

What makes a good Dad/Head of Household other than earning bread?—A Non-pecuniary Study based on ATUS and PSID

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Abstract: *This paper examines the relationship between the dads/head of households' behavior and child performance to measure the effects of fraternal parent absence and dissatisfaction on the child performance using the ATUS data from the BLS and the PSID database from the University of Michigan.*

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1. Introduction

Family behaviour is subtle and difficult to observe when we try to evaluate the performance of a child, yet what always is affecting a child is that, indeed, the origin of his/her family. Although wealth status, education, religious beliefs, and ethnicities are observable traits, the family members themselves in the same households, are sometimes rare presentations in research. In some cultures, dad absence is considered normal because such countries face development pressure, dads usually cannot go home as they must work for many hours outside to earn a living. Mothers, in this case, are usually the main strength of caregiving, babysitting, housework, home education and other miscellaneous household tasks. For tax purposes, there are four filing status: married filing jointly, married filing separately, single and head of households.

It is believed that dads/heads of households are important for children because dad relationship to kids is the foundation of early childhood emotion development, of the baseline of interpersonal relationships, and even of the daughters' marriage in the future. Dads are usually educators to help children establish a sense of rules and disciplines, dads are the bread earners, the household's masculine power generator, and the safety defense. Hence, they serve many in-house and out-in-society roles. In news we sometimes hear neglect or endangering of children, if causing severe damages either intentionally or unintentionally, may be considered a crime.

This paper examines the relationship between the dads/head of households' behavior and child performance to measure the effects of fraternal parent absence and dissatisfaction on the child performance using the ATUS data from the BLS and the PSID database from the University of Michigan.

2. Literature Review

This paper contributes to pushing the frontier of studying the connection between dad absence and child performance. Descriptive research in this realm is abundant. Boston Centers for Work and Family once conducted a qualitative research on "The New Dads" collecting 963 respondents of about 60% managers, 37% salaried workers, and 3% paid hourly. There are many dimensions evaluating a quality dad, (Wood, 2004) yet they have not applied a unique econometrics tool onto a largely surveyed database to gain the insight. This paper focuses collectively on studying the dad absence and child assessment aiming to get a clear quantitative direction of how helpful a dad in a household is.

The mostly cited paper in this realm comes from Shelly Lundberg and her demographic research in University of California, Santa Barbara. Despite extensive research on "bargaining in marriage" using not only econometric tools but also game theory tools, she is also involved in similar research topics

such as “son and daughter effect”, “labour supply of husbands and wives” etc. Her research “Gender gaps in the effects of childhood family environment: Do they persist into adulthood?” is rooted in the soil of Denmark for its good ground with low poverty prevalence, especially for single-parent households. Thus, exclusion restriction is better applied in gender difference than other factors. Second, her paper also provides a large- scale result for adults all the way along from their childhood, which is unique. Thirdly, Denmark has sufficient data from 1980 to 2015 with cohorts born from 1966 to 1995, providing paternal education data while the U.S. data does not reveal paternal administrative indicators.

This paper, to some extent, tried to answer Shelly Lundberg’s question on the American data with dad’s absence behaviour. Since dad absence is not surveyed (or only slightly surveyed), we tick out all the paternal side of activities using PSID and ATUS. We cannot link the PSID and ATUS because they are different data pools, however, by referring to ATUS, we could gain an understanding of how dads’ time are spent and how this could draw a potential influence on the Child Assessment scores in PSID in terms of child performance.

Also, Thomas S. Dee, the well-known economist in education serving his tenure at Stanford Institute for Economic Policy Research, mentioned in his much research on economics and education that, education is not just effective at school. Unobserved traits in family behaviour, especially mother and father, can impact a lot. Although his most research realm lies in immigration family, school reform and enrolment and political influences onto education, many of his works still enlighten this research.

Other papers cited include family environmental studies (Wood,2004), occupational transmission by family members (Oren, 2013), ways of communications of dads (Schon, 2014) dad absence and substance use (Stover,2018), and how parental residence affect children’s psychological aspects. (Nikolayev, 2015) These are all effects of dad absence towards children and have enlightened our thought onto this topic. However, this paper only bases itself on the PSID and ATUS survey and tries to separate variables relating to dad’s time spent at home and the child assessment scores.

From inter-generation human capital perspective, much research also have pointed in this field that, dads’ occupation usually correlates with children’s occupation and subsequently, the income that children earn. In this research, we are merely trying to tick out the non-pecuniary effects that head/wife have in children’s assessment. The reason why we are doing this is because we try not to consider too much of the socioeconomic status of a family rather than the behaviour of both parents. Income effects bring much unobserved traits of families, but we need to peel the income effect out of the actual performance of parents and children and only examine how correlations could be drawn between kids’ assessment scores and family members’ behaviours.

3. Research Question

This paper studies the difference of time spent on household chores and childcare works between men and women using ATUS, it also tempts to examine how the time spent of dads onto the household can affect children and their assessment scores using PSID.

What is not included in this research are:

- 1) The effects of pecuniary revenue of dads or wives earned for the household.
- 2) Families that do not have a head or a wife. (head of household with kids with no wives are sampled, though)
- 3) Population that remained single or had no kid.
- 4) Schooling or institutional education of kids (as these can be paid by pecuniary benefits).

All in all, this research is trying to mimic the family environment and thus draw some conclusions on the quality time spent on children and the effect of such quality times. It also provides some insights on father’s occupation/civic activities preference as these features are not monetizable.

4. Data at a Glimpse

This research uses two databases, ATUS (American Time Use Survey) and PSID (Panel Survey of Income Dynamics).

