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## The Effects of Exposure to Hyperinflation on Occupational Choice

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TEXTO PARA DISCUSSÃO

No. 614

The Effects of Exposure to  
Hyperinflation on  
Occupational Choice

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# The Effects of Exposure to Hyperinflation on Occupational Choice\*

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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 effect depends on the age individuals had when exposed to hyperinflation. In particular, it is stronger for individuals who experienced hyperinflation at an early age, but it vanishes for those over the age of 40. These results suggest that the macroeconomic environment an individual grows up in permanently affects his economic behavior.

Keywords: hyperinflation, self-employment, immigrants.

JEL Classification: E31; J24; J61.

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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 are able to 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 effect depends on the age the individual had when exposed to hyperinflation. In particular, it is stronger at childhood and young adulthood. This finding suggests that the macroeconomic environment one grows up in permanently affects his economic behavior.<sup>1</sup>

There are some 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 can assure he gets paid once he sells his product. Moreover, he can 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.

Notice that 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 appearance of black markets was common during episodes of hyperinflation.

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<sup>1</sup>These results fit into a growing literature, which ties experiences of macroeconomic events to economic behavior using data at the individual level. Recent examples are Giuliano and Spilimbergo [2009] and Malmendier and Nagel [2011]. 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 [2012] 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.

This can be seen as evidence 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.<sup>2</sup>

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 theoretical reasoning above suggests that, in principle, it is not clear how exposure to hyperinflation should impact the probability of being self-employed. Hence, in order to sort out this effect, we devise an empirical strategy based on the “epidemiological approach”, which is surveyed by Fernández [2011].<sup>3</sup> In a sample restricted to immigrants in the US, we estimate, using a Probit model, the effect of years exposed to hyperinflation on the probability of being self-employed instead of wage-earner. Notice that data on immigrants in the US are collected after they had experienced hyperinflation episodes. Hence, in order to rationalize our results, not only exposure to hyperinflation should affect current occupational choice, but also occupational choice itself should persist over time. Indeed, Akee et al. [2007] find that being self-employed in the country of birth

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<sup>2</sup>Yuengert [1995] 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” (page 196).

<sup>3</sup>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.

affects positively the probability of being self-employed in the US.<sup>4</sup>

Notice that 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, such as attributes of the country of birth, attributes of the area one lives in, and personal characteristics.<sup>5</sup>

We consider two different definitions of hyperinflation: the same used by Reinhardt and Rogoff [2009] of a price level increase of at least 500 percent per year, and a less restrictive one of at least 100 percent per year. In order to mitigate the selection bias in immigration due to exposure to hyperinflation, we also run specifications that restrict the sample to individuals who immigrated at least five or ten years after the last year they had experienced hyperinflation.

According to our preferred specification, which considers individuals who immigrated at least five years after their last hyperinflation experience, the marginal effect of years lived under a 100 percent (500 percent) hyperinflation on the probability of being self-employed instead of wage-earner is 0.55 percentage point (0.87 percentage point). Given that self-employed individuals correspond to 8.9 percent of the sample used, these results are not negligible. Moreover, these effects depend on the age the individual had when exposed to hyperinflation. In particular, they are stronger for individuals who experienced hyperinflation at earlier ages (less than 13 years of age) and young adulthood (between

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<sup>4</sup>One possible explanation is that becoming self-employed may require investment in specific human capital, which can be carried over to other countries. Another possible reason for this persistence is that hyperinflation is a traumatic macroeconomic event that can shape permanently preferences and beliefs; and, thus, behavior. Ehrmann and Tzamourani [2012], for instance, find that memories of hyperinflation are permanent, while those of less severe inflation experiences vanish with time. In a similar vein, Giuliano and Spilimbergo [2009] document that individuals who had experienced a recession – also a traumatic macroeconomic event – during their early adulthood have different beliefs from those who did not.

<sup>5</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].

18 and 25 years of age), but insignificant for those over the age of 40.

Lentz and Laband [1990], Dunn and Holtz-Eakin [2000], among others, emphasize that the descendant of a self-employed is more likely to become self-employed himself. However, parents' occupational choice are omitted from our specifications as information on these variables is available only for those individuals who live with their parents. In this restricted sample, the estimated effects of exposure to hyperinflation reduce a bit once we control for parents' occupational choice, but remain significant. This result suggests that these omitted variables are not biasing much our findings.

An important concern is that hyperinflation episodes are associated with deep recessions. Hence, our results might be capturing the effect of experience of recessions rather than hyperinflation. However, once we control for the number of years an individual had experienced recessions in his home country, defined in a similar fashion to Giuliano and Spilimbergo [2009], estimated marginal effects are the same. The link between hyperinflation episodes and wars gives rise to a similar concern, which is addressed by controlling for a dummy indicating whether the individual experienced a war. Once again, estimated marginal effects barely change.

Finally, we obtain similar results once we estimate the effect of interest under a treatment effect framework using propensity score matching.

## 2 Data and descriptive statistics

We use two data sources in this paper. Information on immigrants comes from the US Census and is provided by the Integrated Public Use Microdata Series (IPUMS),<sup>6</sup> whereas information on inflation comes from the dataset compiled by Reinhardt and Rogoff [2009].<sup>7</sup>

The variables of interest are self-employment and the number of years an individual had

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<sup>6</sup>Available at <http://usa.ipums.org/usa/>.

