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How many irregular residents are there in Germany? Estimates on the basis of police criminal statistics

Hamburg Institute of International Economics. Database on Irregular Migration.
Working Paper No.3/2009
http://irregular-migration.hwwi.net/

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Database on Irregular Migration (http://irregular-migration.hwwi.net)

Despite the political relevance of irregular migration, assessments of the size of the irregular migrant population are often vague and of unclear origin. This website aims at increasing transparency in this sensitive field. The database provides an inventory and a critical appraisal of data and estimates in the European Union and in selected member states. It contains estimates on the size of irregular migrant populations and indicators of their composition with regard to gender, age, nationality and sector of economic activity. The summarizing tables are designed to give users the best possible overview of quantitative data in the countries, in a simplified form. The researchers involved in the creation of this database are aware that irregular migration is a complex issue. Therefore, quantitative information is accompanied by substantial background materials, both on issues of general concern and on the situation in individual countries.

The database was created in the context of "CLANDESTINO: Counting the uncountable – data and trends across Europe", a project funded by the European Commission, DG Research, Sixth Framework Programme. CLANDESTINO started in September 2007 and will conclude in 2009 (http://clandestino.eliamep.gr/). The Hamburg Institute of International Economics (HWWI) hosts the database and aims at complementing and updating it in the coming years.

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CLANDESTINO

Table of contents

1 Introduction: Why counting the uncountable? 4
2 Methods and data: A multiplier estimate based on police criminal statistics 5
3 Results: Number lower than previously believed 10
4 Discussion: Potential improvements 12
5 References 13

1 Introduction: Why counting the uncountable?

Irregular residents in the sense of this working paper are persons who are present on the territory of the Federal Republic of Germany without having the appropriate authorization for their stay, including tourists abusing their stay for work and excluding asylum seekers, officially tolerated persons and EU citizens. The size of this group is difficult to estimate as its members have an interest to hide themselves from all government accounting efforts and to be careful to self-identify in surveys. Speaking openly about a missing residence status is particularly risky in Germany. Illegal residence is considered a crime that the police are obliged to investigate if they are informed about the alleged illegal presence of foreign nationals. All public servants are legally obliged to inform the foreigners' authorities about the presence of irregular residence, at least if they check documents in the course of their work.

In this situation, the Federal Agency for Migration and Integration holds the position that estimates of the size of irregular resident populations cannot achieve a degree of exactness suitable as a basis for public decision making, and consequently avoids any effort to do so, pointing also to the difficulties arising from fluctuation and transit migration. According to the agency, traces of irregular residence in official data should only be used as indicators for developments (Bundesamt für Migration und Flüchtlinge 2008:159). They refer to widely diverging, poorly founded estimates that are present in the media without quoting any of them.

Indeed, most estimates that are quoted in public discussions seem to go back to Jörg Alts efforts to extrapolate from his empirical analysis in different German cities, particularly in Leipzig and Munich. In a web-published paper presented first in 2001 and revised several times until 2004, he explains that local estimates are based on information from field research, secondary analysis of administrative data and the collection of expert opinions. He calculated how his estimates related to the population of the cities and extrapolated them to all German cities with more than 200 000 inhabitants in Germany by using population multipliers of 1 to 3 percent (Alt 2004). However, it remains unclear which calculations exactly lead to his final local estimates and estimates for Germany. He considered a stock of 1.5 million persons before 2004 as plausible estimate. After the EU enlargement in 2004 which lead to a de facto legalisation of irregular migrants from important countries of origin, in particular from the Polish neighbour state, he indicated a level of about 500 000 to 1 million persons (Alt 2004).

This paper aims at delivering a new estimate for Germany, using police criminal enforcement data. It argues that shortcomings and biases of these data does not make them unsuitable for delivering rough minimum and maximum estimates, although they may be unsuitable for many other purposes. For several reasons, it is considered to be important to have such estimates, even though they may never achieve the degree of same exactness as other population figures. However, it should not be forgotten that statistical population accounting is not as exact as it may seem. For example, a data revision in 2004 lead to a reduction of about 600 000 persons in the official population (BAMF 2008:175).

