Human Migration
in an Expanding European Union

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Contents

1 Foundations of Migration Modeling

This work will give a brief look at migration analysis by Erzan, Kuzubas and Yildiz [ErKY04] and by Brücker, Alavarez-Plata and Siliverstovs [BrAS03]. Both are two-sector analysis. Migration from CEEC 10[1] to the EU 15 in the case of [BrAS03] and migration from Turkey to the EU15 in the case of [ErKY04].

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[1]Central Eastern European Countries including Czech Repuplic, Estonia, Hungary, Lativa, Lithuania, Poland, Slovak Republic, Slovenia and those soon to join the EU: Bulgaria and Romania
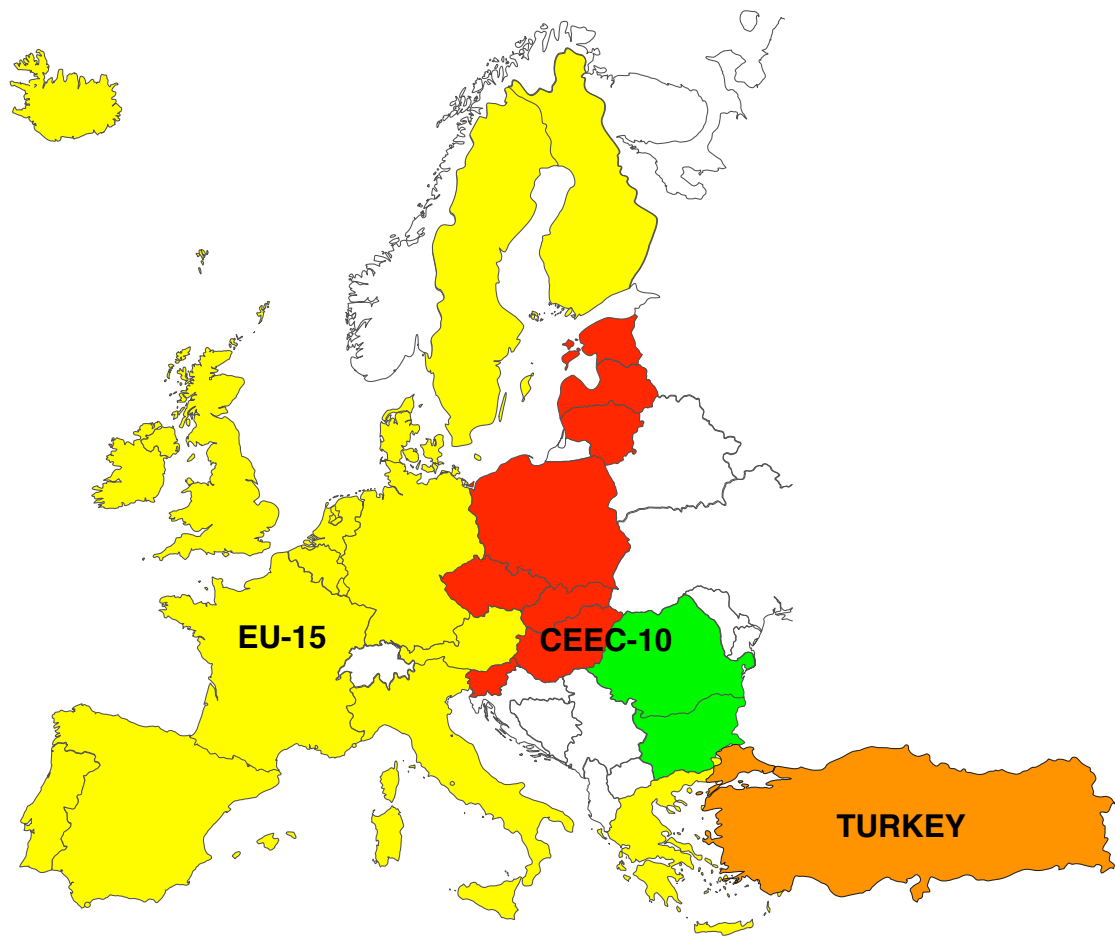
Figure 1: Brücker, Alavarez-Plata and Siliverstovs analyzed migration from the CEEC-10 to the EU15. Erzan, Kuzubas and Yildiz analyzed migration from Turkey to the EU-15.