4.1 ATUS

ATUS (American Time Use Survey) is another data pool that we may refer to, although not linked directly to the same cohorts that PSID are surveyed on, powered by the U.S. Bureau of Labor Statistics, ATUS gives good selection options of gender of men and women with age groups of 15 to 65 years old. It also provides abundant job market statistics in terms of employments. Respondents are non-employed, employed part-time, employed full-time, employed and on days worked (either part-time or full-time). The data base also provides sufficient parent information regarding whether they have:

- No own household children under age 18.
- Own household children under age 18: youngest child 6-12, youngest child 13-17.
- Own household children under age 13.
- Own household children under age 6.

Activities also vary. Personal activities are sleeping, grooming, health-related self-care, travel related to personal care, eating and drinking, travel related to eating and drinking, housework, interior drinking, laundry, storing interior household items including food, food preparation and cleanup, kitchen and food cleanup, lawn and garden care, household management, financial management, etc. (See Appendix A)

Here we could associate all the variables with paternal work. First, we compare some of the key differences between men and women in family-contributing type of activities. Appendix A has listed all the family-contributing or children-contributing activities excluding personal and self-care, animal-care, self- spent time for the purposes of self-enhancement etc.

ATUS Provides three types of estimates:

- Average Hours Per Day (HPD)
- Average Hours in an Activity (PAT)
- Percentage of Population in this activity for an average day (PCT)

The ATUS data used in this research is surveyed annually from 2009 to 2019 for anyone whose age is above 15 and own at least a household child under the age of 18, regardless of their working status (unemployed, employed part-time, employed full-time) not distinguishing holidays or non-holidays.

Table 1. Percentage of population (PCT), hours per typical day (HPD) and time spent per activity (PAT) comparisons between married men and women who have child(ren) under the age of 18.

Activities	Men			Women		
	PCT (%)	HPD(hrs.)	PAT(hrs.)	PCT (%)	HPD(hrs.)	PAT(hrs.)
Housework	7.57%	1.29	1.32	56.97%	1.03	1.82
Interior cleaning	13.14%	0.2	1.35	39.53%	0.65	1.64
laundry	7.45%	0.96	1.00	30.89%	0.34	1.11
Storing interior household items including food	0.34%	0.01	0.33	7.93%	0.03	0.31
Food preparation and cleanup	0.40%	0.83	0.78	80.40%	1.33	1.07
Lawn and garden care	11.48%	0.26	2.28	5.28%	0.08	1.41
Household management	14.99%	0.10	0.67	21.13%	0.14	0.64
Interior maintenance, repair, and decoration	3.72%	0.08	2.22	2.07%	0.04	1.97
Exterior maintenance, repair, and decoration	3.66%	0.08	2.11	1.46%	0.02	1.35
Travel related to household activities	7.57%	0.04	0.16	9.27%	0.04	0.44
Grocery Shopping	10.52%	0.08	0.77	19.46%	0.16	0.81
Household services	1.61%	0.01	0.78	1.87%	0.01	0.56
Caring for and helping household members includes travel	27.77%	0.52	0.59	43.61%	0.28	2.61
Caring for and helping household children under 18	57.2%	0.93	1.64	77.5%	1.74	2.25
Caring for and helping household children (except educational and health activities)	55.49%	0.93	1.52	76.08%	1.53	2.01
Physical care for household children	35.55%	0.28	0.79	60.22%	0.70	1.67
Reading with household children	6.61%	0.03	0.47	11.47%	0.06	0.48
Talking with household children	6.07%	0.03	0.56	12.01%	0.07	0.59
Playing with household children not sports	16.95%	0.29	1.75	19.55%	1.84	1.84
Attending household children's events	3.21%	0.06	1.89	4.55%	0.08	1.81
Activities related to household children's education	7.76%	0.07	0.95	15.56%	0.16	1.05
Helping household children with homework	7.27%	0.07	0.89	13.73%	0.13	0.92
Activities related to household children's health	1.19%	0.018	1.08	4.39%	0.05	1.08
Caring for household adults	0.03%	0.02	0.49	0.39%	0.01	0.48
Physical care for household adults	1.1%	0.01	0.28	0.34%	0.01	1.16
Helping household adults	4.44%	0.39	1.43	3.95%	0.34	1.43
Travel related to caring for and helping household members	27.77%	0.52	0.59	43.61%	0.28	2.61

This table incorporates all the time use data of ATUS for men and women owning kids under 18-year-old and reveals lots of interesting facts in housework, childcare, marriage, and household chores. For example, women are involved, in general, much more than men involvement in such non-pecuniary family activities. Along with our intuition, most of the housework are done by women than men with only few exceptions. Women with kids are highly involved in housework, interior cleaning, laundry, food preparation, grocery shopping, and women are usually the ones who travel to care household members, they are also very highly involved in childcare, physical care for kids, kids' education, kids' homework help, kids' health and travelling to help household members. Men are in general indifferent in these matters despite very few exceptions. However, men are good at outdoor and recreational activities such as lawn and garden care, interior and exterior maintenance. Most of the housework, for the American people during the years of 2009 to 2019, is done by women.

4.2 PSID

PSID is the largest longitudinal household survey in the world and thus provides detailed surveyed data with more than 18000 individuals living in 5000 families in the U.S. Variables. Variables are included in five batches of collections they are:

- a) Individual Data Index
- b) Family Public Data Index
- c) CDS (Child Development Supplement) Data Index
- d) TAS Public Data Index
- e) TAS Restricted Data Index

Individual and family data are relatively self-explanatory. Under the CDS (Child Development Supplement) data index, starting from 1997, PSID initiated the collection with additional data on 0–12-year-old children and parents. Researchers can understand dynamically on the early human capital accumulation process. CDS-I interviewed 2380 families (88%) and provided data on 3563 children.

CDS and TAS started to have data record on 1984 and expand the survey scale all the way to the year of 2019.

