GROSS WORKER FLOWS ESTIMATION AT EUROPEAN LEVEL

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Abstract

*The European single market makes progress in view to become a single economic area. This process induces some tendencies regarding the crystallizing of the European single labour market. Following the first stage of our model (presented in detail in a previous article), based on OECD Employment Outlook 2009 and 2010 methodology consistent with Davis and Haltiwanger (1999) we use the "employment by time since job started"[1] using EUROSTAT indicators provided in quarterly data as proxy for "employment by **job tenure**"[2] indicator in view to calculate the annual hiring flows (number of hiring into an year). This method could be applied under some characteristics like: age groups (15-64 years, 15-24 years, 25-49 years, 50-64 years), gender (total, masculine, feminine), citizenship (citizen, non citizen based on lfsa_etpga Eurostat indicator). Our analysis is focused on the quantitative estimation of the labour force circulation at UE27 level, measured through the quantification of the individual labour contracts; contracts closed between noncitizen workers with an employer located in the European host state (different state from the worker state origin), regardless the negotiation process, employment process, the level of negotiated salaries. We assume that the working contract closing/initiating is equivalent with the "hiring" event and its ending is equivalent with "separation". Our main result is represented by the total non citizen worker flows estimation at European aggregate level as a measure of European single market development.*

1. Introduction

The European single market makes progress in view to become a single economic area[3]. This process induces some tendencies regarding the crystallizing of the European single labour market. "Freedom of movement for workers" represents one of the fundamental values of the European community, since its foundation represented by the establishing the European Economic Community,

[1] **lfsq_egdn2**-Employment by sex, age groups, time since job started and economic activity (from 2008, NACE Rev.2) (1000)

[2] **Definition:** Total employment is broken down by job tenure intervals http://www.oecd.org/document/34/0,3746,en_2649_37457_40917154_1_1_1_37457,00.html#jobduration

[3] http://europa.eu/abc/12lessons/lesson_6/index_ro.htm

EEC Treaty - signed in Rome in 1957, 25 March, with special reference to its 39 article[4]. This freedom is concerning the workers (including professionals' sportive persons) and is not applied to persons working on own account, students, retried people or inactive people. This right is limited in domains like the public security, public policy and in public heath area, with specific restrictions in employment in some public services in the Host Member State[5]. Based on the Treaty of Rome perspective, the European Court of Law define the "worker" as concept as the person that (1) develop an real and efficacy activity, (2) under the guidance of other person (3) and is paid for it.

Under the freedom o movements for workers right is **becoming evident the importance action of citizenship on the labour market (in both its dimensions: European single labour market and national/regional labour markets), focused on dependent employment, mainly salaried employment.** Under this angle is possible to analyse the employment under two main perspectives: internal employment and national employment. The national employment corresponds to the employment realised by the national citizens. The internal employment includes the employment regardless the national citizenship owing, without any differentiation between the workers employed (with contract) in report with citizenship: national or non-national citizenship employment. One measure of the advance of the "free movement for workers, considering "that every EU national has the right to work, and at the same time live, in any other EU country" is still under construction, the temporary restrictions on working announcing as an liberalisation dead line 2014[6].

Our interest is focused on the worker flows at European level estimation, for the persons with working contracts, regardless the status of the person as looking for a job in another country, living in another country in view to find there a job or staying in another country even after his/her employment has finished. Our main result is represented by the total non citizen worker flows estimation at European aggregate level as a measure of European single market development.

2. The Model

Our model[7] is adapted from OECD Employment Outlook 2009[8] and 2010[9]. Under this model "job flows essentially reflect reallocation driven by labour demand (the expansion and contraction of employment by firms) and worker flows are the result of a mix of demand, supply and purely matching factors, which depend on both firm and worker characteristics" (OECD 2009 pg.119). Using the flow indicators is the worker flows is formalised through processes simplified (events that are produced in a time interval) of input /output type. Consequently, the simplified processes consider that hiring and separations as transition from any status to employment for hiring and transition from employment to any status in the case of separations *(for the case of transition employment to employment there is a different establishment) between two moment t-1 and t.*

The number of a specific event (like hiring/separation or job creation /destruction) during a specific time interval permit to describe to following relations between the moments t-1 and t (figure2) allow us to synthesise the following relations:

[4] 12002E039, Treaty establishing the European Community (Nice consolidated version) - Part Three: Community policies - Title III: Free movement of persons, services and capital - Chapter 1: Workers - Article 39 - Article 48 - EC Treaty (Maastricht consolidated version) - Article 48 - EEC Treaty

