

ARIZONA DEPARTMENT OF MINERAL RESOURCES

COMPARISON OF INCREASE IN COST OF LIVING WITH INCREASE IN WAGES AND OUTPUT OF ARIZONA COPPER MINERS Base Period: 1947-1949. Years Covered: 1950-1954

The Arizona Department of Mineral Resources has projected its 1954 study of the relation between the cost of living and the hourly earnings and output of Arizona copper miners. There has been a marked trend upward in the hourly earnings, for the last five years, over the base period of 1947-1949, as compared with a much flatter rise in the consumer price index (cost of living). An accompanying chart shows this clearly. For example, hourly earnings have increased almost fifty percent, while the cost of living has gone up less than fifteen percent. At the same time, the hourly earnings rate has also gone up faster than the market price of copper. For example, during the first year after the base period, wages rose 13.7%, while the price of copper remained unchanged. During the next two years, wages were advanced 34.0% while the price of copper went up 16.35%; in 1953 wages were up 43.5% while copper advanced 37.5% over the base period; and in 1954, wages were up 48.9% over the base period, with copper up 42.8%. For the same five year period, the five large copper companies increased their dividends to stock holders by approximately 42% over the base-period.

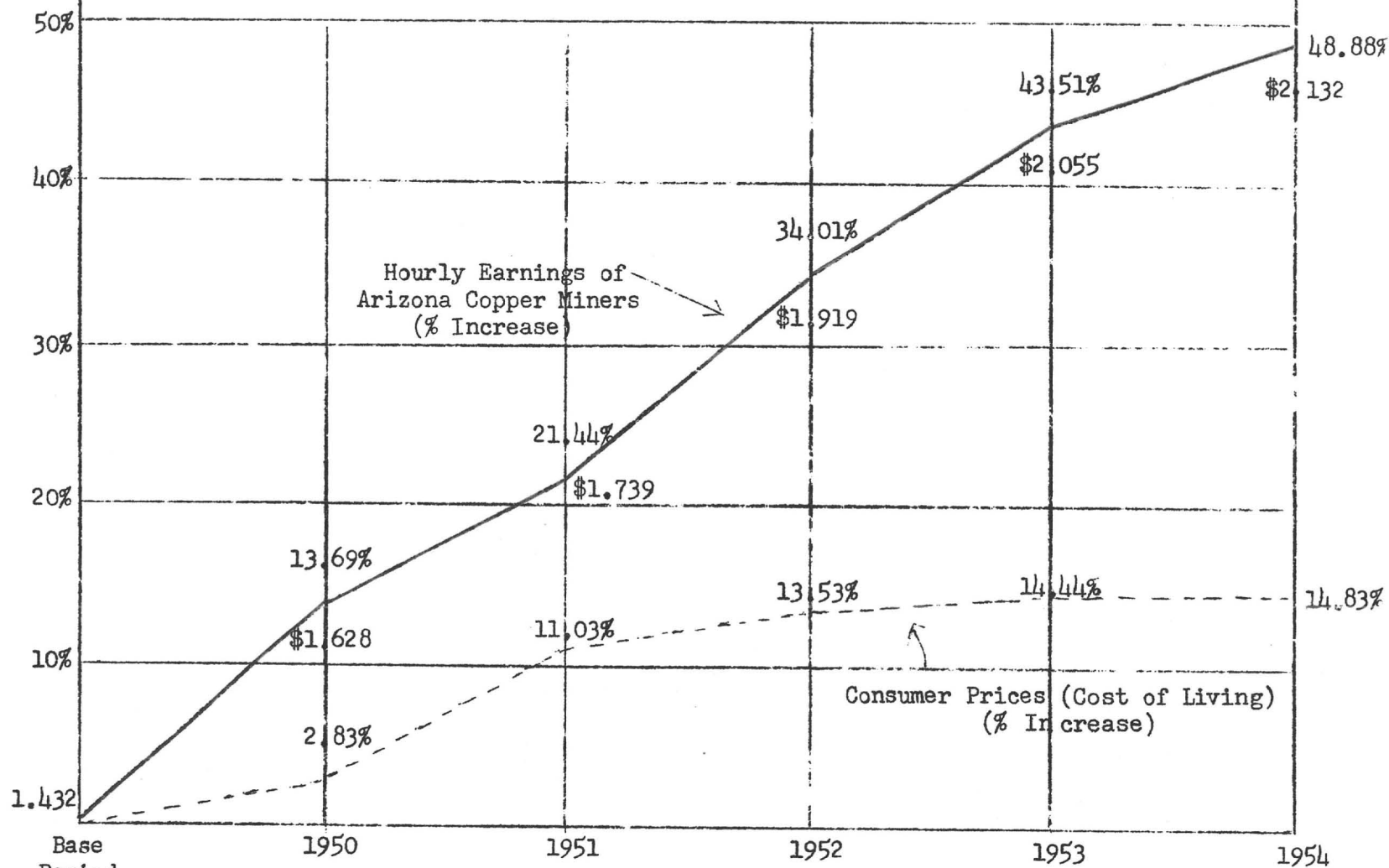
The output of copper ore per man-hour of labor has fallen far short of the increased earnings of the miner. And in spite of the higher copper price, the metal value produced per man-hour has not kept pace with the hourly earnings. This was partly due to the fact that there was an actual decrease in total pounds of copper (including gold-silver equivalent) produced per man-hour of labor. The decreased copper recovery, which happened in spite of continued technological improvements and increased proportion of cheaper open-pit mining, was due to lower grade of ore treated. This ore during the base period contained 19.0 pounds of recoverable copper per ton, whereas during the five-year period following, it contained only 17.3 pounds of recoverable copper per ton.

