PIER Working Paper 05-030

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workers among German Nationals and immigrants"

by

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http://ssrn.com/abstract=859145

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November 2005

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Nationals and immigrants

Abstract

This paper attempts to compare the economic success of immigrants and natives in Germany. Employing data from German Socioeconomic Panel, the paper investigates the factors affecting self-employment as well as compares the income of self-employed and employed workers among four groups – West Germans, East Germans, guest workers and ethnic immigrants. Increasing age, higher education and self-employed parents increases probability of an individual's self-employment, with the last two applying only to West Germans. The self-employed earn more than their salaried counterparts, except for East Germans. Despite self-employed immigrants having the highest earnings of all groups, self-employment rates remain low among immigrants.

1. Introduction

Entrepreneurship not only injects new dynamism into a country's economy but it is also of great importance for the economic prosperity and the future economic development of a country. Self-employment as an effective form of entrepreneurship creates new jobs, brings new products to the market, generates competition, and offers consumers greater choices. It is also a significant element in combating unemployment and welfare drain. Entrepreneurship encompasses a broad spectrum of types of activities, ranging from small "mom and pop" to hi-tech business and electronic commerce, and includes individuals from all walks of life. The common thread is the individuals' attitude to undertake risk, make one's own decisions, be creative and responsible, and enjoy a sense of independence. Self-employment often starts as a small business, and can turn into a successful company. Nevertheless, most new jobs emanate from small enterprises.

In the US, part of the American dream for natives and immigrants alike is to have "your own business." Whereas entrepreneurship flourishes in the US for many ethnic groups, [1] and whereas entrepreneurship is high in the European Union's employment strategy, entrepreneurial activities in Germany are comparatively low (OECD, 2000). The self-employment rate as a percentage of the total civilian employment was 11% in Germany of 2000. Among the German self-employed, 27.1% are in the knowledge intensive services. Nonetheless, close to 3 million small or mid-size enterprises (SMEs) in the crafts, industry, trade, tourism, service, and liberal professions create nearly 70% of jobs, and account for 46% of gross investment in Germany. Surprisingly for the largest immigrant country in Europe, the share of self-employed immigrants in the German labor force is estimated to be around 8%.

The burgeoning number of nascent enterprises [2] shows that there is a growing business culture in Germany. SMEs have attracted the government's attention aiming to ensure their boost. A recent study by the Deutsche Ausgleichsbank-Gründungsmonitor 2002 on entrepreneurship activities of foreigners in Germany found, inter alia, that entrepreneurs of foreign origin employ, on average, more workers than Germans do (Lehnert, 2003). The German government is now actively seeking to

encourage, foster and strengthen the performance and competitiveness of small or mid-size enterprises (SMEs) and offers them new growth development possibilities, placing special emphasis on the needs of immigrant entrepreneurs.

Whereas self-employment is important for the well-being of the economy as a whole, it is more critical for the immigrant population, and is considered to be an essential factor in the immigrant adjustment process in the host country. The conjecture of the neoclassical human capital theory is that immigrants are a self-selected group of rational individuals who are willing to undertake risks in order to maximize their lifetime earnings and better their lives. They are characterized by a strong incentive to invest in human capital and have the inner drive to succeed in the host country's labor market. Immigrants have also the ability to respond to new opportunities and adjust in a new environment. By virtue of their willingness to assume the risk of migration (both pecuniary and psychic) and undertake this new and often risky venture they can be considered as the first entrepreneurs [3]. In principle, immigrants as risk takers are dynamic and ambitious, can handle changes and could, thus, be more prone to becoming self-employed. However, not all immigrant groups follow this path in the new country.

In economics, the prevailing framework is that of income choice (Lucas, 1978). Specifically, an individual chooses between self-employment or salaried work based on the monetary outcomes of that choice. Self-employment offers the opportunity for considerable economic success. However, besides the drive for financial rewards, individuals might choose self-employment as a corrective measure to job mismatch or as an option for independence and psychological boost of self-worth. For immigrants, in particular, it has been argued that impediments to good jobs and to upward occupational mobility as well as discrimination in the labor market may impel them to undertake the self-employment avenue (Clark and Drinkwater, 1998). In fact, entrepreneurship may be the only avenue for their socio-economic mobility (Light, 1972). Self-employment could also be a forced way out of unemployment and an alluring option during the downturn of the business cycle (Constant and Zimmermann, 2004).

The preponderance of self-employment among both immigrants and natives in the labor market has been researched and documented by many studies in the US (Borjas, 1986; Fairlie, 1999; Fairlie and Meyer, 2000; Bates, 1997; Lofstrom 2002; Chiswick, 1999; Borjas and Bronars, 1989; and Yuengert, 1995), and in Canada (Li, 2001). In general, self-employment is viewed as a positive choice and as a means to be creative and rewarded in the labor market. Compared to similarly skilled native-borns, immigrants are more likely to be self-employed. Yuengert (1995) finds that immigrants from countries with larger self-employment sectors have higher self-employment rates. Migrants in the US cluster more in high-tax states, and find greater opportunities for tax deductions and avoidance as entrepreneurs than as salaried workers. The study is not supportive of the ethnicity enclave hypothesis.

Fairlie and Meyer (1996), on the other hand, point out that it is of substantial importance to account for the dramatic ethnic and racial differences in self-employment across the US population. These differences prevail even if one controls for broad combinations of groups such as Asians and Hispanics and the standard tool of regressors. They find that ethnic or racial groups that emigrate from countries with high self-employment rates do not have high self-employment rates in the US. Their results also suggest that the more economically advanced groups have a higher propensity for self-employment than the more disadvantaged migrant groups. Not only self-employed immigrants have higher annual incomes than salaried workers but they also have higher incomes than comparable self-employed natives, albeit there is substantive variance among the ethnic groups (Borjas, 1986).

For Europe, Clark and Drinkwater, 1998; Blanchflower and Oswald, 1998; Audretsch, 2002; and Blanchflower, 2004, among others, have studied the self-employment issue. An important finding is that the incidence of self-employment is higher for older workers and creates higher feelings of job satisfaction (Blanchflower et al., 2001). Whereas the immigration process into Germany has been well studied (Constant, 1998: Zimmermann, 1995), immigrant entrepreneurship in Germany is a rather under-researched area. Immigrant assimilation studies often exclude the self-employed. Germany is a

highly industrialized country with a strong economy and a growing business sector that attracts a large number of immigrants and warrants further research. Looking at the propensity to become an entrepreneur Wagner and Sternberg (2002) find that the propensity to step into self-employment is higher for the following groups of people: males, the unemployed, people with contacts to a role model, those with past entrepreneurial experience, and people who live in more densely populated and faster growing regions with higher rates of new firm formation. However, people with higher risk aversion or people who live in areas with high price of land tend to have lower propensity towards self-employment.

Studies based on the GSOEP find that the self-employed immigrants reach earnings parity with self-employed native Germans and earn a premium of 30% over comparable immigrants in the blue-collar sector (Constant, 1998). A more recent study on self- and paid-employed natives and immigrants finds that the earnings difference between the expected self- and paid-employment earnings plays a catalytic role in the probability of self-employment. In fact, the larger the difference is, the higher the probability is. Immigrants are additionally pushed into self-employment when they feel discriminated against (Constant and Zimmermann, 2005). In a bi-national setting and using new survey data (RFMS) on immigrants, Constant and Schultz-Nielsen (2004) find that self-employment is a lucrative choice for immigrants in Germany - who earn twice as much as the immigrants in paid-employment - but not in Denmark. Focusing on immigrants in the labor force, they find significant gender and ethnic differences, with males and Iranians being three times as likely to become self-employed. Their study documents a positive self-employment spillover from father to child and a negative deterrent from living in enclaves. Through a counterfactual analysis they show that Germany could offer a better environment to the self-employed Danish immigrants, who could thrive in Germany throughout their working lives (if they were to move to Germany).

