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THE SHORT- AND LONG-TERM IMPACT OF SYRIAN REFUGEES ON THE TURKISH ECONOMY:

A simulation approach

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ABSTRACT

The article presents the results of a simulation on the short-, medium- and long-term aggregated economic contribution of Syrian refugees on the Turkish economy. The simulation is focused on two sources of impact: the refugees' access to the Turkish labor market and the investment flow generated by Syrians' inside the country. An Input–Output approach is used to compute economic effects considering the intersectoral linkages of the Turkish economy, thereby expanding the focus of a classic impact study.

Even with all the nuances and precautions that should always be taken into account in this type of technical exercises, our results clearly show a positive economic impact of Syrian refugees' of around 2 percent of GDP in the short term and 4 percent in the long term. Syrian immigration in Turkey is becoming a factor of economic dynamism that not only benefits the Syrian community itself but, the Turkish host communities. The direct and indirect contribution in terms of production and demand is very relevant and, properly channeled and promoted, can become a relative advantage for the country and not a burden of care.

Keywords: Syrian Refugees in Turkey, Economic Impact of Migration, Impact of Refugees

(FULL TEXT)

INTRODUCTION

Following the eruption of the Syrian conflict in March 2011, the Syrian crisis has displaced more than 5.2 million refugees into Turkey, Lebanon, Jordan, Iraq and Egypt. Since then, Turkey has become a major transit and destination country for these refugees. According to the World Bank¹, the country currently hosts the largest refugee population in the world. Based on data from the Directorate General Migration Management², the number of Syrian refugees registered under temporary protection in Turkey was around 3.4 million as of mid-December 2017, and the nation also accommodates about 300,000 refugees from other countries.

In this article, we present the results of a simulation exercise aimed at assessing the economic impact of refugees on the Turkish economy over the short, medium and long terms. The value added by the article can be summarized by the following key contributions:

- Focus on a middle-income labor-abundant hosting country: Although migration-driven impact exercises can commonly be found for well-developed hosting countries with labor supply shortages, it is not so typical for middle-income/in transition and labor-abundant receiving countries.
- Focus on forced migration: While a vast amount of literature is extant regarding labor and voluntary migration's impact on receiving countries, less attention has been paid to forced migration and even less to "double-forced" migrants.
- Focus on the interesting case study of Turkey: Syrian immigration into Turkey does not represent a standard south-south migration episode but rather is a particular case with interesting circumstances. Turkey is definitively *not* an underdeveloped country but rather is a transit country that has become a host by means of a particular agreement, the "EU-Turkey deal", which came into force in March 2016 and by which it expected to receive significant financial compensation.
- Focus on the impact on the global economy: While the focus is on economic growth (GDP), consideration is also paid to the main side-effects in terms of the labor market using an Input-Output approach that explicitly considers sectors' interrelations.

From a policy-oriented perspective, the understanding of medium- and long-term positive effects could help counterbalance the narrow and negative short-term vision of public opinion on the refugees' impact, turning "crisis-cost approach" into "opportunity-window idea". Moreover, the valuation of different scenarios for 2017, 2023 and 2028 would assist policymakers in crafting a coherently designed integration roadmap for future refugees seeking a more benign impact.

The remainder of the article is structured in three main sections. In the first, we describe the research context and relevant existing literature. In the second, we illustrate the simulation process and, in the third, we summarize results and derive policy implications.

RESEARCH CONTEXT: The special case of "double-forced" migration in the research field of international migration's economic impact

Emigration and immigration flows are intimately connected with the economic development of both origin and destination countries, and the economic effects of inflows and outflows at both sides are numerous, multifaceted and complex.

Based on the income level of origin and destination areas, migration is normally conceptualized as labor migration, transit migration, high-skilled migration or return migration (among other categories). For each “migration category”, the researcher’s interest is then focused on different facets according to the attention paid to the origin or destination regions: contribution to economic growth, impact on labor market, fiscal burden, brain drain or brain gain, effects of remittances, side-effects on trade and so on. Given that research is mainly undertaken in well-developed economies, we can much more easily find studies in the field of labor migration and its impact on rich countries, while – considering that 80 percent of migration comes from developing countries³ – we also very frequently come across reports on matters such as poverty alleviation, remittance effects or brain drain.

Even if the case of developing countries’ receiving migrants from other developing countries is not in the spotlight, the analysis of labor immigration into “emigrant economies”⁴ is not new and gathered significant attention some decades ago, especially after the end of the Cold War for some geographical areas in transition, such as Eastern Europe or Asia⁵, or for the singular case of expatriates’ return from former colonies upon their independence. Recently, some interesting research programs have been launched⁶ for the specific case of labor migration into developing countries, and remarkable publications have also recently been released⁷.

We may easily guess that all we know about the effects of labor immigration on developed countries cannot be transplanted easily to underdeveloped economies as hosting countries. On the one side, the differences are enormous in relation to economic structure, policies and labor market institutions (informality, segmentation, mobility and so on). Second, despite some relevant efforts⁸, the term *low-income* remains merely a tag, although the within-heterogeneity among less developed economies is so huge that the inference of wide-ranging conclusions has become highly complex.

Beyond the difference between a developed and undeveloped host country, things become even more complicated when we move from labor migration to forced migration. By “forced” migration we mainly refer to emigrants, who are mostly refugees or asylum seekers compelled to exit their countries, crossing the borders of neighbor nations and remaining there, settling temporarily into transit countries or reaching a more distant nation as their “final” destination.

Sometimes forced migrants can make explicit and selective choices about their preferred country of destination based on similar criteria to those of labor migrants, including closeness, cultural ties, economic opportunities, ease of attaining legal status and the existence of well-established communities from their home country. We mainly refer to individual asylum seekers, who normally choose a well-developed country as their final stop. In these cases, even if certain differences exist between forced and voluntary migration, we have reason to believe that the distinction between the two is not crucial in terms of understanding the economic impact on host economies. Because of the recent upsurge of forced migration across the world, which is unprecedented in size, recent reports on the effects of this involuntary migration on well-developed host economies are relatively easy to find⁹, as are survey articles¹⁰.

According to the orthodox labor economy, which is used intensively for the study of voluntary migration, the impact of refugees on the labor market depends, as always, on the complementarity or substitutability between refugees’ and native workers’ skills: in short, some native workers may lose, but others may benefit. Apart from pure labor market effects, the influx of refugees has other important economic side-effects that tend to be featured in classical

migration economics studies: changes in production patterns, firms' adopting alternative production techniques, natives' outflows to other labor markets and investment by natives in education and occupational upgrading, among others¹¹.

Sometimes, especially in the case of sudden and/or massive outflows, forced migrants cannot make any choice, or if they can, they are unable to reach their intended destination, getting stuck in neighboring or transit countries, either because of a lack of resources or because of other restrictions linked to legal constraints (such as the provisions of the Dublin Regulation for European countries). We may then consider a double-forced migration: They are forcibly displaced and then forced to stay somewhere they did not expect. Episodes of this double-forced and massive immigration into less developed countries are relatively common. In these cases, understanding the economic impact of immigration becomes a much more peculiar exercise, with some crucial specificities.

- The main difference is that forced massive immigration can be experienced by poor and weak economies. In contrast, economic and forced migrations on an individual basis are normally conditioned and driven by existing (or at least perceived) economic opportunities, and even when family reunification follows, it is also normally conditioned by the economic success of previous migrants. (The legal requirements for family reunification are normally linked to proof of economic means to cover living and accommodation expenses.)
- Regional concentration of economic migrants is normally equalized with economic regional structure, and opportunities and spatial mobility tend to be high; in contrast, forced massive immigration can easily be concentrated (or be forced to concentrate) in certain areas or cities, and mobility is also frequently constrained.
- Although the majority¹² of refugees live in private accommodation in urban areas¹³, a special mention must be made of the particular case of refugees living in camps (mostly in rural areas) in the context of massive forced migration, an extraordinary situation in which the standard approach to economic interaction with the host population is useless.
- With forced migration, legal status is different from other types of regular migration, which brings different requirements for gaining a work permit or accessing public benefits, particular conditions for renewing residence permits or asking for family reunification, and other important issues that condition refugees' way of life and its economic implications. Moreover, when an influx of refugees is sudden and massive, certain regulatory changes frequently take place¹⁴ to avoid uncontrolled and disproportioned side-effects conditioning the socioeconomic impact on immigrants.
- The average composition of forced migration may present some demographic and socioeconomic differences when compared to economic migration. For instance, forced migration may also include middle- or even upper-class persons, including highly educated business- and professional persons such as doctors, lawyers and professors.