All of these comparisons have been based on the actual payroll wages paid and do not include fringe benefits which have been annually increased until now they amount to almost twenty percent of the regular payroll.

The United States Bureau of Mines made a copper survey in 1952 for the National Security Resources Board, and the following quotation from its chapter on "Employment and Productivity" may be of interest. Under "Mine Labor Productivity" in the United States as a whole, (Chapter VI - 39), they say:

"The effect of technological advances on the domestic copper-mining industry is apparent when it is realized that in 1911 it took 110,000,000 man-hours to produce 557,000 tons of copper, whereas in 1949, 34,000,000 man-hours of work produced 753,000 tons. By translating this information into output per man-hour, it is learned that in 1911, 10.1 pounds of metal and 0.27 tons of ore were produced in comparison with 43.7 pounds of metal, 2.20 tons of ore in 1949. These increases can be attributed mainly to adoption of large-scale open-cut mining methods, which increased the quantity of ore produced, decreased the number of men needed, and indirectly reduced the man-hours of employment necessary."

GRAPHIC COMPARISON OF PERCENT INCREASE IN HOURLY EARNINGS OF ARIZONA
COPPER MINERS WITH PERCENT INCREASE IN CONSUMER PRICES (COST OF LIVING)
BASE PERIOD 1947-1949 = 100



Base
Period
1947-1949

Arizona Department of Mineral Resources

May, 1955

CONSUMER PRICE INDEX (COST OF LIVING)
AVERAGE HOURLY EARNINGS, AVERAGE WEEKLY HOURS AND AVERAGE WEEKLY EARNINGS OF
ARIZONA COPPER MINERS - WITH PERCENT INCREASE OVER BASE PERIOD 1947 - 1949

Source: Arizona Employment Security Commission - U.S. Bureau of Labor Statistics.

<u>Period</u>	<u>Consumer Price Index</u>	<u>Average Hourly Earnings</u>		<u>Average Weekly Hours</u>	<u>Average Weekly Earnings</u>	
			<u>% Increase</u>			<u>% Increase</u>
1947 - 1949	100.00	\$ 1.432	-	44.83	\$ 64.20	-
1950	102.83	1.628	13.69	46.55	75.80	18.07
1951	111.03	1.739	21.44	47.73	83.00	29.28
1952	113.53	1.919	34.01	47.06	90.31	40.67
1953	114.44	2.055	43.51	46.73	96.03	49.58
1954	114.83	2.132	48.88	45.28	96.54	50.37

Arizona Copper Mining Covered Employment: No. of Employees, Wages, and Man-hours
% Increase in Actual Annual Wages.

