

*Turkey and the EU: Economic Integration and Labour Migration*

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**Cyprus –UK Migration Corridor: Economic  
Implications of Remittances**

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**Correspondence Address:** University of Central Lancashire, Lancashire Business School,  
Greenbank 132, Preston, PR1 2HE, email: ysonmez@uclan.ac.uk

## **1. Introduction**

Cyprus, which is the third biggest island of the Mediterranean, joined the European Union on 1<sup>st</sup> May in 2004 together with Malta and the Central and Eastern European countries (CEECs). Its strategic location, in the far eastern part of the Mediterranean, historically adjoining Europe, Asia and Africa, made the island an important participant in the migration process either as a point of origin, transit or destination for migrants.

The EU's fifth enlargement process induced substantial labour migration from accession states – mostly eastern European – into the states of the EU15. In response, a number of EU15 states took steps to limit in migration of labour because of fears about the potential political and economic consequences of increased competition in domestic labour markets. Although in comparison to the volume of migration from the CEECs to the EU, Cypriot emigration is not much and Cyprus traditionally exporting migrants has recently transformed into one of the host countries, it has for years been a traditional exporter of migrants. As a former British colony, being under British colonial rule from 1878 to 1960, UK has always been the main destination country for Cypriot emigrants.

When Cyprus became an EU member in May 2004, bilateral trade duties on commodities were eliminated on trade between EU15 and Cyprus. At the same time, EU's CCT is imposed by Cyprus on imports from third countries. With the full membership, there is also free movement of labour between the two parties.

This paper reports an analysis of the economy wide effects of changes in both labour migration from Cyprus to UK and labour remittances to Cyprus by migrant workers. Migrations decisions are endogenising through labour supply functions that respond to changes in the relative wages in the UK. Due to the past migration patterns and volumes of Cypriots the analyses focus on labour migration to the UK and its economic implications for Cyprus and the UK.

The analyses are carried out using a 15-region, 12-sector and 4-factor aggregation of the GTAP database augments by the labour and remittance data from the GMig2 database (Walmsley *et al.* 2007) and additional IMF data (McDonald and Sonmez, 2004). The computable general equilibrium model used is a development of the GLOBE model - GLOBE\_MIG (see McDonald & Thierfelder, 2008). GLOBE\_MIG allows for bilateral labour migration through labour supply function and a richer characterization of domestic labour markets that allow, among other things, (limited) migration between labour types. This latter feature is important since it allows 'skilled' labour in one region to migrate to another region where the labour services are traded on the 'unskilled' labour markets.

Preliminary results indicate that there will be strong incentives for increased migration of Cypriot labour into the UK, while, in some scenarios, have major negative implications for the performance of the domestic Cypriot economy. While the negative welfare implications are offset by increased remittances these serve to increase the adverse implications for domestic Cypriot production.

The rest of this paper is organised as follows. In section 2 labour migration and remittance trends in Cyprus are reviewed. This is followed by a description of the data set and model used in this study and some descriptive statistics. The results are discussed in section 5 and the paper ends with some concluding comments.

## **2. EU expansion: Cyprus - UK**

### 2.1. EU Migration Trends

European Union, with twenty seven member states and a population of close to five hundred million people, has experienced six enlargements and thus, is the world leader in international economic integration. It has been widening and deepening for more than sixty years, growing from the original six members to the current twenty seven in order to bring economic, political and social stability to Europe.

There were some signs of stabilisation in migration flows into EU countries, from 2002 to 2003 but in 2004 they increased again, though not uniformly across the countries. While Spain, UK, Austria, France and Poland reported an increase in migration flows from 2001 to 2004, Denmark, Germany, Hungary and the Netherlands experienced a continuous downturn (OECD, 2007f).

There has been an increase in the number of the stock of foreigners between 1980 and 2001 in most of the European countries such as Austria, Denmark, Finland, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Switzerland and the UK.