<sup>7</sup>Available at <http://www.reinhardtandrogoff.com/>.

lived under hyperinflation. The former is obtained from IPUMS using the variable labeled CLASSWKR, which reports whether the individual is self-employed or work for wages. We exclude immigrants who are not classified into any of these classes. To calculate the latter variable, we use Census information on birth date, year of immigration to the US, and country of birth at the individual level. Hence, by using information on all hyperinflation episodes someone has faced during his lifespan, we are able to proxy the number of years this individual was exposed to hyperinflation.<sup>8</sup>

We consider the five percent sample from the 2000 Census. We did not use earlier samples as information on year of immigration is not precise. In the 1980 and 1990 Censuses, for example, all immigrants who arrived in the US between 1950 and 1959 are grouped into a single category.<sup>9</sup> In contrast, the information from the 2000 Census is precise except for immigrants who arrived in the US before 1919. In particular, immigrants who arrived in the US before 1910 are grouped into a single category and, thus, excluded from the analysis. For individuals whose exact year of immigration was not known, but the interval in which they immigrated was, we rounded it at the lower bound of this interval. Hence, individuals who arrived in the US between 1911 and 1914 as well as between 1915 and 1919 were considered to have immigrated in 1911 and 1915, respectively.<sup>10</sup> We choose to round at the lower bound because, by underestimating an individual's experience of hyperinflation, we also underestimate its effect on self-employment.<sup>11</sup>

The dataset on inflation contains information on 70 countries.<sup>12</sup> We discard individuals

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<sup>8</sup>As someone may have lived in more than one country before immigrating to the US, this variable is measured with a slight noise.

<sup>9</sup>In the 1990 Census, for instance, categories are 1949 or earlier, 1950-1959, 1960-1964, 1965-1969, 1970-1974, 1975-1979, 1980-1981, 1982-1984, 1985-1986, and 1987-1990, which would introduce noise in our measure of exposure to hyperinflation.

<sup>10</sup>Due to this adjustment, 578 observations present a year of immigration prior to the year of birth. They are also excluded from the analysis.

<sup>11</sup>Only 76 out of 757,702 cases in the final sample need this adjustment, so the distortion in estimates should be minimum.

<sup>12</sup>These countries are Algeria, Angola, Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Canada, Central African Republic, Chile, China, Colombia, Costa Rica, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, England, Finland, France, Germany, Ghana, Greece, Guatemala, Honduras, Hungary, Iceland, India, Indonesia, Ireland, Italy, Ivory Coast, Japan, Kenya, Korea, Malaysia, Mauritius, Mexico, Morocco, Myanmar, Netherlands, New Zealand, Nicaragua, Nigeria, Norway, Panama, Paraguay, Peru, Philippines, Poland, Portugal, Romania, Russia, Singapore, South Africa,



from countries for which data on inflation are not available. Moreover, a complete record of inflation was not available for all countries. Hence, we only consider individuals for whom information on inflation experienced is available during his lifespan.<sup>13</sup>

We use two different definitions of hyperinflation: the same used by Reinhardt and Rogoff [2009] of a price level increase of at least 500 percent per year, and a less restrictive one of at least 100 percent per year.<sup>14</sup> The use of these two criteria allow us to find out whether there is a difference in behavior due to the intensity of the hyperinflation experienced.

We end up with information on 757,702 immigrants.<sup>15</sup> A share of 32.2 percent of these immigrants had experienced at least one episode of 100 percent hyperinflation, whereas 3.8 percent had experienced at least one episode of 500 percent hyperinflation. Since no one in the final sample was born before 1900, only 20th century hyperinflation episodes are considered. There is variation over time, as every decagon since the 1910s presents at least one episode of hyperinflation, and across the world: South America (e.g. Argentina), Central America (e.g. Nicaragua), North America (only Mexico), Africa (e.g. Ghana), Western Europe (e.g. Germany), Eastern Europe (e.g. Poland), Middle East (only Turkey), Southeast Asia (e.g. Indonesia) and Far East (e.g. China). See Table 1 for a list of all hyperinflation episodes and the distribution of immigrants who experienced hyperinflation across countries.

In Table 2, Panel A, we report means and standards deviations for a variable indicating if the individual is self-employed rather than wage-earner for the whole sample, those who experienced hyperinflation of 100 percent, and those who experienced hyperinflation of 500 percent. The share of self-employed workers amongst those who experienced

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Spain, Sri Lanka, Sweden, Switzerland, Taiwan, Thailand, Tunisia, Turkey, Uruguay, USA, Venezuela, Zambia, Zimbabwe.

<sup>13</sup>For example, since information on Chinese inflation are not available from 1949 to 1962, all individuals who was born in China before 1962 and immigrated after 1949 are excluded from the sample. A similar disclaimer applies for Russia, for example.

<sup>14</sup>Since we do not have monthly inflation data, we are not able to use the traditional hyperinflation definition due to Cagan [1956] in which monthly inflation exceeded 50 percent at least three months in a row.

<sup>15</sup>Throughout the tables, we weight descriptive statistics and estimates using person weights. Thus, 238 individuals who have zero weights are also excluded from the final sample.

hyperinflation of 100 percent is 7.4 percent. This figure is smaller than the share of the whole sample, which is 8.9 percent. In contrast, the share of self-employed individuals amongst those who experienced hyperinflation of 500 percent is 12.6 percent, which is considerably larger.

In Table 3, Panel A, we report means and standard deviations for the years individuals had lived under hyperinflation according to both criteria. Despite the difference in the number of observations, the means are not that different between the two groups. Indeed, average years are 3.0 and 2.7 for the 100 and 500 percent criteria, respectively. However, the maximum values are contrasting. Under the 100 percent criterion, the maximum value is 17 (Argentines) while under 500 percent it is six (Brazilians and Nicaraguans).

