Darmstadt Discussion Papers
in Economics

The Demand for Illegal Migration and Market Outcomes

Horst Entorf* and Jochen Moebert**

**) Professor of Economics, Darmstadt University of Technology,
IZA (Bonn) and ZEW (Mannheim)*

**) Researcher, Darmstadt University of Technology

No. 130

Applied
Research in
Economics

The Demand for Illegal Migration and Market Outcomes

Horst Entorf and Jochen Moebert

January 8, 2004

Summary: This article summarizes important aspects of illegal immigration. We analyse incentives of illegal immigrants as well as those of their employers by applying basic principles of labour economics, and by customising the workhorse of the economic theory of crime to suit the labour market for illegal immigrants. In addition, we describe the economic and social consequences of possible market outcomes.

JEL classification: F22, J31

Authors:

Horst Entorf	Jochen Moebert
Professor of Applied Econometrics	Research Asssistant
Darmstadt University of Technology	Darmstadt University of Technology
Department of Economics	Department of Economics
Marktplatz 15 (Schloss)	Marktplatz 15 (Schloss)
D-64283 Darmstadt	D-64283 Darmstadt
Tel. (+49)6151/16-2436	Tel.(+49)6151/16-6920
entorf@vwl.tu-darmstadt.de	moebert@vwl.tu-darmstadt.de
http://www.tu-darmstadt.de/fb/fb1/vwl2/	http://www.tu-darmstadt.de/fb/fb1/vwl2/

The Demand for Illegal Migration and Market Outcomes

Migration is a source of economic growth in many countries. The US, for instance, is growing more dependent on Mexican than on native-born labour. A large share of migrants have entered the US as 'illegal or unauthorized immigrants' by avoiding official inspection, passing through inspection with fraudulent documents, or by entering as a tourist and overstaying the term of their temporary visas. While it is extremely difficult to estimate the undocumented population, analysts place the figure at somewhere between 8 and 9 million in 2001, estimating growth of around 500,000 each year.[1] Mexico remains the leading country of origin, being the source of nearly half of the total. Estimates for the number of illegal migrants living in Germany given without reference and explanation in publications of unions, parties, churches, and other official institutions vary between 500,000 and 1.5 million. Schneider (2003) estimates a number of 1.2 million illegal immigrants in Germany. Official and discretionary national policies reveal that illegal immigration is part of the nations' labour demand. In particular the US practice of repeated amnesties to legalize unauthorized immigrants shows the demand of the booming US economy for labour, irrespective of whether it is legal or illegal. Germany has never declared any amnesties for illegal migrants, but nevertheless represents a second type of countries with high demand for illegal immigration, despite - or just because of - the rather recessionary situation of the German economy. As will be described in more detail in this article, among the most prominent reasons are high incentives of firms and private households to avoid and to circumvent pressures stemming from high labour costs, social security payments and taxation.

Illegal labour markets are highly regulated. Of course, the regulation is quite different from some regulated legal European labour markets because of its clandestine and illegal nature. Notwithstanding this, tolerance towards illegal migration and the degree of regulation is dependent on time and location. Again, the US provides a good example. While the time-dependency is obvious from the presence or absence of amnesties, country-specific regulation becomes evident from the different treatment of the Mexican and Canadian borders. According to MPI (2002), there are currently approximately 9,150 border patrol agents working along the 2,000-mile US-Mexico border, while there are only approximately 334 agents working along the 4,000-mile US-Canada border. This example of asymmetry in

---

[1] See MPI (2002).

border enforcement shows that countries like the US would like to control the quantity of labour and the quality of labour skills in response to the prevailing economic and political situation.

Summarizing problems associated with illegal migration, there are two main popular arguments. First, citizens of the home-country society may be concerned about an increasing number of crimes. Second, as motivated above, illegal immigrants could be attracted by (illegal) labour demand, enter national labour markets and push out native workers. In this article we are going to discuss the second issue[2], while the problem of crime and immigration is discussed elsewhere.[3] Especially, we will describe the incentives of national entrepreneurs as well as those of immigrants and summarize important results concerning the consequences of the demand for illegal immigrants. Gary Becker's (1968) Nobel-prize winning theory explaining illegal individual behaviour will be used to understand the behaviour of participants of the market for illegal immigrant labour.[4] Market outcomes and consequences in terms of costs and benefits of illegal migration are discussed in extra sections.