The newly created variables for CDS and TAS are:

Table 2. PSID Child Development Supplement Indexes

Descriptor	File Location
Family Relationship of PCG to Child	Demographic File
Family Relationship of OCG to Child	Demographic File
Number of siblings living with child in FU in 1997	Demographic File
Whether biological parents live with child in FU in 1997	Demographic File
Whether biological grandparents live with child in FU in 1997	Demographic File
Behavior Problems Index	PCG-Child File
Positive Behavior Scale	PCG-Child File
Parental Warmth	PCG-Child File
Rosenberg Self-Esteem	PCG-Child File
Pearlin Self-Efficacy	PCG-Child File
Non-Specific Psychological Distress	PCG-Child File
Aggravation in Parenting	PCG-Child File
Parent Disagreement	PCG-Child File
Body Mass Index (BMI)	PCG-Child File
Body Weight Percentile	PCG-Child File
HOME Scale	PCG-Child File
Family Conflict	PCG-Child File
Ability Self-Concepts of Children	Child Interview
Subscale Global Self Concept Child	Child Interview
Time Use Measures	Time Diary Aggregates
School Environment	Common Core of Data

CDS-I incorporates data from family variables. The final versions of PSID-CDS demographic data are included under PSID-CDS “family”, “income plus”, “work hours and wages” data groups. PSID-CDS’s families are all included in PSID main data unless specified otherwise. High-traffic PSID family variables are displayed in PSID-CDS file using the view approach so there are no repetition problems.

There is a definition of PCG-Child and PCG Child here. PCG is the primary care giver with the focus of a child. Observations are family environment, behavioural problem index, parent-reporting schooling and educations, extra-curricular activities, health, and child expenditure savings... PCG must have lived with the child to be considered a primary caregiver, it is usually the biological mother or someone living with the child and providing the care. OCG, on the other hand, is the other care giver representing report from someone else other than the primary care giver.

TAS Public and restricted data are parts of the “Transition into Adulthood Supplement”, and they began in 2005 collecting 6 waves of data until 2015. In 2017, TAS was being collected and covered all the core PSID members. TAS-2019 is collected, too. Information includes psychological functioning, family formation, fertility-related behaviour, cohabitation, childhood adversity, computer skills, responsibilities, employment and income, education and goals, and health. These variables will be talked about when we assess child performance and child assessment.

With CDS and TAS being introduced, this research mostly still focuses on the general data extracted from the PSID main database. Waves of CDS and TAS data are talked about but this research does not consider the CDS and TAS exclusively.

The justification is that this research focuses on dads more than children. It also focuses on non-pecuniary effects of dads than income and socioeconomic status. CDS lacks correlation between adult activities and child performance. Descriptive data on adult daily activities, occupations and other features are mostly in the main dataset. Also, the main dataset includes routine variables of CDS and TAS, so this research has not ticked the CDS and TAS out and considered these variables another single research.

With the solicitation of PSID main data centre including all waves of CDS and TAS, 1511 related variables are selected for this particular research. Every year about 4500-6000 families are surveyed and the result overs the years of 1969 to 2015. Among these families, about 2000 families have kids and about 900 families who have kids worked in the past year. The variables are included in Appendix B. For this particular research we sorted variables starting with V and ER with all V variables are family variables and most ER variables are individual variables with some exceptions. PSID main data’s children and father related data are not as abundant as ATUS in terms of daytime activities descriptions. Yet still the questionnaire designed depicted questions on dad’s age, dad’s number of kids, dad’s smoking, drinking, clubbing, newspaper readership, spare time activities, spare time activity intensities, courses or educational habits of dads, occupations, the earliest age of having children, whether a veteran, non-leisure hours in total to measure how busy the dad was, also, political, and civic activities (such as votes) are also traced in this survey. The questions asked to dads are:

- 1) How many kids do you have?
- 2) How many kids did you have when you were 25?
- 3) What was your father’s occupation?
- 4) Expenditure of smoking?
- 5) Expenditure of drinking?
- 6) How often do you go to social events/ clubs?
- 7) How often do you go to taverns/ bars?
- 8) How often do you read newspaper?
- 9) What do you do for spare time? (first mention and second mention)?
- 10) How many the above-mentioned activities did you do for spare time?
- 11) What courses are you taking in what scale?
- 12) Are you a veteran?
- 13) How many are you/your wife/ average/total non-leisure hours?

14) When was the last time you voted?

These questions are asked from 1969 to 2015. Miscellaneous questions asked uniquely are automatically omitted unless they are relevant to the topic that this research involves. We can see there are assumptions of normal family activities in designing these questions. Accordingly, or not accordingly, we can also see child assessment variables. (See Appendix B1, B2 and B3 for information on the design of the questionnaire)

In inconsistent questions asked, what is mentioning is that after 1972, mother's work status was also brought up by asking what arrangements were taken by the family to allow women to work. 751 out of 5285 respondent families answered yes, they rearrange the childcare plans to allow women to work while 167 respondent families rejected the rearrangements to let women work.

Also, starting from 1975, the questionnaire input questions on the female and male children aging 14- 17, 18-20, 21-29 to emphasis on these demographic groups of children (presumably the purpose is designed for the collection of TAS data). In 1976's result when the first-time wives participated in PSID survey, amongst 5862 families, 1397(23.83%) wives clearly stated that husbands would also look after children while 4075 (69.52%) clearly stated that husbands do not look after children at all. Also, in the same year, (with 5592 missing data on this question, about 2000 are married and have kids), 173 wives stated they stayed at home and 20 stated their husbands stayed home. 25 stated someone else stayed home and 31 stated it was a combination. (With the same year's 4864 missing data, about 2000 are married and have kids) 743 wives stated that they could take a job when arranging childcare well, 159 stated that they cannot manage both well. In the question of "do you think going to work will cause troubles in family?", (with 5118 missing data about 2000 are married and have kids), 369 stated "yes" and 363 stated "no" clearly. (with 5495 missing data about 2000 are married and have kids), amongst the 369 wives who thought going to work is a problem for family, 111(30.66%) stated that children need attention, 66 (18.23%) stated schedule was inconvenient, 57 (15.75%) stated this would lead to less home production, 12 (3.32%) stated that "I will be too tired", 77 (20.87%) stated "my husband/kids will be disagreeing", 3 (0.81%) stated "there will be less money" and 36(9.76%) have other reasons.