Additionally, economic migration is mostly concentrated on the labor age range. By contrast, children, youths and old persons constitute a large percentage of displaced populations worldwide. According to the UNHCR¹⁵, children below 18 years of age constituted about half of the refugee population in 2016. For the Syrian–Turkish case, 45 percent of refugees are below 18 and around 3.5 percent are elderly people (60+).

- A very interesting and useful technical advantage in the case of forced migration is that, according to mainstream literature, immigration is generally voluntary and thus identification strategies for causal analysis must accommodate endogeneity or selection bias; for the case of forced/non-voluntary migration, this technical problem may not be so important, leading to quasi-experimental designs¹⁶.

LITERATURE REVIEW: Recent studies of massive forced immigration and its economic impact in Turkey

At the beginning of 2018, the number of Syrian refugees registered by UNHCR was about 5.5 million. Around 62 percent of these are settled in Turkey, and we have reason to believe that a relevant share of them are forced migrants who wanted to migrate onwards but were forced to stay in Turkey or were even returned from the third country on their journey to other European destinations pursuant to the EU–Turkey 2016 agreement.¹⁷ Actually, according to results of a field survey conducted in 2016¹⁸, 80 percent of Syrian refugees settled in Greece and Turkey were planning to migrate onwards. Similarly, Ipsos Research Company and the Human Development Foundation¹⁹ carried out fieldwork in 2017²⁰ showing that although some 52 percent of the Syrian refugees said that they were planning to build their future in Turkey and 74 percent wanted to acquire Turkish citizenship, 42 percent were planning to move to European countries. Moreover, we must also remember that the temporary subsidiary protection obtained by Syrian refugees prevents them from applying for asylum in a third country, limiting their mobility. Clearly, this episode constitutes a perfect example of double-forced massive immigration in a middle-income country.

Technically speaking migration caused by the Syrian civil war in Turkey presents some interesting differences compared to other cases²¹, with studies also focusing on forced migration waves. First, Syrian migrants fled to Turkey at a dramatic speed; second, Syrians were not selected or self-selected into migration; and third, the migrants are unevenly distributed geographically (both in refugee camps and elsewhere). These three features help researchers cope with bias selection problems in the identification by using the diff-in-diff approach or equivalent strategies. A strikingly interesting advantage of this immigration crisis–based analysis is that official statistics do not count Syrian refugees, so even if the lack of data is invariably an analytical handicap, data are not polluted when we aim to explore the effects of immigration on natives. This statistical characteristic provides a quasi-experimental framework with which to compare the pre- and post-effects of Syrian refugees on different economic variables such as salaries, unemployment or value added.

In a recent paper²², Semih Tumen estimated the impact of Syrian refugees on labor markets, consumer prices and housing rents associated with the “initial shock”²³ caused by the refugee inflow. The author used labor market outcomes’ micro-data in a diff-in-diff model approach for a group of treatment regions versus control areas, comparing pre- and post-refugee periods. The results for the labor market matched the standard mixed results, depending on the complementarity or substitutability between refugees’ and native workers’ skills: reduction of the likelihood of getting a job for natives in the informal labor market (where immigrants may compete with natives) and a small increase in the employment-to-population ratio in the formal labor market (where immigrants are poor substitutes). The impact on the informal labor market can be explained by two factors: first, informality is huge in the refugee-receiving regions (50 percent before the inflows started), and second, Syrian refugees were not granted official work permits during the period under study. Overall, the author did not identify any significant effect of the refugee inflows on the wage earnings of the native individuals, either for formal or informal workers. The effect on prices was found to be negative, especially for the case of informal labor-intensive sectors, which happens to be in line with the negative supply-side price

effect reported by other authors²⁴. Finally²⁵, the author reports an important increase in housing rents, especially for high-quality rental units. According to the author, this conclusion could be explained by an increase of residential segregation, which suggests that the refugee wave has increased the demand for better and safer neighborhoods, especially among natives.

A later work from Evren Ceritoglu et al.²⁶ is merely a much more detailed version of Tumen's IZA paper, with the addition of some robustness checks and some important reasoning for the modelling settings and identification strategy, but without any additional findings.

Other researchers²⁷ also used a similar diff-in-diff approach with aggregated data for 26 provinces to study how the Syrian refugee influx in Turkey had affected food and housing prices, employment rates and internal migration. In this case, identification strategy and exogeneity issues were addressed by comparing refugee camp areas (as treatment) with the remaining regions of Turkey (as the control group) during the first years of the Syrian influx into Turkey (2012 and/or 2013 as treatment years and previous years as controls). In contrast with the findings of Tumen or Ceritoglu et al., they found a significant increase in food and housing prices in regions hosting refugees, which neglected any supply-side price-negative effect but was consistent with the theoretical framework whereby higher demand leads to higher inflation. Moreover, they did not identify any employment effects for natives. As possible explanations, and following Borjas²⁸, the authors suggested that the lack of effects on employment may be partly explained by the negative effect on net migration – that is, a decline in the internal mobility of Turks towards main hosting regions.

The work by Del Carpio and Wagner²⁹ is perhaps one of the most well-known papers on the effects of Syrian immigration into Turkey. Technically speaking, the authors opted for an instrumental variables specification using sub regional data and instrumenting refugees by distance between sub regions and origin governorates in Syria. Their results showed large-scale displacement of natives in the informal labor sector of around six natives for every ten refugees, irrespective of gender, age and education. Additionally, they reported increases in formal employment for the Turkish,³⁰ which is consistent with occupational upgrading whereby lower production costs expand output and increase the demand for formal workers. This large displacement effect is in contrast with much of the voluntary immigration literature and, as an explanation, the authors suggested two particular characteristics of the Syrian refugees' wave into Turkey that may explain this greater short-term impact: it was relatively sudden and not driven by the availability of jobs in Turkey.

Kuyumcu and Kösematoğlu³¹ attempted to explore the economic impact of Syrians on growth, the labor market, trade and factors markets. The text is merely descriptive, and the authors illustrated their conclusions with simple comparisons of some macroeconomic magnitudes before and after the refugee upsurge that cannot be considered factual findings. For the GDP growth, the labor market and the trade side-effects, the article does not provide any specific methodology to account for the economic impact, offering only various opinions and conclusions, whether positive or negative, from other papers. A similar critique can be made of a Cato Institute report³², which only offers some very basic macro-data differences, supposedly related to the refugee influx but without any empirical support or evidence.

Other interesting studies are not focused mainly on labor market effects or inflation. For example, Ozpinar, Basihos, and Kulaksiz³³ examined investment and trade relations with Syria after the refugee influx. Their findings illustrate that Syrian refugees are becoming economic actors in Turkey in terms not only of their labor supply but also of their entrepreneurial skills. In effect, the number of companies opened by Syrians increased by around 168 percent between 2014 and 2016³⁴. At the end of 2016, the number of Syrian companies reached around 4,793

firms, and the total amount of capital of these businesses was around 247 million TL. Out of 4,793 foreign capital companies registered in 2016, 1,764 belonged to Syrians according to this same source. The Syrians' share, both in number of firms and in total capital, increased during 2014–2016.

