

# Human capital accumulation of salaried and self-employed workers

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## Abstract

This paper revisits the study of Lazear and Moore [Q. J. Econ. 99 (1984) 275], which found that empirical experience–earnings profiles were flatter for self-employed (SE) workers than salary/wage (SW) workers. This finding supports Lazear’s contract theory, which argues that firms use life-cycle, backloaded payment systems to work around principal–agent problems between firms and workers. This paper reproduces the Lazear and Moore findings on more recent data and argues for an alternative interpretation. In particular, this paper argues that self-employed workers face more wage variation, but also enjoy a higher return for human capital than salary/wage workers. A model based on these assumptions produces flatter experience–earnings profiles, since self-employed workers start their careers with more human capital. Due to opportunity cost, they invest less in human capital on the job. This paper develops implications of the model not found in the Lazear contract theory and concludes by developing support for these implications.

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## 1. Introduction

Workers’ wage growth with work experience is one of the most robust empirical findings in economics. Lazear (1979) explained wage growth among salary/wage workers based on his contract theory. According to this theory, workers’ behavior is not perfectly

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observed, and workers' shirking is detected only by chance. According to Lazear, it is optimal for employers to pay their employees less than the workers' marginal product when the workers are young, and more than the workers' marginal product when they are old. This payment system discourages workers from shirking: workers are fired when the shirking is detected, thus, they cannot receive their money back.

The human capital theory also predicts wage growth with work experience because of workers' skill formation. Since Lazear's contract theory and the human capital theory are not mutually exclusive, it is very difficult to attribute observed wage growth to either model exclusively.

As an indirect test of Lazear's contract theory, [Lazear and Moore \(1984\)](#) (LM, hereafter) compared the wage growth of salary/wage workers and self-employed workers. Since self-employed workers have no incentive to shirk, the wage growth of self-employed workers can be attributed to their human capital accumulation. Assuming identical human capital accumulation between salary/wage (SW) workers and self-employed (SE) workers, the contract theory can explain the difference of wage growth between SW workers and SE workers. In fact, LM found a steeper wage–experience profile among SW workers than SE workers and used this finding as evidence to support Lazear's contract theory.<sup>1</sup>

Several other theories explain wage growth on the job. [Salop and Salop \(1976\)](#) proposed that workers have heterogeneous probabilities of quitting their jobs, and this is their private information. When workers quit, it is costly for firms because they must then train new workers. It is, therefore, optimal for firms to use a tilted-up wage profile as a screening device, so that only workers with low probabilities of quitting apply for jobs. According to their theory, self-employed workers have flatter wage profiles than those of salary/wage workers because self-employed workers do not have to utilize a tilted-up wage profile as a screening device. Since Salop and Salop's theory and Lazear's contract theory render the same prediction about the difference between SE and SW workers, we cannot distinguish between those two theories only through looking at the two types of wage profiles.

[Jovanovic \(1979\)](#) developed a model that argues that workers gradually learn the quality of job match that is specific to particular workers and their respective jobs, and workers who realize they have a poor match quit their jobs. Since workers with poor job matches quit, wages rise among job stayers. In this situation, the average wage growth among job stayers depends on how fast the workers who realize the poor job match change their jobs. As several studies show, SE workers tend to invest in their own businesses at the start up.<sup>2</sup> Part of the investment is arguably sunk. Consequently, SE workers who

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<sup>1</sup> LM, in fact, estimated a wage equation for each occupation and found a positive correlation between the present value of lifetime earnings and the slope of wage–experience profiles among SW workers but not among SE workers. They interpreted this as evidence of the productivity-enhancing effects of a deferred payment system among salaried workers. However, lifetime income was calculated based on the estimated coefficients of a wage equation that included an experience term. Therefore, when the slope coefficient is nearly 0, which was the case for self-employed workers in many occupations in their study, lifetime income is determined regardless of the slope coefficient. Thus, the difference between wage–experience profiles was crucial when deriving their results.

<sup>2</sup> See [Dunn and Holtz-Eakin \(2000\)](#), for example.

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