On husbands' side, "why if your wife work there's a problem?" is also asked starting from 1976. (5862 respondents, 5702 missing data, about 2000 married have kids), Amongst 157 husbands answering meaningfully in this question, 7 husbands said children had special need, 3 said too far, 2 stated "I have too many children", 10 stated "if wife works out the quality of childcare is too poor", 57 stated "then there would be no childcare", 25 stated "childcare is too expensive", 11 stated "I have no real reason but wives should stay home with kids" and 39 stated "I have other reasons". In the same 1976 survey, (5862 respondents), 518 answers stated yes to the question of "is there any child(ren) not born by wife" while 2957 answered clearly "no" to that question (the rest 2358 was missing).

Also, what is interesting is that, in 1985, the questionnaire included the children born out of wedlock. Out of 7032 respondents, about (2834 in marriage and had kids), 1903 clearly stated there was no illegitimate children, 287 stated that all the children born was outside marriage, and 316 stated some of their children were born outside marriage. The mean of number of children out of wedlock was 0.088. (As this situation was still unusual.) What is interesting is, in the same year's same data, women respondents stated that 619 children were born from another man than the present husband and 4487 stated all the children were born to the present husband, with the rest not applicable to this question.

In the 1985 survey, an ego-alter dataset was created for women heads, wives and more unusual situations were added such as adoption, responsibility for unborn children, children born by women from a different man etc., pregnancy expenses related to Medicaid, WIC, ADC, AFDC, food stamps programs, adults living together other than husband-wife-kids, these situations are also surveyed in this year. as such scenarios are still representing a small portion of dad-mom-children's relations and are difficult to quantify or are irrelevant to this topic, other than clearly stated, this research omitted these variables when modelling.

In 1990's survey, PSID for the first time added the 2042 Latino family cohort samples other than the 7328 core sample cases which can help researchers target specifically to this ethnic group.

We can also see that in consistent with the previous nuances in the survey during different years, other historical movements can impact family surveys. In the 2010s, the distinction between wives and husbands are omitted. Instead, the survey names all the men and women "spouses" to omit gender bias. In 2015, when the survey approaches its latest era, interactions between families are mentioned as more "long distant families" come into being, also, the topic of "time pressure" is surveyed this year by asking the question "How often are you pressured by time?". These are just the reflections of how the

lifestyle of human beings are changing.

All in all, the child assessment correlates very much with all features of head and wife. In the model we are to measure how child assessment is impacted by these factors.

Our child assessment scores are taken from the PSID-CDS session measuring only test scores. Cognitive, behavioural and expectational scores are not used. The assessment scores are just the Wechsler Intelligence Scale for Children (WISC) Digit Span raw scores and the Woodcock Johnson raw scores testing on applied problems, broad math, broad reading, calculation, letter-word, and passage comprehension scores. This paper understands the limitations of merely assessing child intelligence scores but as that is still a way to assess human development, we are using these two scores. We also understand that these scores cannot exclude children's school education, however, this paper has not taken the separate school education variable out when regressing the model as the saying goes "A parent is a child's first teacher".

5. Modelling

What affect child performance besides schooling? We can trace the causation of family activities onto the child performance/assessment results by running the regressions. We could construct the following model and run a single-probit model to evaluate the initial regression result:

5.1 Defining Child Assessment

Child assessment, other than socio-economic status, is surveyed in the CDS data with the same cohort of PSID main data. However, as this sub-dataset's issue is brought up in very recent term, the data only includes child assessment indicators from 1997 to 2007. It is surveyed four times so the surveyed time point is 1997, 2002, 2007 and 2013. If we take child assessment scores as the only dependent variables, we are looking at these scales of 1997, 2002, 2007 and 2013:

- 1) Height (2013 missing)
- 2) Body mass (2013 missing)
- 3) Weight (2013 missing)
- 4) Letter Word Raw Score
- 5) Passage Comprehension Raw Score
- 6) Applied Problem Raw Score

In 2013, what is added is the math ability. Although math ability is essential in child assessment, this research believes that it is irrelevant to our main study, so we ignored the variables representing math ability. Also, intuitively speaking, height, body mass, weight these variables would make sense for the study of correlation with the parental behaviour. However, we still include these variables representing appearance when we conduct the analysis.

5.2 Baseline Model on Husbands and Wives

Child performance = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (0)

Changing the child performance to the detailed height, body mass, weight, letter word, passage comprehension and applied problems, we get 6 equations:

Height = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (1)

Body mass = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (2)

Weight = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (3)

letter word score = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (4)

Passage Comprehension = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (5)

Applied Problems = α head military + β wife in military + δ family alcohol + θ head father's occupation + ρ head housework hours + ϕ wife housework hours + ε (error term) (6)

By regressing the variables of the years 1997, 2002, 2007 and 2013 in Stata, we get:

Table 3. 1997 PSID main and PSID-CDS, regression results for child assessment scores and family behaviors