ECONOMIC IMPACT OF SYRIAN REFUGEES ON TURKEY: Simulation Methodology

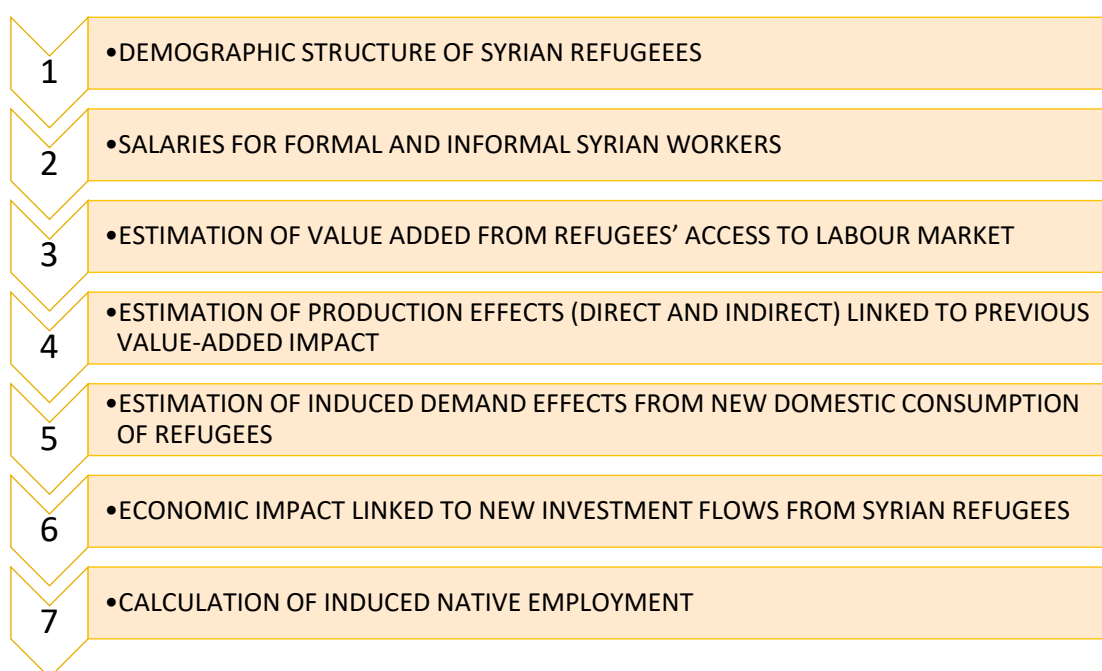
The simulation exercise proposed in this research is focused on the economic impact of two main “inputs” in the Turkish economic system:

- The effect of the refugees' access to the Turkish labor market.
- The effect of the new investment generated by Syrians' capital through saving within the country.

Under this framework, an Input–Output approach is used to estimate the global effect of both inputs in the economy, distinguishing two separate components: the production effect and the induced demand effect. By using this methodological approach, we are explicitly considering the intersectoral linkages of the Turkish economy, enabling us to expand the focus of a classic impact study (see Arce and Mahia 2013 and 2014 for details). In effect, the standard estimation of these impacts is conducted within a narrow framework, assuming that the value-added aggregated impact can be assessed by computing wages paid in the economy to these new foreign workers. Unfortunately, this approach does not take into account the crucial effects on the rest of the interlinked economic activities (and even, inside the value-added rubric, the effect of new salaries over the operating surplus, production taxes and subsidies). In this sense, we are able to capture the “second derivatives” of this complex process or, using Input–Output jargon, direct and indirect effects.

The simulation process follows the structure summarized in the following figure. The aims, calculations and hypotheses considered at each step will be detailed concisely in a specific subsequent subsection for each stage.

Figure 1. Simulation process.



Before describing the simulation process and main results, we must first clarify some critical assumptions and caveats of an Input – Output simulation structure.

- The exercise whose results are presented in this text is essentially a simulation exercise that should not be confused with a prediction in the strict sense. The difference lies in the level of uncertainty assumed in the analysis framework. Any simulation is essentially conditional on the design of the most likely scenario(s). In the context of a simulation, the future framework is not defined with certainty and, therefore, it is necessary to support it with hypotheses that, although supported by indirect data and evidence, cannot be considered risk-free.
- Thus, throughout the text, the reader will observe that some calculations are only estimates based on the scarce information available or simply assumptions that the authors believe are consistent with the evidence or data available. When we have had to risk an estimate, we have always used a prudent criterion, always assuming a principle of maximum plausibility.
- One important assumption for this first exercise, is to presuppose no negative net side effects for native workers (neither in employment levels nor in salaries) because of the incorporation of Syrian refugees into the Turkish labor market. This assumption is not perfectly clear in the literature of recent years and, in this regard, the results obtained in this exercise should be considered with caution. The net effects remain unclear and are commonly described as a combination of some negative effects for the informal labor market and positive ones for the formal side³⁵.

DEMOGRAPHIC STRUCTURE OF SYRIAN REFUGEES IN TURKEY

According to official statistics³⁶, the number of Syrian refugees, as of December 31, 2017, was approximately 3,350,000 persons, distributed by age and gender as shown in Table 1.

Although the distribution of activity rate is not crucial to our simulation scheme, we have tried to be consistent with different data sources, such as the official data of ACNUR and the INGEV & IPSOS Survey³⁷ that estimated a global 35 percent occupation rate among Syrian refugees. Considering slightly different percentages across different ages, the simulation input, in terms of new employment, could be summarized through the following figures:

Table 1. Simulation Inputs: Population and Employment

Age	Age Structure (%)		# Refugees		Occupation Rate (%) ⁽¹⁾		# Employed	
	Male	Female	Male	Female	Male	Female	Male	Female
0–4	6.9	6.3	244,950	223,650	–	–	–	–
5–11	12.5	11.7	443,750	415,350	–	–	–	–
12–17	4.5	3.7	159,750	131,350	4	4	6,390	5,254
18–59	28.7	22.4	1,018,850	795,200	34	34	346,409	270,368
60+	1.6	1.7	56,800	60,350	23	23	13,064	13,881
Total	54.2	45.8	1,924,100	1,625,900	34	33	365,863	289,503

Source: IPSOS Survey (2017) and authors' assumptions (in italics).

(1) *Employment / Total population*

According to these figures, the total number of Syrian refugees as new workers in the Turkish labor market in 2017 could be about 655,000 persons (most in the 18- to 60-year-old age group).

For the long term, we must make several assumptions:

- New inflows and/or return flows of Syrian population. Given the complexity of the Syrian conflict and its recent evolution, we are fairly unlikely to see any prompt solution that could generate a massive return of refugees to their homeland during the next few years. Considering some return flows on the one hand, and some new inflows on the other, we deem it reasonable to consider a conservative scenario whereby we assume a net zero entry–exit balance. For the activity rate, we will consider a moderate increase. Because Syrians live mostly in the southeast region of Turkey, we took as references the NUTS-2 provinces and the TRC 3 Region activity rate's recent progress (5 percent increase in the region during the 2007–2017 period, based on TurkStat data). According to this reference, we assume that the activity rate will be around 21 percent in the five-year horizon and 23.5 in the ten-year horizon.
- Changes in the demographic structure and level of Syrian employment. Even if net flows remain insignificant during the simulation period, we may assume the natural evolution of the current Syrian population in Turkey. That simply means that we need to adjust the volume of people in each age bracket according to each future simulation period. Such a demographic adjustment has a highly important impact on simulation results for 2023 and 2028, because although half of Syrian refugees were younger than 18 in 2017, as time passes by, they will progressively move into older age brackets with high activity rates, upon which the volume of the active Syrian population and employment will increase vigorously. In fact, keeping the occupation rate unchanged (see Table 1), the volume of Syrian workers in Turkey would increase from 655,000 persons in 2017 to 777,000, reaching approximately 1,000,000 by 2028. Although this increase may appear enormous, on an annual basis, it is equivalent to a 4 percent rise for each year during the period 2017–2028, a growth rate that is consistent with Turkish data; in Turkey, the average of the TRC2 and TRC3 (NUTS-2 level) working-age (15+) and labor force population increased by 40 and 38 percent during 2004–2013, or roughly 4 and 3.8 percent annually.

SALARIES FOR FORMAL AND INFORMAL SYRIAN WORKERS

To estimate the direct production effect component of the value added, we start by computing, for migrant workers, the compensation of employees for every year and sector. For that purpose, available data on earnings of regular migrants across the different sectors are collected and a hypothesis regarding the wages of irregular migrants is assumed.