**Table 1: Foreigners in Selected European Countries, in thousands, 1980 – 2001**

| <b>Country</b> | <b>1980</b> | <b>1985</b> | <b>1990</b> | <b>1996</b> | <b>2001</b> |
|----------------|-------------|-------------|-------------|-------------|-------------|
| <b>Austria</b> | 209         | 309         | 456         | 728         | 711         |
| <b>Belgium</b> | 887         | 847         | 905         | 912         | 847         |
| <b>Denmark</b> | 98          | 117         | 161         | 238         | 267         |
| <b>Finland</b> | 13          | 17          | 27          | 74          | 99          |
| <b>France</b>  | 3,634       | 3,670       | 3,597       | 3,371       | 3,193       |
| <b>Germany</b> | 4,453       | 4,379       | 5,343       | 7,314       | 7,336       |

### *Turkey and the EU: Economic Integration and Labour Migration*

|                       |        |        |        |        |        |
|-----------------------|--------|--------|--------|--------|--------|
| <b>Ireland</b>        | 29     | 45     | 80     | 118    | 182    |
| <b>Italy</b>          | 183    | 423    | 781    | 1,096  | 1,363  |
| <b>Luxembourg</b>     | 95     | 98     | 113    | 143    | 167    |
| <b>Netherlands</b>    | 520    | 553    | 692    | 680    | 690    |
| <b>Norway</b>         | 82     | 102    | 143    | 158    | 186    |
| <b>Portugal</b>       | 42     | 67     | 108    | 173    | 224    |
| <b>Spain</b>          | 183    | 242    | 279    | 539    | 1,109  |
| <b>Sweden</b>         | 413    | 389    | 484    | 527    | 476    |
| <b>Switzerland</b>    | 893    | 940    | 1,100  | 1,338  | 1,419  |
| <b>United Kingdom</b> | 1,739  | 1,731  | 1,723  | 1,934  | 2,681  |
| <b>Total</b>          | 13,474 | 13,926 | 15,990 | 19,340 | 20,948 |

*Source: UN World Economic and Social Survey, 2004*

Among the European countries, Germany is the one which has the highest number of migrant stock as well as the highest percentage of the world's migrant stock. In 2007, it had more than 10 millions of international migrant stock, accounting for about 12% of its population. Germany is followed by France with 6.5 millions and 11% and UK with 5 millions and 9% (IOM, 2005, OECD, 2007).

#### 2.2. Cyprus – EU Relations

Following the Association Agreement between Cyprus and European Economic Community in 1972, Cyprus became an EU member in May 2004 despite the division of the island into a Greek speaking and a Turkish speaking zone.

Cyprus formally applied for accession to the EU in 1993. EU considered Cyprus eligible for membership and the formal negotiations on membership of Cyprus into the EU started in 1995. EU sent a special envoy to Cyprus to monitor UN efforts there to achieve a political settlement since initially it was announced that the membership of Cyprus into the EU could only take place after a political settlement. Negotiations between the two communities of Cyprus continued as well as the negotiations between the EU and Cyprus. Although, it was hoped that the EU pressure could help bring about a political settlement on the island, it did not.

In 1999, it was formally announced that 'a solution to the political problems of Cyprus was not a precondition for Cyprus joining the EU' (PIER, 2010, pg2).

The final stages of negotiations between the EU and Cyprus were concluded in 2002 and 2003 and Cyprus became an EU member in 2004.

The EU's fifth enlargement process of 2004 induced substantial labour migration from accession states – mostly eastern European – into the states of the EU15. In response a number of EU15 states took steps to limit the migration of labour because of fears about the potential political and economic consequences of increased competition in domestic labour markets.

### *Turkey and the EU: Economic Integration and Labour Migration*

However, no limitations were imposed on the migration of Cypriots to the UK thus encouraging further Cypriot emigration.

The Association Agreement signed in 1973 allowed Cyprus to join a Customs Union with the European Economic Community, providing for trade, financial and technical cooperation. The full membership of 2004, on the other hand, granted the Cypriots the right to the free movement of labour within the EU (PIER, 2010).

Although in comparison to the volume of migration from the CEECs to the EU, Cypriot emigration is not much and Cyprus traditionally exporting migrants has recently transformed into one of the host countries, it has for years been a traditional exporter of migrants. As a former British colony, being under British colonial rule from 1878 to 1960, UK has always been the main destination country for Cypriot emigrants.

