(Preliminary Draft)

Household Labor Supply and Nutrition

A Time-Use and Food-Intake Analysis

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Abstract

This paper explores the mechanisms through which household labor supply effects the combination of time and money used in the production of food and the resulting quality of food-intake of family members. I find that female labor force participation is negatively associated with time spent shopping for and preparing food and positively associated with the share of household food expenditure spent on food prepared away from home. This substitution of money for time in food consumption can have detrimental effects on the nutrition of both adults and children in the family. Among married-couple families, I find that the quality of food-intake is generally higher for members of families where the wife does not participate in the labor-force, compared to families where the wife works part-time or full-time. In single-mother families, however, the quality of food-intake is higher when the mother is employed, compared to when she is not.

1 Introduction

This paper explores the mechanisms through which household labor supply effects the combination of time and money used in the production of food and the resulting quality of food-intake of family members. A recent influential paper, "Consumption versus Expenditure" (Aguiar and Hurst 2005), highlights the fact that retirees spend more time and less money shopping for and preparing food than non-retirees. The retirees thus substitute time for money in the production of food and end up eating a diet that is argumentively healthier than that of non-retirees. Retirement, however, is hardly the only case of households exhibiting heterogeneity in the combination of time and money used in the production of food and other commodities. Rather, the difference between retirees and non-retirees is one example of heterogeneity in the opportunity cost of time, a heterogeneity that exists also among working age households alone, including married-couple families and single-mother families which are the focus of this paper.

In the case of married-couple families I limit the analysis to families were the husband works full-time and compare three types of families defined by the labor force participation status of the wife: Not in the labor force, part-time work, and full-time work. Similarly, I define three single-mother family types according to the same classification as applied to the mother. Using the American Time Use Survey (ATUS 2003-2005), I find that the total time spent shopping for and preparing food in both married-couple and single-mother families falls with the intensity of the labor force participation of the wife or single mother. In a parallel analysis of the Continuing Survey of Food Intake of Individuals (CSFII 1994-1996;1998), I find that the share of food expenditure spent on food that is prepared away from home, at fast food restaurants or at restaurants with table service, rises with the intensity of the labor force participation of the wife or single mother.

The substitution of relatively goods-intensive food prepared away from home for relatively time-intensive food prepared at home can have detrimental effects on the nutrition of both adults and children in the family, due to the higher levels of fat and saturated fat and the lower densities of important nutrients generally found in foods obtained away-from-home, compared to food prepared at home. In both married-couple and single-mother families, I find negative effects of the share of food expenditure spent on food prepared away-from-home on

the Healthy Eating Index (HEI) and other measures of the quality of food-intake for children and adults of both genders, obtained using CSFII data collected in two days of food-diary interviews.

However, income too plays a role in the nutrient intake of family members and in general has a positive effect on the HEI and the density per calorie of important nutrients. Furthermore, this income effect seems to be larger for members of single-mother families than for members of married-couple families. Members of married-couple families where that wife does not participate in the labor force have generally higher HEI scores and eat food that has more favorable nutrient density than members of families where the wife works part-time or full-time, indicating that the positive effect income has on diet quality is outweighed by the negative implications of eating a larger share of food that is not prepared at home. In single-mother families, however, results are different. If anything, members of single-mother families where the mother works full-time have the best diet quality on average, indicating that in these families the income effect is large relative to the effect of consuming more away-from-home food.

2 Related Literature

In Becker's seminal model of home production, households combine time and goods in the production of the commodities they consume (Becker 1965). According to this theory, a lower price of time for one household should cause it to use more time relative to goods in the production of commodities than another household facing the same prices for good inputs but a higher time price (Hamermesh 2007). For example, The price of time in married couple families with a single earner should be cheaper than the price of time in dual-earner families, since one of the spouses (in most cases the wife) does not participate in the labor force and the overall non-market time available for household production is larger. Indeed, Lazear and Michael (1980) find that single-earner families combine more time relative to goods in the production of household commodities, making the average cost of services and non-durable goods (food among them) more than 20 percent lower for single-earner families, compared to dual-earner families. Other evidence of this tradeoff between female labor force participation

and time spent on household work can be found in Robinson and Godbey (1999, Table 3), Bianchi, Milkie, Sayer, and Robinson (2000, Table 2) and, more recently, Mancino and Newman (2007) and Cawley and Liu (2007).

How differences in time prices can effect the combination of time and money in household production is evident in recent studies comparing retirees and non-retirees, since retirees experience a dramatic fall in their opportunity cost of time at retirement. Consequentially, retirees substitute time for money in the production of the food they consume. For example, Aguiar and Hurst (2005, Table 1) find that the food expenditure of Americans falls, on average, by 17 percent at retirement while time spent on food production rises about 18 minutes per day. Furthermore, This substitution comes without any loss to the quantity and quality of food intake of the retirees. Brzozowski and Lu (2006) find qualitatively similar results for Canadian retirees. Similarly, Gronau and Hamermesh (2006, Table 3) calculate a higher time intensity for food production at retirement ages in both the U.S. and Israel.

Using more time relative to goods in the production of food means consuming a larger portion of food prepared at home instead of food prepared away from home and vica versa. Evidence on the higher quality of food intake of food prepared at home, compared to away-from-home foods, is provided by Lin, Guthrie, and Frazão (1999) and Guthrie, Lin, and Frazao (2002) who find that away-from-home foods have higher levels of total fat and saturated fat together with lower levels of important nutrients such as dietary fiber, calcium, and iron. In addition, Bowman, Gortmaker, Ebbeling, Pereira, and Ludwig (2004) find that the quality of food intake of children who ate fast food was inferior to the quality of those who did not. Interestingly, Aguiar and Hurst do not only find that retirees reduce their propensity to eat away from home and spend more time shopping for and preparing food, but also that the nutrient intake and other measures of food quality actually improve at retirement. For example, they find that the intakes of vitamins A and C increase by more than 30 percent at retirement and that the intakes of cholesterol and saturated fat fall by 7 and 9 percent respectively (Aguiar and Hurst 2005, Tables 3 and 4).

Household level indication that maternal employment has detrimental effects on American children's diets and obesity rates can be found in Anderson, Butcher, and Levine (2003) and Crepinsek and Burstein (2004). This evidence is corroborated in cross-country analysis such

as Michaud, van Soest, and Andreyeva (2007, Table 7) who document a high correlation in population age 50 and above between obesity and expenditure on "away" food together with a strong negative correlation between obesity and time spent cooking. In addition, Bleich, Cutler, Murray, and Adams (2008) find that obesity rates rise with average caloric intakes which are higher in countries with higher percents of working women.

3 Time and Money in Household Food Production

3.1 A Simple Theoretic Model

I employ a Beckerian model of household production to explore the mechanisms through which household labor supply and food preferences effect the combination of time and money used in the production of food and the resulting quality of food-intake in the household.

The household directly produces two commodities: Food F and other commodities C, each with an input combination of time and goods, (T_f, X_f) and (T_c, X_c) respectively. I assume exogenous labor supply H, a given hourly wage W, and non-labor income M. Following Devaney and Moffitt (1991), K nutrients N_k are byproducts of food production, so that each unit of food F yields a_k units of nutrient N_k. We can think of F as being measured in calories, and of a_k being the nutrient per calorie measure for nutrient N_k in the food produced ("nutrient density"). Furthermore, the nutrient density of the food changes with time intensity in food production $t = T_f/X_f$ and "dietary knowledge" d , so that $a_k = a_k(t, d)$ and the amount of nutrients produced is:

$$N_k = a_k(t, d) \cdot F, \quad k = 1, \ldots, K \tag{1}$$

Using more time relative to goods in the production of food is equivalent here to obtaining a larger portion of household calories from food prepared at home instead of food prepared away from home which is lower in its nutrient density (Lin, Guthrie, and Blaylock 1996, Lin, Guthrie, and Frazão 1999, Guthrie, Lin, and Frazao 2002). Thus, nutrient density a_k rises with time-intensity of food production t. In addition, a_k rises with d if a higher level of dietary knowledge leads to higher levels of nutrient density in the food produced.[1]

[1]Variyam, Blaylock, and Smallwood (1998) investigate how nutritional knowledge, among other things, effects

The household allocates its time and money resources between food F and other commodities C, taking into account the nutrient byproduct. I assume that the household cares about the nutrient density of the food consumed and not the overall level of the nutrients themselves. The joint household utility maximization problem is:

$$Max \quad U\left(F, C, a_1, \ldots, a_K\right) \tag{2}$$

Satisfying the following constraints:

$$\begin{aligned} F &= F\left(T_f, X_f\right) \\ C &= C\left(T_c, X_c\right) \\ a_k &= a_k(t, d), \quad k = 1, \ldots, K \\ T &= H + T_f + T_c \\ M + WH &= P_f X_f + P_c X_c \\ t &= T_f / X_f \end{aligned}$$

where T is total time available, and P_i is the price of a unit of X in the production of commodity i. Substituting in all constraints, for the case of one generic nutrient N and ignoring d for the time being, we get:

$$Max \quad U\left[F\left(T_f, X_f\right), C\left(T - H - T_f, \frac{M + WH - P_f X_f}{P_c}\right), a\left(\frac{T_f}{X_f}\right)\right] \tag{3}$$

And First Order Conditions are:

$$\frac{\partial U}{\partial F} \cdot \frac{\partial F}{\partial T_f} = \frac{\partial U}{\partial C} \cdot \frac{\partial C}{\partial T_c} - \frac{\partial U}{\partial a} \cdot \frac{\partial a}{\partial t} \cdot \frac{1}{X_f} \tag{4}$$

$$\frac{\partial U}{\partial F} \cdot \frac{\partial F}{\partial X_f} = \frac{\partial U}{\partial C} \cdot \frac{\partial C}{\partial X_c} \cdot \frac{P_f}{P_c} + \frac{\partial U}{\partial a} \cdot \frac{\partial a}{\partial t} \cdot \frac{T_f}{X_f^2} \tag{5}$$

In this case, a positive marginal utility for nutrient density a can correspond with "liking healthy food" while a negative one can correspond with "disliking healthy food". The more positive $\partial U / \partial a$ is, the lower the marginal utility of time in food production at the optimum and, therefore, a larger amount of time used in food production. Similarly, such an optimum results in a higher marginal utility of goods in food production and, therefore, a smaller amount

the Healthy Eating Index.

of goods used in food production. Thus, a stronger preference for healthy food leads to a higher time intensity in food production. On the other hand, A household with a higher level of labor supply H, compared to another household, would have less time available for the production of commodities, but more income (all other things equal), making the opportunity cost of time relatively more expensive than the price of goods. Such a household would substitute goods for time in the production of both food and other commodities. As a result, the nutrient density of the food produced will fall, even if the household cares about the nutrient density of its food. Since both food preferences, through $\partial U/\partial a$, and labor supply, through the time resource constraint, effect the allocation of time and goods in food production, one has to be careful in identifying the causal link between labor supply H and time-intensity in food production t, which in turn effects the nutrient density of the food consumed.

