

Food Stamps, the Thrifty Food Plan, and Meal Preparation: The Importance of the Time Dimension for US Nutrition Policy

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ABSTRACT

The Thrifty Food Plan (TFP) has a unique role in US Nutrition Policy, integrating both dietary guidance and antihunger policies. Not only are food items in the TFP market basket chosen based on the latest dietary recommendations, but the Plan serves as the basis for inflation adjustments to Food Stamp allotments. To be economical, the TFP logically assumes that most dishes are prepared from raw ingredients. This assumption likely contradicts welfare policy, which promotes increased labor force participation of low-income women. This article presents empirical evidence on meal preparation times in US households and compares this evidence to the TFP implicit assumptions about food preparation. The trade-offs between time and money inputs used in the preparation of meals are discussed using the economist's household production approach. Implications of policy contradictions are explored, as well as related needs for research and practice.

Key Words: meal preparation, time use, Thrifty Food Plan, food stamps, food costs

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INTRODUCTION

An important goal of food and nutrition policy in the United States is to mitigate the effects of poverty on nutritional status. In fiscal year 2005, the US Department of Agriculture (USDA) spent \$51 billion on food assistance programs targeted to the low-income population.¹ To participate in these programs, such as Food Stamps, individuals must meet a means test involving a comparison of their household's income to a poverty threshold. These thresholds, expressed in dollar amounts that vary for households of different size, were estimated to cover the basic needs of life, such as food, shelter, and clothing.^{2,3}

Recent work in economics has illustrated the problem of defining poverty by focusing solely on money income.⁴ Two households with the same income may have very different levels of well-being if they have differences in their available time. For example, a single parent employed full-time might have to pay for child care, whereas it could be provided without "purchase" by the second parent in a

2-parent household. Thus, a single parent would have extra expenses that should be incorporated into her or his basic needs. These concepts were formalized in the economics literature in the late 1970s by Claire Vickery, who developed a poverty threshold with 2 dimensions, for both money and time inputs.⁵ Several empirical studies have shown how poverty rates differ from official rates when time is considered, confirming that highest rates are for single parents.^{6,7}

This report integrates a review of the literature with new empirical evidence in an exploration of why time should be an important aspect of nutrition policy in the United States. The article begins with a description of the Thrifty Food Plan (TFP), since it provides a key entry point for understanding the importance of time.

THE THRIFTY FOOD PLAN

The Thrifty Food Plan forms part of the USDA's set of food plans that also includes the low-cost, moderate-cost, and liberal plans. Since the 1920s, USDA has been developing food plans that provide consumers guidance on how to purchase healthful diets at different cost levels.⁸ In the 1960s, the economy food plan, a forerunner of the TFP, was first used as the basis for Food Stamp allotments. This plan was revised and named the Thrifty Food Plan in 1975.⁸ To stay current with food consumption habits, dietary recommendations, and food prices, the TFP has been revised 3 times since then, in 1983,⁹ 1999,¹⁰ and again in 2006.¹¹

The TFP is actually a set of market baskets of food, each

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designed for a specific age-gender group (eg, 19-50 year old females). There are 15 baskets in all; each one lists quantities that can be purchased of 29 different food groups (eg, whole-grain cereals, dark green vegetables, fish and fish products). The cost of the TFP is calculated each month and provides the basis for inflation adjustments to the monthly allotments, or Food Stamp benefits, received by households participating in the Food Stamp Program. The basis for these costs is that all meals and snacks are purchased at stores and prepared at home. Costs are listed for individuals in different age-gender groups assuming they live in 4-person households. Economy-of-scale adjustments to these costs for smaller and larger households are also provided.¹²

Development of the TFP provides a challenging analytic problem which has been tackled recently by the Center for Nutrition Policy and Promotion (CNPP). In creating the 2006 TFP, CNPP started with consumption data from the 2001-2002 National Health and Nutrition Examination Survey (NHANES) and calculated mean intakes for 58 distinct food groups for the 15 different age-gender groups. For each age-gender group, a mathematical optimization technique was used to find quantities for each of these 58 groups to provide a diet that: (a) met all nutrient and food component recommendations in the latest Dietary Reference Intakes and in the Dietary Guidelines for Americans, and met food intake recommendations from the MyPyramid Food Intake Pattern; (b) cost no more than the Food Stamp allotment; and (c) was as close as possible to actual diets, ie, to mean consumption levels of these food groups as reported in the NHANES.