In this paper we study the entrepreneurial endeavors of immigrants and natives in Germany. We focus on entrepreneurship within the context of self-employment. We seek to answer the following research

questions. First, who are the self-employed, what are their characteristics, and which elements affect the sorting of individuals into self-employment? Moreover, the question is whether immigrants display higher levels of entrepreneurial flair than natives. Second, how successful are the self-employed men compared to the paid-employed? Put differently, can self-employment lead to economic success, and is this different for natives and immigrants? To answer these questions we analyze the economic and social determinants of the probability to choose self-employment and we estimate earnings regressions that gauge the assimilation effect in the two sectors. We control for human capital variables, intergenerational links, and macroeconomic junctures. We augment the analysis to account for demographics, socioeconomic, and labor market characteristics. For the empirical analyses we employ data from the German Socioeconomic Panel (SOEP 2000).

The rest of the paper is structured as follows: in Section 2 we delineate Germany's migration system and institutional settings with emphasis on the self-employed, which can elucidate our results. In Section 3 we present our methodological approach, outline the hypotheses of our study, and discuss the data set, in Section 4 we present the characteristics of the populations under research, and in Section 5 we deliver and discuss the results of our empirical analyses. We conclude with a summary and a discussion in Section 6.

2. Immigration in Germany and institutional settings

2.1 Immigration framework

Since the late 1950's Germany has experienced massive migration comparable to the level of the First American Great Migration of the early 1900's. The immigrants of the 1950's, 1960's, and 1970's, the guestworkers, [4] were recruited by German employers to work in the German factories and relieve Germany from labor shortages. They came from Italy, Spain, Greece, Portugal, Yugoslavia, and Turkey according to bilateral treaties with the respective sending countries. [5] Guestworkers were recruited on a short term temporary basis according to the '*Rotationsprinzip*'. This phase lasted up until the halt of recruitment in 1973. After 1973, virtually all migration to Germany is due to family reunification with the exception of European Union members. The

enlargement of the European Union in the 1980's and 1990's allowed all state members to legally live and work in Germany. Currently, this includes all guestworkers except Turks and ex- Yugoslavs.

The fall of the iron curtain in the 1990's, also prompted a plethora of immigrants in Germany. In reality, this migration has started in the late 1980's. Roughly 4 million immigrants settled in West Germany from 1988 to 1996 making this migration wave comparable to the mass migration of Jews from the ex-USSR to Israel. They are the "ethnic Germans," who according to the German constitution have the right to migrating to Germany. They are differentiated into the East Germans or *Übersiedler* and the East Europeans or *Aussiedler*. The latter are mainly from Poland, Romania, and the former USSR, who have German origins. By the end of the millennium the immigrant population in Germany has risen to more than 10 percent, making Germany a de facto immigrant nation.

Taking a pioneering stance, the German government introduced the Immigration Act (*Zuwanderungsgesetz*) in 2001, a reduced version of which passed the parliament (*Bundesrat*) in July 2004 and came into effect on January 1, 2005. This law officially recognizes immigration as part of the German reality, and allows non-European nationals to immigrate to Germany for work and settle permanently if they so desire. It favors highly skilled workers, such as scientists, engineers, and IT specialists, who are needed to balance Germany's need for additional skilled labor outside the EU. Exploring immigration as a potential economic boon, this law allows entrepreneurs who invest at least a million Euros and offer jobs to locals to work in Germany.[6] The law mandates that new long term immigrants follow a course of 300 hours on language and civil and societal issues, while those already settled in Germany also take part in integration courses.

We believe that the idiosyncrasies of the immigration and naturalization laws in Germany have shaped both the quantity (flow and stock) and quality (skills endowment) of German immigrants. The guestworkers, the majority of whom are Turks, remain a distinct group of legal immigrants, irrespective of whether they are born in Germany and/or are German citizens.

2.2 Institutional dimensions for the self-employed

It is often argued that the higher rate of job creation in the US compared to that in Europe is likely linked to the relative ease of new entry and expansion by entrepreneurial firms (Krueger and Pischke, 1997). Entrepreneurs can be encumbered or empowered by the institutional settings of a country, as well as by the country's culture. Credit market imperfections, labor market rigidities, legal structures, and administrative red tape are the obvious culprits. Germany is characterized by a restrictive financial system whereby banks represent the major financial intermediary supplying capital to firms. Germany's labor market structure, with respect to wage floors, union representation, and work characteristics is not very conducive to starting up a business. Moreover, Germany's high regulated system requires that most workers have a specific professional training (*Ausbildung*). This training is critical when it comes to founding a business. For potential immigrant entrepreneurs, this can be a serious impediment because many immigrants leave school without acquiring this training.

It has been argued that the segmented and regulated structure of the German labor market does not only constrict access to self-employment but it impedes immigrant earnings assimilation (Constant, 1998). Wage differentials between Germans and immigrants are affected by the segregation of the immigrants into the low wage sector of the economy. Immigration laws as well as industrial or social barriers prevent mobility across sectors.

In the 1960's and 1970's, because guestworkers migrated with a guaranteed paid- employment there were hardly any immigrants in self-employment. With the exception of EU nationals and immigrants with a residence permit, the Foreigner's Law of 1965 explicitly prohibited immigrants to engage in business (Kanein, 1988). However, the self-employment structure of the immigrants in Germany has changed appreciably since the 1970's. In the early 1970's, for example, only 40,000 immigrants were registered as self-employed, while their businesses were tied to restaurants or to catering to the needs of their compatriots. Over the last decade, the absolute number of self-employed foreigners developed more dynamically than even the number of self-employed Germans. The stock of self-employed foreigners rose by 23.6% between 1992 and 2001, while the

9

rise of self-employed was 17% (Täuber, 2003).

Currently, immigrants from EU countries - and other immigrants with certain residence permits - have the same legal rights as German entrepreneurs. Immigrants from non-EU countries are subject to the Foreigners Act (*Ausländergesetz*), which poses restrictions on the right to freely choose occupation, place of work, etc. If they do not have an unlimited residence permit, which, among other things, is a direct function of time in Germany, they have to apply for permission to found a business. In practice, however, the approval of such applications has been liberalized over the last years.

Across Germany many individual states and cities are seriously taking actions to promote self-employment. In the city of Berlin, for example, the "Consulting Centre for Self-Employment" caters to the needs of immigrants and especially Turks. This center is funded by the German Government. Among other things, it provides training in accounting and marketing, advises on business opportunities in Berlin, and enhances cooperation between business associations (IOM, 2003). The federal government itself actively seeks to encourage, foster and strengthen the performance and competitiveness of SMEs and offer them new growth development possibilities. In June 2002, the German government started assisting the development of a private risk capital market in Germany by making available in considerable volumes venture capital for young technology companies above all via the VTC - Venture Capital for Small Technology Companies.

The Federal Ministry of Education and Research launched the "EXIST" a university-based start-ups program to promote regional co-operation between universities, technical colleges, the business sector and other partners. Within this program players come together to jointly create a more entrepreneurial mentality in higher educational and research institutions, to nurture acceptance of entrepreneurship, and to capitalize on the potential of ideas and entrepreneurs. The goal is to boost more innovative start-ups and new jobs (Commission of the European Communities, 2003).

Special schemes to push individuals out of unemployment and into self-employment are also in effect. The

bridging allowance (Überbrückungsgeld), for example, provides financial support for 6 months to those who are registered as unemployed and want to start a new business. The premium allowance (Ich-AG), a new initiative of the active labor market policies in Germany, pays subsidies to unemployed individuals who want to set up their own business. This scheme started in 2003 and supports individuals for 3 years starting with high premium payments in the first year (600Euros a month). Payments decrease to 360 and 240 Euros a month for the second and third year respectively.