Finally, as we explain below, in order to mitigate a selection effect in immigration due to hyperinflation, we also run specifications restricted to individuals who immigrated more than five and ten years after their last hyperinflation experience. Table 1 and Panels B and C of Tables 2 and 3 also report descriptive statistics for these selected samples.<sup>16</sup>

### 3 Empirical strategy

In order to investigate the impact of exposure to hyperinflation on the probability of self-employment, we estimate a Probit model given by the equation below.

$$\text{Prob}(Y_i = 1 | \text{hyperinflation}_i, X_i) = \Phi(\beta \times \text{hyperinflation}_i + X_i' \gamma)$$

The dependent variable,  $Y_i$ , is a dummy variable that indicates whether the immigrant  $i$  is self-employed ( $Y_i = 1$ ) or wage-earner ( $Y_i = 0$ ).  $\Phi$  is the standard normal cumulative distribution function.  $\text{hyperinflation}_i$  is the number of years of hyperinflation the

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<sup>16</sup>Notice that the number of individuals who have not experienced hyperinflation changes across samples. By construction, once we restrict the sample to individuals who immigrated more than five (ten) years after their last hyperinflation experience, those necessarily were at least six (eleven) years of age when they immigrated. Hence, in order to not introduce a bias in our results, we also exclude individuals who were at most five (ten) years of age when they immigrated from this restricted sample.

individual  $i$  had experienced. Finally, the vector  $X_i$  includes all remaining covariates, which are financial income and dummies for: the number of years passed since the individual immigrated, metropolitan area, relationship towards the head of the household, age, race, gender, marital status, country of birth, level of educational attainment and house ownership.<sup>17</sup>

The identification strategy is based on the “epidemiological approach” surveyed by Fernández [2011]. Notice that immigrants are subject to the same environment in the US, a country that has never experienced hyperinflation. Moreover, the degree of assimilation to the US environment is taken into consideration by the variable of years passed since immigration. 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.

By controlling for the metropolitan area an individual lives in, we are accounting for the effect of local colonies of immigrants, labor market conditions and institutions might have on self-employment.<sup>18</sup> Similarly, by using dummies for home countries, we are accounting for all cultural and institutional effects related to the country of birth.<sup>19</sup> Finally, we are controlling for several personal characteristics that are documented to be correlated with self-employment, such as education (e.g. Lazear [2005]), race (e.g. Fairlie and Meyer [1996] and Fairlie and Meyer [2000]), proxies for wealth (e.g. Evans and Jovanovic [1989] and Hurst and Lusardi [2004]),<sup>20</sup> gender (e.g. Georgellis and Wall [2005]), and so on.

One important omitted variable, due to data availability, is parents’ occupational choice.

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<sup>17</sup>The number of years passed since the individual immigrated is calculated using the year of immigration. The remaining variables are readily available at IPUMS. In particular, financial income is the variable labeled INCINVST, which sums interest, dividend, and rental income.

<sup>18</sup>Yuengert [1995], for instance, did not find evidence supporting effects from local colonies of immigrants on self-employment.

<sup>19</sup>Notice that these dummies control for the heterogeneity in self-employment across different groups of immigrants as documented by Borjas [1986].

<sup>20</sup>Following Oyeler and Belton [2012], we include financial income and home ownership as proxy for wealth. By mitigating borrowing constraints, wealth increases the probability of being self-employed.

As Dunn and Holtz-Eakin [2000] emphasize, the descendant of a self-employed is more likely to become self-employed himself. We tackle this concern in Section 5.2.

The remaining identification issue regards selection. It is likely that hyperinflation itself affects the decision to immigrate. Moreover, it is also likely that individuals who immigrated due to hyperinflation are different from those who would have immigrated anyway. Hence, by comparing these two kinds of immigrants, a selection bias arises. In order to account for this bias, we consider two alternative specifications, in which the sample is restricted to individuals who immigrated more than five and ten years after their last hyperinflation experience.<sup>21</sup> We expect that these individuals immigrated for other reason than hyperinflation.<sup>22</sup>

The age someone had when exposed to hyperinflation is crucial to determine whether it affects his occupational choice. For example, at later ages, an adult probably has an established occupation. Hence, it is unlikely that hyperinflation would affect his occupational choice. We address this heterogeneity by selecting three subsamples according to the age individuals had when they experienced hyperinflation for the last time. Results are presented in Section 5.1.

Moreover, potential concerns are that hyperinflation episodes are associated with deep recessions and wars. Hence, our regressions might be capturing the effect of such experiences rather than hyperinflation. We address these issues in Sections 5.3 and 5.4.

Finally, we also estimate the effect of interest under a treatment effect framework using propensity score matching. The treatment in this case is assigned by a dummy indicating whether an individual has experienced hyperinflation or not. Results are presented in section 5.5.

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<sup>21</sup>Once we restrict the sample to individuals who immigrated more than five (ten) years after their last hyperinflation experience, those necessarily were at least six (eleven) years of age when they immigrated. Hence, in order to not introduce a bias in the estimated effect, we exclude from this restricted sample all individuals who were at most five (ten) years of age when they immigrated.

<sup>22</sup>One might argue that if hyperinflation is severe enough, an individual may suffer substantial losses. Hence, it would take time for him to accumulate enough savings, so he can afford to leave his country. However, it is unlikely that this accumulation process endures for ten years.

## 4 Results

This section shows the benchmark results. Throughout the paper, we report the marginal effects, evaluated at the means of the covariates, for several specifications of the estimated Probit model described in the previous section. Since exposure to hyperinflation varies with country of birth and year of immigration, standard errors are always corrected for clustering at this pair of variables.

In order to compare the magnitude of the estimated marginal effects for both criteria of hyperinflation, we exclude individuals that experienced hyperinflation between 100 and 500 percent from the sample whenever we consider the 500 percent hyperinflation criterion. In other words, we keep the same “control group” in all regressions.

Throughout the tables, we report the share of the sample that has experienced hyperinflation to show that we have enough observations to estimate the effect of interest.

