# Like Mother Like Daughter
# Empirical Evidence from Iran

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***Spring 2004***

## 1-Introduction

How are the sources allocated within the household? This is a question that economists tried to answer by using the theory of utility maximization. One of the assumptions of this theory is, one person is maximizing her/his utility function in order to efficiently allocate the resources in her/his budget set. But the question set forth by economists is how the parents in a family decide to allocate resources among their children. It seems these decisions are a kind of collective actions between family members especially among the parents.

Some researches have been done to find any gender bias in household allocations in other countries. Durkheim (1933) was the first person who brought the idea of " sexual division of labor" in families. A good deal of research in the last 3 decades by psychologists indicates that fathers play a bigger role in the development of their sons than their daughters. Fathers spend more time with their sons and sons show preference for their fathers at an early age (Lamb 1976). Mothers on the other hand, tend to spend more time with their daughters and have a closer relationship with a daughter than a son .Longitudinal data on child development indicate that the absence of a father(because of divorce) has a more severe and enduring impact on boys than girls ( Hetherington,Cox, and Cox 1978). Similar differences by gender are reported for the impact of divorce on child Health (Mauldon 1990). Duncan (1993) has found that in Brazil, women devote nonlabor income towards improving the heath of their daughters but not their sons. He has also found that in Ghana, if a woman is better educated than her husband, then her daughter benefits more and her son benefits less from her education than if the husband is better educated than his wife. Sociologists and demographers have pointed out that the probability of marital dissolution is smaller if a couple has a son ( Spanier and Glick 1981). It is argued that this reflects a higher price of marital dissolution to the father with sons. Fertility preferences are also often gender specific. In the United States, the birth interval between first and second born is independent of the first child among white women but, among black women, it is smaller if the first child is a son. Black women apparently want to have a daughter (Teachmans and Schollaert 1989).

The researches have been done up to now, show the mothers prefer to allocate resources toward daughters and fathers treat their sons preferentially. In this paper I want to determine whether there is evidence for difference by gender in the allocation of Iranian household resources. In section 2, I will explain the dataset that I have used. In sections 3, I will show the results. The conclusion will come in section 4.

## 2- Data

Household is like a black box but if we can gather enough information about a family we can find out how the consumption pattern is changed by the education levels of parents. Child health is a consequence of these allocations. We can use height or weight as a long run measure of nutritional status. Among nutritionists, height is a credible measure for reflecting nutritional status (Waterlow et al. 1977).

The data has been gathered from five schools from northern part of Tehran, Iran in 1999[1]. 191 students are in the survey , 100 boys and 91 girls. The schools are chosen in such a way that the survey covers both the economically rich and poor families, both for girls and boys. The variables are as below:

1) Height of the student
2) Weight of the student
3) GPA of the previous year
4) Education level of mother
5) Education level of father
6) Mother's occupation

The students are all in the first year of secondary school. Their GPA is from the fifth year of primary school which the exams of that year are nationwide. Thus the same exams make the GPAs comparable.

[1] I am thankful to MS. B. Jamilian who gathered the data from the schools in Tehran.

## 3- Results

The results are in three sections: GPA, Height and Weight. OLS regression has been used to find the results which the outputs come in Appendix A. The results are as below:

1) The impact of parents' education on students' GPA:

The results show that parents' education is significantly important on the children's GPA. Any additional year on the education of father and mother will add 0.11 and 0.12 to the GPA of the child respectively. If we separate this analysis to sons and daughters we get different values. For daughters, the GPA increase of fathers and mothers are 0.09 and 0.15 respectively which shows that the education of mother has more impact on the daughters' success. While among sons, these values are 0.15 and 0.08 which shows that the education level of fathers has more impact on their GPA level rather than mother's education level.

2) The impact of parents' education on students' weight:

The findings show that with one year increase in the education level of father the weight of daughters and sons increase 316 grams and 464 grams respectively. While for mothers the values are 349 grams and 446 grams. In other words, with the increase of parents' education level, the weight of the children increases but mostly more among the sons but this increase is less gender-unequal for the mothers' education.