Nonetheless, immigrants face hurdles in their choice for self-employment such as the ability to raise or secure capital, to acquire managerial talents, and to capture market opportunities. One of the most important hurdles is credit constraint or financial capital for start-up business. The largest fraction of newly founded businesses in Germany is financed by the entrepreneur's own capital in combination with outside capital provided by credit institutes. Venture capital, private investors, or business angels continue to play a role in start-up financing. In the case of immigrants, family and friends are usually the business angels. Another hurdle is the lack of knowledge about the support programs that are available to encourage and promote self-employment, or about the existing consulting centers. However, even if immigrants are informed and encouraged to go into self-employment, the next hurdle is to overcome regulations. Experts criticize that there are too many regulations that hinder entrepreneurial activities, and advocate against unreasonable paperwork. Further, the complicated German tax system can also deter many potential business founders. Over the recent years many changes were made regarding the tax laws, often making it impossible for businesses to overview the system. For small businesses, in particular, it is quite costly to keep up with the regulations. Since 2003 the government has taken many steps to address these hurdles and make it easier for individuals to start-up a business.

Another impediment to self-employment is the German "welfare culture" whereby less privileged workers need to be protected from unemployment and from precarious, risky employment. Another reason why the German labor market directive has focused and encouraged paid-employment rather than self-employment is the labor unions (since independent trades do not fall under their umbrella). Part of the culture and a deterrent to

the entrepreneurial avenue is the unwritten rules that emphasize collective behavior. However, Chancellor Schroeder, himself, pledged his support to unfettered jobs market, and his opposition to the German "welfare culture." Within this framework, the "EXIST" program aspires to permanently establish a "culture of entrepreneurship" in teaching, research and administration at universities, while at the same time it hopes to mitigate the stigma of failure.

The importance of entrepreneurship has been reaffirmed in the Green paper of the European Commission, which places particular emphasis on boosting investment, jobs and growth through knowledge, innovation and business dynamism. The paper declares that Europe needs to foster entrepreneurial drive more effectively and that "*The challenge for the European Union is to identify the key factors for building a climate in which entrepreneurial initiative and business activities can thrive. Policy measures should seek to boost the Union's levels of entrepreneurship, adopting the most appropriate approach for producing more entrepreneurs and for getting more firms to grow*" (Commission of the European Communities, 2003, pp. 9). This paper concluded with three pillars for action towards an entrepreneurial society: (i) bringing down barriers to business development and growth, (ii) balancing the risks and rewards of entrepreneurship, and (iii) fostering a society that values entrepreneurship.

3. Methodology and data

3.1 Methodology

Empirically, the unit of the analysis is the individual worker. We assume that individual agents in the labor market are facing two alternatives: the option of being self-employed versus the option of being a wage earner. We apply a binomial probit model, where our dependent variable *Y* is a categorical variable that takes the value of one if an individual is self-employed and the value of zero otherwise.

The choice probability is given by the following reduced form equation:

$$P(Y=1 \mid X) = F(X'_{1j} \beta_1) \tag{1}$$

where j indexes the individuals. The parameters in the vector ß reflect the impact of changes in X on the probability that $Y = 1$.

The explanatory variables in X_1 consist of a set of human capital variables (schooling in Germany, schooling in the home country, health status, and years since arrival in Germany), individual specific characteristics (age), socioeconomic characteristics (marital status, children, and wealth), dummies indicating the country of origin group (guest worker, or other immigrant), attachments to Germany (citizenship), as well as intergenerational spillovers (father self-employed). All these independent variables are expected to affect the individual's probability to become an entrepreneur. We expect that the more talented individuals, who are better educated, have good health, a self-employed father, and more years of residence in Germany will have a higher probability of becoming entrepreneurs. Results on this exercise will shed light on who chooses self-employment in Germany.

Next, we operationalize the earnings of entrepreneurs in Germany. The idea here is to compare the earnings of the self-employed to those who are conventionally paid-employed workers. Our question is: controlling for individual and labor market characteristics, does self-employment status have an independent effect on wages, and are the self-employed more successful financially than the paid-employed? We execute this exercise for each nationality group. Because the self-employed are already selected in the probit, a plain OLS regression on earnings will give biased results. We, therefore, adjust the mean of earnings of the self- and paid-employed for non random selection into a sector through the two-stage Heckman technique (Heckman, 1979).

For this technique to be robust, it is important to avoid identification issues and include the selection term ? (inverse Mill's ratio) as an additional regressor in the earnings. The selection-corrected earnings equation takes the following form:

$$\ln(W_j) = a_2 + X'_{2j}\, ß_2) + c_j\, ?_j + ?_j \qquad\qquad (2)$$

where $?_j = F(X'_{2j} ß_2)/ F(-X'_{2j} ß_2)$. The dependent variable is the natural logarithm of gross weekly earnings. Information on gross monthly earnings is self-reported and extracted from the questionnaire from the question: "How high was your gross income last month (wages or salaries including overtime)?" For the self-employed, this is a measure that is less likely to suffer from biases due to tax considerations. [7] However, it is possible that the earnings that the self-employed workers reported include returns on their own personal capital invested in the business. These earnings are, thus, possibly overstated to the extent that they may reflect returns to physical capital and not just returns to the entrepreneur's labor.

The vector of socioeconomic characteristics X_2 is similar to that specified in equation (1) but fine tuned to identify earnings. For example, here we include labor market characteristics and structures such as hours working, length of time with the firm or business, occupational prestige, and industry dummies. Lastly, $<_j$ is the stochastic error assumed to be independent of the X_S. Following the premises of the neoclassical human capital theory, we expect that the healthier and better educated individuals will have higher earnings. Similarly, we expect the earnings profiles with respect to age and years since arrival in Germany to have an inverted U-shape. The variable years since arrival in Germany measures the time and quality of exposure to the German environment as well as labor market experience accumulated in Germany. We also expect workers who work longer hours, have been with the firm longer, and have higher occupational prestige to earn more.

Equation (2) is estimated separately for the self- and paid-employed and for the nationality groups. If self-employed workers are positively self-selected for their inner drive to be independently successful and to climb the socioeconomic ladder, they should also earn significantly higher wages, all else equal. If the selection term 8 is significant this indicates that these workers are not a random sample and selection was necessary; if it is positive (negative) this means that these workers come from the upper (lower) end of the distribution.

Both the probit and earnings regressions are estimated on three groups of men in Germany. Namely, the West Germans, the East Germans, and the immigrants - both the guest workers and the new ethnic immigrants. We

believe that each group is cohesive and homogeneous and is governed by similar experiences. Yet, there are socio-economic and labor market differences among groups that warrant separate analyses. Following previous research, we expect immigrant self-employed men to earn more than their paid-employed counterparts and self-employed immigrants to earn more than comparable natives (Borjas, 1986).

3.2 Dataset

For the empirical analysis our data are drawn from the full German version of the German Socioeconomic Panel (SOEP-2000). The GSOEP is a nationally representative data, administered by the German Institute for Economic Research (DIW) in Berlin. It started in 1984 in the former Federal Republic of Germany (FRG) with a sample of about 12000 respondents, 3000 of whom were legal immigrants. The latter are the guest workers denoting a subset of immigrants whose head of the household originates from Italy, Greece, Spain, Yugoslavia, and Turkey. In 1984 guest workers accounted for 75% of the foreign population living in Germany. In this ongoing project all individuals aged 16 or older are interviewed annually. Respondents are selected by a random walk procedure. The GSOEP contains rich socio-economic information on both native Germans and legal immigrants. An important feature of the GSOEP is that it allows for separate analyses of Germany's guest workers. The survey provides excellent information on the immigrants' pre-immigration profiles and the level of their socio-political integration in Germany (SOEP group, 2001).

Since the reunification of the two Germanies in 1990, the GSOEP includes all German inhabitants from the West (FRG) and the East (GDR). In 1996 the immigrant data base was expanded to include the *Übersiedler* and the *Aussiedler*; they are the ethnic German immigrants from the former GDR and the repatriates from eastern Europe, namely Polish, Romanians, and ex- USSR, respectively. In 1998 the GSOEP was yet augmented by a refreshment sample of about 2000 individuals, both Germans and immigrants. Lastly, the innovation sample of 2000 added over 10,000 individuals to the GSOEP. About 90% of these individuals are German citizens born in Germany. This innovation sample includes the *Übersiedler*, the *Aussiedler*, and the guestworkers. The SOEP-2000 is unique in that it includes all populations living in Germany in the beginning of the new millennium, namely

native Germans, ethnic Germans, "new" immigrants, and oversamples the "old" immigrants or guestworkers. It also includes a lot of questions on the labor force participation, self employment categories, various aspects of life in Germany, and contains an assortment of attitudinal questions. More importantly, the 2000 data permit a more detailed analysis of the self-employed, offering information on the self-employed in agriculture, in the free-lance or professional sector, and in other self-employed categories including working for a family business. Further, 2000 was a good year for the German economy.

