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Comment on Alison L. Booth: The glass ceiling in Europe: Why are women doing badly in the labour market?

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Alison Booth delivers, as expected, a most informative and insightful discussion about the gender wage gaps in European countries. The paper offers a summary of descriptive patterns in European countries based on very recent research, a thorough discussion about potential explanations of these patterns, and a policy discussion from which any politician in the field has a great deal to learn.

The background is that a wave of recent studies has looked at the gender wage gap with a new statistical technique—the quantile regression technique—which makes it possible to measure the gender wage gap over the whole wage distribution and yet in a regression analysis framework account for typical control variables such as education and work experience. In my 2003 study with James Albrecht and Susan Vroman (Albrecht et al., 2003), we applied this technique on Swedish data and found that the wage gap was particularly large at the very top of the wage distribution; the gap grew markedly from around the 85th percentile and onward. We used the popular concept "glass ceiling" for such a pattern, although our results referred to cross-sectional data and the glass-ceiling concept might make some people think about a dynamic process such that wages stop growing at a certain point.

Booth now summarizes results from cross-sectional analyses of eleven more European countries and most of them reveal the same glass-ceiling kind of pattern. These results put the focus on factors that explain why the gap is so large at the top of the distribution. By relating the estimated gender gaps in the eleven countries to various labour-market and policy characteristics, she finds, for example, that an index measuring the extent to which public policies help reconcile family and work responsibilities tends to raise the gap at the top of the distribution.

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It seems to me as though the informative approach of using the quantile regression technique has come to stay in the analysis of wage gaps between groups such as men and women and also other groups. In order to learn more about mechanisms and the possible impact of policy interventions, it looks reasonable to study how the gender wage gap has evolved over time and bring more countries into the picture. My comments will make a small contribution in that regard.

The evolution of the Swedish wage structure since the late 1960s has typically been studied using hourly wages from the Level of Living Surveys. Table 1 reports the "raw" gender wage gap and the gap obtained in the simplest possible regression model, namely a log wage equation with controls for years of education and experience and a gender dummy. We can see that the raw gap fell from .325 log points in 1968, to .258 in 1974 and then to .189 in the 1981 data. By and large, one can say that the gender gap has been constant in the range .17-.19 since 1981. From 1968 to 2000, women's education and work experience improved compared to that of men so it is not surprising that after such control variables, the gender wage gap even increased from 1981 to 2000, from some .14 to .18. The last column in Table 1 shows the strong reduction in the overall wage dispersion—measured as the standard deviation of the log of wages—from 1968 to 1981, after which overall wage dispersion has been quite stable. In the words of Edin and Richardson (2002), one can say that women were "swimming with the tide" from 1968 to 1981.

In Table 2a, we apply quantile regression to this simple model. The estimates show that in 1968, there was no glass-ceiling pattern; the gap was around .25 log points over the whole wage distribution. What then happened was that most of the decline in the gender gap took place in the lower part of the distribution. Indeed, one cannot see any compression at all among men and women at the 90th percentile. But the compression in the lower part of the distribution created a pattern that looks like a glass ceiling.

So how should we interpret this? On the one hand, quite a great deal of compression has taken place in the lower half of the distribution. If we assume—as most Swedish observers would do—that the compression in the lower part of the distribution is due to "institutions", or unions' ambitions to equalize wages, the conclusion follows that unions have only been partly successful in their ambitions. With such an interpretation of the 1968 to 2000 period, the glass-ceiling pattern represents a partial success for Swedish unions. On the other

hand, one can argue that the lack of compression at the top of the distribution is striking and suggests that all egalitarian ambitions during this long period of time have not been successful in this part of the distribution.

In order to complement Booth's paper, I also report (in Tables 2b and 2c) separate estimates for the public and private sectors. The gender wage gap is somewhat higher in the private than in the public sector. From 1968 to 1981, there is equalisation in both sectors and there is clearly more equalisation in the lower part of the distribution than at the top. By and large, there is also a glass-ceiling pattern in both sectors, but it is (maybe surprisingly) stronger in the public than in the private sector. Although there might be something to learn from digging deeper into the differences between the two sectors, the mechanisms behind the Swedish gender gap seem to be rather general for the whole labour market.