First, the media demands estimates. Irregular migration is a sensitive topic which makes it to the public agenda every now and then. When there are no serious attempts to estimate the size of irregular migrant populations, journalists are likely to quote any numbers which are available, even if they are forwarded with the aim of dramatizing or downplaying the situation.

Second, I do not follow the reasoning of the Federal Agency for Migration and Integration that estimates of the size of irregular resident populations cannot achieve a degree of exactness suitable as a basis for public decision making. Public decision making is very often based on information that is neither exact nor complete, and this is also the case in the field of

migration control policy. Public decision making does take place every day: New migration control initiatives are developed, regularisation options are negotiated or refused, factual access to fundamental rights and services is facilitated or hindered. The unknown imagined size and development of the irregular migrant population frames such decisions, whether there are serious estimates or not. An explicit transparent estimate facilitates the discussion of hidden assumptions of policy making in this field and may thus contribute to fact-based policy making.

Third, the publication of a transparently calculated estimate may encourage alternative estimates or lead to the improvement of the presented estimation technology. Thus, if this estimate has to be revised in the future, reacting to further information, I would see it as a success and not a failure of the effort of publishing this estimate.

Fourth, the absence of published estimates does not mean that there is an absence of data collection and analysis in this field. The government has instituted a collaboration of all organisations in the field of migration control for the purpose of information sharing and analysis with an office in Berlin with considerable manpower (Gemeinsames Analyse- und Strategiezentrum Illegale Migration, GASIM). This office mainly works for the government with a primary aim of increasing operational efficiency, but of course, their analysis can also shape the government's perceptions on the issue. This is even more the case for the government-lead European policy making process. However, there is a reason to review such information critically. Information provision is necessarily influenced by the specific views and tasks of the collaborating organisations. As the organisations are actors in the field, their natural interest is not transparency but a favourable presentation of their organisation. In contrast, scientific experts in universities and think tanks have less favourable access to information but may provide observations independent of institutional views and interests.

It has to be noted that this estimate was developed on own initiative without specific funding as a side product of two projects which were conducted in 2008/2009: In the project CLANDESTINO, the HWWI team collaborated with other European partners to achieve an overview over irregular migration in 12 countries and took the lead in building up a database on this issue.[1] In another project, available information on the size and structure of the irregular resident population in Hamburg was analysed.[2]

In the second section of this paper, methods and data are presented. The third section contains results of the estimation for Germany. In the final section, I indicate how estimates for Germany could be improved.

2 Methods and data: A multiplier estimate based on police criminal statistics

The method presented here builds on collaborative work of the author with other researchers (Vogel and Kraler 2008), (Vogel and Kovacheva 2008) and (Vogel and Aßner 2009a, b) and the estimate for Austria provided by Jandl (2009).

First, the basic method and idea of the estimate will be explained. Second, the underlying data and their limitation are described.

[1] "CLANDESTINO: Counting the uncountable – data and trends across Europe" was funded by the European Commission, DG Research, Sixth Framework Programme (2007-2009) (http://clandestino.eliamep.gr/)

[2] The study was funded by Hamburg welfare organisations. Working papers in German are available under http://www.diakonie-hamburg.de/illegale.

1.1. Method

The basic idea is that a minimum or maximum estimate is possible when there is a clear and *uni-directional bias* in a data source (Vogel and Kovacheva 2008). A minimum or maximum estimate gives a value below or above which the true unknown value is unlikely to be. If we can assume that irregular residents are more likely to be represented in a particular data set than a measurable group of regular residents that is also included in the data set, the relation between irregular migrants and the reference group can be used to calculate maximum population numbers. If there is a clear indication that they are underrepresented, the relation can be used to calculate minimum population numbers.

The inequation for the minimum estimate can be written as

$$\frac{S^{irr}}{S^{ref}} \leq \frac{P^{irr}}{P^{ref}}$$

with S for Sample, P for Population, irr for irregular residents in the sample and population and ref for reference group in the sample and population (Vogel and Aßner 2009a). This can be transformed into

$$P^{irr} \leq \alpha^{ref} \times P^{ref}$$

with the multiplier α defined as

$$\alpha^{ref} = \frac{S^{irr}}{S^{ref}}$$

For the maximum estimate, the same inequation is used with changing 'smaller than' $\leq$for 'larger than' $\geq$.