Demand for illegal immigrant labour, migration decisions and market outcome

Immigrants weigh up their chances and risks before entering a host-country to work illegally. We suppose people try to make the best of their opportunities and abilities. They take into account restrictions caused by markets, institutions, and other individuals. The most important incentive to work abroad is a boost in personal income. The expected income of an illegal immigrant is uncertain because a possible apprehension and deportation by both the home- and host-country authorities is accompanied by a loss in real or potential earnings. The migration decision depends on the difference between the expected gain from the uncertain income in the host-country and the relatively fixed income in the source country. In contrast to legal migrants, illegal migrants need to take into account the probability of being detected and the severity of some potential penalty. Information on such figures can be gathered from public media and from homecomers who are asked how successful or painful the work abroad

---

[2] We do not consider problems associated with demand in the sense of 'pull factors', e.g. due to achievements of the welfare state, see, for instance, Meyer (2003).
[3] See Entorf and Larsen (2004)
[4] Earlier examples are given by Ethier and Entorf who formalized the market of illegal migrants. Ethier investigates the impact of different deterrence instruments in a general equilibrium framework, while Entorf studies the behavior of illegal immigrants and policy implications in a partial model.

was. Gathering information means nothing else than estimating the detection probability, possible penalties, and the attainable wages in the host-country.

Explaining the behaviour of entrepreneurs in the host-country is possible via the same maximizing scheme. Wages for illegal workers are costs for the entrepreneur – without giving the state its piece of the cake. Furthermore, no job protection exists for clandestine workers. Hence, the entrepreneur has the opportunity to hire and fire in correspondence with current demand. In a ceteris paribus analysis where we fix product price, marketable amount and quality of a product, as well as the amount of input factors, the maximization of earnings is identical to minimization of the input price, i.e. minimizing wages. All these assumptions are especially reasonable in markets for "low-skilled" products where education and experience of workers are less important. However, if an entrepreneur employs illegal immigrants he faces some additional expected costs due to the risk of being detected and punished. The probability of being detected and the sentence in the case of detection determine the demand for illegal workers in a company.

Thus, both entrepreneurs and illegal immigrants are deterred by a high detection probability and hard fines which can both be controlled by national governments. Frequent authorization checks, for instance, make hiring illegal workers a risky buisness, and increasing sanctions for employers reduces the incentive to employ foreigners without work permits. As a consequence, the demand for illegal labour would decrease at given wages or, if illegal labour supply is rigid, "profitable" wages of illegal workers would drop, such that potential income opportunities from illegal migration would fall.

Other measures such as increasing minimum wages might lead to higher demand for illegal immigrant labour, because higher minimum wages increase the pressure on employers to hire illegal immigrants. Labour market policy, therefore, might have some unintended influence on the number of illegal immigrants. In many EU-countries the strong influence of trade unions has led to a rise in minimum wages. In a highly competitive economic environment, higher wages increase the incentive to hire illegal migrants and dismiss low-educated native workers. However, as low-skilled employees (and not low-skilled unemployed) represent typical union members, an increasing size of the illegal workforce might negatively affect the coverage rate of unions. Foreigners will become union members only if they are part of the

official workforce. Thus, the raise in the minimum wage could be counter-productive not only for the number of profitable jobs but also for unions themselves.