	Head military	Wife military	Family alcohol	Head father occupation	Head housework hours	Wife housework hours	ε
Height	-.1510465	-.2850678	.4635501	.0042141	.0067258	-.0158803	49.82141
Std. Error	(.28913)	(.29668)	(.30219)	(.00232)	(.00792)	(.00889)	(1.7183)
Body mass	.5785653	.8827281	-.71804	-.00622	.0007445	.0111693	32.75
Std. Error	(.540257)	(.5543524)	(.5646486)	(.0043429)	(.0148033)	(.0166112)	(3.21)
Weight	.0502726	.069112	-.0534805	-.0004754	.0007023	.0008091	3.624076
Std. Error	(.045502)	(.0466)	(.04755)	(.00036)	(.00124)	(.00139)	(.27041)
Letter word score	-.6285248	-.214998	.1367035	-.00042	-.0016021	.0065948	30.55206
Std. Error	(.3382438)	(.3653698)	(.3536657)	(.0023686)	(.0075639)	(.01641)	(1.9947)
Passage Comprehension	9.278764	1.670104	.7345943	.0227823	-.0965974	-.0988025	597.8723
Std. Error	(4.950938)	(5.347987)	(5.1766)	(.04197)	(.11071)	(.240246)	(29.197)
Applied Problems	-.3216567	.1480414	.0912024	-.0016887	-.0008546	-.0010411	26.13853
Std. Error	(.2650463)	(.2863021)	(.2771308)	(.002247)	(.005927)	(.0128615)	(1.5630)

Table 4. 2002 PSID main and PSID-CDS, regression results for child assessment scores and family behaviors

	Head military	Wife military	Family alcohol	Head father occupation	Head housework hours	Wife housework hours	ε
Height	-.2886671	-.0512756	.0657161	-.0008099	-.0126786	.0026891	61.39038
Std. Error	(.1643522)	(.1253272)	(.17121)	(.00108)	(.00879)	(.0045135)	(1.090918)
Body mass	-.3042449	.1614052	-.0578215	-.0005381	-.010373	-.0022833	24.011
Std. Error	(.2060)	(.157135)	(.214668)	(.0013649)	(.0110269)	(.0056591)	(1.36)
Weight	-3.6183	1.122524	-1.404567	-.0063078	-.12158	-.01055	143.4587
Std. Error	(2.0703)	(1.5787)	(2.1568)	(.013713)	(.110789)	(.05685)	(13.742)
Letter word score	-.2431496	-.1713106	.0208714	.0023686	-.0012541	.0044476	42.14405
Std. Error	(.2119662)	(.1616354)	(.220816)	(.0014039)	(.0113427)	(.00582)	(1.4069)
Passage Comprehension	.1684131	.06949	-.37220	-.00024	-.002712	-.00874	27.12304
Std. Error	(.2880951)	(.2196877)	(.30012)	(.00190)	(.01541)	(.00791)	(1.9122)
Applied Problems	-.059704	.0898841	-.181833	.0015258	.0014783	.0003796	35.17771
Std. Error	(.1986217)	(.1514595)	(.206914)	(.00131)	(.01062)	(.005454)	(1.3183)

Table 5. 2007 PSID main and PSID-CDS, regression results for child assessment scores and family behaviors

	Head military	Wife military	Family alcohol	Head father occupation	Head housework hours	Wife housework hours	ε
Height	-.1449676	-.0747373	-.1428048	-.0002362	-.0024788	.0031772	67.28886
Std. Error	(.2301592)	(.1605732)	(.21550)	(.00123)	(.004606)	(.0065182)	(1.421275)
Body mass	-.0200541	-.1226542	-.2669062	.001415	-.006354	-.0020405	27.68
Std. Error	(.4570)	(.31889)	(.427985)	(.0024556)	(.0091492)	(.01264)	(2.82)
Weight	-4.407662	-5.207891	-.832712	.0073394	-.0490866	.0155711	188.8765
Std. Error	(3.206111)	(2.236781)	(3.00197)	(.0172239)	(.0641746)	(.0907985)	(19.798)
Letter word score	.0616041	-.107301	-.114278	-.0009218	-.0021318	.007443	47.13565
Std. Error	(.1534285)	(.1070412)	(.143659)	(.0008243)	(.0030711)	(.00434)	(.94744)
Passage Comprehension	.0711434	-.0456253	-.05347	.0001523	-.0014024	.003597	27.2640
Std. Error	(.1257029)	(.0876981)	(.11769)	(.00067)	(.00251)	(.00356)	(.77623)
Applied Problems	-.1082395	-.1245349	-.0787619	.0002018	-.0009147	.0010016	40.44849
Std. Error	(.1797498)	(.1254045)	(.168305)	(.000965)	(.00359)	(.0050906)	(1.1099)

Table 6. 2013 PSID main and PSID-CDS, regression results for child assessment scores and family behaviors

	Head military	Wife military	Family alcohol	Head father occupation	Head housework hours	Wife housework hours	ε
Letter word score	-.2559423	.0509116	.1752689	-.0010752	-.0119814	.0029921	34.52359
Std. Error	(.4549022)	(.2767367)	(.3730048)	(.0020196)	(.0140002)	(.01404)	(2.6776)
Passage Comprehension	4.49922	-1.421663	-1.59283	.0090683	.3361766	-.3303206	601.5512
Std. Error	(5.874043)	(3.573434)	(4.8165)	(.0260)	(.18078)	(.18035)	(34.576)
Applied Problems	-.2258638	.3437493	.2783068	.0001844	-.0163464	.004968	27.98381
Std. Error	(.4187563)	(.2547476)	(.3433664)	(.00185)	(.012887)	(.0129288)	(2.46491)

We can obtain a lot of information from the 4 tables illustrating the child assessment and the family features each year in 1997, 2002, 2007 and 2013, respectively. The detailed regression results can be found by the Appendix B4, categorized by the child assessment variables including height, BMI, Weight, Letter word raw score, Passage comprehension raw score and the Applied problems regressions. By categories, we have found out these results:

5.2.1 Height

Regressing height and similar biogenetic indexes and parental behavior can be disputable. This paper concludes that parents going to military can lead to a negative impact on height. Drinking alcohol and father occupation on height is indeterminate and housework time of both parents on height is indeterminate. As the R-squared of these types of regressions are very small, we only vaguely express the possibly insignificant findings.

5.2.2 BMI

The effect of military status of both parents and the BMI index are left indeterminant. Alcohol has a negative impact on BMI, father's occupation and parents' housework time's effect on BMI is indeterminant.

