benefit at entitlement (NRA)								
25	67	Earnings in 2016	\$5,460	\$10,921	\$16,381	\$21,842	\$27,302	\$32,763	\$118,500	
23	07	Benefit at entitlement	8,988	12,720	15,924	19,116	22,320	25,512	35,304	
35	67	Earnings in 2016	9,642	19,284	28,927	38,569	48,211	57,853	118,500	
		Benefit at entitlement	8,988	12,720	15,924	19,116	22,320	25,512	35,496	
45	67	Earnings in 2016	10,868	21,735	32,603	43,471	54,338	65,206	118,500	
		Benefit at entitlement	8,988	12,720	15,924	19,116	22,320	25,512	35,628	
55	67	Earnings in 2016	10,711	21,421	32,132	42,843	53,553	64,264	118,500	
		Benefit at entitlement	8,988	12,720	15,924	19,116	22,320	25,512	35,664	
65	66	Earnings in 2016	7,345	14,691	22,036	29,381	36,727	44,072	118,500	
		Benefit at entitlement	8,256	11,664	14,604	17,544	20,484	23,412	32,772	
Full-lifet	Full-lifetime average earnings level <sup>3</sup>		10,000	20,000	30,000	40,000	50,000	60,000	Maximum	
Percent of fully insured workers with career										
average earnings at this level or below <sup>4</sup>			8	22	36	50	62	72	100	

<sup>&</sup>lt;sup>1</sup> The assumptions underlying the above benefit estimates are similar to those used for the Social Security Statement. These estimates reflect no increase in the cost of living or average wage and earnings levels after December 2016. However, earnings after 2016 follow scaled earnings patterns as age increases. (These assumptions are not consistent with those used for table V.C7 of the 2017 Trustees Report.)

<sup>&</sup>lt;sup>2</sup> Scaled earnings patterns starting at age 21 are assumed for all but the maximum worker. These scaled patterns reflect the actual average work experience of insured workers during 1994-2013. For the maximum worker, earnings start at age 22 and are assumed to equal the taxable maximum (the OASDI benefit and contribution base) for each year through 2016. (For 2016, this amount was \$118,500.) For more details on the scaled-earnings patterns see Actuarial Note Number 2017.3 at: http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf.

<sup>&</sup>lt;sup>3</sup> The full-lifetime average earnings level reflects the average of the highest 35 years of wage-indexed earnings (wage-indexed to 2016) expected for the illustration assuming the worker survives to age 65 without becoming disabled.

<sup>&</sup>lt;sup>4</sup>Based on a 1% sample of actual earnings histories for individuals aged 25 through 65 who were fully insured in 2014. Comparisons are made to hypothetical scaled worker career average earnings at each of the applicable ages corresponding to the \$10,000, \$20,000, ..., maximum full lifetime average earnings levels.

#### Table 1B. Retired Worker Annual Benefit Amounts<sup>1</sup> Scheduled in Current Law

For Insured Workers at Various Ages Who Become Entitled at Age 65 With Various Full-Lifetime Earnings Patterns<sup>2</sup>

Age in	Age at benefit										
2017	entitlement	<del>.</del>	Earnings in 2016 and benefit at entitlement (Age 65)								
25	65	Earnings in 2016	\$5,460	\$10,921	\$16,381	\$21,842	\$27,302	\$32,763	\$118,500		
		Benefit at entitlement	7,788	11,016	13,800	16,572	19,344	22,116	30,600		
35	65	Earnings in 2016	9,642	19,284	28,927	38,569	48,211	57,853	118,500		
		Benefit at entitlement	7,788	11,016	13,800	16,572	19,344	22,116	30,768		
45	65	Earnings in 2016	10,868	21,735	32,603	43,471	54,338	65,206	118,500		
		Benefit at entitlement	7,788	11,016	13,800	16,572	19,344	22,116	30,876		
55	65	Earnings in 2016	10,711	21,421	32,132	42,843	53,553	64,264	118,500		
		Benefit at entitlement	7,788	11,016	13,800	16,572	19,344	22,116	30,912		
65	65	Earnings in 2016	7,345	14,691	22,036	29,381	36,727	44,072	118,500		
		Benefit at entitlement	7,704	10,884	13,620	16,368	19,116	21,852	30,504		
Full-life	etime averag	e earnings level <sup>3</sup>	10,000	20,000	30,000	40,000	50,000	60,000	Maximum		
Percent of fully insured workers with career											
		nis level or below <sup>4</sup>	8	22	36	50	62	72	100		