For the purposes of our analysis we carefully selected four nationality samples out of the full German data set of SOEP-2000. Our idea is to make the samples as comparable as possible. We, therefore, selected the West German sample who reside in the former FRG, the East German sample, who mostly reside in the former GDR, the immigrants living in the former FRG, the guestworkers, and the "new" or ethnic immigrants who come from the former eastern block countries, and, for the most part, also reside in West Germany. The samples we selected for our analyses exclude those individuals who are enrolled in school, and those in the military, because military personnel follow different trajectories and may skew our estimates. Additionally, we restrict our analysis to individuals aged 20 to 64, as a prime age for labor force participation, who are working. We only consider men because they exhibit a strong attachment to the labor market, working continuously and full time. According to these selection criteria, we ended up with 4,870 West German men, 1,025 East German men, 663 guestworker men, and 671 other immigrant men.

4. Sample Characteristics

In Table I we present selected labor market, human capital, and demographic characteristics of the self-employed men by ethnicity. Overall, West German men have the highest self-employment rate with 13% of our sample being self-employed. Next rank the East Germans with 10% self-employment rate, and last are the immigrants with an average of 8%. With regards to earnings, we find that immigrant self-employed men earn, on average, more than both the West and East German self-employed men. In particular, it is the immigrants in the "other

ethnic group" who earn the highest wages among all groups. They are followed by the guest workers and the West Germans. East Germans earn the lowest wages but this does not necessarily reflect any poor performance in the labor market. It is most likely that their lower earnings are due to their geographic location. In fact, when we disaggregated the East German sample into those who live in the former West Germany and the former East, we found a huge disparity between them. Namely those in the West earn 2.5 times more than those in the East (see Table AII in Appendix). It appears that even 10 years after the reunification the former East Germany has not caught up the western standards and struggles to change from a socialist economy to an economy that is market oriented (Bauer and Zimmermann, 1997).

<<Insert Table I>>

With regards to other labor market characteristics we find that self-employed men put, on average, a lot of hours of work per week (about 55 hours). The West Germans have the longest time in business (11 years), and understandably, East Germans the shortest (7 years). Immigrants in the "other ethnic group" stand out by their highest Treiman occupational prestige score[8], followed closely by the West Germans. East Germans rank also high in the Treiman score while guestworkers have the lowest occupational prestige score. Noticeable differences among the self- employed nationality groups lie also in the industries they are in. The majority of the West German self-employed men is in the financial and banking industry. The next largest percentage of West German men is in the construction industry and next it is in retail, wholesale, and trade industries. East German self-employed men have a similar industrial aggregation. However, the majority of them is in the construction industry. In contrast, the highest percentages of self-employed immigrant men are in the service industry. Among immigrants, while 29% of the self-employed guestworkers are, on average, of the retail, wholesale, and trade industries, the other ethnic immigrants are mostly in the financial and banking industries (18%).

Table AI in the Appendix shows the types of self-employment our samples are in. Overall, the majority of self-employed men own small-scale businesses with 9 or less employees. The vast majority of self-employed men

across all groups lies in the "other business" category employing less than 9 workers. This category spans from retail shops, to restaurants, tourist offices, home caring, construction business, etc. Guestworkers have the largest share in this category (93%). The large variance in the free-lance professional category across groups is of interest. This category includes the "independent professions" (such as lawyers and doctors), artists, consultants, etc. An impressive 35% of the other ethnic immigrants are in the free-lance professional category followed by 24% of West German men, and a low 17% of East German men. Only 4% of guestworker self-mployed men are in the free-lance professional business category. On the other hand, more guestworkers than any other group help in the family business. This indicates that guestworkers rely more on kinship and familial support when they open a new business.

On average, self-employed men in all four ethnicity groups are over 40 years of age. West Germans are the oldest at 44 and guestworkers are the youngest at 39 years of age. The East Germans rank the highest in years of education (15), having finished more than high school. They are followed by the West Germans with 13 years of schooling. Among immigrants, guestworkers have the least education in Germany. However, immigrants close the gap with the Germans with additional years of education in their home country. On average, 36% of the guestworkers speak German all the time, while only 29% of the other ethnic immigrants speak German all the time.

An interesting contrast is in the health status. While 75% of the other ethnic immigrants said that they are healthy only 52% of the East Germans said so. The other samples are in between. Turning to intergenerational spill-over we see that 21% of the average self-employed West German man has a father who is also self-employed. The rates on self-employed fathers are a lot lower for the other groups, with the other ethnic immigrants having the lowest rates (5.5%). This is understandable since these people come form former socialistic countries where self-employment and entrepreneurship were non-existent.

Noticeably, the preponderance of self-employed men is married. However, on average, a larger percentage among the immigrants is married than among the Germans. Across all samples, a substantial

proportion of self-employed men also have young children at home. With respect to wealth and economic independence, more than 65% of the German self-employed men own their house. Given that East Germans were under the socialist regime until ten years ago this is a high number for real estate ownership. The self-employed immigrants also exhibit high rates of home ownership; among them a surprising 40% of the other ethnic immigrants own their house in Germany. Finally, this table shows that self-employed guest workers have been living in Germany or about 22 years, on average, indicating a rather permanent migration.[9] However, they are not politically integrated in Germany. Only about 21% of guest workers are German citizens. In contrast, while the average immigrant from the other ethnic group has been in Germany for 16 years, 60% of them are German citizens.

In Table II we present the portrait of the self-employed counterparts who work in the conventionally salaried sector. Comparing Table II to Table I, we see that the majority of our samples are in paid-employment. Overall, across all nationality groups, the paid-employed men earn less money than the self-employed. In this employment sector it is the West Germans who have the highest earnings, followed by the other ethnic immigrants and the guest workers. These statistics repeat the fact the guest workers earn 21% less than the West Germans, although they have been living side by side for 18 years. Once again, the East Germans earn the lowest but this is rather due to their living in the East where wages have not reached equalization with the West. Table AII in the appendix confirms that those East Germans who live in the West have higher earnings. On average, the East Germans work more hours per week that the West Germans, and the guest workers work the least hours per week.

<<Insert Table II>>

The West Germans have the longest tenure with their job and the highest Treiman occupational prestige scores compared to the other samples; the guest workers rank the lowest in these prestige scores. The majority of employees across all 4 samples work in the manufacturing industry. For West Germans, the next largest

percentage of workers is with the government while the next largest percentage for the East Germans is in the construction industry. After manufacturing the immigrants are mostly in the service industry.

Table II shows that the average West German employee is older than the employees in the other samples, and the average guest worker is the youngest. The East Germans are the highest educated having finished more than high school. The West Germans rank second behind them with 13 years of schooling and vocational training. The immigrants have only about 7 years of German education. However, they also have some pre-migration education. While the other ethnic immigrants have 5 years of pre-migration education, the guest workers have only 3 years. About 36% of the other ethnic immigrants speak German but only 29% of the salaried guest workers speak German. As in the case of the self-employed, here also, the East Germans have the lowest percentage in being healthy.

Over 66% of the paid-employed workers are married, with 79% of the other ethnic immigrants being married. In this sector the majority of immigrants have young children at home. On average, about 10% of the West Germans have a father who is self-employed. The rates are much lower for the other samples. The West Germans also have the highest percentage in homeownership. The East Germans follow with 44% of them owning their house. Only 25% of the guest workers own their house, as opposed to the other ethnic immigrants where 30% of them own their house. Moreover, the guest workers who have been in Germany for 18 years have not been politically integrated. Only 18% of them are naturalized citizens. This is in contrast to the other ethnic immigrants who have been in Germany for 13 years but 69% of them are naturalized. Of course, the high number of naturalized other ethnic immigrants is not surprising, since many in this groups are ethnic Germans who arrived in Germany as Germans.