#### 2.3. Cyprus Migration Trends and Remittances

The strategic location of Cyprus, in the far eastern part of the Mediterranean, historically adjoining Europe, Asia and Africa, made the island an important participant in the migration process either as a point of origin, transit or destination for migrants. Although it has transformed into a 'country of destination' recently, following its EU membership, it has traditionally been an exporter of migrants for years (Trimikliniotis, 1999).

UK is the main destination country for the Cypriot migrants in addition to other destinations such as Australia and the USA. In fact, 'the number of Cypriots living abroad nears half the population of the island' (Anthias, 1992).

According to GMig2 database, 43% of unskilled and 42% of the skilled Cypriot migrant workers are resident in the UK. Thus, it is not surprising that 49% of remittances sent to Cyprus are by Cypriot migrant workers in Britain.

Cypriot labour migration to Britain started in the late 1950s with the active recruitment of labour by the British government, and was spurred on by the conflict between Turkish and Greek speaking communities in Cyprus. After the island gained its independence from Britain, Cypriots were given the option to choose either a Republic of Cyprus passport or a British passport due to the colonial ties with Britain (Mehmet Ali, 2001), making it relatively easy for them to migrate and work in Britain. The 1962/68 Commonwealth immigration legislation, inter-communal conflicts of 1963 and 1967/68 as well as the 1974 Turkish military intervention all led to mass

emigration of Cypriots to Britain. Economic motives, such as persistent high employment of a largely rural economy were also an important push factor (King and Thomson, 2008).

### **3. Data and Model**

The data for this study are derived from the GTAP database version 6.0, which is benchmarked to the year 2001 (McDougall and Dimanaran, 2005). The form of the database used for this study is a Social Accounting Matrix (SAM) representation of the Global Trade Analysis Project (GTAP) database version 6 (McDonald and Thierfelder, 2004). The GTA project produces the most complete and widely available database for use in global computable general equilibrium (CGE) modelling; indeed the GTAP database has become generally accepted as the preferred database for global trade policy analysis and is used by nearly all the major international institutions and many national governments. Hertel (1997) provides an introduction to both the GTAP database and its companion CGE model. The precise version of the database used as the starting point for this study is a reduced form global SAM representation of the GTAP data (McDonald *et al.* 2007).

The analyses are carried out by using a 12-sector, 4-factor and 15-region global computable general equilibrium model -GLOBE CGE - that is implemented in GAMS (McDonald *et al.* 2005). For this study a method for augmenting the GTAP database using additional GMig2 data on bilateral remittance and number of migrant workers differentiated according to the skill type- as skilled and unskilled - have been implemented as an extension to a global representation of the GTAP database (McDonald and Thierfelder, 2004). Due to the availability of bilateral remittance data there was no need for an additional region called “globe”. For modelling remittances in the absence of bilateral remittance data one can refer to McDonald and Sonmez (2006).

The accounts in the SAM are detailed below and the aggregation mapping from the GTAP database is provided in the Appendix.

**Table 4: SAM and Model Accounts**

| <b>Sectors</b> |                             | <b>Regions</b> |                  |
|----------------|-----------------------------|----------------|------------------|
| <b>agri</b>    | Agriculture                 | <b>tur</b>     | Turkey           |
| <b>mins</b>    | Minerals                    | <b>gbr</b>     | United kingdom   |
| <b>fod</b>     | Food products               | <b>fra</b>     | France           |
| <b>text</b>    | Textiles                    | <b>deu</b>     | Germany          |
| <b>petch</b>   | Petroleum and coal products | <b>ita</b>     | Italy            |
| <b>mets</b>    | Metals                      | <b>reu</b>     | Rest of the EU15 |
| <b>veh</b>     | Vehicles                    | <b>swe</b>     | Sweden           |

