Legal or illegal? Preferences on immigration

Key words: illegal immigration, regularisation programme, enforcement policy

Abstract

The political debate about the regularisation programmes for undocumented migrants is nowadays a very controversial issue. The main goal of this paper is to explain why governments decide to grant amnesties to illegal immigrants as a part of their immigration policy. We propose a simple political competition model in which we first derive the voters' preferences over a menu of regularisation programmes. Labour market conditions make skilled workers more pro-regularisations than unskilled workers. We find that in general the policy implemented at the political equilibrium is a partial amnesty programme, which is what happens in the majority of the countries.

"Immigration policy is just another redistribution program. In the short run, it transfers wealth from one group (workers) to another (employers). Whether or not such transfers are desirable is one of the central questions in the immigration debate."[1]

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1. Introduction

Recently, many countries, most of them with a high migration inflow, have granted amnesties to illegal immigrants. Some of these regularisation programmes over the past twenty years are presented in Table 1. In fact, nowadays, regularisation programmes are becoming a more and more important issue in many parliaments of the world. For instance, in Italy, the European country that more frequently has used regularisation programmes, the latest regularisation covered 634.728 illegal immigrants (over 700,000 applicants) in 2002. This regularisation was the second in absolute size among all the others conducted anywhere in the world. The first one in absolute size was the United States' Immigration Reform and Control Act of 1986 (IRCA) with 2,684,900 immigrants regularised. However, in terms of the proportional size relative to the total population, Italy's 2002 regularization was larger. A large number of countries in which the US is included are currently discussing whether to implement this kind of immigration policy or not. An example is Spain, where an important regularisation programme was implemented in 2005.

<center>**Table 1 in about here**</center>

Table 1 also shows that regularisation programs usually do not get undocumented immigrants regularised. It is also shown that not all illegal immigrants that apply for regularisation obtain the legal status. However, there is no information in the table about the number of illegal immigrants that do not apply for regularisation. Therefore, the proportion of illegal immigrants that are regularized is smaller than the approval rate shown in Table 1.

This paper provides an explanation to why governments use to grant amnesties to illegal immigrants as a part of their immigration policy. We propose a model in which we derive the voters' preferences over immigration policy and calculate the political equilibrium number of

legalizations and, as a consequence, the political equilibrium number of illegal immigrants that are permitted to stay in the country. We also provide the conditions under which the regularisation is not complete in the sense that a part of the immigrants are left undocumented.

What are the consequences of a regularisation programme for undocumented immigrants on the host country economy? Orrenius et al., 2004 try to give an answer to this question for the United States' Immigration Reform and Control Act of 1986. They point out two main effects of the amnesty policy in the US economy: the potential effect on the labour market and the fiscal effect on government resources.

About the effect on labour market they present some empirical results that support the point that undocumented immigrants do not have adverse effects on wages in the US (see Hanson et al., 2002). Foreign workers lacking legal status use to take jobs that native workers are not willing to take: typically low-wages jobs, which tend to be temporary, and where working conditions are harsh, unpleasant, and often unsafe. However, in a recent article by Borjas, 2003, he finds that legal immigration lowers the wages of competing US workers which are mostly unskilled workers. Given that undocumented immigrant are mostly unskilled, a regularisation programme would make undocumented workers more substitutable for low skilled natives, thus increasing any negative effect in their wages.

In addition, the number of undocumented migrants and the size of the underground economy seem to be related to each other as it is proven for some Southern European economies in Reyneri, 2003 and for the US in Cobb-Clark and Koussoudji, 2000. The underground sector offers illegal immigrants a wide range of jobs in activities where it is easier to ignore

administrative norms: agriculture, building, small manufacturing firms and services or self-employment. Therefore, an important consequence of regularisation programmes, at least in theory, is that they help migrants to leave the underground economy in which they usually work, providing them with an opportunity to seek better working conditions.

Regarding the fiscal effect on government resources Orrenius et al., 2004 claim that a regularisation programme to undocumented immigrants may reduce the fiscal burdens on the state and local governments. As an example, a major study sponsored by the National Research Council on the impact of immigration did not consider illegal immigrants exclusively; however it concluded that the net fiscal impact of immigrants in California in 1994–95 was about $1,178 per native household (Smith & Edmonston, 1997). Fiscal burden due to undocumented immigrants is mostly produced by illegal immigrants' children that are born in the US. Since they are US citizens they are eligible for any public service.

Consistently with the empirical evidence mentioned, in our model immigrants may affect natives' welfare through the labour market and through the financing of a public service whose consumption can not be fully forbidden to illegal immigrants. There are two sectors in the economy: *i)* the formal sector in which only legal immigrants and natives may work and where legal immigrants affect natives' wages, and *ii)* the informal sector in which the labour supply is only composed by illegal immigrants which are hired by some small firms owned by native employers.

The government has two instruments to reduce illegal immigration: an enforcement policy and a regularisation programme. The former policy is costly and it is financed by tax

revenues, the latter is costless and it raises tax revenue since it transforms employees of the informal sector into employees of the formal sector (i.e. tax payers).

Regarding natives' preferences, in general, we find that skilled workers are more pro-regularisation than unskilled workers. Labour marker conditions such as the complementarities in production of skilled and unskilled labour joint with the higher proportion of unskilled workers among immigrants than among natives, and the segmented job market explain the previous result. However, the same labour market conditions explain that natives' preferences on illegal immigration are the reverse, that is, unskilled natives always prefer a higher or equal number of illegal immigrants than skilled natives.