Overall, comparing the 4 samples of workers in Tables I and II we see that the self-employed are a selected group of exceptional individuals who are faring better than the wage earners in many respects. Namely, they earn more money, they work more hours, and have jobs with higher occupational prestige scores.

They are also older, more educated, more of them are married and have self-employed fathers. Finally, a much larger percentage of the self-employed are homeowners than their salaried counterparts. For immigrants, in particular, these summary statistics show that self-employment is a way of "making" it in the new country. Self-employed immigrants not only earn more than their salaried compatriots, but they earn even more than the native self-employed Germans. Table I documents a positive selection with respect to wages and human capital, leading in over-assimilation for immigrants. This is not the case for the salaried sector where immigrants are still behind the natives. Self-employed immigrants also have remarkably high Treiman prestige scores, compared to salaried immigrants, indicating that self-employment is a vehicle for higher socioeconomic status. Overall, these summary statistics show that self-employed immigrants can traverse the socio-economic gap and climb high on the socio-economic ladder.

5. Estimation Results

5.1 Entrepreneurial probabilities

In Table III we present the results of the binomial probit on the probability of self-employment for the respective samples, based on individuals who are already in the labor force. In this exercise we estimated probits for West Germans, East Germans, and immigrants separately, controlling for possible push-pull factors. Due to the small number of observations for guest worker and other ethnic immigrants we combined the two immigrant groups in one sample and created a dummy variable to capture the guest worker versus other ethnic immigrant status. For each group, we present the coefficient estimates with the standard errors in parenthesis underneath; the asterisk denotes the significance level. In the adjacent columns we present the marginal effects.

<<Insert Table III>>

For West Germans, the probability to choose self-employment increases with age at a decreasing rate. In line with other studies (Blanchflower et al., 2001), this indicates that self-employment is an effective

choice later in life. Additional years of education also increase the probability of self-employment albeit discounted. This could suggest that higher education is not rewarded enough in the salaried sector and more educated workers choose self-employment as an alternative to higher returns to schooling. The probability to choose self-employment also significantly increases for the West Germans who are healthy and their father is self-employed. This indicates a strong positive intergenerational link in self-employment, and is in line with previous research that finds that individuals who have a self-employed parent are more likely to be self-employed but that there are serious differences across races (Hout and Rosen, 2000). Parents besides acting as role models, can also provide know-how and free on-the-job training. Children of self-employed parents have the advantage of inheriting the business and have an established clientele.

Next we find that marital status and young children in the household are additional determinants of self-employment since they directly affect the tastes and motives of the individuals. Surprisingly, we find that marriage is a deterrent to entrepreneurship for West German men. All else equal, married West German men, who are in the labor force, are less likely to choose self-employment over paid-employment. This is in odds with the conjecture that women subsidize their husbands' jobs through support either at home, at the business or with their supplemental income during rough times. That is, men may rely on their wives for a steady income and possibly health insurance coverage, if the wives work in the salaried sector, and count on their helping directly in the business. One explanation for this finding is that the German family is more traditional and conforms to the "breadwinner" ideology, whereby men work to provide for their family and women take care of the children and the household. This division of labor combined with the fact that self-employment is a more precarious source of income and that it is more time intensive, would not be an optimal choice for West German men. Alternatively, another possible explanation could be that married men are less risk loving and, thus, less likely to choose self- employment.

On the other hand, West German men who have young children are more likely to choose self-employment. We believe that this indicates that men who have children consciously raise their work efforts and

choose a job that can increase their chances to stand up to family obligations. Self-employment can offer high monetary rewards and the flexibility to either work from home or close by that could be appealing to family men. Indeed, previous research has shown that "for men, self-employment is more of an avenue for career and monetary success, free from organizational constraints" (Hundley, 2000, p. 103).

Alternatively, we suspect that the presence of children makes individuals think differently depending on the type of business they are in. For self-employment in farming, other business, and help with family business the presence of children is a positive determinant because children can help with the business. This effect dominates since the majority of West German men are in this type of business types with less than 9 employees. However, this rational does not apply to the upper professions. Finally, West German men who own their house have a higher probability to choose self-employment. This variable indicates the presence of extra assets required to open a business as it lessens the liquidity constraints in accordance with Taylor (1996) and Evans and Leighton (1989).

For East Germans we find some similar results. The probability to choose self-employment increases with age albeit at a decreasing rate, verifying that older workers are more likely to have their own business. Older workers have already experience in the labor market, have more acquaintances, a larger social circle, and know what they want. They may also have accumulated more initial capital through savings and can finance their own business. Having young children also increases the probability of self-employment indicating that familial responsibilities are important for East Germans. Lastly, homeownership is a significant determinant of the probability to choose self-employment for East Germans. However, human capital does not have a significant effect on self-employment probabilities.

Similar to the results on the Germans, we also find that for immigrants, the probability of choosing self-employed increases significantly with age at a decreasing rate. Once again this indicates that self-employment is an effective choice later in life when men are more mature. Except for health status, which significantly increases the probability to choose self-employment for immigrants, none of the human capital

variables are significant. The years since arrival to Germany per se is not a significant determinant but has the right sign. That is, the probability of self-employment increases with additional years of residence in Germany at a decreasing rate. Perhaps this variable should be viewed in combination with the age variable. While older workers are more risk averse, they have accumulated more years in Germany, they have more wisdom, more experience and know-how, more financial capital, larger social milieu, and they can make more prudent choices. Similar to the East Germans, years of pre- and post-migration education do not significantly affect the probability of self-employment for immigrants. It appears that once immigrants have the minimum educational requirements and qualifications to be able to open their own business education is no longer relevant. As it has been often argued self-employment is an alternative job choice for less qualified and less skilled individuals.

Unlike the results on the Germans, we find that the higher the ratio of the regional unemployment over vacancies is, the higher the probability to choose self-employment is for immigrants. This indicates that immigrants are rather pushed into self-employment. Evidently, when unemployment is high and finding a conventionally salaried job is uncertain, immigrants take the self-employment route as an escape from unemployment. However, guest workers are not significantly different than the other ethnic immigrants in self-employment probabilities.

In sum, Table III shows that self-employment probabilities increase with age for all samples. West Germans who are more educated, healthy, have a self-employed father, young kids, and own their house are more likely to go into self-employment. While for East Germans it is family responsibilities and homeownership that increase the likelihood of self-employment, for immigrants it is health and high unemployment rates. Clearly, these results show that immigrants are pushed into self-employment to avoid unemployment.

5.2 Self- and paid-employment earnings

In Table IV we present the results on the selection adjusted earnings regressions for the respective samples. We estimate log weekly earnings regressions for West Germans, East Germans, and immigrants

separately and for self- and paid-employed. For each group we present the coefficient estimates with the standard errors in parenthesis underneath. The asterisk denotes the significance level. For West Germans we find that the age-earnings profiles are concave for both the self- and paid-employed. That is, earnings increase with age at a decreasing rate. However, the age-earnings profile of the self-employed is more concave and upsloping. Considering the intercept and all other variables the profile of the self-employed lies higher than that of the paid-employed, reaches a maximum later in life (at 48 years of age), and stays quite high after that. This means that the self- employed West Germans earn more than the paid-employed at all ages and self-employment is a lucrative employment choice.

<<Insert Table IV>>

From the coefficients on education we see that education has a significantly differential effect on the earnings of West German men. However, the direction of the effect differs on the self- and paid-employed. For the self-employed there is a convex effect, meaning that earnings decrease at an increasing rate with years of education but they increase later after they reach a minimum. This is can be explained through the screening or signaling hypothesis. Unlike workers in the salaried sector, who use their education as a signal of higher productivity to potential employers, self-employed individuals should not have any returns to education per se (Wolpin, 1977). That is, educational qualifications do not necessarily have a significant impact on the earnings. To the extent, however, that educated individuals are also well-rounded, have higher ability, more knowledge, and a superior information set, we would expect that more years of education will eventually pay off in the business. In Germany, especially for certain occupations, there are some minimum educational requirements and qualifications for the self-employed. For the West Germans in paid-employment we find the standard effect of education on earnings; an increase with additional years of education at a decreasing rate. While healthy individuals earn more in both sectors, the rewards are higher in self-employment.