The TFP is largely based on raw food items that require significant preparation time. The use of raw ingredients over convenience foods is a logical choice, since the latter cost more, and the TFP, by definition, is the lowest cost of the USDA food plans. How much preparation time is required to prepare meals from the TFP? Although USDA provides no official guidance on this question, it is possible to estimate the time involved by analyzing the meal plans and associated recipes that were developed as an illustration of how the 1999 TFP could work in practice.^{10,13,14} (At present, new plans and recipes have not been developed for 2007). The weekly plans contain suggestions for complete meals for breakfast, lunch, and dinner, and for snacks for a family of 4 with 2 adults and 2 children 6 to 11 years old.¹⁴ Many of the meals include dishes with recipes; there are a total of 56 in all. In addition to ingredients and cooking instructions, all recipes list a preparation time and a cooking time. For example, "turkey chili" takes 30 minutes to prepare and an additional 70 minutes to cook. We summed all the preparation and cooking times for the 2 weeks and found that an average of 16.1 hours per week (or 2.3 hours per day) was needed to prepare and cook these recipes. This average did not include clean-up, shopping, or nonrecipe dishes, such as scrambled eggs, sandwiches, or hash brown potatoes, for which preparation or cooking times were not listed.

A POSSIBLE CONTRADICTION IN GOVERNMENT POLICY

The cook-from-scratch approach of the TFP clearly makes sense when one wants to create a very low-cost market basket of food, and, importantly, is not concerned about the time constraints of meal preparers. But the origins of the TFP, and its precursor, the economy food plan, date back to an era when the labor force participation of women was much less than it is today. The increase in women's labor force participation has been a well-recognized feature of the US economy over the last half-century. For all women, the rate has grown from 38% in 1960 to 60% in 2002.^{15,16} Women with children accounted for most of the increase in this rate. For mothers whose youngest child was 6 to 17 years old, employment from the mid-1970s was up 24 points to 79% in 2002.^{16,17}

The change in the percentage of working women, especially among the low-income population, is not simply a phenomenon of the free market. Since the early 1990s, government policy has deliberately sought to increase the employment rates of low-income women. Meyer and Rosenbaum describe the enormous changes in social and tax policy that encouraged single mothers to work even before the much-publicized welfare reform legislation.¹⁸ Included among these earlier changes were dramatic increases in the Earned Income Tax Credit, increases in the number of children receiving Medicaid, and extensive experimentation by states with increasing work requirements of recipients under waivers to the old Aid to Families with Dependent Children (AFDC) welfare program. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 continued the trend of social policy to encourage work. Temporary Assistance to Needy Families replaced AFDC and brought changes in the structure of benefits, introduced time limits, and strengthened requirements for mandatory participation in work-related activities.¹⁹

Thus, government policy encourages low-income women to go out and work in the labor market, but it provides a food safety net, ie, Food Stamps, for these working poor, assuming they will stay at home to cook from scratch. Is this a contradiction in government policy? To answer this question requires a greater understanding of the role of time and money in the preparation of nutritious meals.

THE "HOME PRODUCTION" OF MEALS

Economists have long studied production processes in various industries. These processes are often described mathematically with a "production function," an expression that allows the analyst to estimate a quantitative relationship between inputs and outputs. For example, to produce a car (output) requires a production facility, car parts, and the labor of auto workers (inputs). Nobel-prize winning economist Gary Becker's work in the 1960s signaled the beginning of an era when economists turned inward from the

business world and began to analyze production processes at home.²⁰ At the heart of Becker's theory of the allocation of time is the assumption that households are producers as well as consumers. That is, households combine inputs of goods and time to produce commodities for home consumption. The home production of meals is a perfect example, with inputs consisting of food ingredients and kitchen labor, or meal preparation time. Becker's analysis suggested that those with higher earning capacity would spend less labor time in home production activities. For example, those with higher wages would be expected to use a meal production process based on less time in cooking, but more expensive food inputs (ie, convenience foods such as microwaveable dinners), or some meals might be purchased entirely outside the home.