Further information is needed to clarify whether a data bias is really uni-directional. In the following part, I follow the reasoning of Jandl (2009) that irregular residents are underrepresented in German criminal police statistics in relation to regular foreign residents and overrepresented in relation to German nationals, provided criminal acts in relation to the residence law are excluded from the analysis. Therefore, I can use the first relation for a minimum estimate and the second relation for a maximum estimate.

Theoretical and empirical reasons can be forwarded to support these assumptions. Theoretically, a rational choice consideration supports the view that irregular migrants should avoid criminal activities and detection more than regular foreign residents and Germans. Irregular migrants face systematically higher sanctions compared to regulars. This is particularly obvious when minor offences like shop theft or fare-dodging are concerned. For example for fare-dodging, the benefit is the price of the ticket. The potential cost is much higher for irregular residents than for regular residents. Regular residents only face a minor fine, while irregular migrants are additionally sanctioned with deportation and charging of the deportation costs. All qualitative studies with interviews with irregular migrants indicate that they are aware of this risk and avoid criminality and police contact, see for example (Alt 2003:164).

Of course, other factors also influence whether a group in the population is more or less likely to be included in the police criminal statistics, particularly the persons' willingness to take risks and the likelihood that they are reported as suspect of a crime or come into the focus of police detection strategies. The higher the share of youth and young adults compared to small children and older people, and the higher the share of males compared to females, the higher

the probability to commit crimes and to be suspected of crimes. The Federal Crime agency in Germany concludes: „Persons without German citizenship on the territory of Germany are compared to the German population on average younger and more likely to be male. They live more often in big cities, have a higher share of low income and low educational background and are more often unemployed. All these factors lead to a higher risk of becoming a suspect to the police." (Bundeskriminalamt 2008:105, own translation). This analysis applies as well to regular and irregular residents.

Reporting and police detection reacts to deviations from stereotypes of the majority population: When a person is perceived as 'foreign', for example as a black person or because of speaking a foreign language, he or she is more likely to be reported to the police and to come into the focus of police controls. Such practices are not widely scandalized in Germany as for example in the United States or the United Kingdom (Vogel et al. 2009). As irregular resident populations include high shares of young adults[3] and of persons not corresponding to the stereotype of the German majority (white, native speakers of German), these factors make them more likely to be included in police criminal statistics than groups without these socio-demographic features.

Thus, behavioural factors indicate a low likelihood of irregular migrant populations in police criminal statistics, whereas structural factors indicate a higher likelihood. Therefore, irregular migrants are underrepresented in comparison to structurally similar groups, but may be overrepresented in comparison to structurally different groups.

For this estimate, it is assumed that irregular residents are underrepresented in police criminal statistics compared to registered foreign nationals and overrepresented compared to Germans, provided that only those criminal acts are taken into account that are not specific for irregular residents (everybody-crimes)[4].

1.2. Data

For this estimate, police criminal statistics are used as they are published yearly by the Federal Criminal Agency (Bundeskriminalamt). It includes a table displaying non-German persons suspected of a crime by reason of residence (Bundeskriminalamt 2008: Annex table 61). Non-German persons are all persons without German citizenship. Foreign nationals are used synonymously. A person is entered into police criminal statistics when police reports the case to the public prosecution office. Thus, police have already made primary investigations to clarify the case. Due to encompassing registration obligations and identity cards both for the German and the foreign national population, it is relatively easy to verify a German or foreign regular residence. In addition, foreign nationals are registered in an electronically accessible database (central foreigners register). Therefore, it is unlikely that the police indication of illegal residence in the police criminal statistics is biased by false suspicions. The police may erroneously suspect illegal residence, but that they will notice the mistake before entering a case in the criminal statistics.

[3] It is as difficult to estimate the composition of the irregular migrant population as the absolute size. Kovacheva (2009 – Manuscript) presents arguments that the size of the male share was previously probably overestimated.
[4] In an estimate for Hamburg, Vogel and Aßner (2009a) coined the German term 'Jedermann-Straftat' for these crimes which is here translated as 'everybody-crimes'.

