How Women's Employment and Related Gender Differentials Vary by Education:

Common Patterns Across Affluent Nations

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Abstract

Using LIS data on 13 affluent nations, we show a common pattern across nations that better educated women are more likely to be employed. Largely because of this pattern, gender inequality in median annual earnings (when the nonemployed enter as 0) is less extreme among the well educated than those with less education. Gender inequality in earnings among those employed full-time differs little by education, however. These patterns hold across nations. However, where women's employment differs the most across nations is at lower educational levels (college graduates have almost uniformly high levels in each nation), suggesting that policies may be most important at the bottom. We speculate about the theoretical implications of these findings in a context of marital homogamy: Since women in higher class locations are more likely to be employed, despite the fact that their husbands earn more, in economic terms, this means that the price (opportunity cost) effect dominates the income effect in couples where both have high earning power. If bargaining power in marriage flows from wage rates, then there is little difference in women's relative power by social class of couple (if class is assessed by educational level of spouses, which are typically the same). However, if bargaining power flows from annual earnings, as some sociologists assert, then marriages are more egalitarian as one ascends the educational hierarchy.

INTRODUCTION

A common assertion in sociological discussions of gender is that it is working class women who have always had to work for pay. But women's employment in the U.S. has increased most rapidly among the best educated women (Chinhui and Murphy 1997), despite the fact that they are more likely than less educated women to be married and to have higher earning spouses. Cohen and Bianchi (1999) show that over recent decades the effect of women's own education on their employment has increased steadily, while the effect of husband's incomes has declined. Moreover, white women have now passed Black women in employment levels, a historic reversal (England et al. 2004). Some recent European literature shows a pattern to that in the U.S.-higher employment levels for more educated women (Rubery, Smith and Fagan 1999). The motivation of this paper was to use comparable data for a large number of affluent nations to explore uniformity or difference in this pattern of women's employment and education. Further, we explore the relationship between education and gender differentials in employment and earnings to see if there is a common pattern to how gender inequality varies by education level.

Which women would we expect to be employed? Economic theory offers two competing principles-price and income effects. Women with more education have higher earning power and, thus, the opportunity cost of nonemployment is higher for them; based on this "price" (i.e. opportunity cost) effect, we expect higher employment among the well educated. However, the income effect says that a woman's husband's income may be used to enable her to stay home with children (and may also affect fertility).Given marital homogamy, the tendency to marry persons of similar education and earning power, these two effects operate at cross purposes. The highly educated woman typically has the richer husband, so her own education encourages her employment, while his earnings discourage it, making it an interesting empirical question which effect predominates. In a more sociological vein, higher education might also encourage women's employment by providing access to more interesting identity-enhancing work, and by promoting egalitarian gender ideologies.

We will show that there is, indeed, a common pattern in all industrial nations considered that better educated women are more likely to be employed. What is the theoretical implication of this? First, let us assume that women's employment is foundational to most other forms of gender equality. Then, if women's employment is closer to that of men's in families where both spouses have a college education, the implication seems to be that gender inequality of all sorts is greater in families at the bottom of social class hierarchies (to the extent that education is a reasonable, if crude, proxy for class). However, theories differ as to whether women's bargaining power in marriage is a function of relative wage rates (the view endorsed by economists who use bargaining theory) or annual earnings. As we will show, there is little difference by education in gender differentials in wages, but substantial inequality in annual earnings (flowing largely from the employment differentials).

Our basic approach starts with simple descriptive displays. For the 13 nations we

consider, we start by showing employment rates for three education groups, separately for men and women. These analyses are also performed for adults with small children in their household, since this is the group of women whose employment is most problematic. We then go on to examine female to male ratios in annual earnings and something as close as we can get in these data to a wage rate, separately by education. While not included in this extended abstract, we also plan to include some parallel descriptive analyses limited to married and cohabiting couples only. We also plan to include regressions predicting employment and earnings from education and family variables. We close with discussion of the theoretical implications of these patterns for the intersection of class and gender, and for policy issues related to women's employment.

DATA AND METHODS

The data for this project come from The Luxembourg Income Study (LIS), a compilation of micro data -- primarily national probability samples of households -- from 30 countries. LIS data are unique in that a team collects and "harmonises"[1] datasets from the multiple countries in order to facilitate cross national research. Each dataset provides household and individual level data and are rich in demographic, employment and income related information. The data are pooled cross-sectional; however for this analysis we focus on only the most recent data available from 1999/2000. We limit our analysis to at most 13 countries[2] due to data constraints and use individuals as the units of analysis. All results are weighted.

Our dependent variables include current employment, hours currently working per week and annual earnings. Current employment is a dichotomous variable indicating whether a person is currently working any hours. Usual hours currently working per week and annual earnings are continuous. At times we limit our analysis to only those working full-time, which we define as usually working 35 or more hours per week.

Our independent variables include gender, educational attainment, and whether a respondent is the parent of a young child. Educational attainment is measured as "low", "medium" or "high", one of the standardized variables provided by LIS. Although education is coded according to each countries standards, each country is coded with the following classification: "low" educational attainment includes those who have not completed upper secondary education; "medium" refers to those who have completed upper secondary education and non-specialized vocational education and "high" includes those who have completed specialized vocational education, post-secondary education and beyond. Exact parental status information is not available in the LIS data. What is

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[1] The LIS website (www.lisproject.org) defines a "harmonised" variable as "a variable that exists (or may exist, depending on its actual presence in the original dataset) for each country, but whose coding differs in principle across countries. The harmonised variables are typically all the country-specific variables; the original classification is usually preserved"

[2] These countries include Austria, Belgium, Germany, Greece, Ireland, Italy, Luxembourg, The Netherlands, Spain, The United States, Norway, Finland and Sweden. At times we limit the analysis to only 10 countries – all of the above, except Norway, Finland and Sweden, which use a different reference period for hours worked (one of our dependent variables).

available is whether the respondent currently lives with any children. Therefore, in order to examine our dependent variables by parental status, we make the assumption that an adult living with a child is actually the child's parent. However, the adult could simply be a relative other than a parent or have no relation to the child. We feel that this assumption[3] is not unwarranted because an adult living in a household with a child most likely contributes to childcare in some quantity.

The sample is limited to 25-54 year-olds. Since we are interested in employment in this analysis we wanted to exclude certain ages where adults are likely to be in school (which deters employment) or retired. We also limit the sample by excluding individuals who are in the military, agriculture or the self-employed.

Our analysis at present consists of comparing mean differences between women and men by education in employment, hours currently working and annual earnings across the countries in our sample. In comparing current employment and hours currently working, we report both means for women and men. In examining differences in annual earnings, we show a ratio[4] of female to male mean annual earnings. We provide multiple graphs for each dependent variable; in order to examine the impact of parenthood, employment (when examining hour and annual earnings differences) and full-time work on our outcomes of interest we limit the sample accordingly. For employment we provide two graphs: one for all 25-54 year-olds and then one for 25-54 year-olds with a young child. We examine hours currently working across all 25-54 year-olds (including the non-employed), those only with a child, those who are working any hours and those with a child and working any hours. Finally, we examine annual earnings across the full sample and then limit it by parenthood, multiple employment indicators -- whether the individual reports any current weekly work hours (current employment), whether the individual has any annual earnings (employed at all last year) and whether the individual is working full-time -- as well as the combination of parenthood and each employment indicator.

RESULTS

Figure 1 shows the percent of men and women in each of the three education groups who are employed in each country. We see that, in all nations, more educated men are more likely to be employed. However, male employment is close enough to universal that the educational differentials are quite small. The female differentials are much larger, with a positive educational gradient on women's employment in every nation. Figure 2 shows largely the same thing, this time limited to women and men with a child under 7 in their household. It is clear from these figures that women's employment is much closer to men's in the high education groups.