3.2 Empirical Evidence in Married-Couple Families

My cross-sectional analysis of the American Time use Survey (ATUS 2003-2005) and the Continuing Survey of Food Intake of Individuals (CSFII 1994-1996)[2] suggests that the labor force participation of the wife is negatively related to the amount of time spent shopping for and preparing food and positively related to the share of monthly food expenditure spent on food prepared away from home, a finding that is consistent with the model presented above.

I compare three married-couple family types where the husbands all work full-time (more than 35 hours a week) and the wives either does not participate at all in the labor force, the family being a "Single-Earner" family (SE); or she works part-time (less than 35 hours a week), in which case I label the family a "Full-Time/Part-Time" family (FT/PT); or she works full-time, so that the family is a "Dual-Earner" family (DE).

In the ATUS 2003-2005 I find that while the average time spent shopping for and preparing food by husbands does not change much across family types, women who work part-time spend on average about 28 minutes less per day, and women in dual-earner families about 48 minutes less per day shopping for and preparing food than stay-at-home wives, as we can see in Figure 1.[3] Controlling for demographic variables such as age, education, race, and number of children

[2]The CSFII is now called What We Eat in America (WWEIA) and does not include household level variables.
[3]See Table 1 for means of ATUS variables in married couples.

in an OLS regression does not change the results substantially (Table 5).

In a parallel analysis of the CSFII 1994-1996, I find that the share of monthly food expenditure spent on food prepared away-from-home is negatively related to the labor force participation of the wife, indicating a shift from relatively time-intensive food preparation at home to relatively goods-intensive food prepared away-from-home. Figure 2 shows that while single-earner families spend on average 26 percent of their monthly food budget on away-from-home food, full-time/part-time and dual-earner families spend 31 percent and 34 percent respectively.[4]

3.3 Empirical Evidence in Single-Mother Families

When I focus the analysis on single-mother families, I find a similar relationship between the labor force status of the mother, the time spent shopping for and preparing food, and the share of food expenditure spent on away-from-home food. While single-mothers who do not participate in the labor force spend on average 90 minutes per day shopping for and preparing food, single mothers spend 55 minutes and 56 minutes on average per day if they are working part-time and full-time respectively (Figure 3).[5] On the food expenditure side, single mothers out of the labor force spend about 18 percent of their food expenditure on away-from-home foods, while part-time and full-time workers spend 21 percent and 31 percent respectively (Figure 4).[6]

4 The Healthy Eating Index and Other Measures of Diet Quality

The USDA's Healthy Eating Index (HEI)[7] is a comprehensive measure with which to judge the quality of the food intake recorded in the CSFII over two diary days. The index is comprised of ten different components, each worth 0-10 points, that sum up to a maximum possible score

[4]See Table 2 for means of CSFII variables in married couples.

[5]See Table 3 for means of ATUS variables in single-mother families.

[6]See Table 4 for means of CSFII variables in single-mother families.

[7]see http://www.cnpp.usda.gov/HealthyEatingIndex.htm

of 100 points. The first five components of the HEI measure how closely a person's diet follows the USDA's Food Guide Pyramid serving recommendations for grains, vegetables, fruits, milk, and meat, while the rest of the components are related to the intake of fat and saturated fat, cholesterol, sodium, and the variety of the person's diet (Figure 5). According to Bowman, Lino, Gerrior, and Basiotis (1998, p. 7), "an HEI score over 80 implies a good diet, an HEI score between 51 and 80 implies a diet that needs improvement, and an HEI score less than 51 implies a poor diet". In addition, I look at the densities (per 1,000 Kcal, averaged over two diary days) of 12 important nutrients: Cholesterol, Fat, Saturated Fat, Calcium, Vitamin A, Vitamin C, Vitamin B6, Iron, Fiber, Folate, Riboflavin, and Sodium.

5 Food Prepared at Home vs. Food Prepared Away From Home

I use the measures of diet quality mentioned above to asses the effect of obtaining a larger share of household food from food prepared away from home rather then from food prepared at home. I find that in both married-couple and single-mother families, spending a larger share of household food expenditure on away-from-home food is negatively associated with the HEI and the densities of most of the "good" nutrients, and positively associated with the densities of most of the "bad" nutrients. In addition, the results suggest that the positive impact of income on diet quality is larger for single-mother families compared to married-couple families, indicating that the full impact of labor force participation on the quality of food-intake in single-mother families might be more favorable than the full impact in married-couple families.

5.1 Married Couples

Table 9 shows the results of OLS regressions, by sex and age groups, of the HEI on the share of food expenditure spent on away-from-home food, annual income, and relevant demographic controls such as the number of children in the household, the wife's educational attaintment, race, and rural and regional dummies. In all six sex-age groups, the estimated effect of the

'away-share' on the HEI is negative, while the income effect, as expected, is mostly positive. Specifically, an increase of one percentage point of the 'away-share' is associated with a 0.07 decrease in the HEI score for both adult males and adult females and an increase of $1,000 in household annual income is associated with an improvement of 0.06 HEI points for adult males and 0.03 HEI points for adult females. The results for children are similar, but estimated variances are large due to small sample sizes. While the wife's education seems to positively effect the HEI score of the males and of herself, the estimated effects on school-age girls are negative. Furthermore, Blacks have consistently lower HEI scores at all sex-age groups and so do individuals in rural areas. I find similar results with other measures of the quality of food-intake.[8]

5.2 Single Mothers

Table 10 shows the estimated coefficients for the same regressions in the case of single-mother families. Sample sizes here are much smaller and most estimates are not statistically significant. However, the point estimate of the effect of the share of food expenditure spent on away-from-home food on the HEI is substantially large in the case of male kids (-0.08) and female teenagers (-0.13). Furthermore, the point estimates for the income effect are all positive and substantially larger than those of the married-couple families. It is indeed plausible that an extra $1,000 in annual income would have a larger impact in single-mother families, who have much lower annual incomes compared to married-couple families. As in married couples, we can see that being black and from a rural area has large negative effects on the quality of food intake. Interestingly, and differently from the married couples case, the mother's education has substantial effects on her own HEI, with mothers with some post-secondary education averaging more than 2.4 HEI points higher than high-school dropouts and mothers with a college degree averaging about 4.3 HEI points higher.

[8]Similar analysis is available for nutrient densities, but currently not presented in the paper.

6 Household Labor Supply and The Quality of Food Intake

I find that in married-couple households, members of single-earner families have generally higher HEI scores and eat food that has more favorable nutrient density than members of families where the wife works part-time or full-time. These results hold for both adults and children in these families and indicate that the positive effect income has on diet quality is outweighed by the negative implications of eating a larger share of food that is not prepared at home. In single-mother families, however, results are different. If anything, members of single-mother families where the mother works full-time have the best diet quality on average, indicating that in these families the income effect is large relative to the effect of consuming more away-from-home food.

6.1 Married Couples

Comparing mean HEI scores by sex and age in the three married-couple family types I find that, consistently over all age-sex groups, mean HEI scores fall with the labor force participation of the wife, with full-time participation being associated with worse outcomes compared to part-time participation (Figure 6, top panel). For example, while the mean HEI score for boys ages 6 to 11 in single-earner families is 69.4, it is 67.2 for boys of the same age in families were the wife works part-time and 66.6 for boys in families were the wife works full-time. For teenage girls, the mean HEI is 66 in single-earner families, 62.8 when the mother works part-time, and 62 when the mother works full-time. However, these differences between members of the different family types are not limited to children alone. A husband of a stay-at-home wife has an average HEI score which is 2.4 points higher than that of a husband whose wife works full-time. Similarly, the wife who works full-time has a mean HEI score which is lower by 1.8 points than that of a wife that does not participate in the labor-force, although it seems that working part-time does not effect much the mean HEI score for females ages 21 to 55 (Table 11).[9]

[9]Similar analysis is available for nutrient densities, but currently not presented in the paper.

6.2 Single Mothers

In single-mother families we see a less consistent pattern (Figure 6, bottom panel, and Table 12) with mean HEI scores being higher for mothers and daughters in families where the mother participates in the labor force. However, it is hard to infer from looking at mean HEI results that sons of single-mothers are better off when the mother works fill-time or part-time.

7 Conclusions

I find that households with higher female labor force participation use more money relative to time in the production of food. This substitution of money for time means that a larger share of consumed food is away-from-home food, either fast-food or food eaten at restaurants with table service, or pre-prepared food purchased at grocery stores, instead of food prepared at home which is generally healthier. While many factors, such as income, education, and race, effect the quantity and quality of food intake of individuals, I find that in married-couple families, the full effect of higher labor supply of the wife on the diets of family members (both adults and children) is negative on average. This result indicates that the increase in household income achieved by increasing the wife's labor supply may not be sufficient to improve the well-being of parents and kids, at least when it comes to the quality of food consumed. In single-mother families, however, my findings suggest that increased labor force participation by the mother improves, on average, the quality of food intake of her children and herself, indicating that the impact of higher income on the diet quality of household members in single-mother families is relatively high.