Table 1 Suspects in the police criminal statistics 2007 by type of suspected criminal activity

	Suspects		total	German citizens	Legally registered foreign nationals[e)]	tourist, transit, foreign armed forces	illegal
Suspected criminal activities	Total	abs.	2 294 883	1 745 706	452 034	38 244	58 899
		in % of total	100.0%	76.1%	19.7%	1.7%	2.6%
	Total without residence crimes only[a)]	abs.	2 225 139	1 790 946	386 472	36 816	10 905
		in % of total	100.0%	80.5%	17.4%	1.7%	0.5%
	Residence crimes[b)]	abs.	81 389	3 708	23 174	1 629	52 878
		in % of total	100.0%	4.6%	28.5%	2.0%	65.0%
	Illegal residence[c)]	abs.	34 469	832	5 629	464	27 544
		in % of total	100.0%	2.4%	16.3%	1.3%	79.9%
	Illegal entry[d)]	abs.	28 311	277	3 482	681	23 871
		in % of total	100.0%	1.0%	12.3%	2.4%	84.3%

Source: (Bundeskriminalamt 2008:table 61) and own calculations

a) Police criminal key 8900 (everybody-crimes); b) Police criminal key 7250; c) Police criminal key 7257; d) Police criminal key 7251; e) calculated as total legal minus tourists/transit minus foreign armed forces minus illegal

The classification into categories of persons according to the reason of residence does not strictly correspond to legal residence or social status. When compiling a case for the statistics, officers have to indicate first whether a person is legally or illegally in the country. For legal residents, they have to tick one of the following categories: employee, self-employed, student, asylum seeker, tourist/transit, member of the foreign armed forces and their relatives, other. Other is the biggest category. For Austria, Jandl (2009) eliminated the category of 'other' by distributing suspects over the other categories according to their share of suspects, adjusting also the number of illegally present suspects. For Germany, this data adjustment is not adequate. 'Other' is clearly only a subcategory of legal residents. There are big legal categories of persons who should be subsumed under 'other' such as family migrants who are not in the labour force and tolerated persons. In addition, tourist/ transit is a clear category for legal non-resident suspects.

However, there are a number of unclear aspects in the police criminal statistics concerning illegal residence which Lederer (Lederer 2004) and Alt (Alt 2004) describe in some detail. It

should be noted that the total number of persons against whom the police investigates because of residence crimes (52 878) is lower than the total number of persons who are considered to be illegally present in the country (58 899). A considerable number of those who are registered as illegal were apprehended at the border when entering or leaving the country, with a total of 23 871 charges because of illegal entry. Fortunately, these problems are of minor relevance for this study as I restrict the analysis to those persons who are also under investigation because of non-residence-related crimes (10 905). Apart from residence-related crimes, irregular migrants are mainly suspected of crimes which are related to drugs (1429), theft (1924), fare-dodging (1053), crimes involving bodily harm (937) and – most importantly – fraud and other capital-related offences (6981). Forging of identity documents is also included in this highly diverse category. This is more likely for irregular residents. The numbers cannot be added, as the same person can be counted under different categories. We assume that identity fraud is often detected when someone is under investigation for another crime, so that the high incidence of document fraud does not corrupt the calculation. This seems plausible in light of high numbers of other crime.

For three reasons, there are only estimates for the period 2005 to 2007. First, in 2004 there was a revision of population data, leading to a decrease in the regular registered population of about 600 000 (Bundesamt für Migration und Flüchtlinge 2008:175). Second, the police criminal statistics on foreign nationals who are suspected of not only because of residence crimes had major deficiencies until 2004 (Bundeskriminalamt 2008:105). In principle, one could account for some of the problems, but this cannot be done in the framework of this study, as it would require unpublished data and additional expert interviews. Thirdly, in 2004 10 new states became member states of the European Union, changing the political framework substantially after 4 month of the year.

