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Food Spending Patterns of Low-Income Households

Will Increasing Purchasing Power Result in Healthier Food Choices?

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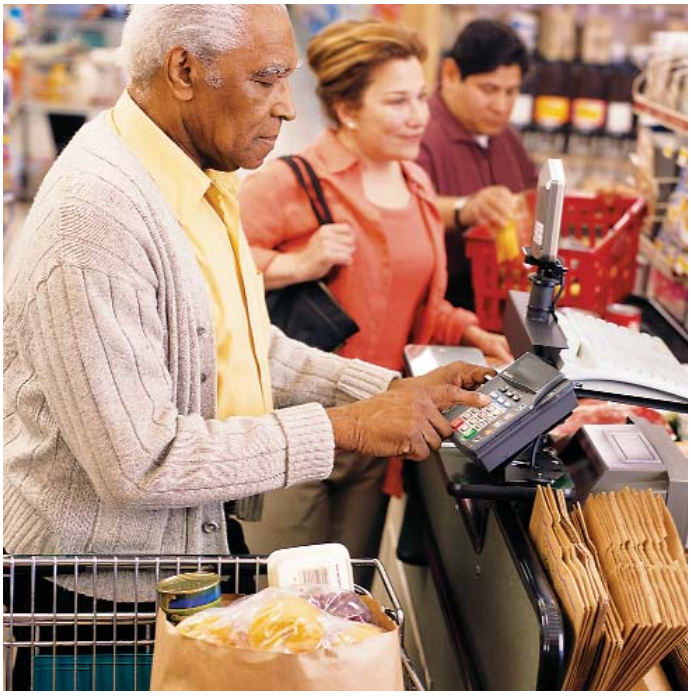
The Food Stamp Program provides benefits that low-income households can use to purchase food in grocery stores. Research shows that the program is successful in increasing the amount of food purchased and eaten by program participants, who numbered more than 26 million each month in fiscal 2006. However, the rise in obesity and diet-related chronic diseases has focused increased attention on how the program can promote not just an adequate quantity of food (that is, calories), but also healthier food choices, that bring consumption more in line with Federal dietary recommendations.

Fruit and vegetable consumption is particularly low, and the perceived high cost of these foods has been suggested to be a barrier to food stamp participants purchasing and consuming them. This raises the question of food purchasing power as a barrier to making more healthful food choices; for example, if participants received higher levels of benefits, would they purchase more fruits and vegetables? To gain some perspective on this question, this report examines household food spending patterns and how they differ across income levels. Differences in household spending by income can provide insight into how participants might change their food spending in response to additional income.

Because policy discussions aimed at increasing purchase and consumption of fruits and vegetables focus on fruits and vegetables purchased as separate items in grocery stores, this report also focuses on the category of fruits and vegetables in fresh, canned, frozen, dried, or juice forms purchased as separate items in grocery stores. Although both food away from home and "other foods" likely contain fruits and vegetables—such as the lettuce, tomato, and onion in a restaurant's hamburger or the tomato sauce in frozen lasagna—their cost is likely to be higher than if the fruit and vegetable components had been purchased as separate grocery store items. Previous ERS research indicates that, on average, food away from home accounts for less than half a serving of fruit daily and one and a quarter servings of vegetables, most of which are fried potatoes.



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Food Stamp Benefits as Income

Food stamp benefits provide participants with increased income for food purchases. These benefits are not targeted to specific foods; participants are free to buy almost all foods available for sale in participating grocery stores (hot prepared foods are a major exception). Research has shown that food stamp benefits increase food purchases but by less than the full amount of the benefits. Although benefits may be used to purchase only food, a typical food stamp household will cut back on some of the cash previously used to buy food to meet other pressing nonfood needs, including housing, energy, and medical goods that compete for a household's budget. Thus, food stamps not only increase spending for food purchasing but also increase the household's nonfood spending.

Despite shifting some cash to nonfood needs, participation in the Food Stamp Program increases spending on food. Estimates of the extra food purchased as a result of a $1 increase in food stamp benefits range from 17 to 47 cents. Investigating how households spend additional income on food provides insight into the likely effects of an increase in benefits on fruit and vegetable purchasing and consumption. An increase in income would be equivalent to an untargeted benefit increase—that is, like current food stamp benefits, increased benefits could be used to purchase whatever foods participants chose (other proposals to provide targeted increases, such as vouchers or bonuses specifically for fruits and vegetables, are discussed in "Improving Food Choices—Can Food Stamps Do More?").

