Illegal to punish or punish the illegals: Which way should Ukraine and Moldova choose?

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Tabelul 1

Numărul de companii producătoare de electricitate în intervalul 2003-2005 în Europa

Tari	Numărul de companii ce reprezintă 95% din producerea de energie electrica		
	Anul 2003	Anul 2004	Anul 2005
Belgia	2	3	3
Bulgaria	13	14	14
Danemarca	>1000	>1000	>1000
Germania	>450	>450	>450
Estonia	2	2	2
Irlanda	5	3	4
Grecia	1	1	1
Franta	4	4	4
Italia	79	83	88
Cipru	1	1	1
Letonia	5	7	6
Lituania	5	5	6
Luxemburg	9	9	>12
Ungaria	30	10	23
Malta	1	1	1
Olanda	>87	>53	48
Austria	34	39	53
Polonia	31	54	70
Portugalia	36	46	59
Romania	11	12	12
Slovenia	3	3	3
Slovacia	6	6	6
Finlanda	25	29	27
Suedia	7	14	14
Marea Britanie	22	20	17
Croatia	2	2	2
Turcia	148	172	192
Norvegia	161	165	175
Cehia	20	17	18

Sursa: http://epp.eurostat.

Din analiza tabelului de mai sus se observă ca tarile din Europa au o piață de producție de energie electrică diversificată. Astfel Danemarca are piața cu concurența cea mai mare și cu concentrarea cea mai mică, urmate de Germania, Norvegia și Olanda. În Europa din punct de vedere al concentrării pieței

producției de energie electrică Romania se află în jumătatea superioară a acesteia cu o concentrare moderată către o concentrare excesivă.

La polul opus se afla Grecia Malta și Cipru cu o piață de monopol, urmate cu o piață excesiv concentrată de Belgia, Croația și Estonia. Având în vedere nevoile crescute de energie electrică la nivel mondial și european, obiectivele de creștere a numărului de capacități de producție în Romania, este pe deplin justificat.

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ILLEGAL TO PUNISH OR PUNISH THE ILLEGALS - WHICH WAY SHOULD UKRAINE AND MOLDOVA CHOOSE?

Тед ЛУНДГРЕН, *drd. USM*

Вслед за возросшим давлением со стороны нелегальной иммиграции, перед которой лицом к лицу оказались развитые страны в последние годы, продолжается дискуссия по поводу того, эффективна ли политика наказания или нет. Существует также дискуссия относительно того, может ли современная политика рассматриваться как этически справедливая и честная. Кого следует наказывать, а кого – нет? Какой путь следует избрать таким странам, как Украина и Молдова, в этом отношении? В данной статье я развиваю модель максимизации полезности для мигрантов, посредников и правительства. Затем я прихожу к оптимальным (теоретическим) решениям.

Introduction

As Ukraine's and Moldova's economic development and integration with the EU proceed, a number of European problems also arise. In irregular migration, where Ukraine is both a sending, receiving and transit country, the number of illegal immigrants has been growing in recent years. The total number of illegal migrants detained by the MIA and the State Border Service units was 25,539 in 2004 and 32,726 in 2005 [5:10]. IOM estimates that only 5 to 10% of all migrants illegally transiting through Ukrainian territory are detained by the Ukrainian government [ibid]. Often, people smugglers are involved in operations

[5:11]. Young Moldovan migrants make use of these smugglers, illegally crossing the Slovak border from the Ukrainian town of Stryi [3:16].