Such preferences on immigration lead to a surprising result, that is: high-income workers prefer a higher level of public service than low-income workers. This result goes in the opposite direction with respect to the traditional one in the literature on political economics. The intuition for that result is that legal immigrants increase the consumption of public service for all workers but reduce unskilled workers' private consumption. Thus, low-income workers prefer to keep some migrants without legal status in order to substitute public consumption by private consumption. However, this finding may explain the rise of the low income voters' support for more liberal parties in countries with high immigration (usually anti-immigrant parties use to propose low levels of redistribution). Other recent theoretical and empirical papers also support the result that immigration may reduce the level of redistribution and/or the size of the public sector (see Lee & Roemer & Van der Straeten, 2005, and Razin et al., 2002). Nevertheless, these papers do not differentiate undocumented immigrants from legal immigrants.

Once natives' preferences on political instruments are known the political game takes place. We consider the most classical set up which is a *Downsian* two-party political competition model. The choices of parties are the instruments described before: the immigration enforcement policy and the regularisation programme. We suppose that parties are fully committed to implement the policy announced during the electoral campaign. Majority rule is the election rule considered. We show two different scenarios depending on whether the number of migrants that elude the enforcement policy is perfectly predictable by voters or not.

In most of the cases we analyse the policy implemented at the political equilibrium is a partial amnesty programme. That is exactly what happens in the majority of the countries. If skilled workers are the majority group and immigrants are mostly unskilled the unique political equilibrium leads towards a total amnesty to all undocumented immigrants.

In addition, in general, the policy implemented in equilibrium tends to favour unskilled workers against both skilled workers and employers in the informal sector. This finding serves to justify the recent observed electoral campaigns in countries with a high immigration, where they mainly focus on less skilled workers.[2]

The rest of the paper is organised as follows: in Section 2, we briefly review the existent literature on this topic. In Section 3 we formally describe the economic model. In Section 4 we analyse the effects of the immigration policy instruments in natives' welfare. In Section 5 we derive the optimal policies for the different groups of voters. In Section 6 we obtain the political competition equilibrium given voters' preferences. Lastly, in Section 7 we conclude and discuss the obtained results.

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[2] For example, the National Front headed by Jean Marie Le Pen in France, Haider's Freedom party in Austria, Fortuyn's party in the Netherlands or Berlusconi's party in Italy.

2. Related literature

The attention of scholars to topics related to immigration and its effects on host countries has been especially intense until now. There is a large economic literature on the effects of immigration on the host country's economy (see Borjas, (1994, 1995), for excellent surveys).

On the other hand, a still young literature was born twenty years ago with the distinction introduced by Ethier (1986a and 1986b)) between legal and illegal immigration. However, after some time, the importance given by many Western countries to mitigate immigration pressure has raised the attention of scholars to illegal immigration issues.

There are empirical and theoretical papers that analyze the effect of illegal immigration on the host country and the efficacy of some policies to control immigration. Most of these papers focus on the consequences for the host country economy of the implementation of border and internal enforcement as well as employer sanctions to deter illegal entry of foreign workers (see for theoretical examples Ethier (1986a) and Djajic (1997 and 1999), and for empirical examples, Hanson (2002) and Orrenius (2001)). However, there are few papers that deal with amnesty policies to undocumented immigrants as an additional policy to control illegal immigration.

Regarding the amnesty programs the literature offers two types of theories depending on whether illegal immigrants might be desirable or not for the host economy. Karlson and Katz (2003) constitutes an example of the former type of theories. They suggest that rich countries may find illegal immigrants desirable to work in their low productivity sectors. In order to attract this kind of labor force the rich country provides an incentive that corresponds to a positive probability of amnesty. That amnesty allows undocumented workers to move to a

higher productivity sector. On the other hand we have the theory offered by Epstein and Weiss (2000) in which illegal immigrants are undesirable but it may be impossible to completely stem their inflow. The undesirability of illegal immigrants comes from their free-riding behaviour with respect to the public goods and services financed by legal workers in the host country.

Our theory may be more related with the one proposed by Epstein and Weiss (2000) since we also consider illegal immigrants as free riders. In our approach the amnesty policy is also a solution for reducing the number of illegal immigrants that elude enforcement and constitutes a fiscal burden for the host economy. However, we additionally consider that immigration amnesties may worsen natives by reducing natives' wages. The reason for that is that the legal status granted by the amnesty program makes immigrants an input more substitute with respect to some native workers. Then, maintaining illegal immigration can be desirable for some native workers because legalisations of immigrants rises supply of legal workers and, under a downward sloping labour demand, wages fall down. So, as in Karlson and Katz's theory, even in the case where it is possible to stem completely the illegal migration inflow, host countries may find desirable to maintain a positive number of illegal immigrants.

In this sense our proposal falls between the two theories mentioned above. However, our model differs mainly from the rest of existent theories that model immigration amnesties because we address it from a political economy point of view. More precisely, we derive the individuals' preferences over both immigration policies and calculate the political equilibrium number of illegal immigrants.

3. A simple model

Consider a country in which population is composed of native workers, native employers and immigrants. Let P denote the total number of inhabitants, i.e. $P = N+T+M$ where N is the number of native workers, T is the number of native employers and M is the total number of immigrants. Among immigrants there are illegal immigrants M_i and legal immigrants M_l such that $M = M_i + M_l$.

Native workers and legal immigrants

Native workers care about private consumption (c) and the provision of a public service. We assume that all natives consume the same quantity of public service (g). We assume that all natives have the same utility function $V(c, g)$ and it is increasing on both consumption of the private good and of the public service i.e. $V_c > 0$, and $V_g > 0$.

Legal immigrants are similar to native workers. They also care about consumption and consume the same quantity of public service as natives. The unique distinction between native workers and legal immigrants is that legal immigrants are not eligible for voting.