To fully investigate whether additional food stamp benefits would increase fruit and vegetable purchases, data are needed that differentiate between purchases made by food stamp benefits and purchases made by cash income. In the absence of such data, we turn to the Bureau of Labor Statistics' Consumer Expenditure Survey (CEX) and its data on household spending. The CEX enables us to link income to total household food purchases, purchases of "food away from home" (at dine-in and carryout restaurants), and food purchased in grocery stores (separated into five food categories). Tracking purchases across major food categories is important because of the competition for a household's food dollar.

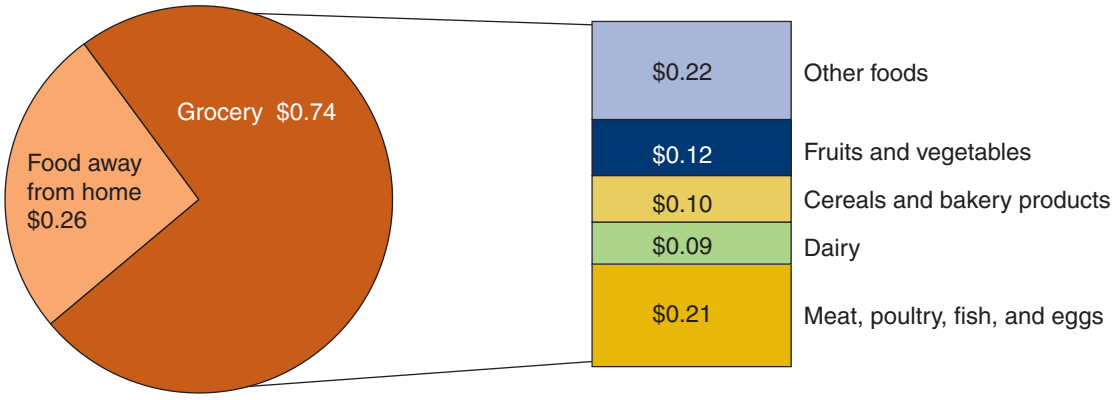
Convenience and Enjoyment Compete With Nutrition for the Food Dollar

Food spending patterns of low-income households reveal that, in addition to nutrients, these households seek other qualities, such as taste, variety, convenience, and enjoyment, from their food expenditures. Data from the 2004-05 CEX shows this pattern by capturing the assorted uses of the food dollar. For example, four-person households with annual before-tax incomes between $10,000 and $14,999 (the lowest income group we examine, representing households with incomes of about 50-75 percent of the Federal poverty level) spend 26 cents of a food dollar on food away from home (fig. 1). Although the composition of food away from home varies and the types of food away from home are not recorded in the CEX, ERS research shows that, on average, the foods consumers choose to eat away from home are higher in calories but lower in nutrients than the foods they choose to eat at home.

Investigating how households spend additional income on food provides insight into the likely effects of an untargeted benefit increase.

The lowest income households spend the remaining 74 cents of the food dollar in grocery stores (fig. 1). The largest expenditure, 22 cents, is for "other foods"—a miscellaneous catchall that includes frozen prepared meals, canned and packaged prepared foods, snack foods, condiments and seasonings, sugar and other sweets, fats and oils, and nonalcoholic beverages. Meat purchases are a close second, accounting for 21 cents of the food dollar. Fruits and vegetables (fresh, frozen, canned, dried, or in the form of juice) are the third largest category purchased, at 12

Figure 1
Competing uses of the food dollar among low-income households[1]



[1]Four-person households with annual before-tax incomes of $10,000-$14,999.
Source: Consumer Expenditure Survey, Bureau of Labor Statistics, 2004-05.

cents, more than cereals and bakery products (10 cents) or dairy products (9 cents).

Many factors affect food spending. In this report, we focus on food spending patterns of four-person households at different income levels, thereby comparing lower income and higher income households of equal size. This simple, intuitive approach can yield valuable insight into the food spending changes associated with income.