Table 4 reports the marginal effect of hyperinflation on self-employment. First, consider the 100 percent hyperinflation criterion. In the sample without restrictions (first column), this effect is 0.36 percentage point. If we restrict the sample for individuals who have immigrated at least five and ten years after their last hyperinflation, which mitigates the selection bias, the marginal effect increases to 0.55 and 0.77 percentage point (second and third columns), respectively.<sup>23</sup>

This same pattern is present once we consider the 500 percent hyperinflation criterion. The marginal effect increases from 0.68 to 0.87 and 1.3 percentage points once we restrict the sample to individuals who have immigrate at least five and ten years, respectively, after their last hyperinflation experience. This suggests that sample selection reduces the effect of hyperinflation on the probability of being self-employed instead of a wage-earner.

Given that self-employed individuals correspond to 8.9 percent of the whole sample, these

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<sup>23</sup>Notice that number of observations in Table 4 is different from Table 2. Some observations are excluded from the regressions as there are some metropolitan areas where all the observed individuals are either self-employed or wage-earner. For example, Gadsen, which encompasses Etowah County, Alabama.

results are not negligible.<sup>24</sup>

Notice that the effect is always higher under the criterion of 500 percent rather than of 100 percent. This suggests that more intense experiences, in the sense of an exposure to higher levels of hyperinflation, have larger effects on the probability of being self-employed instead of a wage-earner.

As we mentioned in the introduction, we conjecture a few reasons why a positive effect could be the case. First, self-employed individuals have a more flexible cash flow which is valuable in times of hyperinflation. Second, self-employment might be more attractive as business owners can adjust the price of their products as inflation accelerates. Third, hyperinflation episodes are associated with the emergence of black markets, which may provide incentives for individuals to become an informal self-employed. Finally, by living during a hyperinflation episode, individuals may develop skills and habits, such as financial literacy, that can be profitably employed in an own business.

## 5 Extensions

In this section, we present five extensions. In the first extension, we show that hyperinflation affects occupational choice asymmetrically across age groups. In the second, we argue that our results are robust to the inclusion of the occupational choice of someone's parents. In the third and forth extensions, we show that deep recessions and wars, which are phenomena linked to hyperinflation episodes, are not driving our results. Finally, we obtain similar results once we estimate the effect of interest using propensity score matching.

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<sup>24</sup>The share of self-employed individuals is 9.4 (10.2) percent in the sample restricted by the five-year (ten-year) window between the last experience and immigration (see Table 2).

## 5.1 Age at the last hyperinflation experience

The age someone had when exposed to hyperinflation matters. For example, it is less likely that an adult with an established occupation would change it due to hyperinflation. In order to address this heterogeneity, we present results for three subsamples selected according to the age individuals had when they experienced hyperinflation for the last time. In particular, these three subsamples are composed by individuals who experienced hyperinflation at childhood (less than 13 years of age), early adulthood (between 18 and 25 years of age), and late adulthood (more than 40 years of age).

Notice that these sample selections impose restrictions on the age someone had at the year of immigration. For example, individuals who were between 18 and 25 years at their last hyperinflation experience immigrated at least at the age of 18. Hence, in order to not introduce a bias in the estimates, we exclude individuals who were at most 17 years of age when they immigrated to the US. If we further impose a five-year window between the last experience and immigration, we also exclude those who were at most 22 years of age.

Finally, we do not report results for the restricted sample that imposes a ten-year window between the years of last hyperinflation experience and immigration. Given that the sample is split by age groups, if we further impose this ten-year window, we end up with very few immigrants who experienced hyperinflation in some subsamples. For example, under the 500 percent hyperinflation criterion, there are only 27 immigrants at late adulthood who experienced hyperinflation. Hence, there is not enough variance to estimate the effect of interest.

### 5.1.1 Less than 13 years of age

Table 5 reports the results for individuals who experienced their last hyperinflation experience at childhood.

Notice that marginal effects are larger than those reported in Table 4. In particular, the marginal effect of exposure to hyperinflation is 1.1 (0.9) percentage point once considered the 100 (500) percent hyperinflation criterion and the five-year window restriction between the last experience and immigration. This finding suggests that the macroeconomic environment one grows up in permanently affects his economic behavior.

In principle, it is not intuitive that hyperinflation experiences at such early ages affect the occupation chosen years later. One possible explanation is that hyperinflation affects beliefs and behavior of parents, which are transmitted to the next generation. Unfortunately, the available data are not enough to test this hypothesis.

### **5.1.2 Between 18 and 25 years of age**

Table 6 reports the results for individuals who experienced their last hyperinflation experience at early adulthood.

Notice that marginal effects are larger than those reported in Table 4. In particular, the marginal effect of experience to hyperinflation episodes is 0.67 (1.32) percentage point(s) once considered the 100 (500) percent hyperinflation criterion and the five-year window restriction between the last experience and immigration.

As Giuliano and Spilimbergo [2009] emphasize, between 18 and 25 years of age are the so-called formative years, during which beliefs and behavior are more susceptible to change. Moreover, most individuals choose their occupations for the first time during early adulthood. Hence, the macroeconomic environment one lives in during these years is especially relevant. Indeed, the estimated effect is particularly strong once considered the 500 percent hyperinflation criterion, which is a much more severe and traumatic event.



### 5.1.3 More than 40 years of age

Table 7 reports the results for individuals who experienced their last hyperinflation experience at late adulthood.

In this case, effects are not statistically significant in all cases. Intuitively, as changing occupations is costly, it is less likely that someone who has an established occupation would change it due to hyperinflation.

## 5.2 Self-employed parents

Data on parents' occupational choice, which is documented to affect positively the probability of being self-employed, are not directly available in the Census. Hence, this variable is omitted from our main regressions. In order to tackle this concern, we check, in a considerably smaller sample, how sensitive are the estimated marginal effects of hyperinflation experiences to the inclusion of this variable. In particular, as long as an individual lives with his parents in the same household, we can use information on relationship to the household to trace back information on his parents' occupational choice.