Table 1. Swedish gender wage gaps (log points) and overall wage inequality

	Raw gap, log points	Gap after OLS-controls	STD, log wages
1968	0.325	0.256	0.447
1974	0.258	0.207	0.337
1981	0.189	0.144	0.308
1991	0.195	0.169	0.290
2000	0.169	0.180	0.311

Source: Own estimations from the Level of Living Surveys. The age range 19-65 years is applied for all years.

Table 2. Estimated gender wage gaps in Sweden over the wage distribution

a) Private and public sector

		Quantile Regression Estimates				
	OLS	**10%**	**25%**	**50%**	**75%**	**90%**
1968	0.256	0.247	0.205	0.236	0.265	0.274
1974	0.207	0.213	0.173	0.179	0.189	0.222
1981	0.144	0.096	0.090	0.117	0.166	0.209
1991	0.169	0.102	0.121	0.154	0.204	0.242
2000	0.180	0.096	0.129	0.168	0.211	0.257

b) Private sector

		Quantile Regression Estimates				
	OLS	**10%**	**25%**	**50%**	**75%**	**90%**
1968	0.311	0.364	0.268	0.246	0.284	0.305
1974	0.226	0.259	0.210	0.203	0.205	0.202
1981	0.162	0.117	0.115	0.141	0.185	0.210
1991	0.172	0.119	0.138	0.162	0.204	0.208
2000	0.156	0.121	0.131	0.148	0.179	0.174

c) Public sector

		Quantile Regression Estimates				
	OLS	**10%**	**25%**	**50%**	**75%**	**90%**
1968	0.237	0.189	0.231	0.247	0.275	0.271
1974	0.184	0.130	0.139	0.155	0.169	0.236
1981	0.104	0.080	0.078	0.092	0.122	0.133
1991	0.113	0.059	0.077	0.132	0.156	0.178
2000	0.129	0.063	0.074	0.099	0.134	0.239

A second avenue to bringing more information into Booth's picture is to add more countries. Consider the United States which were not covered by Booth's results. In Albrecht et al. (2003), we used CPS (Current Population Survey) data from 1999. We found a larger overall gender gap than in Sweden, but the gap was constant over the distribution. Thus, we found no glass-ceiling pattern for the United States. At the very top of the distribution, the Swedish gender gap appeared even higher than in the United States, despite the much larger average wage gap in the US.

Subsequent studies have also used PSID (Panel Study of Income Dynamics) data to study the US gender gap over the distribution. Datta Gupta et al. (2006) offer a thorough comparison of Denmark and the United States over the period 1983 to 1995. They find that the US gender wage was stable over the wage distribution, and fell from around .4 log points in 1983 to around .3 log points in 1995. But in Denmark—with institutions and policies much like in Sweden—the gap increased from .21 to .34 at the 90th percentile over the same period. Further, Blau and Kahn (2006) use PSID data for 1979, 1989 and 1995 and find a compression in the gender gap over the whole distribution for their period of analysis. However, for 1998 they find a (weak) glass-ceiling pattern for the US as well, because compression had been strongest in the middle of the distribution. Although precision and measurement problems are probably more severe at the top of the distribution, it is striking that their 0.32 estimate

of the U.S. gender gap at the 95th percentile is lower than our corresponding .39 estimate for Sweden in 1998.

As a concluding remark, the high and persistent gender wage gap at the top of the Swedish wage distribution is a phenomenon on which both researchers and policy makers should focus more. Booth's discussion offers some ideas for both. For example, she stresses that individual wage bargaining is particularly important in order to reach the top of the wage distribution, and women's bargaining behaviour might differ from that of men. Indeed, that view is supported by a recent study by Säve-Söderbergh (2007), which finds striking gender differences in bargaining behaviour and bargaining outcomes among high-educated Swedish social scientists. Booth mentions the possibility of offering courses in individual wage negotiations at business schools. In today's Swedish setting with individual wage negotiations also in the public sector, this seems like a useful service for Swedish unions to offer their members.

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