

Refugee Crisis in Greece

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Abstract: Greece has a long history of dealing with issues that threaten their way of life. Currently there is a single issue that has Greece again backed in the corner. The refugee crisis currently facing Greece and Europe is one that doesn't appear to be slowing down any time soon. Through diligent research we find that the crisis is affecting many aspects of the Greek way of life. Economy, healthcare and tourism are a few examples.

1 The Driven Purpose of Our Research

There are many statistical tables available to represent the data on refugees coming into Greece. We have used this data from several sources and compiled a series of tables based on calculated constants used to predict the exponential growth of the refugee population in Greece through 2024. We have also explored the anticipated increase of asylum applicants being granted legal asylum. We express these values in an exponential growth model using a calculated constant derived from our research. We believe that granting asylum to these innocent humans is not only the best way to move them through Europe but also a great way to stimulate Greece's economy. As the number of refugees increases at the calculated rate, Greece must decide how to cope or resolve these issues. There is a choice between granting asylum and employing the new citizens, or continuing to stockpile humans in unsanitary camps. Greece will find a way, it always has.

2 The Current Situation

Since 2010 Greece has faced adversity from all directions. Some of the more prominent issues Greece is facing are issues with their economy, and issues concerning the refugees that continue to pour into their shorelines. However, due to the history of the Greek culture and their test of time, it is clear that Greece will persevere; it is just unclear when and if it will be soon enough. The refugees entering Greece are from war-torn countries and fleeing from persecution. When they arrive, it might seem that the living conditions aren't much different. The camps housing the refugees are unsanitary due to their over-

crowding, and healthcare isn't readily available, especially for the children. As one could imagine these conditions fuel a stressful environment. Outside of the camps there is the issue of the Economy. Greece, having been 'bailed-out' several times in the past few years, is unable to sustain a healthy economy due to poor spending habits in the past. Greece relies heavily on tourism and their trade markets to help stimulate their economy. With the slumping economy, the refugee crisis seems to be magnified. Not having a means to provide food and services adds to the unsatisfactory living conditions facing the refugees. Through the fog there is light however. The light being the ancient, resilient Greek culture and people who have stood the test of time. A people of strong faith and values that go back thousands of years. It is their faith and perseverance that will find a way for them to once again be a leader among cultures and show the world how to face adversity.

3 Ancient History

In order to understand Greek culture and the current economic and sociological state of Greece, it is important to grasp the origins of Greece and its very important role in human history. The cultures in ancient Greece have molded our views on politics, art, literature, and philosophy for thousands of years.

The first traces of human life in Greece date back to the Paleolithic Age (The Stone Age) approx. 120,000–10,000 B.C. [11].

From here we look forward about 3000 years to the Neolithic Age (approximately 7000–3000 B.C.) when early Greek architecture begins to take form [11].

Following the Neolithic Age and the Dark Ages of Greece, the Greek Renaissance years began (9th–8th Century B.C.). During this time, the formation of Greek city-states took place, the Greek alphabet was invented, and the Homeric epics were composed [11]. The Greek alphabet is a vital part of mathematics and physics used in hundreds of formulas and used as variables in equations. The Homeric epics, basic to many courses of literature worldwide, are also a critical element of Greece's past that are popular to this day. As we approach modern day Greece, we find more and more influential aspects associated with philosophy, arts, literature, and politics.

The Hellenistic Period (3rd century – 1st century B.C.) gave birth to world-famous philosophers such as Aristotle, Plato, Socrates, and Pythagoras [9]. Their philosophies and teachings are still studied to this day across the world in the subjects of math, physics, and philosophy.

Following the Hellenistic Period, Greece was occupied by the Roman Empire (1st century B.C. – 3rd Century A.D.). During the Roman occupancy of Greece, Roman architecture, which can be seen throughout much of Greece today, gained momentum; so did Christianity. Prior to Christianity, the major religion in Greece was Dodekathemon, which is the belief that there are twelve gods [9]. The twelve gods appear in the Homeric epics side-by-side with many Greek mythological stories. Christianity was spread throughout Greece by one of the apostles, Paul, during the 1st century A.D. [11].

4 Modern History

Modern Greece looks very different from ancient Greece, aside from the ancient architecture that can still be seen today.. An article on the history and background of Greece notes that “Greece today occupies about 131,957 square miles, approximately the size of Alabama. The Greek Islands make up one-fifth of this territory. Although there are about 2,000 islands, only 170 are inhabited; the largest is Crete” [5]. Greece’s population in 2019 was 11,129,227, ranked 85th in the world [6]. With the rise in the numbers of refugees entering Greece and the closing of borders of neighboring countries, the population of Greece could be expected to grow more rapidly. It is said (2018) that refugees account for about 10% of the population at this time [12].