Notice that this is a highly selected sample and, thus, individuals are considerably different from the average individual in the whole sample. Hence, the estimated marginal effects on this particular sample cannot be generalized. Our aim, instead, is to verify how these estimates are affected by the inclusion of two dummies on whether someone's father and mother are self-employed. Table 8 reports the results considering all samples and hyperinflation criteria.

Again, we end up with very few immigrants who experienced hyperinflation in the sample that imposes a ten-year window between the years of last hyperinflation experience and immigration. Hence, we do not show results considering this sample. Table 8 reports the results.

Notice that, as we expect, a self-employed father or mother has a strong effect on the

probability of being self-employed. However, the inclusion of this information does not alter much the marginal effects of experience of hyperinflation. In particular, whenever this estimated effect is significant, it remains significant although a bit smaller. Similarly, whenever this effect is insignificant, it remains insignificant.

These results suggest that omission of parents' occupational choice is not biasing much our findings.

### 5.3 Deep recessions

Hyperinflation episodes are usually associated with deep recessions. In principle, the driving force of our results could be experience of deep recessions rather than hyperinflation episodes. In order to deal with this criticism, we build two measures of exposure to recessions and include them as covariates in the main regressions.

Growth rates per country are calculated using data on GDP from the dataset compiled by Reinhardt and Rogoff [2009]. Once we identify the years each country were in a deep recession, we can follow the same procedure described above to measure exposure to deep recessions. As some information on GDP is missing for some countries, we further exclude individuals for whom the complete record of growth experienced is not available. Hence, the sample considered in this section is smaller than the one used in Section 4.

The first definition of recession follows Giuliano and Spilimbergo [2009]. We say a country in a given year is in a deep recession if its growth rate is less than or equal to the fifth percentile of the growth rate in the sample, which is five percent negative.

The second definition deals with the concern that hyperinflation would be more persistent than the aforementioned definition of recession. Indeed, shocks in GDP are usually followed by a reversion toward the trend. Hence, a negative GDP growth followed by a positive one does not necessarily mean that the recession is over. Thus, we say a country in a given year is in a deep recession if the average GDP growth rate between such year

and the two prior years is negative. Notice that this second definition tend to capture the persistence of deep recessions.

Results are shown in Table 9 for the first definition, and Table 10 for the second definition. Notice that, despite the smaller sample, results considering only exposure to hyperinflation episodes are similar to those reported in Table 4.

Consider the unrestricted sample. In the absence of exposure to hyperinflation episodes, exposure to deep recessions affects positively and, except for one case, significantly the probability of being self-employed. However, the marginal effects are always smaller than their counterparts for hyperinflation experiences. Once we add both types of experiences, exposure to deep recessions ceases to be significant according to the first definition, but remains significant according to the second definition. Importantly, the marginal effects of exposure to hyperinflation episodes remain significant in all cases. Moreover, these effects are always larger than those of exposure to deep recessions. Similar conclusions are reached once we exclude individuals who immigrated at least five and ten years after their last hyperinflation experience.

These results suggest that the driving force behind the estimated marginal effects is hyperinflation itself rather than a bad economic environment.

## 5.4 Wars

Many hyperinflation episodes were consequences of wars.<sup>25</sup> Thus, it could be argued that the experience of war can have impacts over individuals' occupational choices. Consequently, the previous results attributed to hyperinflation could be biased once the effect of war itself is not accounted for.

Hence, in order to deal with this concern, we employ a dummy indicating whether the individual experienced a war. However, it is unlikely that minor armed events, which

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<sup>25</sup>The following cases, as described in Table 1: Angola in the 1990s, Austria, China, Finland, Germany, Greece, Hungary, Italy, Japan, Korea, Nicaragua, Philippines, Poland in the 1920s and Turkey in the 1910s.

lasted for small periods of time, would have an impact on individuals' choices. Hence, we only consider events to be wars when they lasted for at least a year and involved some sort of territorial occupation or destruction.<sup>26</sup>

Results are presented in Table 11.

The inclusion of the dummy indicating experience of war barely changes the estimated marginal effect of hyperinflation on self-employment across all specifications and criteria of hyperinflation. Furthermore, the effect of experiencing a war is not significant at any usual level in all but one case, the non-restricted sample under the criterion of an annual inflation of at least 100 percent.

These findings indicate that it is neither the experience of war nor the hyperinflation episodes caused by it that are driving the results.

## 5.5 Propensity Score Results

This section presents the results of the propensity score matching approach. The treatment effect of interest is whether an individual lived hyperinflation. Average treatment effects (ATE) are presented in Table 12, which is analogous to Table 4.

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<sup>26</sup>The following episodes are considered to be wars: Algeria (war of independence from 1954 to 1962), Austria (World War I (WWI) from 1914 to 1918 and World War II (WWII) from 1939 to 1945), Belgium (WWI from 1914 to 1918 and WWII from 1939 to 1945), Bolivia (Chaco War from 1932 to 1935), Myanmar (WWII from 1942 to 1945), China (Civil War and WWII from 1927 to 1950), Colombia (Civil War from 1948 to 1958), Denmark (WWII from 1940 to 1945), Egypt (WWII from 1941 to 1942), El Salvador (Civil War from 1979 to 1992), United Kingdom (WWII from 1939 to 1945), Finland (Civil War in 1918 and WWII from 1939 to 1945), France (WWI from 1914 to 1918 and WWII from 1939 to 1945), Germany (WWI from 1914 to 1918 and WWII from 1939 to 1945), Greece (Balkan Wars, WWI and Greco-Turkish War from 1912 to 1922 and WWII and Civil War from 1939 to 1949), Guatemala (Civil War from 1960 to 1996), Hungary (WWI from 1914 to 1918 and WWII from 1939 to 1945), Indonesia (WWII and National Revolution from 1942 to 1950), Ireland (War of Independence from 1919 to 1921), Italy (WWI from 1914 to 1918 and WWII from 1939 to 1945), Japan (Sino-Japanese War and WWII from 1937 to 1945), Korea (Korean War from 1950 to 1953), Malaysia (WWII from 1942 to 1945), Mexico (Mexican Revolution from 1910 to 1920 and Cristero War from 1926 to 1929), Netherlands (WWI from 1914 to 1918 and WWII from 1939 to 1945), Nicaragua (Civil War from 1961 to 1990), Nigeria (Civil War from 1967 to 1970), Norway (WWII from 1940 to 1945), Paraguay (Chaco War from 1932 to 1935), Philippines (WWII from 1942 to 1945), Poland (WWI and Polish-Ukrainian War from 1914 to 1922 and WWII from 1939 to 1945), Romania (Balkan Wars and WWI from 1912 to 1918 to WWII from 1939 to 1945), Singapore (WWII from 1942 to 1945), Spain (Civil War from 1936 to 1939), Thailand (WWII from 1942 to 1945), Turkey (Balkan Wars, Italo-Turkish War, WWI to War of Independence from 1912 to 1922) to Zimbabwe (Rhodesian Bush War from 1967 to 1979).

