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Chapter II

Salary Differences Between Male and Female Software Developers

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Abstract

In this chapter, we quantify the differences in the hourly salaries of female software developers with their male counterparts using the human capital model based on economic theory. In addition to the gender factor, the human capital model includes other control variables that may account for the salary differences such as education, experience, and specific skills, such as object-oriented programming and SQL. Our models indicate that gender is a statistically and practically significant factor in assessing a software developer's salary.

Introduction

U.S. Department of Labor (2002) data indicate that currently full-time female computer programmers make $867 per week (median) compared to their male counterparts who make $975 per week (median). Equivalently, female computer programmers make, on average, only 88.92% of what their male counterparts make or conversely, male computer programmers make, on average, 112.46% of what their female counterparts make. The question addressed in this chapter is the extent to which the salary differences between male and female software developers (we prefer using this term rather than computer programmers) can be attributed to human capital differentials. For most professions, the significant human capital factors include work experience and education. In addition, specific skills may contribute to the human capital of software developers.

To address this question, we analyze the differences in current salaries between female and male software developers by factoring in the effects of education, experience, and specific skills. We fit the human capital model based on economic theory to provide a quantitative assessment of the salary differences attributed to gender. While the human capital model quantifies the salary differences based on gender, it also controls for the effects of different amounts of technical experience and different levels of education that software developers possess. Further, salary data are adjusted to account for the average number of hours worked per week. In addition, we consider other human capital factors that impact the salaries of software developers. If a set of human capital factors is found that make the gender factor insignificant, this will provide support to the viewpoint that human capital differentials are responsible for salary differences. On the other hand, if the gender factor is still significant, the model results will provide a quantitative assessment of salary differences for software developers attributed to gender.

In the next section, the relevant literature on gender inequality and discrimination is reviewed. Then, the human capital model, which we employ to assess potential gender discrimination, and its theoretical rationale, the human capital theory, are detailed. Following this, the nature of our survey is discussed briefly and some summary statistics are presented. The human capital model results are then presented and discussed. To provide confirmatory evidence for our human capital models, our sample is divided into female and male subsets, then Chow (1960) tests and Oaxaca (1973) decompositions are applied. The chapter concludes with a discussion of the results and managerial implications.