



## New education classification better reflects income and spending patterns in the Consumer Expenditure Survey

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**A**n individual's level of education and associated earnings profoundly influence spending patterns.<sup>1</sup> Published Consumer Expenditure Survey (CE) data tables have shown average expenditures, income, and other consumer unit (CU) characteristics classified by education of the reference person. With the release of calendar year 2012 CE data on September 10, 2013, the education of reference person classification was replaced by the highest education level of any member in the consumer unit.<sup>2</sup>

The major reason for this change is that the highest level of education attained by any household member more accurately reflects income and spending patterns than does the education

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- "The job market for recent college graduates in the United States," [www.bls.gov/opub/ted/2013/ted\\_20130405.htm](http://www.bls.gov/opub/ted/2013/ted_20130405.htm)
- "Educational attainment of women in the labor force, 1970–2010," [www.bls.gov/opub/ted/2011/ted\\_20111229.htm](http://www.bls.gov/opub/ted/2011/ted_20111229.htm)
- "Back to College," [www.bls.gov/spotlight/2010/college/](http://www.bls.gov/spotlight/2010/college/)

level of the reference person only.<sup>3</sup> For example, data from the Census Bureau show that the proportion of married couples where the wife is the more educated spouse increased during the 1996–2010 period.<sup>4</sup> This means that the education level in families where the husband is designated as the reference person could be understated.

Table 1 shows selected characteristics, mean annual expenditures, and expenditure shares for consumer units classified by the highest level of education of any CU member, which is the new breakdown. Table 2 presents the same data classified by education of the reference person, which is the old breakdown. (Both tables show data for 2012.)

## Category and pretax income differences

Classification by highest level of education shifted almost 7 percent of the CUs in the sample from the less-than-college-graduate section to the college-graduate section, resulting in 61.7 percent of CUs categorized as less than college graduate and 38.3 percent categorized as college graduate. The greatest drop was in the less than high school graduate from 13.1 percent to 8.5 percent, a reduction of 5.7 million households, and the high school graduate categories from 24.9 percent to 21.4 percent, a reduction of 4.4 million households. The proportion of CUs falling into the “high school graduate with some college” and the “associate’s degree” categories was similar in both tables. Using the new breakdown increased the proportion of CUs falling into the bachelor’s degree category (22.6 percent, compared with 19.9 percent in the old breakdown) and master’s, professional, doctoral degree category (15.7 percent, compared with 11.6 percent in the old breakdown).

Tables 1 and 2 show that average pretax income increased with the level of education. With one exception, the average dollar amount of pretax income was higher when using the old breakdown. In the new breakdown, pretax income for the master’s, professional, doctoral degree group was \$119,023—compared with 117,233 for the same group classified by the reference person’s education.

## Annual expenditures

In tables 1 and 2, total annual expenditures also increased with the level of education and associated income. Except for the master’s, professional, doctoral degree level, mean annual expenditures at every level of education were less when classified by highest level of education of any member (the new breakdown), compared with those classified by the reference person’s education (the old breakdown).

### *Food, housing, and transportation*

The dollar amount spent on each of the three categories increased with level of education and associated level of income. The relative share of these amounts differed by level of education. For example, food spending accounted for a greater share of the household budget at lower education levels. One exception is found in the old breakdown where households at the high-school-graduate-with-some-college level spent 13.1 percent of the budget on food, compared with 13.3 percent of the budget for households at the associate’s degree level. The reason is that food at home—a component of food spending—accounted for a greater share of the budget of households at the associate’s level 7.9 percent, compared with 7.7 percent for the high-school-graduate-with-some-college category).

Housing expense patterns varied somewhat between the new and the old breakdowns, most likely because of the differences in housing tenure. When classified by highest education level, the homeownership rate ranged from 47 percent for the less-than-high-school-graduate category to 79 percent for the master’s, professional, doctoral degree category. When classified by reference person’s education, these proportions were 51 and 78 percent, respectively. These differences may account for the greater differential in dollar outlays between the less-than-high-school-graduate category and the master’s, professional, doctoral degree category in the new breakdown (\$9,388 compared with \$26,512). In the old breakdown this differential was \$11,197 compared with \$26,322). The budget shares accounted for by housing narrowly declined as education and associated income increased in both breakdowns.