In the West, there is an ongoing debate on whether legislation against illegal immigration is working or not. There is also a discussion on whether policies of punishment can be seen as ethically just. The current view adopted by most receiving countries is that the illegal migrant should be considered as innocent, or even as a victim. The migrant only wants to come and work in order to survive, and to support himself and his family back home [6:4]. The people smuggler, or facilitator, on the other hand is someone who should be brought to justice since he is taking advantage of a person in desperate need, and is making money from breaking the law [ibid]. In most of today's developed nations, a common policy is to deport the illegal migrant but to punish the facilitator, sometimes giving the latter a jail sentence. In other countries, such as Malaysia, an illegal immigrant can face a fine of $2,600, a mandatory jail term of five years and six lashes with a rattan cane [4:168-169]. In March 2002, Malaysia issued an amnesty which lasted until August 2002, in order to give illegal immigrants a chance to leave the country without fear of punishment. 318,272 illegal immigrants left the country [ibid]. Thus, there might be some evidence that harsh punishments, directed not only against facilitators but also against illegal immigrants, are working. So what policy of punishment should countries like Ukraine and Moldova choose? Who should be punished and who should not? Generally: How should European governments allocate resources for immigration between competing ends? An economist such as Gary Becker has recently argued that Western governments currently have only two options. They must either open up their borders and start allowing illegal immigrants or they must begin to punish the latter as well, preferably with jail [2].

Objectives

In this article I take on a neoclassical, Beckerian approach [1] of individuals who can choose between earning an honest income and becoming illegally in the migration market. In a general model, I study the conditions of a rational scheme under which potential migrants, facilitators and a government are maximising their utilities. The market form resembles perfect competition as there are many buyers (migrants) and sellers (facilitators). The sellers (facilitators) can for

example be freelancers who live in some border area in the Western Newly Independent States – WNIS – such as the Carpathians in Ukraine, who know the terrain and who are willing to take migrants across the Schemer border for a predefined sum of money. The aim of the article is to derive the conditions under which migrants, intermediaries and governments maximise their utilities, find a solution, and give a hint at what a choice of punishment policies could look like for host countries. The act of illegally crossing a state border and the consequences thereof is described as a von Neumann-Morgenstern lottery.

The Model

We consider the case where there is a large number of facilitators (F) working on a freelance basis in some given border area. Migrants (M) wanting to cross the border illegally do not face any particular difficulty finding a facilitator. The market structure somewhat resembles perfect competition. We assume that the facilitator has limited influence over the price and that he cares about his reputation (R).

From the potential migrant's point of view, there are a limited number of choices, given in the decision tree in fig. 1. The migrant can choose to hire the services of a facilitator. If he does, then there is a probability P_1 that the facilitator is honest and will, to the best of his ability and after having received a fixed sum of money from the migrant, fulfill his obligations and take him across the border. There is a probability $1\text{-}P_1$ that the facilitator is exploitative. In that case, he will simply take the migrant's money and "dump him in the forest" before having crossed the border. If the facilitator is honest, then there is a probability P_2 that the border crossing will be successful and a probability $1\text{-}P_2$ that the party is caught. Likewise, all other options that the potential migrant has, and their associated probabilities, are given in the tree:

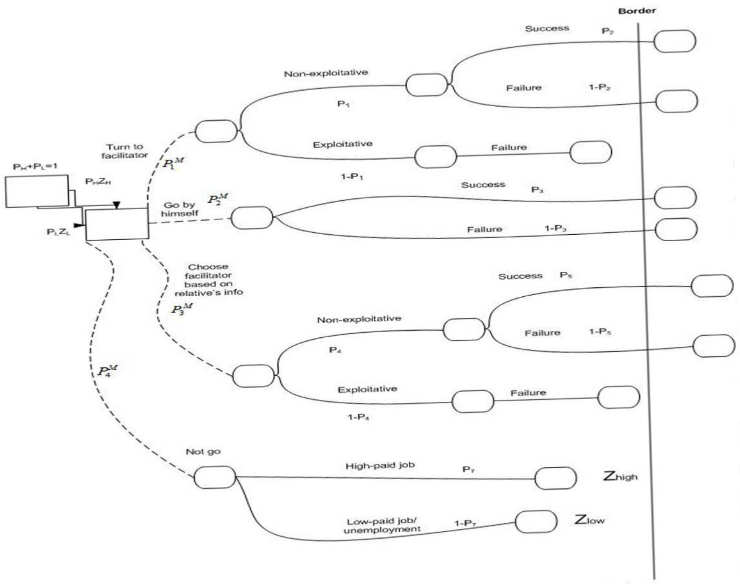

Fig. 1: The Migrant's decision tree

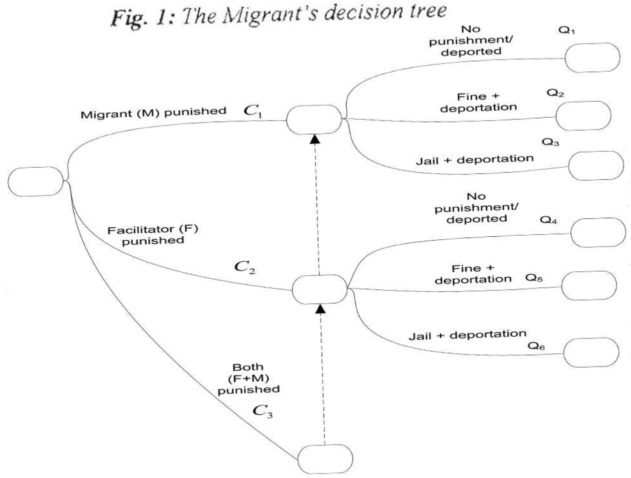

Fig. 2: If caught

Fig. 2 represents what happens if a party is intercepted and caught by the border patrol. There is a probability C_1 that only the migrant will get caught. There is also a probability C_2 that only the facilitator will be apprehended and the migrant can run off. In addition, there is a scenario in which the whole party, i.e. M+F, is caught, which is represented by $1-C_1-C_2$. Naturally, if the migrant travels by himself and there is no facilitator, then the first branch of the tree in fig. 3 is must occur with probability $C_1=1$. Probabilities $Q_{1\ldots6}$ represent the choices of

punishment that the host country has to choose from. All combinations are given in the following table:

	No punishment	Fine	Jail
M	-C(Y)	-C(Y)+P_M)	-(C+T*Z_M)
F	-R*Z_F	-(R+P_F)	-(R+T*Z_F)
+F	-(C(Y))+R	-C(Y)+P_M) +R	-(C(Y)+T_M* *Z_M+R+T_F*Z_F)

The host country can choose not to punish the migrant and to simply deport him. In this case the migrant will lose only the "costs for the road" C(Y), no matter if these costs consist of personal expenditures or money paid to the facilitator. We assume that the host country also has the option to penalize (P) the migrant and have him pay a fine before deportation. A third alternative would be to give the migrant a jail sentence of T months, or even years, before deportation. In this case the migrant, in addition to his fixed costs C, will also lose the income that he would have otherwise earned, Z. The same goes for the facilitator, however for him, an important variable is R, reputation. Even if the facilitator is not punished and immediately deported, because of the failure, we assume that his reputation will diminish and with it the possibility to earn an equal sum of money from prospective migrants the next time.

Now, let us introduce the following notations:

$U_F(x)$ - the utility function of the facilitator with $U'_F(x)>0$ and $U''_F(x)<0$,

$U_M(x)$ - the utility function of the migrant with $U'_M(x)>0$ and $U''_M(x)<0$.

P_j^M; $j=1,2,3,4$ -the probability that the migrant chooses the $j-th$ way of crossing (P_4^I - he does not go);

P_j^C $j=1,2,3$ -the probability of getting caught for M,F, and both of them respectively;

αZ_H - - the cost of border crossing when the migrant goes by himself;

$k \cdot Z_H$ - the wage of the migrant in case of success;

$\beta \cdot Z_L^F$ -the cost of border crossing when the migrant uses relative's information;

Z_1 – the maximum possible sum for the migrant.

Let us indicate the cost of each branch of the tree for the migrant and for the facilitator, going from up to down:

Probability	**Migrant**	**Facilitator**
$P(i)$	$C(i)$	$F(i)$
$P(1) = p^H \cdot p_1^M \cdot p_1 \cdot p_2$	$k \cdot Z_H - Z_L^F$	Z_L^F
$P(2) = p^H \cdot p_1^M \cdot (1 - p_2) \cdot p_1^C \cdot Q_1$	$-Z_L^F - C$	Z_L^F
$P(3) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_1^C \cdot Q_2$	$-Z_L^F - C - P_M$	Z_L^F
$P(4) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_1^C \cdot Q_3$	$-Z_L^F - C - T \cdot Z_H$	Z_L^F
$P(5) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_2^C \cdot Q_4$	$k \cdot Z_H - Z_L^F$	$Z_L^F - C$
$P(6) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_2^C \cdot Q_5$	$k \cdot Z_H - Z_L^F$	$Z_L^F - C - R - P_F$
$P(7) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_2^C \cdot Q_6$	$k \cdot Z_H - Z_L^F$	$Z_L^F - C - R - T \cdot Z_F$
$P(8) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_1 Q_4$	$-Z_L^F - C$	$Z_L^F - C - R$
$P(9) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_1 Q_5$	$-Z_L^F - C$	$Z_L^F - C - R - P_F$
$P(10) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_1 Q_6$	$-Z_L^F - C$	$Z_L^F - C - R - T \cdot Z_F$
$P(11) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_2 Q_4$	$-Z_L^F - C - P_M$	$Z_L^F - C - R$
$P(12) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_2 Q_5$	$-Z_L^F - C - P_M$	$Z_L^F - C - R - P_F$
$P(13) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_2 Q_6$	$Z_L^F - C - P_M$	$Z_L^F - C - R - T \cdot Z_F$
$P(14) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_3 Q_4$	$-Z_L^F - C - T \cdot Z_H$	$Z_L^F - C - R$
$P(15) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_3 Q_5$	$-Z_L^F - C - T \cdot Z_H$	$Z_L^F - C - R - P_F$
$P(16) = p^H \cdot p_1^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_3 Q_6$	$-Z_L^F - C - T \cdot Z_H$	$Z_L^F - C - R - TZ_F$
$P(17) = p^H p_1^M (1 - p_1) r$	$-Z_L^F$	$Z_L^F - R$
$P(18) = p^H p_1^M (1 - p_1)(1 - r)$	$-Z_L^F$	Z_L^F
$P(19) = p^H \cdot p_2^M \cdot p_3$	$kZ_H - \alpha \cdot Z_H$	0
$P(20) = p^H \cdot p_2^M \cdot (1 - p_3) p_1^C Q_1$	$-\alpha Z_H - C$	0
$P(21) = p^H \cdot p_2^M \cdot (1 - p_3) p_1^C Q_2$	$-\alpha Z_H - C - P_M$	0
$P(22) = p^H \cdot p_2^M \cdot (1 - p_3) p_1^C Q_3$	$-\alpha Z_H - C - T \cdot Z_H$	0
$P(23) = p^H \cdot p_3^M \cdot p_1 \cdot p_2$	$k \cdot Z_H - \beta Z_L^F$	$\beta \cdot Z_L^F$

$P(24) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_1^C \cdot Q_1$	$-\beta Z_L^F - C$	$\beta \cdot Z_L^F$
$P(25) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_1^C \cdot Q_2$	$-\beta Z_L^F - C - P_M$	$\beta \cdot Z_L^F$
$P(26) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_1^C \cdot Q_3$	$-\beta \cdot Z_L^F - C - T \cdot Z_H$	$\beta \cdot Z_L^F$
$P(27) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_2^C \cdot Q_4$	$k \cdot Z_H - \beta \cdot Z_L^F$	$\beta \cdot Z_L^F - C$
$P(28) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_2^C \cdot Q_5$	$k \cdot Z_H - \beta \cdot Z_L^F$	$\beta \cdot Z_L^F - C - R - P_F$
$P(29) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_2^C \cdot Q_6$	$k \cdot Z_H - \beta \cdot Z_L^F$	$\beta \cdot Z_L^F - C - R - T \cdot Z_F$
$P(30) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_1 Q_4$	$-\beta \cdot Z_L^F - C$	$\beta \cdot Z_L^F - C - R$
$P(31) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_1 Q_5$	$-\beta \cdot Z_L^F - C$	$\beta \cdot Z_L^F - C - R - P_F$
$P(32) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_1 Q_6$	$-\beta \cdot Z_L^F - C$	$\beta Z_L^F - C - R - T \cdot Z_F$
$P(33) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_2 Q_4$	$-\beta \cdot Z_L^F - C - P_M$	$\beta \cdot Z_L^F - C - R$
$P(34) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_2 Q_5$	$-\beta Z_L^F - C - P_M$	$\beta Z_L^F - C - R - P_F$
$P(35) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_2 Q_6$	$-\beta Z_L^F - C - P_M$	$\beta Z_L^F - C - R - T \cdot Z_F$
$P(36) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_3 Q_4$	$-\beta Z_L^F - C - T \cdot Z_H$	$\beta Z_L^F - C - R$
$P(37) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_3 Q_5$	$-\beta Z_L^F - C - T \cdot Z_H$	$\beta Z_L^F - C - R - P_F$
$P(38) = p^H \cdot p_3^M \cdot p_1 \cdot (1 - p_2) p_3^C \cdot Q_3 Q_6$	$-\beta Z_L^F - C - T \cdot Z_H$	$\beta Z_L^F - C - R - TZ_F$
$P(77) = p^H p_4^M$	Z_H	0
$P(78) = p^L p_4^M$	Z_L	0