Food Spending Increases With Income

As income increases, total food spending also increases, although the increase in food spending is smaller than the increase in income (fig. 2). Most households with annual incomes between $10,000 and $29,999 may be eligible for food stamps at least part of the year since these income levels represent 50-150 percent of the Federal poverty level. Average food spending increases from $413 per month for households with incomes of $10,000-$14,999 to $487 per month for households with incomes of $20,000-$29,999 (table 1). Monthly food spending increases to $679 and then to $870 among households in the two highest income categories, those with annual incomes beginning at $50,000.

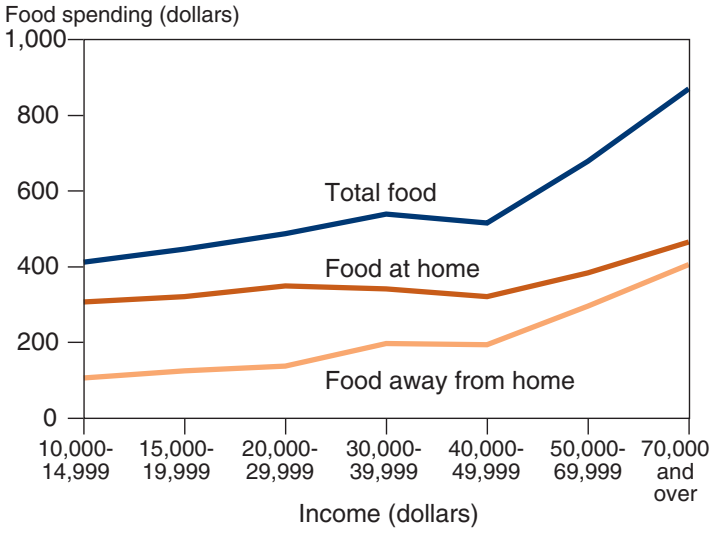
This pattern is consistent with Engel's Law, a phenomenon first observed by Ernst Engel, a 19th century German statistician who served as director of the Bureau of Statistics in Prussia. He found that, as income increases, food spending also increases but the proportion of income devoted to food declines. In the CEX data for the United States, food spending rises from $413 to $870 per month across the seven income categories, but the share of income devoted to food drops from 37 percent for the lowest income households to only 9 percent for the highest income households (those with annual incomes of $70,000 or more) (fig. 3). Even though food spending roughly doubles (from $413 to $870) between the lowest and the highest income group, average (after-tax) income increases by more than eightfold (from $13,290 to $116,543), resulting in a lower income share for food. The intuition behind Engel's Law might be described as a "food first" budget allocation for low-income households. Because food is an essential need, even low-income households must devote at least a minimum amount to meet that basic need. As income increases, households may spend some of that additional income on food but increase their spending more than proportionately on other, nonfood items.

The biggest driver behind the pattern of rising food spending is food away from home, which increases across the seven income categories by $299 (from $107 to $406)—and accounts for two-thirds (65 percent) of the $457 increase in food spending (see fig. 2). Spending on food away from home increases by so much that its share of the food budget increases with income from a low of about one-quarter (26 percent) to nearly half (47 percent) for the highest income households (fig. 4).

Household Spending on Fruits and Vegetables Is Steady Across Most Incomes

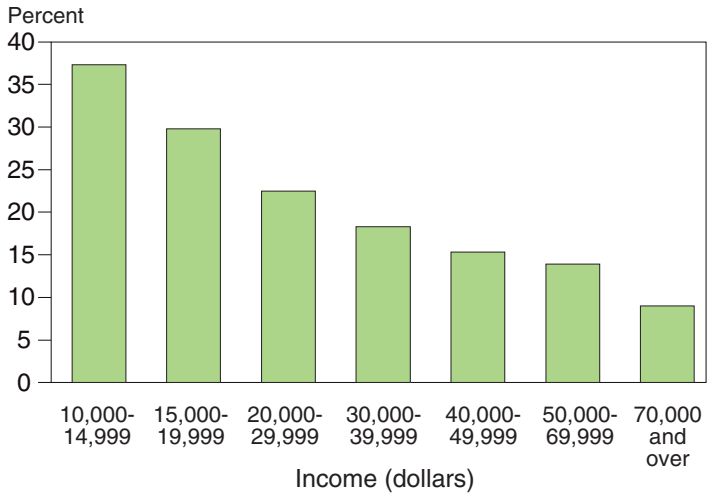
Food stamp benefits are designed to be used in grocery stores. For all income levels, food spending patterns at the grocery store are consistent with what we found for the lowest income households (see figs. 1 and 5). Spending on "other foods" always exceeds spending on meats, which always exceeds spending on fruits and vegetables, which always exceeds spending on cereals, which exceeds spending on dairy products.