Table 1

## Highest education level of any member: Annual expenditure means and shares, 2012

Item	All consumer units	Less than college graduate					College graduate		
		Total	Less than high school graduate	High school graduate	High school graduate with some college	Associate's degree	Total	Bachelor's degree	Master's, professional, doctoral degree
<b>Number of consumer units (in thousands)</b>	124,416	76,789	10,571	26,601	25,793	13,825	47,626	28,069	19,557
<b>Percentage of consumer units</b>	100.0	61.7	8.5	21.4	20.7	11.1	38.3	22.6	15.7
<b>Consumer unit characteristic:</b>									
<b>Pretax income</b>	\$65,596	\$44,603	\$25,159	\$39,357	\$48,224	\$62,809	\$99,444	\$85,802	\$119,023
<b>Age (reference person)</b>	50.0	50.7	56.2	53.0	47.5	48.3	48.9	47.4	51.1
<b>Average number in consumer unit:</b>									
<b>Persons</b>	2.5	2.4	2.2	2.4	2.4	2.7	2.6	2.5	2.7
<b>Children under 18</b>	.6	.6	.7	.6	.6	.7	.6	.6	.6
<b>Persons 65 and older</b>	.3	.4	.5	.4	.3	.3	.3	.3	.4
<b>Earners</b>	1.3	1.2	.7	1.0	1.2	1.5	1.5	1.5	1.5
<b>Vehicles</b>	1.9	1.7	1.1	1.7	1.8	2.2	2.1	2.1	2.2
<b>Percent distribution:</b>									
<b>Sex (reference person):</b>									
<b>Male</b>	47	44	43	45	45	41	51	50	52
<b>Female</b>	53	56	57	55	55	59	49	50	48
<b>Race (reference person):</b>									
<b>Black or African-American</b>	13	15	16	15	16	14	8	9	8
<b>White, Asian, and all other races</b>	87	85	84	85	84	86	92	91	92
<b>Hispanic or Latino origin (reference person):</b>									
<b>Hispanic or Latino</b>	13	16	35	14	12	12	7	8	5
<b>Not Hispanic or Latino</b>	87	84	65	86	88	88	93	92	95
<b>Housing tenure:</b>									
<b>Homeowner</b>	64	58	47	59	56	68	74	71	79
<b>With mortgage</b>	39	31	16	28	33	45	51	49	54
<b>Without mortgage</b>	26	27	32	32	23	22	23	22	25
<b>Renter</b>	36	42	53	41	44	32	26	29	21
<b>At least one vehicle owned or leased</b>	88	84	70	84	86	93	93	93	94
<b>Total annual expenditures:</b>	\$51,442	\$39,107	\$24,582	\$34,786	\$43,041	\$50,836	\$71,151	\$63,135	\$82,606
<b>Food</b>									
<b>Mean</b>	6,599	5,409	3,913	4,944	5,749	6,658	8,435	7,928	9,143
<b>Share</b>	12.8	13.8	15.9	14.2	13.4	13.1	11.9	12.6	11.1
<b>Food at home</b>									
<b>Mean</b>	3,921	3,442	2,862	3,263	3,542	3,980	4,654	4,380	5,032
<b>Share</b>	7.6	8.8	11.6	9.4	8.2	7.8	6.5	6.9	6.1
<b>Food away from home</b>									
<b>Mean</b>	2,678	1,967	1,051	1,682	2,207	2,678	3,782	3,549	4,111
<b>Share</b>	5.2	5.0	4.3	4.8	5.1	5.3	5.3	5.6	5.0
<b>Housing</b>									
<b>Mean</b>	16,887	13,197	9,388	12,143	14,241	16,146	22,815	20,230	26,512
<b>Share</b>	32.8	33.7	38.2	34.9	33.1	31.8	32.1	32.0	32.1
<b>Apparel and services</b>									
<b>Mean</b>	1,736	1,329	1,042	1,083	1,540	1,588	2,366	2,226	2,565
<b>Share</b>	3.4	3.4	4.2	3.1	3.6	3.1	3.3	3.5	3.1
<b>Transportation</b>									
<b>Mean</b>	8,998	7,381	3,835	6,225	8,422	10,342	11,594	10,817	12,710
<b>Share</b>	17.5	18.9	15.6	17.9	19.6	20.3	16.3	17.1	15.4
<b>Healthcare</b>									
<b>Mean</b>	3,556	2,885	2,004	2,823	2,949	3,560	4,635	4,196	5,263
<b>Share</b>	6.9	7.4	8.2	8.1	6.9	7.0	6.5	6.6	6.4
<b>Entertainment</b>									
<b>Mean</b>	2,605	1,901	1,134	1,630	2,118	2,571	3,725	3,220	4,443
<b>Share</b>	5.1	4.9	4.6	4.7	4.9	5.1	5.2	5.1	5.4
<b>Pensions and Social Security</b>									
<b>Mean</b>	5,238	3,220	1,374	2,645	3,598	5,032	8,493	7,139	10,436
<b>Share</b>	10.2	8.2	5.6	7.6	8.4	9.9	11.9	11.3	12.6
<b>Other<sup>1</sup></b>									
<b>Mean</b>	5822	3784	1894	3293	4424	4937	9088	7379	11533
<b>Share</b>	11.3	9.7	7.7	9.5	10.3	9.7	12.8	11.7	14.0