<sup>&</sup>lt;sup>1</sup> The assumptions underlying the above benefit estimates are similar to those used for the Social Security Statement. These estimates reflect no increase in the cost of living or average wage and earnings levels after December 2016. However, earnings after 2016 follow scaled earnings patterns as age increases. (These assumptions are not consistent with those used for table V.C7 of the 2017 Trustees Report.)

<sup>&</sup>lt;sup>2</sup> Scaled earnings patterns starting at age 21 are assumed for all but the maximum worker. These scaled patterns reflect the actual average work experience of insured workers during 1994-2013. For the maximum worker, earnings start at age 22 and are assumed to equal the taxable maximum (the OASDI benefit and contribution base) for each year through 2016. (For 2016, this amount was \$118,500.) For more details on the scaled-earnings patterns see Actuarial Note Number 2017.3 at: <a href="http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf">http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf</a>.

<sup>&</sup>lt;sup>3</sup> The full-lifetime average earnings level reflects the average of the highest 35 years of wage-indexed earnings (wage-indexed to 2016) expected for the illustration assuming the worker survives to age 65 without becoming disabled.

<sup>&</sup>lt;sup>4</sup>Based on a 1% sample of actual earnings histories for individuals aged 25 through 65 who were fully insured in 2014. Comparisons are made to hypothetical scaled worker career average earnings at each of the applicable ages corresponding to the \$10,000, \$20,000, ..., maximum full lifetime average earnings levels.

## **Table 2. Disabled Worker Annual Benefit Amounts**

For Disability Insured Workers Entitled in 2017 at Selected Ages and With Various Full-Lifetime Earnings Patterns<sup>1</sup>

Age at benefit								
entitlement in 2017	Earnings in 2016 and benefit at entitlement in 2017							
25	Earnings in 2016	\$5,460	\$10,921	\$16,381	\$21,842	\$27,302	\$32,763	\$118,500
	Benefit at entitlement	4,056	8,124	10,488	11,940	13,380	14,832	34,944
35	Earnings in 2016	9,642	19,284	28,927	38,569	48,211	57,853	118,500
	Benefit at entitlement	6,972	11,124	13,596	16,080	18,564	21,048	35,076
45	Earnings in 2016	10,868	21,735	32,603	43,471	54,338	65,206	118,500
	Benefit at entitlement	8,316	12,072	15,024	17,988	20,940	23,904	35,016
55	Earnings in 2016	10,711	21,421	32,132	42,843	53,553	64,264	118,500
	Benefit at entitlement	8,856	12,456	15,612	18,756	21,912	25,056	34,848
Full-lifetime av	Full-lifetime average earnings level <sup>2</sup>		20,000	30,000	40,000	50,000	60,000	Maximum
Percent of disab earnings at this l	4	15	30	45	58	69	100	

<sup>&</sup>lt;sup>1</sup> Scaled earnings patterns starting at age 21 are assumed for all but the maximum worker. These scaled patterns reflect the actual average work experience of insured workers during 1994-2013. For the maximum worker, earnings start at age 22 and are assumed to equal the taxable maximum (the OASDI benefit and contribution base) for each year through 2016. (For 2016, this amount was \$118,500.) For more details on the scaled-earnings patterns see Actuarial Note Number 2017.3 at: http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf.

Note: These estimates reflect no increase in the cost of living after December 2016.

Office of the Chief Actuary Social Security Administration November 2017

<sup>&</sup>lt;sup>2</sup>The full-lifetime average earnings level reflects the average of the highest 35 years of wage-indexed earnings (wage-indexed to 2016) expected for the illustration assuming the worker survives to age 65 without having become disabled.