3) The impact of parents' education on students' height:

The findings for height show that with one year increase in the education level of father the height of daughters increase 28mm and for sons this increase is negligible. While for mothers the impact for daughters is not significant but for sons is 28mm.

## 4-Conclusion

The finding in this paper shows that the mother's education is more effective on daughters' human capital (measured by GPA) than on their sons while this impact for a father is more on sons than daughters. Part of it could be explained by the fact that the time that parents allocate for their children has a gender preference. But we should take into account the role of academic aspiration for children. The higher education levels of mothers give more aspiration to the daughters to study well while this aspiration for boys mostly comes from fathers' education level. With the increase of women's share in the universities during last years in Iran ( %60 of university students are girls now), we should expect that, the new generation of girls will be better educated relative to the previous generations. The consequence of the improvement of women's education has been an important issue among economists. Barro (1997) has found that the increase of women's education level has positive impact on the economic growth rate. So with the increase of women's participation in universities we should expect that the new generation of girls will be more educated which will have a positive impact on the economic growth rate of Iran in near future.

# Appnedix A

```
. reg gpa dadedu momedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  2,   188) =   51.22
       Model |  320.891707     2  160.445853            Prob > F      =  0.0000
    Residual |  588.861699   188  3.13224308            R-squared     =  0.3527
-------------+------------------------------           Adj R-squared =  0.3458
       Total |  909.753406   190  4.78817582            Root MSE      =  1.7698

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         gpa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .1153222   .0400178     2.88   0.004     .0363806    .1942639
      momedu |   .1251772   .0388193     3.22   0.001     .0485998    .2017546
       _cons |   16.01205   .2371885    67.51   0.000     15.54416    16.47995
------------------------------------------------------------------------------

. reg gpa dadedu momedu if sex==0

      Source |       SS       df       MS              Number of obs =     100
-------------+------------------------------           F(  2,    97) =   24.82
       Model |  177.440914     2  88.7204572            Prob > F      =  0.0000
    Residual |  346.771269    97  3.57496153            R-squared     =  0.3385
-------------+------------------------------           Adj R-squared =  0.3249
       Total |  524.212183    99  5.29507256            Root MSE      =  1.8908

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         gpa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .0987731    .057478     1.72   0.089    -.0153047     .212851
      momedu |   .1557786   .0570062     2.73   0.007      .042637    .2689201

       _cons |    15.7457   .3817997    41.24   0.000     14.98794    16.50347
------------------------------------------------------------------------------

. reg gpa dadedu momedu if sex==1

      Source |       SS       df       MS              Number of obs =      91
-------------+------------------------------           F(  2,    88) =   29.18
       Model |  153.712237     2  76.8561184            Prob > F      =  0.0000
    Residual |  231.776325    88  2.63382187            R-squared     =  0.3987
-------------+------------------------------           Adj R-squared =  0.3851
       Total |  385.488562    90  4.28320624            Root MSE      =  1.6229

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         gpa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .1524331   .0557312     2.74   0.008     .0416791    .2631871
      momedu |   .0893412   .0521382     1.71   0.090    -.0142724    .1929549
       _cons |   16.15626   .2934697    55.05   0.000     15.57305    16.73947
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```
. reg gpa dadedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  1,   189) =   87.69
       Model |  288.322281     1  288.322281           Prob > F      =  0.0000
    Residual |  621.431124   189  3.28799537           R-squared     =  0.3169
-------------+------------------------------           Adj R-squared =  0.3133
       Total |  909.753406   190  4.78817582           Root MSE      =  1.8133

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         gpa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |    .220873   .0235868     9.36   0.000     .1743458    .2674002
       _cons |   15.95549   .2423488    65.84   0.000     15.47744    16.43355
------------------------------------------------------------------------------

.
. reg gpa momedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  1,   189) =   90.64
       Model |   294.87964     1   294.87964           Prob > F      =  0.0000
    Residual |  614.873766   189  3.25330035           R-squared     =  0.3241