1. Includes cash contributions, alcohol, tobacco, personal care products and services, reading, education, life and personal insurance, and miscellaneous expenses.  
SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.

Table 2

## Education of reference person: Annual expenditure means and shares, 2012

Item	All consumer units	Less than college graduate					College graduate		
		Total	Less than high school graduate	High school graduate	High school graduate with some college	Associate's degree	Total	Bachelor's degree	Master's, professional, doctoral degree
Number of consumer units (in thousands)	124,416	85,178	16,246	31,022	25,623	12,287	39,238	24,798	14,440
Percentage of consumer units	100.0	68.5	13.1	24.9	20.6	9.9	31.5	19.9	11.6
<b>Consumer unit characteristic:</b>									
Pretax income	\$65,596	\$49,901	\$33,154	\$47,221	\$55,987	\$66,122	\$99,667	\$89,438	\$117,233
Age (reference person)	50.0	50.7	54.6	52.4	47.5	47.9	48.6	46.9	51.4
<b>Average number in consumer unit:</b>									
Persons	2.5	2.5	2.7	2.5	2.4	2.6	2.4	2.4	2.5
Children under 18	.6	.6	.8	.6	.6	.7	.6	.6	.6
Persons 65 and older	.3	.4	.5	.4	.3	.3	.3	.2	.4
Earners	1.3	1.2	1.0	1.2	1.3	1.5	1.4	1.4	1.4
Vehicles	1.9	1.8	1.4	1.9	1.9	2.2	2.0	2.0	2.1
<b>Percent distribution:</b>									
<b>Sex of Reference Person:</b>									
Male	47	44	44	46	45	40	51	51	52
Female	53	56	56	54	55	60	49	49	48
<b>Race (reference person):</b>									
Black or African-American	13	15	15	14	14	15	8	8	8
White, Asian, and all other races	87	85	85	86	86	85	92	92	92
<b>Hispanic or Latino origin (reference person):</b>									
Hispanic or Latino	13	16	35	12	10	10	6	7	4
Not Hispanic or Latino	87	84	65	88	90	90	94	93	96
<b>Housing tenure:</b>									
Homeowner	64	60	51	63	59	68	73	70	78
With mortgage	39	33	21	33	36	46	50	49	52
Without mortgage	26	27	30	31	23	22	23	21	26
Renter	36	40	49	37	41	32	27	30	22
At least one vehicle owned or leased	88	85	75	86	87	93	93	92	93
Total annual expenditures:	\$51,442	\$41,983	\$31,194	\$39,989	\$46,118	\$52,414	\$71,926	\$66,420	\$81,363
<b>Food</b>									
Mean	6,599	5,799	4,813	5,604	6,040	6,970	8,314	7,944	8,943
Share	12.8	13.8	15.4	14.0	13.1	13.3	11.6	12.0	11.0
<b>Food at home</b>									
Mean	3,921	3,641	3,492	3,585	3,555	4,150	4,517	4,351	4,799
Share	7.6	8.7	11.2	9.0	7.7	7.9	6.3	6.6	5.9
<b>Food away from home</b>									
Mean	2,678	2,157	1,320	2,020	2,485	2,820	3,797	3,593	4,144
Share	5.2	5.1	4.2	5.1	5.4	5.4	5.3	5.4	5.1
<b>Housing</b>									
Mean	16,887	13,913	11,197	13,327	14,992	16,721	23,339	21,598	26,322
Share	32.8	33.1	35.9	33.3	32.5	31.9	32.4	32.5	32.4
<b>Apparel and services</b>									
Mean	1,736	1,441	1,327	1,272	1,603	1,653	2,369	2,294	2,498
Share	3.4	3.4	4.4	3.2	3.5	3.1	3.4	3.4	3.2
<b>Transportation</b>									
Mean	8,998	7,902	5,514	7,695	8,721	9,863	11,374	11,050	11,933
Share	17.5	18.8	17.7	19.2	18.9	18.8	15.8	16.6	14.7
<b>Healthcare</b>									
Mean	3,556	3,072	2,218	3,119	3,289	3,630	4,608	4,340	5,066.59
Share	6.9	7.3	7.1	7.8	7.1	6.9	6.4	6.5	6.2
<b>Entertainment</b>									
Mean	2,605	2,059	1,393	1,812	2,367	2,883	3,787	3,434	4,392
Share	5.1	4.9	4.5	4.5	5.1	5.5	5.3	5.2	5.4
<b>Pensions and Social Security</b>									
Mean	5,238	3,643	2,085	3,401	4,137	5,285	8,701	7,586	10,615
Share	10.2	8.7	6.7	8.5	9.0	10.1	12.1	11.4	13.0
<b>Other<sup>1</sup></b>									
Mean	5,822	4,155	2,647	3,758	4,970	5,410	9,434	8,175	11,593
Share	11.3	9.9	8.5	9.4	10.8	10.3	13.1	12.3	14.2