Due to the fact that Greece is surrounded by water on three sides, it is susceptible to receiving refugees fleeing countries from war and persecution. The flood of refugees impacts the already weakened economy of Greece in a negative way. Greece’s current form of currency is the Euro, which was not adopted until 2001, even though Greece joined the European Economic Community in 1981 [7]. In this same year, Greece became a Presidential Parliamentary Democracy [11]. Up until 2001, Greece’s economic state did not meet the standard set forth in a treaty signed by the additional 12 members of the Community [7].

Following the Wall Street collapse in 2008, Greece has experienced economic turmoil. In 2010, Greece was nearing bankruptcy and sought a bailout from the so-called troika—the International Monetary Fund, the European Central Bank and the European Commission. The troika issued the first two bailouts of Greece totaling 240 billion euro [2].

While Greece is still trying to rebound from bailouts and other government measures, the refugee crisis poses a serious threat to their economy and culture. Public spending to shelter the refugees, as well as a drop of income from tourism, threatens the Greek economy [14].

5 Greek Culture

Understanding the Greek culture aids in also understanding how the country has reacted to masses of people seeking asylum. When looking into some of the culture of the Greeks, similarities to western world cultures can be seen, as well as many differences. People of Greece pride themselves on their traditions, food, music, art, literature, and wine as well as their ethnic and national sense of belonging [8].

The spoken language of Greece is an Indo-European language. There have been many phases of dialect throughout the 34-century history of the language. “Approximately 15,000,000 people worldwide speak the language” [13].

The legal system in Greece is very much like that of the Western culture. Their belief in democracy and even trial by jury is similar to that of the United States [8].

Religion in Greece is mostly Christian Orthodox which is followed by 98% of population. The Christian Orthodox Church is the third largest in the worldwide Christian Community, next to Roman Catholicism and Protestantism. Small percentages of the Greek population are of Muslim, Catholic, and Jewish faiths [18]. Since the rise of refugees, there have been other religious and non-religious affiliates documented entering Greece, including atheist, Baha'i, Druze, and Yazidi [19].

6 Impact of Refugees

Considering the religious and family-oriented culture of Greece, it is not hard to understand why they are accepting of the task laid before them in aiding the refugees. Much of the Christian Orthodox faith is centered around love for one's neighbor, the widow, the orphan, and the "least of these." As Greece continues to sort out the economic issues that strain their country and aid in helping asylum seekers, much aid and careful planning is needed for the future. The exponential increase of refugees into Greece causes an array of other issues within the infrastructure of this ancient culture. Consideration must be given to issues such as overcrowded camps, pollution, and continued stress on an already wounded economy, to name a few.

The number of refugees that are entering Europe are not evenly dispersed throughout the remainder of the continent, causing some countries to become overly populated. According to Eleanor Paynter, Greece is unfit to process its many transients, due to having 850,000 transients who landed at its shore in 2015 [16]. Refugee camps have become overcrowded establishments occupied by many asylum seekers. Unlike Greece, other countries have not been as welcoming to the refugees. However, Germany welcomed refugees under the condition of their applying for asylum, an example of protection by another sovereign authority.

Asylum, as defined by the European Union, is a legal status granted to refugees fleeing their native countries due to persecution, war, and torture. The process of applying for asylum in Greece is inefficient, making it difficult for a refugee to obtain asylum status there.

This refugee crisis was a result of journeys to Europe in hopes of better living conditions and economy, but it killed the already weak Greek economy and environment. This left the country worried about tourism, its main source of revenue. In 2015, due to war in the Middle East, an influx of people traveled through Greece in order to flee from the war: nearly 1 million people within the span of a year. The following year, 2016, saw a major decline in the number of refugees coming into Greece. That year had the highest number of deaths while crossing the Mediterranean Sea, tallying up over 5,000 deaths, and many other people reported as missing. Post-2016, the refugee population is predicted to grow exponentially, but outside factors such as death rates, poor living conditions, and limited resources could easily lead to another reduction of refugees in Greece.

7 Available Data

We collected from the internet three types of annual data, as shown in Table 1, and graphed in Figure 1.

Year	Total Refugees	Total Asylum Applications	Refugees Granted Asylum
2010	57,428	55,724	1,444
2011	45,810	43,922	1,573
2012	38,527	36,183	2,100
2013	73,027	49,830	3,485
2014	42,879	31,929	10,304
2015	51,825	26,141	24,838
2016	86,376	39,965	46,427
2017	83,176	44,188	38,948
2018	137,512	76,066	61,460
2019	186,144	105,690	80,468

Table 1. Annual figures for total refugees in Greece, those applying for asylum, and those granted asylum [17].