Notice that the number of observations in each regression is smaller than in Table 4. The reason is that many observations are dropped when the propensity score is estimated. In particular, all immigrants from countries which did not have hyperinflation episodes (e.g. Canada) are excluded, as the dummy for each of these countries would predict failure perfectly.

Moreover, while previous tables presented marginal effects of exposure to hyperinflation, Table 12 presents ATEs concerning such experience. Since the average experience of hyperinflation for those who were exposed is around 3 (2) years under the criterion of 100 (500) percent, the magnitude of the estimated effects are not comparable across Tables 4 and 12.

Given these issues, it is reassuring that all results present a positive ATE of hyperinflation on the probability of being self-employed instead of wage-earner. This strengthens the previous findings of a positive marginal effect of hyperinflation.

## 6 Conclusion

We document a positive effect from hyperinflation experiences to self-employment. Our preferred estimate indicates a marginal effect of 0.87 percentage point on the probability of being self-employed. This figure increases to 1.3 percentage points if we restrict the sample to individuals who were between 18 and 25 years of age, the so-called formative years, at their last hyperinflation experience. These effects are small but non-negligible as the share of self-employed individuals in the sample is 9.4 percent.

These results are in congruence with a growing literature, which has documented that exposure to macroeconomic traumatic events shape beliefs, preferences and economic behavior. See footnote 1 for references.

We conjecture a few explanations for our results. First, self-employed individuals have a more flexible cash flow which is valuable in times of hyperinflation. Second, self-

employment might be more attractive as business owners can adjust the price of their products as inflation accelerates. Third, hyperinflation episodes are associated with the emergence of black markets, which may provide incentives for individuals to become an informal self-employed. Finally, by living during a hyperinflation episode, individuals may develop skills and habits, such as financial literacy, that can be profitably employed in an own business. Notice that these arguments are particularly relevant for those at formative years, during which beliefs and behavior are more susceptible to change.

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Table 1: Hyperinflation Episodes and Distribution of Immigrants Who Experienced Hyperinflation

Countries	Years under hyperinflation of 100%	Whole sample	Immig. > 5 years	Immig. > 10 years	Years under hyperinflation of 500%	Whole sample	Immig. > 5 years	Immig. > 10 years
Angola	1924, 1991-2000	0%	0%	0%	1993-6	0%	0%	0%
Argentina	1959, 1975-85, 1987-91	1.61%	1.27%	0.94%	1984-5, 1989-90	6.77%	6.98%	0%
Austria	1916, 1919-20, 1922	0.02%	0.05%	0.13%	1922	0.17%	0.45%	0.91%
Bolivia	1953-4, 1956-7, 1960, 1982-6	0.67%	0.85%	1.43%	1984-5	3.78%	5.51%	6.10%
Brazil	1981-94	2.49%	0.32%	0%	1988-90, 1992-4	17.04%	3.01%	0%
Chile	1972-6	0.83%	1.29%	2.94%	1973	6.22%	13.63%	22.87%
China	1913, 1939, 1941-8	0.09%	0.003%	0.01%	1946-8	0.48%	0%	0%
Finland	1918	0.001%	0.001%	0.004%				
Germany	1920, 1922-3	0.08%	0.12%	0.23%	1922-3	0.64%	1.10%	1.62%
Ghana	1977, 1981, 1983	0.85%	1.42%	2.80%				
Greece	1945-6	0.13%	0.29%	0.83%	1946	1.07%	2.75%	5.70%
Hungary	1945-6	0.42%	0.87%	1.98%	1945-6	3.52%	8.26%	13.61%
Indonesia	1962-8	0.51%	0.94%	2.49%	1966	3.46%	8.25%	16.13%
Italy	1944	1.80%	3.88%	10.06%				
Japan	1945, 1947	0.87%	1.96%	5.20%	1945	6.27%	16.66%	33.05%
Korea	1952	0.18%	0.42%	1.27%				
Mexico	1983, 1987-8	79.85%	81.68%	67.93%				
Nicaragua	1984-91	1.91%	0.42%	0%	1985-90	14.73%	5.03%	0%
Paraguay	1952	0.04%	0.08%	0.23%				
Peru	1983-85, 1988-91	2.76%	1.13%	0%	1988-90	17.26%	13.84%	0%
Philippines	1943	0.0003%	0%	0%				
Poland	1922, 1924, 1982, 1989-90	3.58%	1.96%	0.02%	1922, 1990	18.60%	14.54%	0.02%
Romania	1990-4, 1997	0.24%	0%	0%				
Russia	1993-5	0%	0%	0%	1993	0%	0%	0%
Turkey	1916-17, 1980, 1994	0.77%	0.64%	0.73%				
Uruguay	1968, 1990, 1991	0.31%	0.42%	0.78%				
Zambia	1989-90, 1992-3	0%	0%	0%				

Sources: Author's calculations from the 5 percent 2000 Sample of the US Census, and the dataset compiled by Reinhardt and Rogoff (2009).