Being married increases the earnings of West Germans by about 10% in both sectors. Similarly, those

who work additional hours earn more. Working overtime is rewarded more in the salaried sector. Longevity in business or tenure with the job is only significant for the paid- employed indicating that in Germany there is a strong seniority effect on earnings. Each additional year one accumulates with the same employer increases their earnings by 1%. Moreover, the higher the occupational prestige is, the higher the earnings in both sectors with similar rewards. These prestige scores are seen as representing the relative amount of power each occupation commands, in terms of skills, authority, and economic control occupations have access to (Treiman, 1977).

A strong negative effect on earnings comes from the regional unemployment over vacancies ratio. In regions with high unemployment ratios the earnings of the self-employed decrease by 4%.; the paid-employed suffer a smaller decrease (1.5%). This is understandable, since high unemployment creates downward pressure on the wages. The following coefficients on the industry dummies show additional wage differentials across sectors. In comparison to the omitted agriculture, fishing, and mining industry we find that working in all other industries offers an earnings premium for both the self- and paid-employed. The highest rewards for the self- employed West German men are in the financial and banking industry (90%) and in the construction industry (77%). For the salaried workers, earnings increase by 34% when they work in the financial and banking industry and by 28% when they work in manufacturing. Lastly, we find that the selection term 8 is not significant for the self-employed West Germans but it is positive and significant for the salaried workers. This means that the paid-employed are not a random sample of workers and selection was necessary.

The next 2 columns of Table II present the selection adjusted earnings of the East Germans. Similar to the results on the West Germans we find that earnings increase at a decreasing rate with age. In contrast to the West Germans, the age-earnings profile of the self-employed East Germans lies below that of the paid-employed, it is more concave reaching a maximum at 37 years of age and decreasing fast afterwards. When the intercept and all other covariates are controlled for, it appears that the East Germans fare better a s paid-employed.

Married East Germans as well as those who work longer hours and have more seniority on the job earn a

wage premium but only when they are in conventionally paid jobs. The higher occupational prestige scores, however, offer an earnings premium to both the self- and paid- employed albeit a much smaller premium than the West Germans receive. As in the case for West Germans, we also find here that high unemployment ratios draw a penalty on earnings, and the self-employed are hit the worst. With regards to industry dummies, except for those who work in the retail, wholesale, and trade industries, East Germans earn significantly more in all other industries compared to those in agriculture, fishing and mining. The service industry offers the highest earnings premium to the self-employed and the financial and banking industries offer the highest premium to the paid-employed. In this exercise the selection term 8 is not significant.

For immigrants, Table II shows that self-employment is not just a viable working alternative but a sure way to financial success in the labor market. While age and education are not significant determinants of the earnings of the self-employed immigrants, controlling for all other characteristics their age-earnings profile lies a lot higher than that of their paid-employed counterparts. Their earnings are higher form the beginning and stay high for the most part of their working lives, reaching a maximum at 48 years of age. In sharp contrast age is a significant determinant of the earnings of the salaried workers in a concave shape. Controlling for all other characteristics and adding the intercept term, the age-earnings profile of the paid-employed is rather flat, reaches a maximum a lot earlier in life (at 39) and decreases thereafter. This verifies the findings from the summary statistics that the alternative of being a salaried worker does not pay well for immigrants in Germany.

While human capital does not significantly affect the earnings of the self- or paid- employed immigrants, those self-employed immigrants who speak German all the time enjoy an earnings premium of 38%. Moreover, among the self-employed immigrants, those who have ascended to German citizenship earn 39% more than those who are not German citizens. This indicates that naturalization pays off for the self-employed immigrants. A puzzle arises with the married self-employed immigrant men, because they are penalized in the labor market with 38% less earnings. Possible explanations are that (i) immigrant married men are more risk averse individuals and this is reflected in lower earnings, and (ii) perhaps their sharing of the earnings with

their spouses coworking in the business would give the impression of lower earnings while it actually could be the result of a measurement problem. As it has been established in the literature we find, on the other hand, that married immigrant men in the salaried sector earn 6% more than those who are not married.

Earnings also increase for hard working immigrants. Naturally, and similar to the Germans, longer hours of work are rewarded more in the paid- than the self-employment sector. As expected, individuals who put extra hours earn more in the salaried sector but this effort is also appreciated in the self-employment where long hours of work are taken for granted. With respect to the rest of the predictors, we find that they differ on their sign and significance level. Tenure or seniority on the job is positive and significant for the earnings of the paid-employed only. Likewise, paid-employed immigrants earn about 1% more with each higher occupational prestige score. In agreement with the results on the Germans, paid-employed immigrants suffer an earnings penalty of 2% when they live in an area with higher unemployment to vacancies ratios.

Lastly, with regards to the industry dummies, we find that immigrants in the salaried sector who work in the manufacturing, financial and banking, and construction industries earn a premium of 16, 14, and 10% respectively, in reference to the agriculture, mining, and fishing industries. Those in the government earn 13% less, however. While we acknowledge that in this analysis we do not control for the distribution of jobs, the lower wages in the public sector could be related to the fact that these jobs offer more security and better maternity or vacation packages. At the same time, it could be that immigrants are in general working as orderlies and, thus, earn less. The self- employed immigrants in the retail, wholesale, and trade industries also earn less than those in agriculture, mining, and fishing. Similar to the East Germans, the selection term 8 is not significant for immigrants.

Overall, in this study we are able to confirm Borjas' (1986) thesis that self-employed workers earn more than salaried workers, and that self-employed immigrant workers earn more than comparable self-employed natives. For immigrants, entrepreneurship maybe a way of cutting through and "making" it in the new country. Compared to their salaried counterparts who still struggle for earnings assimilation, the self-employed immigrants fare well. Whereas self-employed West Germans also fare better than their counterparts in the

28

salaried sector, East Germans fare better in the salaried sector. Comparing the earnings of the self-employed immigrants to those of the West Germans, differences emerge in age, education, health, marital status, Treiman prestige scores, and regional unemployment to vacancies ratios. In particular, self-employed immigrants who speak the German language and have become German citizens earn more. Across all samples, the selection adjusted earnings regressions show that the self-employed are a random sample of workers.

6. Summary and conclusion

In this paper we analyze the entrepreneurial behavior and monetary success of three distinct populations of workers in Germany. The questions we ask are: (i) who are the self-employed, what are their characteristics, and what factors affect the sorting of individuals into self-employment, and (ii) how do the self-employed fare compared to the paid-employed? Based on the German data set of SOEP-2000 we estimate the probability to choose self-employment for West German men, East German men, and immigrant men - both guestworkers and other ethnic immigrants. We, further, study the earnings of the self- and paid-employed adjusted for selection in the respective sector.

Overall, West Germans have the highest self-employment rate at 13%. Next rank the East Germans with 10%, followed by the immigrants at 8%. The summary statistics show that self- employed men have, on average, substantially higher earnings than the paid-employed. They also have jobs of higher Treiman prestige scores, more years of education, are older, a higher percentage of them are homeowners, and have self-employed fathers. Among the self-employed, immigrants score the highest earnings.

Results from the statistical analysis show that the probability of self-employment increases with age at a decreasing rate. The impact on the rest of the characteristics varies across samples. More education and a self-employed father propel self-employment choices for West Germans only. West Germans who have young kids and own their house are also more likely to go into self- employment. Whereas for East Germans it is family responsibilities and homeownership that increase the likelihood of self-employment, for immigrants it is health and high unemployment rates. Clearly, these results show that immigrants are pushed into self-

employment to avoid unemployment. The empirical analysis could not confirm that guestworker immigrants are different than the other ethnic immigrants in Germany.