Once again, the lack of official and accurate data for the time period covered imposes the need for some assumptions along with the use of indirect information from field works such as the INGEV & IPSOS Survey³⁸ and from several governmental sources. For example, DGMM³⁹ reported the total number of work permits on an annual basis and by nationality. Additionally, the Ministry of Labor and Social Security publishes the number of work permits of foreigners, in terms of both sector distribution and nationality⁴⁰.

According to INGEV & IPSOS⁴¹, refugees work mainly in the textile, manufacturing and services sectors and other studies⁴² some extra information about the sectoral distribution of foreign workers. Considering this partial information, we assume the following sectoral distribution for Syrian workers in the Turkish labor market for 2018:

Table 2. Number of Syrian workers by economic activity (2017)

	% Workers	Formal	Informal	Total
		10%	90%	100%
A. Agriculture, Forestry and Fishing	25%	16,384	147,457	163,841
B. Mining and Quarrying	1%	328	2,949	3,277
C. Manufacturing	20%	13,107	117,966	131,073
DE. Electricity, Gas, Steam, Air Conditioning Supply, Water Supply and Sewerage, and so on	1%	655	5,898	6,554
F. Construction	14%	9,175	82,576	91,751
G. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	20%	13,107	117,966	131,073
H. Transport and Storage	2%	1,311	11,797	13,107
I. Accommodation and Food Service Activities	5%	3,277	29,491	32,768
J. Information and Communication	1%	655	5,898	6,554
K. Financial and Insurance Activities	1%	655	5,898	6,554
L. Real Estate Activities	1%	655	5,898	6,554
M. Professional, Scientific and Technical Activities	1%	328	2,949	3,277
N. Administrative and Support Service Activities	1%	655	5,898	6,554
O. Public Administration and Defence; Compulsory Social Security	0%	0	0	0
P. Education	1%	655	5,898	6,554
Q. Human Health and Social Work Activities	1%	655	5,898	6,554
R. Arts, Entertainment and Recreation	1%	655	5,898	6,554
STU. Other Social, Community and Personal Service Activities	5%	3,277	29,491	32,768
Total	100%	65,537	589,829	655,366

Source: Authors' estimates

In the figures shown in Table 2, **we have assumed 10 versus 90 percent distribution for formal/informal employment**, again taking into account the data from the previously mentioned INGEV & IPSOS field work. Among employees, 34 percent are unregistered and 4 percent are working in the agricultural sector (10 percent are paid workers). The proportion of paid workers in non-agricultural sectors is 60 percent. The majority of Syrian refugees have low education levels and work in labor-intensive sectors with high informality; we assume that labor mobility will be insignificant for the next decade and therefore presuppose that the formal versus informal proportion of Syrian workers will remain around 10/90 in 2023 and 15/85 in 2028.

For the calculation of salaries, the basic assumption is that Syrians workers will be paid as unskilled Turkish employees during the entire simulation period (2017–2028); accordingly, we have collected official data on salary per person for elementary occupations across different sectors. Apart from considering wages for elementary occupations, we have made two additional adjustments:

- A penalty of 25 percent for wages paid to informal workers compared to the formal labor market
- An additional wage penalty of 5 percent for Syrian workers in either the formal or informal labor market, based on a lack of labor integration

Considering these two adjustments, our initial assumption is that Syrian workers would earn 75 percent of Turkish unskilled workers' salaries in 2017 and 85 percent in 2023, progressively converging to 100 percent for the end of the simulation period (2028). Under this framework, we estimate the following figures for the Syrian salaries in each sector:

Table 3. New salaries by economic activity (2017)

Yearly wage per person (Turkish liras – 2012 Input - Output table basis)

	Formal Labour Market	Informal Labour Market
A. Agriculture, Forestry and Fishing	380	288
B. Mining and Quarrying	24,044	18,223
C. Manufacturing	11,033	8,362
DE. Electricity, Gas, Steam, Air Conditioning Supply, Water Supply and Sewerage, and so on.	15,202	11,521
F. Construction	8,035	6,090
G. Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	8,013	6,073
H. Transport and Storage	12,147	9,206
I. Accommodation and Food Service Activities	8,314	6,301
J. Information and Communication	13,315	10,091
K. Financial and Insurance Activities	20,927	15,861
L. Real Estate Activities	3,827	2,900
M. Professional, Scientific and Technical Activities	5,970	4,525
N. Administrative and Support Service Activities	9,167	6,947
O. Public Administration and Defence; Compulsory Social Security	–	–
P. Education	11,819	8,957
Q. Human Health and Social Work Activities	9,777	7,410

	Formal Labour Market	Informal Labour Market
R. Arts, Entertainment and Recreation	13,657	10,351
STU. Other Social, Community and Personal Service Activities	5,408	4,098

Source: Own calculations from primary sources and hypotheses described in the preceding text.

Considering the number of occupants in each sector and the previous figures for salaries per person, we can then compute the total compensation of employees across different sectors (taking the figures from the 2012 Input-Output table as our base reference), to be used as a first input for the estimation of direct new value added to the Turkish economy according to the Leontief/Ghosh methodology.

ESTIMATION OF PRODUCTION EFFECTS (DIRECT AND INDIRECT) LINKED TO PREVIOUS VALUE-ADDED IMPACT

We will not include in this article technical details on how to use the Input-Output simulation methodology which can be, however, be consulted in other previous publications by authors of this same text⁴³.

In general terms, our main goal at this stage is to the Input-Output tables info to calculate the impact of the new salaries in the economy in terms of the other components of the value added: taxes/subsidies, social security expenditures and, finally, new operating surplus.

PRODUCTION EFFECTS OF THIS NEW VALUE ADDED

At this stage of the simulation exercise, where we do not need to include any more assumptions, a Standard Ghosh model⁴⁴ will be applied to obtain the total production effect caused, by sector interrelationships in each sector and in the total economy.

INDUCED DEMAND EFFECTS OF DOMESTIC CONSUMPTION OF REFUGEES (DYNAMIC LEONTIEF MODEL)

Once the production effect has been estimated, we can then calculate the so-called induced demand effect, derived from the private consumption of migrant workers. We can then use the standard Leontief model to connect the aggregate migrant earnings with the final demand vector in the Input-Output system.

According to OECD statistics on average personal income tax on gross labor income for 2017⁴⁵ the average wage tax percentage is around 20 percent for salaries below 60 percent of the national wage average. Considering that refugees are supposed to earn even less than their native counterparts (as most of them work in low-skill jobs for minimum salaries and mostly in the informal market), we will arbitrary assume a very low fiscal pressure percentage of around 10 percent. We will also assume a very low saving and remittance rate of around 2 percent.

Then we simply estimate the consumption vector by branches by considering a given consumption basket for migrant population and apply the classical Input-Output equilibrium equation known as “Leontief’s inverse” to get the total induced demand effect.

Finally, we compute the employment creation for each year and sector linked to this value-added total induced effect.

ECONOMIC IMPACT OF SYRIAN REFUGEES INVESTMENT (LEONTIEF MODEL)

According to available information⁴⁶, Syrian refugees have dramatically increased levels of investment in Turkey during recent years. Capital inflows from Syria can be estimated at around 179,032 million Turkish liras, representing around 0.5 percent of gross fixed capital formation.