-------------+------------------------------           Adj R-squared =  0.3206
       Total |  909.753406   190  4.78817582           Root MSE      =  1.8037

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         gpa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |   .2166808   .0227594     9.52   0.000     .1717858    .2615758
       _cons |    16.3831   .2030123    80.70   0.000     15.98264    16.78356
------------------------------------------------------------------------------

.
. reg weight dadedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  1,   189) =   17.33
       Model |  888.297703     1  888.297703           Prob > F      =  0.0000
    Residual |  9685.03214   189  51.2435563           R-squared     =  0.0840
-------------+------------------------------           Adj R-squared =  0.0792
       Total |  10573.3298   190  55.6491044           Root MSE      =  7.1585

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      weight |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .3876884   .0931158     4.16   0.000     .2040087    .5713681
       _cons |   30.26342    .956742    31.63   0.000     28.37616    32.15069
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```
. reg weight dadedu if sex==0

      Source |       SS       df       MS              Number of obs =     100
-------------+------------------------------           F(  1,    98) =    5.03
       Model |  300.601135     1  300.601135           Prob > F      =  0.0271
    Residual |  5855.39887    98   59.748968           R-squared     =  0.0488
-------------+------------------------------           Adj R-squared =  0.0391
       Total |        6156    99  62.1818182           Root MSE      =  7.7297

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      weight |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .3167557   .1412194     2.24   0.027     .0365104    .5970009
       _cons |   30.95915   1.560586    19.84   0.000     27.86221    34.05608
------------------------------------------------------------------------------

. reg weight dadedu if sex==1

      Source |       SS       df       MS              Number of obs =      91
-------------+------------------------------           F(  1,    89) =   13.76
       Model |  587.451679     1  587.451679           Prob > F      =  0.0004
    Residual |   3798.3725    89  42.6783427           R-squared     =  0.1339
-------------+------------------------------           Adj R-squared =  0.1242
       Total |  4385.82418    90  48.7313797           Root MSE      =  6.5329

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      weight |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .4647197    .125259     3.71   0.000     .2158328    .7136066
       _cons |   29.66311   1.170917    25.33   0.000     27.33653     31.9897
------------------------------------------------------------------------------

. reg weight momedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  1,   189) =   19.93
       Model |  1008.38248     1  1008.38248           Prob > F      =  0.0000
    Residual |  9564.94736   189  50.6081871           R-squared     =  0.0954
-------------+------------------------------           Adj R-squared =  0.0906
       Total |  10573.3298   190  55.6491044           Root MSE      =  7.1139

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      weight |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |   .4006921   .0897653     4.46   0.000     .2236215    .5777626
       _cons |   30.87485   .8007017    38.56   0.000     29.29539    32.45431
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. reg weight momedu if sex==0

      Source |       SS       df       MS              Number of obs =     100
-------------+------------------------------           F(  1,    98) =    6.31
       Model |  372.391071     1  372.391071           Prob > F      =  0.0136
    Residual |  5783.60893    98  59.0164176           R-squared     =  0.0605
-------------+------------------------------           Adj R-squared =  0.0509
       Total |        6156    99  62.1818182           Root MSE      =  7.6822

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      weight |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |    .349663   .1391991     2.51   0.014     .0734269    .6258991
       _cons |   31.33906   1.308546    23.95   0.000      28.7423    33.93583
------------------------------------------------------------------------------

. reg weight momedu if sex==1

      Source |       SS       df       MS              Number of obs =      91
-------------+------------------------------           F(  1,    89) =   14.66
       Model |  620.208684     1  620.208684           Prob > F      =  0.0002
    Residual |  3765.61549    89  42.3102864           R-squared     =  0.1414
-------------+------------------------------           Adj R-squared =  0.1318
       Total |  4385.82418    90  48.7313797           Root MSE      =  6.5046

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      weight |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |    .446716   .1166771     3.83   0.000     .2148811    .6785508