Therefore it should be helpful to look at work done by Harris and Todaro [HaTo70] who developed the subject of two-sector analysis in the 1970's[2]. Harris and Todaro analyzed migration from rural to urban area in tropical Africa. Which was surprisingly strong, considering much higher unemployment in the city. But wages where too, due to strict minimum wage laws in the city.

People from rural area migrated to the city for as long as there *expected wage* in urban area w_u^e was higher than there wage in rural area.

The expected urban wages is the minimum wage w_M times the employment rate N_{empl}/N.

$$w_u^e = \frac{w_M N_{empl}}{N} \tag{1}$$

In a Nutshell: People will take the cost of migration if their expected income abroad is higher than their income at home.

	PPP-GDP[1)]		GDP[2)]	
	EURO	in % of EU-15	EURO	in % of EU-15
Bulgaria	6 500	28.0	1 875	7.8
Czech Republic	13 300	57.2	6 164	25.6
Estonia	9 800	42.2	4 535	18.9
Hungary	11 900	51.2	5 813	24.2
Latvia	7 700	33.1	3 613	15.0
Lithuania	8 700	37.4	3 638	15.1
Poland	9 200	39.6	5 092	21.2
Romania	5 900	25.4	1 982	8.2
Slovak Republic	11 100	47.8	4 229	17.6
Slovenia	16 000	68.9	10 499	43.7
Cyprus	21 118	90.9	15 171	63.1
Malta	..	..	10 553	43.9
Turkey	5 200	22.4	3 213	13.4
CEEC-8	10 675	45.9	5 407	22.5
CEEC-10	9 322	40.1	4 395	18.3
CC-13	7 764	33.4	4 001	16.6
CC-10	10 725	46.2	5 534	23.0
EU-15	23 236	100.0	24 050	100.0

Figure 2: PPP-GDP and GDP, 2001

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[2]Even earlier studies on the nature and strength of human migration was published in 1885 by E. G. Ravenstein [Ra1885].

Today wages and employment rates still dominate the discussion on migration [BrAS03]:

> "Almost all models discussed in the empirical literature explain migration by income and employment opportunities in the respective countries and a set of institutional variables which should capture different migration restrictions. The main reason for the varying estimation results is that the different studies use different econometric estimators."

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
					unemployment rate in % of labour force							
Slovak Republic	1.6	11.8	10.4	14.4	14.8	13.1	12.8	12.5	15.6	19.2	17.9	18.6
Poland	6.5	12.2	14.3	16.4	16	14.9	13.2	10.3	10.4	13.1	15.1	17.4
Bulgaria	1.8	11.1	15.3	16.4	12.8	11.1	12.5	13.7	12.2	16	17.9	17.3
Lithuania	na	na	3.5	3.4	4.5	7.3	6.2	6.7	6.9	10	12.6	12.9
Slovenia	na	10.1	13.3	15.5	14.2	14.5	14.4	14.8	14.6	13	12	11.8
Czech Republic	0.7	4.1	2.6	3.5	3.2	2.9	3.5	5.2	7.5	9.4	8.8	8.9
Romania	1.3	3	8.2	10.4	10.9	9.5	6.6	8.8	10.3	11.5	10.5	8.6
Hungary	1.7	7.4	12.3	12.1	10.9	10.4	10.5	10.4	9.1	9.6	8.9	8
Latvia	na	na	2.3	5.8	6.5	6.6	7.2	7	9.2	9.1	7.8	7.7
Estonia	na	na	1.6	5	5.1	5	5.6	4.6	5.1	6.7	7.3	7.2
CEEC-8	4.2	9.3	11.0	12.7	12.4	11.9	11.0	9.7	10.2	12.5	13.4	14.6
CEEC-10	3.4	8.1	10.7	12.5	12.1	11.3	10.2	9.8	10.4	12.5	13.1	13.5
memo items												
Cyprus	1.8	3.0	1.8	2.6	2.7	2.6	3.1	3.4	3.4	3.6	3.5	3.5
Malta	3.8	3.6	4.0	4.5	4.1	3.8	4.4	5.0	5.1	5.3	4.5	4.9
Turkey	8.2	7.9	7.9	7.6	8.1	6.9	6.1	6.4	6.8	7.6	6.6	7.9

Figure 3: Unemployment rates, 1990-2001

The same incentives, as in tropical Africa, are still relevant today. To predict potential migration we have to compare the income per person and the employment rates with the cost of migration.