In accordance with the summary statistics self-employment appears to be a lucrative choice for all groups when we control for individual and labor market characteristics. Selection into self- employment earnings results show that, except for the East Germans, the self-employed earn more than their salaried counterparts, and that immigrants fare the best, having the highest earnings of all groups. For immigrants, entrepreneurship maybe a way of cutting through and "making" it in the new country. While immigrants could be pushed into self-employment to avoid unemployment, they are able to traverse the socioeconomic gap through self-employment. That is, not only they earn more than the salaried immigrants but they also reach over-assimilation with the natives, and enjoy a higher occupational prestige as well. It is noteworthy that self-employment is detrimental to the earnings of the East Germans. However, this result could be an artifact due o the geographic wage disparities between the former West and East Germany.

Comparing the earnings of the self-employed immigrants to those of the West Germans, differences emerge in age, education, health, marital status, Treiman prestige scores, and regional unemployment to vacancies ratios. In particular, speaking the German language and having become German citizens boosts the earnings of the self-employed immigrants by about 38%. Across all samples, the selection adjusted earnings regressions show that the self-employed are a random sample of workers. The question that remains is why are there not more self-employed in Germany? This question should be addressed in future research.

Notes

1. Whereas some ethnic groups such as the Asians are characterized by high self-employment rates and high earnings in this sector, others such as the Mexican-Americans and African-Americans have very low self-employment rates. The 1990 U.S. Census shows that Greek and Korean men, for example, who are about 1 and 2.5% of the immigrant men in the US respectively have self- employment rates of about 32 and 31% respectively, while the rate for African-Americans is 4% (Fairlie and Meyer, 2000). Recent estimates from the 2000 Census show that the self-employment rate for immigrants is 11% higher than the self-employment rate for natives. However, Mexican immigrants have self-employment rates that are notably lower than the national level for men (6%) (Fairlie and Woodruff, 2004)

2. The number of new enterprise formation as a percentage of total enterprises is 15.7% (annual average between 1995 and 2000).

3. By definition, an entrepreneur is an individual who identifies opportunities, organizes, operates, and assumes the risks of a business venture.

4. The word guest worker is the literal translation of the German word "Gastarbeiter" and reflects the notion that these immigrants were invited to work in Germany, yet they were not expected to stay permanently.

5. Treaties for recruitment were signed with Italy in 1955, Spain and Greece in 1960, Turkey in 1961, Portugal in 1964, and Yugoslavia in 1968. Agreements were also negotiated with Morocco in 1963 and Tunisia in 1965, but these nations never contributed many workers.

6. While the new law also carries through tough security provisions, it liberalizes the citizenship laws and speeds up the process of becoming German.

7. Most studies on self-employed earnings use the amount reported to the tax authorities (net profit) and, thus, suffer from a bias due to under-reporting. Hamilton (2000), using three alterative measures of self-employment earnings, documents that the earnings differentials in self- and paid-employment are similar. We believe that for less educated individuals the average business renders really low levels of physical capital.

8. The Treiman prestige scale is based on the international classification of occupational ISCO codes. The

31

scale is from 18 (lowest ranking of a janitor, for example) to 78 (highest ranking of a president of a country, for example).

9.   The variable years since arrival in Germany is constructed from the self-reported year of arrival in Germany. For immigrants born in Germany this variable takes the value of zero; for those with missing values in the year of arrival we carefully calculated this variable following a simple algorithm: if the individual is born elsewhere but went to school in Germany we assigned years of migration according to whether the individual went to elementary or secondary school in Germany.

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Table I. Selected characteristics on self-employed men by ethnicity

	West Germans	Guestworker immigrants	East Germans	Other ethnic immigrants
Average weekly earnings (in DM)	1592.15	1642.80	1030.48	2022.44
Average weekly hours of work	53.77	54.52	54.94	55.10
Length of time with business (in years)	10.93	8.44	6.62	8.24
Treiman occupational prestige score	47.56	39.49	45.52	48.80
Service/restaurants/other industry (in %)	14.40	35.70	8.80	32.70
Retail, wholesale, trade (in %)	16.60	28.60	18.60	12.70
Government (in %)	6.70	1.80	7.80	12.70
Manufacturing industry (in %)	12.20	12.50	12.70	9.10
Agriculture, fishing, mining (in %)	7.80	3.60	5.90	1.80
Construction industry (in %)	17.90	8.90	27.50	12.70
Financial and banking industry (in %)	24.30	8.90	18.60	18.20
Age in years	44.20	40.25	42.47	43.62
Years of schooling & vocational training in Germany	13.23	6.83	14.96	8.59
Years of schooling & vocational training before migration	-	3.50	-	4.50
Speak German all the time (in %)	-	35.70	-	29.10
Healthy (in %)	63.80	69.60	52.00	74.50
Father is self-employed (in %)	21.2	7.10	7.80	5.50
Married (in %)	72.10	80.40	75.50	81.80
Children in household < 16 yrs old (in %)	44.00	50.00	52.90	47.30
Own dwelling in Germany (in %)	65.20	30.40	65.70	40.00
Years since arrival in Germany	-	21.84	-	16.27
German citizen (in %)	-	21.40	-	60.00
Number of observations	638	56	102	55
As percent of total observations	13.10	8.45	9.95	8.20

Source: Own calculations from SOEP-2000

Table II. Selected characteristics on salaried workers by ethnicity

	West Germans	Guestworker immigrants	East Germans	Other ethnic immigrants
Average weekly earnings (in DM)	1275.50	1007.99	896.91	1130.99
Average weekly hours of work	43.35	41.12	44.83	42.65
Length of time with firm/business (in years)	12.38	9.59	7.71	7.79
Treiman occupational prestige score	44.20	35.95	40.99	39.50
Service/restaurants/other industry (in %)	11.20	14.20	13.80	14.80
Retail, wholesale, trade (in %)	9.90	8.90	10.50	6.80
Government (in %)	20.80	4.10	16.40	7.50
Manufacturing industry (in %)	34.60	55.20	26.30	46.90
Agriculture, fishing, mining (in %)	2.10	3.10	4.80	3.70
Construction industry (in %)	11.00	11.00	19.90	13.50
Financial and banking industry (in %)	10.60	3.50	8.30	6.80
Age in years	41.44	37.73	40.55	40.52
Years of schooling & vocational training in Germany	12.72	7.15	14.24	6.85
Years of schooling & vocational training before migration	-	2.85	-	5.15
Speak German all the time (in %)	-	29.30	-	36.20
Healthy (in %)	60.10	62.40	55.60	62.50
Father is self-employed (in %)	9.80	3.30	3.80	4.10
Married (in %)	69.20	75.30	66.30	78.90
Children in household < 16 yrs old (in %)	41.00	56.00	40.30	52.80
Own dwelling in Germany (in %)	56.20	25.20	43.80	29.70
Years since arrival in Germany	-	18.32	-	12.51
German citizen (in %)	-	18.10	-	68.80
Number of Observations	4232	607	923	616
As percent of total observations	86.90	91.55	90.05	91.80
Source: Own calculations from SOEP-2000				

