

# How the Market Can Help Break the Glass Ceiling for Women in Management

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It is well known in the discrimination literature that greater product market competition reduces discrimination, when employers who discriminate against women or other groups compete with employers who do not discriminate (Becker, 1971; Arrow, 1973). The reason is that discrimination is inefficient and increases the costs incurred by firms. Lack of competition makes it possible for inefficient firms to survive, while high levels of competition force firms to become more efficient.

However, the gender wage gap, and the so-called glass ceiling, where women are underrepresented in top positions, may have explanations other than preference-based discrimination. Recent research suggests that women often want (or are forced) to work fewer hours, or at least have a more flexible work schedule, due to family concerns (Goldin, 2014). Many career jobs are characterized by a high cost of substitution between different employees, as well as by long, inflexible hours. Such job inflexibility is more likely to harm women than men, since women on average take more responsibility for the family.

## Management – An Inflexible Role

In Table 1, we show that management occupations are characterized by many of the features that Goldin (2014) identifies as typical of inflexible occupations, such as time pressure and the number of workers with whom the employee must regularly keep in touch. Management occupations score high on all five measures of job inflexibility. We also separate out top managers, chief executives, and legislators, and find that these occupations score high in most characteristics.

**Table 1: O\*Net characteristics. Means (normalized) by occupational group. Table 2 in Goldin (2014) but with additional information on managers and on chief executives and legislators.**

O*Net characteristics	Technology and Science	Business	Health	Law	Managers	Chief executives and legislators
Time pressure	-.571	.055	.107	1.510	.640	.833
Contact with other employees	-.888	-.079	.788	.483	.429	.520
Establishing and maintaining interpersonal relationships	-.699	.574	.216	.781	.454	1.426
Structured vs. unstructured work	-.610	.089	.419	1.220	.491	.979
Freedom to take decisions	.523	-.209	.743	.764	.290	1.108
Number of occupations	29	18	14	1	16	1

Notes: This table shows O\*Net characteristics for the original four occupational groups presented in Table 2 in Goldin (2014), but where we separate out managerial occupations and chief executives and legislators.

This suggests that women aspiring to a management career face a gender-specific career hurdle due to the combination of job inflexibility and family concerns. When examining the gender wage gap for managers, it is therefore important to take into account how the different management career hurdles faced by men and women affect selection into management occupations and how this, in turn, affects the skill distribution among them.

To capture these elements in the management job market, we develop a theoretical framework (Heyman, Norbäck, and Persson, 2018) in which (i) oligopolistic firms hire managers that can be women or men, (ii) female and male management skills are drawn from the same skill distribution, and (iii) the inflexibility associated with management jobs is costlier for females.

Next, we ask how changes in the intensity of product market competition affect managerial wages and the career choices of male and female talents. Following Boone (2008), we define increased product market competition as changes in industry characteristics that may increase the relative profitability of more efficient firms in an industry. This formalization of the intensity of product market competition has the advantage of being consistent with different types of structural changes in an industry, such as reduced entry barriers, reduced product differentiation, and market integration.

### **Why Female Managers' Wages May Increase When Competition Increases**

Under plausible assumptions regarding how profits depend on a manager's skills and product market competition, we first show that increased product market competition can mitigate the gender wage gap for managers. There are two effects explaining this result:

(i) Job inflexibility implies that female managers are offered lower wages than male managers with the same skill – the lower wage compensates for the employer's cost of hiring a female manager who is less flexible. However, this also implies that only highly talented women will invest in a managerial career, and thus that the average skill level will be higher among female managers than among male managers. This is referred to as the skill-biased glass ceiling effect.

In fact, Keloharju, Knüpfer, and Tåg (2018) use comprehensive data on top executives of Swedish firms and find that female executives tend to have much higher levels of education, are more likely to receive their degrees from tracks that produce a large number of top executives, and that their male siblings also attain higher cognitive-ability test scores in military enlistment. These results suggest that female managers are more skilled on average than male managers, and are consistent with our proposed skill-biased glass ceiling effect.

(ii) Managers (female or male) with sufficiently strong firm-specific managerial skills can better mitigate the negative impact of increased competition on a firm's profits. This is the skill-biased competition effect.

A key result in our analysis is then that if, and only if, the manager is equipped with strong firm-specific managerial skills, the skill-biased competition effect increases the surplus generated by hiring the manager, which will increase the manager's power in wage negotiations. Paradoxically, the model therefore predicts that, since only the most talented women become top managers, female managers—on average—should see their wages increase when product market competition increases. In contrast, male managers' wages should be less affected—they are on average less

talented than female managers (due to the glass ceiling effect), and thus less able to avoid a negative impact on profits when competition increases.