As shown in Figure 2 and Figure 3 the employment rates are not much different in the EU 15 compared to the CEEC 10. But income per head in CEEC 10 is just 40 per cent of the EU 15. And even less in Turkey.

1.1 The Migration Model

Following Harris and Todaro, Brücker, Alavarez-Plata and Siliverstovs develop the migration function[3] as

$$mst_{fht} = f(w_{ft}, w_{ht}, e_{ft}, e_{ht}, P_{ht}, Z_{ht}) \qquad (2)$$

We can see the connection with [HaTo70][4] since mst_{fht}, the share of migrants from country h residing in country f in per cent of the home population P_{ht} depend on the

Wage in foreign and home country (w_{ft} and w_{ht}) and

Employment in foreign and home country (e_{ft} and e_{ht})

Z_{ht} is a vector of time-invariant variables capturing the causes of migration between two countries, i.e. the costs of migration, like travel restrictions and difference in culture and language. For more details and a good comparison of direct and indirect costs of human migration consult Sjaastad's [Sjaa62].

2 Migration from CEEC 10

The results of Brücker, Alavarez-Plata and Siliverstovs research are shown in Figure 4, Figure 5 and Figure 6.

2.1 Migration from CEEC 10 to Germany

Figure 4 shows the simulations results for migration from CEEC 10 to Germany. The results are based on the German data set and the assumption

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[3]The dynamic migration model of [BrAS03] adds some lag variables to consider effects of the population already living abroad.

Finding the best econometric estimators very much depends on the data set used. The model developed in [BrAS03] is based on two data sets:

Germany 33 years of immigration to Germany from 19 source countries

EU 15 8 years of immigration to 15 destination countries from 20 source countries

For the German data sample a further lag of the endogenous variable is included in order to impose less restriction on the adjustment process. For the European sample, the model is restricted to one lag in order to avoid losing any further time-series observations.

The error term is a one-way error-component model $u_{fht} = u_{fh} + v_{fht}$ where u_{fh} is country-specific and v_{fht} is white noise. $mst_{fht} = \alpha + (1-\delta)mst_{fh,t-1} + \beta_1 ln(\frac{w_{ft}}{w_{ht}}) + \beta_2 ln(w_{ht}) + \beta_3 ln(e_{ft}) + \beta_4 ln(e_{ht})) + \beta_5 ln(P_{ft})) + Z_{fh}\delta + u_{fht}$
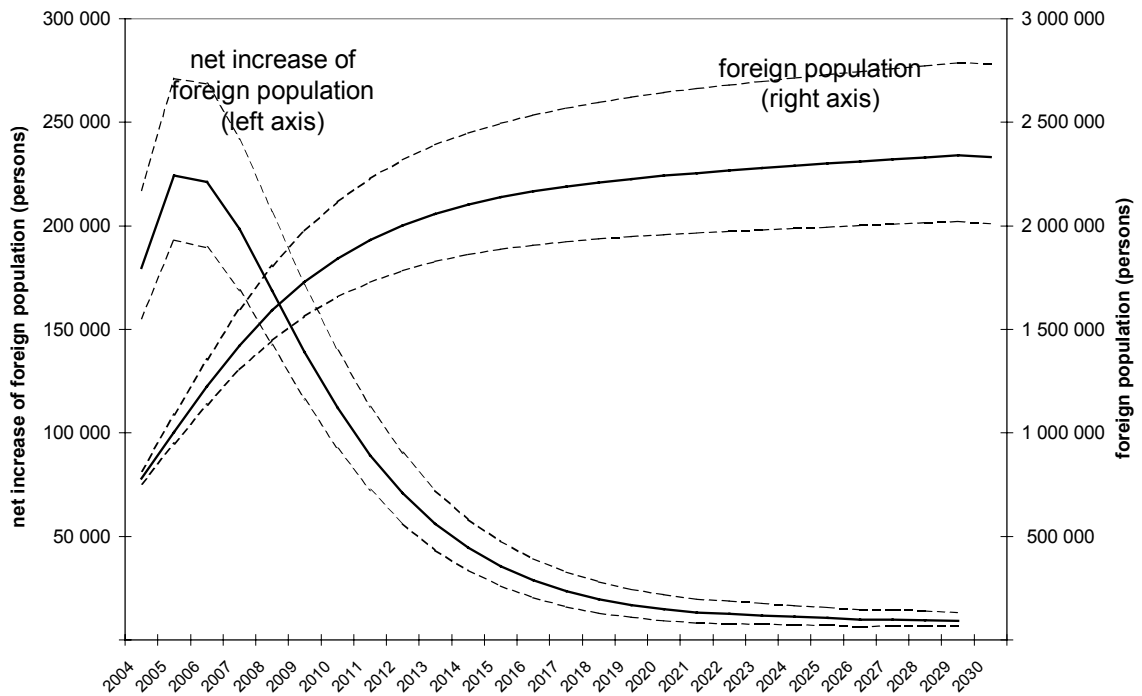
[4] [HaTo70] assumed employment in rural area to be 1.