The probabilities $P(39) - P(76)$ are obtained from $P(1) - P(38)$ by substituting p^L for p^H and Z_L for Z_H. The expected utility of the migrant can be written as

$$E\left[U_M(Z_L^F)\right] = \sum_{i=1}^{78} P(i) U_M(Z_M(i) + C(i)),$$

where $Z_M(i) = Z_H$ for $i = 1,\dots,38$, and $Z_M(i) = Z_L$ for $i = 39,\dots,76$

The expected utility of the facilitator is

$$E\left[U_F(Z_L^F)\right] = \sum_{i=1}^{78} P(i) U_F(Z_F + F(i)).$$

All values in the sums could be taken from the table. We come up with the problem

$$m \cdot E\left[U_M(Z_L^F)\right] + f \cdot E\left[U_F(Z_L^F)\right] \rightarrow \max_{Z_L^F} \quad (1)$$

under constraints $$0 \le Z_L^F \le Z_1 \qquad (2)$$

The optimisation problem (1-2) could be solved by taking the derivative of (1) and put it equal to zero. The solution would appear either in the critical point or in the end points. Taking the derivative of the left side of (1) we get the first order condition

$$\begin{aligned}
&-m\sum_{i=1}^{18} P(i)U'_M(Z_H + C(i)) - m\cdot\beta\cdot\sum_{i=23}^{38} P(i)U'_M(Z_H + C(i)) - m\sum_{i=39}^{56} P(i)U'_M(Z_L + C(i)) - \\
&- m\cdot\beta\cdot\sum_{i=61}^{76} P(i)U'_M(Z_L + C(i)) + \\
&+ f\sum_{i=1}^{18} P(i)U'_F(Z_F + F(i)) + f\cdot\beta\sum_{i=23}^{38} P(i)U'_F(Z_F + F(i)) + f\sum_{i=39}^{56} P(i)U'_F(Z_F + F(i)) \\
&+ \beta\cdot f\cdot\sum_{i=61}^{76} P(i)U'_F(Z_F + F(i)) = 0
\end{aligned} \qquad (3)$$

Comparing the values of the utility function in (1) in the end points with the value in the critical point we obtain the solution of (1-2) Z_L^{F*}. This is an optimal solution for illegal migrants and facilitators.

We now introduce the government into the model. The government faces the problem of allocating scarce resources between competing ends. We assume that the aim of the government is to minimize the maximum expected utility of the migrant and the facilitator. The government has to do this with respect to a fixed budget and a set of specified constraints. For example, though it might be desirable for the government to punish both the facilitator and the illegal migrant with jail, thereby causing the highest possible negative utility, building prisons and detention centres, and keeping people in them. is costly. The government must also act with respect to human rights and immigrant lobby groups in order not to lose votes.

To keep it simple, let the government tend to minimize the function

$$E\left[U_M(Z_L^{F*})\right] + E\left[U_F(Z_L^{F*})\right] + \gamma U_L(-P_M, -P_F, -T),$$

where γ is the weight of the lobby utility function $U_L(-P_M, -P_F, -T)$.