The hypothesis that meal preparers whose time is valued higher in the labor market would increase the time spent in paid work, and substitute prepared meals or food away from home for the more labor-intensive home production of meals has been borne out by extensive empirical evidence found in the consumer economics literature. Studies looking explicitly at women's labor force participation have found that it is positively related to consumption of food away from home.²¹⁻²³ Park and Capps found that labor market hours worked by the household manager were positively related to expenditures on at-home prepared meals, whether ready-to-eat or ready-to-cook.²⁴ Other investigators have shown that an increase in the value of women's time increases spending on food away from home.²⁵⁻²⁸

As with all production processes, the production of meals involves trade-offs, in this case between the time spent in food preparation and the cost of food ingredients. The less time one spends, the more one needs to rely on convenience food, which costs more. At one extreme of the

production process for a specific meal, everything would be made from scratch, which is the cheapest but most time-consuming. At the other extreme, the meal would be purchased in a prepared form, an approach that costs the most, but requires the least amount of time.

EMPIRICAL EVIDENCE ON MEAL PREPARATION TIME

Given the analytic framework laid out in the previous section, it is important to consider empirical evidence on meal preparation times to assess whether the cook-from-scratch approach of the TFP, when considered in tandem with the mandatory work requirements, represents a contradiction in policy. To do so, data were analyzed from nationally representative time-use surveys conducted over the last several decades in the United States.²⁹⁻³³ Although there are differences in some of the methods used in these surveys, they are all based on 24-hour time diaries, considered to be the gold standard in assessment of time use for large samples.^{34,35}

Women respondents, 18 to 65 years of age, who were not employed in the labor market at all were analyzed first, and students, retired women, and the disabled were excluded. Not surprisingly, a trend was found toward less time in meal preparation over the last few decades (Table 1). In the mid-1960s, women not working in the labor force averaged 10.9 hours per week in this activity, whereas in the late-1990s they spent an average of 7.9 hours per week. We also estimated the time spent in meal preparation by employed women in the United States. The time inputs of working women were much less than their unemployed

Table 1. Average Weekly Time Spent in Food Preparation by US Women by Year and Working Status*

	1965-1966	1975-1976	1985	1992-1994	1998-1999
Nonworking women†					
Mean hours/week (standard error)					
Meal preparation	10.9 (0.3)	10.3 (0.4)	10.5 (0.4)	8.1 (0.5)	7.9 (1.1)
Meal cleanup	5.2 (0.2)	3.2 (0.2)	3.1 (0.2)	1.3 (0.1)	2.2 (0.6)
Shopping	2.2 (0.2)	3.4 (0.3)	3.6 (0.3)	1.5 (0.2)	1.3 (0.4)
Working women‡					
Mean hours/week (standard error)					
Meal preparation	5.6 (0.3)	5.5 (0.3)	5.1 (0.2)	4.3 (0.2)	4.5 (0.4)
Meal cleanup	2.8 (0.2)	1.5 (0.1)	1.3 (0.1)	0.6 (0.1)	0.8 (0.2)
Shopping	1.5 (0.2)	2.1 (0.2)	3.2 (0.2)	0.8 (0.1)	1.1 (0.2)

*Estimates were based on data from nationally representative cross-sectional time-use surveys (29-33) and included women 18-65 years of age. All estimates were weighted using appropriate survey weights.

†Nonworking women excluded students, retired women, and the disabled. Sample sizes for the 5 cross-sections were 355, 401, 411, 368, and 40, beginning with the earliest survey.

‡Working women includes those women who were fully employed in the labor market, though this definition has changed over the years. The 1965 survey coded women as employed if they worked 10 or more hours outside the home. In 1975-1976 and 1985, women who worked 30 hours or more per week were included. In 1992-1994 and in 1998-1999, women who responded that they were "employed full-time" were included. Sample sizes for the 5 cross-sections were 339, 417, 984, 1839, and 338, beginning with the earliest survey.

counterparts, dropping from 5.6 hours per week in the mid-1960s to 4.5 hours per week by the end of the 1990s.