Figure 4: Migration scenarios for Germany

that free movement is introduced for all ten CEECs in 2004. The results vary between 1.8 and 2.4 million residents from the CEEC 10 in Germany ten years after free movement has been introduced, and between 2.2 and 3.0 million residents 20 years after introducing free movement.

2.2 Migration from CEEC 10 to EU 15

Since the geographical distribution of the migrant population across European countries are quite stable over time we can extrapolate the results for Germany to the EU 15. We can expect this procedure to yield significantly more plausible results than simulations based on the European data set.

The migration from CEEC 10 to the EU 15 as shown in Figure 5 yields an initial net increase of the foreign population from the CEEC 10 of 294,000 persons. The net increase reaches its peak at around 370,000 persons. The long-run stock of migrants is estimated to number 3.8 million persons.

Note that less than 40 per cent of the foreign residents from the CEEC 10 are employees at present.
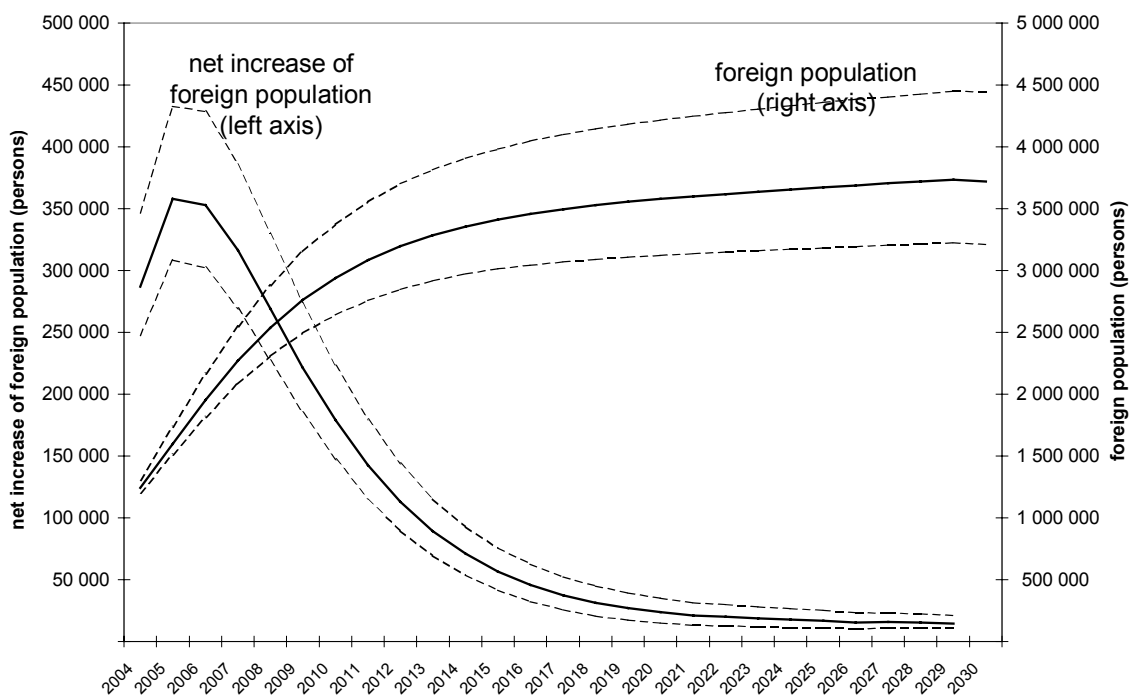
Figure 5: Migration scenarios for the EU15