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[3] When examining outcomes for men it is important to keep in mind that this assumption could be somewhat misleading in that as a result of women most often having custody for children after a divorce (or nonmarital relationship dissolution), a substantial number of men live without their children.

[4] We do not report mean annual earnings separately for women and men because currency differences across countries make such statistics incomparable.

Could it be that, even though highly educated women are employed more, they are more likely to work part time? If this was true, a measure of employment that entered people's hours per week, and entered the nonemployed as 0, might no longer show more employment among highly educated women. But Figures 4 and 5 (the latter limited to persons with a young child) show that this is not true. Averaging together people who are nonemployed, employed part-time, and employed full-time at their hours per week, more educated women work much more for pay. This measure shows few differentials by education for men.

However, most of the differential by education for women is simply coming from the employment/nonemployment distinction, not from differences in hours by education among those employed. This can be seen in Figure 6, which is limited to only the employed. Hours worked vary little by education for women or men. Earnings flow from employment. Earnings from different countries are in different currencies, but our interest is in gender differentials within education groups in earnings. Thus, we simply report female to male ratios for various earnings measures in Figures 7-10. In general, though there are some exceptions, women's median annual earnings relative to men's are higher for the higher education groups; this is coming largely from more employment.

What about wage rates? With more continuous employment, do more highly educated women have higher wages relative to men's?[5] The closest thing we can get to a wage rate with consistency across these nations using the LIS data is the measure we report in Figures 11 and 12 (the latter limited to individuals with small children). The measure is median annual earnings among those who currently work full-time. The measure doesn't fully equalize hours since individuals may vary in how many weeks they worked last year, and there are variations in hours among those working full-time. Still, it comes as close as we can get to a wage rate. With this measure, we see little difference in the size of gender differentials by education. Why doesn't the more continuous employment of the highly educated women translate into wages that are higher relative to men of the same education group, as human capital theory would suggest? One possibility which we plan to explore is that, working in the opposite direction are the right hand tail of men's hours and earnings being more extreme than that of women's.

Analyses not yet completed for the extended abstract but planned include: 1) Graphs analogous to those presented here limited to married couples, so that the analysis speaks more to issues of bargaining power in couples. 2) Cross-tabular documentation of the degree of marital homogamy by education. 3) Regression analysis exploring determinants of employment and earnings by education, spousal income, and children for both men and women in each nation. 4) We have focused, and will focus, more on commonalities between nations than differences, since our theme is the common pattern

[5] Of course, what our data show are higher cross-sectional employment rates, not greater continuity across the life cycle. We will explore whether the education differentials for women interact with potential experience (age minus education minus 6). If not, then the implication is that, at all points in the life cycle, more educated women work more for pay. If this is true, then it follows that their employment is more continuous.

of the strong relationship between education and women's employment. However, Figures 1 and 2 also make clear that women's employment varies more across nations for low education groups. This might imply, as suggested in Rubery and some recent work of Barbara Hobson's that cross-national differences in policies such as subsidized child care have a stronger effect on the employment of women with low education (without it, their earnings may be low enough that employment doesn't compute). We will explore whether measures of national differences in child care link to which nations have higher employment of women with low education.

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Figure 1: % employed for 25-54 year-olds, by education, separately for women and men

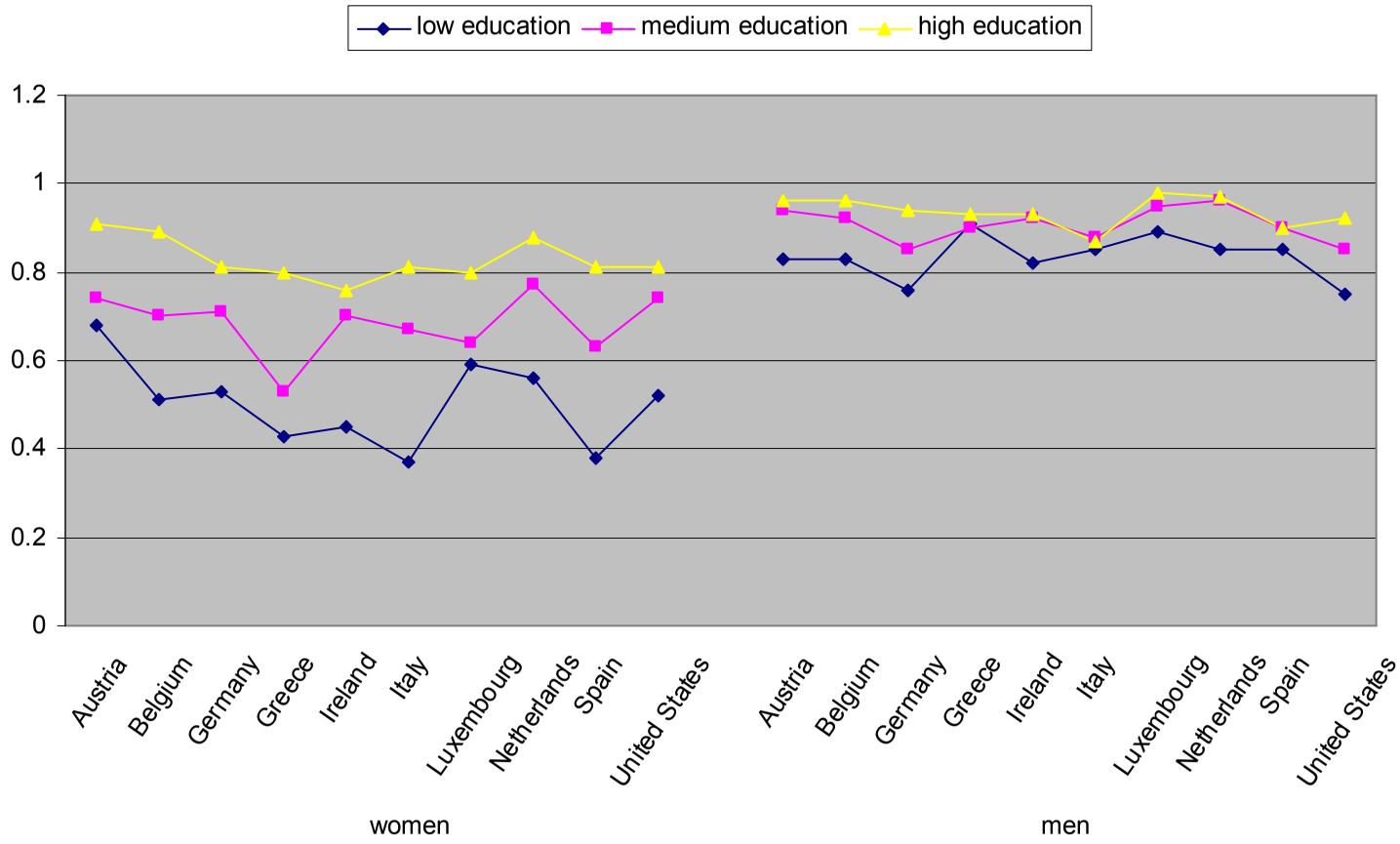

Figure 2: % employed for 25-54 year-olds with a young child (<7), by education, separately for women and men