## *Turkey and the EU: Economic Integration and Labour Migration*

|              |                     |                |                   |
|--------------|---------------------|----------------|-------------------|
| <b>omanu</b> | Other manufactures  | <b>grc</b>     | Greece            |
| <b>util</b>  | Utilities           | <b>cyp</b>     | Cyprus            |
| <b>serv</b>  | Services            | <b>asia</b>    | Asia              |
| <b>trad</b>  | Trade and transport | <b>usa</b>     | USA               |
| <b>cns</b>   | Construction        | <b>can</b>     | Canada            |
|              |                     | <b>aus</b>     | Australia         |
|              |                     | <b>row</b>     | Rest of the world |
|              |                     | <b>Factors</b> |                   |
|              |                     | <b>land</b>    | Land and nat res  |
|              |                     | <b>unsklab</b> | Unskilled labour  |
|              |                     | <b>sklab</b>   | Skilled labour    |
|              |                     | <b>capital</b> | Capital           |

Source: GTAP Database

### 3.1. Descriptive Statistics

#### *3.1.1. Real Macroeconomic Totals*

#### *3.1.2. Trade: Exports & Imports*

#### *3.1.3. Labour Force and Remittances: Turkey vs. EU*

### 3.2. Globe CGE Model

This model is a member of the class of computable general equilibrium (CGE) models that are descendants of the approach to CGE modelling described by Dervis *et al.*, (1982). The implementation of this model, using the GAMS (General Algebraic Modeling System) software, is a direct descendant and development of the single country models devised in the late 1980s and early 1990s, particularly the model reported by Robinson *et al.*, (1990), and the multi-country model developed to analyse NAFTA (see Lewis *et al.*, 1995, for a later application).

The model is a SAM based CGE model, wherein the SAM serves to identify the agents in the economy and provides the database with which the model is calibrated. Since the model is SAM based it contains the important assumption of the law of one price, i.e., prices are common across the rows of the SAM. The SAM also serves an important organisational role since the groups of agents identified by the SAM structure are also used to define sub-matrices of the SAM for which behavioural relationships need to be defined. As such the modelling approach has been influenced by Pyatt's 'SAM Approach to Modeling' (Pyatt, 1987).

#### *3.2.1. Trade*

Trade is modelled using a treatment derived from the Armington 'insight'; namely domestically produced and consumed commodities are assumed to be imperfect substitutes for both imports and

## *Turkey and the EU: Economic Integration and Labour Migration*

exports. Import demand is modelled via a series of nested constant elasticity of substitution (CES) functions; imported commodities from different source regions are assumed to be imperfect substitutes for each other and are aggregated to form composite import commodities that are assumed to be imperfect substitutes for their counterpart domestic commodities. The composite imported commodities and their counterpart domestic commodities are then combined to produce composite consumption commodities. These are the commodities demanded by domestic agents as intermediate inputs and for final demand by households, the government, and for investment.

Export supply is modelled via a series of nested constant elasticity of transformation (CET) functions; the composite export commodities are assumed to be imperfect ‘substitutes’ for domestically consumed commodities, while the exported commodities from a source region to different destination regions are assumed to be imperfect ‘substitutes’ for each other. The composite exported commodities and their counterpart domestic commodities are then combined to produce composite production commodities. The properties of models using the Armington ‘insight’ are well known (see de Melo and Robinson, 1989; Deverajan et al., 1990), but it is worth noting here that this model differs from the GTAP model through the use of CET functions for export supply; this ensures that domestic producers adjust their export supply decision in response to changes in the relative prices of exports and domestic commodities, which help to moderate the magnitude of the terms of trade effects in this class of model. Homogeneity can be imposed for all or any subset of commodities and regions.

### *3.2.2. Production*

The production structure is a two stage nest. Intermediate inputs are used in fixed proportions per unit of output – Leontief technology. Primary inputs are combined as imperfect substitutes, according to a CES function, to produce value added.

### *3.2.3. Final Consumption*

Final demand by the government and for investment is modelled under the assumption that the relative quantities of each commodity demanded by these two institutions are fixed – this reflects the absence of a clear theory that defines an appropriate behavioural response by these agents to changes in relative prices. For the household there is however a well developed behavioural theory; hence the model contains the assumption that households are utility maximisers who respond to changes in relative prices and their incomes. In this version of the model the utility functions for the private households are assumed to be Stone-Geary, which yields linear expenditure systems that allow for subsistence consumption, and reduce to Cobb-Douglas utility functions where minimum levels of consumption are not specified.