2.3 Simulation of Transitional Periods

The transitional period, meaning a delay of free movement for new members is another aspect analyzed by Brücker, Alavarez-Plata and Siliverstovs. Germany and Austria just recently announced that they would take full advantage of this transitional periods.

Figure 6 shows the impact of transitional periods in Germany of two years, five years and seven years for the CEEC 8. For Bulgaria and Romania the introduction of free movement in 2007, and transitional periods of another five and seven years are assumed.

Postponing free movement from 2004 to 2006, 2009 or even 2011 yields only a marginal reduction in the net increase of migrants after free movement has been introduced. The migrant stocks tend to converge relatively rapidly to their long-run levels in the different scenarios. Thus, postponing free movement neither reduces net migration flows in the initial years after liberalisation nor does it affect the long-run stocks of the foreign population.

Unfortunately Brücker, Alavarez-Plata and Siliverstovs do not assume any effects of those policies on economic growth and employment rates. If transitional periods are extended, or in the case of Bulgaria and Romania EU membership is postponed, economic growth in the CEEC 10 could decline. Leading to higher migration.

3 Migration from Turkey

Erzan, Kuzubas and Yildiz [ErKY04] start with worries on migration from Turkey.

> "Occasionally, sensational news articles on the scary magnitude of potential migrants from Turkey take the headlines in EU media. Careless interpretation of casual opinion polls can put the number up to 25 per cent of a population of about 70 million. Magnitudes that emerge from serious research work are a fraction of that. The survey of this literature undertaken by the 2004 Impact Study *(Issues Arising from Turkeys Membership Perspective)* of the EU Commission has reported that forecasts of immigration from Turkey to the EU-15 until 2030 range between 0.5 and 4.4 million, assuming free mobility of labor in about a dozen years from now. The Impact Study also underlines that to arrive at the higher end estimates (about 4 million), the studies have to torture the data and the methodology."
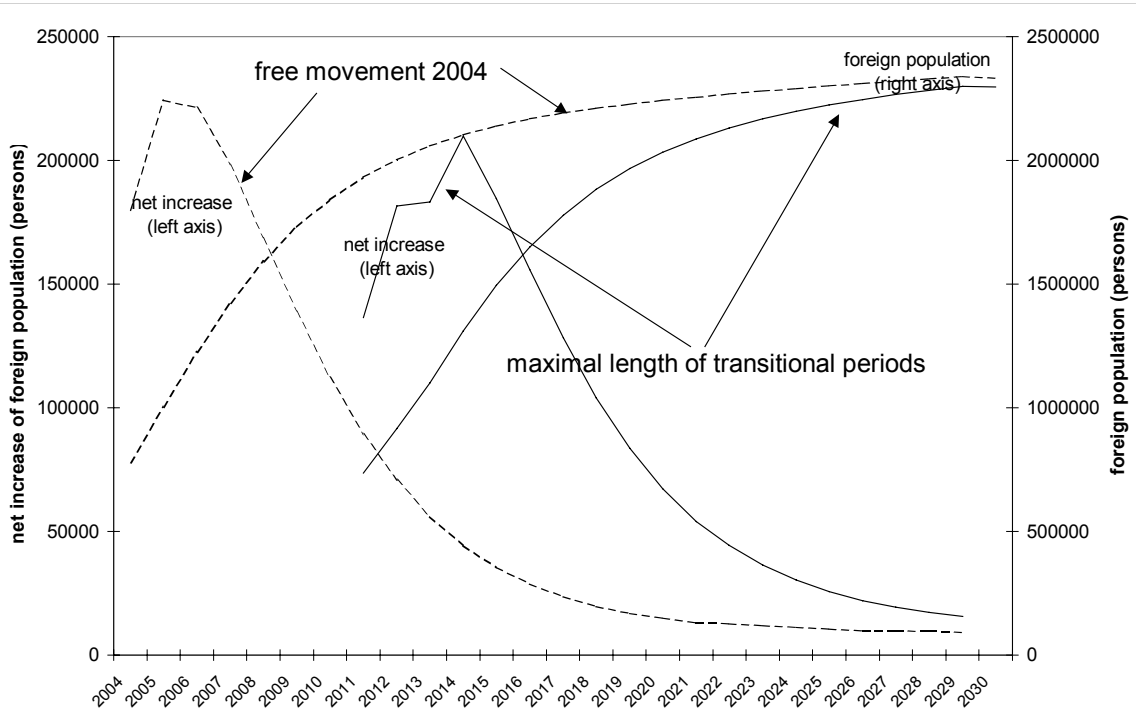
Figure 6: Migration scenarios for the EU15