[5] http://ec.europa.eu/employment_social/free_movement/index_en.htm

[6] Nationals of Bulgaria, the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania, Slovenia and Slovakia may face temporary restrictions on working in another country, but for no more than 7 years after their countries joined the EU (Bulgaria and Romania joined on 1 January 2007, all the others on 1 May 2004).[6] ***http://europa.eu/abc/12lessons/lesson_6/index_ro.htm***

[7] Is presented in detail in the paper: Cristina Lincaru', Vasilica Ciucă, Speranţa Pîrciog, Alternative method of Gross worker flows measurement - Study case Romania : Paper submitted at EALE Conference Cyprus 2011;

[8] OECD Employment Outlook TACKLING THE JOBS CRISIS, 2009, Chapter 2. How Do Industry, Firm and Worker Characteristics Shape Job and Worker Flows? ., pg.121;

[9] OECD Employment outlook MOVING BEYOUND THE JOB CRISIS, 2010, Chapter 3, Institutional and Policy Determinants of labour Market Flows, pg.167;

a. Where workers mobility is described through **absolute indicators**:

$\mathbf{H_{t-1;t}}$ ***Hiring or workers hirings*** *represents the number of hired workers during a year interval. The reference interval fixing is essential in view to compensate the seasoned cyclical variation but it doesn't eliminate the effect of long cycles. This effect is visible in the Romania's case for the construction sector.* (1)

Where hiring as a flow indicator, then:

H/year=HQ1+HQ2+HQ3+HQ4 (1.1.)

The proxy for the indicator „job tenure"/ worker employed in the same job, for the interval represents the number of persons hired[10]:

HQ1 in the first quarter or the number of persons with the "maximum tenure of employment" [9months; 12 months].

HQ2 in the first quarter or the number of persons with the "maximum tenure of employment" [6months; 9 months].

HQ3 in the first quarter or the number of persons with the "maximum tenure of employment" [3months; 6 months].

HQ4 in the first quarter or the number of persons with the "maximum tenure of employment" [0 months; 3 months].

$\mathbf{S_{t-1;t}}$ ***Separation or workers separations*** *represents the number of separated workers during a year interval (regardless the objective/subjective reason, individual or collective redundancies effects).* (2)

$\mathbf{TR_{Nt-1;t}}$ ***Workers total reallocation*** *represents the sum of worker's number with events of hirings and separations during a year interval*

$$\mathbf{TRNt\text{-}1;t = H_{t-1;t} + S_{t-1;t}} \quad (3)$$

$\mathbf{ER_{Nt-1;t}}$ ***Workers excess reallocation*** *represents the workers reallocation between firms from the same industry"* (*OECD 2009, pg.122) and the absolute modification of the net employment indicates the reallocation measure between different groups of firms / different industries, during a year interval*

$$\mathbf{ER_{Nt-1;t} = TRN_{t-1;t} - |\Delta N_{t-1;t}|} \quad (4)$$

$\mathbf{N_{mean\ t-1;t}}$ ***The mean number of employed people*** *during one year*

$$\mathbf{N_{meean\ t-1;t} = (N_{t-1}+N_t)/2} \quad (5)$$

$\Delta\mathbf{N_{t-1;t}}$ *Annual* ***employment growth***

$$\mathbf{\Delta N_{t-1;t} = H_{t-1;t} - S_{t-1;t} = N_t - N_{t-1}} \quad (6)$$

a. Where workers mobility is described through **relative indicators**:

rH **annual rate of workers hirings:**

$$\mathbf{rH_{t-1;t} = H_{t-1;t}/ Nmean\ _{t-1;t}} \quad (1a)$$

rS **annual rate of workers separations**

$$\mathbf{rSt\text{-}1;t = St\text{-}1;t/ Nmediu\ t\text{-}1;t = rHt\text{-}1;t - r\Delta N_{t-1;t}} \quad (2a)$$

$$\mathbf{r\Delta N_{t-1;t} = (H_{t-1;t} - S_{t-1;t})/Nmediu\ _{t-1;t}} \quad (2b)$$

$$\mathbf{r\Delta N_{t-1;t} = rH_{t-1;t} - rS_{t-1;t}} \Longrightarrow \mathbf{rS_{t-1;t} = rH_{t-1;t} - r\Delta N_{t-1;t}}$$