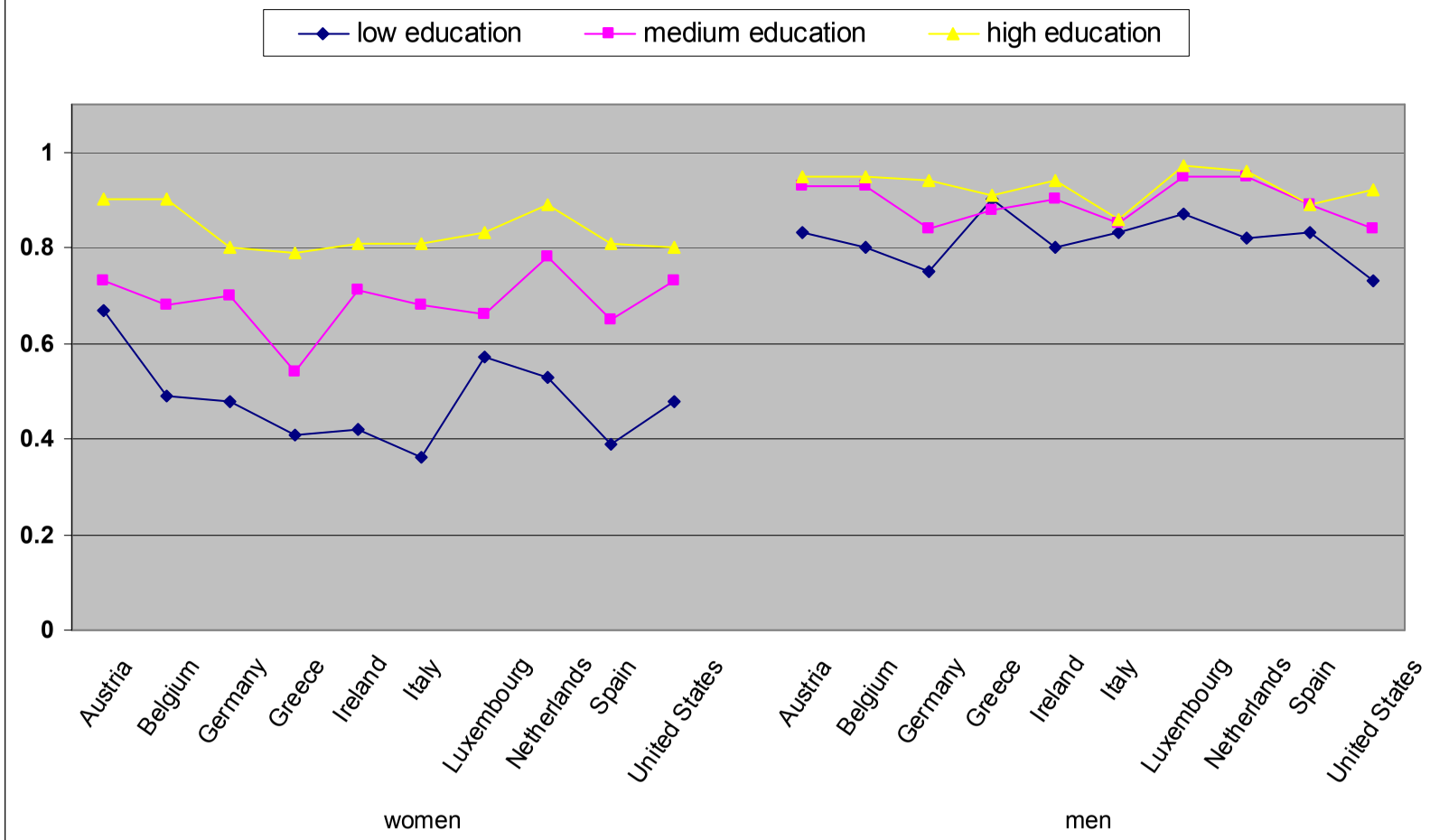

Figure 3: Mean hours currently working for 25-54 year-olds, by education, separately for women and men (includes nonemployed)

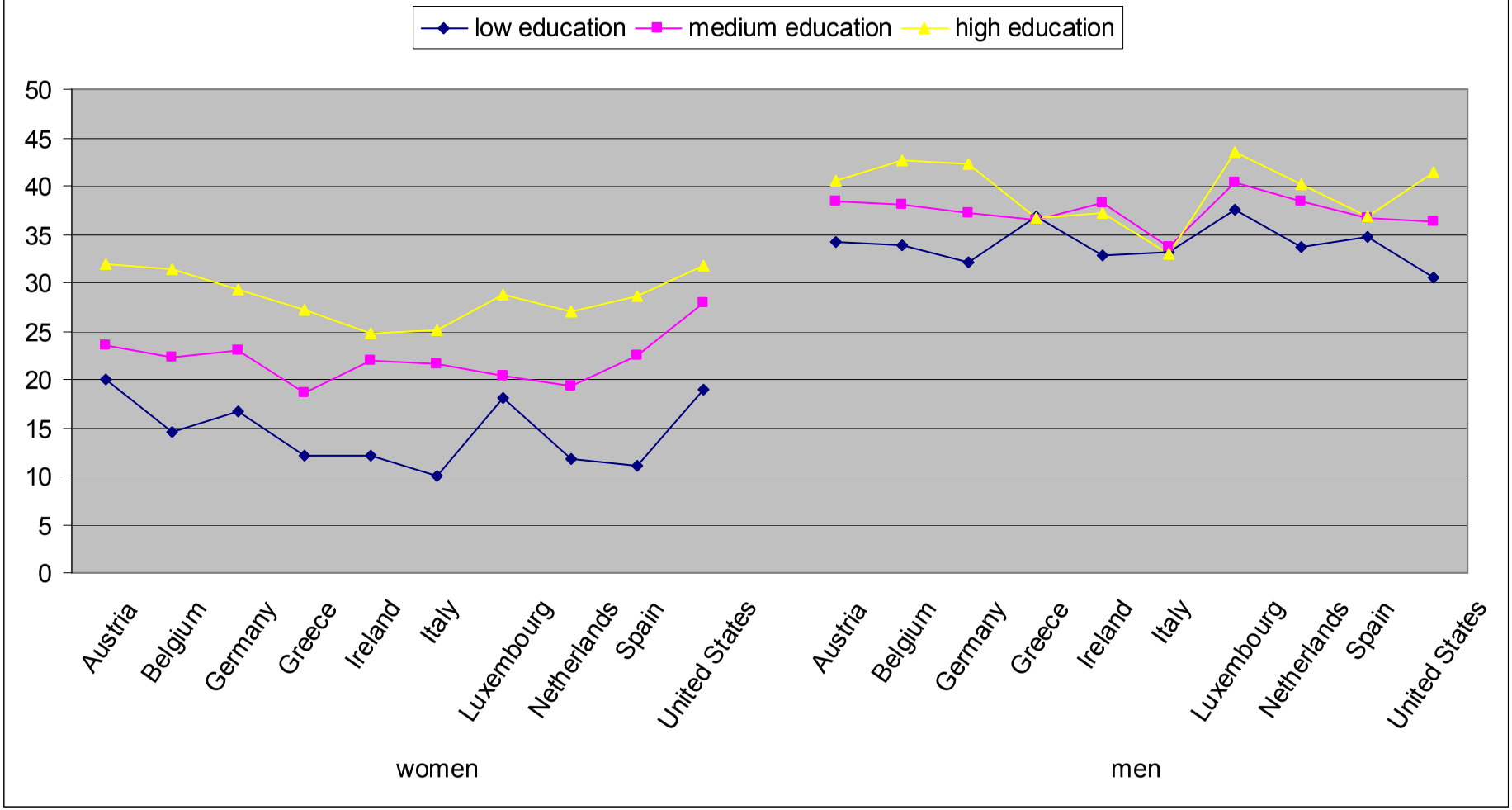

Figure 4: Mean hours currently working for 25-54 year-olds with a young child (<7), by education, separately for women and men (includes nonemployed)