5.2.3 Weight

Weight is negatively and significantly impacted by alcohol consumption. Military status, father's occupation and both parents' housework time seem to have little effect on children's weight.

5.2.4 Letter Word Raw Score

The effect of parental variables on this one, is indeterminant other than "wife in military" and "husband housework" and "wife housework". It is notable that wife's housework can significantly increase kids' letter word score, if husbands do the housework, the effect is even negative. Also, if wives are in military, chances are often that their children are late on reading letter words.

5.2.5 Passage Comprehension Raw Score

Surprisingly, the impact on this one is not similar to the letter word raw score one (see Table B4-5). In general, husband being in military helps kids to improve their passage comprehension scores. Other variables' effects are indeterminant. So, for the sake of your kids' passage comprehension ability, go join the military!

5.2.6 Applied Problems Raw Scores:

This variable demonstrates weak "husband to teach" preference. (See Table B4-6). Husband being in military can have a negative impact on children's ability to solve applied problems perhaps because of the lack of guidance by fathers.

6. Conclusion and Policy Implications

This research gives meaningful insights and goes back to the origin of economics: household management. Although gender politics and battle of sexes are cliché topics (it has been 100 years and we are still on such gender imbalances), this research, especially the ATUS part, still finds a new way to capture the non-pecuniary benefits received by children in their child development and transition to adulthood process provided by heads of households and fathers (and of course, by moms).

For family behaviour and child assessment scores, the PSID part, although some biophysical

connections between parental behaviour and child assessment scores are indeterminant, we have found out a very important conclusion, that is, mother's housework time, compared to father's housework time, has a positive impact on children's letter word raw scores. (Table B4-4) Father's military status would increase children's passage comprehension scores (Table B4-5) but decreases children's ability of solving applied problems. Father's occupation could greatly increase the children's ability of solving applied problem. This proved our theory of intergeneration human capital. However, who does the housework seems not to influence any of the child assessment scores but the letter word raw scores. Perhaps moms are also naturally teachers for letting kids recognize texts and, broadly speaking, for children's early recognition of languages.

One policy implication is that children's performance might not be so impacted by parents' participation other than the letter word recognition (representing early childhood development). Father's occupation greatly impacts children's ability of solving applied problems. Probably, other than family behaviour, this paper proposes that social work, occupational training is mandatory for the improvement of children if they are assessed. This is not saying that housework is not important, but probably not as important as many feminists propose. Perhaps for children's ability of recognizing letter words, wives should put some effort on teaching kids to at least read the words. However, as kids grow on for passage comprehension and applied problems, this preference of "wives to teach" becomes insignificant.

Appendix A: Selected Family-related Non-pecuniary Activities in ATUS

Variable Numbering	Activities	Index
600001	Personal Care Activities including Travel	
010100	Sleeping	
010200	Grooming	
010300	Health-related self-care	
010400	Personal activities	
180100	Travel-related personal care	
600022	Eating and drinking (includes travel)	
110100	Eating and drinking	
181100	Travel-related to eating and drinking	
600003	Household activities including travel	
020100	Housework	X
020101	Interior cleaning	X
020102	laundry	X
020104	Storing interior household items including food	X
020200	Food preparation and cleanup	X
020500	Lawn and garden care	X
600005	Household management	X
020901	Financial Management	
020902	Household and personal organization and planning	
020300	Interior maintenance, repair, and decoration	X
020400	Exterior maintenance, repair, and decoration	X
020600	Animal and Pet care	
020601	Care for animals and pets (not veterinary care)	
020602	Walking, exercising, and playing with animals	
020700	Vehicle care (by self)	
020800	Appliance, Tool and Toy Maintenance	
180200	Travel related to household activities	X
600018	Purchasing goods and services including travel	
070000	Consumer Goods Purchases	
070101	Grocery Shopping	X
080000	Professional and Personal care services	
080200	Financial services and banking	
080400	Medical and care services	
080500	Personal care services	
090000	Household services	X
090200	Home maintenance, repair, decoration, and construction (not done by self)	
090500	Vehicle maintenance and repair services not done by self	
600069	Government services	
600021	Travel related to purchasing goods and services	
600007	Caring for and helping household members includes travel	X
600008	Caring for and helping household children under 18	XX
030100	Caring for and helping household children (except activities)	XX
030101	Physical care for household children	XX
030102	Reading with household children	XX

030106	Talking with household children	XX
030103	Playing with household children not sports	XX
030110	Attending household children's events	XX
030200	Activities related to household children's education	XX
030201	Helping household children with homework	XX
030300	Activities related to household children's death	X
600009	Caring for and helping household adults	X
030400	Caring for household adults	X
030401	Physical care for household adults	X
030500	Helping household adults	X
180300	Travel related to caring for and helping household members	X
600010	Caring for and helping non-household members (includes travel)	
600011	Caring for and helping non-household children	
600012	Caring for and helping non-household adults	
040400	Caring for non-household adults	
040500	Helping non-household adults	
180400	Travel related to caring for and helping non-household members	
600013	Working and work-related activities including travel	
050100	Working	
050200	Work-related activities	
050300	Other income generating activities	
050400	Job Search and Interviewing	
180500	Travel Related to Work	
600016	Educational activities including travel	
060100	Attending class	
060101	Taking class for degree, certification, and licensure	
060300	Homework and research	
180600	Travel related to education	
600030	Organizational, civic, and religious activities	
140000	Religious and spiritual activities	
140101	Attending religious services	
140102	Participating in religious activities	
600032	Volunteering (Organizational and civic)	
150000	Volunteering activities	
150100	Administrative and support activities (volunteering)	
150200	Social service and care activities(volunteering)	
150300	Indoor and outdoor maintenance, building, and cleaning up services,	
150400	Participating in performance and cultural activities (volunteering)	
150500	Attending meetings, conferences, and training (volunteering)	
100200	Civic obligations and participation	
600066	Travel related to organizational, civic, and religious activities	
600023	Leisure and sports including travel	
120000	Socializing, relaxing and leisure	
600024	Socializing and communicating	
120100	Socializing and communicating except for social events	
120200	Attending or hosting social events	
120300	Relaxing and leisure	
600025	Watching TV	
120301	Relaxing and thinking	
120307	Playing games	
120308	Computer use for leisure (excluding games)	
120312	Reading for personal interest	
120400	Arts and entertainment other than sports	
130000	Sports exercise and recreation	
130100	Sports exercise or recreation	
130131	Walking	
130200	Attending sports or recreational events	
600029	Travel related to leisure and sports	
600033	Telephone calls, mail, and e-mail includes travel	
160100	Telephone calls, to or from	
600072	Household and personal messages	
020903	Household and personal mail and messages	
020904	Household and personal email and messages	
181600	Travel related to telephone calls	
600034	Other activities, not elsewhere classified (including miscellaneous travel)	