For the next 5 years, we will assume that the share of Syrian investment in relation to national investment will remain at around 0.5 percent during the entire simulation period, growing at the same rate as Turkish GDP.⁴⁷

For the distribution of investment across different economic branches, we have simply followed the 2012 Input-Output table of gross capital formation distribution. The final figures are illustrated in Table 4:

Table 4. New investment in Turkey coming from Syrian refugees (2017)

(Thousands of Turkish liras – 2012 Input-Output table basis)

Economic activity	2017
A. Agriculture, Forestry And Fishing	1,210,000
B. Mining And Quarrying	75,000
C. Manufacturing	21,422,000
DE. Electricity, Gas, Steam, Air Conditioning Supply, Water Supply And Sewerage Etc	515,000
F. Construction	32,526,100
G. Wholesale And Retail Trade; Repair Of Motor Vehicles And Motorcycles	82,430,950
H. Transport And Storage	2,574,200
I. Accommodation And Food Service Activities	3,236,850
J. Information And Communication	2,860,800
K. Financial And Insurance Activities	500,000
L. Real Estate Activities	17,305,700
M. Professional, Scientific And Technical Activities	4,107,300
N. Administrative And Support Service Activities	5,923,400
O. Public Administration And Defence; Compulsory Social Security	0
P. Education	1,535,000
Q. Human Health And Social Work Activities	650,000
R. Arts, Entertainment And Recreation	5,000
STU. Other Social, Community And Personal Service Activities	2,155,000
Total	179,032,300

Source: Own calculations from primary sources and the hypotheses described in the preceding text.

NATIVE EMPLOYMENT GENERATION

The last step in the simulation consists of a simple calculation of native employment induced from the activity, consumption and investment of Syrian refugees.

To obtain a reasonable estimation of native employment generation, we start by considering the employment creation linked with the indirect production effect and indirect induced demand effect. Then we simply consider that new employment will be occupied by natives in the same proportion as currently (between 95 and 100 percent, depending on the sector). We

need to clarify that the hypothesis assumed is a very simplistic one, because given the regional concentration of refugees, it is more than probable that a high share of the new indirect employment could be also occupied by other migrants; if so, our figures for induced native employment could be biased upwards.

SIMULATION RESULTS⁴⁸

a. Simulation Results in the short term (2017)

- The total value-added impact generated by the occupations of Syrian refugees in the Turkish economy was an estimated 27.2 billion TL at the end of 2017, representing 1.96 percent of total Turkish GDP.
- Production effect is estimated at 1.51 percent of GDP for 2017. This impact supposes an increase in production of 30.59 billion TL across different sectors, generating 20.9 billion TL of value added.
 - o This production effect is primary linked to the dynamics directly induced by the employment of 655,366 Syrians in the labor market; this direct effect is estimated at 1 percent of GDP for 2017.
 - o This direct effect spreads through the whole economy, stimulating an indirect production effect estimated at 0.5 percent of GDP.
 - o This indirect production effect generates new native employment estimated at around 57,900 persons for 2017.
- Induced demand effect accounts for the rest of global impact, for 0.45 percent of GDP in 2017. This induced demand effect implies new production estimated at around 11.7 billion TL, generating 6.2 billion TL in value added.
 - o This induced demand effect is essentially produced by direct consumption and investment of Syrian population; the direct effect is estimated at 0.3 percent of GDP for 2017.
 - o This direct demand effect spreads through the whole economy, stimulating an indirect demand effect estimated at 0.12 percent of GDP for 2017.
 - o This indirect demand effect generates new native employment estimated at around 74,500 persons for 2017.
- All in all, native employment induced by Syrian economic integration (from both production and demand effects) was an estimated 132,454 persons in 2017.
- The direct impact of Syrian economic integration is spread unevenly across different sectors, reflecting the greater or lesser presence of Syrian workers in the production effect and specific consumption and investment patterns.
 - o The manufacturing, energy, construction, transport/storage and services sectors experience significant value-added impact from Syrian workers in terms of the production effect.
 - o From the demand side, the wholesale and retail trade, real estate activities, manufacturing and energy sectors experience the greatest impacts from Syrian demand/consumption.
 - o The impact on native employment is especially relevant for the agricultural, manufacturing, wholesale and trade, construction, accommodation and food services sectors.

- Tables A.1–A.9 (see statistical annex) provide detailed information about impact on different branches, both for direct and indirect production and induced demand effects.
- Details provided by the simulation schema support the idea that enhancing employment opportunities for refugees by improving their education and skills, promoting entrepreneurial capacity and providing work permits in well-targeted sectors will further increase refugees’ contribution to economic growth.
 - The following sectors should be chosen to create new employment opportunities for Syrian refugees: manufacturing, energy, construction, transport and storage, and service.
 - From the demand side, the following sectors should promote investment opportunities: wholesale and retail trade, real estate activities, manufacturing and energy.

b. Mid- and Long-Term Simulation Results

- According to the set of hypotheses described in the main section of the report, the impact of Syrian economic integration will moderately increase during the first five years and will accelerate between 2023 and 2028 in response to the growth pattern of Syrian working-age population and employment.
- Working-age populationⁱ will increase 15 percent between 2017 and 2023 and then step up an additional 33 percent between 2023 and 2028. In proportion to this working-age population, total Syrian employment is projected to grow at an annual 3.5 percent during the first five years and at 5.5 percent annually between 2023 and 2028.
- At the end of the simulation period, the number of Syrian workers is projected to be around 1,000,000.
- According to this growth pattern of Syrian employees, the annual economic impact of Syrian integration will double, from 1.96 percent of GDP in 2017 to 4.05 percent of GDP in 2028.
- Induced native employment generated by Syrian integration is projected to reach a total of 265,000 Turkish employees at the end of the simulation period.

Table 5. SUMMARY OF SIMULATION RESULTS

By year and source of impact

	2017	2023	2028
REFUGEES in the Labour Market	655,366	777,060	1,013,703
PRODUCTION EFFECT (Ghosh Model)			
Production (Thous. Turkish Liras)	30,591,356	42,081,176	63,684,955
Value Added (Thous. Turkish Liras)	20,974,215	28,851,930	43,664,032
% over Value Added	1.51%	2.08%	3.15%
Direct Effect (%)	1.03%	1.42%	2.15%
Indirect Effect (%)	0.48%	0.66%	1.00%
Induced Employment of Natives (Accumulated)	57,919	79,266	118,778
INDUCED DEMAND EFFECT (Leontief Model)			
Production (Thous. Turkish Liras)	11,720,194	16,038,275	23,573,486
Value Added (Thous. Turkish Liras)	6,178,267	8,458,736	12,438,37
% over Value Added	0.45%	0.61%	0.90%

i. 18 years and older.

Direct Effect (%)	0.32%	0.44%	0.65%
Indirect Effect (%)	0.12%	0.17%	0.25%
Induced Employment of Natives (Accumulated)	74,535	101,311	147,213
TOTAL EFFECT (Production + Induced Demand)			
Production (Thous. Turkish Liras)	42,311,549	58,119,452	87,258,441
Value Added (Thous. Turkish Liras)	27,152,482	37,310,665	56,102,269
% over Value Added	1.96%	2.69%	4.05%
Direct Effect (%)	136%	1.86%	2.80%
Indirect Effect (%)	0.60%	0.83%	1.25%
Induced Employment of Natives (Accumulated)	132,454	180,577	265,991

Source: Own elaboration.

POLICY IMPLICATIONS

The simulation exercise presented in this article is essentially of a technical nature and it is therefore neither straightforward nor immediate to translate results into policy recommendations. The usefulness of projects of this type is, however, to convey to policymakers a message based on scientific reflection, free of prejudice, which can be used to support decision-making and to counterbalance the negative opinion on the burden of hosting this huge number of refugees.

In this sense, it is especially relevant to observe how Syrian immigration in Turkey is becoming a factor of economic dynamism that not only benefits the Syrian community itself but, above all, the Turkish host communities. The direct and indirect contribution in terms of production and demand is very relevant and, properly channeled and promoted, can become a relative advantage for the country and not a burden of care.

The enormous resources needed for first aid are inevitable, as is the inevitable emergence of conflicts between natives and immigrants in a situation of relative scarcity. However, with the help of the European Union in the first place and proper medium-term planning that takes into account the positive effects of a genuine labor participation of Syrian refugees in Turkey, a future of true socio-economic integration is possible with minimal friction.

According to the previous results, it seems sensible to promote the labor integration of Syrian immigrants in Turkey as well as to facilitate the implementation of entrepreneurial initiatives. The delay in granting work permits and entrepreneurship will only conceal part of the economic activity by moving it to the informal economy, limiting the scope of the global economic impact. Unlike countries that are considered attractive destinations for labor migration, the case of Syrian immigration in Turkey, of a forced nature, is linked to a specific shock. In this sense, the application of restrictive policies of access to economic integration will hardly promote return or contain new flows; the effects of a restrictive orientation would therefore be clearly negative.