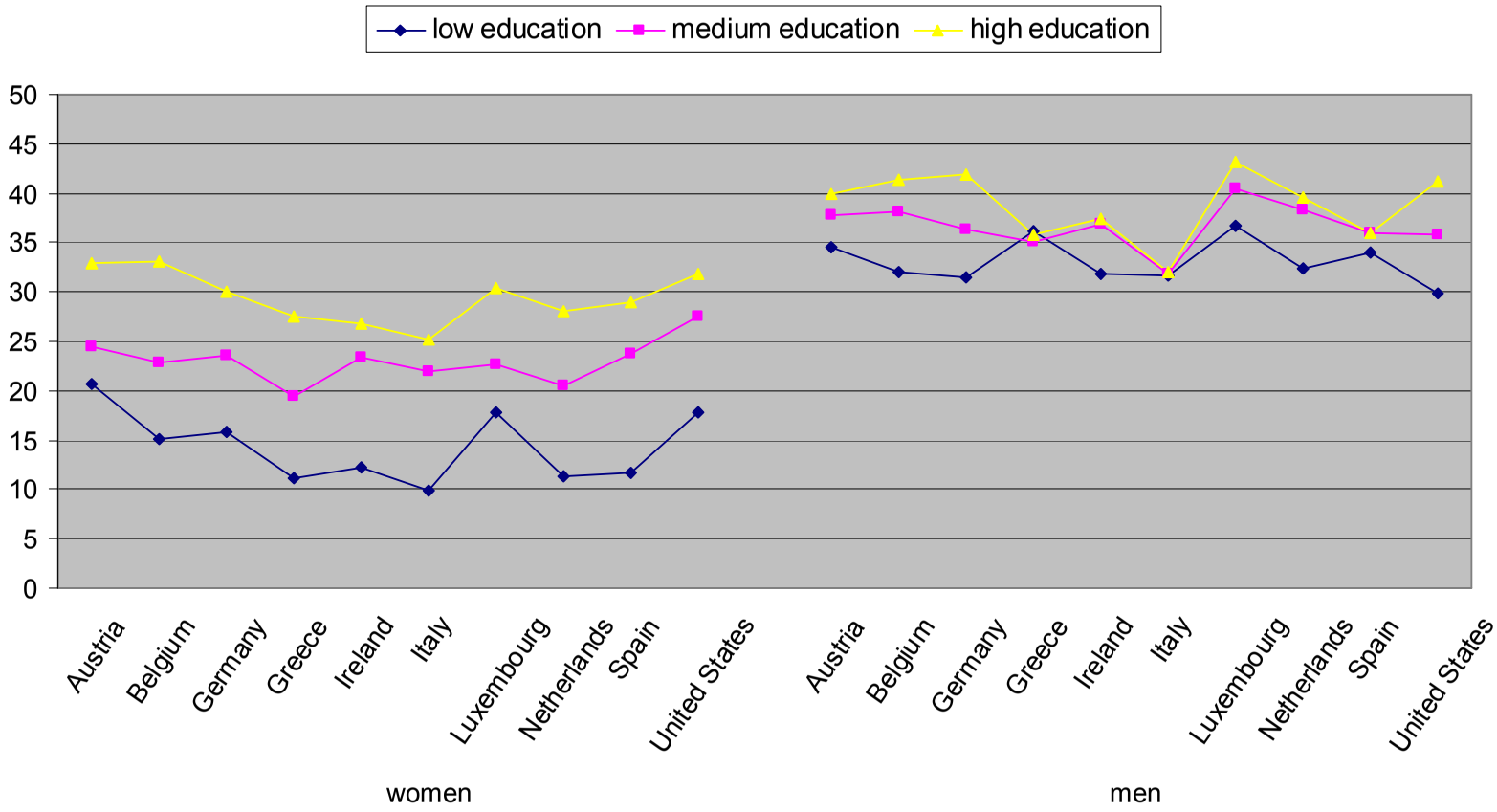

Figure 5: Mean hours currently working for 25-54 year-olds who report any hours in the past week, by education, separately for women and men

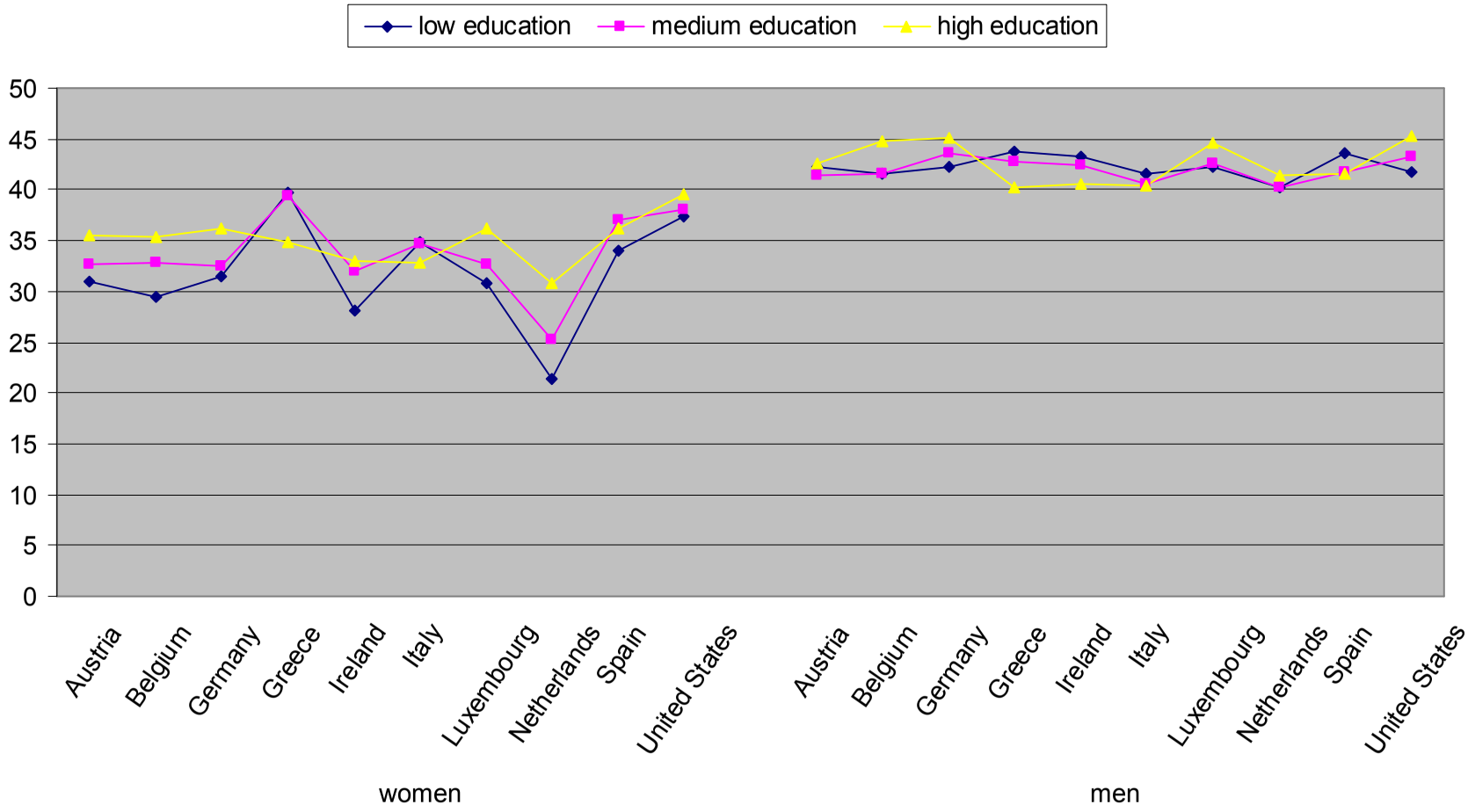

Figure 6: Mean hours currently working for 25-54 year-olds who have a young child (<7), by education, separately for women and men (only those who are currently working)