The constraints are the following:

$$P^1_{\min} \le P_M \le P^1_{\max}, \quad P^2_{\min} \le P_F \le P^2_{\max}, \quad T_{\min} \le T \le T_{\max}.$$

Let the utility functions of the migrant and facilitator be as follows

$$U_M(x) = x - \frac{x^2}{2b_1},\ x \le b_1 \qquad U_F(x) = x - \frac{x^2}{2b_2},\ x \le b_2,$$

where $x \le b_1$ for the migrant and $x \le b_2$ for the facilitator. We assume that values b_1 and b_2 are sufficiently large and that $(Z_H + C(i)) \le b_1$, $(Z_L + F(i)) \le b_2$.

If the utility functions are quadratic then equation (3) takes the form

$$\begin{aligned}
&-m\sum_{i=1}^{18} P(i)(-1-(Z_H - C^-(i) - Z_L^F)/b_1) - m\cdot\beta\cdot\sum_{i=23}^{38} P(i)(-1-(Z_H - C^-(i) - \beta Z_L^F)/b_1) - \\
&-m\sum_{i=39}^{56} P(i)(-1-(Z_L - C^-(i) - Z_L^F)/b_1)) - \\
&-m\cdot\beta\cdot\sum_{i=61}^{76} P(i)(-1-(Z_L - C^-(i) - \beta Z_L^F)/b_1)) + \\
&+f\sum_{i=1}^{18} P(i)(1-(Z_F + F^-(i) + Z_L^F)/b_2)) + f\cdot\beta\sum_{i=23}^{38} P(i)(1-(Z_F + F^-(i) + \beta Z_L^F)/b_1) + \\
&+f\sum_{i=39}^{56} P(i)U'_F(Z_F + F(i)) + f\cdot\beta\cdot\sum_{i=61}^{76} P(i)(1-(Z_F + F^-(i) + \beta Z_L^F)/b_1) = 0
\end{aligned}$$

where $C^-(i) = C(i) + Z_L^F$, $F^-(i) = F(i) - Z_L^F$.

Collecting the terms with Z_L^F and without Z_L^F we have

$$\begin{aligned}
&Z_L^F(-m\sum_{i=1}^{18} P(i)/b_1) - m\cdot\beta^2\cdot\sum_{i=23}^{38} P(i)/b_1) - m\sum_{i=39}^{56} P(i)/b_1)) - \\
&-m\cdot\beta^2\cdot\sum_{i=61}^{76} P(i)/b_1 - f\sum_{i=1}^{18} P(i)/b_2 - f\cdot\beta^2\sum_{i=23}^{38} P(i)/b_2 - f\sum_{i=39}^{56} P(i)/b_2 \\
&-\beta^2\cdot f\sum_{i=61}^{76} P(i)/b_1) = m\sum_{i=1}^{18} P(i)(-1-(Z_H - C^-(i))/b_1) + m\cdot\beta\cdot\sum_{i=23}^{38} P(i)(-1-(Z_H - C^-(i))/b_1) + m\sum_{i=39}^{56} P(i)(-1-(Z_L - C^-(i))/b_1)) + \\
&+m\cdot\beta\cdot\sum_{i=61}^{76} P(i)(-1-(Z_L - C^-(i))/b_1)) - f\sum_{i=1}^{18} P(i)(1-(Z_F + F^-(i))/b_2)) - f\cdot\beta\sum_{i=23}^{38} P(i)(1-(Z_F + F^-(i))/b_1) - \\
&f\sum_{i=39}^{56} P(i)(1-(Z_F + F^-(i))/b_2) - \beta\cdot f\sum_{i=61}^{76} P(i)(1-(Z_F + F^-(i))/b_1) = 0
\end{aligned}$$