rTR **annual rate of workers total reallocation**

$$\mathbf{rTR_{Nt-1;t} = TR_{Nt-1;t}/N_{mediu\ t-1;t}}\ [\%] \quad (3a)$$

rER **annual rate of workers excess reallocation**

$$\mathbf{rER_{Nt-1;t} = ER_{Nt-1;t}/N_{mediu\ t-1;t}}\ [\%] \quad (4a)$$

[10] In this point we assume our methodological limit: we could loose the precision in estimating the job tenure. We know for sure only the number of events named "hiring" because for every 3 months interval the events are counted as subjective function for each person - every worker could experience more then one "hiring" events in the reference interval. In conclusion it is impossible to distinguish in longitudinal sense the number worker employed in the same job, for the reference interval but we could count, **aggregate the hiring events that occurs in the reference interval.**

3. Data and methods

From the dynamic perspective of the phenomenon, as well the case of the worker flows, the employment evolution have to be described through chronological series of interval (series builded from flow items, with additional, cumulative and aggregation data relatively to some time intervals[11]).

The model application requires a flow data set that reflects the number of hiring made in a year. In the OECD employment statistics is used the „job tenure" [12] indicator (with the significance of the time duration since the hiring event). Starting from the idea that is important the way of "reading" the data, as an "individuality" with many facets we changed the angle analyse perspective from the perspective that **"in stock an event take place "instantaneously" to the perspective: "in a flow an event take place in an time interval"**. The **alternative method developed in the first stage permit us to evaluate the gross worker flows using aggregate data (quarterly and annual frequency) provided by EUROSTAT in view to describe aggregate employment dynamics in a comparative manner at European level** (including data for Romania also). B*ased on OECD Employment Outlook 2009 and 2010 methodology consistent with Davis and Haltiwanger (1999) we use the "*employment by time since job started"[13] indicator provided in quarterly data as proxy for "employment by **job tenure"**[14] indicator in view to calculate the annual hiring flows (number of hiring into an year). This new indicator, **lfsq_egdn2**, provided by Eurostat since 2008, is derived from national Labour Force Survey and opens new opportunities to explore the labour market characteristics including the dynamics perspective. The special features of the flow indicator **lfsq_egdn2** is shaped at this moment by its content - the number of persons that make the transition in employment in an 3 month/an quarter time period or, in other words represents the number of "hirings"/events of transitions from any other status into employment realised in the reference interval of tree months (in the reference quarter). Our specific case is focused on hiring as transition from any status at (t-1 moment/ initial moment) to employment at t moment as final moment *(for the case of transition employment to employment there is a different establishment)*.

Among the EUROSTAT indicators available for UE27 member states and compatible with our methodology (based on OECD 2009/2010 methodology) we used the indicators with quarterly variation: „**lfsq_egdn2**-Employment by sex, age groups, time since job started and economic activity (from 2008, NACE rev.2) (1000)" and „**lfsq_egan** - Employment by sex, age groups and nationality (1000)", data are not seasonally adjusted.

3.1. European Internal Employment as a measure of the free labour force movement

The European dimension of the labour market as a representation of the single European market development and functioning motivate the interest for worker flows estimation at European level as an expression of the international circulation of the labour force.

Our analysis cover the individual labour contracts closed between noncitizen workers with an employer located in the European host state (different state from the worker state origin), regardless the negotiation process, employment process, the level of negotiated salaries. The indicator **lfsa_etpga** represents an indicator relatively recent provided by EUROSTAT, in a quarterly frequency starting with the third term Q3 2007 until (our last data) second term Q2 2010. The analysis potential of this approach is at the beginning, the perspective to valorise it in worker flows modelling at European level is sustained also by the already and projected characteristics of this indicator (see table 1):

[11] http://facultate.regielive.ro/cursuri/statistica/analiza_statistica_a_seriilor_cronologice-87307.html

[12] http://www.oecd.org/document/34/0,3746,en_2649_37457_40917154_1_1_1_37457,00.html#jobduration

[13] **lfsq_egdn2**-Employment by sex, age groups, time since job started and economic activity (from 2008, NACE Rev.2) (1000)

[14] **Definition:** Total employment is broken down by job tenure intervals
http://www.oecd.org/document/34/0,3746,en_2649_37457_40917154_1_1_1_37457,00.html#jobduration