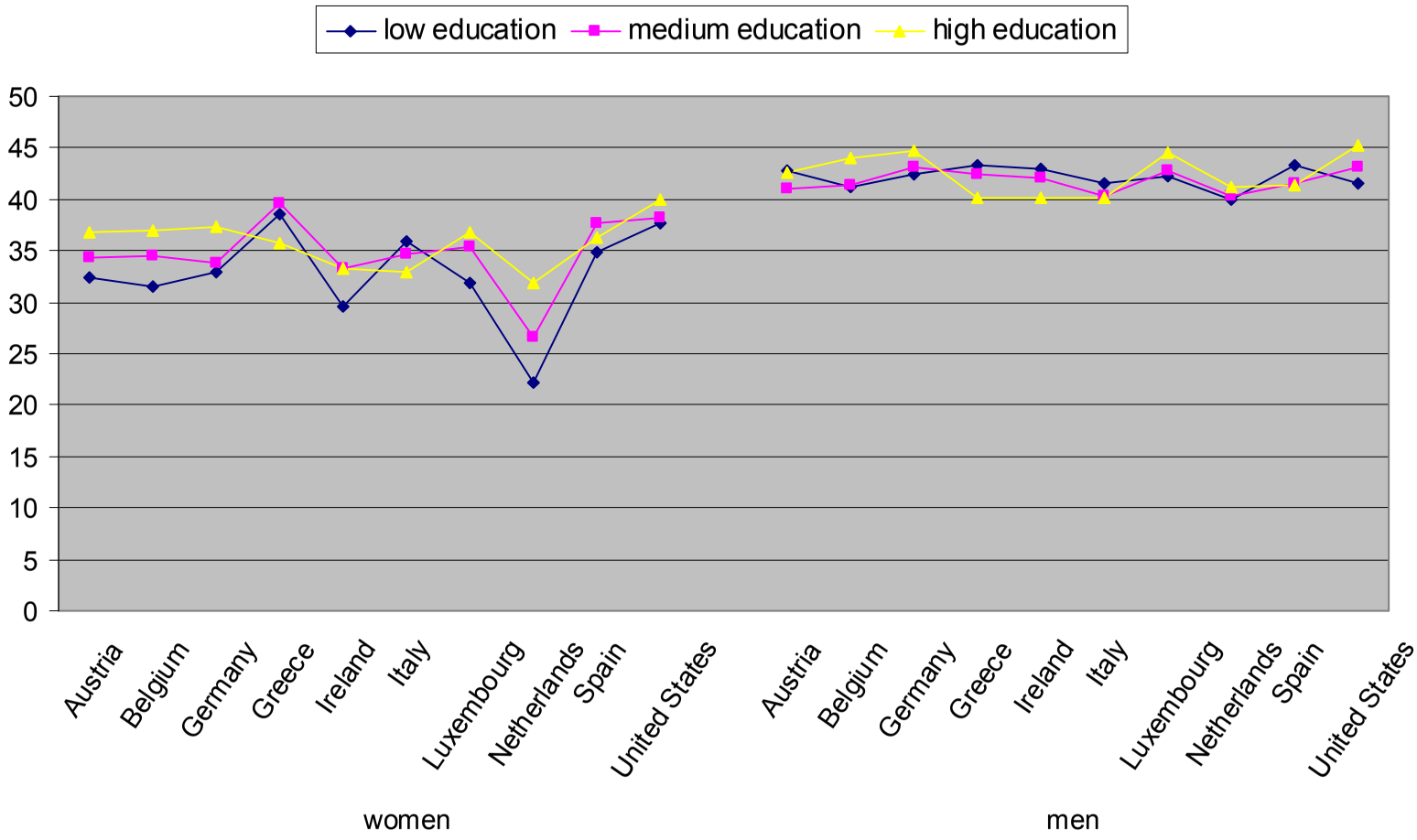

Figure 7: Female to male ratio of mean annual earnings for all 25-54 year-olds, by education (includes those without earnings)

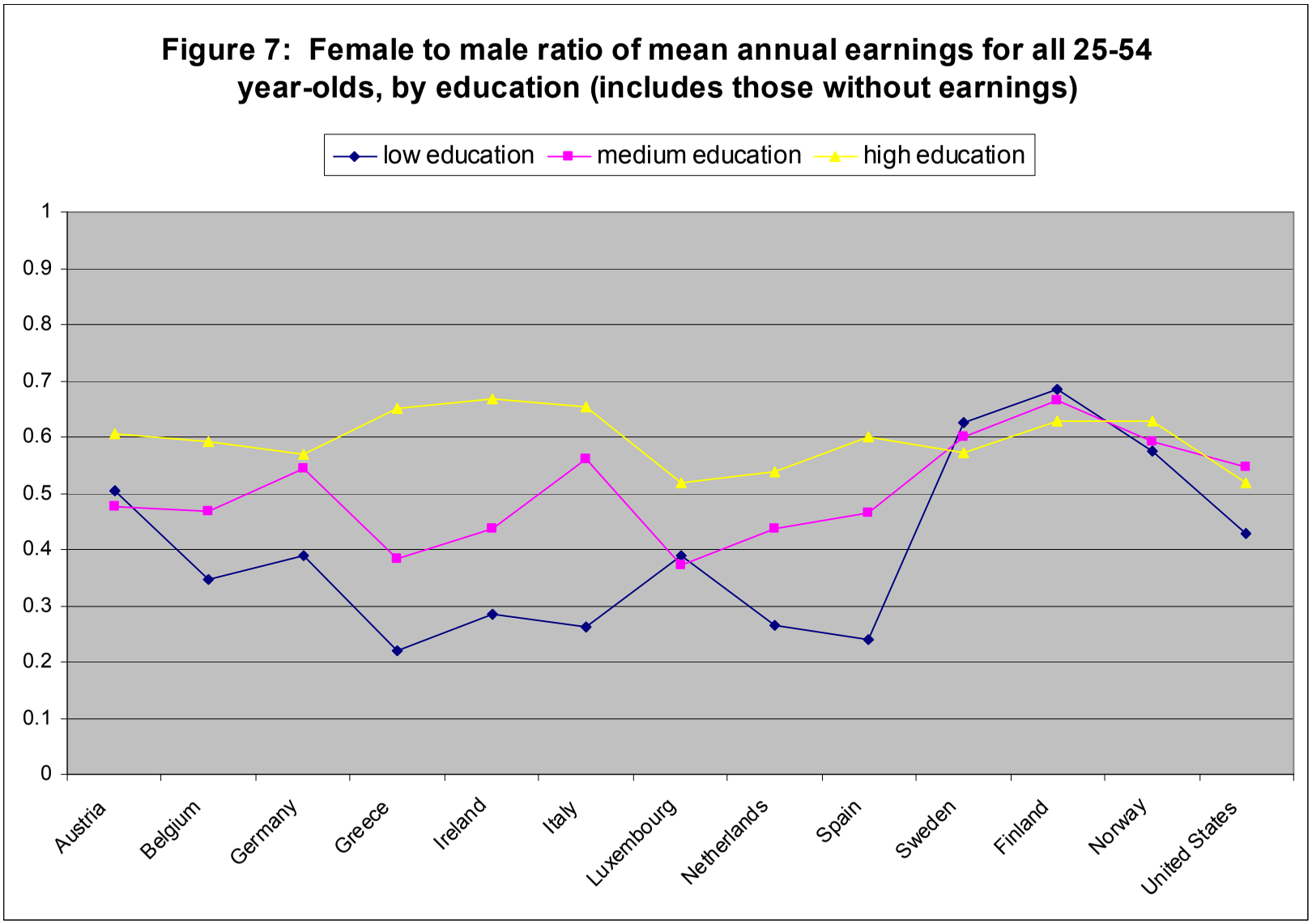

Figure 8: Female to male ratio of mean annual earnings for 25-54 year-olds with any earnings last year, by education