1. Includes cash contributions, alcohol, tobacco, personal care products and services, reading, education, life and personal insurance, and miscellaneous expenses.

SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.



One factor could be the higher outlays for mortgage interest, property taxes, and repair and maintenance by homeowners.

Transportation expense patterns also varied between the old and the new breakdowns. In both breakdowns, the dollar amount accounted for by transportation expenses increased with level of education and associated level of income. The share of the household budget accounted for by transportation varied by breakdown. In the new breakdown, transportation's share of the household budget increased from 15.6 percent for those with less than a high school education to 20.3 percent for those with an associate's degree and then declined from 17.1 percent for those with a bachelor's degree to 15.4 percent for those at the master's, professional, doctoral degree level. In the old breakdown, transportation expenses claimed 17.7 percent of the budget of households in the less-than-high-school-graduate category, increasing to 19 percent for each of the other three categories in the less-than-college-graduate section before declining to 16.6 percent for those in the bachelor's degree category and 14.7 percent for those in the master's, professional, and doctoral degree category. In both breakdowns, households in the less-than-high-school-graduate category were less apt to own a vehicle than households in the remaining categories; 70 percent in the new breakdown and 75 percent in the old breakdown did not own a car. As a comparison, almost all (94 percent in the new breakdown and 93 percent in the old breakdown) households in the master's, professional, and doctoral degree categories owned at least one vehicle. In both breakdowns, lower vehicle ownership among households with less than a high school education would reduce the amount spent on vehicle purchases, insurance, and repairs, lowering transportation costs relative to households in the remaining categories.

### ***Other spending***

In both breakdowns, the dollar amount spent on healthcare increased with level of education and associated income. Households at higher levels of education and associated income spent a lower share of the budget on healthcare than those at lower levels, regardless of breakdown.

Entertainment spending followed similar patterns in both the old and the new breakdowns, increasing in dollar amount with level of education and associated income. In both breakdowns, entertainment spending narrowly ranged from about 4.5 percent of the household budget for the less-than-high-school-graduate category to 5.4 percent of spending for households in the master's, professional, doctoral degree category.

Outlays on pensions and Social Security differed in the old and new breakdowns. In both breakdowns, the average annual outlay and share of the household budget increased with level of education and associated level of income. In the new breakdown, however, the average annual outlay and share of the household budget were below comparable categories in the old breakdown, particularly at the lowest levels of education and associated levels of income. For example, households classified as less than high school graduate averaged \$1,374 (5.6 percent of total spending) for pensions and Social Security in the new breakdown, compared with \$2,085 (6.7 percent) in the old breakdown. Households in the high school graduate category averaged \$2,645 (7.6 percent of total spending) in the new breakdown, compared with \$3,401 (8.5 percent of total spending) in the old breakdown. One reason could be that there were fewer earners in the new breakdown compared with the old. For example, households classified as less than high school averaged 0.7 earners in the new breakdown compared with 1.0 earner in the old breakdown; for households classified as high school graduate these averages were 1.0 and 1.2 earners, respectively. Another reason could be the lower pretax income, earlier mentioned, among household groups in the new breakdown in relation to comparable households in the old breakdown. Because saving usually increases with income, households in the new breakdown might have reduced voluntary pension contributions to 401(k) plans or IRAs, to free up additional funds for consumption.