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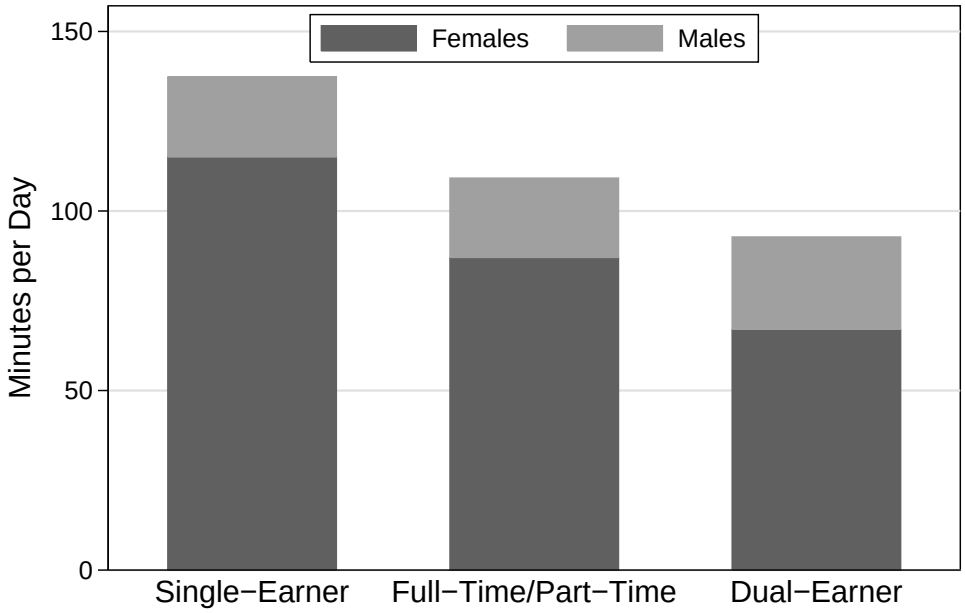
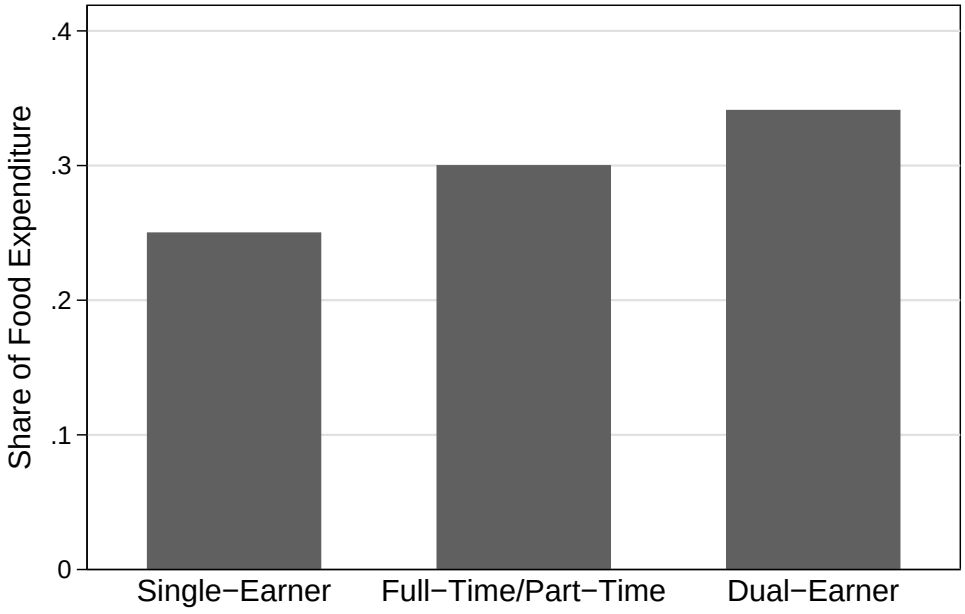
Figure 1: Time Spent Shopping for and Preparing Food



Source: American Time Use Survey 2003−2005

Figure 2: Share of Monthly Food Expenditure Spent on Away-From-Home Food



Source: Continuing Survey of Food Intake of Individuals 1994−1996

Figure 3: Single-Mothers: Food Time by Labor Force Participation

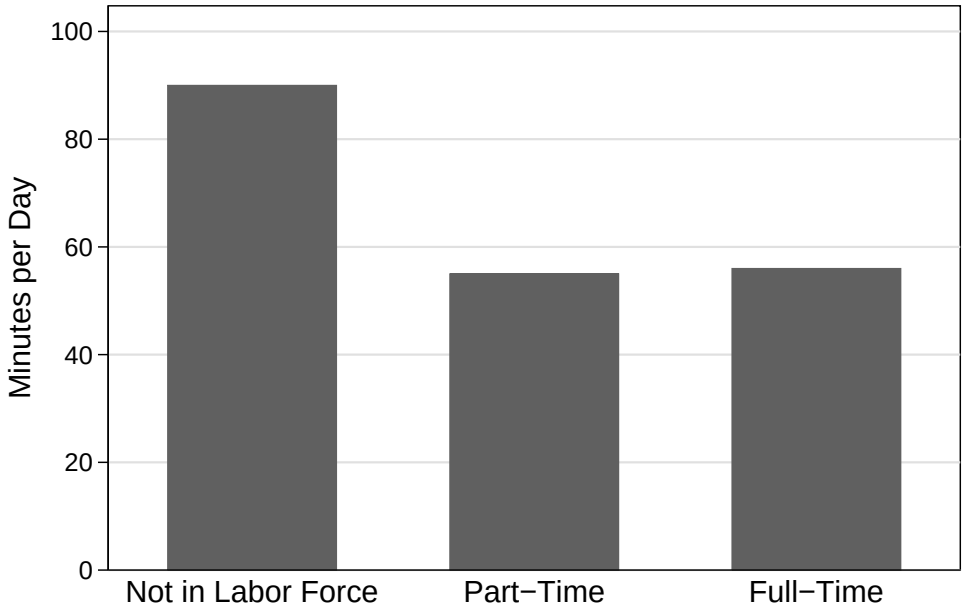


Figure 4: Single-Mothers: Away Share by Labor Force Participation

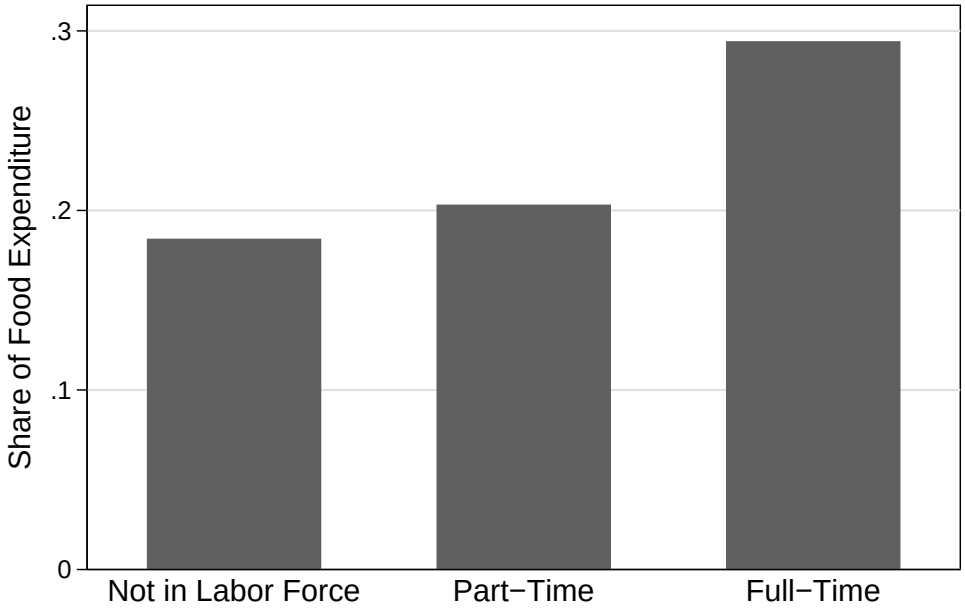
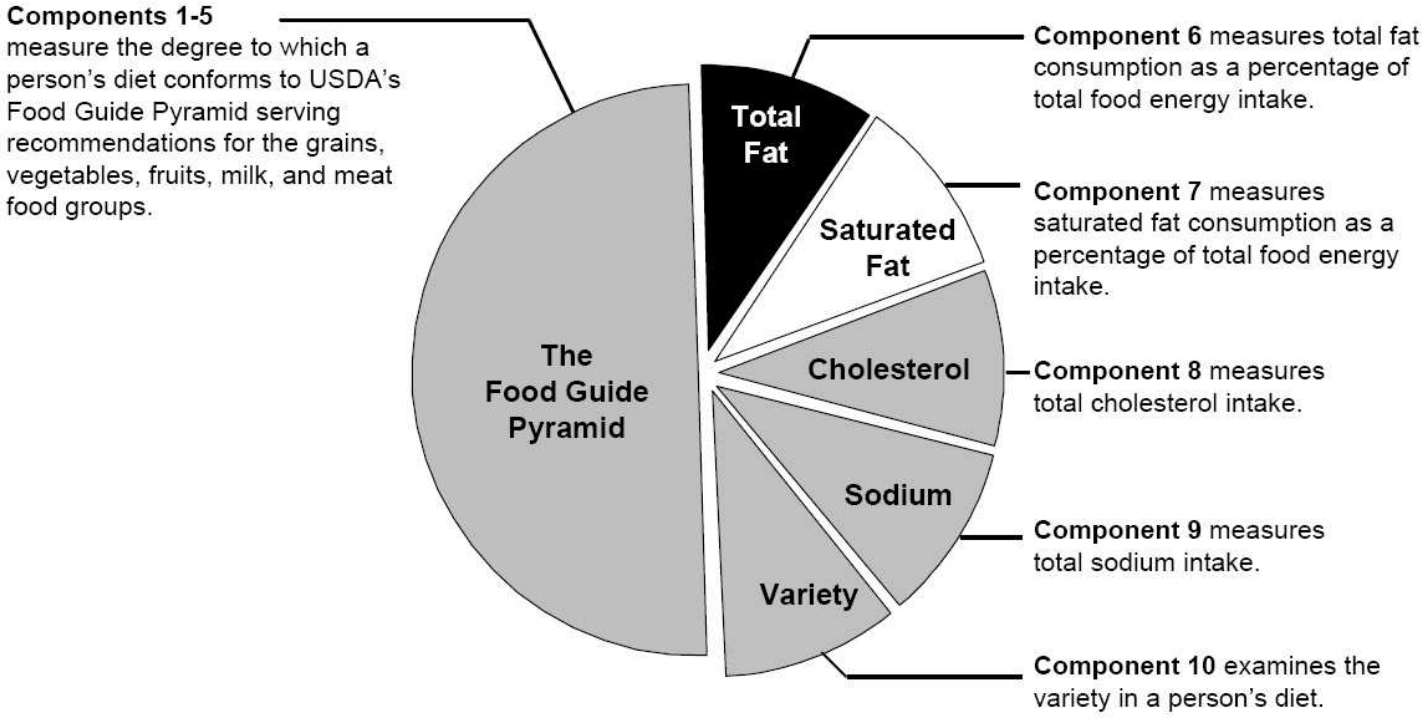


Figure 5: The Healthy Eating Index (HEI)



Source: USDA, Center for Nutrition Policy and Promotion (CNPP)

