

# Commentary: Earnings Replacement Rate of Old-Age Benefits: An International Comparison

By Max Horlick\*

In the late 1960's, a number of requests were received from Congress and from the labor unions in the United States asking how the U.S. Social Security old-age (retired-worker) benefit compared with that benefit in other countries. The requestors also wanted to know what the amounts would be in the various countries when their programs matured. Basically they wanted a "simple" answer and, at that time, no relatively simple answers existed. The methodologies that had been used to compare average pensions were complex. They involved simulation studies, macroeconomic data, and specialized techniques applicable to a learned readership. The 1970 article reprinted on the following pages reports the findings of a study that was designed to produce a percentage relationship between final pay and the average pension of an average worker in industry—a replacement rate. To undertake such a research project, two basic types of data were needed: statistics on average wages and information on how to calculate the resultant pension. An internationally recognized technical definition of an "average" worker already had been created by the International Labor Office (ILO).

Fortunately, two appropriate series for such a project existed: the ILO wage data and the Social Security Administration (SSA) publication **Social Security Programs Throughout the World**. For decades the ILO had been publishing data on average hourly earnings of industrial workers and on the number of hours worked per week or per month. The series covered scores of countries and was consistent over time. The wages of an industrial worker were, therefore, based on this series.

The calculation of the average benefit in selected countries presented a more complex problem of harmonization. Since 1937, the benefit formula of all countries that had social security programs had been summarized in **Social Security Programs Throughout the World**. These formulas were stated in comparable concepts and terminology. The countries themselves had either provided the data or they had assisted with or commented on both of the above series.

The resultant article was translated into a number of languages and the methodology came into wide use. The replacement rate had been rising in the industrial countries as a whole until the 1973-74 oil crisis. However, the subsequent world recession created serious problems, particularly for the so-called welfare societies. Inflation, high unemployment, and an

aging population forced them to inaugurate cutbacks in their social security benefits. The reductions, of course, altered the replacement rates. Periodically, therefore, the 1970 article has been updated, using current formulas, for the individual countries. For the future, however, more intricate revisions may be needed. Requests have been made for the replacement rate to be calculated after taxes, and interest has been shown in producing a replacement rate that includes both the social security benefit and private pensions, which in some countries are mandatory.

Other Office of International Policy (OIP) studies, such as international comparisons of health care expenditures, have also involved the development of comparative definitions and methodologies that had not been used before.

Recently, the Federal Republic of Germany celebrated the 100th anniversary of the creation of its social security system. Since the start of that program, other countries, often individually and without the benefit of knowing about each others' experiences, have followed in the same evolutionary path. As a way to avoid "reinventing the wheel," the research activities of OIP staff have been directed toward examining the experience of highly industrialized countries in dealing with social security issues

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**Table M-24.—SSI: Number of persons, total amount, and average State payment to persons under State-administered supplementation programs, by reason for eligibility, 1974-88<sup>1</sup>**