Native workers and immigrants may be either skilled or unskilled. Let $b \in [0,1]$ the proportion of unskilled natives, and $\beta \in [0,1]$ the proportion of unskilled immigrants.

Each worker provides one unit of labour inelastically (there is no value to leisure) but they differ according to their potential income w_i, $i=u,s$. In particular we assume that $w_s > w_u$.

A worker of type i ($i=u,s$), either native or legal immigrant faces a budget constraint: $c_i = w_i(1-\tau)$, where τ is a proportional income tax that government uses to finance the immigration policy and the provision of the public service.

Illegal immigrants

We assume that the amount of illegal immigration that enters the country depends on the amount of immigration which is willing to reach illegally the country and it also depends on the resources devoted by the government to border enforcement. Let $\overline{M}$ be the exogenously given number of migrants that are willing to enter illegally the country and let E be the government expenditure on border and internal enforcement. We represent by M the number of illegal immigrants that elude the enforcement policy and settle in the country. This number depends negatively on E and depends positively on $\overline{M}$, i.e. $M(E,\overline{M})$ with $M_E(E,\overline{M}) < 0$, and $M_{\overline{M}}(E,\overline{M}) > 0$. Because $\overline{M}$ is exogenously given and it will not play any role in our analysis, for the sake of clarity in notation we use $M(E)$ instead of $M(E,\overline{M})$ onwards.[3] We assume that no border and internal enforcement policy and all pubic expenditure devoted to border and internal enforcement policy are both feasible policies, that is $E \in [0, E_{max}]$.

Illegal immigrants that elude the border and internal enforcement policy may be granted an amnesty by the government and become legal immigrants, that is M_l. The rest of immigrants continue with their undocumented status, i.e. they are considered as illegal immigrants, that is M_i. In sum, after the implementation of the immigration policies we have that $M = M_i + M_l$.

Since we are interested in the aggregated voters' decision on immigration policy and immigrants are not eligible for voting, in our model we do not have to analyze immigrants' economic decisions. We focus on the effect of immigrants on voters' economic decision. To

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[3] Therefore, $M'(E)$ will be the equivalent term to $M_E(E,\overline{M}) < 0$.

do so, we simply assume that illegal immigrants enter as free riders\ that consume the same quantity of public service as natives (g), but they do not contribute to its financing.[4]

Native Employers

There are two sectors in the economy: the formal sector and the informal sector. We assume that in the formal sector firms are owned by workers. Nevertheless in the informal sector each firm is owned by a single native employer.[5] Let T be the number of employers in the informal sector. Each native employer only cares about her firms' profits. There is no mobility among sectors.

Firms in the informal sector only hire illegal immigrants that did not become legal by the regularisation programme i.e. M_i. As firms are identical and they are assumed to be price takers each one hires the same number of illegal immigrants M_i / T. For the sake of simplicity we also assume that the production function is given by $f(M_i) = M_i$. Thus, firms' profits are given by:

$$\Pi = (p - c)\frac{M_i}{T}$$

where p is the price, c is the illegal immigrant's wage. Notice that $T > 0$ as long as the informal sector is profitable i.e. $p > c$.[6]

Government

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[4] The effect of immigration on voters' welfare through the increase of immigrants' private consumption is not considered in this paper. Although this is an interested point, the effect of immigration on the provision of public services is a more important political topic, especially in aging societies

[5] The motivation for this assumption is based on the observation that a large number of firms employing clandestine labour tend to be small native businesses (Weiss (1987)).

[6] Notice that c would be a function of a possible expected penalty per illegal immigrant that the firm would have to pay if the government finds out that the firm is hiring illegal immigrants. As the expected penalty is higher the underground sector would become less profitable.

The government provides a public service which is financed by tax revenues. The government also provides an immigration policy that consists on a sequential process: first, the government implements the border and internal enforcement on immigration control (E). Enforcement policy directly reduces the total number of illegal immigrants within a country ($M'(E) < 0$). Second, among the total number of illegal immigrants that elude

the enforcement policy, i.e. $M(E)$, the government decides the proportion of them that are granted an amnesty and become legal immigrants. We denote such proportion by k. Hence, $kM(E)$ is the total number immigrants that are granted an amnesty and it is assumed to be the total number of legal immigrants denoted by M_l.

The government faces the following balanced budget constraint:

$$(1) \qquad E + (M(E) + N + T)g = \left(U(E,k)w_u + S(E,k)w_s\right)\tau$$

The LHS of the government budget constraint (GBC) describes the total government expenditure. This expenditure depends on the expenditure on enforcement policy on immigration control and on the expenditure on public service. We assume that government expenditure on public service depends on the total population living in the country (i.e. $M(E) + N + T$). The RHS of the GBC describes the total Government's tax revenues. Let $\tau \in [0,1]$ the proportional income tax. For the sake of simplicity we assume that τ is exogenously given. Taxes are paid by skilled and unskilled workers which are natives or immigrants benefited by the amnesty program.[7]

We also assume that regularization is equally likely for all undocumented immigrants independently of their skill. This is a reasonable assumption because most of the

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[7] Entrepreneurs in the informal sector and illegal immigrants do not pay taxes.

regularisation programmes do not require any skill proof.[8] That is, the total number of undocumented unskilled workers regularized is $\beta k M(E)$. Nevertheless, the total number of undocumented skilled workers regularized is $(1-\beta)kM(E)$. In sum, both the total number of unskilled workers and the total number of skilled workers depend on the immigration policy instruments E and k. That is, $U(E,k) = bN + \beta k M(E)$ and $S(E,k) = (1-b)N + (1-\beta)kM(E)$.