Figure 6: HEI Mean, by Sex, Age, and Family Types

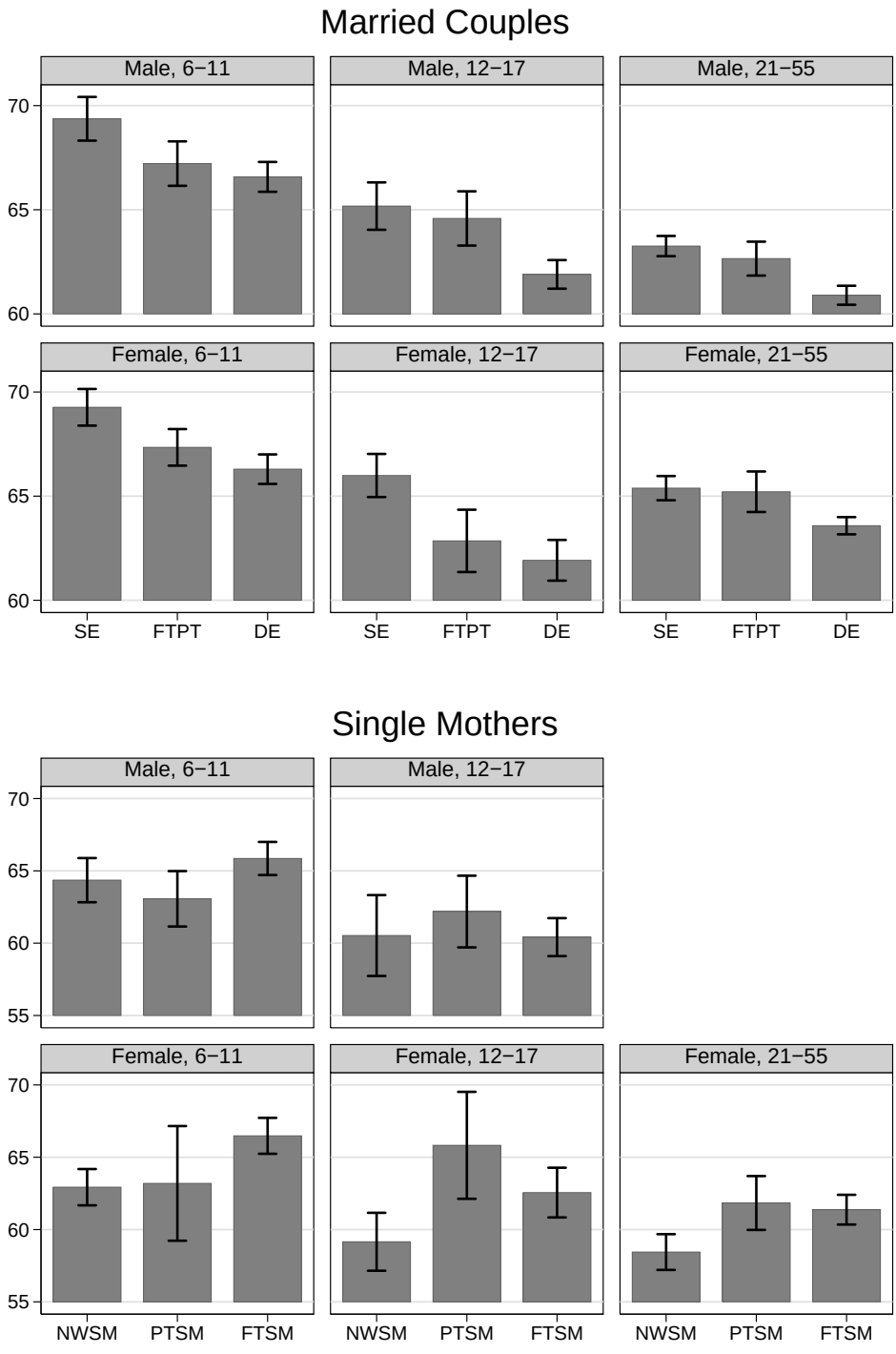


Figure 7: Mean Cholesterol Density, by Sex, Age, and Family Types

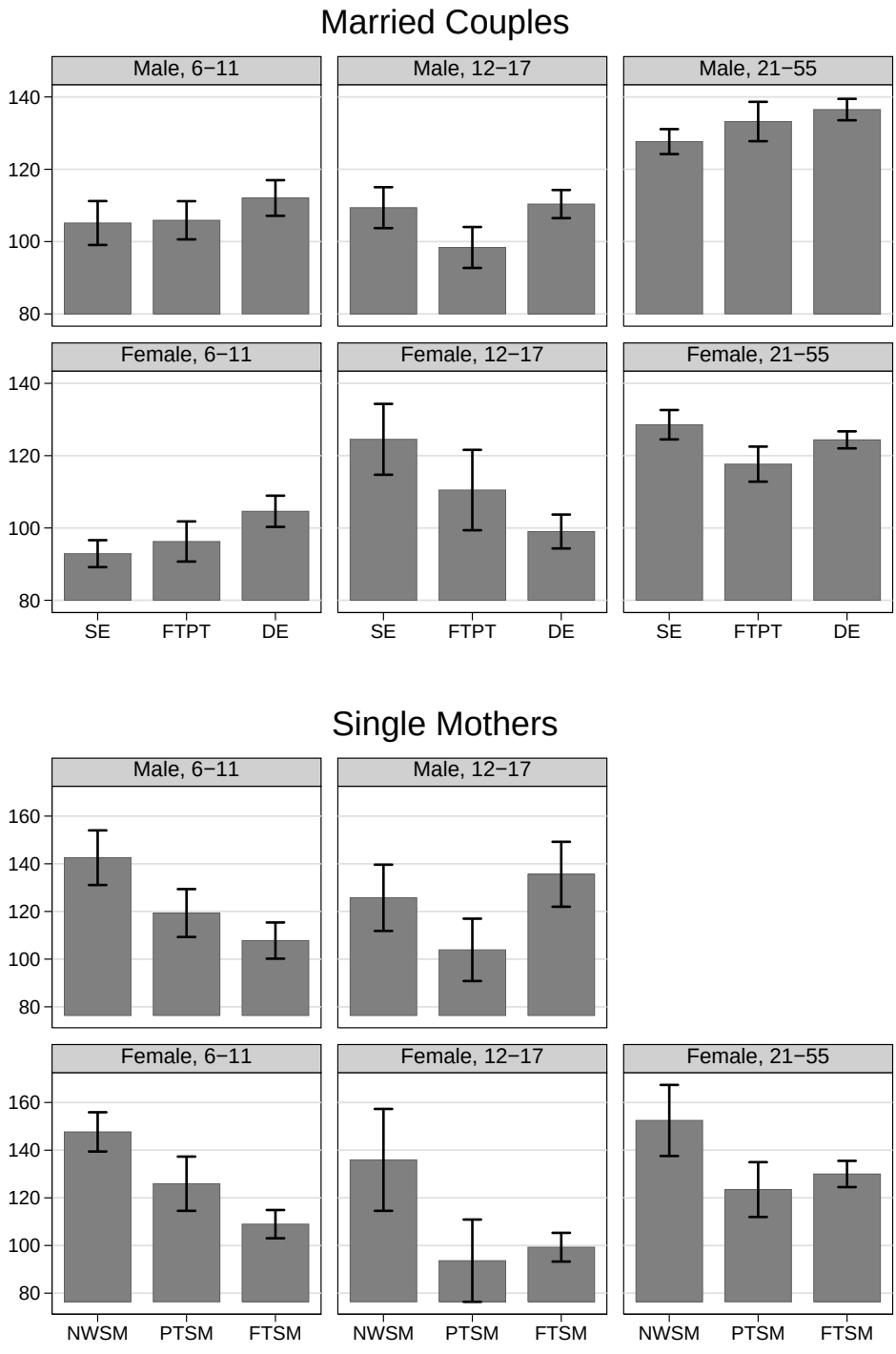


Figure 8: Mean Fat Density, by Sex, Age, and Family Types

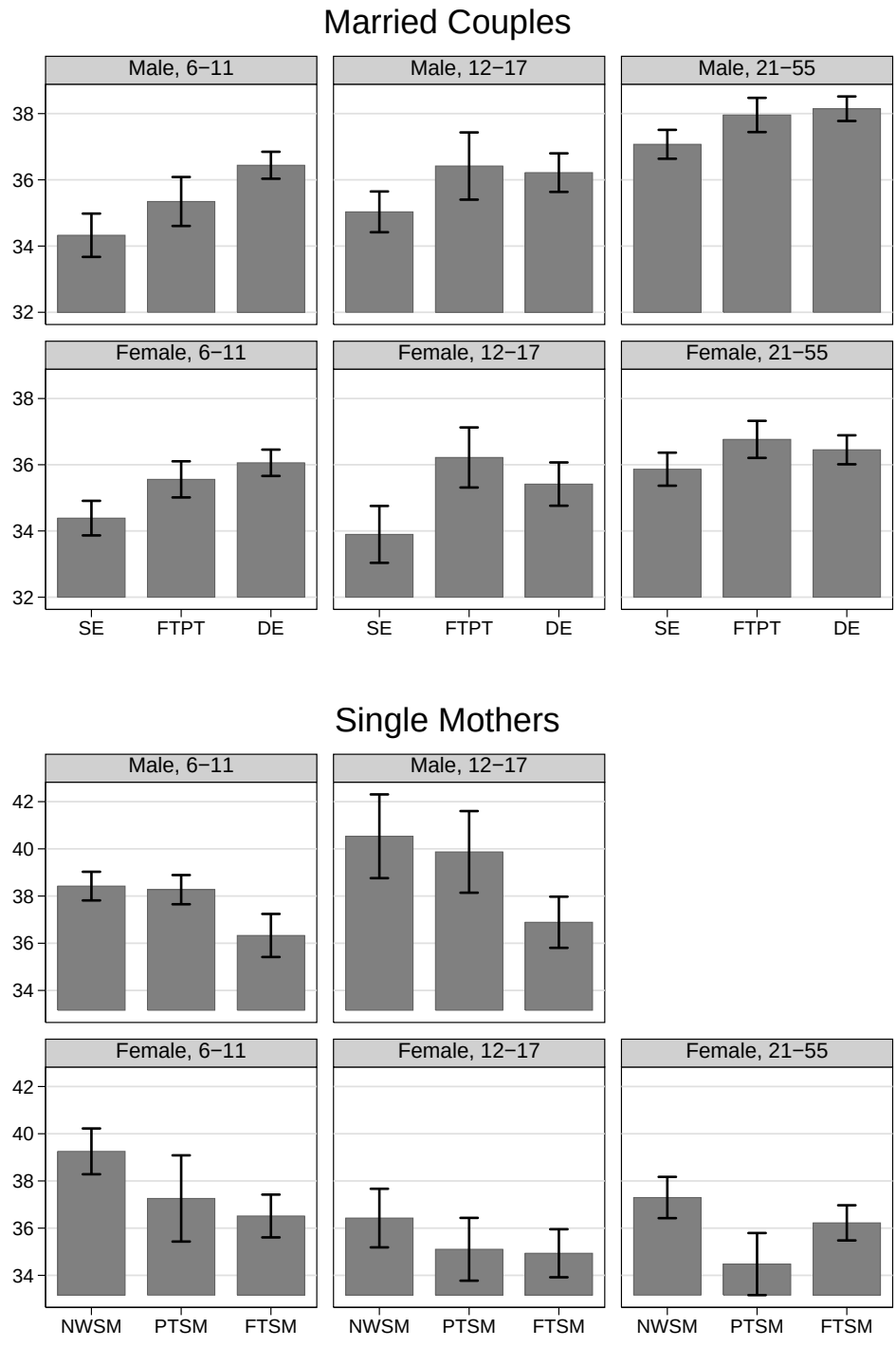


Figure 9: Mean Vitamin A Density, by Sex, Age, and Family Types

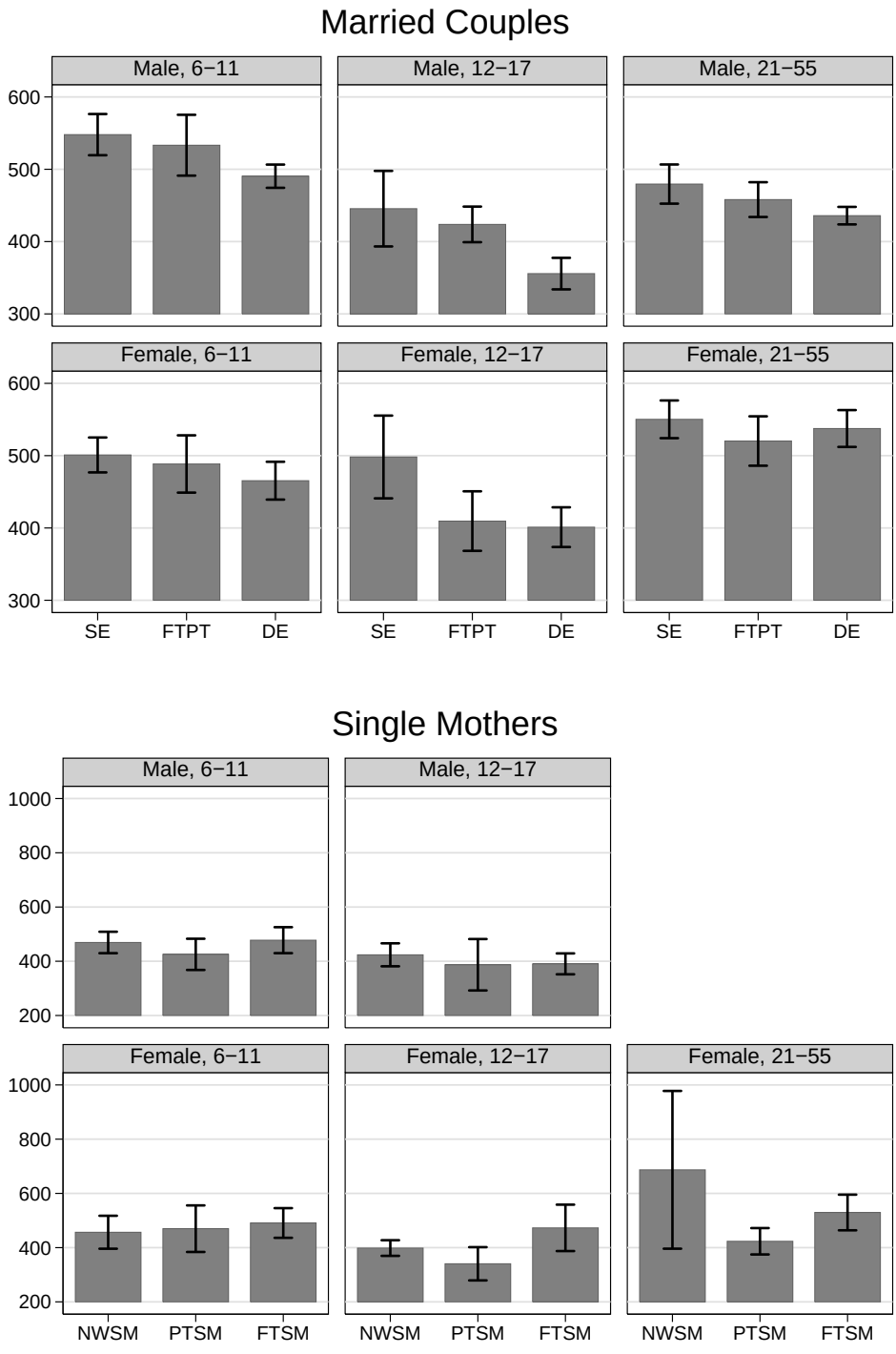


Figure 10: Mean Vitamin C Density, by Sex, Age, and Family Types

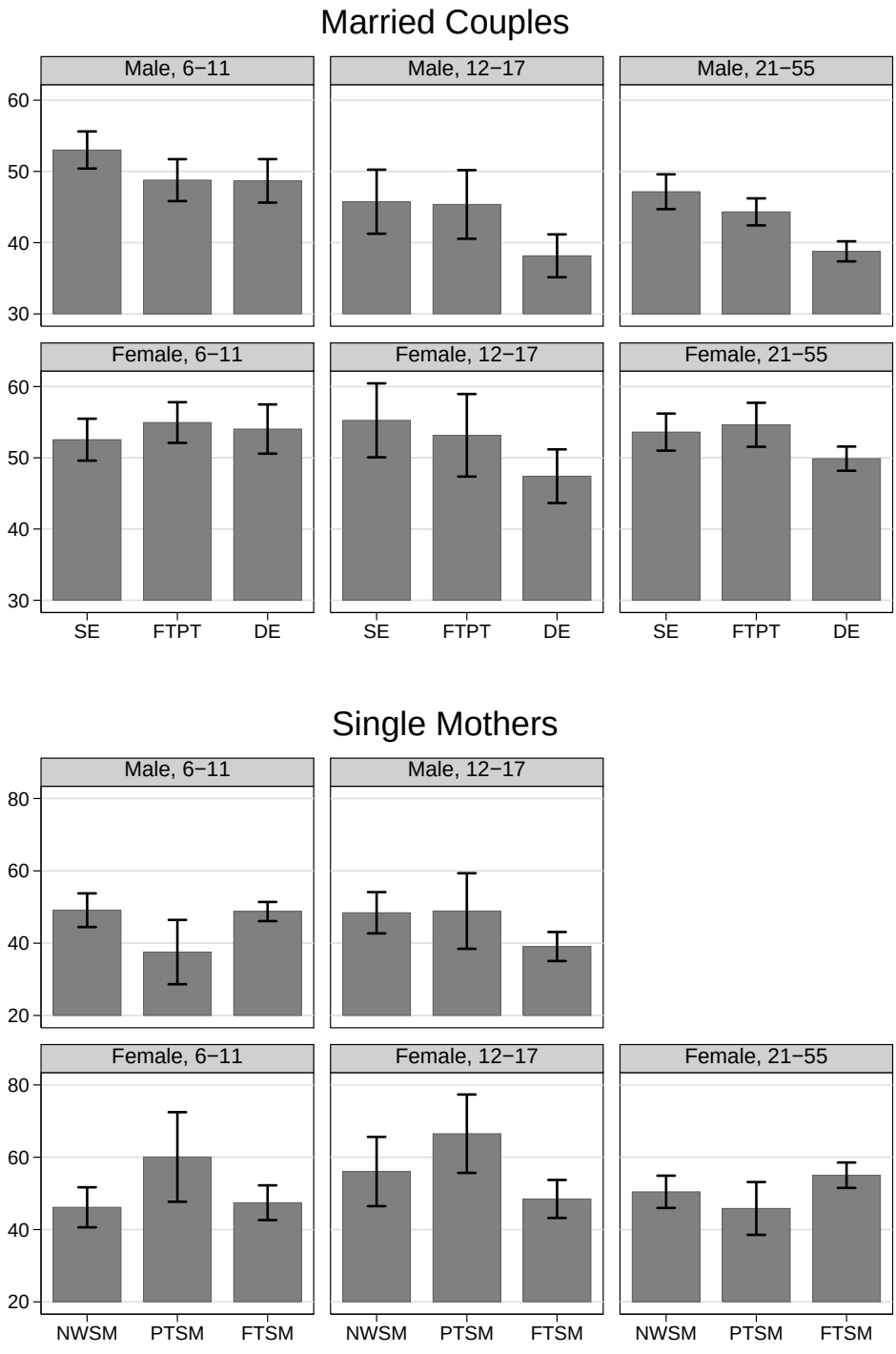


Figure 11: Mean Vitamin B6 Density, by Sex, Age, and Family Types

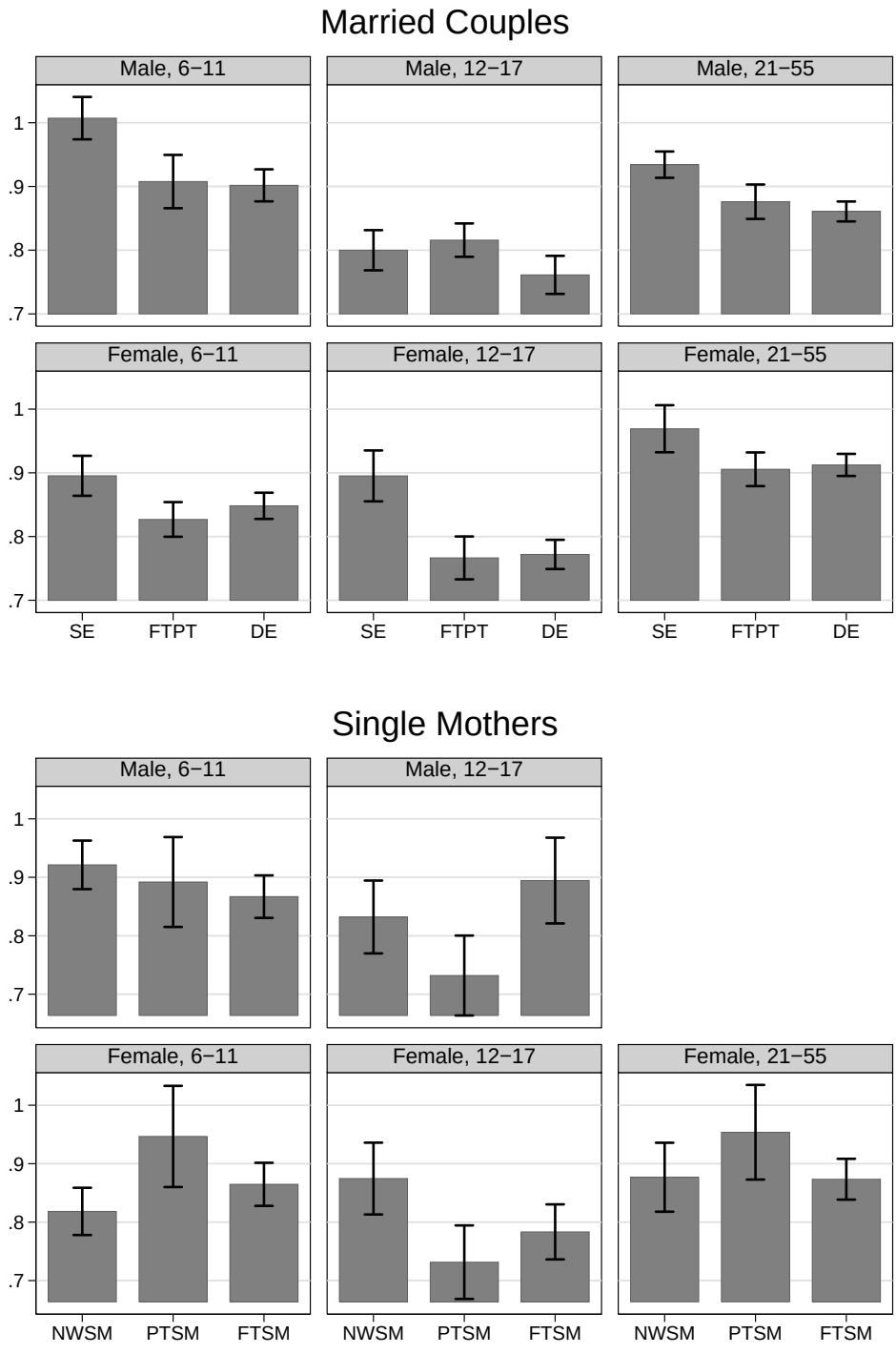


Figure 12: Mean Iron Density, by Sex, Age, and Family Types

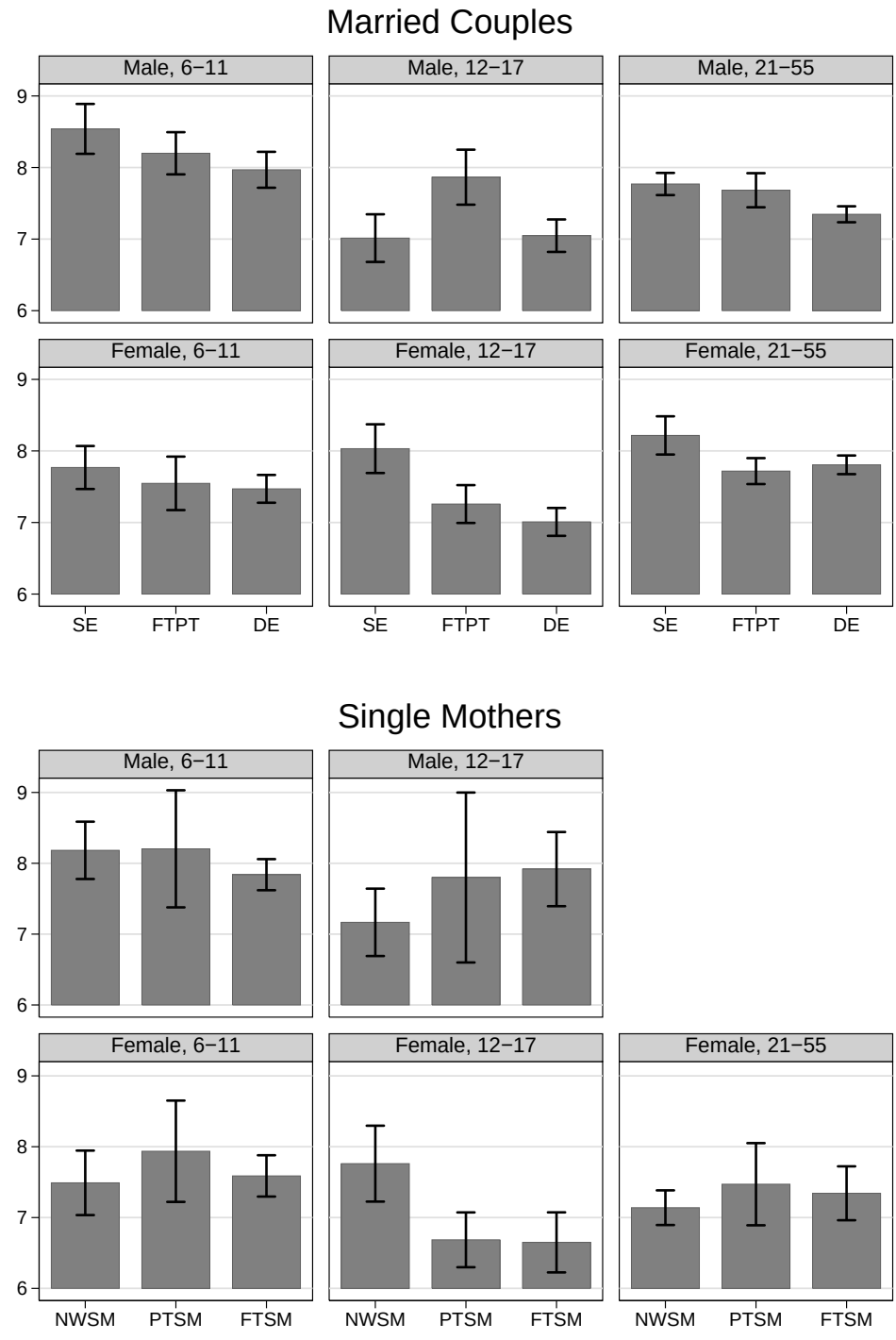