Period	Number				Total amount (in thousands)				Average payment			
	Total <sup>2</sup>	Aged	Blind	Disabled	Total <sup>2</sup>	Aged	Blind	Disabled	Total <sup>2</sup>	Aged	Blind	Disabled
January 1974	358,293	251,926	8,502	96,926	\$14,884	\$9,237	\$517	\$5,102	\$41.54	\$36.66	\$60.86	\$452.64
December 1974	300,724	193,057	5,898	101,769	11,354	6,824	330	4,200	<sup>3</sup> 37.75	<sup>3</sup> 35.35	<sup>3</sup> 55.95	<sup>3</sup> 41.27
December 1975	303,391	184,679	4,933	113,504	13,803	7,225	301	6,273	45.59	39.12	61.13	55.26
December 1976	274,377	160,360	4,731	109,248	13,720	6,882	327	6,511	50.00	42.91	69.04	59.60
December 1977	269,695	152,449	4,467	112,467	14,477	7,096	336	7,033	53.68	46.54	75.21	62.53
December 1978	265,518	146,854	4,188	107,524	15,641	7,886	363	7,279	58.91	53.70	86.68	67.70
December 1979	257,289	140,894	3,937	105,830	18,327	9,540	361	8,305	71.23	67.71	91.60	78.47
December 1980	249,474	134,555	3,649	104,367	19,920	10,435	356	8,995	79.85	77.55	97.45	86.18
December 1981	249,565	133,880	3,487	105,756	20,041	10,355	347	9,192	80.31	77.39	99.53	86.92
December 1982	247,995	130,582	3,419	107,198	21,844	11,304	389	9,979	88.08	86.56	113.70	93.09
December 1983	254,175	130,402	3,333	113,343	23,529	11,802	391	11,081	92.57	90.50	117.37	97.77
December 1984	268,045	131,276	3,219	125,615	25,913	12,312	370	12,795	96.67	93.79	114.91	101.86
December 1985	254,656	114,721	3,032	128,683	24,971	10,314	358	13,777	98.06	89.90	117.95	107.06
December 1986	279,297	123,291	3,123	143,981	29,586	12,584	374	16,017	105.93	102.07	119.69	111.24
December 1987	271,656	111,116	3,114	146,598	30,112	11,860	392	17,253	110.85	106.74	125.92	117.69
1987												
February	280,780	122,571	3,136	145,543	29,763	12,595	374	16,328	106.00	102.76	119.35	112.19
March	282,190	122,439	3,142	146,919	30,138	12,662	380	16,637	106.80	103.42	121.08	113.24
April	268,170	113,085	3,093	142,231	28,423	11,331	370	16,220	105.99	100.20	119.49	114.04
May	268,376	112,685	3,092	142,943	28,497	11,321	373	16,307	106.18	100.47	120.76	114.08
June	268,247	112,455	3,100	143,048	28,505	11,326	370	16,294	106.26	100.71	119.47	113.91
July	268,404	112,336	3,120	143,213	28,896	11,455	376	16,481	107.66	101.97	120.46	115.08
August	268,902	111,752	3,119	143,993	29,098	11,483	382	16,671	108.21	102.76	122.41	115.78
September	269,763	111,939	3,104	144,451	29,270	11,592	378	16,717	108.50	103.56	121.91	115.73
October	270,205	111,749	3,089	145,340	29,372	11,556	372	16,863	108.70	103.41	120.55	116.02
November	269,316	111,032	3,097	145,271	29,864	11,794	402	17,068	110.89	106.19	129.90	117.49
December	271,656	111,116	3,114	146,598	30,112	11,860	392	17,253	110.85	106.74	125.92	117.69
1988												
January	269,935	110,330	3,105	146,071	29,393	11,699	385	16,677	108.89	106.04	124.12	114.17
February	269,448	109,794	3,099	146,150	29,937	11,646	384	17,275	111.10	106.08	123.91	118.20

<sup>1</sup> Data reported to the Social Security Administration by individual States. All data subject to revision. Excludes optional supplementation data for Missouri and North Dakota; for Maryland in December 1974 and 1975; and

for New Mexico in December 1976.

<sup>2</sup> Includes data not distributed by reason for eligibility.

<sup>3</sup> Excludes data for South Carolina.

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in areas where the United States is encountering similar problems or is considering program changes. The pre-1974 international studies, in response to requests at that time, were concerned with program improvements and proposed reforms aimed at enriching benefits in various countries. During that period, for example, the United States was considering the introduction of indexing of earnings and benefits. Numerous requests on how the other industrialized countries carried out this process led to comparisons of the mechanics of

indexing benefits that were the subject of **Social Security Bulletin** articles in May 1970, July 1974, November 1976, and a 1977 SSA Staff Paper.<sup>1</sup>

Before the 1974 recession, reforms were virtually always in the direction of expansion; since 1974, however, the various program reorganizations and revisions have been in the

direction of retrenchment. This pattern was reported in a series of **Bulletin** articles discussing program cutbacks in terms of aging populations and prevailing economic conditions.<sup>2</sup> As the

<sup>1</sup>Elizabeth Kreidler Kirkpatrick, **Protecting Social Security Beneficiary Earnings Against Inflation: The Foreign Experience** (Staff Paper No. 25), Office of Research and Statistics, Social Security Administration, 1977.

<sup>2</sup>Lois Copeland, "Impact of Recession on Financing of French Program," **Social Security Bulletin**, July 1976, pages 44-48; Lois Copeland, "Impact of Recession on Financing of German Program," **Social Security Bulletin**, February 1977, pages 29-33; Daniel Wartonick and Michael Packard, "Slowing Down Pension Indexing: The Foreign Experience," **Social Security Bulletin**, June 1983, pages 9-15; and Frank McArdle, "Impact of Recession on Swiss Pension Program," **Social Security Bulletin**, June 1983, pages 9-15.

**Table M-25.—SSI: Number of persons receiving State-administered supplementation, total amount, and average payment, by reason for eligibility and State, February 1988<sup>1</sup>**