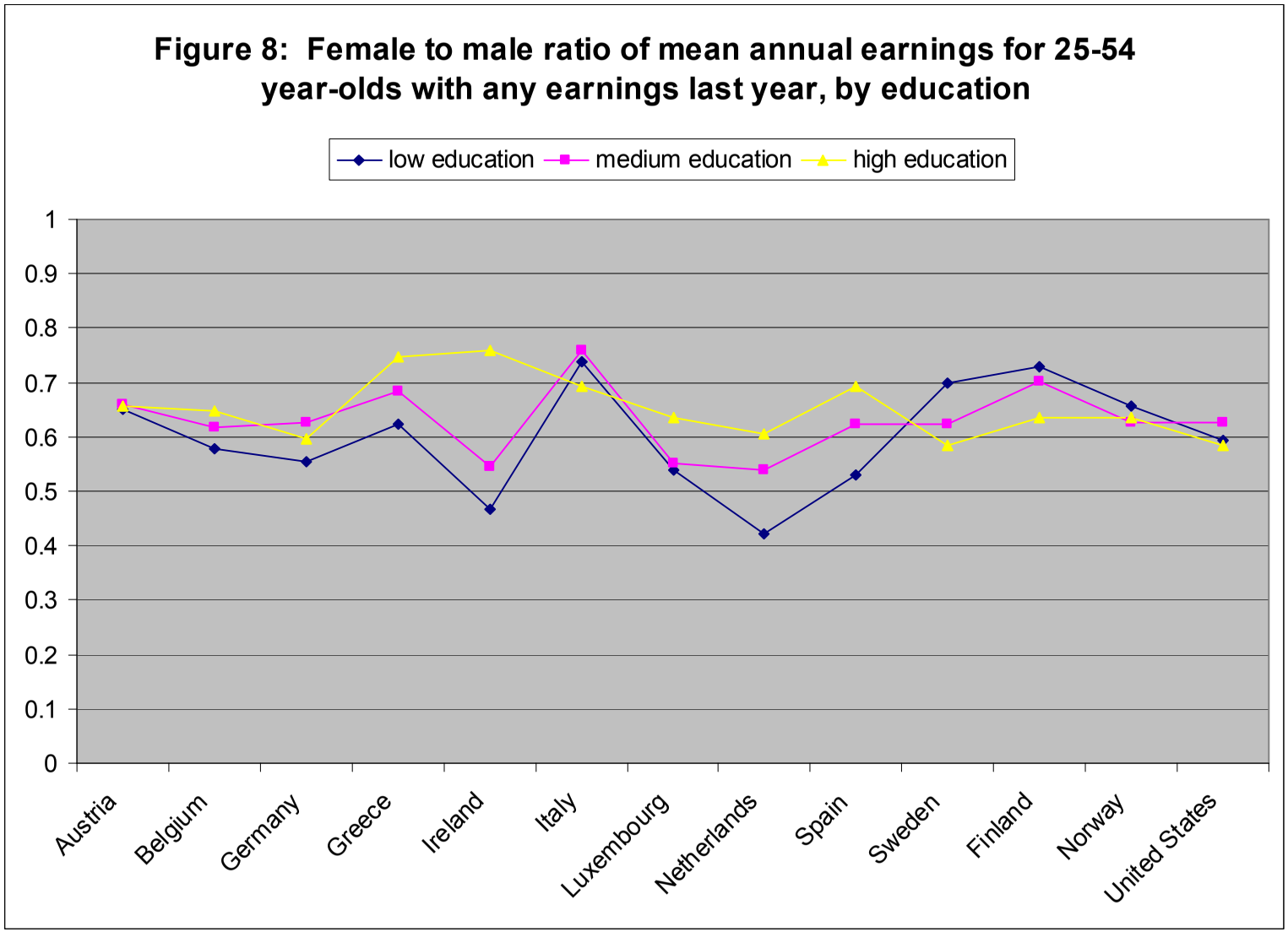

Figure 9: Female to male ratio of mean annual earnings for 25-54 year-olds with any earnings last year and with a young child (<7), by education

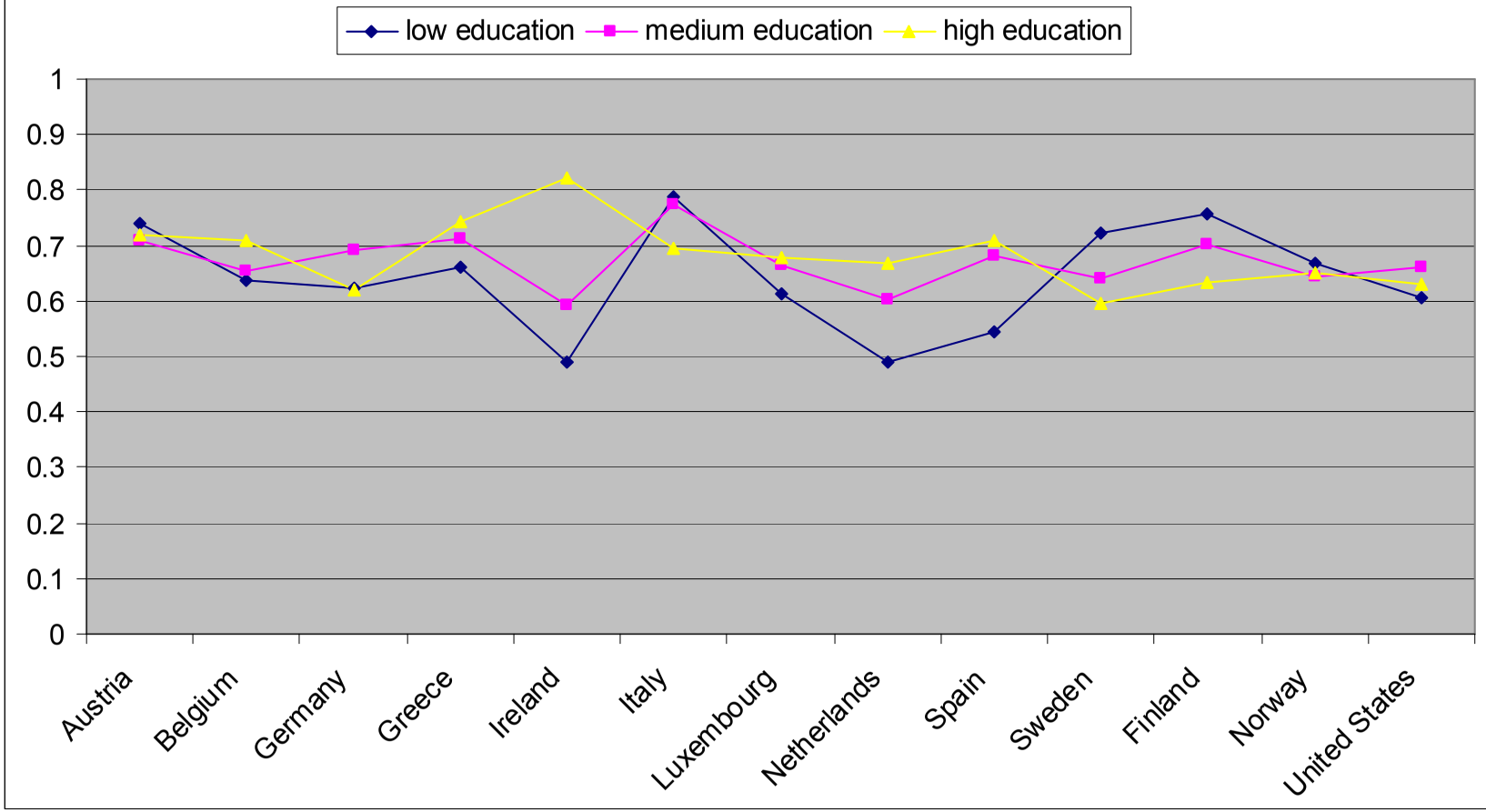

Figure 10: Female to male ratio of mean annual earnings for 25-54 year-olds with a young child (<7), by education (includes those without earnings)