Source: Arizona Employment Security Commission.

	<u>Average No. of Employees</u>	<u>Total Annual Wages</u>		<u>Avg. Hourly Earnings</u>	<u>Average Annual Wage Rec'd by Each Employee</u>	<u>% Increase</u>
1947 - 1949	11,278	\$ 39,432,006	= 27,536,319 Man-hours @ \$ 1.432		\$ 3,496	-
1950	11,153	41,994,321	= 25,795,038 " " @ 1.628		3,765	7.70
1951	10,754	47,825,698	= 27,501,839 " " @ 1.739		4,447	27.20
1952	11,365	54,950,235	= 28,634,828 " " @ 1.919		4,835	38.30
1953	12,068	62,742,982	= 30,531,865 " " @ 2.055		5,199	48.71
1954	12,502	65,518,853	= 30,731,170 " " @ 2.132		5,241	49.91

* This number includes all covered employees on payroll, and is not restricted to production workers only, on which the average Hourly and Weekly Earnings are reported.

ARIZONA COPPER MINING STATISTICS - OUTPUT PER MAN-HOUR IN TONS OF ORE,
POUNDS OF COPPER AND VALUE OF COPPER, GOLD AND SILVER PRODUCED IN COPPER MINES.

Source: U. S. Bureau of Mines and Arizona Employment Security Commission.

<u>Period</u>	<u>Tons Copper Ore Annual Rate</u>	<u>Gold Ounces & Value</u>	<u>Silver Ounces & Value</u>	<u>Copper Pounds & Value</u>	<u>Lbs. Copper Recov'd/ton and Copper Price</u>	<u>Value of Copper, Gold & Silver</u>	<u>Pounds Copper Equivalent to Total Value of Copper, Gold & Silver</u>
1947-1949	38,082,754	79,612 \$2,786,420	2,603,485 \$2,356,154	723,353,767 \$150,588,843	19.0 lbs/ton 20.818¢	\$155,731,417	748,061,370
1950	41,757,037	79,562 \$2,784,670	2,853,375 \$2,582,304	765,334,514 \$159,189,578	18.3 lbs/ton 20.8¢	\$164,556,552	791,137,270
1951	42,784,388	83,521 \$2,923,235	3,087,865 \$2,794,518	775,609,514 \$187,697,502	18.1 lbs/ton 24.2¢	\$193,415,255	799,236,600
1952	44,472,522	83,692 \$2,929,220	2,900,851 \$2,625,270	730,809,903 \$176,855,996	16.4 lbs/ton 24.2¢	\$182,410,486	753,762,340
1953	45,187,838	89,724 \$3,140,340	3,164,255 \$2,863,809	738,404,453 \$211,922,077	16.3 lbs/ton 28.7¢	\$217,926,226	759,324,830
1954p	41,500,000	93,500 \$3,272,500	3,100,000 \$2,805,500	730,000,000 \$216,810,000	17.6 lbs/ton 29.7¢	\$222,888,000	750,464,600

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PERCENT INCREASE IN OUTPUT PER MAN-HOUR OVER BASE PERIOD 1947 - 1949

<u>Period</u>	<u>Total Man-hours of Annual Labor</u>	<u>Tons Copper Ore</u>		<u>Total Metal Value Produced Per Man-hour</u>		<u>Total Lbs. Copper(Incl. Gold-Silver Equiv.) Produced Per Man-Hour</u>	
		<u>Per Man Hour</u>	<u>% Increase</u>		<u>% Increase</u>		<u>% Increase</u>
1947-1949	27,536,319	1.383	-	\$5.655	-	27.166	-
1950	25,795,038	1.619	17.07	6.379	12.80	30.670	12.90
1951	27,501,839	1.556	12.51	7.033	24.37	29.061	6.98
1952	28,634,828	1.553	12.29	6.429	13.69	26.323	Decrease
1953	30,531,865	1.480	7.01	7.138	26.22	24.870	Decrease
1954p	30,731,170	1.350	Decrease	7.253	28.26	24.420	Decrease

