The Determinants of Information Technology Wages

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ABSTRACT
Anchoring this work to the classical human capital theory, the authors examine the effects of various human capital factors on IT professional compensation. Dividing IT salary into LOW (<$75,000) and HIGH (>=$75,000) ranges and using binomial logistic regression analysis, this paper estimates the effects of IT experience, education, IT degrees, IT certifications, and managerial positions on the probabilities of earning low wages in comparison to high wages, while controlling for industry type, organization size and location, gender, and marital status. Results indicate that the most important factors associated with high salaries are managerial positions, IT experience, education, and organization size. Practical advice is given on how IT professionals can employ these results to increase their compensation.

Keywords: Human Capital Theory, Information Systems Personnel Management, Information Systems Staffing, Information Technology Wages, Logistic Regression

INTRODUCTION
The information technology (IT) field continues to experience significant changes as we begin to emerge from the downturn of the latest economic recession. Compensation for IT jobs reached a plateau during recent years, and in fact, decreased for some industries and/or geographic locations (Brandel, 2009). This trend makes it especially important to discern the variables that determine IT wages.

Economists have widely used the human capital theory to identify the competences, knowledge and personality attributes embodied in the ability to perform a specific job function, which produces economic value for the employer (Sullivan & Sheffrin, 2003). For example, propose a professional career and the competency levels related to the professional profiles identified for the organizations subject to this study is proposed. Traditional human capital earnings functions focused on education and work experience as the main determining variables (Mincer, 1974). Recent development has expanded the current models by including variables such as training and certifications, organization specific variables such as industry type, location, and organiza-
tion size, and demographic variables such as age and gender (Galup et al., 2004; Dattero et al., 2005; Galup et al., 2006; Quan et al., 2007 and Quan et al., 2008).

Applying the economic theory to IT compensation research has recently gained in popularity. A recent study on IT compensation uses salary data for 1,576 IT professionals in 39 organizations to investigate the relationship between human capital endowments and IT compensation (Ang et al., 2002). The results show that IT salaries are directly determined by human capital endowments of education and experience. Moreover, institutional differences are found to moderate the relationship. A series of work by Quan et al. (2008), Quan et al. (2007) and Dattero et al. (2005) using secondary data found that IT salaries are also related to age, gender, organization type and size, industry type and job functions.

This study extends the existing literature of the determinants of IT wages in the following ways. First, the authors built the questionnaire based on extensive literature review and collected the data first hand. Second, the specific type of education (e.g., a degree in MIS), in addition to education level, is considered. This is important because a degree in IT related fields, instead of another area such as liberal arts or the sciences may have different implications for IT wages. Third, managerial positions are considered in the model. Colomo-Palacios et al. (2010) propose a pyramidal model for professional career development of Software Engineers which states that competencies not uniquely pertaining to Software Engineering, such as management skills, are important to stimulate professional development towards higher levels. Higher levels mean higher pays. Finally, binomial logistic regression analysis is used to estimate the odds ratios of making low wages (<$75,000) when compared to high wages (=>$75,000) for the key variables in the study.

In the next section, the relevant literature on human capital theory is reviewed. Then, the research questions based on the human capital factors are formulated. This is followed by the development of the binomial logistic regression model. Following this, the nature of our survey is discussed and some summary statistics are presented. The binomial logistic regression model results are then presented and discussed. The paper ends with managerial implications for IT professionals and suggestions for future research.

THEORETICAL FRAMEWORK

Adam Smith’s (Smith, 1776) 18th century writings discussed the concept of compensating for differences in wages paid to workers based on amenities and risks in the workplace. From this concept, Human Capital Theory (Berndt, 1991) evolved. Human Capital Theory is considered the dominant economic theory of wage determination in the field of labor economics. This is evidenced by its impressive record of scholarship. Liberally including the economics of education, Blaug (1966) bibliographically organized 792 journal articles, books, and research studies. Less than four years later, this number had grown to 1,350 (Blaug, 1970). In 1976, it exceeded 2,000 (Blaug, 1978). This represents a growth rate exceeding 120 publications per year. The connectivity between human capital theory and Nobel Prize awards is perhaps more impressive than the formal publications record. Since 1971, five Nobel prizes have been awarded to scholars in, or affiliated with, the field of human capital theory (Becker, 1993; Wright, 1992). The Nobel distinction belongs to Theodore W. Schultz and Gary S. Becker, the two most pronounced scholars of human capital theory; Milton Friedman and Simon Kuznets (1945), who collaborated to publish an important article linking medical profession incomes to investments in education; and Robert M. Solow (1957), who helped to identify the relatedness of education to the aggregate production function. (Sweetland, 1996, p. 342).

Human Capital Theory states that investments made in ones’ occupation are directly correlated to the compensation earned over time that is received for the execution of job
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