Summarizing, the policy instruments of the government can be separated in two types: i) immigration policy instruments, namely the immigration enforcement policy (E), and the amnesty policy (k), and ii) fiscal policy instruments, namely the per capita provision of public service (g). Indeed, government's policy instruments are only two since the remaining policy instrument is given by the balanced GBC. For the rest of our analysis we will assume, without lost of generality, that the government's policy choices are the immigration policy instruments E and k, and the per capita provision of public service is given by the government's choices and the GBC.

The Labor Market Equilibrium in the Formal Sector

In the formal sector we assume that all workers provide one unit of labour inelastically (there is no value to leisure) but they differ according to their potential income within each group. Labour force in the formal sector is only composed of natives and legal immigrants but not of illegal immigrants i.e. $L = N + M_l$.

There is one aggregated production function, that represents the production of a single consumption good from unskilled and skilled labour, denoted by $Y(U,S)$. The production

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[8] Implicitly, it is assumed that skilled undocumented workers do not face better conditions on key issues during the regularization process such as administrative affairs or access to information, than unskilled undocumented workers.

function Y exhibits constant returns to scale, is differentiable and possesses the usual properties of the neoclassical CRS production functions.

Define u as the proportion of unskilled labour over skilled labour in the economy, i.e. $u = U/S$. Thus, by the CRS property we can define $y(u) = Y(u,1)/S$. Then, the function y denotes the average product of skilled labour in the economy. We assume that y is continuous and differentiable. The firm takes the price of output as given, which is assumed to be set exogenously by the world market. We normalize the price of output to unity.

The competitive equilibrium in the labour market in the formal sector is defined as a pair of wages for skilled and unskilled labour (w_s, w_u) such that:

$$w_u = y'(u)$$

$$w_s = y(u) - u\, y'(u)$$

Notice that by the concavity of $y(u)$ it follows that $w_s > w_u > 0$. The complementarities among skilled and unskilled labour in production implies that an increase on the proportion of unskilled versus skilled workers, i.e. an increase on u, reduces the unskilled workers' wages and increases the skilled wages. That is:

$$\frac{\partial w_u}{\partial u} = y''(u) \leq 0$$

$$\frac{\partial w_s}{\partial u} = -u\, y''(u) \geq 0$$

4. Welfare Effects of Immigration Policies

Since immigrants may affect natives' welfare through different channels, namely the labor market (wages) and the financing of a public service, immigration policies may also affect natives' welfare through the same channels.

We explore in this section the welfare effects of the different immigration policies. We do that analyzing the consequences on wages and on the provision of public service of a change in one immigration policy, keeping the rest of the government's policy choices constant.

The Enforcement Policy

Natives Workers

A possible policy for the government to reduce illegal immigration is the enforcement policy. *Ceteris paribus*, the enforcement policy may affect both workers' wages and the per capita consumption of public service (that is assumed to be the same for all voters).

First, a rise on the expenditure devoted to immigration enforcement policy may increase, decrease or leave the natives' wages constant depending on the distribution of the immigrants' skill. In particular, if the inclusion of immigrants in the labour market makes the entire labour force less skilled then the unskilled workers' wage decreases in equilibrium. However, the skilled workers' wage increases in equilibrium. That is because of:

$$(2) \qquad \frac{\partial w_u(u)}{\partial E} = \frac{y''(u)kM'(E)}{S}\big(\beta - (1-\beta)u\big)$$

$$(3) \qquad \frac{\partial w_s(u)}{\partial E} = -u\frac{y''(u)kM'(E)}{S}\big(\beta - (1-\beta)u\big)$$

Thus, given *k*, if $\beta/(1-\beta) > u$ we have that $\frac{\partial w_u(u)}{\partial E} > 0$ and $\frac{\partial w_s(u)}{\partial E} < 0$. That is, if the proportion of unskilled immigrants is higher among immigrants than among natives an

increase in the expenditure on enforcement decreases the number of legal immigrants M_l and it implies a higher unskilled worker's wage and a lower skilled worker's wage. Therefore, the enforcement policy affects workers' consumption of private good. If the proportion of immigrants legalized, k, is constant, enforcement policy reduces the number of immigrants legalized $kM(E)$ and then it reduces relatively less (or more) skilled labour supply. It has consequences on skilled and unskilled workers' relative productivity and therefore on skilled and unskilled workers' equilibrium wages.

Second, a rise on expenditure on immigration enforcement may have two possible effects on the per capita provision of public service. We call them **Financing** and **Population Effects**.

$$(4) \qquad \frac{\partial g(u,E,k)}{\partial E} = \underbrace{\frac{kM'(E)\tau\big(\beta w_u + (1-\beta)w_s\big)-1}{M(E)+T+N}}_{Financing\,Effect} - \underbrace{\frac{M'(E)}{M(E)+T+N}g(u,E,k)}_{Population\,Effect}$$

The **Financing Effect** is given by the expression $\dfrac{kM'(E)\tau\big(\beta w_u + (1-\beta)w_s\big)-1}{M(E)+T+N}$ and it has a negative sign. This is because the expenditure on enforcement policy reduces the resources of the government to finance the public service. Such reduction on the government's resources comes from two different effects: i) On the one hand enforcement policy reduces the total number of immigrants legalized and then tax revenue falls down ($\dfrac{kM'(E)\tau\big(\beta w_u + (1-\beta)w_s\big)}{M(E)+T+N}$). Notice that the higher the proportion of immigrants legalized, and the higher the tax, the higher this effect is; ii) On the other hand, there is a direct substitution effect in the public resources, i.e. each monetary unit allocated in enforcement policy reduces the per capita provision of public service by $\dfrac{1}{M(E)+T+N}$ monetary units.