Arizona Department of Mineral Resources

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ESTIMATED HOURS AND EARNINGS IN SELECTED INDUSTRIES IN ARIZONA

These estimates are based upon a sample of full and part-time production and related employees whose payroll and hours are reported for the pay period ending nearest the 15th of the month.

Prepared by Arizona Employment Security Commission in co-operation with the U. S. Bureau of Labor Statistics

<u>Average Hourly Earnings:</u>	<u>1947-49</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>
Manufacturing **	\$ 1.345	\$1.46	\$1.55	\$1.737 *	\$1.884	\$1.949
Copper Mining	1.432	1.63	1.74	1.919	2.055	2.132
Contract Const.	1.787	1.94	2.15	2.304	2.449	2.555
Utilities	1.369	1.43	1.54	1.627	1.756	1.810
Trade	1.090	1.22	1.32	1.400	1.481	1.513

Average Weekly Hours:

Manufacturing	41.60	42.9	43.1	42.65	41.96	45.68
Copper Mining	44.83	46.5	47.7	47.06	46.73	45.31
Contract Const.	37.10	37.8	38.0	37.53	37.42	37.02
Utilities	41.39	39.9	40.1	41.80	41.36	40.83
Trade	41.98	42.0	42.8	42.28	42.12	41.93

Average Weekly Earnings:

Manufacturing	\$ 55.95	\$62.63	\$66.81	\$74.08	\$79.05	\$89.03
Copper Mining	64.20	75.80	83.00	90.31	96.03	96.54
Contract Const.	66.30	73.33	81.70	86.47	91.64	94.59
Utilities	56.66	57.06	61.75	68.01	72.63	73.90
Trade	45.76	50.40	56.50	59.19	62.38	63.44

* Beginning July 1952, Manufacturing includes aircraft modification operations.

** Manufacturing includes copper smelting.

ESTIMATED HOURS AND EARNINGS IN SELECTED INDUSTRIES IN ARIZONA -
BY MONTHS IN 1954

Source: "Arizona's Current Employment Developments"
Issued By Employment Security Commission.

	<u>MANUFACTURING</u>				<u>COPPER MINING</u>			
	No. of Workers	Avg. Weekly Earnings	Avg. Weekly Hours	Avg. Hourly Earnings	No. of Workers	Avg. Weekly Earnings	Avg. Weekly Hours	Avg. Hourly Earnings
Jan.	25,200	82.06	42.3	1.94	11,700	105.35	49.0	2.15
Feb.	25,600	77.38	40.3	1.92	11,700	96.22	45.6	2.11
March	25,700	79.04	41.6	1.90	11,800	94.74	44.9	2.11
April	26,100	79.10	41.2	1.92	11,800	94.08	44.8	2.10
May	26,200	79.71	41.3	1.93	11,900	94.74	44.9	2.11
June	26,400	81.83	42.4	1.93	11,900	97.80	45.7	2.14
July	26,900	77.03	39.5	1.95	11,800	89.03	41.8	2.13
August	26,200	83.95	42.4	1.98	11,800	94.53	44.8	2.11
Sept.	26,500	83.38	41.9	1.99	9,700	93.90	44.5	2.11
Oct.	27,400	82.78	41.6	1.99	11,700	99.39	45.8	2.17
Nov.	28,100	81.56	41.4	1.97	11,700	98.32	45.1	2.18
Dec.	28,200	80.77	41.0	1.97	11,700	101.09	46.8	2.16
Avg.	26,542	80.71	41.41	1.949	11,600	96.50	45.31	2.132