Figure 2
Monthly food spending among four-person households by annual household income



Source: Consumer Expenditure Survey, Bureau of Labor Statistics, 2004-05.

Figure 3
Share of annual household income spent on food
Share of income spent on food declines as income rises



Source: Consumer Expenditure Survey, Bureau of Labor Statistics, 2004-05.

Table 1

Average monthly food spending among four-person households by annual household income[1]

Food expenditures [2]	Before-tax income						
	$10,000-$14,999	$15,000-$19,999	$20,000-$29,999	$30,000-$39,999	$40,000-$49,999	$50,000-$69,999	$70,000 and over
After-tax income (dollars):							
Annual	13,290	18,034	25,937	35,440	44,478	58,679	116,543
Monthly	1,107.50	1,502.83	2,161.42	2,953.33	3,706.50	4,889.92	9,711.92
Total food spending (dollars)	413	447	487	540	515	679	870
Share of after-tax income (percent)	37.3	29.8	22.5	18.3	15.3	13.9	9.0
Food away from home (dollars)	107	126	138	197	194	296	406
Share of total food spending (percent)	25.8	28.2	28.3	36.6	37.6	43.5	46.6
Food at home (dollars)	307	321	349	342	322	384	465
Meat, poultry, seafood, and eggs	87	78	99	89	84	94	110
Fruits and vegetables	50	54	55	49	51	57	76
Cereals and bakery products	42	49	47	46	45	53	65
Dairy products	37	37	39	40	40	46	52
Other food	92	103	109	119	102	134	161
Share of at-home food budget (percent)	29.9	32.2	31.3	34.8	31.6	35.0	34.7
Sample size (number of households)	502	541	1,349	1,508	1,625	2,903	7,240

[1]The income measure includes food stamp benefits, so increases in income already take into account the reductions in benefits among food stamp households that may accompany increases in income.

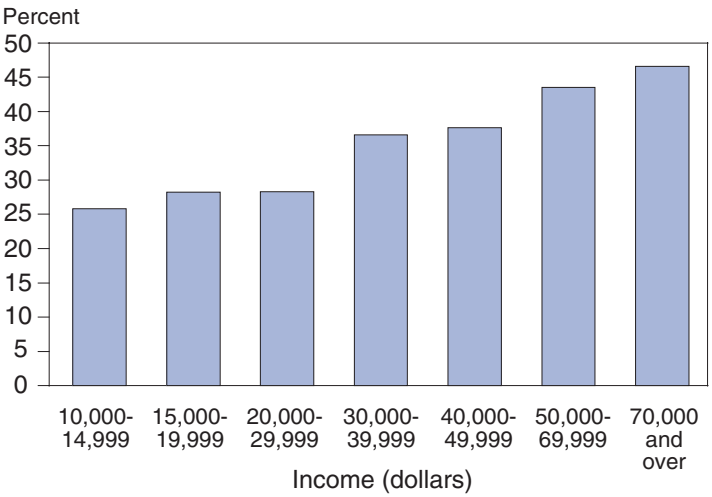
[2]Food at home consists of foods purchased from grocery and other food stores. Food away from home is comprised of foods purchased from foodservice institutions, such as restaurants, fast food places, and vending machines. Other food includes "miscellaneous"—which includes frozen prepared meals, canned and packaged prepared foods, snack foods, condiments and seasonings, sugar and other sweets, fats and oils, and nonalcoholic beverages. A large proportion of other foods likely contains some meat, cereal, fruits and vegetables, and/or dairy products.

Source: Consumer Expenditure Survey, Bureau of Labor Statistics, 2004-05.

