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### Immigrant Wage Assimilation and the Return to Foreign and Host-Country Sources of Human Capital

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# Immigrant Wage Assimilation and the Return to Foreign and Host-Country Sources of Human Capital\*

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## Abstract

We compare predicted relative immigrant wage profiles based on returns to YSM and to foreign and host-country sources of schooling and experience. We find the biases inherent in inferring assimilation from a return to YSM appear more substantial than those emanating from the assumptions necessary to estimate foreign and host-country returns directly using standard data sources. Given the policy relevance of allowing entry effects and subsequent wage growth to depend on the foreign human capital immigrants bring and their post-migration schooling and work decisions, our findings suggest the predominance of YSM models in the literature is not well founded.

**Keywords:** Immigrant workers; wage differentials; human capital.

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## Executive Summary

In the textbook model of immigrant wage assimilation, immigrants experience wage disparities on arrival in a host country, relative to comparably aged and educated native-born workers, but with time following migration, these gaps close. In his seminal study of the immigrant labour market experience, Chiswick (1978) argued this pattern arises from discounting by host-country employers of foreign sources of human capital, combined with accumulation of host-country knowledge and skills following migration. To capture these ideas empirically, Chiswick began by positing a process generating wage outcomes for immigrants with separate returns to both foreign and host-country sources of training, although his estimates did not allow for these separate returns.

To directly estimate returns to foreign and host-country sources of schooling and experience, we need to observe where immigrants obtained their schooling and work experience. Unfortunately, the source country of schooling is rarely observed in available data sources, while work experience is typically measured as a residual given a worker's age and years of schooling. To overcome this data limitation, Chiswick imposed parameter restrictions on the wage generating process he had in mind, which allowed an intercept shift for immigrants – in order to capture the discounting of their foreign human capital; as well as to estimate a quadratic return to an immigrant's years since migration (YSM) - to capture the assimilation process. This approach spawned a large literature, which has come to cover many countries and time periods (see Borjas (1999) for a review). Though never explicitly acknowledged in the literature, the key advantage, besides its limited data requirements, of the YSM approach to modelling immigrant wage outcomes, is that conditional on arrival cohort, YSM is exogenous in the sense that it captures an aging process that is not a choice variable. The decision whether to begin accumulating work experience or host-country schooling following migration, in contrast, might be highly correlated with immigrant wage levels or anticipated future wage growth, thereby complicating inferences regarding wage assimilation.

Despite an extensive literature spanning 30 years, there remains considerable disagreement whether, given enough time, immigrants experience wage assimilation. In this paper we argue the inconsistency of the findings in the literature reflect, at least in part, the consequences of inferring assimilation from a return to YSM, instead of directly estimated returns to foreign and host-country sources of human capital. In particular, we show analytically that the model potentially predicts immigrant wage convergence to a comparably-aged native even when there is no convergence in the underlying data generating process (DGP). Moreover, the extent of estimated assimilation depends not only on the parameters of the underlying DGP - in particular, the relative advantage of host-country over foreign sources of human capital – but also on distributional moments of the data at hand. For example, in the model estimated by Chiswick (1978), assimilation depends critically on the sample covariance between foreign and host-country labour market experience. Since these moments may be sensitive to sample restrictions, such as age restrictions in this case, the use of YSM models contributes to the inconsistency of the results in this literature.

To obtain predictions of immigrant wage growth that reflect the parameters of the DGP, rather than the data at hand, we need to estimate separate returns to foreign and host-country sources of schooling and experience. But this requires these quantities to be observed. The few papers that have estimated separate returns have done so by assuming all schooling is strictly continuous from age 5, and one year of labour market experience is accumulated in every year after schooling is complete (Friedberg 2000; Bratsberg and Ragan 2002; Green and Worswick 2003; and Aydemir and Skuterud 2005, 2008). Behaviour such as immigrants with foreign work experience returning to school, or experiencing periods of nonemployment following migration, introduces measurement error, the consequences of which, we show, are far from straightforward. Moreover, none of these papers address the potential endogeneity of the post-migration work/schooling decision. The question is whether the biases that are introduced by indirectly estimating foreign and host-country returns using the standard data sources available are more severe than the biases that are overcome.

Using a particularly rich Canadian longitudinal data source, which identifies the age of school completion and when full-time work began, we compare predicted relative immigrant wage profiles based on returns to YSM and direct returns to foreign and host-country sources of schooling and experience. Our results suggest that the consequences of inferring assimilation from a return to YSM are more substantial than those arising from the assumptions necessary to estimate foreign and host-country returns directly using standard data sources. The more important advantage of estimating foreign and host-country returns, however, is that entry effects and subsequent wage growth directly depend on the stocks of foreign human capital immigrants bring, and their post-migration schooling and work decisions. Not only do these factors serve to control for age at migration, thereby overcoming a source of bias inherent in the YSM approach, but this data also offers a much richer set of counterfactual predictions to identify what types of migrants and post-migration behaviour obtain better wage outcomes. For example, our estimates suggest immigrants with more foreign experience not only start at lower initial wages (relative to a comparably aged native), but also experience lower subsequent wage growth. In contrast, we find little evidence that foreign schooling either lowers relative wage outcomes at entry or affects subsequent wage growth. These results, which are not attainable using the conventional YSM approach, provide valuable insights to inform immigrant selection and settlement policy.