These estimates are based on the entire US population. To provide a more useful benchmark for consideration of the Thrifty Food Plan, data were analyzed from the 1996-1997 National Food Stamp Program Survey (NFSPS), which provided a nationally representative sample of Food Stamp households.³⁶ In particular, the times used by households that were food secure and whose household respondent was a woman, aged 18 to 65, not employed outside the house, were evaluated. We focused on food-secure households, assessed using the full 18-item USDA food security scale,³⁷ to allow the comparison of results to the TFP, which is a normative standard providing adequate amounts of healthful foods. There was also a focus on the unemployed, since they presumably would be less constrained by time and more likely to be able to prepare foods from raw ingredients. Overall, these households spent an average of 13.9 hours per week in meal preparation (Table 2). As expected, it was found that larger households spent more time than smaller ones.

The mean time input from these households in the NFSPS was considerably higher than the late-1990s estimate for unemployed women presented in Table 1, 13.9 versus 7.9 hours per week. The latter estimate comes from the Family Interaction, Social Capital, and Trends in Time Use survey, or FISCT.³² The NFSPS estimate is expected to be higher, since it was restricted to a low-income sample, ie, Food Stamp households. With fewer financial resources, they were more likely to produce meals by spending less money and more time. Methodological differences between the surveys might have also played a role in the difference in estimates. Estimates from the NFSPS came from a series of “stylized” questions which asked the household respondent specifically about time spent in preparing morning, afternoon, and evening meals in an average week. The FISCT estimates came from a typical 24-hour time diary which did not prompt specifically about food preparation, but rather elicited the respondent—in a

slow, deliberate, and sequential fashion—to recall how *all* time was spent yesterday. In general, the literature on time-use surveys indicates that the 24-hour recall method is preferred.³⁴ But stylized questions may have advantages over the recall method, particularly for activities not done every day or for the inclusion of “secondary” cooking activities (eg, keeping track of a baked dish in the oven) that are done at the same time as another principal activity (eg, watching television). For all these reasons, the true amount of time spent on meal preparation activities by the population of interest is probably bounded by the NFSPS estimate (13.9 hrs/wk) and the FISCT estimate (7.9 hrs/wk).

In sum, empirical evidence from a number of nationally representative surveys indicates that women spend a lot less time in meal preparation than is thought to be necessary to prepare meals using Thrifty Food Plan ingredients. In the late 1990s, a national sample of women, who were not employed in the labor force, spent only half the weekly time suggested in the TFP recipes, 7.9 versus 16.1 hours. Even restricting the inquiry to unemployed Food Stamp participants from food-secure households, and using a methodology that likely provides an outer limit on the true estimate, meal preparation times averaged 13.9 hours per week, or about 2.2 hours less than the TFP norm. Even this is likely to be a conservative comparison, since there are no times included in the TFP estimate for nonrecipe dishes, like scrambled eggs or hash brown potatoes, which, had they been included, would have raised the overall weekly time needed to prepare meals from the TFP beyond 16.1 hours. For employed women, the divergence between meal preparation reality and TFP expectation is even greater.

IMPLICATIONS FOR POLICY

Why does it matter that time spent on food preparation is so much lower than is needed to prepare meals from the

Table 2. Average Weekly Meal Preparation Times and Home Food Costs for Households of Different Size, National Food Stamp Program Survey, 1996-1997*

Household Size	Meal Preparation Time Hours/Week (SE)			Home Food Costs† % of Thrifty Food Plan (SE)		
	1 Adult	2+ Adults	All Households	1 Adult	2+ Adults	All Households
1	9.9 (0.9)	—	9.9 (0.9)	139.8 (14.5)	—	139.8 (14.5)
2	13.3 (1.2)	11.7 (1.6)	12.8 (1.0)	152.8 (16.4)	138.9 (19.4)	148.4 (12.3)
3-4	14.0 (0.6)	14.6 (0.8)	14.3 (0.5)	141.8 (14.6)	119.3 (13.0)	130.5 (9.1)
5 +	14.7 (2.1)	16.7 (1.1)	16.1 (0.8)	111.2 (8.0)	111.1 (8.2)	111.1 (6.3)
All	12.9 (0.6)	15.2 (0.6)	13.9 (0.5)	138.7 (10.0)	118.0 (8.4)	129.4 (7.4)

*Results are for food-secure households participating in the Food Stamp Program whose adult female respondents were not employed and were 18 to 65 years old. All estimates are weighted using appropriate survey weights; standard errors are in parentheses. Sample sizes are 133 for single adult households and 113 for households with 2 or more adults.