Figure 4

Share of annual household income spent on food away from home

Share of food budget spent on food away from home increases as income rises

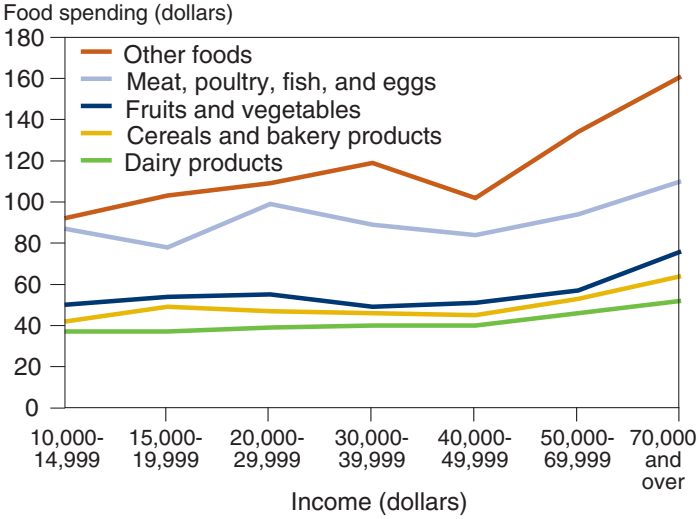


Source: Consumer Expenditure Survey, Bureau of Labor Statistics, 2004-05.

Figure 5

Monthly food spending among four-person households by annual household income

Among four-person households, spending on fruits and vegetables is steady across most income categories



Source: Consumer Expenditure Survey, Bureau of Labor Statistics, 2004-05.

Compared with spending in the other food categories, spending on "other foods" shows an upward trend across the income groups. It typically rises somewhat from each income group to its adjacent group, from a low of $92 per month among the lowest income households to a high of $161 per month among the highest income households (table 1).

Unlike spending on "other foods," spending on meat does not seem to increase systematically with income across most income groups but sometimes rises and sometimes falls as income increases (fig. 5). Monthly spending on meat is $87 for the lowest income group compared with $84 for households with an average after-tax income of $44,478, which is more than triple the average after-tax income of the lowest income group (table 1). Spending on meat then rises to $94 for households with average after-tax income of $58,679 and to $110 for the highest income group. The trend in monthly dollar expenditures on meat among households with incomes between $10,000 and $49,999 seems to barely increase, if it rises at all, across income ranges of several tens of thousands of dollars. An upward trend becomes evident only after reaching the two highest income groups.

The relationships between expenditures and income for each of the other major categories—fruits and vegetables, cereals and bakery products, and dairy products—have much in common with the relationship for meat expenditures and income. Dollar expenditures on these categories basically hold steady across five income groups; only in the two highest income groups are increases in expenditures noticeable (fig. 5).

Fruits and vegetables represent a category of particular interest for those wanting to improve the nutritional quality of diets. Monthly expenditures for fruits and vegetables increase from $50 for households in the lowest income group to just $51 for households in the $40,000-$49,999 income group and to $57 for households in the $50,000-$69,999 income group. It then increases to $76 for households with incomes of $70,000 and above (table 1).

Focusing on households in the two lowest income groups (each of which meet the income eligibility requirements for food stamps), we find that monthly spending on fruits and vegetables increases $4 between households in the $10,000-$14,999 group and households in the $15,000-$19,999 group (table 1). The associated increase in average income across the two groups is $5,256, which translates into a monthly difference of $395. If an income increase of approximately $400 per month is associated with an additional $4 in spending on fruits and vegetables at the grocery store, providing these households with an extra $100 in monthly income (or potentially, in food stamps benefits) may spur fruit and vegetable purchases by $1 per month for the entire household, or roughly one extra apple or banana every week for the entire household. Given that the average food stamp household received $217 per month in December 2006, a $100 increase in monthly food stamps constitutes an increase in program expenditures of nearly one-half, or $14 billion.

In contemporary America, food spending rises with income…but the form that the additional spending takes nowadays is food away from home and "other foods" at the grocery store.

Our examination, therefore, shows us two major aspects of fruit and vegetable spending patterns that are important to recognize. First, an unconstrained increase in income barely increases fruit and vegetable purchases across income groups until the highest income group, with annual household incomes of $70,000 and more. Second, this steadiness in household spending on fruits and vegetables across most incomes is not something "peculiar" about fruits and vegetables but instead matches the same steadiness in spending for meat, grains, and dairy. In contemporary America, food spending rises with income—just as Engel observed 150 years ago in Prussia—but the form that the additional spending takes nowadays is food away from home and "other foods" at the grocery store.