We then take these predictions to our data. The standard approach to estimating wage gaps is to try to control for the characteristics of the individual and the firm at which they are employed to the greatest possible extent, and then to estimate the average wage difference between male and female workers. Even with detailed information on personal characteristics, such as IQ or other scores in various tests, there is always a risk of omitted variable bias, as measuring all the dimensions of personal characteristics is very difficult. Our strategy instead builds on our theoretical prediction that when the female management career hurdle is sufficiently high, increased product market competition affects female managers' wages more positively (or less negatively) than male managers' wages.

To empirically test the main predictions of our model, we use detailed matched employer-employee data for Sweden spanning the period 1996–2009. In our main empirical test, we estimate how male and female managers' wages are affected by competition for managers who remain in the same firm over time, controlling for unobserved individual managerial skills and firm characteristics. This allows us to test our main prediction that, conditional on individual characteristics, female managers' wages increase by more (or decrease by less) on average than male managers' wages as product market competition intensifies.

We find, as predicted, that (i) more intense product market competition leads to higher wages for female managers, whereas the wages of male managers are unaffected, and that (ii) the share of female managers is higher in firms in more competitive industries. Interestingly, we find no effect of the intensity of product market competition on the gender wage gap for lower skilled groups; in fact, we find no effect of increased product market competition on the wages of groups other than managers. This is consistent with our theoretical model, since low-skilled groups will only marginally affect the profitability of the firm, and the wages of low-skilled groups are determined jointly by conditions in many markets.

### **Prejudices against Women as Managers**

We have assumed that the main hurdle faced by women managers stems from the job being inflexible, which comes at a higher cost for females. But we can also use our model to study the effects of product market competition on the presence of taste-based preferences against female managers. We can capture this type of preference-based hurdle in the same way as we capture the inflexibility hurdle in our model.

As mentioned in the introduction, it is well known in the discrimination literature that greater product market competition reduces discrimination when employers who discriminate compete with employers who do not discriminate. However, some types of discrimination or prejudicial preferences are also more widely shared in the population, and increased product market competition does not suffice to eliminate discrimination through this exit effect.

Our results suggest that increased product market competition can reduce discriminatory behavior even in a setting in which all firms discriminate. Although exit by discriminators does not play a role in our model, increased intensity of product market competition can still reduce wage discrimination

(wage gaps) and make female managers more common in firms. The reason is that the “cost of discriminating” against high-skilled females increases when the intensity of product market competition increases.

### **Increased Competition as an Alternative to Quotas**

Our findings suggest that increased product market competition can work as a (imperfect) substitute for other policies intended to remove hurdles for women. One advantage of increased product market competition is that it both mitigates discriminatory behavior and induces the most talented individuals from the group being discriminated against to pursue investment in their careers. A potential problem with quotas, for example, is that they benefit all members of the group that is subject to discrimination, both talented and less talented, and might thus entail inefficiencies.

Policies reducing the hurdle for females to aim at top manager positions will not only benefit women—they also indirectly improve firm performance and therefore, in the end, benefit consumers. When mediocre male managers are replaced by more able female managers the firm will likely invest in better projects and organize production and market its products in a better way. This also comes at a cost if the organization has to adjust to female managers’ stronger demand for workplace flexibility. However, these costs are likely to be more in the form of fixed costs, whereas better management capabilities will likely reduce variable costs or lead to new products.

This implies that a large share of the benefits of better management will accrue to consumers in the form of lower prices and new products and services. Thus there are positive externalities associated with reducing the female management hurdle, which suggests that it should be high on the policy agenda.

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### **References**

Arrow, K J (1973), “The Theory of Discrimination”, in Ashenfelter, O. and A. Rees (ed.), *Discrimination in Labor Markets*, Princeton University Press, Princeton, NJ.

Becker, G S (1971), *The Economics of Discrimination*, University of Chicago Press, Chicago, IL.

Boone, J. (2008), “A New Way to Measure Competition”, *Economic Journal*, Vol. 118, p. 1245–1261.

Goldin, C. (2014), “A Grand Gender Convergence: Its Last Chapter”, *American Economic Review*, Vol 104, p. 1091–1119.

Heyman, F., P.-J. Norbäck, and L. Persson (2018), “Gender Wage Gap at the Top, Job Inflexibility and Product Market Competition”, CEPR Discussion paper No. 13075.

Keloharju, M., S. Knüpfer och J. Tåg (2018), “What Prevents Female Executives from Reaching the Top?”, IFN Working paper No. 1111