*

REPORT FROM RESEARCH AND REPORTS SECTION - EMPLOYMENT SECURITY COMMISSION

	Manufacturing (Excl. Copper Smelting)			Copper Mining Employment	Other Mining & Quarrying Employment	Copper Smelting Employment	All Mining, Quarrying & Smelting Employment
	Average Employment	Avg. Hourly Earnings	Avg. Weekly Hours				
1949	12,940	1.408	40.58	10,500	1,700	1,600	13,800
1950	14,100	1.445	42.40	9,500	1,800	1,500	12,800
1951	21,150	1.533	42.74	10,100	2,100	1,500	13,700
1952	26,600	1.742	42.82	10,700	1,800	1,600	14,100
1953	26,400	1.873	41.66	11,400	1,600	1,600	14,600
1954	24,850	1.937	45.42	11,600	1,800	1,700	15,100

* Estimates based upon a sample of full and part-time production and related employees.

AVERAGE NUMBER OF COVERED EMPLOYEES, TOTAL WAGES, AVERAGE ANNUAL WAGE, AND AVERAGE WEEKLY WAGE
Base Period 1947-1949, 1952, 1953, & 1954 (Estimated)

Source: Arizona Employment Security Commission

	Average No. of Employees	Total Wages	Average Annual Wage	Average Weekly Wage	Average No. of Employees	Total Wages	Average Annual Wage	Average Weekly Wage
	Base Period 1947 - 1949				Year 1952			
Copper Mining Only	11,278	\$ 39,432,008	\$3,496	\$67.23	11,365	\$ 54,950,235	\$4,835	\$92.98
All Mining & Quarrying	12,870	44,345,018	3,446	66.27	13,302	62,734,456	4,716	90.69
Smelting *	1,500	5,175,000	3,450	66.35	1,600	7,640,000	4,775	91.83
All Min., Quar., & Smelting	14,370	49,520,018	3,446	66.27	14,902	70,374,456	4,722	90.81
Manufacturing (Excl. Smelt'g)	12,639	36,910,624	2,920	56.15	18,487	81,532,939	4,410	84.81
Construction	10,844	35,424,826	3,267	62.83	14,582	63,907,790	4,383	84.29
Transp. & Utilities (Excl. RRs)	10,530	29,948,944	2,844	54.69	13,088	47,386,245	3,621	69.64
Wholesale-Retail Trade	36,213	91,916,860	2,538	48.81	45,094	138,263,559	3,066	58.96
Services & Misc. (Incl. Agri.)	18,643	43,103,526	2,312	44.46	28,018	87,990,852	3,141	60.40
Totals and Averages	103,239	\$286,824,898	\$2,778	\$53.42	134,171	\$489,455,841	\$3,648	\$70.15
	Year 1953				Year 1954			
Copper Mining Only	12,068	\$ 62,742,982	\$5,199	\$99.98	12,502	\$ 65,518,853	\$5,241	\$100.79
All Mining & Quarrying	13,558	68,556,818	5,057	97.25	14,207	72,132,728	5,077	97.63
Smelting *	1,700	8,080,100	4,753	91.40	1,700	8,358,900	4,917	94.56
All Min., Quar., & Smelting	15,258	76,636,918	5,005	96.25	15,907	80,491,628	5,060	97.30
Manufacturing (Excl. Smelt'g)	25,649	108,270,296	4,221	81.17	24,122	102,336,371	4,242	81.58
Construction	16,401	75,679,628	4,614	88.73	17,172	80,723,202	4,701	90.40
Transp. & Utilities (Excl. RRs)	14,016	55,134,930	3,934	75.66	13,735	55,502,920	4,041	77.71
Wholesale-Retail Trade	47,818	153,506,385	3,210	61.73	48,271	157,952,199	3,272	62.92
Services & Misc. (Incl. Agri.)	25,577	76,569,147	2,994	57.58	26,548	82,032,789	3,090	59.42
Totals and Averages	144,719	\$545,797,304	\$3,771	\$72.52	145,755	\$559,039,109	3,835	73.75

* Smelting employment has been segregated from Manufacturing as reported by the Employment Security Commission.