On the other hand, promoting labor integration and facilitating the start-up of small businesses would reduce the pressure on public assistance resources in many cities and towns, alleviating the competition for those resources that occurs between natives and immigrants by helping to control the stigmatization of the immigrant population in the reception nuclei.

Complaints, opposition and protest reactions against to Syrian Refugees has been increasing due to economic, social and cultural reasons during recent years. News about facts in field, reports released by civil society (i.e., population share of Refugees is increasing and even surpassing

number of natives in several province or towns) and other sources such as discussion among intellectuals has contributed to increasing negative reactions recently. One of the popular and leading newspaper portal⁴⁹ has reported 137 news about natives' reactions against to Syrian Refugees populations which includes protest meetings, violence's, fights and so one. These realities can be regarded as pioneer indications of future massive reaction against to Syrian Refugees if they continue to stay without integrated into society in a comprehensive perspective (including labor market and business integration).

Under this conditions, policy makers face a dilemma over whether public support is sufficient to adopt integration policy in favor. Simulation results can be used to change public opinions together other arguments and justifying necessity of integration policies if majority of the Syrian Refugees will continue to stay.

Regarding international experiences and expert opinions it is expected that at least 80 percent of Syrian Refugees will continue to stay permanently in Turkey. Significant part of them have low education and skill level. Furthermore, significant number of school age children are still not attending either primary school or training courses. There is also academic interest and debate whether the Refugees working population are complementary and substitute with native workers. They have filled whether open jobs or crowded out existing employment of natives.

Empirical exercise implemented by the research project supports that creating more employment opportunity for the Refugees population through improving their education and skill level, local language competency, their awareness about legal obligations and opportunities (training, health, labor market, residence permission, etc.), entrepreneurial capacity and also providing permission in well targeted work area (complementary and open works) will enhance their contribution to the economic growth because of the fact that the production effect is greater than the induced demand effect.

In order to avoid the crowding out effect of Syrian Refugees on natives, it is necessary to conduct a comprehensive field survey to explore complementary jobs opportunities (where exist in terms of sector and location) and skill requirement to fulfil them. The result of this survey will also enhance mismatching in Turkish labor market.

More comprehensive, inclusive and holistic approach seems a key factor for alleviating cost of the Refugees on hosting country which entails to active participation of local actors like municipalities and local NGOs to project design and implementation.

The monetary cost and source of resources (from international institutions, donor, Turkish central government budget, local municipalities and others) should become more transparent to the public and make them aware more reliable data.

Statistical Annex (Detailed Simulation Results Tables)

Table A.1. Production Effect 2017

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	2,547,784	2,265,972	2.0%	1.5%	0.5%	14,473
B. (Mining And Quarrying)	349,401	298,057	1.6%	1.2%	0.4%	282
C. (Manufacturing)	10,552,098	5,379,588	2.1%	1.3%	0.8%	10,799
DE. (Energy) (2)	1,548,670	690,678	1.8%	1.0%	0.8%	467
F. (Construction)	4,479,642	3,103,906	2.8%	2.0%	0.8%	4,994
G. (Wholesale And Retail Trade) (3)	3,581,985	3,200,545	1.8%	1.5%	0.3%	7,093
H. (Transport And Storage)	1,849,725	1,273,724	1.0%	0.5%	0.5%	2,423
I. (Accommodation And Food Service Activities)	974,117	751,038	1.8%	1.2%	0.6%	3,723
J. (Information And Communication)	457,743	380,748	0.9%	0.6%	0.3%	406
K. (Financial And Insurance Activities)	429,356	363,474	0.8%	0.5%	0.3%	433
L. (Real Estate Activities)	1,654,680	1,594,513	1.1%	0.9%	0.2%	317
M. (Professional, Scientific And Technical Activities)	245,293	169,258	0.4%	0.1%	0.3%	1,246
N. (Administrative And Support Service Activities)	323,641	246,751	0.6%	0.3%	0.3%	2,558
O. (Public Administration And Defence)	309,327	199,742	0.3%	0.0%	0.3%	2,975
P. (Education)	175,306	160,390	0.3%	0.1%	0.1%	1,514
Q. (Human Health And Social Work Activities)	334,564	223,372	0.5%	0.2%	0.4%	2,131
R. (Arts, Entertainment And Recreation)	335,294	299,176	2.3%	1.9%	0.4%	300
STU. (Other Social, Community And Personal Services)	442,730	373,284	2.2%	1.8%	0.5%	1,784
TOTAL	30,591,356	20,974,215	1.5%	1.03%	0.48%	57,919

Table A.2. Induced Demand Effect 2017

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	81,094	48,149	0.0%	0.0%	0.0%	2,252
B. (Mining And Quarrying)	400,761	69,564	0.4%	0.0%	0.4%	1,456
C. (Manufacturing)	1,118,121	230,929	0.1%	0.0%	0.1%	5,723
DE. (Energy) (2)	1,813,075	405,819	1.0%	0.5%	0.5%	2,801
F. (Construction)	172,280	64,230	0.1%	0.0%	0.1%	1,015
G. (Wholesale And Retail Trade) (3)	3,138,487	1,889,994	1.1%	1.0%	0.1%	36,655
H. (Transport And Storage)	659,996	307,245	0.2%	0.1%	0.2%	2,708
I. (Accommodation And Food Service Activities)	61,237	30,189	0.1%	0.0%	0.1%	957
J. (Information And Communication)	147,250	86,107	0.2%	0.0%	0.2%	481
K. (Financial And Insurance Activities)	198,683	118,362	0.3%	0.0%	0.3%	751
L. (Real Estate Activities)	2,745,427	2,230,293	1.6%	1.4%	0.2%	3,189
M. (Professional, Scientific And Technical Activities)	217,706	130,633	0.3%	0.0%	0.3%	2,199
N. (Administrative And Support Service Activities)	207,668	127,919	0.3%	0.0%	0.3%	3,777
O. (Public Administration And Defence)	13,111	8,283	0.0%	0.0%	0.0%	195
P. (Education)	5,533	4,643	0.0%	0.0%	0.0%	104
Q. (Human Health And Social Work Activities)	714,335	412,379	1.0%	0.9%	0.1%	9,791
R. (Arts, Entertainment And Recreation)	6,013	3,542	0.0%	0.0%	0.0%	34
STU. (Other Social, Community And Personal Services)	19,417	9,987	0.1%	0.0%	0.1%	447
TOTAL	11,720,194	6,178,267	0.4%	0.3%	0.1%	74,535

Table A.3. Total Effect 2017 (A.1+A.2)

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	2,628,878	2,314,121	2.0%	1.5%	0.5%	16,725
B. (Mining And Quarrying)	750,162	367,621	1.9%	1.2%	0.8%	1,738
C. (Manufacturing)	11,670,219	5,610,517	2.2%	1.3%	0.9%	16,523
DE. (Energy) (2)	3,361,745	1,096,497	2.8%	1.5%	1.3%	3,268
F. (Construction)	4,651,922	3,168,136	2.8%	2.0%	0.8%	6,009
G. (Wholesale And Retail Trade) (3)	6,720,472	5,090,540	2.9%	2.5%	0.4%	43,749
H. (Transport And Storage)	2,509,721	1,580,969	1.2%	0.6%	0.6%	5,132
I. (Accommodation And Food Service Activities)	1,035,354	781,227	1.8%	1.2%	0.6%	4,681
J. (Information And Communication)	604,993	466,855	1.1%	0.6%	0.5%	887
K. (Financial And Insurance Activities)	628,039	481,836	1.1%	0.5%	0.5%	1,184
L. (Real Estate Activities)	4,400,107	3,824,806	2.7%	2.4%	0.4%	3,506
M. (Professional, Scientific And Technical Activities)	462,999	299,891	0.7%	0.1%	0.6%	3,445
N. (Administrative And Support Service Activities)	531,309	374,670	0.9%	0.3%	0.6%	6,335
O. (Public Administration And Defence)	322,438	208,025	0.4%	0.0%	0.4%	3,170
P. (Education)	180,838	165,033	0.3%	0.1%	0.1%	1,618
Q. (Human Health And Social Work Activities)	1,048,900	635,752	1.5%	1.1%	0.4%	11,922
R. (Arts, Entertainment And Recreation)	341,307	302,717	2.3%	1.9%	0.4%	333
STU. (Other Social, Community And Personal Services)	462,147	383,270	2.3%	1.8%	0.5%	2,231
TOTAL	42,311,549	27,152,482	2.0%	1.4%	0.6%	132,454