## **4. Policy Experiments and Model Closure**

### 4.1. Policy Experiments

Six different policy experiments are analysed for this study. When Cyprus became an EU member in May 2004, bilateral trade duties on commodities were eliminated on trade between EU15 and Cyprus. At the same time, EU's CCT is imposed by Cyprus on imports from third countries. With the full membership, there is also free movement of labour between the two parties. For this study, we assume that Cyprus will be subject to the same agricultural subsidies received by the 15 'old' EU accession countries. The policy experiments are as follows:

1. removal of bilateral import duties on all commodities;
2. removal of bilateral export taxes/subsidies on all commodities;
3. removal of bilateral import duties and export taxes/subsidies on all commodities;
4. removal of bilateral import and export duties on all commodities, and the imposition of a CCT by Cyprus on commodity trade with third countries.
5. removal of bilateral import and export duties on all commodities, and the imposition of a CCT by Cyprus on commodity trade with third countries together with the imposition of agricultural subsidies
6. removal of bilateral import and export duties on all commodities, and the imposition of a CCT by Cyprus on commodity trade with third countries together with the imposition of agricultural subsidies as well as the free movement of Cypriot labour within the EU27

Due to the limitations of space, only a subset of possible results will be presented, but references are made to other results, where they provide additional insights. Although 6 different policy scenarios have been run, the analysis will only include a comparison of the base scenario where there is no EU membership and no free movement of labour between Cyprus and EU27 and also no agricultural liberalisation.

### 4.2 Model Closure

The model closures adopted for this study are detailed below:

#### *Foreign Exchange Account Closure*

Cyprus is a member of EMU and it maintains a flexible exchange rate regime not a fixed one. Moreover, tighter fiscal policies are being implemented under the guidance of EMU. Thus, in accordance with these, in the foreign exchange account of the model closures, the current account balance is fixed at the 2004 level so that a specific balance of payments deficit can be maintained but not worsened.

## *Turkey and the EU: Economic Integration and Labour Migration*

Exchange rates are flexible to ensure that the trade balance clears, i.e. balance of payments is maintained via the changes in exchange rate. The exchange rates are flexible; external balances are fixed.

### *Investment – Savings (Capital Account) Closure*

For the Cypriot economy, the Keynesian view of investment driven savings is assumed as the capital account closure. The shares of investment absorption and therefore the share of domestic final demand of investment are fixed. Then, the household savings adjust in an additive mode to equate total savings to total investment. Both the volume and value of investment are free to adjust.

### *Government Account Closure*

In accordance to the EMU, the Cypriot government account deficit must not worsen. Therefore, the government savings/deficit; internal balance is fixed at the 2004 level together with the shares of government expenditure in final demand. The government budgets are cleared by adjusting the value added tax rates additively. Both the value and the volume of expenditures are free to adjust. The shares of government expenditure in final demand are fixed. Internal balance is fixed. Tax rate adjusters are fixed except the uniform adjustment to value added tax, i.e. the government budgets are cleared by additive changes in the household income tax rates.

### *Factor Market Closure*

For this model, unemployment of unskilled labour in Cyprus, Turkey, the new accession countries, Asia and rest of the world is assumed given the unemployment rates in those regions. Therefore, the wage rates are fixed and the total supplies of labour are endogenously determined.

### *Numéraire*

The model is homogenous of degree zero one in prices and it is only the relative prices which are determined, CPI is chosen to be the base. The region specific consumer price indices and the regions in the global numéraire are separately identified OECD countries<sup>1</sup>.

For the rest of the countries, flexible exchange rates, investment driven economy, fixed shares of government expenditure in final demand and fixed internal balance is assumed where the government budgets are cleared by additive changes in value added tax rates. Also for the factor market, balanced macroeconomic closure has been assumed with full employment.

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<sup>1</sup> Australia, Canada,, USA, France, Germany, the UK, Italy, Sweden

## **5. Results**

## **6. Concluding Comments**

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*Turkey and the EU: Economic Integration and Labour Migration*

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