Spending Is Not the Same as Consumption

Food expenditures serve as a proxy for food consumption because they represent the primary means for acquiring food. However, although higher food expenditures may be associated with the purchase of more food, more food can also be obtained by careful shopping and food selection or by avoiding waste from food supplies. Conversely, more expensive foods may be purchased, resulting in higher food expenditures without greater quantities. In addition, food expenditures may differ depending on whether households are spending cash or food stamp benefits.

Evidence shows that a dollar in food stamp benefits increases food purchases by more than a dollar of cash. Thus, food spending patterns can provide but a partial answer to the question of how increasing untargeted food stamp benefits could change food consumption and diet quality. However, these findings, from a major national survey of household expenditures, suggest that additional income would likely

result in little increase in fruit and vegetable purchases. Additional untargeted food stamp benefits may act differently from cash, but the research is not encouraging. A study by Wilde et al., using national food consumption data and employing more sophisticated analytical methods, found that receiving food stamps was not associated with greater consumption of fruits and vegetables.

Low-Income Households Not Likely To Spend Much Additional Income on Fruits and Vegetables

These findings hint at the challenge policymakers face when trying to prompt greater purchases and consumption of fruits and vegetables. If just part of income is used for food purchases, and just a small part of those food purchases are devoted to fruits and vegetables, what could be expected from an untargeted increase in food stamp benefits?

The evidence is not promising for achieving large gains in fruit and vegetable purchases through increasing food stamp benefits (at least to the extent that households respond to food stamp increases roughly as they do to money income increases). To conclude that households do not buy any extra fruits and vegetables as income rises may be too strong: Households in the two lowest income groups do, in fact, spend more on fruits and vegetables when income goes up—just not very much more.

Even higher income households do not consume enough fruits and vegetables to meet recommendations, suggesting that other factors besides income play a strong role in fruit and vegetable purchasing behavior.

The conclusion that low-income households are not likely to spend much additional income (or untargeted food stamp benefits) on fruits and vegetables is consistent with research findings that nearly all households—not just low-income households—consume low amounts of fruits and vegetables relative to Dietary Guidelines for Americans (DGA) recommendations. The knowledge that even higher income households do not consume enough fruits and vegetables to meet DGA recommendation suggests that other factors besides income play a strong role in fruit and vegetable purchasing behavior.

With food away from home and "other foods" as the two strong responders to income changes, consumers seem to be choosing to spend their additional income on some combination of increased quality, convenience, and variety. Although these food groups are likely to include some fruits and vegetables, the extent to which they contribute to fruit and vegetable consumption is not known. In addition, their fruit and vegetable contribution is likely to be at a higher cost than the cost of individual fruits and vegetables, representing the cost of increased quality, convenience, and/or variety.

The simple method used here to examine food spending patterns focused on four-person households. For these households, increased spending on fruits and vegetables appears to occur in the food budgeting process only as annual incomes reach and pass $70,000. This finding is consistent with other ERS studies that used more advanced statistical methods to control for many different household characteristics simultaneously. A study by Blisard et al. (2004) that focused on fruit and vegetable expenditures found that low-income households were unlikely to increase spending on fruits and vegetables when they were given an extra dollar in income or food stamps. As discussed previously, the study by Wilde et al. found that receiving food stamps was not associated with greater consumption of fruits and vegetables. Thus, more sophisticated studies of both food purchasing and consumption support the conclusion that additional income alone would likely lead to little, if any, added purchases of fruits and vegetables.

Targeted benefits, such as bonuses and vouchers for specific foods, such as fruits and vegetables, may be more effective and efficient ways to increase purchase and consumption of the specific foods. Combining bonuses or vouchers with other approaches to dietary change, such as nutrition education, and innovative changes in program design suggested by behavioral economics and consumer psychology may increase effectiveness, although research and evaluation are needed to assess their benefits (see *Nutrition Information: Can It Improve the Diets of Low-Income Households?* and *Making Healthy Food Choices Easier: Ideas from Behavioral Economics* in this series).

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