With regard to the year, it has to be noted that the multipliers are calculated on the basis of case data that is collected throughout one year. However, stock estimates are made with these data. However, stock estimates are made for the end of the year, applying the multiplier to German population data for the 31 Dec of the year in which the police statistics was compiled. When there is a sharp decline or increase of the number of suspects during the year, the number may seem slightly too high or too low. However, given the roughness of the calculation presented below, this is not likely to have a high impact unless there are substantial changes within the year (as in 2004 which effectively legalized a large number of formerly irregular residents with regard to their residence rights). When applied to the European level, 2007 estimates for Germany should be considered 2008 estimates as population numbers in European statistics are usually given as 1 January instead of 31 December.

3 Results: Number lower than previously believed

Table 2 presents the calculation and results of the minimum estimate. The first column includes all illegally present persons who were suspected of 'everybody-crimes' in 2007 (meaning not only of residence crimes like illegal residence). The second column includes all registered foreign nationals suspected of everybody-crimes. The multiplier in the third column is calculated from these numbers and applied to the regular foreign national population in the next column. The final column gives the result which is interpreted as minimum estimate.

In the second row, you will find the abbreviations which were introduced above in the method section. Here, the sample S consists of suspects of crime in the police criminal statistics. The reference group are registered foreign national so that ref was changed to reg. The estimate of the irregular migrant population is characterised as minimum estimates (min).

Table 2 Minimum estimate of the irregular resident population 2007

Year	Irregular foreign suspected of everybody-crimes	Registered foreign suspected of everybody-crimes[a)]	multiplier	Foreign national population	Estimated minimum irregular migrant population
	S^{irr}	S^{reg}	α^{reg}	P^{reg}	$P^{irr,min}$
2007	10 905	375 567	2.90%	6 744 879	195 845
2006	13 224	373 853	3.54%	6 751 002	238 798
2005	16 083	388 707	4.14%	6 755 811	279 526

Sources: Population: (Bundesamt für Migration und Flüchtlinge 2008:175); criminal data: (Bundeskriminalamt 2008) Annex T61, own calculations

a) Calculated as total legal suspects minus tourists, foreign armed forces and illegally present foreign nationals

Under the assumption that irregular residents are underrepresented in police criminal data compared to the registered foreign national population, there are at least 196 000 irregular foreign residents in Germany in 2007. The number declined from about 280 000 in 2005. The basic argument is that irregular migrants face much higher sanctions if they commit a crime, while they are otherwise similar with regard to socio-demographic characteristics influencing the likelihood to be included in police criminal statistics (such as age or complexion).

Table 3 presents the calculation and results of the maximum estimate. Here, the second column includes all German nationals suspected of everybody-crimes. The multiplier in the third column is applied to the German population which results in a maximum estimate.

In the second row, you will find the abbreviations from the method section with the sample S consisting of suspects of crime in the police criminal statistics. The reference group are German citizens so that ref was changed to ger. The estimate of the irregular migrant population is characterised as minimum estimates (max).

Table 3 Maximum estimates of the irregular resident population 2007

Year	Irregular foreign suspected of everybody-crimes	Registered German citizens suspected of everybody-crimes	multiplier	German citizen population	Estimated maximum irregular migrant population
	S^{irr}	S^{ger}	α^{ger}	P^{ger}	$P^{irr,max}$
2007	10 905	1 801 851	0.61%	75 513 390	457 015
2006	13 224	1 776 908	0.74%	75 563 904	562 357
2005	16 083	1 790 006	0.90%	75 682 189	679 996

Sources: Population: (Bundesamt für Migration und Flüchtlinge 2008:175); criminal data: (Bundeskriminalamt 2008) Annex T61, own calculations

Under the assumption that irregular residents are overrepresented in police criminal data compared to the German population, there are at most 457 000 irregular foreign residents in Germany in 2007. The number declined from about 680 000 in 2005. The basic argument is that irregular migrants are much more likely to be included in criminal statistics because of their socio-demographic characteristics, although they face strong incentives to avoid criminality and the police. In the German population, the share of aged persons (65 years and more) is about 20 percent, while it is about 6 percent in the foreign national population (Beauftragte der Bundesregierung für Migration 2007:Annex p. 211). In addition, all other socio-demographic characteristics indicate the likelihood that irregular residents are overrepresented. Jandl (2009) has convincingly argued for the Austrian case that these structural factors are likely to overcome the behavioural factors of the relative crime and police avoidance of irregular migrants. However, as we do not have a statistical indication of the size of the behavioural effect, we cannot be sure. When estimating the size of the irregular migrant population in Hamburg, Vogel and Aßner (Vogel and Aßner 2009a) calculated a second more reserved upper boundary on the assumption that persons without residence status are surely overrepresented compared to the regular foreign resident population when residence crime is included in the analysis. For the national level, a similar calculation can be made. As irregular entries are of much higher importance on the national than on the Hamburg level and are more likely to be discovered at the borders, they have to be subtracted, as persons discovered during irregular entry probably never lived on the territory of Germany.