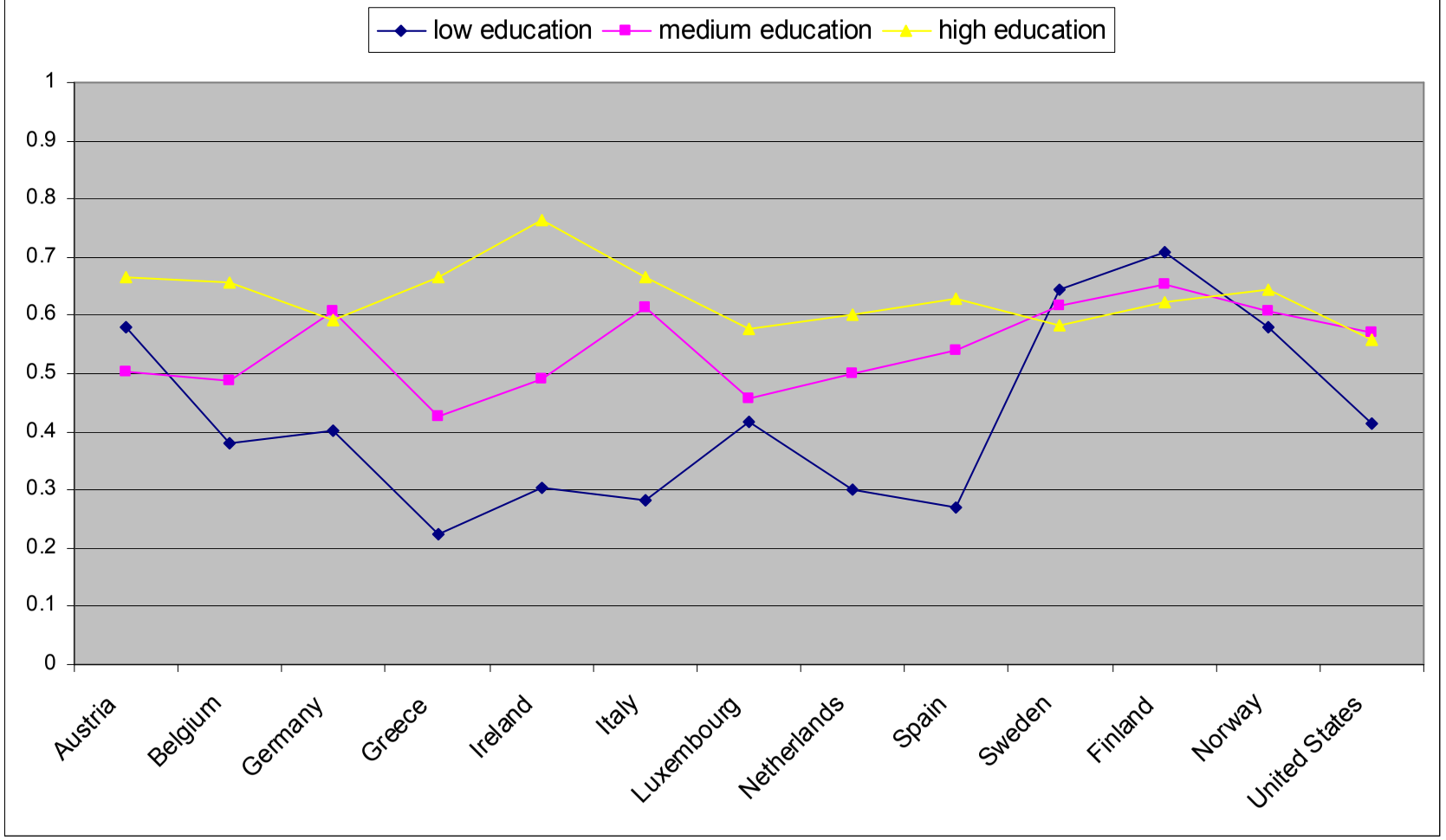

Figure 11: Female to male ratio of mean annual earnings for 25-54 year-olds who currently work 35+ hours, by education

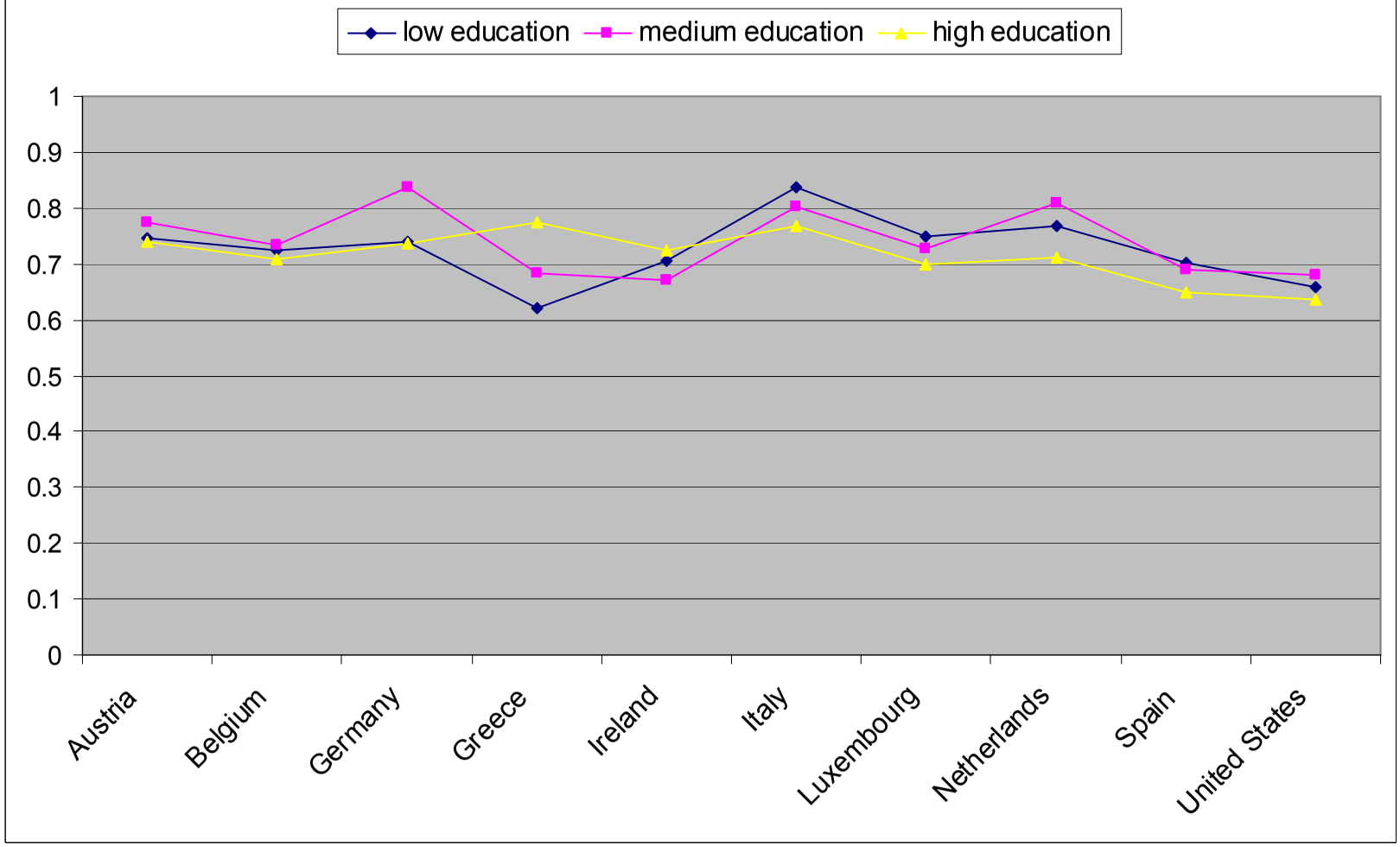

Figure 12: Female to male ratio of mean annual earnings for 25-54 year-olds who currently work 35+ and have a young child (<7), by education