The ***Population Effect*** is given by the expression $\dfrac{M'(E)}{M(E)+T+N}g$ and it has a positive sign.

That is because the enforcement policy reduces the total number of public service's consumers, and then it increases the per capita consumption of public service for a given tax revenue. In particular, an increase on the expenditure in immigration enforcement by one monetary unit produces an increase on the per capita provision of the public service by $\dfrac{-M'(E)}{M(E)+T+N}g$ monetary units. An important remark here is that the population effect is higher the higher the per capita provision of the public service.

Depending on the size of the different effects we have that enforcement policy may either decrease or increase the per capita provision of the public service.

Summarizing, a native wants more or less expenditure on enforcement policy depending on i) how the changes on labor supply (as a consequence of a legalization of immigrants) affect her wage and therefore her consumption of private good; ii) how the expenditure on enforcement policy modifies the per capita provision of the public service. Given these two important features that determine preferences on expenditure on enforcement, a key point is that, while the former depends on the specific characteristics of the native (skill), the latter, being the same for all natives, depends uniquely on the size of the financing and population effect.

Native Employers

We assume that the informal sector is profitable i.e. $p \geq c$, thus employers want as many illegal immigrants as they can hire. Given a certain k, an increase in the expenditure on enforcement policy decreases the number of illegal immigrants and thus lowers employers'

profits. Therefore, given a *k*, the optimal expenditure on enforcement policy for native employers is equal to zero.

The Regularisation Programme

Native Workers

A possible policy for the government to reduce illegal immigration is to grant an amnesty to some of those illegal immigrants that elude the enforcement policy. As we said above for the enforcement policy, *ceteris paribus*, an amnesty policy may affect workers' wages and the per capita consumption of the public service.

Regarding the labor market conditions, an increase in the proportion of immigrants legalized may increase, decrease or leave the workers' wages constant depending on the distribution of immigrants' skills. In particular, if the inclusion of immigrants in the labour market makes the entire labour force less skilled, then an increase in the proportion of immigrants legalized produces a decrease (increase) of the unskilled (skilled) worker's wage. That is because of:

$$(5) \qquad \frac{\partial w_u(u)}{\partial k} = \frac{y''(u)M(E)}{S}\big(\beta - (1-\beta)u\big)$$

$$(6) \qquad \frac{\partial w_s(u)}{\partial k} = -u\frac{y''(u)M(E)}{S}\big(\beta - (1-\beta)u\big)$$

Thus, given a certain E, if $\beta/(1-\beta) > u$ we have that $\frac{\partial w_u(u)}{\partial k} < 0$ and $\frac{\partial w_s(u)}{\partial k} > 0$.

Regarding the effect on the per capita provision of public service, an increase on the proportion of immigrants legalized rises tax revenue, and then, the per capita provision of the public service also increases.

$$(7) \quad \frac{\partial g}{\partial k} = \frac{M(E)\tau\big(\beta w_u + (1-\beta)w_s\big)}{M(E)+T+N}$$

This implies that for a given E, if the inclusion of immigrants in the labour market makes the entire labour force less skilled, then the optimal amnesty policy for skilled workers is to legalize all immigrants i.e. $k=1$. That is because of an increase in the number of immigrants legalized increases both the per capita provision of public service and the consumption of private good. However, for unskilled workers, an increase in the number of immigrants legalized increases the per capita provision of public service but it decreases the consumption of private good. We should expect a higher optimal proportion of immigrants legalized for unskilled workers as the effect of the later policy is lower on the consumption of private good than on the per capita provision of the public service.

Native Employers

Since we assume that the informal sector is profitable i.e. $p \geq c$, employers want as many illegal immigrants as they can have. Given a certain E, an increase in the proportion of immigrants regularized decreases the number of illegal immigrants and lowers employers' profits. Thus, given a E, the optimal the proportion of immigrants regularized for natives employers is equal to zero.

5. Native's Optimal Immigration Policies

Once we know how different immigration policies affect a single native's welfare, a natural step forward is to calculate what the native's optimal combination of immigration policies is. Since the government's budget is balanced, the government's policy choices are, w.l.o.g, the immigration policy (E, k) and g will be given by the GBC. We start by native workers.

A native worker's i ($i=u,s$) optimal policy (E^*, k^*) follows from the maximization problem:

$$\underset{E,k}{Max} \quad V(c,g)$$

$$s.t. \quad E+(M(E)+N+T)g=(Uw_u+Sw_s)t$$

$$c = w_i(1-\tau)$$

$$0 \le k \le 1$$

The optimal immigration policy for natives of type i ($i=u,s$) is given by the following FOCs of the maximization problem stated above: [9]

$$[E] \quad V_c(1-\tau)\frac{\partial w_i(u)}{\partial E}+V_g\frac{\partial g(u,k,E)}{\partial E}=0$$

$$[k] \quad V_c(1-\tau)\frac{\partial w_i(u)}{\partial k}+V_g\frac{\partial g(u,k,E)}{\partial k}=0$$

From the FOCs we state the following two Propositions.

Proposition 1: *If the ratio of unskilled to skilled workers is larger for immigrants than for natives the optimal immigration policies for unskilled and skilled natives as follows:*

i) the maximal enforcement policy and no amnesty policy ($E_u^* = E_{max}$; $k_u^* M(E_u^*) = 0$)[10],

for unskilled natives and a total amnesty policy and a positive level of enforcement policy ($E_s^* > 0; k_s^* = 1$) for skilled natives iff the population effect exceeds the financing effect.

ii) a combination of both immigration policies ($E_u^* > 0; k_u^* \in (0,1)$) for unskilled natives and a total amnesty policy and no enforcement policy ($E_s^* = 0; k_s^* = 1$) for skilled natives iff the financing effect exceeds the population effect.