Let

$$A=m\sum_{i=1}^{18}P(i)(-1-(Z_H-C^-(i))/b_1)+m\cdot\beta\cdot\sum_{i=23}^{38}P(i)(-1-(Z_H-C^-(i))/b_1)+m\sum_{i=39}^{56}P(i)(-1-(Z_L-C^-(i))/b_1))+$$
$$+m\cdot\beta\cdot\sum_{i=61}^{76}P(i)(-1-(Z_L-C^-(i))/b_1))-f\sum_{i=1}^{18}P(i)(1-(Z_F+F^-(i))/b_2))-f\cdot\beta\sum_{i=23}^{38}P(i)(1-(Z_F+F^-(i))/b_1)-$$
$$f\sum_{i=39}^{56}P(i)(1-(Z_F+F^-(i)/b_2)-\beta\cdot f\sum_{i=61}^{76}P(i)(1-(Z_F+F^-(i))/b_1)$$
$$B=-m\sum_{i=1}^{18}P(i)/b_1)-m\cdot\beta^2\cdot\sum_{i=23}^{38}P(i)/b_1)-m\sum_{i=39}^{56}P(i)/b_1))-$$
$$-m\cdot\beta^2\cdot\sum_{i=61}^{76}P(i)/b_1-f\sum_{i=1}^{18}P(i)/b_2-f\cdot\beta^2\sum_{i=23}^{38}P(i)/b_2-f\sum_{i=39}^{56}P(i)/b_2$$
$$-\beta^2\cdot f\sum_{i=61}^{76}P(i)/b_1)$$

Then if $B \neq 0$, we have $Z_L^{F0} = A/B$

Including in the consideration the end points of (2) we have the solution of (1-2) in the form

$$Z_L^{F*} = \arg\max \begin{bmatrix} m\cdot E\left[U_M(Z_L^{F0})\right]+f\cdot E\left[U_F(Z_L^{F0})\right] \\ m\cdot E\left[U_M(Z_L)\right]+f\cdot E\left[U_F(Z_L)\right], \\ m\cdot E\left[U_M(Z_M)\right]+f\cdot E\left[U_F(Z_F)\right] \end{bmatrix},$$

where expected utilities in the brackets could be calculated using Table 1.

Concluding Remarks

In the model, I have derived the conditions for utility maximisation of the migrant and the facilitator. An optimal (theoretical) solution was then found. For the government, provided that the utility functions of the migrant and facilitator are quadratic, an optimal (theoretical) solution was gained as well. For policy recommendations, we need no know the values in Table 1. Alternatively, through computer simulations in a more advanced model, we could force a solution. From the government's point of view, a very important variable is γ, the weight of the lobby group. There is no doubt that lobby groups favouring immigration and human rights are both more numerous and more developed in the EU than they are in Ukraine or Moldova. From the point of view of these countries, perhaps it would be reasonable to view the entire EU as one gigantic lobby group, considering its demands. We could, for example, imagine a model very similar to the above in which the Ukrainian and Moldovan governments

have to maximise a number of "votes" from EU citizens and institutions in order to win future membership. In such a case, γ would be large and it would be in their best interests to adopt a more liberal legislation on illegal immigration.

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PRACTICI DE INOVARE ALE ÎNTREPRINDERILOR EUROPENE.

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L'innovation est l'un des principaux moyens pour acquérir un avantage compétitif en répondant aux besoins du marché. Innover, c'est créer de nouveaux produits. En général, les entreprises commencent par l'innovation par projet, en utilisant des techniques et des outils classiques de l'innovation (tels que la créativité, le développement de produits innovants, la protection industrielle...) afin de développer un produit (ou service) nouveau.

După criza de la mijlocul anilor '70, tematica inovaţiei tehnologice este din ce în ce mai mult teoretizată. O dată ce cercetarea se hrăneşte cu suporturi empirice, pentru a demonstra după zeci de ani că întreprinderile evoluează într-un mediu tot mai globalizat unde consumatorii, bine informaţi ezită în faţa unei oferte adesea excesive, fiind din ce în ce mai exigenţi în ceea ce priveşte aşteptările lor de diferenţiere a ofertei. În acest context, întreprinderile sunt constrânse să inoveze pentru a nu dispărea de pe piaţă. În zilele noastre dimensiunea temporală a concurenţei este crucială. Viitorul aparţine întreprinderilor ce inovează primele şi mai ales eficient.