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ABSTRACT

The Persistent Segregation of Girls into Lower-Paying Jobs while in School *

This paper analyzes gender differences in jobs while in high school. The availability of school class based samples with detailed information on teenage jobs allows for a comparison of the behavior of boys and girls who are in the same school class, and thus have virtually identical education levels. Even within these highly homogeneous groups, boys earn substantially more than girls. The earnings gap cannot be explained by differences in participation rates and hours of work, nor by gender wage gaps within job types. It is entirely due to the fact that girls work more in job types with relatively low wages, in particular babysitting. During the period considered, 1984-2001, the gender patterns of jobs while in school largely remained unchanged.

JEL Classification: J16, J22

Keywords: labor market, gender differences, teenage behavior

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1. Introduction

Segregation of women into lower-paying occupations is a primary source of the gender earnings gap; see for example Blau and Kahn (2000, 2003, 2004) and Bayard *et al*. (2003). The gender earnings gap is an important motivation for the strong commitment of many governments to advancing equal education opportunities for boys and girls, and to equal pay acts and child care policies[1].

In this paper I provide evidence showing that segregation of women into lower-paying occupations already occurs at the earliest stage of their labor market careers. I compare jobs while in school of boys and girls aged 17 or 18, using school class based samples covering the period 1984-2001. By controlling for school class specific fixed effects any differences in the labor market behavior of boys and girls are unlikely to be related to unobserved differences in education. Even within these highly homogeneous groups boys earn substantially more than girls. The earnings gap cannot be explained by differences in participation rates or hours of work. It is entirely due to the fact that girls work more in job types with relatively low wages, primarily babysitting.

The gender patterns of jobs while in school largely remained unchanged during the almost two decades considered. In particular, participation rates and hours in baby-sitting show no systematic change for girls and boys in all academic levels within high school, even though the wage rate of babysitting has decreased relative to the wage rates of other job types.

2. The NSYS Data

The empirical analysis is based on the *Nationaal Scholierenonderzoek* (Dutch National School Youth Survey, NSYS). The NSYS surveys took place in 1984, 1990,

[1] In The Netherlands - the country where the present paper's data have been collected – the Lubbers administration widely advertised the slogan "*A smart girl is prepared for her future*" (riming in Dutch) during the late 1980s and early 1990s. This national campaign focused on girls aged 15 and 16, and encouraged them to pursue higher education and careers in typical male professions.

1992, 1994, 1996, 1999, and 2001. Each survey is a random sample of some 500 high school classes with approximately 12,000 students. In Dutch high schools, classes are primarily composed on the basis of students' academic performance, given school choice. High school teenagers from a given class are therefore highly homogeneous in terms of cognitive abilities and education level.

All students in a sampled class participate in the survey in principle. Yet, some of them are excluded from the data, for example because a student was absent on the day when the questionnaires were filled out. The survey contains information on time use, income and jobs, expenditures, family background, and on social and psychological aspects of teenage life. There is limited information on parents and on siblings. The seven editions of the NSYS are largely similar, although there have been changes in the wording of some questions (as indicated in the notes to the tables). For the present analysis, all students aged 17 or 18 were selected if they were in a class with at least one other student aged 17 or 18. Most of these students are in their final high school year. The NSYS shows decreasing sample sizes after 1994 (see table 1, bottom row), and has not been repeated since 2001.

Due to the combination of its school class based nature, the level of detail on jobs while in school, and the time span covered, the Dutch NSYS is a unique source of information on the earliest stage of individuals' labor market careers.

3. Gender differences in jobs while in school

Table 1 reports participation rates, earnings, hours, and wages for all editions of the NSYS. In addition to levels (medians) for boys and for girls, the table reports regressions coefficients on a girl dummy. All these regressions include class-specific fixed effects. A number of other potential controls are practically orthogonal to the girl dummy, and appear to have a negligible effect on the girl dummy outcomes. Since their inclusion would reduce the net sample size due to item specific non-response, they have not been included in the final specification.

During the 17 years considered, the overall participation rate in jobs while in school increased from about 0.5 to 0.6. Except for 1990, the participation differences

between boys and girls are insignificant. A similar pattern emerges for hours of work. Yet, boys earn about 25 percent more than girls, as shown by the results for earnings and wages. Only for 1999 and 2001 the girl dummies are not significantly different from zero in the earnings and wage regressions. Note, however, that the sample sizes in these years are relatively small. The results are qualitatively in line with those reported in Dustmann *et al.* (1997) and Pabilonia (2001).