Figure 13: Mean Fiber Density, by Sex, Age, and Family Types

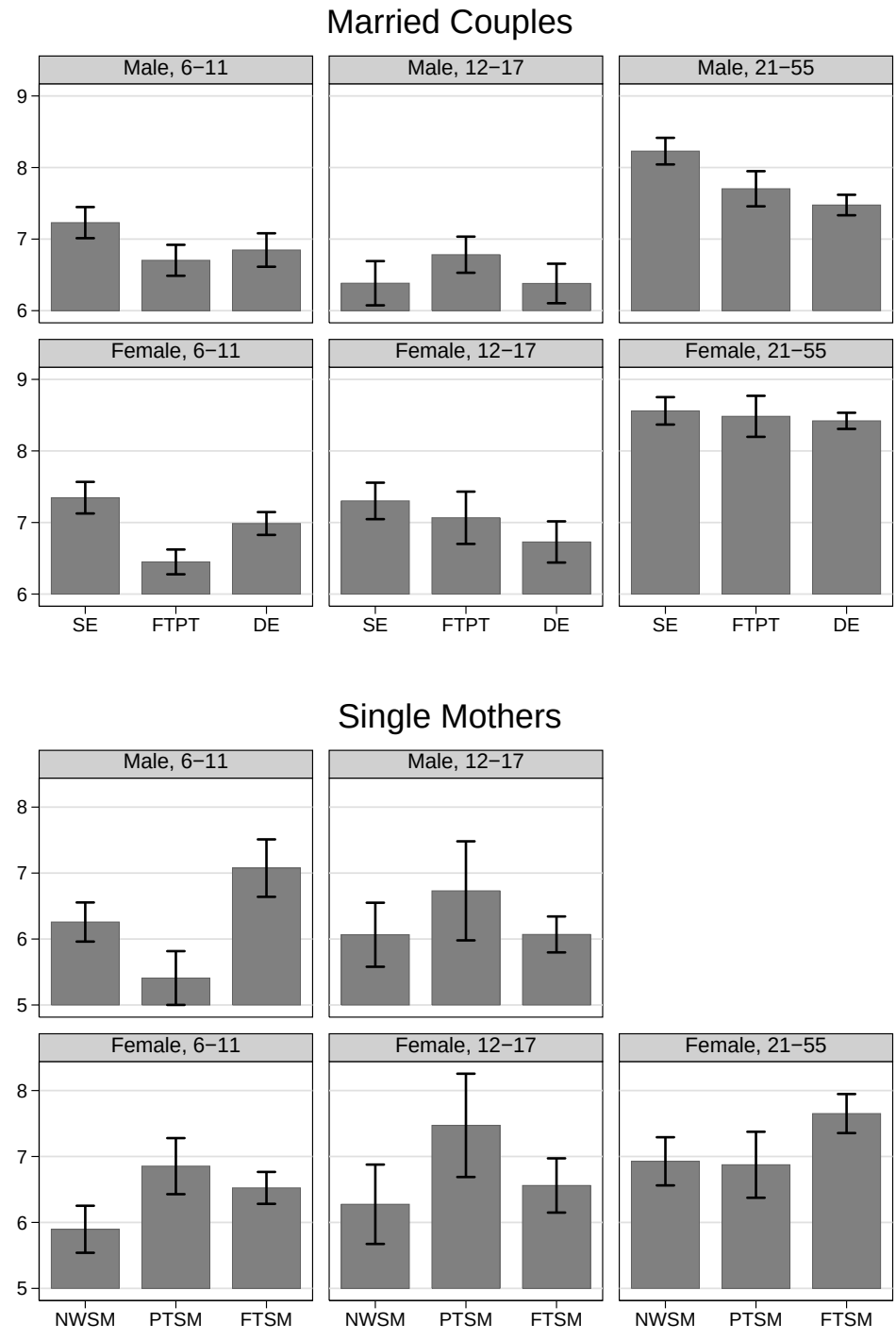


Figure 14: Mean Folate Density, by Sex, Age, and Family Types

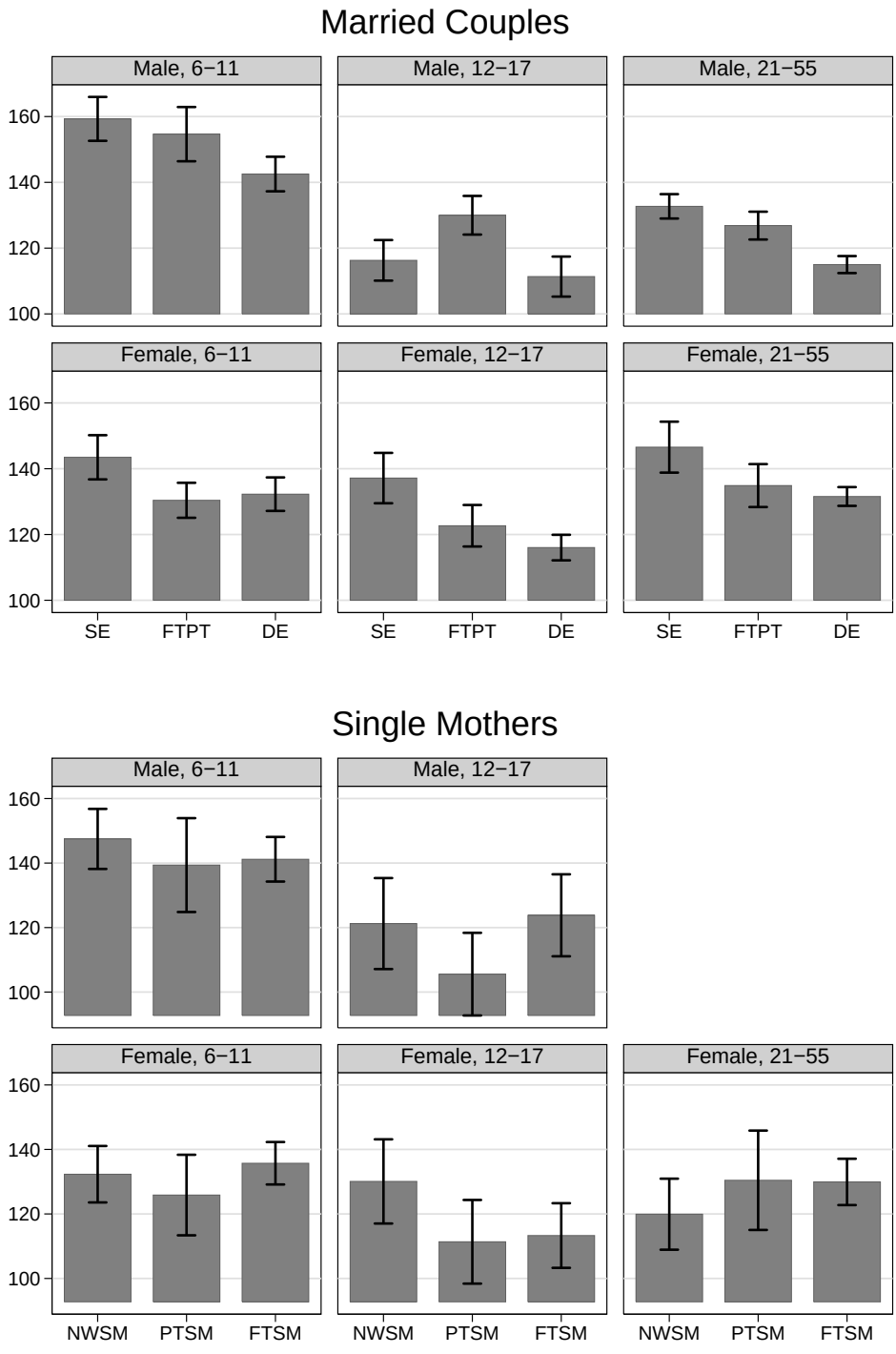


Figure 15: Mean Riboflavin Density, by Sex, Age, and Family Types

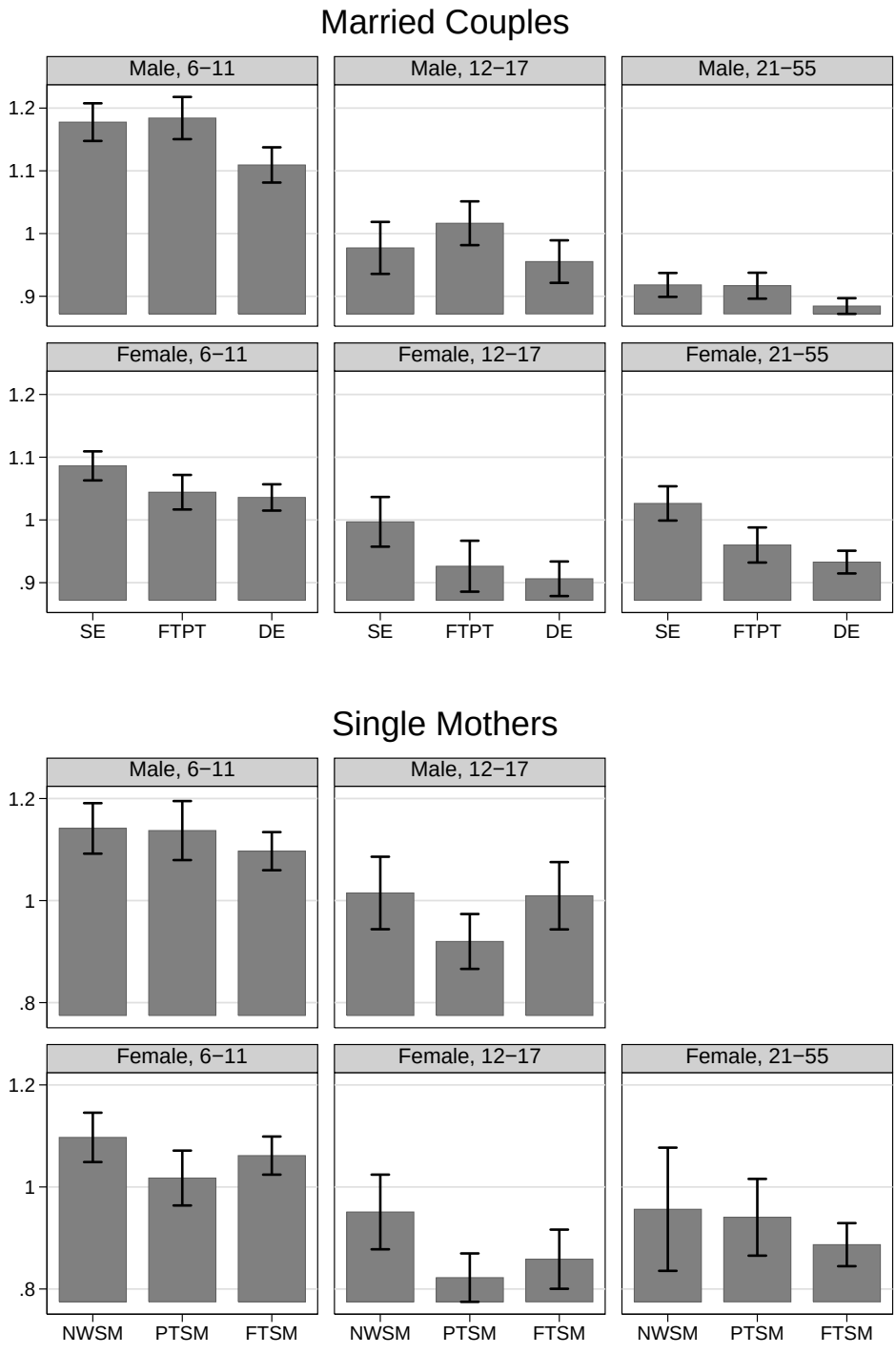


Table 1: ATUS Variable Means - Married Couples [a]

Variable	**Single-Earners**	**FT/PT**	**Dual-Earners**
Husband Weekly Work Hrs	46	46	45
Wife Weekly Work Hrs	-	22	42
Husband Food Time [b]	25	26	29
Wife Food Time [b]	115	87	67
# Children	1.90	1.67	1.25
# Children Age 0-5	0.60	0.34	0.20
Ed Ref Person < 12	0.16	0.06	0.06
Ed Ref Person $= 12$	0.26	0.24	0.29
Ed Ref Person $13 - 15$	0.23	0.29	0.27
Ed Ref Person 16+	0.35	0.41	0.38