In Figure 1 arguments listed above are illustrated using the basic tools of economists and employing Becker's arguments of deterrence. Entrepreneurs' demand curve dd for illegal immigrant labour (which includes the demand provided by private households) is downward sloping, i.e. demand increases when the wage (wage costs for entrepreneurs), π, of illegal labour decreases. The supply curve ss symbolizes the manpower offered by immigrants. p represents the probability of detection and f the severity of sanction. If one or both of these policy variables are scaled up then employment of illegal workers is becoming more costly and thus less attractive to employers.[5] This is shown by a shift of the demand curve resulting in the curve d'd'. This shift comes along with a lower wage π^* for illegal workers and a smaller number q^* of them in the labour market.
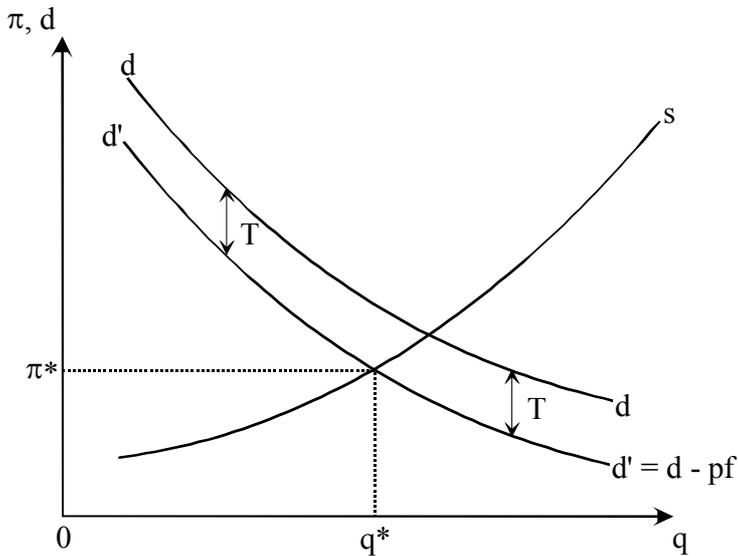

Figure 1: The market for illegal migration

Parameters p and f, set by immigration policy, change the maximization calculus of a risk neutral entrepreneur. If supply curves both of illegal immigrants and demand curves of

---

national entrepreneurs are elastic then the burden of fines are shared by both groups. Introducing fines on employers also reduces profits from illegal work for immigrants. They are afraid of apprehension and loss of their wages. Thus, similar to the shift of the demand curve, supply of illegal migrants might be curbed by stronger controls or sanctions, such that equilibrium wages paid to illegal migrants might go up again. In Figure 1, however, we assume that the supply side is rather unaffected by measures of deterrence (as confirmed by the US-Mexican experience).

Consequences and cost-benefit considerations

Both the national entrepreneur and immigrants benefit from the income differential between home and host-countries. If entrepreneurs are risk neutral and maximize their expected income then we should expect a high percentage of illegal immigrants in the EU workforce. Since illegal immigrants are always clandestine workers, taxes as well as payments to the social security system could be retained by the employers. The estimation of the damage caused by illegal work is a difficult task. Experts agree that illegal work is gaining in importance. During the last 15 years, the size of the shadow economy has increased relative to the national income in most European EU countries. The percentage of the shadow economy is within the range of 9.5 percent for Switzerland and 28.3 for Greece (see Schneider for all numbers quoted[2]). The most important EU-countries have the following quotas: Germany 16.8 percent, France 14.8 percent, and Great Britain 12.3 percent. In Germany there were 9.42 million illegal native workers and 1.225 million illegal immigrants in 2003, whereas these numbers were 7.32 million and 0.878 million in 1995. Of course, such numbers are pure guess-estimates and are based on full-time equivalents of estimated working hours which in turn were calculated from figures of illegal production.[6] If Schneider's estimate are correct, then demand for illegal immigrants goes along with the rise in demand for illegal native workers. Hence, it is reasonable to conclude that the number of illegal immigrants is more demand driven then determined by the supply side, i.e. conditions in countries of origin. Otherwise, we should have seen a displacement of illegal native wokers by illegal immigrants.

---

[6] All figures are based on the currency demand approach. Schneider calculates current figures. Schneider and Enste (2000), p.81, presents a long-run perspective on a smaller sample.

Thus, we argue that factors which increase the informal economy likewise increase the flow of illegal immigration.[7]

When evaluating the consequences of immigration on the economy it is often distinguished between skilled and unskilled labour. As high-skilled immigrants typically are legal immigrants we omit this discussion here. Illegal immigrants typically are unskilled and compete with unskilled native workers. It is estimated that with a low unemployment rate the impact of immigrants is modest. This result can change in the presence of a high unemployment rate. Following Zimmermann (1998), the loss in GNP in the presence of an undamped laissez-faire immigration policy could be up to five percent.[8] In a recent paper, Angrist and Kugler (2003) also found a strong negative impact on the unemployment rate if the share of immigrants in the EU increases.