Tables 2 and 3 shed light on the sources of these gender earnings and wage differences. Table 2 reports participation rates for the four most popular job types: working in a store or supermarket, babysitting, delivering newspapers, and working in a restaurant or cafe (participation rates for other job type are generally below 0.05). Boys and girls appear to have very different job type specific participation rates. The participation difference is largest for babysitting - about 85 percent of all babysitting is done by girls. The corresponding girl dummies are significant, large and stable.

The job type specific wages in table 3 reveal two empirical patterns of interest. First, the gender wage differences within job types are insignificant, although most of the girl dummy coefficients have negative signs. Second, there are large wage differences between job types. In all years for which job type specific wages could be computed, the ranking from low to high pay is: babysitting, store/supermarket, restaurant/cafe, and newspaper delivery, for boys as well as for girls. Moreover, between 1994 and 1999 the relative wage of babysitting decreased compared to other job types.

The insignificance of gender differences in observed wages within job types does obviously not preclude significant gender differences in the underlying distributions of potential wages. For example, in the case of newspaper delivery - which is typically done using a bicycle and pays per copy delivered - there may be a gender gap in the distributions of potential wages related to gender differences in speed and physical strength.[2] The gender patterns in labor market outcomes might therefore partly result from different comparative advantages of boys and girls. In addition, gender differences in preferences are likely to play a role, in supply as well as demand. Preferences may in

[2] Moreover, the wages of boys and girls within job types may refer to different types of activities. For example, in supermarkets boys are more involved in loading and unloading and less in cashiering than girls.

turn be affected by (perceived) on-the-job risks. For example, babysitting is generally considered to be a safer type of job than delivering newspapers, especially for girls.

The question arises whether the gender patterns vary with the academic level of a school class. Table 4 reports participation rates in babysitting for classes in VWO, the highest academic level.[3] The results for this subsample are similar to those in reported in table 2.

4. Conclusion

Boys and girls with almost identical backgrounds appear to accumulate different human capital already in the earliest stage of their labor market careers. As a number of studies have found sizeable and persistent effects of work while in high school on future employment, most of the existing labor market and gender policies seem to miss a potentially important source of labor market gender differences[4]. Effective policies should recognize that gender gaps in the labor market have roots early in life.

[3] Within the Dutch educational system four academic levels are distinguished within secondary education. Access to university requires graduation in the highest level (VWO).

[4] Ruhm (1997), for example, finds that jobs held during the senior year of high school are associated with higher future earnings, wages, and occupational status. Hotz (2002) *et al*. question whether the correlations found in this literature represent causal effects.

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Table 1. Participation rates, earnings, hours, and wages

	1984	1990	1992	1994	1996	1999	2001
Participation[1]							
boys	0.493	0.502	0.533	0.554	0.546	0.593	0.630
girls	0.468	0.449	0.524	0.525	0.529	0.627	0.583
girl dummy[2]	-0.033	-0.037	0.010	-0.029	0.002	0.030	-0.102
	(-1.5)	(-2.0)	(0.5)	(-1.5)	(0.1)	(0.8)	(-1.5)
Hours per week							
median boys[3]		8.00	9.00	8.00	8.00	10.00	10.00
median girls[3]	-	8.00	8.00	8.00	8.00	10.00	10.00
girl dummy[2]		-0.308	-0.536	-0.32	-0.08	0.53	-1.33
		(-0.8)	(-1.9)	(-1.0)	(-0.2)	(1.1)	(-1.5)
Earnings per week[4]							
median boys[3]	27.69	49.62	57.69	60.00	60.00	82.00	90.00
median girls[3]	23.08	37.71	46.15	50.00	50.00	72.00	70.00
girl dummy[2]	-4.57	-9.55	-6.73	-10.59	-9.61	-0.79	-17.3
	(-4.1)	(-5.6)	(-3.3)	(-4.3)	(-2.5)	(-0.1)	(-1.8)
Wages per hour							
median boys[3]		6.20	6.20	7.32	7.50	8.70	10.00
median girls[3]	-	4.96	5.54	6.11	6.25	7.27	10.00
girl dummy[2][3]		-1.75	-1.05	-1.74	-1.66	5.01	0.15
		(-2.0)	(-2.4)	(-3.3)	(-2.0)	(1.6)	(0.2)
USD per guilder	0.31	0.55	0.57	0.55	0.59	0.48	0.41
# classes	346	397	346	440	176	141	97
# observations	2876	3778	2611	3467	1640	1097	319