Appendix B1: Dads Related-Activities Questions in PSID

1) What was your father's occupation?

- 2) Expenditure of smoking?
- 3) Expenditure of drinking?
- 4) What is the leisure travel time of yours? (including wife, and family average adult number)
- 5) How often do you go to social events/ clubs?
- 6) How often do you go to taverns/ bars?
- 7) How often do you read newspaper?
- 8) What do you do for spare time? (first mention and second mention)?
- 9) How many the above-mentioned activities did you do for spare time?
- 10) What courses are you taking in what scale?
- 11) Are you a veteran?
- 12) How many are you/your wife/ average/total non-leisure hours?
- 13) When was the last time you voted?
- 14) How much time do you spend on housework (starting from 1976)?
- 15) How often do you interact with family members (starting from 2015)?
- 16) How often are you pressured by time? (Starting from 2015)
- 17) How much time do you spend on working per week? (Starting from 2015)

Appendix B2: Child Assessment Questions in PSID main data and PSID-CDS Main Data:

- 1) How many kids do you have?
- 2) How many kids did you have when you were 25?
- 3) Are there rearrangements taken for childcare if your wife is willing to work? (starting from 1972)
- 4) What rearrangements are taken for childcare if your wife is willing to work? (starting from 1972)
- 5) How were children taken care of when you were working? (starting from 1972)
- 6) Hours of childcare per week?
- 7) Are there breakdowns of childcare arrangements in a year and how often? (starting from 1972)
- 8) Does your husband look after children? (starting from 1976)
- 9) How many hours do your husband look after children? (starting from 1976)
- 10) Why if wife works there causes problems in family (starting from 1976)

Appendix B3: Wife-related Questions in PSID

- 1) Are there rearrangements taken for childcare if your wife is willing to work? (starting from 1972)
- 2) What rearrangements are taken for childcare if your wife is willing to work? (starting from 1972)
- 3) Your wife's non-leisure time per week?
- 4) What is your wife's annual hours of childcare? (starting from 1976)
- 5) Occupation of wife's dad? (starting from 1976)
- 6) Occupation of wife's mom (starting from 1976)
- 7) Can you manage childcare and job well? (starting from 1976)
- 8) Do you think you going to work will cause problems in family? (starting from 1976)
- 9) What kind of problems if you work, in your family exist? (starting from 1976)
- 10) How much time do you spend on working per week? (Starting from 2015)

Appendix B4: Child Assessment variables used for regression in each year:

Table B4-1 Height Regressions

HEIGHT	Hmilitary	Wmilitary	Alcohol	FatherOcp	HHswork	WHswork	
Q1A2	ER15935	ER11764	ER15550	ER12152	ER11046	ER11045	1997
Q24A1	ER23433	ER23341	ER23130	ER19959	ER21625	ER21623	2002
Q34A1	ER40572	ER40479	ER38316	ER40536	ER36627	ER36625	2007

HEIGHT Coefficients and error term

Q1A2	-.1510465	-.2850678	.4635501	.0042141	.0067258	-.0158803	49.82141	97
	(.28913)	(.29668)	(.30219)	(.00232)	(.00792)	(.00889)	(1.7183)	
Q24A1	-.2886671	-.0512756	.0657161	-.0008099	-.0126786	.0026891	61.39038	02
	(.1643522)	(.1253272)	(.17121)	(.00108)	(.00879)	(.0045135)	(1.090918)	
Q34A1	-.1449676	-.0747373	-.1428048	-.0002362	-.0024788	.0031772	67.28886	07
	(.2301592)	(.1605732)	(.21550)	(.00123)	(.004606)	(.0065182)	(1.421275)	

Table B4-2 BMI Regressions

BMI	Hmilitary	Wmilitary	Alcohol	FatherOcp	HHswork	WHswork	
BMI97	ER15935	ER11764	ER15550	ER12152	ER11046	ER11045	1997
Q24BMI	ER23433	ER23341	ER23130	ER19959	ER21625	ER21623	2002
Q34BMI	ER40572	ER40479	ER38316	ER40536	ER36627	ER36625	2007

BMI Coefficients and error term

BMI97	.5785653	.8827281	-.71804	.00622	.0007445	.0111693	32.75	97
	(.540257)	(.5543524)	(.5646486)	(.0043429)	(.0148033)	(.0166112)	(3.21)	
Q24BMI	-.3042449	.1614052	-.0578215	-.0005381	-.010373	-.0022833	24.011	02
	(.2060)	(.157135)	(.2146685)	(.0013649)	(.0110269)	(.0056591)	(1.36)	
Q34BMI	-.0200541	-.1226542	-.2669062	.001415	-.006354	-.0020405	27.68	07
	(.4570)	(.31889)	(.427985)	(.0024556)	(.0091492)	(.01294)	(2.82)	