Black	0.05	0.04	0.09
Number of Households	4,603	3,173	8,501
Percent of Households	27	18	55

[a] *Households that consist of married couples and their children alone (inluding childless).*

[b] *Food Time is average minutes per day spent on shopping for or preparing food.*

Table 2: CSFII Variable Means - Married Couples [a]

Variable	**Single-Earners**	**FT/PT**	**Dual-Earners**
Husband Weekly Work Hrs	48	48	48
Wife Weekly Work Hrs	-	22	43
Annual Income ($1,000's)	47	53	57
Monthly Exp on Food at Stores	388	386	355
Monthly Exp on Away-Food	143	177	198
Away-Share [b]	0.25	0.30	0.34
# Children	1.63	1.60	1.20
# Children Age 0-5	0.63	0.47	0.31
Ed Ref Person < 12	0.14	0.08	0.07
Ed Ref Person $= 12$	0.33	0.29	0.34
Ed Ref Person $13 - 15$	0.19	0.24	0.27
Ed Ref Person 16+	0.34	0.40	0.32
Black	0.04	0.05	0.08
Number of Households	1,978	1,197	2,406
Percent of Households	27	21	52

[a] *Households that consist of married couples and their children alone (inluding childless).*

[b] *Share of food expenditure that is spent on food prepared away-from-home.*

Table 3: ATUS Variable Means - Single Mothers [a]

Variable	**Not in LF**	**Part-Time**	**Full-Time**
Weekly Work Hrs	-	23	41
Food Time [b]	90	55	56
# Children	1.77	1.89	1.81
# Children Age 0-5	0.28	0.34	0.19
Ed Ref Person < 12	0.35	0.19	0.10
Ed Ref Person $= 12$	0.36	0.33	0.33
Ed Ref Person $13 - 15$	0.21	0.34	0.33
Ed Ref Person 16+	0.08	0.14	0.24
Black	0.34	0.23	0.29
Number of Households	1,079	401	2,062
Percent of Households	35	10	55