       _cons |   30.51634   .9754239    31.29   0.000     28.57819    32.45448
------------------------------------------------------------------------------

.
. reg height dadedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  1,   189) =    3.19
       Model |  156.853571     1  156.853571           Prob > F      =  0.0755
    Residual |  9279.10454   189  49.0957912           R-squared     =  0.0166
-------------+------------------------------           Adj R-squared =  0.0114
       Total |  9435.95812   190  49.6629374           Root MSE      =  7.0068

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      height |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .1629111   .0911435     1.79   0.075    -.0168781    .3427003
       _cons |   139.9958   .9364775   149.49   0.000     138.1485    141.8431
------------------------------------------------------------------------------
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. reg height dadedu if sex==0

      Source |       SS       df       MS              Number of obs =     100
-------------+------------------------------           F(  1,    98) =    3.70
       Model |  235.738371     1  235.738371            Prob > F      =  0.0573
    Residual |  6242.10163    98  63.6949146           R-squared     =  0.0364
-------------+------------------------------           Adj R-squared =  0.0266
       Total |     6477.84    99  65.4327273           Root MSE      =  7.9809

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      height |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .2805073    .145808     1.92   0.057     -.008844    .5698586
       _cons |   139.2671   1.611294    86.43   0.000     136.0696    142.4647
------------------------------------------------------------------------------

. reg height dadedu if sex==1

      Source |       SS       df       MS              Number of obs =      91
-------------+------------------------------           F(  1,    89) =    0.00
       Model |  .037249308     1  .037249308            Prob > F      =  0.9731
    Residual |  2892.99572    89  32.5055699           R-squared     =  0.0000
-------------+------------------------------           Adj R-squared = -0.0112
       Total |  2893.03297    90  32.1448107           Root MSE      =  5.7014

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      height |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      dadedu |   .0037005    .109316     0.03   0.973    -.2135081    .2209092
       _cons |   140.7631   1.021884   137.75   0.000     138.7327    142.7936
------------------------------------------------------------------------------

. reg height momedu

      Source |       SS       df       MS              Number of obs =     191
-------------+------------------------------           F(  1,   189) =    5.30
       Model |  257.169407     1  257.169407            Prob > F      =  0.0225
    Residual |  9178.78871   189  48.5650196           R-squared     =  0.0273
-------------+------------------------------           Adj R-squared =  0.0221
       Total |  9435.95812   190  49.6629374           Root MSE      =  6.9689

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      height |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |   .2023521   .0879346     2.30   0.022     .0288927    .3758115
       _cons |   140.0206   .7843721   178.51   0.000     138.4733    141.5678
------------------------------------------------------------------------------
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. reg height momedu if sex==0

      Source |       SS       df       MS              Number of obs =     100
-------------+------------------------------           F(  1,    98) =    3.92
       Model |   249.33028     1   249.33028           Prob > F      =  0.0504
    Residual |  6228.50972    98  63.5562216           R-squared     =  0.0385
-------------+------------------------------           Adj R-squared =  0.0287
       Total |     6477.84    99  65.4327273           Root MSE      =  7.9722

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      height |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |    .286113   .1444538     1.98   0.050     -.000551    .5727769
       _cons |   139.7827   1.357943   102.94   0.000     137.0879    142.4775
------------------------------------------------------------------------------

. reg height momedu if sex==1

      Source |       SS       df       MS              Number of obs =      91
-------------+------------------------------           F(  1,    89) =    0.95
       Model |  30.6384991     1  30.6384991           Prob > F      =  0.3317
    Residual |  2862.39447    89  32.1617356           R-squared     =  0.0106
-------------+------------------------------           Adj R-squared = -0.0005
       Total |  2893.03297    90  32.1448107           Root MSE      =  5.6711

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      height |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
      momedu |   .0992879   .1017261     0.98   0.332    -.1028397    .3014154
       _cons |   140.1977   .8504331   164.85   0.000     138.5079    141.8875
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