The results of this study gives a strong argument for the political dimension of this issue. If Turkeys EU membership is postponed or blocked, the impact on Turkey will be dramatic. Economic growth will decline and political stability is at risk. Leading to even stronger pressure on migration. The exact opposite -as so often in politics- of the desired output.

To quote [ErKY04] again:

> "Our simulation results for net migration from Turkey to EU 15 in the period 2004 - 2030 is between 1 and 2.1 million, foreseeing a successful accession period with high growth and free labor mobility starting 2015 - a rather optimistic assumption to explore the upper bound of the immigration potential. On the other hand, if Turkeys membership process is endangered and high growth cannot be sustained, 2.7 million people may be penetrating the EU 15 despite the prevailing strict restrictions on labor mobility."

For this results three reference groups are used with the model developed in [BrAS03].

1967-2001 Immigration from all Europe is based on the same data as [BrAS03] with focus on Turkey instead of the CEEC 10.

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1967-2001 Spain, Portugal and Greece assuming "characteristics resembling Turkey at the time of their accession". Results are then extrapolated on Turkey.

1967-2001 Turkey's own experience Turkey has a nomadic tradition, therefor only data on Turkeys migration should be used.

This reference groups are simulated with two different scenarios to forecast migration for 2004-2030.

- High growth, EU membership and free movement of Labor (Figure 7)

- Low growth, postponed EU membership and no free mobility of Labor (Figure 8)
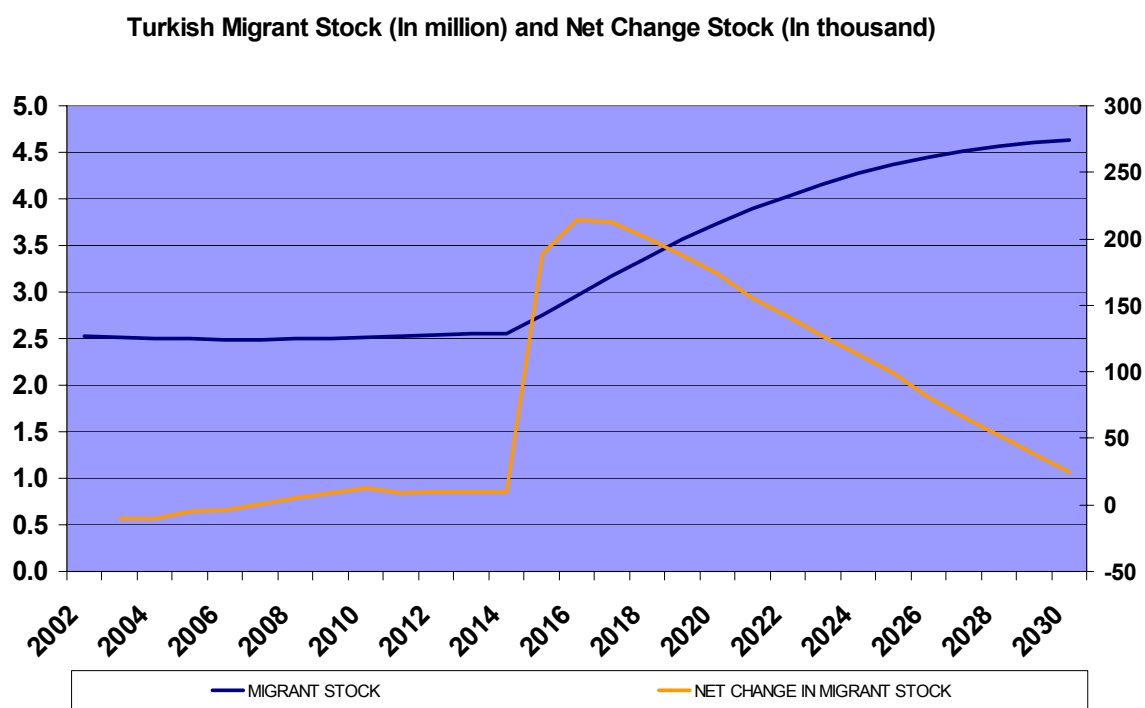
Turkish Migrant Stock (In million) and Net Change Stock (In thousand)