†Dollars spent in the previous week on purchases for home food use expressed as a percentage of the Thrifty Food Plan cost for each household based on the number, age, and gender of persons attending household meals in the previous week. The TFP cost calculated for each household takes into account economy-of-scale adjustments suggested by USDA.¹²

TFP? After all, if US meal-preparers are more efficient and spend less time in cooking than is suggested by USDA policy, isn't that a good thing? Although development of the TFP has no direct impact on time allocations in US households, it does directly affect the allotment of Food Stamps to participants in this program. Because of the inherent trade-off in the meal production process, more time in cooking means lower food costs. In essence, the government can keep Food Stamp benefits low by assuming that households will spend a lot of time in meal preparation, much more than even unemployed, food-secure Food Stamp participants actually do. If assumptions about cooking times are too high, the implication is that Food Stamp benefits are too low. This hypothesis was evaluated by calculating actual food expenditures of households studied above from the NFSPS. On average, these households spent 29% more than the cost of the Thrifty Food Plan, appropriately adjusted for their household size.¹² The problem is of particular concern for single-parent households who might be more constrained by time than households where there are other adults to lend a helping hand. Single-adult households with 3 or 4 members spent 142% of the cost of the TFP versus those with 2 or more adults, who spent 119% of the TFP (Table 2).

If time constraints cause meal-preparers to spend more on food than the cost of the TFP, this could mean that Food Stamp allotments are too low, particularly given other developments in the nation's economy. Recent evidence shows that income inequality in the United States, as assessed by the Gini index (a commonly used measure describing the inequality of an income distribution), is at its highest level since the US Census Bureau began compiling annual income statistics in 1947.^{38,39} Through 2006, the federal minimum wage had remained unchanged for 9 years and, in real terms, was at its lowest level in over a half-century.⁴⁰ For some time-stretched households, already strained by economic trends affecting the broader low-income population, the nation's food safety net may be inadequate. This is disturbing for reasons of social justice and human rights.⁴¹ Beyond humanitarian concerns, there are other negative consequences that can affect these households and imply additional societal costs. Households could be forced to make trade-offs in basic needs, especially when exposed to external shocks. Recent analysis of consumer expenditure data found that low-income families increased spending on home fuel and decreased spending on food in unseasonably cold weather.⁴² Other research has suggested that low-income households facing food insecurity might put off routine health care visits and necessary medications, resulting in increased emergency room visits and hospitalizations for adults⁴³ or increased hospitalizations for children.⁴⁴ Of more direct relevance for those focused on nutritional health is that food spending levels in many Food Stamp households, even though on average greater than the cost of the TFP, may not be adequate to purchase a healthy diet. Evidence has accumulated that

low-quality foods are often cheaper and that purchasing healthy foods costs more.^{45,46}

This article has focused on why Food Stamps may be inadequate given the time constraints of low-income workers and single parents. However, there has been considerable research demonstrating other limitations of the TFP and Food Stamp Program benefit levels. The TFP is designed for healthy individuals without problems of market access. Those on special diets or with disabilities, difficulties of the elderly with shopping or preparing food, or those with higher calorie needs may not have their needs met by the TFP. Thrifty Food Plan food costs are calculated from national averages; access to complete market baskets at the TFP cost level may be difficult to find in many areas.⁴⁷⁻⁵⁰ Finally, most Food Stamp recipients do not receive the full value of the TFP in Food Stamps, since most households, 69% in 2005, do not receive the maximum benefit amount.

NEW DIRECTIONS FOR RESEARCH

This brings up 3 key areas for future research. One question that remains is whether the time and income constraints of low-income households affect aspects of their food security, such as decreased quantities of food, uneven access throughout the month, or decreased diet quality. Of particular interest is for those who are more likely to be time constrained, such as single-parent households or the working poor, whose wages are insufficient to purchase the market-produced goods (eg, meals, child care) that they would have produced at home, had they not been working. As of Fiscal Year 2005, 33.5% of Food Stamp households were single-parent households, whereas 29.3% of Food Stamp households had earned income from some form of employment.⁵¹

More research is needed on the at-home meal production process, especially the trade-offs between preparation time and food costs. If implicit assumptions about the time spent preparing meals are outdated, what level of food costs are needed to produce healthful, culturally appropriate meals given the current time constraints of the working poor and modern day societal norms about the time spent cooking? Answering this question could provide more informed decision making regarding potential increases in Food Stamp benefit levels.

