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# The effects of exposure to hyperinflation on occupational choice<sup>☆</sup>



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## ABSTRACT

We use data on immigrants who live in the United States to study the effects of exposure to hyperinflation on occupational choice. To do so, we calculate the number of years an individual had lived under hyperinflation before arriving to the US. We find that its marginal effect on the probability of being self-employed instead of wage-earner is 0.87 percentage point. This finding suggests that the macroeconomic environment one lives in permanently affects his economic behavior. The estimated effect depends on the age individuals had when exposed to hyperinflation. In particular, it vanishes for those over the age of 40.

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## 1. Introduction

In this paper, we study the effects of exposure to hyperinflation on self-employment decisions. By using data on immigrants from the US Census and on inflation across countries from the dataset compiled by Reinhardt and Rogoff (2009), we calculate the number of years an individual had lived under hyperinflation before arriving to the US. We find evidence, consistent across several specifications, that experience of hyperinflation increases the probability of being self-employed rather than wage-earner. This finding suggests that the macroeconomic environment one lives in permanently affects his economic behavior. Our results fit into a growing literature, which ties experiences of macroeconomic events to economic behavior using data at the individual level. Recent examples are Malmendier and Nagel (2011) and Giuliano and Spilimbergo (forthcoming). To our knowledge, only a few papers attempt to explain economic behavior using inflation experiences at the individual level. Lombardelli and Saleheen (2003) as well as Malmendier and Nagel (2013) investigate how subjective inflation expectations are shaped by experience of inflation. Ehrmann and Tzamourani (2012) test whether experience of high inflation impacts the importance an individual attaches to price stability. Finally, Fajardo and Dantas (2013) study how past experience of hyperinflation affects investment behavior.

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There are several reasons why hyperinflation can affect occupational choice. First, occupational choice is closely related to cash flow. A wage-earner, for instance, has a more rigid cash flow as he gets paid at a fixed schedule agreed in advance. In contrast, a self-employed individual gets paid once she sells her product or service. Thus, she can more easily adjust its price as inflation accelerates. This flexibility is desirable in times of hyperinflation once it allows the self-employed to protect himself against currency devaluations.

If wage indexation becomes mandatory, as it occurred in many episodes of hyperinflation, wage-earners could be more protected against currency devaluations than self-employed individuals. However, wage indexation itself exacerbates episodes of hyperinflation, not necessarily protecting wage-earners.

Second, as many governments attempted to fight high inflation by controlling wages and prices, the emergence of black markets was common during episodes of hyperinflation, which suggests that the return to undertake risky projects in the informal sector increases in times of hyperinflation. Hence, individuals have more incentives to become an informal self-employed.

Third, by living in a hyperinflation episode, individuals may develop skills and habits that can be profitably employed in an own business. For example, individuals may develop some financial literacy in order to save, plan in advance what to do with wages in order to protect themselves against large devaluations, and develop a habit of search and bargain for low prices as the price distribution becomes more disperse.

Finally, hyperinflation episodes are plagued with uncertainty. In particular, inflation becomes more volatile, which impairs risk assessment by investors. Hence, individuals may prefer to become wage-earners as self-employment requires more risk-taking. Moreover, from a behavioral perspective, uncertainty may affect positively risk aversion, which reinforces the aforementioned effect. [Malmendier and Nagel \(2011\)](#), for instance, document that subjective experiences of macroeconomic shocks affect financial risk-taking.

The discussion above suggests that, in principle, the impact of hyperinflation on the probability of being self-employed is ambiguous theoretically. In order to sort out this effect empirically, we devise a strategy based on the “epidemiological approach”, which is surveyed by [Fernández \(2011\)](#). By comparing outcomes for immigrants and natives, the “epidemiological approach” attempts to separate the contribution of the environment from genes in disease. This approach has been adapted and extended by [Carroll et al. \(1994\)](#), [Guiso et al. \(2004\)](#), [Fernández and Fogli \(2009\)](#), among others, to identify the role of culture in economic outcomes.

Using a sample of immigrants in the US, we use a Probit model to estimate the effect of exposure to hyperinflation on the probability of being self-employed instead of wage-earner. Immigrants are subject to the same environment in the US, a country that has never experienced hyperinflation. Hence, once we control for several covariates, we are able to separate the effect of exposure to hyperinflation from other potential determinants of self-employment. In other words, the comparison of immigrants who have experienced hyperinflation before immigrating to immigrants who have not recovers the causal effect of interest.<sup>1</sup>

Causality interpretation is helped by saturation. We control for a long list of potential determinants of occupational choice in the US, such as the characteristics of the area the individual lives in. We also have ample information on individual attributes, including financial information. Quite importantly, we account for the time lapsed since immigration, which guarantees that we are not capturing the fact that older immigrants were more exposed to hyperinflation and had more time in the US to acquire assets or experience to become self-employed. Finally, but certainly no less important, by including country of origin dummies, we control for all constant attributes of the country of birth. Thus we capture the relationship between exposure to hyperinflation in the past with occupational choice above and beyond local labor market characteristics in the US, most individual characteristics and country of origin characteristics.

Data on immigrants in the US are collected after they had experienced hyperinflation episodes. Hence, our story requires that hyperinflation affects current occupational choice *and* occupational choice must be persistent. There is ample empirical evidence of persistence in self-employment. In fact, there is a whole literature trying to rationalize the fact that self-employed persists even if returns from self-employment are negative (see [Hamilton, 2000](#), [Moskowitz and Vissing-Jørgensen, 2002](#) and [Manso, 2014](#)). More specifically for our purposes, [Akee et al. \(2013\)](#) find that being self-employed in the country of birth is positively associated with the probability of being self-employed in the US. One explanation for persistence is that becoming self-employed may require investment in specific human capital, which can be carried over to other countries.<sup>2</sup> Another reason is that hyperinflation is a traumatic macroeconomic event that can shape permanently preferences, skills and beliefs; and, thus, behavior. [Giuliano and Spilimbergo \(forthcoming\)](#), for instance, document that experiencing a recession – also a traumatic macroeconomic event – in the early adulthood affects beliefs.

A secondary identification strategy involves selecting appropriate sub-samples to deal with a potential selection problem. Hyperinflation may induce emigration and those who leave because of hyperinflation may have unobservable systematically

<sup>1</sup> There is a literature that deals with self-employment among immigrants in the US. One of the first articles is [Borjas \(1986\)](#), who documents that immigrants are more likely to be self-employed than native-born individuals. Moreover, the probability of being self-employed is heterogeneous across groups of immigrants. Following this study, many authors have tried to explain these results. Notable contributions include [Yuengert \(1995\)](#), [Fairlie and Meyer \(1996\)](#), [Fairlie and Meyer \(2000\)](#), [Hout and Rosen \(2000\)](#), and [Oyelere and Belton \(2012\)](#).

<sup>2</sup> [Yuengert \(1995\)](#), for instance, argues that “experience in the informal sector is a form of sector-specific human capital, inclining immigrants more towards self-employment in the United States” (p. 196).

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