Figure 7: EU Membership and High Growth

4 Conclusion

It is striking that the estimates for migration from Turkey are higher if EU membership is postponed. Those results assume lower growth and employment rates. But this is reasonable since postponing the expected membership will have such effects on Turkey.
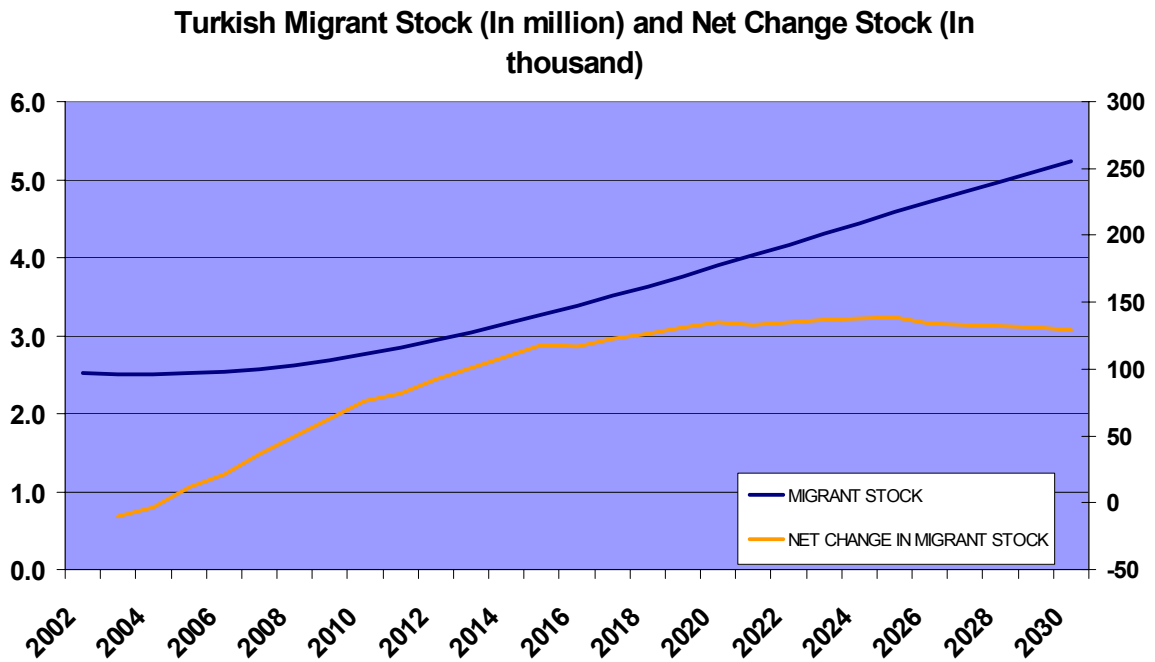
Turkish Migrant Stock (In million) and Net Change Stock (In thousand)

Figure 8: Postponed EU Membership and Low Growth

Those *"sensational news articles on the scary magnitude of potential migrants from Turkey"* seem to forget that Turkey will stay where it is. Right hear in Europe. The only way to solve the problem of human migration in Europe or in tropical Africa is to increase peoples expected income in there home country. For Turkey a step in this direction would be full membership to the European Union.

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