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[9] SOC is satisfied under some conditions that we describe in the appendix.
[10] *Emax* is the expenditure on enforcement policy such that M(E_{max})=0. We are assuming that less than the whole tax revenue is sufficient to deter all immigrants.

Nevertheless, if the proportion of unskilled versus skilled workers is smaller for immigrants than for natives, then we have different optimal immigration policies for unskilled and skilled natives.

Proposition 2: *If the ratio of unskilled to skilled workers is smaller for immigrants than for natives the optimal immigration policies for unskilled and skilled natives as follows:*

i) a total amnesty policy and a positive level of enforcement policy ($E_u^* > 0; k_u^* = 1$) for unskilled natives and the maximal enforcement policy and no amnesty policy ($E_s^* = E_{max}; k_s^* M(E_s^*) = 0$) for skilled natives iff the population effect exceeds the financing effect.

ii) a total amnesty policy and no enforcement policy ($E_u^* = 0; k_u^* = 1$) for unskilled natives and a combination of both immigration policies ($E_s^* > 0; k_s^* \in (0,1)$) for skilled natives iff the financing effect exceeds the population effect.

These two propositions show how preferences over immigration policies are distributed among types of native workers regarding the immigrants' skills relative to native workers' skills. We comment Proposition 1 since we find it more consistent with the empirical evidence, however all arguments are symmetric for Proposition 2.

When the proportion of unskilled immigrants is larger than that of natives, unskilled natives prefer both a more intense enforcement policy and a smaller number of legalizations by the amnesty program than skilled natives. That is because the effect of immigration on the consumption of public service is the same for skilled and unskilled native workers; however immigration policies affect skilled and unskilled consumption of private good in a different way. In particular, when immigrants make the labour force more unskilled, in equilibrium,

labour market competition yields smaller (higher) unskilled (skilled) workers' wages, and then, smaller (higher) unskilled (skilled) workers' consumption of private good. Nevertheless, both policies restrict or increase the per capita consumption of public service by the same amount for skilled and unskilled natives. Thus, skilled workers are more pro-regularizations than unskilled workers.

Remark 1: *If the proportion of unskilled immigrants relative to the population of immigrants is larger than that for natives, skilled workers prefer a larger number of regularizations than unskilled workers.*

Notice that under the assumption of Proposition 1, which is that the ratio of unskilled to skilled workers is larger for immigrants than for natives, unskilled natives always prefer a smaller number of legal immigrants than skilled native workers. However, natives' preferences on illegal immigration are the reverse, that is, unskilled native workers always prefer a higher or equal number of illegal immigrants than skilled native workers. In particular, skilled native workers do not want illegal immigrants in either case, while unskilled native workers prefer to have a positive number of illegal immigrants whenever the enforcement policy reduces their optimal per capita consumption of public service.

Remark 2: *If the proportion of unskilled immigrants relative to the population of immigrants is larger than that for natives, unskilled workers prefer a larger number of illegal immigrants than skilled workers.*

Another interesting remark is that in this model under the assumption of Proposition 1 we find that high income workers (skilled native workers) prefer a larger per capita consumption of

public service than low income workers (unskilled natives). The intuition is that, in spite of the fact that all natives have the same preferences over the public service; the presence of relatively more unskilled workers among immigrants than among native workers makes unskilled native workers prefer to lower the per capita consumption of public service in order to increase wages and to increase consumption of private good.

Remark 3: *If the proportion of unskilled immigrants relative to the population of immigrants is larger than that for natives, unskilled workers prefer a smaller level of public service than skilled workers*

6. The Political Equilibrium

Regarding the political equilibrium, the classical *downsian* two party set up is considered. There are two office motivated parties that make proposals on immigration and on the level of public service (E, k, g) before the election. Only natives (workers and employers) may vote in the election and there is no abstention. The game takes place in two stages. In the first stage, parties propose a certain policy. In the second stage each voter votes for the party whose proposal would give him a higher utility. We assume that parties are fully committed to their policy proposals. This means that the party that wins the election has to implement the policy chosen in the first stage.

There exists a partition of the polity into three groups of voters: skilled workers, unskilled workers and employers. Under the assumption of Proposition 1 the optimal immigration policies for each group depend on the size of the *financing* and *population* effects. The following figure shows the optimal immigration policies for each group of voters.

Insert Figure 1

The square in black stands for the optimal immigration policy for native employers; the triangle in black stands for the optimal policy for native skilled workers; and the circle in black stands for the optimal immigration policy for native unskilled workers. The figure on the left shows natives' optimal immigration policies when the financing effect dominates the population effect. Conversely, the figure on the right depicts natives' optimal immigration policies when the population effect dominates the financing effect.

In this context of multidimensional policy space the *condorcet winner* exists if and only if in one of the group of voters there is at least fifty percent of the whole polity. Otherwise, for each policy position of one of the parties, the opponent has always a winning strategy. In the case in which in one of the group of voters there is at least fifty percent of the whole polity, in the *downsian* political equilibrium both parties propose the same immigration policy and it is the optimal one for voters belonging to the majority group. However, if no group of voter represents half of the electorate, a *downsian* well-studied problem arises: *condorcet winner* and the political equilibrium fail to exist.