### **Income sources**

For households at the lowest levels of education, sources of pretax income differed somewhat between the old and the new breakdowns. These differences might explain some of

the variations in spending patterns mentioned earlier. One difference is that in the new breakdown (table 3), wages and salaries accounted for a lower proportion of pretax income for those households with less than a college degree than in the old breakdown. (See table 4.) For example, in the new breakdown, wages and salaries averaged 56.8 percent of pretax income for households classified as less than a high school graduate and 68.7 percent of pretax income for

households classified as high school graduate, compared with 67.4 percent and 72.8 percent, respectively, in the old breakdown. Another reason is that in the new breakdown, Social Security, private, and government retirement benefits accounted for a higher proportion of pretax income for households with less than a college education than in the old breakdown. For example, in the new breakdown, Social Security, private, and government retirement benefits

**Table 3****Highest education level of any member: Annual pretax income means and shares, 2012**

Item	All consumer units	Less than college graduate					College graduate		
		Total	Less than high school graduate	High school graduate	High school graduate with some college	Associate's degree	Total	Bachelor's degree	Master's, professional, doctoral degree
<b>Number of consumer units (in thousands)</b>	124,416	76,789	10,571	26,601	25,793	13,825	47,626	28,069	19,557
<b>Percentage of consumer units</b>	100.0	61.7	8.5	21.4	20.7	11.1	38.3	22.6	15.7
<b>Pretax income:</b>	\$65,596	\$44,603	\$25,159	\$39,357	\$48,224	\$62,809	\$99,444	\$85,802	\$119,023
<b>Wages and salaries</b>									
<b>Mean</b>	51,730	32,845	14,294	27,021	36,477	51,460	82,180	71,135	98,031
<b>Share</b>	78.9	73.6	56.8	68.7	75.6	81.9	82.6	82.9	82.4
<b>Self-employment income</b>									
<b>Mean</b>	2,917	1,874	1,327	1,780	1,950	2,329	4,598	4,211	5,154
<b>Share</b>	4.4	4.2	5.3	4.5	4.0	3.7	4.6	4.9	4.3
<b>Social Security, private and government retirement</b>									
<b>Mean</b>	8,021	7,420	7,234	8,388	6,888	6,692	8,991	7,242	11,501
<b>Share</b>	12.2	16.6	28.8	21.3	14.3	10.7	9.0	8.4	9.7
<b>Interest, dividends, rental income, other property income</b>									
<b>Mean</b>	1,358	691	304	607	930	705	2,432	1,861	3,253
<b>Share</b>	2.1	1.6	1.2	1.5	1.9	1.1	2.4	2.2	2.7
<b>Unemployment and workers' compensation, veterans' benefits</b>									
<b>Mean</b>	428	464	357	353	544	611	370	408	317
<b>Share</b>	0.7	1.0	1.4	0.9	1.1	1.0	0.4	0.5	0.3
<b>Public assistance, supplemental security income, food stamps</b>									
<b>Mean</b>	534	719	1,181	765	571	552	235	279	172
<b>Share</b>	0.8	1.6	4.7	1.9	1.2	0.9	0.2	0.3	0.1
<b>Regular contributions for support</b>									
<b>Mean</b>	380	366	206	277	529	356	401	471	302
<b>Share</b>	0.6	0.8	0.8	0.7	1.1	0.6	0.4	0.5	0.3
<b>Other income</b>									
<b>Mean</b>	229	224	257	167	334	104	235	195	293
<b>Share</b>	0.3	0.5	1.0	0.4	0.7	0.2	0.2	0.2	0.2

SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.