Table 1

	Eurostat - name	Available (Octomber 2010)
NAT	**Nationals**	yes
FOR	**Foreigners - Total**	yes
EU27_FOR	Non nationals but citizens of other EU-27 count...	no
EU25_FOR	Non nationals but citizens of other EU-25 count...	no
EU15_FOR	Non nationals but citizens of other EU-15 count...	no
EXT_EU27	Citizens of countries outside the EU-27	no
EXT_EU25	Citizens of countries outside the EU-25	no
EXT_EU15	Citizens of countries outside the EU-15	no
NRESP	No answer	no

Based on this indicator we sketch the following definitions:
Internal employment ($\mathbf{N_{intern}}$)= the total employment registered on a national territory / area of a state (in our case with specific reference to the EU Member States) = Number of the employed people national citizens of the respective state($\mathbf{N_{nat}}$)+ Number of employed people without the national citizenship / foreigners ($\mathbf{N_{for}}$).

$$\mathbf{N_{internTi}=N_{natTi}+N_{forTi}} \quad (7)$$

$N_{internTi}$ - the total employment registered on a national territory / area of a state at time Ti;
N_{natTi} - Number of the employed people national citizens of the respective state at time Ti;
N_{forTi} – Number of employed people without the national citizenship / foreigners Ti;

The worker flows are described by the worker characteristic to be an EU27 citizen or to be an citizen of the space non EU27. The perspective to analyse the citizenship to EU25 and EU15 are essential in function the analysis objectives (EMU participation, Shengen space). In view to simplify, in this stage of analysis we ignore those details and we consider only the two states: national and foreigner in reference with each EU27 state national space.

3.2. The gross worker flows of foreigners' estimation at EU27

The gross worker flows of foreigners' estimation at EU27 are contextualised by the data availability for the years 2008 and 2009 for characteristics like: age groups (15-64 years, 15-24 years, 25-49 years, 50-64 years), gen (total, masculine and feminine), citizenship (citizen, non citizen based on **lfsa_etpga**) where the gross flows values are projected using the probabilities distributed by characteristics using the relation:

$$\mathbf{H_{for}=N_{for}/N_{int}=(N_{int}-Nn_{at})/N_{int}*H_{int}} \ \forall \text{ characteristic} \quad (8)$$

$$\mathbf{p_i=H_{for}/H_{int}} \quad (8\ a)$$

$$\mathbf{S_{for}=S_{int}*p_i} \quad (8b)$$

$\mathbf{H_{for}}$ *the number of hired workers(foreigners an the respective state territory) during a year interval*

$\mathbf{H_{int}}$ *the number of hired workers(national and foreigners an the respective state territory) during a year interval*

(pi) probabilities *distributed by characteristics 15-24 years, 25-49 years, 50-64 years), gen (total, masculine and feminine) calculated Hfor/Hint(see Table2)*

$\mathbf{S_{for}}$ *the number of separated workers(foreigners an the respective state territory) during a year interval*

$\mathbf{S_{int}}$ *the number of separated workers(national and foreigners an the respective state territory) during a year interval*

Table 2

The gross worker flows of foreigners' estimation at EU27 where the gross flows values are projected using the probabilities (pi)

distributed by characteristics 15-24 years, 25-49 years, 50-64 years), gen (total, masculine and feminine)

	p12008	p22009	p3m2008	p4m2009	p5f2008	p6f2009
UE27 15_64	0,07	0,07	0,07	0,07	0,06	0,06
UE27 15_24	0,07	0,07	0,07	0,07	0,07	0,06
UE27 25_49	0,07	0,07	0,08	0,08	0,06	0,07
UE27 50_64	0,04	0,04	0,04	0,04	0,04	0,04

4. Results

We applied this method for some characteristics like: age groups (15-64 years, 15-24 years, 25-49 years, 50-64 years), gen (total, masculine, feminine), citizenship (citizen, non citizen based on **lfsa_etpga**) see Table 3a and Table 3b.

Considering "our hiring" indicator as a flow indicator (that explains the aggregate fluctuations) expressed through number of events in a specific interval of time we calculate (using the relations (1) to (6) for absolute values and (1a) –(4a) for relative values) the annual values for: workers hiring flows, workers separation flows, workers total reallocation flows and workers excess reallocation flows in both its relative and absolute (levels) dimensions.