Table III. Estimation results on the probability of self-employment

Parameters	West Germans		East Germans		All immigrants	
	Coefficient (St. Error)	Marginals	Coefficient (St. Error)	Marginals	Coefficient (St. Error)	Marginals
Intercept	-3.308* (0.607)	-0.673* (0.122)	-4.951* (1.641)	-0.787* (0.255)	-4.311* (0.909)	-0.600* (0.123)
Age	0.034** (0.019)	0.007** (0.004)	0.092 ** (0.052)	0.015** (0.008)	0.100* (0.042)	0.014* (0.006)
Age Squared	-0.0002** (0.0002)	-0.00004** (0.00004)	-0.001** (0.001)	-0.0002** (0.0001)	-0.001* (0.001)	-0.0001* (0.0001)
Years since arrival in Germany	-	-	-	-	0.014 (0.013)	0.002 (0.002)
Years since arrival in Germany squared	-	-	-	-	-0.0002 (0.0003)	-0.00002 (0.00004)
Years of schooling and vocational training in Germany	0.115** (0.068)	0.023** (0.014)	0.152 (0.195)	0.024 (0.031)	0.038 (0.057)	0.005 (0.008)
Years of schooling and vocational training in Germany squared	-0.003 (0.002)	-0.001 (0.0005)	-0.004 (0.006)	-0.001 (0.001)	-0.001 (0.003)	-0.0001 (0.0003)
Years of schooling and vocational training before migration	-	-	-	-	-0.036 (0.086)	-0.005 (0.012)
Years of schooling and vocational training before migration squared	-	-	-	-	0.004 (0.006)	0.001 (0.001)
Healthy	0.122* (0.049)	0.024* (0.010)	-0.039 (0.117)	-0.006 (0.019)	0.323* (0.117)	0.042* (0.014)
Father is self-employed	0.469* (0.064)	0.116* (0.019)	0.354 (0.238)	0.069 (0.056)	0.218 (0.233)	0.035 (0.043)
Guestworker immigrant	-	-	-	-	0.030 (0.129)	0.004 (0.018)
German citizen	-	-	-	-	-0.105 (0.130)	-0.015 (0.018)
Married	-0.202* (0.066)	-0.043* (0.015)	-0.084 (0.151)	-0.014 (0.025)	0.099 (0.150)	0.013 (0.019)
Kids under 16 in household	0.154* (0.059)	0.032* (0.012)	0.221** (0.132)	0.036 (0.022)	-0.193 (0.127)	-0.027 (0.018)
Home ownership	0.127* (0.052)	0.026* (0.010)	0.397* (0.117)	0.065* (0.019)	0.166 (0.114)	0.024 (0.018)
Regional unemployment over vacancies ratio	0.008 (0.008)	0.002 (0.002)	0.002 (0.021)	0.0003 (0.003)	0.033** (0.018)	0.005** (0.003)
χ^2	136.786		35.205		37.219	
Veall/Zimmermann Pseudo R^2	0.063		0.084		0.075	
Log-Likelihood Function	-1822.603		-314.508		-363.630	
Number of observations	4870		1025		1334	
Number of self-employed workers	638		102		111	

Note: *$p < 0.05$ and **$p < 0.10$, two-sided test

Table IV. Selection adjusted earnings

	West Germans		East Germans		All immigrants	
	Self-employed	Paid-employed	Self-employed	Paid-employed	Self-employed	Paid-employed
Parameters	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error)
Intercept	4.389* (0.642)	3.618* (0.169)	3.264 (2.318)	4.460* (0.325)	6.816* (3.103)	4.516* (0.232)
Age	0.090* (0.016)	0.058* (0.005)	0.114 (0.073)	0.020 (0.010)	0.068 (0.074)	0.041* (0.010)
Age squared	-0.001* (0.0002)	-0.001* (0.0001)	-0.002** (0.001)	-0.0003* (0.0001)	-0.001 (0.001)	-0.001* (0.0001)
Years since arrival in Germany	-	-	-	-	-0.010 (0.017)	-0.004 (0.003)
Years since arrival in Germany squared	-	-	-	-	-0.0001 (0.0004)	0.0001 (0.0001)
Years of schooling and vocational training in Germany	-0.139* (0.059)	0.042* (0.019)	0.077 (0.216)	0.062 (0.038)	0.039 (0.085)	-0.003 (0.012)
Years of schooling and vocational training in Germany squared	0.005* (0.002)	-0.001 (0.001)	-0.002 (0.007)	-0.001 (0.001)	-0.003 (0.003)	0.001** (0.001)
Years of schooling and vocational training before Migration	-	-	-	-	0.090 (0.131)	-0.011 (0.019)
Years of schooling and vocational training before Migration squared	-	-	-	-	-0.009 (0.009)	0.002 (0.001)
Speak German Language	-	-	-	-	0.378* (0.137)	0.019 (0.022)
Healthy	0.089* (0.043)	0.038* (0.014)	-0.243** (0.137)	0.029 (0.024)	0.010 (0.242)	0.040 (0.034)
Guestworker immigrant	-	-	-	-	0.056 (0.151)	-0.025 (0.028)
German citizen	-	-	-	-	0.391* (0.172)	-0.030 (0.029)
Married	0.101* (0.048)	0.106* (0.016)	-0.057 (0.141)	0.094* (0.029)	-0.379* (0.167)	0.059* (0.029)
Hours working per week	0.013* (0.001)	0.021* (0.001)	0.004 (0.004)	0.015* (0.001)	0.010* (0.004)	0.020* (0.001)
Length of time with firm/business	0.003 (0.003)	0.012* (0.001)	-0.007 (0.012)	0.009* (0.002)	0.003 (0.010)	0.014* (0.001)
Treiman prestige score	0.011* (0.002)	0.012* (0.001)	0.009** (0.005)	0.007* (0.001)	0.006 (0.006)	0.013* (0.001)
Regional unemployment over vacancies ratio	-0.039* (0.007)	-0.015* (0.002)	-0.053* (0.021)	-0.007** (0.004)	-0.026 (0.029)	-0.019* (0.005)
Service, restaurants, and other industry	0.459* (0.089)	0.116* (0.041)	0.912* (0.309)	0.154* (0.061)	-0.248 (0.356)	-0.029 (0.058)
Retail, wholesale, and trade	0.615* (0.086)	0.173* (0.041)	0.352 (0.262)	0.087 (0.064)	-0.683** (0.357)	-0.034 (0.063)
Government	0.635* (0.112)	0.082* (0.040)	0.870* (0.324)	0.116** (0.061)	-0.235 (0.392)	-0.126** (0.067)
Manufacturing industry	0.503* (0.090)	0.279* (0.039)	0.848* (0.274)	0.171* (0.057)	-0.570 (0.366)	0.157* (0.054)
Construction industry	0.771* (0.086)	0.199* (0.041)	0.791* (0.260)	0.186* (0.059)	-0.247 (0.377)	0.104** (0.059)

Table IV. Selection adjusted earnings

	West Germans		East Germans		All immigrants	
	Self-employed	Paid-employed	Self-employed	Paid-employed	Self-employed	Paid-employed
Financial and banking industry	0.899*	0.337*	0.582*	0.195*	-0.171	0.138*
	(0.086)	(0.041)	(0.260)	(0.067)	(0.373)	(0.067)
λ	-0.030	0.450*	0.206	-0.0002	-0.709	0.407
	(0.117)	(0.097)	(0.338)	(0.169)	(0.694)	(0.328)
Mean of log weekly earnings	7.189	7.040	6.748	6.716	7.275	6.883
(Standard deviation)	(0.636)	(0.502)	(0.637)	(0.430)	(0.689)	(0.466)
F Value	26.36	305.64	2.10	30.00	2.48	51.64
R^2	0.420	0.552	0.298	0.360	0.409	0.509
Log-Likelihood	-433.614	-1382.137	-70.370	-313.811	-72.359	-354.063
Number of observations	4870		1025		1334	
Number of self- and paid-employed workers	638	4232	102	923	111	1223
Note: *p≤ 0.05 and **p≤ 0.10, two-sided test						

Appendix

Table AI. Type of self-employment by ethnicity in percent

	West Germans	Guestworker immigrants	East Germans	Other ethnic immigrants
Independent Farmer				
with < 9 co-workers	6.90	-	4.90	3.64
Free-Lance Professional				
with < 9 employees	22.42	4.00	16.66	32.72
with >= 9 employees	1.88	-	-	1.82
Other Business				
with < 9 employees	60.66	85.71	73.53	60.00
with >= 9 employees	7.05	7.14	3.92	1.82
Work in Family Business	1.10	4.00	0.98	-
Number of Observations	638	56	102	55

Source: Own calculations from SOEP-2000

Table AII. Labor market characteristics of East Germans by location

	East Germans			
	Self-employed		Paid-employed	
	Former West residents	Former East residents	Former West residents	Former East residents
Average weekly earnings (in DM)	1813.924	740.235	1086.861	828.014
Average weekly hours of work	50.375	55.331	44.186	44.904
Length of time with firm/business (in years)	2.275	6.993	5.656	7.958
Treiman occupational prestige score	47.625	45.340	41.132	40.968
Number of Observations	9	93	99	824

Source: Own calculations from SOEP-2000