The columns under "Immig. > 5 (10) years" consider immigrants who immigrated 5 (10) years after their last experience of hyperinflation.

Table 2: Self-Employment Across Groups

<i>Panel A: Whole sample</i>				
	Mean	S.D.	Observations	% of sample
Experienced hyperinflation of 100%	0.074	0.261	243,817	32.18%
Experienced hyperinflation of 500%	0.126	0.332	28,375	3.74%
Whole sample	0.089	0.285	757,702	100%
<i>Panel B: 5-year window</i>				
	Mean	S.D.	Observations	% of sample
Experienced hyperinflation of 100%	0.066	0.248	101,615	19.11%
Experienced hyperinflation of 500%	0.136	0.343	10,488	1.97%
Whole sample	0.094	0.292	531,607	100%
<i>Panel C: 10-year window</i>				
	Mean	S.D.	Observations	% of sample
Experienced hyperinflation of 100%	0.085	0.279	33,169	7.89%
Experienced hyperinflation of 500%	0.183	0.387	4,814	1.15%
Whole sample	0.102	0.303	420,362	100.00%

Sources: Author's calculations from the 5 percent 2000 Sample of the US Census, and the dataset compiled by Reinhardt and Rogoff (2009).

Table 3: Experience of Hyperinflation

<i>Panel A: Whole sample</i>		
	100%	500%
Mean	3.035	2.697
S.D.	2.162	1.847
Max value	17	6
No. of observations	243,817	28,375
<i>Panel B: 5-year window</i>		
	100%	500%
Mean	3.062	2.031
S.D.	1.470	1.507
Max value	17	6
No. of observations	101,615	10,488
<i>Panel C: 10-year window</i>		
	100%	500%
Mean	2.742	1.203
S.D.	1.054	0.403
Max value	10	2
No. of observations	33,169	4,814

Sources: Author's calculations from the 5 percent 2000 Sample of the US Census, and the dataset compiled by Reinhardt and Rogoff (2009).

Table 4: Hyperinflation and Self-Employment

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner			
Hyperinflation of 100% per year			
	Years between last hyperinflation and immigration		
	No restrictions	More than 5	More than 10
hyperinflation	0.00359*** (0.000397)	0.00555*** (0.000798)	0.00777*** (0.00160)
No. of observations	757,286	531,227	420,055
% that experienced hyperinflation	32.2%	19.1%	7.9%
Hyperinflation of 500% per year			
	Years between last hyperinflation and immigration		
	No restrictions	More than 5	More than 10
hyperinflation	0.00686*** (0.000927)	0.00876*** (0.00162)	0.0129*** (0.00411)
No. of observations	541,897	440,117	391,688
% that experienced hyperinflation	5.2%	2.4%	1.2%

Notes: All specifications include a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and house ownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 5: Hyperinflation and Self-Employment (last experience of hyperinflation under 13 years of age)

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner		
	Hyperinflation of 100% per year	
	Years between last hyperinflation and immigration	
	No restrictions	More than 5
hyperinflation	0.00862*** (0.000889)	0.0110*** (0.00118)
No. of observations	591,142	477,606
% that experienced hyperinflation	13.14%	10.05%
	Hyperinflation of 500% per year	
	Years between last hyperinflation and immigration	
	No restrictions	More than 5
hyperinflation	0.00622*** (0.00202)	0.00901*** (0.00327)
No. of observations	520,976	434,235
% that experienced hyperinflation	1.43%	1.11%

Notes: All specifications include a constant and the following covariates: financial income, and dummies for years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and homeownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 6: Hyperinflation and Self-Employment (last experience of hyperinflation between 18 and 25 years of age)

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner		
Hyperinflation of 100% per year		
	Years between last hyperinflation and immigration	
	No restrictions	More than 5
hyperinflation	0.00552*** (0.000670)	0.00668*** (0.00127)
No. of observations	361,364	199,570
% that experienced hyperinflation	16.68%	8.74%
Hyperinflation of 500% per year		
	Years between last hyperinflation and immigration	
	No restrictions	More than 5
hyperinflation	0.0125*** (0.00175)	0.0132*** (0.00271)
No. of observations	308,105	184,044
% that experienced hyperinflation	1.43%	1.11%

Notes: All specifications include a constant and the following covariates financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and homeownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 7: Hyperinflation and Self-Employment (last experience of hyperinflation over 40 years of age)

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner		
	Hyperinflation of 100% per year	
	Years between last hyperinflation and immigration	
	No restrictions	More than 5
hyperinflation	0.00249 (0.00186)	0.00389 (0.00409)
No. of observations	25,982	10,591
% that experienced hyperinflation	28.45%	22.83%
	Hyperinflation of 500% per year	
	Years between last hyperinflation and immigration	
	No restrictions	More than 5
hyperinflation	-0.00550 (0.00613)	0.00314 (0.0148)
No. of observations	20,001	8,422
% that experienced hyperinflation	7.52%	3.83%

Notes: All specifications include a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and homeownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 8: Hyperinflation, Self-Employment and Self-Employed Parents

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner

	Hyperinflation of 100% per year			
	Years between last hyperinflation and immigration			
	No restrictions		More than 5	
hyperinflation	0.00325*** (0.00103)	0.00277*** (0.000941)	0.00722*** (0.00174)	0.00618*** (0.00152)
father self-employed		0.0395*** (0.00393)		0.0400*** (0.00575)
mother self-employed		0.0424*** (0.00468)		0.0498*** (0.00686)
No. of observations	31,480		15,897	
% that experienced hyperinflation	33.07%		20.63%	

  