The provided data permit us to calculate these values for the years 2008 and 2009, years for Romania as well for other European countries with labour market dynamics values provided by OECD. If at internal level the volume of employment keeps the tendency to decrease in hirings number and the increase in separations for the 2 years analysed. Also is visible that the worker flows of the foreign suffer an accentuated contraction in volume - hirings drops with almost 1/3, impossible to alleviate the maintained trend of separations. Another general observation is given by the general tendency of decreasing the total workers reallocation flow as a measure of the speed o intersectoral worker allocation, as well as the workers excess reallocation volume and intensity decreasing tendency, indicating an decrease of the intrasectoral reallocation speed.

Table 3a

The gross worker flows of foreigners' estimation at EU27 contextualised by the data availability for the years 2008 and 2009 for characteristics like: age groups (15-64 years, 15-24 years, 25-49 years, 50-64 years), gen (total, masculine and feminine), citizenship (citizen, non citizen), in absolute and relative values

Workers hirings flows - internal employment

thousands of workers

	HintT2008	HintT2009	HintM2008	HintM2009	HintF2008	HintF2009
UE27 15_64	39635	33391	20747	17290	18888	13963
UE27 15_24	13304	10917	6929	5549	6375	5368
UE27 25_49	22571	19089	11721	9880	10850	7071
UE27 50_64	3759	3385	2096	1861	1662	1524

rH annual rate of workers hirings - internal employment

%

	rHintT2008	rHintT2009	rHintM2008	rHintM2009	rHintF2008	rHintF2009
UE27 15_64	18,2	15,6	21,2	14,8	19,3	14,4
UE27 15_24	59,0	52,3	67,8	49,5	62,4	55,6
UE27 25_49	15,8	13,6	18,1	13,0	16,7	11,0
UE27 50_64	7,2	6,4	9,2	6,3	7,3	6,5

Workers separations flows -internal employment

thousands of workers

	SintT2008	SintT2009	SintM2008	SintM2009	SintF2008	SintF2009
UE27 15_64	38714	37890	20908	20775	17805	14977
UE27 15_24	13868	12676	7257	6692	6611	5984
UE27 25_49	22623	22397	12283	12238	10340	8021
UE27 50_64	2223	2817	1368	1844	854	972

rS annual rate of workers hirings - internal employment

%

	rSintT2008	rSintT2009	rSintM2008	rSintM2009	rSintF2008	rSintF2009
UE27 15_64	17,8	17,7	17,4	17,8	18,2	15,4
UE27 15_24	61,5	60,7	58,8	59,7	64,7	62,0
UE27 25_49	15,8	16,0	15,7	16,1	16,0	12,5
UE27 50_64	4,3	5,3	4,7	6,2	3,7	4,1

Workers hirings flows - foreigner employment

thousands of workers

	HforT2008	HforT2009	HforM2008	HforM2009	HsF2008	HforF2009
UE27 15_64	2675	2252	1470	1204	1197	905
UE27 15_24	922	714	489	367	431	347
UE27 25_49	1599	1399	894	761	698	495
UE27 50_64	154	139	87	77	67	63

rH annual rate of workers hirings foreigner employment

%

	rHforT2008	rHforT2009	rHforM2008	rHforM2009	rHsF2008	rHforF2009
UE27 15_64	1,2	1,1	1,2	1,2	1,2	1,0
UE27 15_24	4,1	3,4	4,2	3,9	4,4	4,0
UE27 25_49	1,1	1,0	1,2	1,2	1,0	0,9
UE27 50_64	0,3	0,3	0,2	0,3	0,2	0,2

Workers separations flows -foreigner employment

thousands of workers

	SforT2008	SforT2009	SforM2008	SforM2009	SsF2008	SforF2009
UE27 15_64	2613	2556	1481	1447	1128	971
UE27 15_24	961	829	512	442	447	387
UE27 25_49	1603	1641	937	943	665	561
UE27 50_64	91	116	57	76	35	40

rS annual rate of workers hirings foreigner employment

%

	rSforT2008	rHforT2009	rSforM2008	rSforM2009	rSsF2008	rSforF2009
UE27 15_64	1,2	1,2	1,2	1,2	1,2	1,0
UE27 15_24	4,3	4,0	4,2	3,9	4,4	4,0
UE27 25_49	1,1	1,2	1,2	1,2	1,0	0,9
UE27 50_64	0,2	0,2	0,2	0,3	0,2	0,2

Table 3b

The gross worker flows of foreigners' estimation at EU27 contextualised by the data availability for the years 2008 and 2009 for characteristics like: age groups (15-64 years, 15-24 years, 25-49 years, 50-64 years), gen (total, masculine and feminine), citizenship (citizen, non citizen), in absolute and relative values