Table A.4. Production Effect 2023

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	3,504,707	3,117,049	2.7%	2.1%	0.6%	19,791
B. (Mining And Quarrying)	480,632	410,005	2.2%	1.6%	0.6%	386
C. (Manufacturing)	14,515,366	7,400,110	2.9%	1.8%	1.1%	14,778
DE. (Energy) (2)	2,130,336	950,090	2.5%	1.4%	1.1%	639
F. (Construction)	6,162,152	4,269,703	3.8%	2.8%	1.0%	6,805
G. (Wholesale And Retail Trade) (3)	4,927,345	4,402,639	2.5%	2.1%	0.5%	9,689
H. (Transport And Storage)	2,544,464	1,752,122	1.4%	0.7%	0.6%	3,326
I. (Accommodation And Food Service Activities)	1,339,986	1,033,121	2.4%	1.6%	0.8%	5,099
J. (Information And Communication)	629,667	523,754	1.3%	0.8%	0.4%	556
K. (Financial And Insurance Activities)	590,618	499,991	1.1%	0.7%	0.3%	593
L. (Real Estate Activities)	2,276,162	2,193,396	1.6%	1.3%	0.3%	433
M. (Professional, Scientific And Technical Activities)	337,423	232,829	0.5%	0.1%	0.4%	1,712
N. (Administrative And Support Service Activities)	445,197	339,428	0.8%	0.3%	0.5%	3,515
O. (Public Administration And Defence)	425,507	274,763	0.5%	0.0%	0.5%	4,092
P. (Education)	241,149	220,631	0.4%	0.2%	0.2%	2,081
Q. (Human Health And Social Work Activities)	460,224	307,269	0.7%	0.2%	0.5%	2,928
R. (Arts, Entertainment And Recreation)	461,227	411,543	3.1%	2.5%	0.6%	408
STU. (Other Social, Community And Personal Services)	609,016	513,486	3.1%	2.4%	0.6%	2,435
TOTAL	42,081,176	28,851,930	2.1%	1.42%	0.66%	79,266

Table A.5. Induced Demand Effect 2023

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	109,946	65,280	0.1%	0.0%	0.1%	3,036
B. (Mining And Quarrying)	549,679	95,413	0.5%	0.0%	0.5%	1,987
C. (Manufacturing)	1,520,255	313,983	0.1%	0.0%	0.1%	7,741
DE. (Energy) (2)	2,491,543	557,680	1.4%	0.7%	0.7%	3,829
F. (Construction)	226,653	84,502	0.1%	0.0%	0.1%	1,322
G. (Wholesale And Retail Trade) (3)	4,294,252	2,585,996	1.5%	1.4%	0.1%	49,800
H. (Transport And Storage)	903,645	420,670	0.3%	0.1%	0.2%	3,700
I. (Accommodation And Food Service Activities)	82,926	40,881	0.1%	0.0%	0.1%	1,291
J. (Information And Communication)	200,364	117,166	0.3%	0.0%	0.3%	650
K. (Financial And Insurance Activities)	271,877	161,966	0.4%	0.0%	0.4%	1,024
L. (Real Estate Activities)	3,770,282	3,062,852	2.2%	2.0%	0.2%	4,353
M. (Professional, Scientific And Technical Activities)	292,877	175,739	0.4%	0.0%	0.4%	2,956
N. (Administrative And Support Service Activities)	283,291	174,502	0.4%	0.0%	0.4%	5,148
O. (Public Administration And Defence)	16,487	10,416	0.0%	0.0%	0.0%	246
P. (Education)	7,534	6,322	0.0%	0.0%	0.0%	141
Q. (Human Health And Social Work Activities)	982,459	567,165	1.4%	1.3%	0.1%	13,449
R. (Arts, Entertainment And Recreation)	8,194	4,826	0.0%	0.0%	0.0%	46
STU. (Other Social, Community And Personal Services)	26,012	13,378	0.1%	0.0%	0.1%	594
TOTAL	16,038,275	8,458,736	0.6%	0.4%	0.2%	101,311

Table A.6. Total Effect 2023 (A.4+A.5)

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	3,614,653	3,182,329	2.8%	2.1%	0.7%	22,827
B. (Mining And Quarrying)	1,030,311	505,418	2.7%	1.6%	1.1%	2,373
C. (Manufacturing)	16,035,620	7,714,093	3.0%	1.8%	1.3%	22,519
DE. (Energy) (2)	4,621,880	1,507,770	3.9%	2.1%	1.8%	4,468
F. (Construction)	6,388,805	4,354,205	3.9%	2.8%	1.1%	8,127
G. (Wholesale And Retail Trade) (3)	9,221,597	6,988,635	4.0%	3.4%	0.6%	59,489
H. (Transport And Storage)	3,448,109	2,172,792	1.7%	0.8%	0.8%	7,026
I. (Accommodation And Food Service Activities)	1,422,912	1,074,002	2.5%	1.6%	0.9%	6,390
J. (Information And Communication)	830,031	640,920	1.5%	0.9%	0.7%	1,206
K. (Financial And Insurance Activities)	862,495	661,958	1.4%	0.7%	0.7%	1,617
L. (Real Estate Activities)	6,046,444	5,256,248	3.8%	3.3%	0.5%	4,786
M. (Professional, Scientific And Technical Activities)	630,300	408,569	0.9%	0.2%	0.8%	4,668
N. (Administrative And Support Service Activities)	728,488	513,929	1.2%	0.3%	0.9%	8,663
O. (Public Administration And Defence)	441,994	285,178	0.5%	0.0%	0.5%	4,337
P. (Education)	248,683	226,953	0.4%	0.2%	0.2%	2,222
Q. (Human Health And Social Work Activities)	1,442,683	874,433	2.1%	1.5%	0.6%	16,377
R. (Arts, Entertainment And Recreation)	469,421	416,369	3.1%	2.5%	0.6%	454
STU. (Other Social, Community And Personal Services)	635,027	526,864	3.2%	2.4%	0.7%	3,028
TOTAL	58,119,452	37,310,665	2.7%	1.9%	0.8%	180,577

Table A.7. Production Effect 2028

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	5,303,966	4,717,290	4.1%	3.2%	0.9%	29,610
B. (Mining And Quarrying)	727,381	620,494	3.3%	2.4%	0.9%	578
C. (Manufacturing)	21,967,314	11,199,204	4.4%	2.7%	1.7%	22,140
DE. (Energy) (2)	3,224,015	1,437,851	3.7%	2.1%	1.6%	957
F. (Construction)	9,325,699	6,461,698	5.8%	4.2%	1.6%	10,111
G. (Wholesale And Retail Trade) (3)	7,456,962	6,662,882	3.8%	3.1%	0.7%	14,463
H. (Transport And Storage)	3,850,750	2,651,633	2.0%	1.1%	1.0%	5,011
I. (Accommodation And Food Service Activities)	2,027,912	1,563,508	3.7%	2.5%	1.2%	7,649
J. (Information And Communication)	952,927	792,641	1.9%	1.3%	0.6%	833
K. (Financial And Insurance Activities)	893,832	756,679	1.7%	1.1%	0.5%	890
L. (Real Estate Activities)	3,444,706	3,319,450	2.4%	2.0%	0.4%	648
M. (Professional, Scientific And Technical Activities)	510,650	352,360	0.8%	0.2%	0.6%	2,586
N. (Administrative And Support Service Activities)	673,754	513,684	1.2%	0.5%	0.7%	5,310
O. (Public Administration And Defence)	643,955	415,821	0.7%	0.0%	0.7%	6,192
P. (Education)	364,951	333,899	0.6%	0.3%	0.3%	3,144
Q. (Human Health And Social Work Activities)	696,495	465,016	1.1%	0.3%	0.8%	4,421
R. (Arts, Entertainment And Recreation)	698,013	622,823	4.7%	3.9%	0.8%	607
STU. (Other Social, Community And Personal Services)	921,674	777,101	4.7%	3.7%	1.0%	3,628
TOTAL	63,684,955	43,664,032	3.2%	2.15%	1.00%	118,778