A third line of investigation could focus on food assistance policy analysis to explore the potential for adjusting the benefit structure so that those Food Stamp participants with the most severe time constraints can get some relief. One alternative worth analyzing is an increase in the maximum allotment for single-parent households in recognition of their time constraints. Another alternative might be to calculate benefits based on an additional deduction from gross income for microwave ovens, dishwashers, and other time-saving cooking devices. In the same way that purchased child care is recognized as a need for those who work (and reflected in allowable deductions), so might having an

appropriate kitchen infrastructure for producing time-saving meals. About 73% of single-parent households had working microwaves in the 1996-1997 NFSPS. Another suggestion is to add flexibility to the types of food that can be purchased with Food Stamps. For example, allowing the purchase of hot, prepared foods—such as rotisserie-roasted chicken in a supermarket—may be of value to time-constrained, low-income households.⁵²

IMPLICATIONS FOR NUTRITION EDUCATION INTERVENTIONS

When time is a constraint, economic resources are important to be able to purchase a certain modicum of convenience in meal preparation, and food assistance policies can directly affect those resources. But another important input to the meal production process is knowledge. Nutrition educators, principally those working in extension programs, have long included cooking demonstrations as part of their educational approach. Although clearly many have focused on teaching time-saving ways to prepare nutritious meals, perhaps the time dimension has not received the priority it might need. A recent national report on the Food Stamp Nutrition Education Program tallied the frequency of different behavioral objectives employed by the 50 state agencies with programs.⁵³ The objective of “improving meal planning and time management skills” was on the list of top 10 objectives, though, unfortunately, it was at the bottom of the list; only 10% of state agencies listed it as an objective.

One suggestion would be to increase nutrition education programming on how to prepare time-saving and nutritious meals. Consideration should be given to clean-up and shopping time, in addition to preparation and cooking time. Observations from time-use studies (see Table 1) show that these activities can add another 3 hours of work per week. Important aspects in this area include cooking skills and availability of kitchen equipment (pots, pans, and appliances). The contractor that developed the 1999 TFP recipes and meal plans “tested” them out on a small sample of low-income food assistance participants. The contractor had to supply pots and pans that were to be used in some of the recipes. Some participants lacked basic cooking skills and were not familiar with how to cook from a recipe.¹⁰ The lack of cooking skills, as well as the difficulties in attending nutrition classes owing to time constraints when one is in the workforce, suggest that this sort of applied nutrition education should even begin in the schools.

Another important aspect to educational programming is the development of a “time-dimensional” variety of convenient meals. Nutritionists are familiar with the importance of variety when it comes to different food items or food groups. Variety on the time dimension implies that for some meals, the total time from kitchen to table is quick, whereas for others the “preparation” time or the “cooking” time may be quick. On the weekend, meal preparers might

be able to let a pot roast cook on the stove, with an occasional monitoring, even if the cooking time is fairly long. Such a meal, frozen for later use during the week, might not be feasible to prepare on work days. Tips for quick meals, when there is nothing in the freezer to microwave, are also important.

The sociological literature on gender provides additional insights. An observational study of women clerical workers in Canada found that women did not simply “use” time as an input, but rather, they “were actively involved in manipulating the sequence and duration of activities so as to respond to the competing demands of the office and the household.”⁵⁴ The implication is that training in time management techniques may also become an important aspect of nutrition education.

Finally, the food environment provides challenges as well as opportunities for nutrition educators to reinforce their messages. Innovations in retail grocery to make it quicker for low-income households to shop for and prepare healthy meals are needed, as are convenience foods or prepared meals that are both healthy and low cost. Access to inexpensive, healthy food is a problem in many low-income neighborhoods, often requiring time-consuming shopping trips. Improvements in the local neighborhood food environment could assist low-income households in terms of their time constraints. Increasingly, the role of nutrition educators as change agents requires attention to policy-level changes that impact the broader environment.

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