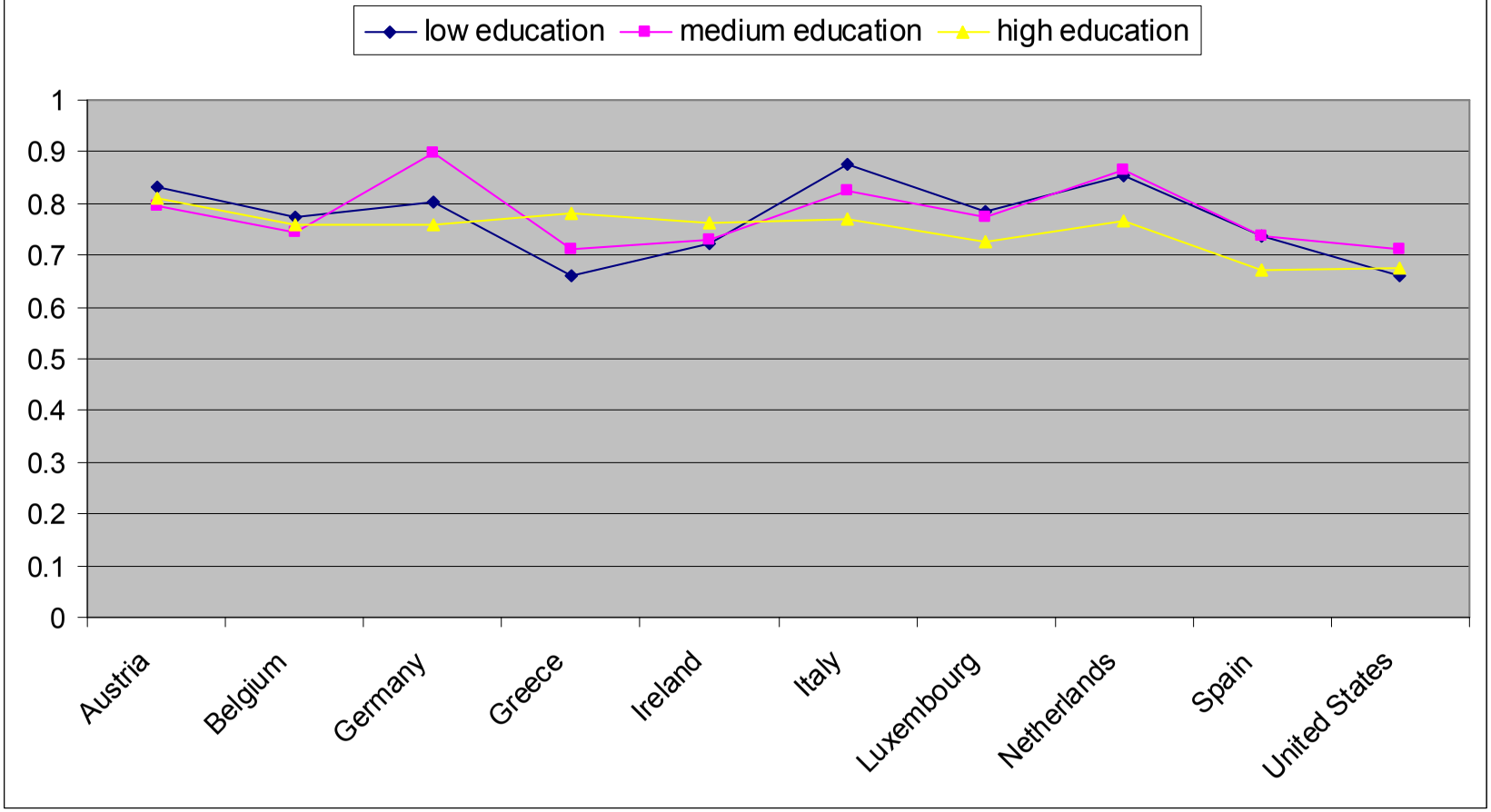

Figure 13: Female to male ratio of mean annual earnings for currently employed 25-54 year-olds with a young child (<7), by education

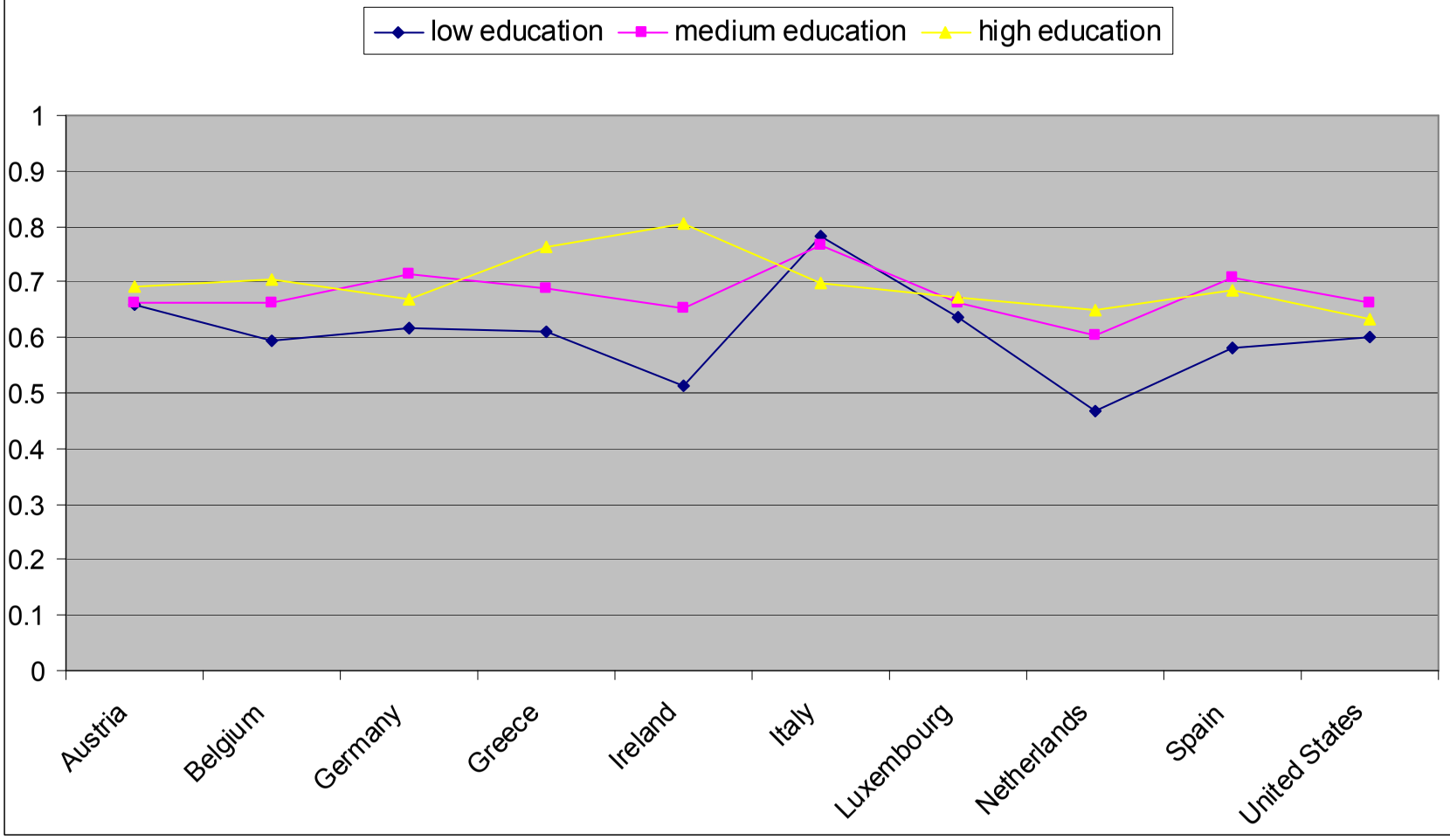

Figure 14: Female to male ratio of mean annual earnings for currently employed 25-54 year-olds, by education, separately for women and men