Table A.8. Induced Demand Effect 2028

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	160,293	95,173	0.1%	0.0%	0.1%	4,375
B. (Mining And Quarrying)	809,545	140,521	0.7%	0.0%	0.7%	2,897
C. (Manufacturing)	2,221,992	458,915	0.2%	0.0%	0.2%	11,200
DE. (Energy) (2)	3,675,496	822,683	2.1%	1.1%	1.0%	5,593
F. (Construction)	321,535	119,876	0.1%	0.0%	0.1%	1,842
G. (Wholesale And Retail Trade) (3)	6,311,106	3,800,543	2.2%	2.0%	0.2%	72,191
H. (Transport And Storage)	1,328,822	618,601	0.5%	0.2%	0.3%	5,417
I. (Accommodation And Food Service Activities)	120,774	59,539	0.1%	0.0%	0.1%	1,863
J. (Information And Communication)	293,052	171,367	0.4%	0.0%	0.4%	941
K. (Financial And Insurance Activities)	399,603	238,057	0.5%	0.0%	0.5%	1,492
L. (Real Estate Activities)	5,558,693	4,515,697	3.2%	2.9%	0.3%	6,344
M. (Professional, Scientific And Technical Activities)	424,053	254,451	0.6%	0.0%	0.6%	4,273
N. (Administrative And Support Service Activities)	415,256	255,789	0.6%	0.0%	0.6%	7,531
O. (Public Administration And Defence)	22,377	14,137	0.0%	0.0%	0.0%	333
P. (Education)	11,028	9,253	0.0%	0.0%	0.0%	206
Q. (Human Health And Social Work Activities)	1,450,344	837,271	2.0%	1.9%	0.1%	19,807
R. (Arts, Entertainment And Recreation)	11,998	7,066	0.1%	0.0%	0.1%	65
STU. (Other Social, Community And Personal Services)	37,520	19,297	0.1%	0.0%	0.1%	843
TOTAL	23,573,486	12,438,237	0.9%	0.6%	0.2%	147,213

Table A.9. Total Effect 2028 (A.7+A.8)

SECTOR / BRANCH	Supply (Production) IMPACT					
	Production	Value Added				Induced Native Employment
	Turkish Liras	Turkish Liras	Impact in %			
			Total	Direct	Indirect	
A. (Primary Sector) (1)	5,464,258	4,812,463	4.2%	3.2%	1.0%	33,985
B. (Mining And Quarrying)	1,536,925	761,015	4.0%	2.4%	1.6%	3,475
C. (Manufacturing)	24,189,306	11,658,118	4.6%	2.7%	1.9%	33,340
DE. (Energy) (2)	6,899,511	2,260,533	5.8%	3.2%	2.7%	6,550
F. (Construction)	9,647,235	6,581,575	5.9%	4.2%	1.7%	11,953
G. (Wholesale And Retail Trade) (3)	13,768,068	10,463,425	6.0%	5.1%	0.9%	86,653
H. (Transport And Storage)	5,179,572	3,270,233	2.5%	1.3%	1.3%	10,428
I. (Accommodation And Food Service Activities)	2,148,686	1,623,048	3.8%	2.5%	1.3%	9,513
J. (Information And Communication)	1,245,979	964,007	2.3%	1.3%	1.0%	1,774
K. (Financial And Insurance Activities)	1,293,434	994,736	2.2%	1.1%	1.0%	2,382
L. (Real Estate Activities)	9,003,399	7,835,147	5.6%	4.9%	0.7%	6,992
M. (Professional, Scientific And Technical Activities)	934,703	606,811	1.4%	0.2%	1.2%	6,860
N. (Administrative And Support Service Activities)	1,089,009	769,473	1.8%	0.5%	1.3%	12,840
O. (Public Administration And Defence)	666,332	429,958	0.7%	0.0%	0.7%	6,526
P. (Education)	375,978	343,153	0.6%	0.3%	0.3%	3,349
Q. (Human Health And Social Work Activities)	2,146,839	1,302,286	3.1%	2.2%	0.9%	24,228
R. (Arts, Entertainment And Recreation)	710,012	629,889	4.8%	3.9%	0.9%	672
STU. (Other Social, Community And Personal Services)	959,194	796,398	4.8%	3.7%	1.1%	4,471
TOTAL	87,258,441	56,102,269	4.0%	2.8%	1.2%	265,991

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4. Using the term employed by Seccombe in "Immigrant workers in an emigrant economy".
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8. Biavaschi Constanza et al. for South Africa; Gindling for Costa Rica; Özden and Wagner; Narayanan and Abdul-Rahman et al. for Malaysia.
9. Mayda et al., "The labor market impact of refugees,"; Petrucci, "An Economic Take,"; IMF "The Refugee Surge in Europe,"; Capps and Newland, "The integration outcomes,"; Peri and Yasenov, "The labor market effects,".
10. Ruiz and Vargas-Silva, "The economics of forced migration,".
11. Mayda et al., "The labor market impact of refugees,";
12. In the Syrian–Turkish case, less than 10 percent of refugees live in camps, according to the 2016 Government Annual Migration Report.
- 13 UNHCR, "2017 Progress Report".
14. For instance, Syrian refugees were not allowed to work in Turkey until January 2016. In the UK, asylum seekers are not allowed to work unless they have been waiting for a response to their asylum claim for 12 months. Even then they are allowed to work only in occupations featured on the government's "shortage occupations" list.
- 15 UNHCR, "Global Trends:,".
- 16 Such as those of Tumen, "The economic impact," or Ceritoglu et al., "The impact of Syrian refugees,".
17. To stem the flow of migrants crossing into Europe, the EU signed a deal with Turkey (the EU–Turkey Statement of March 18, 2016) that aims to return to Turkey migrants who do not have an asylum claim.
- 18 Kuschminder and Koser, "Understanding irregular migrants,".
- 19 INGEV & IPSOS, "Syrian Refugee Livelihood Monitor".
20. Including 10 cities hosting 79 percent of refugees—Istanbul, Şanlıurfa, Hatay, Gaziantep, Adana, Mersin, Kilis, Mardin, Bursa and İzmir—and a total of 1,282 face-to-face interviews.
- 21 As pointed out by Akgündüz et al., "The impact of refugee crises,".
22. Tumen, "The economic impact,".
23. Described by the author as the "rapid and massive movement toward the nearest neighbor during 2012 and 2013".
24. Zachariadis, "Immigration and international prices".
25. Initially, we would expect a positive effect on prices as immigration increases overall demand, but Zachariadis reported that the composition of demand (because of immigrant consumption) can change in a manner that negates any positive price effects. Additionally, we may find a second supply-side negative price effect because of lower prices or services produced by immigrants caused by a downward pressure on production costs for items more intensive in immigrant labor.
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30. Though only for men who had not completed high school education.
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35. See Tumen, "The economic impact,"; Akgündüz et al., "The impact of refugee crises," and Del Carpio and Wagner, "The impact of Syrians refugees," among others.

36. DGMM Database

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42. Gerşil and Temel, "Working Conditions and Informal,".

43. De Arce and Mahía, "An Estimation of the Economic Impact," or de Arce and Mahía, "A Dynamic Input–Output Scheme,".

44. Ghosh, "Input-output approach,".

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47. We assume an annual GDP growth of 4.5 percent for the first five years (2018–2022) and of 4 percent for the next five (2023–2028).

48. Results in billions of TL, expressed as 2012 equivalent prices.

49. Hürriyet (www.hurriyet.com.tr)