Exogenous M

To solve the problem of the non existence of equilibrium we make the following assumption. We assume that the number of migrants that elude the immigration enforcement policy is exogenously given and equal to $\tilde{M} \in (0, \overline{M})$. The policy space is now unidimensional: parties only propose a certain proportion of $\tilde{M}$ that will be regularized in order to win the election. An interpretation for such assumption might be that, for all individuals, the efficacy of the enforcement policy would not be predictable and all agents in the economy would have the same expectation about the number of immigrants that will elude the enforcement policy

($E(M) = \tilde{M}$). That means that any level of immigration enforcement policy proposed that

leaves a number of immigrant stay in the country different than $\tilde{M}$ is not a credible proposal.

Insert figure 2

Given a certain number of migrants that elude the immigration enforcement policy,

preferences on the regularisation programme are shown in the above figure. Now, unskilled

workers prefer a partial regularisation programme while skilled workers prefer a total

regularisation programme and employers in the informal sector no regularization at all. In

addition, preferences are *single-peaked* on *k*, so the median voter theorem applies. Then, at

the political equilibrium both parties propose the optimal policy of the median voter.

Proposition 3:*If the expected number of migrants that elude the immigration enforcement*

policy is $E(M) = \tilde{M}$ *for all voters we have that the political equilibrium regularization policy*

is a partial regularisation programme i.e. $1 < k < 0$.

7. Concluding Remarks

The political debate about the regularisation programmes for undocumented migrants is

nowadays a hot issue in countries with a large population of undocumented migrants.

Analyzing the consequences of the regularization programs in the public services' provision

and in the labour market outcomes for different group of voters this paper tries to shed light

on the size of such regularisation programme. Using a very simple two party competition

model we find the following conclusions:

First, we find that if the proportion of unskilled immigrants relative to the population of

immigrants is larger than that for natives, and if there is complementarities in production

between skilled and unskilled labour, and there are two segmented job markets (one for illegal immigrants and one for legal immigrants and natives workers) then, skilled workers are more pro-regularization than unskilled workers. In particular, unskilled workers may prefer to leave a positive number of undocumented immigrants in the same illegal situation.

Second, preferences on immigration determine preferences on the per capita provision of the public service, which in our case is a measure of redistribution. We find a surprising result: *high income workers prefer a higher level of redistribution than low income workers*. This result goes in the opposite direction than the traditional one in the literature on political economics. However, this finding may explain the rise of the low income voters' support for more liberal parties in countries with high immigration (usually anti-immigrant parties use to propose low levels of redistribution).

Finally, we focus on, what we think, is the most realistic scenario, where the efficacy of the enforcement policy is not perfectly predictable, and no group of voters gets a majority alone. If this is the case, the immigration policy implemented at equilibrium is a regularisation programme in which not all illegal immigrants obtain the legal status. This is a contrastable result regarding empirical evidence. In addition, if all voters have the same expectation about the total number of migrants that are eligible to apply for regularization, unskilled workers become decisive voters, i.e. the median voter is an unskilled worker. That is because of on the one hand skilled workers prefer regularization for all migrants and on the other hand employers in the informal sector prefer no regularisation programme. However, unskilled workers prefer a partial regularisation programme. This finding may serve to justify the recent observed electoral campaigns in countries with a high immigration: they are mainly focused on less skilled workers.

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Appendix

Proof of Proposition 1

Regarding i), for unskilled natives we have from (2) that if the proportion of unskilled versus skilled workers is larger for immigrants than for natives, then $\dfrac{\partial w_u(u)}{\partial E} > 0$. Additionally, from

(4), $\dfrac{\partial g(u,k,E)}{\partial E} \geq 0$ iff the population effect exceeds the financing effect. This implies that the optimal level of the enforcement for unskilled natives is the maximum level $E_u^* = E_{\max}$ such that $M(E_u^*) = 0$. Therefore, if there is no illegal immigrant the amnesty program has no sense, i.e. $kM(E_u^*) = 0$ for all $k \in [0,1]$.

However, for skilled workers we have from (3) that if the proportion of unskilled versus skilled workers is larger for immigrants than for natives, then $\frac{\partial w_s(u)}{\partial E} < 0$. Because of $\frac{\partial g(u,k,E)}{\partial E} \geq 0$ iff the population effect exceeds the financing effect, then by the FOCs we have that the optimal level of the enforcement for unskilled natives is $0 < E_u^* < E_{max}$. From (6) and (7) we also have that $\frac{\partial w_s(u)}{\partial k} > 0$ and $\frac{\partial g(u,k,E)}{\partial k} > 0$. Thus, iff the population effect exceeds the financing effect i.e. $\frac{\partial g(u,k,E)}{\partial E} \geq 0$ then by the FOCs we have that the optimal proportion of immigrant legalized for skilled workers is equal to 1, i.e. $k_s^* = 1$.

Regarding ii) for unskilled natives we have from (2) that if the proportion of unskilled versus skilled workers is larger for immigrants than for natives, then $\frac{\partial w_u(u)}{\partial E} > 0$. Additionally, from (4), $\frac{\partial g(u,k,E)}{\partial E} < 0$ iff the financing effect exceeds the population effect. From (5) and (7) we also have that $\frac{\partial w_s(u)}{\partial k} < 0$ and $\frac{\partial g(u,k,E)}{\partial k} > 0$. Thus, by the FOCs, the optimal immigration policy for unskilled workers is a combination of both immigration policies, i.e. ($0 < k_u^* < 1$, $0 < E_u^* < E_{max}$).

However, for skilled workers we have from (3) that if the proportion of unskilled versus skilled workers is larger for immigrants than for natives, then $\frac{\partial w_s(u)}{\partial E} < 0$. Because of $\frac{\partial g(u,k,E)}{\partial E} < 0$ iff the financing effect exceeds the financing effect, then by the FOCs we have that the optimal level of the enforcement for skilled natives is $E_s^* = 0$. From (6) and (7)

we also have that $\dfrac{\partial w_s(u)}{\partial k} > 0$ and $\dfrac{\partial g(u,k,E)}{\partial k} < 0$. Thus, iff the financing effect exceeds the

population effect i.e. $\dfrac{\partial g(u,k,E)}{\partial E} < 0$ then by the FOCs we have that the optimal proportion of

immigrant legalized for skilled workers is not an extreme value, i.e. $0 < k_s^* < 1$.