	Hyperinflation of 500% per year			
	Years between last hyperinflation and immigration			
	No restrictions		More than 5	
hyperinflation	0.00209 (0.00226)	0.00164 (0.00210)	0.00891** (0.00372)	0.00703** (0.00333)
father self-employed		0.0317*** (0.00421)		0.0322*** (0.00550)
mother self-employed		0.0383*** (0.00522)		0.0457*** (0.00725)
No. of observations	21,605		12,633	
% that experienced hyperinflation	6.72%		2.59%	

Notes: All specifications include a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and homeownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 9: Hyperinflation, Self-Employment and Recessions (GDP growth smaller than 5th percentile)

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner		Hyperinflation of 100% per year			
		Years between last hyperinflation and immigration			
		No restrictions	More than 5	More than 10	
hyperinflation		0.00357*** (0.000405)	0.00347*** (0.000400)	0.00573*** (0.000824)	0.00881*** (0.00164)
recession		0.00237*** (0.000777)	0.000788 (0.000746)	0.00252*** (0.000893)	0.00120 (0.00107)
No. of observations		746,927			412,198
% that experienced hyperinflation		32.27%	522,617 19.16%		7.81%

		Hyperinflation of 500% per year			
		Years between last hyperinflation and immigration			
		No restrictions	More than 5	More than 10	
hyperinflation		0.00691*** (0.000944)	0.00696*** (0.000975)	0.00945*** (0.00163)	0.0221*** (0.00531)
recession		0.00108 (0.000789)	-0.000162 (0.000818)	0.00116 (0.000931)	0.000663 (0.00107)
No. of observations		532,368	431,637		383,876
% that experienced hyperinflation		4.92%	2.11%		1.01%

Notes: All specifications include a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and house ownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.



Table 10: Hyperinflation, Self-Employment and Recessions (negative 3-year moving average of GDP growth)

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner	
Hyperinflation of 100% per year	
Years between last hyperinflation and immigration	
	No restrictions
hyperinflation	0.00352*** (0.000406)
recession	0.00260*** (0.000390)
No. of observations	741,270
% that experienced hyperinflation	32.39%
Hyperinflation of 500% per year	
Years between last hyperinflation and immigration	
	No restrictions
hyperinflation	0.00305*** (0.000429)
recession	0.00114** (0.000390)
No. of observations	741,270
% that experienced hyperinflation	32.39%

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner	
Hyperinflation of 100% per year	
Years between last hyperinflation and immigration	
	No restrictions
hyperinflation	0.00352*** (0.000406)
recession	0.00260*** (0.000390)
No. of observations	741,270
% that experienced hyperinflation	32.39%
Hyperinflation of 500% per year	
Years between last hyperinflation and immigration	
	No restrictions
hyperinflation	0.00305*** (0.000429)
recession	0.00114** (0.000390)
No. of observations	741,270
% that experienced hyperinflation	32.39%

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner	
Hyperinflation of 100% per year	
Years between last hyperinflation and immigration	
	No restrictions
hyperinflation	0.00352*** (0.000406)
recession	0.00260*** (0.000390)
No. of observations	741,270
% that experienced hyperinflation	32.39%
Hyperinflation of 500% per year	
Years between last hyperinflation and immigration	
	No restrictions
hyperinflation	0.00305*** (0.000429)
recession	0.00114** (0.000390)
No. of observations	741,270
% that experienced hyperinflation	32.39%

Notes: All specifications include a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and house ownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 11: Hyperinflation, Self-Employment and Wars

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner		Hyperinflation of 100% per year			
		Years between last hyperinflation and immigration			
		No restrictions	More than 5	More than 10	
hyperinflation		0.00359*** (0.000397)	0.00377*** (0.000301)	0.00555*** (0.000798)	0.00777*** (0.00160)
war		0.00924*** (0.00182)	0.00623*** (0.00180)	0.00244 (0.00281)	0.00833 (0.00307)
No. of observations		757,286			
% that experienced hyperinflation		32.2%	531,227 19.1%		420,055 7.9%

		Hyperinflation of 500% per year			
		Years between last hyperinflation and immigration			
		No restrictions	More than 5	More than 10	
hyperinflation		0.00686*** (0.000927)	0.00685*** (0.000927)	0.00876*** (0.00162)	0.0129*** (0.00411)
war		0.00149 (0.00279)	0.000248 (0.00273)	-0.000227 (0.00297)	-0.00153 (0.00316)
No. of observations		541,897			
% that experienced hyperinflation		5.2%	440,117 2.4%		391,688 1.2%

Notes: All specifications include a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and house ownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration.

\*\*\* Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

Table 12: Average Treatment Effect of Hyperinflation on Self-Employment

Dependent variable: dummy that equals 1 if self-employed and 0 if wage-earner			
Hyperinflation of 100% per year			
	Years between last hyperinflation and immigration		
	No restrictions	More than 5	More than 10
ATE	0.0181 (0.0126)	0.0598*** (0.0110)	0.0847 (0.0672)
No. of observations	524,499	283,449	184,641
% that experienced hyperinflation	46.5%	35.8%	18.0%
Hyperinflation of 500% per year			
	Years between last hyperinflation and immigration		
	No restrictions	More than 5	More than 10
ATE	0.0362* (0.0203)	0.0299* (0.0169)	0.0584 (0.0424)
No. of observations	129,147	66,434	47,032
% that experienced hyperinflation	5.2%	2.4%	1.2%

Notes: Propensity scores were estimated using a constant and the following covariates: financial income, and dummies for: years passed since immigration, metropolitan area, relationship to the household head, age, sex, race, marital status, country of birth, educational attainment and house ownership. Robust standard errors in parentheses account for clustering at the country of birth and year of immigration

\*\*\*Significant at the 1 percent level.

\*\*Significant at the 5 percent level.

\*Significant at the 10 percent level.

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