Table B4-3 Weight Regressions

Weight	Hmilitary	Wmilitary	Alcohol	FatherOcp	HHswork	WHswork	
WTIND97	ER15935	ER11764	ER15550	ER12152	ER11046	ER11045	1997
Q24A2	ER23433	ER23341	ER23130	ER19959	ER21625	ER21623	2002
Q34A2	ER40572	ER40479	ER38316	ER40536	ER36627	ER36625	2007

Weight Coefficients and error term

WTIND97	.0502726	.069112	-.0534805	-.0004754	.0007023	.0008091	3.624076	1997
	(.045502)	(.0466)	(.04755)	(.00036)	(.00124)	(.00139)	(.27041)	
Q24A2	-3.6183	1.122524	-1.404567	-.0063708	-.12158	-.01055	143.4587	2002
	(2.0703)	(1.5787)	(2.1568)	(.013713)	(.110789)	(.05685)	(13.742)	
Q34A2	-4.407662	-5.207891	-.832712	.0073394	-.0490866	.0155711	188.8765	2007
	(3.206111)	(2.236781)	(3.001978)	(.0172239)	(.0641746)	(.0907985)	(19.798)	

Table B4-4 Letter Word Regressions

Letter Word raw	Hmilitary	Wmilitary	Alcohol	FatherOcp	HHswork	WHswork	
Q3LWRAW	ER15935	ER11764	ER15550	ER12152	ER11046	ER11045	1997
Q24LWRAW	ER23433	ER23341	ER23130	ER19959	ER21625	ER21623	2002
Q34LWRAW	ER40572	ER40479	ER38316	ER40536	ER36627	ER36625	2007
A14LWRAW	ER57666	ER57556	ER55375	ER57627	ER53676	ER53674	2013

Letter Word Coefficients and error term

Q3LWRAW	-.6285248	-.214998	.1367035	-.00042	-.0016021	.0065948	30.55206	97
	(.3382438)	(.3653698)	(.3536657)	(.0028676)	(.0075639)	(.01641)	(1.9947)	
Q24LWRAW	-.2431496	-.1713106	.0208714	.0023686	-.0012541	.0044476	42.14405	02
	(.2119662)	(.1616354)	(.2208166)	(.0014039)	(.0113427)	(.00582)	(1.4069)	
Q34LWRAW	.0616041	-.107301	-.114278	-.0009218	-.0021381	.007443	47.13565	07
	(.1534285)	(.1070412)	(.1436597)	(.0008243)	(.0030711)	(.00434)	(.94744)	
A14LWRAW	-.2559423	.0509116	.1752689	-.0010752	-.0119814	.0029921	34.52359	13
	(.4549022)	(.2767367)	(.3730048)	(.0020196)	(.0140002)	(.01404)	(2.6776)	

Table B4-5 Passage Comprehension Regressions

Passage Comprehension Raw	Hmilitary	Wmilitary	Alcohol	FatherOcp	HHswork	WHswork
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Q3PCW	ER15935	ER11764	ER15550	ER12152	ER11046	ER11045	1997
Q24PCRAW	ER23433	ER23341	ER23130	ER19959	ER21625	ER21623	2002
Q34PCRAW	ER40572	ER40479	ER38316	ER40536	ER36627	ER36625	2007
A14PCW	ER57666	ER57556	ER55375	ER57627	ER53676	ER53674	2013

Passage Comprehension Raw Score and error term

Q3PCW	9.278764	1.670104	.7345943	.0227832	-.0965974	-.0988025	597.8723	97
	(4.950938)	(5.347987)	(5.1766)	(.04197)	(.11071)	(.240246)	(29.197)	
Q24PCRAW	.1684131	.06949	-.37220	-.00024	-.002712	-.000874	27.12304	02
	(.2880951)	(.2196877)	(.30012)	(.00190)	(.01541)	(.00791)	(1.9122)	
Q34PCRAW	.0711434	-.0456253	-.05347	.0001523	-.0014024	.003597	27.2640	07
	(.1257029)	(.0876981)	(.11769)	(.00067)	(.00251)	(.00356)	(.77623)	
A14PCW	4.49922	-1.421663	-1.59283	.0090683	.3361766	-.3303206	601.5512	13
	(5.874043)	(3.573434)	(4.8165)	(.0260)	(.18078)	(.18135)	(34.576)	

Table B4-6 Applied Problem Regressions

Applied Problem Regressions	Hmilitary	Wmilitary	Alcohol	FatherOcp	HHswork	WHswork	
Q3APRAW	ER15935	ER11764	ER15550	ER12152	ER11046	ER11045	1997
Q24APRAW	ER23433	ER23341	ER23130	ER19959	ER21625	ER21623	2002
Q34APRAW	ER40572	ER40479	ER38316	ER40536	ER36627	ER36625	2007
A14APRAW	ER57666	ER57556	ER55375	ER57627	ER53676	ER53674	2013

Passage Comprehension Raw Score and error term

Q3APRAW	-.3216567	.1480414	.0912024	-.0016887	-.0008546	-.0010411	26.13853	97
	(.2650463)	(.2863021)	(.2771308)	(.002247)	(.005927)	(.0128615)	(1.5630)	
Q24APRAW	-.059704	.0898841	-.181833	.0015258	.0014783	.0003796	35.17771	02
	(.1986217)	(.1514595)	(.2069149)	(.00131)	(.01062)	(.005454)	(1.3183)	
Q34APRAW	-.1082395	-.1245349	-.0787619	.0002018	-.0009147	.0010016	40.44849	07
	(.1797498)	(.1254045)	(.1683051)	(.000965)	(.00359)	(.0050906)	(1.1099)	
A14APRAW	-.2258638	.3437493	.2783068	.0001844	-.0163464	.004968	27.98381	13
	(.4187563)	(.2547476)	(.3433664)	(.00185)	(.012887)	(.0129288)	(2.46491)	

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