[a] *Households that consist of single mothers and their children alone.*

[b] *Food Time is average minutes per day spent on shopping for or preparing food.*

Table 4: CSFII Variable Means - Single Mothers [a]

Variable	**Not in LF**	**Part-Time**	**Full-Time**
Weekly Work Hrs	-	25	43
Annual Income ($1,000's)	16	18	28
Monthly Exp on Food at Stores	280	339	281
Monthly Exp on Away-Food	71	89	126
Away-Share [b]	0.18	0.20	0.29
# Children	1.81	2.10	1.69
# Children Age 0-5	0.51	0.58	0.37
Ed Ref Person < 12	0.39	0.20	0.11
Ed Ref Person $= 12$	0.31	0.35	0.38
Ed Ref Person $13 - 15$	0.21	0.29	0.27
Ed Ref Person 16+	0.09	0.17	0.24
Black	0.35	0.33	0.27
Number of Households	462	147	524
Percent of Households	36	11	52

[a] *Households that consist of single and their children alone.*

[b] *Share of food expenditure that is spent on food prepared away-from-home.*

Table 5: Food Time - Married Couples

$FoodTime = \alpha_0 + \alpha_1 Fem + \alpha_2 FT/PT + \alpha_3 DE + \alpha_4 FT/PT \cdot Fem + \alpha_5 DE \cdot Fem + \beta Z + \epsilon$		
Variable	**Coefficient**	**(Std. Err.)**
Female	91.10***	(3.28)
FT/PT	2.72	(2.31)
DE	9.28***	(2.04)
FT/PT · Female	-28.58***	(3.28)
DE · Female	-51.81***	(4.87)
Age	4.13***	(0.65)
Age Squared	-0.00***	(0.01)
Ed =12	-19.63***	(4.06)
Ed 13-15	-19.83***	(4.02)
Ed 16+	-18.33***	(3.93)
#Children	4.74***	(0.81)
#Children 0-5	2.81**	(1.39)
Black	-1.80	(2.90)
Intercept	21.69***	(14.20)
N	14,364	

Significance levels : * : 10% ** : 5% *** : 1%

Note: Other control variables included in the regression: Regional, urban status, and year dummies.

Table 6: Away-Share - Married Couples

$AwayShare = \alpha_0 + \alpha_1 FT/PT + \alpha_2 DE + \beta Z + \epsilon$		
Variable	**Coefficient**	**(Std. Err.)**
FT/PT	0.04***	(0.009)
DE	0.07***	(0.007)
Ed Wife =12	0.02**	(0.012)
Ed Wife 13-15	0.04***	(0.013)
Ed Wife 16+	0.05***	(0.012)
#Children	-0.02***	(0.003)
#Children 0-5	-0.01	(0.007)
Black	-0.02	(0.016)
Intercept	-22.5***	(0.018)
N	5,544	

Significance levels : * : 10% ** : 5% *** : 1%

Note: Other control variables included in the regression: Regional, urban status, and year dummies.

Table 7: Food Time - Single Mothers

$FoodTime = \alpha_0 + \alpha_1 PT + \alpha_2 FT + \beta Z + \epsilon$		
Variable	**Coefficient**	**(Std. Err.)**
PT	-38.02***	(6.87)
FT	-33.92***	(6.85)
Age	1.87	(1.18)
Age Squared	-0.02	(0.01)
Ed =12	4.54	(8.92)
Ed 13-15	-4.37	(8.25)
Ed 16+	0.42	(9.46)
#Children	10.38***	(4.07)
#Children 0-5	7.28	(4.94)
Black	-9.51*	(5.77)
Intercept	30.09	(25.73)
N	2,614	

Significance levels : $*$: 10% $**$: 5% $***$: 1%

Note: Other control variables included in the regression: Regional, urban status, and year dummies.

Table 8: Away-Share - Single Mothers

$AwayShare = \alpha_0 + \alpha_1 PT + \alpha_2 FT + \beta Z + \epsilon$		
Variable	**Coefficient**	**(Std. Err.)**
PT	0.02	(0.019)
FT	0.09***	(0.016)
Ed =12	0.02	(0.022)
Ed 13-15	0.03	(0.024)
Ed 16+	0.05***	(0.029)
#Children	-0.02***	(0.006)
#Children 0-5	-0.01	(0.009)
Black	0.01	(0.016)
Intercept	0.15***	(0.036)
N	1,119	

Significance levels : $*$: 10% $**$: 5% $***$: 1%

Note: Other control variables included in the regression: Regional, urban status, and year dummies.

Table 9: Away-Share Effect on HEI, by Sex and Age - Married Couples

$HEI = \alpha_0 + \alpha_1 AwayShare + \alpha_2 Income + \beta Z + \epsilon$						
Variable [a]	Males			Females		
	6-11	**12-17**	**21-55**	**6-11**	**12-17**	**21-55**
AwayShare [b]	-0.05	-0.07*	-0.07***	0.02	-0.06	-0.07***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)	(0.02)
Income [c]	0.04	0.04	0.06***	0.05***	-0.01	0.03***
	(0.02)	(0.03)	(0.01)	(0.02)	(0.03)	(0.01)
#Children	0.11	0.52	-0.17	-0.24	-0.63	-0.59**
	(0.49)	(0.52)	(0.23)	(0.37)	(0.53)	(0.28)
#Children Age 0-5	0.86	-1.27	0.20	1.63**	0.45	0.59
	(0.66)	(1.36)	(0.48)	(0.69)	(1.02)	(0.50)
Ed Wife =12	-0.02	3.16	0.46	-3.62	-3.55	-0.25
	(1.32)	(3.20)	(1.12)	(2.72)	(2.30)	(1.48)
Ed Wife 13-15	0.94	4.00	0.83	-3.17	-1.50	1.35
	(1.59)	(3.23)	(1.15)	(2.34)	(2.00)	(1.35)
Ed Wife 16+	1.82	4.51	3.64***	-1.14	-0.04	4.81***
	(1.38)	(3.39)	(1.16)	(2.72)	(2.44)	(1.54)
Black	-5.81***	0.03	-4.91***	-0.84	-4.70**	-4.02***
	(1.32)	(1.70)	(1.52)	(1.22)	(2.32)	(1.26)
Rural	-3.49***	-1.84**	-2.31***	-2.55	-3.62**	-3.17.***
	(1.30)	(1.01)	(0.72)	(0.86)	(1.59)	(0.80)
N	594	321	1,482	560	312	1,292

Significance levels : $*$: 10% $**$: 5% $***$: 1%

[a] *Other control variables included in the regression: Regional and year dummies.*

[b] *AwayShare is percent of food expenditure spent on food prepared away-from-home.*

[c] *Annual income measured in $1,000's.*

Table 10: Away-Share Effect on HEI, by Sex and Age - Single Mothers

$HEI = \alpha_0 + \alpha_1 AwayShare + \alpha_2 Income + \beta Z + \epsilon$					
Variable [a]	Males		Females		Mothers
	6-11	**12-17**	**6-11**	**12-17**	**21-55**
AwayShare [b]	-0.08**	-0.01	-0.01	-0.13	-0.04
	(0.04)	(0.07)	(0.05)	(0.09)	(0.02)
Income [c]	0.08	0.06	0.12*	0.12	0.05
	(0.07)	(0.10)	(0.07)	(0.13)	(0.05)
#Children	-0.22	0.27	0.94	-0.74	-0.44
	(0.83)	(1.21)	(1.08)	(1.40)	(0.86)
#Children Age 0-5	-0.78	2.07	-0.76	1.83	0.01
	(1.35)	(2.71)	(1.61)	(3.46)	(0.73)
Ed Mother =12	-2.69	-0.44	4.95**	-0.20	-0.44
	(1.94)	(2.61)	(2.52)	(2.52)	(0.86)
Ed Mother 13-15	-0.26	1.52	0.30	-1.04	2.45
	(2.02)	(3.87)	(3.45)	(2.89)	(1.75)
Ed Mother 16+	-0.70	3.27	2.21	-0.32	4.26**
	(3.30)	(3.15)	(3.69)	(4.14)	(1.99)
Black	-2.03	-4.30*	-2.09	-6.55**	-5.43***
	(1.53)	(2.41)	(1.94)	(2.52)	(1.58)
Rural	0.63	4.08	-5.90***	-3.44***	-4.49***
	(1.85)	(2.58)	(1.72)	(2.28)	(1.33)
N	148	87	125	93	298

Significance levels : $*$: 10% $**$: 5% $***$: 1%

[a] *Other control variables included in the regression: Regional and year dummies.*

[b] *AwayShare is percent of food expenditure spent on food prepared away-from-home.*

[c] *Annual income measured in $1,000's.*

Table 11: HEI Means, by Family Type, Sex, and Age - Married Couples

Family Type	Males			Females		
	6-11	**12-17**	**21-55**	**6-11**	**12-17**	**21-55**
Single-Earner	69.37	65.18	63.26	69.26	65.99	65.38
	(1.05)	(1.14)	(0.49)	(0.88)	(1.03)	(0.58)
FT/PT	67.22*	64.58	62.65	67.34	62.85*	65.21
	(1.07)	(1.39)	(0.81)	(0.88)	(1.50)	(0.97)
Dual-Earner	66.58**	61.90**	60.90***	66.29**	61.92***	63.58***
	(0.76)	(0.69)	(0.46)	(0.71)	(0.98)	(0.41)
N	594	321	1,482	560	312	1,322

Significance levels : $*$: 10% $**$: 5% $***$: 1%

Note: Significance level is for a t-test of difference from single-earners.

Table 12: HEI Means, by Family Type, Sex, and Age - Single Mothers

Family Type	Males		Females		Mothers
	6-11	**12-17**	**6-11**	**12-17**	**21-55**
Not in Labor Force	64.36	60.53	62.93	59.15	58.44
	(1.53)	(2.80)	(1.26)	(2.00)	(1.24)
Part-Time	63.07	62.19	63.19	65.82	61.84*
	(1.92)	(2.48)	(3.96)	(3.70)	(1.86)
Full-Time	65.86	60.42	66.48*	62.56	61.37*
	(1.15)	(1.31)	(1.24)	(1.72)	(1.03)
N	594	321	560	312	1,322

Significance levels : $*$: 10% $**$: 5% $***$: 1%

Note: Significance level is for a t-test of difference from non-workers.