<sup>&</sup>lt;sup>3</sup> Based on a 1% sample of actual earnings histories for individuals aged 25 to 65 who were disability insured in 2014. Comparisons are made to hypothetical scaled worker career average earnings at each of the applicable ages corresponding to the \$10,000, \$20,000, ..., maximum full lifetime average earnings levels.

## **Table 3. Survivor Annual Benefit Amounts**

For Survivors Entitled in 2017 at Selected Ages and With Various Full-Lifetime Earnings Patterns of the Deceased Spouse<sup>1</sup>

Age of deceased spouse in	Age of surviving spouse in								
2017	2017	. <u>-</u>	Benefit :	at entitlem	ent in 2017	and decea	sed spouse	's earning	s in 2016
2.5		Spouse and one child	6,696	13,416	16,392	18,792	21,168	23,568	52,512
	25	Child only	3,348	6,708	8,196	9,396	10,584	11,784	26,256
25		Spouse and two children	6,696	13,428	16,392	18,792	21,852	26,184	61,272
	Earnings o	f deceased spouse in 2016	5,460	10,921	16,381	21,842	27,302	32,763	118,500
	,	Spouse and one child	11,352	17,328	21,360	25,416	29,472	33,504	52,800
	35	Child only	5,676	8,664	10,680	12,708	14,736	16,752	26,400
35	Å	Spouse and two children	11,364	17,328	22,200	29,544	36,804	40,428	61,608
	Earnings o	f deceased spouse in 2016	9,642	19,284	28,927	38,569	48,211	57,853	118,500
	,	Spouse and one child	12,648	18,240	22,752	27,264	31,776	36,288	52,560
4.5	45	Child only	6,324	9,120	11,376	13,632	15,888	18,144	26,280
45	į.	Spouse and two children	12,660	18,252	24,708	32,892	38,868	42,900	61,344
	Earnings o	f deceased spouse in 2016	10,868	21,735	32,603	43,471	54,338	65,206	118,500
	, L	Spouse only	6,312	8,892	11,136	13,380	15,636	17,880	24,828
	60	Child only	6,624	9,324	11,688	14,040	16,392	18,756	26,040
60	ļ	Spouse and two children	13,248	18,660	25,836	34,380	39,780	43,992	60,768
	Earnings o	f deceased spouse in 2016	9,251	18,502	27,753	37,004	46,256	55,507	118,500
Full-lifetin	Full-lifetime average earnings level <sup>2</sup>			20,000	30,000	40,000	50,000	60,000	Maximum
	Percent of fully or currently insured workers with career average earnings at this level or below <sup>3</sup>				37	51	63	73	100

<sup>&</sup>lt;sup>1</sup> Scaled earnings patterns starting at age 21 are assumed for all but the maximum worker. These scaled patterns reflect the actual average work experience of insured workers during 1994-2013. For the maximum worker, earnings start at age 22 and are assumed to equal the taxable maximum (the OASDI benefit and contribution base) for each year through 2016. (For 2016, this amount was \$118,500.) For more details on the scaled-earnings patterns see Actuarial Note Number 2017.3 at: <a href="http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf">http://www.ssa.gov/OACT/NOTES/ran3/an2017-3.pdf</a>.

Note: These estimates reflect no increase in the cost of living after December 2016.

<sup>&</sup>lt;sup>2</sup>The full-lifetime average earnings level reflects the average of the highest 35 years of wage-indexed earnings (wage-indexed to 2016) expected for the illustration assuming the worker were to survive to age 65 without becoming disabled.

<sup>&</sup>lt;sup>3</sup> Based on a 1% sample of actual earnings histories for individuals aged 25 through 65 who were fully or currently insured in 2014. Comparisons are made to hypothetical scaled worker career average earnings at each of the applicable ages corresponding to the \$10,000, \$20,000, ..., maximum full lifetime average earnings levels.