Proof of Proposition 2

The proof of this proposition is straightforward from the previous one.

Second Order Conditions of the Utility Maximization Problem

For the sake of simplicity we assume that the utility function is such that

$U_{cc} < 0, U_{gg} < 0, U_{cg} = 0$; and the production function is such that $y'''(u) = 0$ for all u. Then,

SOCs are satisfied iff:

$$U_{cc}\left(\frac{\partial w_i(u)}{\partial E}\right)^2 + U_c \frac{\partial^2 w_i(u)}{\partial E^2} + U_{gg}\left(\frac{\partial g}{\partial E}\right)^2 + U_g \frac{\partial^2 g}{\partial E^2} \le 0$$

$$U_{cc}\left(\frac{\partial w_i(u)}{\partial k}\right)^2 + U_c \frac{\partial^2 w_i(u)}{\partial k^2} + U_{gg}\left(\frac{\partial g}{\partial k}\right)^2 + U_g \frac{\partial^2 g}{\partial k^2} \le 0$$

Notice that if $y'''(u) = 0$ then $\dfrac{\partial^2 w_i(u)}{\partial k^2} = 0$. In addition, we have that the following inequality

is satisfied:

$$\frac{\partial^2 g}{\partial k^2} = \frac{M(E)^2 \tau \big(\beta w_u + (1-\beta)w_s\big)^2}{M(E) + T + N} y''(u) \le 0$$

Then, the second equation of the SOC is always satisfied.

For the first equation of the SOC needs additional assumptions to be satisfied. In particular we

don not know the signs of neither $\dfrac{\partial^2 w_i(u)}{\partial E^2} < 0$ nor $\dfrac{\partial^2 g}{\partial E^2}$ We can proof that assuming

sufficiently high decreasing returns of the enforcement policy i.e. $M''(E) > 0$ and

$M''(E)/M'(E) > \theta > 0$, both, $\dfrac{\partial^2 w_i(u)}{\partial E^2} < 0$ and $\dfrac{\partial^2 g}{\partial E^2}$ are nonpositive.

Table 1. Regularizations Programs

Country	Year of program	Number Applied	Number Regularized	Approval rate
France	1981-82	150,000	130,000	87%
	1997-98	150,000	87,000	-
Belgium	2000	50,000	Unknown	-
Greece*	1998 - "White card"	370,000	370,000	100%
	1998 - "Green card"	228,000	220,000	96%
	2001	368,000	228,000	62%
Italy	1986	unknown	118,700	-
	1990	unknown	235,000	-
	1995	256,000	238,000	93%
	1998	308,323	193,200	63%
	2002	700,000	634,728	91%
Luxembourg	2001	2,894	1,839	64%
Portugal	1992-93	80,000	38,364	48%
	1996	35,000	31,000	89%
	2001	unknown	170,000	
Spain	1985	44,000	23,000	52%
	1991	135,393	109,135	81%
	1996	25,000	21,300	85%
	2000	247,598	153,463	62%
	2001	350,000	221,083	63%
	2005	690,679	unknown	
United States	1986 - General legalization	1.7 million	1.6 million	94%
	Special Agricult. Workers	1.3 million	1.1 million	85%

*Greece's "white card" provided a six-month residence permit, and was a prerequisite for
 obtaining a "green card," which provided a one- to five-year residence permit.
Source: Levinson (2005)

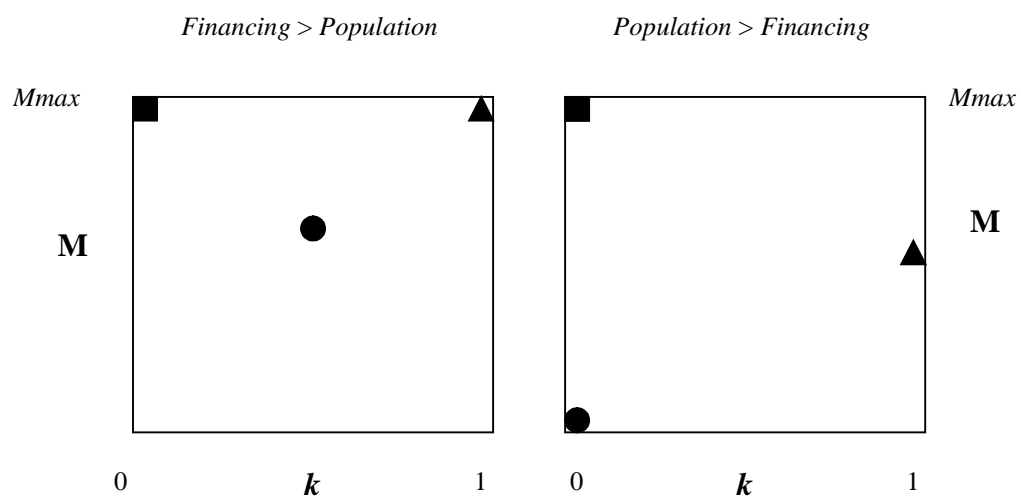*Financing > Population*   *Population > Financing*

Figure 1. Natives' Preferences on legal and Illegal Immigrant Population

Figure 2. Natives Preferences on Regularisation Programmes

Mmax

$\tilde{M}$

0   *k*   1