State	Number				Total amount (in thousands)				Average payment			
	Total	Aged	Blind	Disabled	Total	Aged	Blind	Disabled	Total	Aged	Blind	Disabled
Total .....	<sup>2</sup> 269,448	109,794	3,099	146,150	<sup>2</sup> \$29,937	\$11,646	\$384	\$17,275	<sup>2</sup> \$111.10	\$106.08	\$123.91	\$118.20
Alabama.....	15,366	9,824	122	5,420	842	524	7	311	54.78	53.33	54.46	57.41
Alaska <sup>3</sup> .....	4,726	1,744	62	2,920	1,081	397	14	670	228.71	227.52	233.65	229.31
Arizona.....	4,055	892	2	3,161	287	78	(4)	209	70.81	87.22	(5)	66.18
Colorado <sup>3</sup> .....	19,623	14,555	92	4,976	2,011	1,655	4	352	102.48	113.69	42.57	70.80
Connecticut.....	18,073	6,896	115	11,062	4,640	1,600	25	3,014	256.71	232.08	219.74	272.45
Florida.....	10,308	4,898	(6)	<sup>7</sup> 5,410	845	373	(6)	<sup>7</sup> 472	82.00	76.17	(6)	<sup>7</sup> 87.28
Idaho <sup>3</sup> .....	2,985	970	21	1,994	350	96	2	253	117.40	99.06	78.24	126.73
Illinois.....	51,895	5,416	261	46,218	4,986	309	19	4,657	96.07	57.13	74.38	100.76
Indiana.....	783	373	6	404	303	115	2	186	387.31	307.48	364.67	461.35
Kentucky.....	6,828	3,446	92	3,290	890	443	7	440	130.37	128.70	72.18	133.74
Maryland.....	<sup>2</sup> 1,820	(6)	(6)	(6)	<sup>2</sup> 538	(6)	(6)	(6)	<sup>2</sup> 295.42	(6)	(6)	(6)
Minnesota.....	11,831	2,638	158	9,035	2,151	319	24	1,808	181.84	121.05	153.55	200.08
Missouri.....	8,284	6,253	331	1,700	323	193	62	68	39.00	30.90	187.44	39.89
Nebraska.....	7,018	2,146	96	4,776	403	81	6	316	57.40	37.77	58.60	66.19
New Hampshire.....	4,220	1,277	168	2,775	493	97	25	371	116.85	76.01	149.15	133.70
New Mexico.....	<sup>2</sup> 279	(6)	(6)	(6)	<sup>2</sup> 21	(6)	(6)	(6)	<sup>2</sup> 75.00	(6)	(6)	(6)
North Carolina <sup>3</sup> .....	14,052	8,388	264	5,400	4,334	2,554	91	1,689	308.42	304.48	343.34	312.82
North Dakota.....	6	5	..	1	(4)	(4)	..	(4)	(5)	(5)	..	(5)
Oklahoma.....	55,256	31,889	550	22,817	2,756	1,498	30	1,228	49.88	46.96	54.96	53.83
Oregon.....	14,301	4,019	680	9,602	1,019	567	55	398	71.29	141.18	80.19	41.40
South Carolina.....	2,975	1,206	18	1,751	414	165	3	247	139.12	136.47	142.11	140.91
South Dakota.....	309	199	3	107	46	32	(4)	14	150.21	158.42	(5)	135.27
Utah.....	<sup>2</sup> 8,306	(6)	(6)	(6)	<sup>2</sup> 73	(6)	(6)	(6)	<sup>2</sup> 8.80	(6)	(6)	(6)
Virginia.....	5,196	2,644	33	2,519	1,111	548	8	555	213.76	207.17	235.97	220.38
Wyoming <sup>3</sup> .....	953	116	25	812	19	2	1	16	20.00	20.00	20.00	20.00

<sup>1</sup> Data reported to the Social Security Administration by individual States. All data subject to revision. Excludes optional supplementation data for Missouri and North Dakota.  
<sup>2</sup> Includes data not distributed by reason for eligibility.  
<sup>3</sup> Estimated data.

<sup>4</sup> Less than \$500.  
<sup>5</sup> Not computed on base of less than \$500.  
<sup>6</sup> Data not available.  
<sup>7</sup> Includes data for the blind.

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recession deepened, congressional and other requests and the resultant articles increasingly concentrated on social security problems related to financing, new sources of revenue, and the cost of program administration. Several **Social Security Bulletin** articles compared the size of the payroll tax in the United States with that in other countries. Flexible retirement—including the partial pension, a variable retirement age, and incentives to encourage deferral—also was dealt with as various countries tried to ease the transition of an aging

population from work to retirement or to create jobs for young workers.

A related issue concerned the growing number of disability pensions. Interest in this subject resulted in several studies of long-term disability programs abroad.<sup>3</sup>

Apart from topics connected

<sup>3</sup>Lois Copeland, **Defining Disability: A Cross-Country Definition** (Staff Paper No. 28), Office of Research and Statistics, Social Security Administration, 1977, and Lois Copeland, "International Trends in Disability Program Growth," **Social Security Bulletin**, July 1981, pages 25-36.

with economic development, research has resulted in summaries of worldwide developments in general. Biennial **Social Security Bulletin** articles have featured information gathered in connection with periodic revisions of **Social Security Programs Throughout the World**.