Illegal immigration could have positive effects on the wealth of nations. In addition to the argument backed by US experience that illegal migration might fill the gap of significant labour shortages in booming economies, it could be argued that illegal immigrants are substitutes for low-skilled workers and complements for high-skilled workers.[9] In the short-run we could also expect that employment of illegal immigrants is a mechanism to erode inefficient regulation and bureaucracy. Moreover, a high number of foreigners in a host-country could increase cultural diversity. In the long-run we could expect a positive effect on foreign trade because of well settled cultural and ethnic channels between receiving and sending countries. After all, the impact of illegal immigrants crucially depends on the unemployment rate as well as on the behaviour of unemployed natives. Results of empirical studies estimating the effect of legal and illegal immigration in Europe are rather mixed.[10]

Our previous discussion is based on economic arguments. However, social costs are likewise important. In European countries with dominant labour migration citizens have rather negative sentiments towards immigrants, in contrast to the situation in traditional countries of migration (Australia, Canada, New Zealand and USA) where most immigrants are selected according to education and skill needs (with the exception of the US). In particular, low-educated employees who compete with immigrants for scarce jobs tend to have strong

---

[7] A comprehensive survey is given in Schneider and Enste (2000), Section 3 ('The Main Causes of the Increase').
[8] Similar figures are calculated by Borjas (2003) for the US labor market.
[9] See Zimmermann (1998) as well as Del Boca and Venturini (2003) for the situation in Italy.
[10] See Zimmermann (1995).

negative sentiments.[11] Thus, employment of illegal immigrants might cause xenophobic movements which could hinder the integration of legal immigrants and thus finally lead to high economic as well as to intangible costs.

---

[11] See Bauer, Lofstom, Zimmermann (2000). Similar are results for the United States, see Scheve and Slaughter (2001).

References

Angrist, Joshua. D., and Adriana D. Kugler (2003): Protective or counter-productive? Labour Market Institutions and the Effect of Immigration on EU Natives, The Economic Journal, Vol. 113, F302-F331.

Bauer, Thomas K., Magnus Lofstom, and Klaus F. Zimmermann (2000): Immigration Policy, Assimilation of Immigrants and Natives' Sentiments towards Immigrants: Evidence from 12 OECD-Countries, IZA Discussion Paper No.187.

Becker, Gary S. (1968): Crime and Punishment: An Economic Approach, Journal of Political Economy, Vol. 76, 169-217.

Boca, Daniela Del, and Alessandra Venturini (2003): Italian Migration, IZA Discussion Paper No.938.

Borjas, George J. (1999): Immigration and Welfare Magnets, Journal of Labor Economics, Vol. 17, No. 4., 607-637.

Borjas, George J. (2003): The Labor Demand Curve is downward sloping: Reexaming the Impact of Immigration on the Labor Market, Quarterly Journal of Economics, November , 1335-1374.

Entorf, Horst (2002): Rational Migration Policy should tolerate non-zero illegal Migration Flows: Lessons from Modelling the Market for Illegal Migration, International Migration, Vol. 40(1), 27-43.

Entorf, Horst, and Claus Larsen (2004): Crime and Immigration in Denmark and Germany, in: Torben Tranaes and Klaus F. Zimmermann (eds.), Title tba (book on living conditions of immigrants in Denmark and Germany), forthcoming.

Ethier, Wilfried (1986): Illegal Immigration: The Host-Country Problem, American Economic Review, Vol. 76, No. 1, 56-71.

Meyer, Susanne (2003): Sozialausgaben der OECD-Staaten: Ein Pull-Effekt der Migration?, Darmstadt Discussion Papers in Economics, No. 124.

MPI Staff: U.S. in Focus, Migration Policy Institute, (2002), http://www.migrationinformation.org/USfocus/ (January 3rd, 2004).

Scheve, Kenneth F., and Matthew J. Slaughter (2001): Labor Market Competition and Individual Preferences over Immigration Policy, The Review of Economics and Statistics, Vol. 83, No. 1, 133-145.

Schneider, Friedrich, and Dominik H. Enste (2000): Shadow Economies: Size, Causes, and Consequences, Journal of Economic Literature, Vol. 38, 77-114.

Schneider, Friedrich (2003): Der Umfang der Schattenwirtschaft des Jahres 2003 in Deutschland, Österreich und der Schweiz – Weiteres Anwachsen der Schattenwirtschaft.

Zimmermann, Klaus F. (1995): Tackling the European Migration Problem, Journal of Economic Perspectives, Vol. 9, No. 2, 45-62.

Zimmermann, Klaus F. (1998): Immigration und Arbeitsmarkt: Eine ökonomische Perspektive, IZA Discussion Paper No.7.