Workers total reallocation flows - internal employment

thousands of workers

	TRintT2008	TRintT2009	TRintM2008	TRintM2009	TRintF2008	TRintF2009
UE27 15_64	78348	71281	41655	38065	36693	28940
UE27 15_24	27172	23593	14186	12241	12986	11352
UE27 25_49	45194	41486	24004	22119	21190	15092
UE27 50_64	5982	6202	3465	3706	2517	2496

Workers excess reallocation flows -internal employment

thousands of workers

	ERintT2008	ERintT2009	ERintM2008	ERintM2009	ERintF2008	ERintF2009
UE27 15_64	77427	66782	41493	34581	35610	27926
UE27 15_24	26609	21834	13858	11098	12751	10736
UE27 25_49	45143	38178	23442	19760	20680	14143
UE27 50_64	4446	5633	2737	3689	1709	1945

rTR annual rate of workers total reallocation flows - internal employment

%

	rTRintT2008	rTRintT2009	rTRintM2008	rTRintM2009	rTRintF2008	rTRintF2009
UE27 15_64	36,0	33,3	34,7	32,6	37,5	29,8
UE27 15_24	120,5	113,0	115,0	109,1	127,1	117,5
UE27 25_49	31,6	29,6	30,7	29,1	32,7	23,6
UE27 50_64	11,5	11,7	11,8	12,5	11,0	10,7

rER annual rate of workers excess reallocation flows - internal employment

%

	rERintT2008	rERintT2009	rERintM2008	rERintM2009	rERintF2008	rERintF2009
UE27 15_64	35,6	31,2	34,6	29,6	36,4	28,7
UE27 15_24	118,0	104,6	112,4	99,0	124,7	111,2
UE27 25_49	31,6	27,3	30,0	26,0	31,9	22,1
UE27 50_64	8,5	10,6	9,3	12,5	7,5	8,3

Workers reallocation flows - internal employment

thousands of workers

	TRforT2008	TRforT2009	TRforM2008	TRforM2009	TRforF2008	TRforF2009
UE27 15_64	5287	4808	2951	2651	2325	1876
UE27 15_24	1882	1544	1002	809	879	734
UE27 25_49	3202	3039	1831	1704	1363	1056
UE27 50_64	245	255	144	152	102	103

Workers excess reallocation flows -internal employment

thousands of workers

	ERforT2008	ERforT2009	ERforM2008	ERforM2009	ERsF2008	ERforF2009
UE27 15_64	52	45	29	24	23	18
UE27 15_24	18	14	10	7	9	7
UE27 25_49	32	28	18	15	13	10
UE27 50_64	2	2	1	2	1	1

rTR annual rate of workers total reallocation flows - foreigner employment

%

	rTRforT2008	rTRforT2009	rTRforM2008	rTRforM2009	rTRforF2008	rTRforF2009
UE27 15_64	2,4	2,2	2,5	2,3	2,4	1,9
UE27 15_24	8,3	7,4	8,1	7,2	8,6	7,6
UE27 25_49	2,2	2,2	2,3	2,2	2,1	1,6
UE27 50_64	0,5	0,5	0,5	0,5	0,4	0,4

rER annual rate of workers excess reallocation flows - foreigner employment

%

	rERforT2008	rERforT2009	rERforM2008	rERforM2009	rERsF2008	rERforF2009
UE27 15_64	0,02	0,02	0,02	0,02	0,02	0,02
UE27 15_24	0,08	0,07	0,08	0,07	0,08	0,07
UE27 25_49	0,02	0,02	0,02	0,02	0,02	0,02
UE27 50_64	0,00	0,00	0,00	0,01	0,00	0,00

5. Final remarks

Our analysis is focused on the quantitative estimation of the labour force circulation at UE27 level, measured through the quantification of the individual labour contracts quantification; contracts closed between noncitizen workers with an employer located in the European host state (different state from the worker state origin), regardless the negotiation process, employment process, the level of negotiated salaries. We assume that the working contract closing/initiating is equivalent with the "hiring" event and its ending is equivalent with "separation". Even if we made important simplifying assumption, ignoring essential features the result offer an guidance and monitoring support reference perspective, useful to shape some tendencies. The main value added of this paper is the tendencies emphasized for the total non citizen worker flows estimation at European aggregate level as a measure of European single market development.

The analysis potential of this approach is at the beginning, thanks to the huge progress of the indicators development, strengthened by the spatial perspective building of the worker flows as a part of the labour market dynamics development.

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