



Linguistic barriers in the destination language acquisition of immigrants[☆]



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ABSTRACT

There are various degrees of similarity between the languages of different immigrants and the language of their destination country. This linguistic distance is an obstacle to the acquisition of a language, which leads to large differences in the attainments of the language skills necessary for economic and social integration in the destination country. This study aims at quantifying the influence of linguistic distance on the language acquisition of immigrants in the US and in Germany. Drawing from comparative linguistics, we derive a measure of linguistic distance based on the automatic comparison of pronunciations. We compare this measure with three other linguistic and non-linguistic approaches in explaining self-reported measures of language skills. We show that there is a strong initial disadvantage from the linguistic origin for language acquisition, while the effect on the steepness of assimilation patterns is ambiguous in Germany and the US.

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1. Introduction

Already the biblical description of the fall of the Tower of Babel acknowledged the fact that differences and diversity between languages impose major obstacles for human communication. A range of empirical studies have shown that linguistic barriers constitute distinctive hurdles for international factor flows, e.g., in international trade (Lohmann, 2011; Isphording and Otten, 2013) or international migration flows (Belot and Ederveen, 2012; Adsera and Pytlikova, 2012). On the individual level, language skills have been analyzed as being a crucial determinant for the economic and social

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integration of immigrants in their destination country, starting with early work by [Carliner \(1981\)](#) and [McManus et al. \(1983\)](#) and more recently estimating strong wage effects for destination language proficiency ([Chiswick and Miller, 1995](#); [Dustmann and van Soest, 2002](#); [Bleakley and Chin, 2004](#)). These wage effects arise from the role of language as a medium of everyday and working life, constituting an important productive trait of individuals ([Crystal, 2010](#)). Furthermore, low proficiency may also act as a signal of foreignness, facilitating discrimination and differentiation ([Esser, 2006](#)). Apart from wages, language proficiency is related to further economic outcomes, such as employment status ([Dustmann and Fabbri, 2003](#)), occupational choice ([Chiswick and Miller, 2007](#)), and locational choice ([Bauer et al., 2005](#)).

Language skills are not randomly distributed: rather, they display the outcome of a systematic human capital investment decision influenced by costs and expected benefits ([Chiswick and Miller, 1995](#)). This study is concerned with the analysis of a specific cost factor of language acquisition related to the origin of an immigrant. The degree of difficulty in learning a new language depends on the degree of dissimilarity of the mother tongue of immigrants to the language of the destination country. This linguistic distance, denoting differences between vocabularies, phonetic inventories, grammars, scripts, etc., is expected to crucially affect the efficiency of language learning and to raise the costs of human capital investment. In spite of the strong impact of the skills of immigrants in the destination language on their integration process, the literature on the determinants of the acquisition of the language of their destination remains surprisingly scarce. The systematic analysis of the determinants of language proficiency started with the early work by [Evans \(1986\)](#) comparing immigrants in Germany, the US, and Australia. More recently, [Chiswick and Miller \(1999, 2002, 2005\)](#) provide a comprehensive analysis of the language acquisition of immigrants in the US. For Germany, [Dustmann \(1999\)](#) analyzes the language proficiency as a jointly determined outcome along with migration duration. [Dustmann and van Soest \(2001\)](#) takes into account potential misclassification in self-reported language proficiency and [Danzer and Yaman \(2010\)](#) analyze German language proficiency as a function of enclave density. Still, the influence of characteristics related to the country of origin, such as the linguistic distance faced by immigrants, remains an under-researched area ([Esser, 2006](#)).

The major challenge in analyzing the effect of linguistic barriers on the language acquisition of immigrants is to operationalize the linguistic distance for use in large scale micro data studies. We propose drawing from comparative linguistics and using an innovative linguistically based operationalization of linguistic distance, the so-called normalized and divided Levenshtein distance calculated by the *Automated Similarity Judgment Program* (ASJP). The ASJP approach offers advantages in terms of transparent computation and general applicability. We compare its benefits to those of three other approaches previously used in further applications in the economic literature to measure linguistic distance: (i) The WALSH measure, which uses differences in language characteristics, (ii) the TREE measure, which is based on a priori knowledge on language families, and (iii) a measure based on average test scores of native US foreign language students (SCORE). Combining this information on language differences with US and German micro data, we provide a comprehensive analysis of the influence of the linguistic origin on the acquisition of the destination language proficiency. The US and Germany are excellent examples for analyzing the language acquisition of immigrants. Both countries have a long history as significant immigration hubs, receiving immigrants from a large variety of source countries.

The present study contributes to the literature of the determinants of language proficiency in several ways. First, we provide a comprehensive overview of the different methods of deriving a measure of language differences applicable to the analysis of the role of languages in economic behavior. Second, we introduce the ASJP approach as an easily and transparently computed measure of linguistic dissimilarity between languages. Moreover, this new approach to measuring linguistic distance is applicable to any of the world's languages, and offers specific advantages compared to other linguistic and non-linguistic approaches used in the previous literature. We apply the derived methods to explain the language acquisition of immigrants in the US using the American Community Survey (ACS) as a very recent data source. Finally, we contribute to the literature by taking advantage of the general applicability of the linguistically based methods and extend our analysis beyond the case of Anglophone countries using data from the German Socio-Economic Panel (SOEP).

Our results suggest that the linguistic barriers raised by language differences play a crucial role in the determination of the destination-country language proficiency of immigrants. Regardless of the method employed, we estimate large initial disadvantages by linguistic distance for immigrants both in the US and in Germany. In Germany, these initial differences in language skills decrease with a moderate convergence over time. Contrarily, in the US, the initial disadvantages increase over time. The gap between immigrants from different linguistic groups becomes larger with the time of residence. A potential explanation for the opposing results might be found in the higher prevalence of linguistic enclaves in the US, leading to different long-term incentives for investment in language skill in the US and Germany.

The estimated differences by linguistic origin witness to the great influence of linguistic background on the economic integration of immigrants. This role should be accounted for in the design of integration policy measures. The results allow the identification of potential target groups for policy intervention. Typical measures aiming at increasing the average language proficiency of immigrants have relied on lump sum payments or fixed classroom hours for language classes. Public spending for language acquisition support might be more effective when a priori information about the expected difficulties is taken into account to specifically address target groups prone to insufficient levels.

The remainder of the paper is organized as follows. In Section 2 we provide an overview of the measurement of linguistic differences employed in our analysis. Section 3 describes the data, Section 4 outlines our empirical model. The findings obtained from our empirical analysis are presented and discussed in Section 5, and Section 6 concludes.

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