Table 4

## Education of reference person: Annual pretax income means and shares, 2012

Item	All consumer units	Less than college graduate					College graduate		
		Total	Less than high school graduate	High school graduate	High school graduate with some college	Associate's degree	Total	Bachelor's degree	Master's, professional, doctoral degree
<b>Number of consumer units (in thousands)</b>	124,416	85,178	16,246	31,022	25,623	12,287	39,238	24,798	14,440
<b>Percentage of consumer units</b>	100.0	68.5	13.1	24.9	20.6	9.9	31.5	19.9	11.6
<b>Pretax income:</b>	\$65,596	\$49,901	\$33,154	\$47,221	\$55,987	\$66,122	\$99,667	\$89,438	\$117,233
<b>Wages and salaries</b>									
Mean	51,730	37,707	22,359	34,368	43,408	54,543	82,171	74,554	95,254
Share	78.9	75.6	67.4	72.8	77.5	82.5	82.4	83.4	81.3
<b>Self-employment income</b>									
Mean	2,917	2,060	1,512	2,028	2,198	2,574	4,778	4,736	4,850
Share	4.4	4.1	4.6	4.3	3.9	3.9	4.8	5.3	4.1
<b>Social Security, private and government retirement</b>									
Mean	8,021	7,592	7,054	8,570	7,182	6,691	8,953	7,053	12,215
Share	12.2	15.2	21.3	18.1	12.8	10.1	9.0	7.9	10.4
<b>Interest, dividends, rental income, other property income</b>									
Mean	1,358	829	289	720	1,361	710	2,506	1,843	3,643
Share	2.1	1.7	0.9	1.5	2.4	1.1	2.5	2.1	3.1
<b>Unemployment and workers' compensation, veterans' benefits</b>									
Mean	428	462	376	406	506	626	355	356	354
Share	0.7	0.9	1.1	0.9	0.9	0.9	0.4	0.4	0.3
<b>Public assistance, supplemental security income, food stamps</b>									
Mean	534	688	1,165	678	498	478	198	207	184
Share	0.8	1.4	3.5	1.4	0.9	0.7	0.2	0.2	0.2
<b>Regular contributions for support</b>									
Mean	380	348	189	276	516	392	447	496	362
Share	0.6	0.7	0.6	0.6	0.9	0.6	0.4	0.6	0.3
<b>Other income</b>									
Mean	229	215	211	174	318	108	259	193	371
Share	0.3	0.4	0.6	0.4	0.6	0.2	0.3	0.2	0.3

SOURCE: U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.

accounted for 28.8 percent of pretax income for households classified as less than a high school graduate and 21.3 percent of pretax income for households classified as high school graduate, compared with 21.3 percent and 18.1 percent, respectively, in the old breakdown. It was mentioned earlier that in the new breakdown, the average annual outlay and share of the household budget for pensions and Social Security for households at the lowest levels of education were below those found in the old breakdown. The variation in

income sources may explain some of the variation in outlays for pensions and Social Security.

## Conclusions and implications

With the release of calendar year 2012 CE data, classification of household expenditures by the education of the reference person breakdown was replaced by classification by the highest level of education attained by any consumer

unit (CU) member. The rationale for the change was that the highest level of education attained by any household member more accurately reflects income and spending patterns than does the education level of the reference person only.

A comparison of expenditures was made using the old and new breakdowns. The new breakdown reduced the proportion of households in the less-than-college-graduate section, with the greatest reduction in the less-than-high-school-and-high-school-graduate classifications. With the exception of the master's, professional, doctoral degree classification in the college-graduate section, pretax income and annual expenditures were lower in the new breakdown.

In both breakdowns, pretax income and total annual expenditures increased with level of education. Spending on most items followed similar patterns in both breakdowns. One exception was outlay for pensions and Social Security in the less-than-high-school and high-school-graduate classification which was lower in dollar amount and share of the household budget in the new breakdown, compared with the old.

Wages and salaries, the largest component of most households' pretax income, is a reflection of the value of the productivity the marketplace assigns to a worker. Michael's neutrality model also assumes that education increases efficiency in all nonmarket activities and that its influence is neutral (has the same effect on each activity).<sup>5</sup> This greater efficiency increases a household's real income at any given level of money income, thus increasing a household's ability to purchase goods and services. Michael hypothesized that the increase in real income associated with increased education would result in proportionately higher outlays on luxury goods—but proportionately lower outlays on necessities.