Such a calculation results in maximum estimates of 749 000 in 2005 and 538 000 in 2007. In 2007 for example about two thirds of all suspects are in the police statistics only for residence-related crimes, while about one third is also included because of offences against everybody-crimes. It should be remembered that the statistics does not display all persons who have been asked for identification. If there is for example a drug raid in a disco in which 100 people have to show proof of their identity, none of these cases will turn up in police criminal statistics, except for those involved in everybody-crimes or those without residence status. Keeping these relations in mind, the alternative estimate presents a very reserved calculation of a maximum estimate. However, the difference is not large compared to the margins of error that are common in this type of estimation. The upper estimate based on the multiplier of everybody-crimes compared to the German population does not loose plausibility after this alternative calculation.

Table 4 Alternative calculation for maximum estimate of the irregular resident population 2007

Year	Irregular foreign suspected of crime (except irregular entry)	Registered foreign nationals suspected of crimes	Multiplier	Foreign national population	Estimated maximum irregular migrant population
	$S^{irr, all}$	$S^{reg, all}$	α^{all}	P^{reg}	$P^{irr,max,alt}$
2007	31 355	393 135	7.98%	6 744 879	537 947
2006	42 443	395 615	10.73%	6 751 002	724 272
2005	45 371	409 219	11.09%	6 755 811	749 031

Sources: Population: (Bundesamt für Migration und Flüchtlinge 2008:175); criminal data: (Bundeskriminalamt 2008) Annex T61, own calculations

4 Discussion: Potential improvements

The estimate presented in this paper is considerably lower than estimates presented earlier. The latest available estimate indicated about 500 000 to 1 million irregular residents for 2005, while this estimate indicates 280 000 to 680 000 for the same year. The estimates for the following years showed a further decline to 200 000 and 460 000 for 2007.

I am fully aware that these are still very rough estimates with large ranges of error and no way to know whether the true unknown number is closer to the minimum or the maximum estimate. However, it is the first estimate for Germany for which all considerations and calculations are fully documented. Thus, it is easy to criticize the estimate and indicate ways for improvement. It made a step from complaining about poor data availability and quality to making the best possible use of available data. Thus, police data was explored for indications of uni-directional biases that are suitable for estimating minimum and maximum values.

In principle, I see three ways of improving estimates for Germany in the future. The first way is to make more refined estimates along the same lines as these estimates, using more detailed unpublished police data and seeking more intense discussions with police data experts.[5] Secondly, the estimates can be contrasted with similar estimates based on other data sources and more intensive expert discussions. A systematic appraisal of all available data and communicative validation has been coined as 'logicom-method' in the framework of the study on Hamburg (Vogel and Aßner 2009a). For example, rough calculations with published data of the labour inspections indicated a maximum number of 300 000 irregular residents working in private companies (Cyrus 2008:55), a number that is compatible with the estimate. In general, a more comprehensive analysis of data and moderated group interviews with experts could confirm, correct and specify the calculation.

A third way of improvement would be to experiment with trust-based surveys that are designed to include information used for weighting results in order to achieve representativeness, as for example centre sampling approaches used in Italy (Fasani 2008) and respondent-driven sampling approaches (Salganik and Heckathorn 2004). A variation would be the window or GIS method currently tested in the Czech Republic (Drbohlav and Lachmanová 2008). The idea is to make small and intense local surveys and gain detailed socio-demographic characteristics of the neighbourhoods that allow for refined extrapolation to the national level with regression models.

[5] The author is grateful to the police experts that were available for discussion in the framework of estimating the size of the irregular migrant population of Hamburg.

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