1) 1990-2001: positive hours *and* positive earnings; 1984: positive earnings (no hours information available).
2) Coefficient on girl dummy; regression with class-specific fixed effects; t-values in parentheses.
3) Participants only. Earnings and wages in nominal guilders.
4) 1984-1992: monthly earnings, multiplied by 12/52; 1994-2001: weekly earnings

Table 2. Job type specific participation rates [1)]

	1990	1992	1994	1996	1999	2001
Babysitting						
Participation rate boys	0.022	0.033	0.032	0.025	0.035	0.073
Participation rate girls	0.137	0.250	0.157	0.182	0.194	0.189
Girl dummy [2)]	0.112	0.217	0.132	0.150	0.150	0.141
	(11.4)	(14.9)	(11.9)	(9.7)	(7.0)	(3.3)
Store/supermarket						
Participation rate boys	0.134	0.147	0.156	0.166	0.177	0.266
Participation rate girls	0.189	0.227	0.219	0.210	0.324	0.307
Girl dummy [2)]	0.050	0.050	0.052	0.067	0.147	0.056
	(3.7)	(2.9)	(3.4)	(3.1)	(4.5)	(0.8)
Newspaper delivery						
Participation rate boys	0.124	0.118	0.143	0.156	0.095	0.073
Participation rate girls	0.058	0.048	0.060	0.064	0.058	0.008
Girl dummy [2)]	-0.070	-0.060	-0.080	-0.093	-0.054	-0.060
	(-6.6)	(-4.8)	(-6.6)	(-5.3)	(-2.5)	(-2.1)
Restaurant/cafe						
Participation rate boys	0.069	0.104	0.100	0.087	0.100	0.099
Participation rate girls	0.091	0.120	0.092	0.070	0.131	0.118
Girl dummy [2)]	0.019	0.019	-0.019	-0.017	0.025	-0.057
	(1.8)	(1.3)	(-1.7)	(-1.2)	(1.0)	(-1.3)

1) 1984: no information on job types available.
1990 and 1992: participation: respondent reports to work in job type ("*What kind of work do you do most of the time?*") and has positive (total) earnings (no information on job type specific earnings available).
1994-2001: participation: respondent reports positive job type specific earnings (*"What kind of (paid) work do you do sometimes? (You can check more than one item.)"*) and positive job type specific hours.

2) Coefficient on girl dummy; regression with class-specific fixed effects; t-values in parentheses.

Table 3. Job type specific wages [1)]

	1994	1996	1999
Babysitting			
Median wage boys	5.00	5.00	7.50
Median wage girls	5.00	5.00	5.00
Girl dummy [2)]	-0.37	-0.56	-1.56
	(-0.4)	(-0.7)	(-1.1)
Store/supermarket			
Median wage boys	6.67	6.25	7.70
Median wage girls	6.11	6.31	7.50
Girl dummy [2)]	-0.99	-0.24	1.72
	(-1.6)	(-0.7)	(0.7)
Newspaper delivery			
Median wage boys	10.00	8.67	10.00
Median wage girls	7.14	7.50	10.00
Girl dummy [2)]	-3.16	-0.92	1.56[3]
	(-1.4)	(-1.0)	(0.5)
Restaurant			
Median wage boys	8.00	8.00	10.00
Median wage girls	7.00	7.32	7.50
Girl dummy [2)]	1.37	-1.31	-3.97
	(1.1)	(-1.9)	(-1.0)

1) 1984, 1990, 1992: no job type specific earnings and wages available; 2001: insufficient number of observations per job type.
2) Coefficient on girl dummy; regression with class-specific fixed effects; t-values in parentheses.
3) 1 observation excluded (wage=625).

Table 4. Babysitting participation rates; VWO only

	1990	1992	1994	1996	1999	2001
Participation						
boys	0.034	0.049	0.043	0.031	0.038	0.042
girls	0.162	0.357	0.224	0.244	0.173	0.159
girl dummy[1)]	0.115	0.315	0.180	0.216	0.116	0.077
	(5.9)	(10.0)	(6.5)	(7.7)	(3.1)	(1.1)
# classes	74	51	77	35	43	31
# observations	1055	606	639	528	299	115

1) Coefficient on girl dummy; regression with class-specific fixed effects; t-values in parentheses.