Existing research using CE data provides partial support for Michael's neutrality model, indicating that the relationship between education and household expenditures is significant, but complex. Michael, using data from the 1960–1961 CE found that, controlling for the effects of income and other factors, education was associated with a proportionately greater outlays on food away from

home, household operations, leisure (recreation), and education, which were classified as luxuries. Of the items classified as necessities, education was associated with a proportionately lower outlay on food at home, tobacco, and personal care.<sup>6</sup> Abdel-Ghany and Foster, using data from the 1972–1973 CE, also found that, controlling for the effects of income and other factors, education was associated with a proportionately greater outlay on household operations, recreation (leisure), and education and proportionately lower outlay on tobacco and utilities.<sup>7</sup> Because of the nature of the data examined in this article, whether education has an influence on spending separate from its association with household income cannot be determined.

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#### Suggested citation:

Ann C. Foster, "New education classification better reflects income and spending patterns in the Consumer Expenditure Survey," *Beyond the Numbers: Prices and Spending*, vol. 3, no. 1 (Bureau of Labor Statistics, January 2014), [www.bls.gov/opub/btn/volume-3/new-education-classification-better-reflects-income-and-spending-patterns-in-the-Consumer-Expenditure-Survey.htm](http://www.bls.gov/opub/btn/volume-3/new-education-classification-better-reflects-income-and-spending-patterns-in-the-Consumer-Expenditure-Survey.htm).

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## Notes

1. For example, in 2012, median weekly earnings for full-time workers age 25 and over were \$471 for those without a high school diploma, \$652 for high school graduates (no college), and \$1,735 for those with a professional degree, such as medicine or law. For more information, see “Earnings and unemployment rates by educational attainment,” (Bureau of Labor Statistics, May 23, 2013), [www.bls.gov/emp/ep\\_chart\\_001.htm](http://www.bls.gov/emp/ep_chart_001.htm).

Data from the Census Bureau’s 2011 American Community Survey were used to estimate work-life earnings—the expected earnings over a 40-year time period for the population age 25-64 who maintain full-time, year-round employment for the entire period. Median earnings were \$936,000 for workers with an eighth grade education or less, compared with \$1,371,000 for those with a high school degree, but no college classes and \$4,159,000 for those with a professional degree. For more information, see Tiffany Julian, “Work-Life Earnings by Field of Degree and Occupation for People with a Bachelor’s Degree: 2011” (U.S. Census Bureau, October 2012), [www.census.gov/prod/2012pubs/acsbr11-04.pdf](http://www.census.gov/prod/2012pubs/acsbr11-04.pdf).

2. The reference person is the first household member mentioned by the respondent when asked to “Start with the name of the person or one of the persons who owns or rents the home.” It is with respect to this person that the relationship of the other consumer unit members is determined. In two-parent families, the reference person can be male or female. In one-parent families, the gender of the reference person is usually that of the sole parent.
3. In the Consumer Expenditure Survey (CE), the consumer unit is the entity on which expenditure reports are collected. Consumer units include families, single persons living alone or sharing a household with others but who are financially independent, or two or more persons living together who share expenses. While “consumer unit” is the proper technical term for the purposes of the CE, “household” or “family” often is used interchangeably for convenience. This article will use “household” instead of consumer unit. For more information, see the *BLS Handbook of Methods*, chapter 16, “Consumer Expenditures and Income,” [www.bls.gov/pub/hom/homch16.htm](http://www.bls.gov/pub/hom/homch16.htm).
4. The proportion of married couples where the husband has more education than the wife decreased, while the proportion where the husband and wife had the same level of education remained about the same. For more information, see Rebecca Chenevert, “Changing Levels of Spousal Education and Labor Force Supply,” Working Paper 2012-22 (U.S. Census Bureau, 2012) [www.census.gov/people/laborforce/publications/Chenevert\\_MEA2012.pdf](http://www.census.gov/people/laborforce/publications/Chenevert_MEA2012.pdf).
5. For more information, see Robert T. Michael, “The Effect of Education on Efficiency in Consumption,” the National Bureau of Economic Research Occasional Paper, no. 116 (New York: Columbia University, 1972), at <http://papers.nber.org/books/mich72-1>.
6. For more information, see Robert T. Michael, “The Effect of Education on Efficiency in Consumption,” the National Bureau of Economic Research Occasional Paper, no. 116 (New York: Columbia University, 1972), at <http://papers.nber.org/books/mich72-1>.
7. For more information, see Mohamed Abdel-Ghany and Ann C. Foster, “Impact of Income and Wife’s Education on Family Consumption Expenditures,” *Journal of Consumer Studies and Home Economics*, vol. 6, no. 1, March 1982, pp. 21–28.