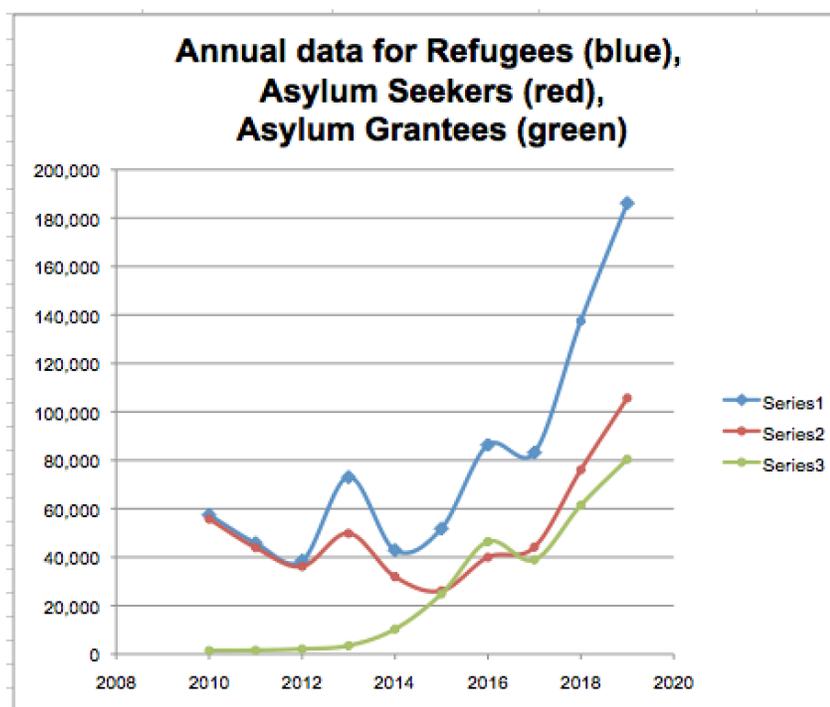


Figure 2. Color-coded graphs of the data in Table 1.

We can see that all three curves since 2014–2015 are rising, while the numbers granted asylum are falling off a bit. It is our strong belief that a solution to Greece’s struggling economy and the refugee crisis as a whole is to speed up the asylum application and granting process.

8 Mathematical Modeling

To predict future growth for each of the three increasingly rising populations tabulated and graphed in the previous section, we use an exponential growth model,

$$y = C e^{kt},$$

where ,

k = exponential *growth* constant,

C = constant,

t = time elapsed since the beginning.

For each population we use the last two years of data to evaluate C and k . A sample calculation, for the refugee population, is as follows:

- Starting in 2018, with $t = 0$, we have

$$y = 137,512 = C e^0 = C.$$

- Then in 2019, with $t = 1$, we get $y = 186,144 = 137,512 e^k$, so

$$k = \ln(186,144/137,512) = \ln(1.353656408) = 0.3028.$$

- Thus, to fill the spreadsheet column for predicting number of refugees, we use

$$y = 137,512 e^{0.3028t}.$$

To show that the exponential model is reasonable, for each of the three populations we graph both the given data (to 2019, from Table 1) and the projected curve from the exponential model. See Figures 2, 3, and 4.

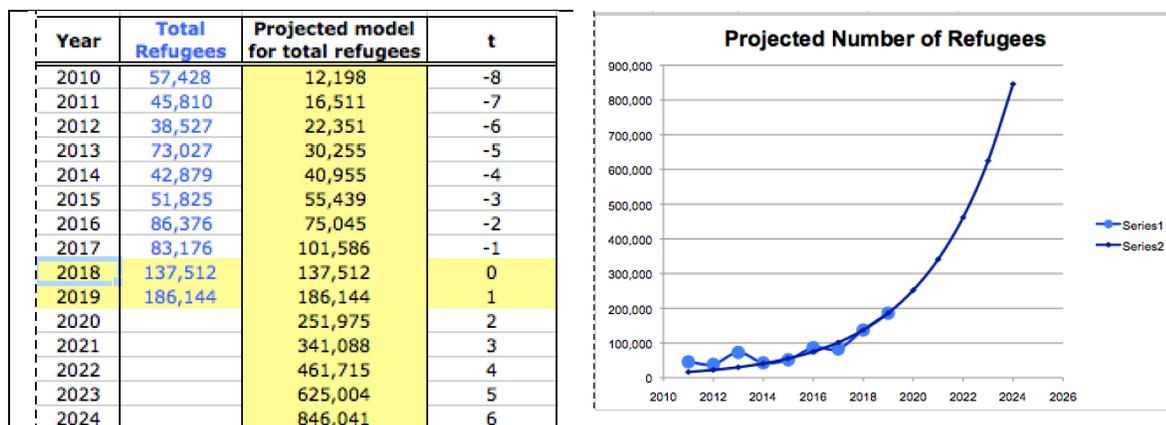


Figure 2. Table and graphs for projecting number of refugees.

The same process produces predictions for asylum figures in Figure 3, and for refugees granted asylum in Figure 4. For asylum seekers,

$$C = 76,066,$$

$$k = \ln(105690/76066) = \ln(1.38945\dots) = 0.3289,$$

$$y = 76066 e^{0.3289t}.$$

Year	Total Asylum Applications	Projected Asylum Seekers	t
2010	55,724	5,476	-8
2011	43,922	7,608	-7
2012	36,183	10,571	-6
2013	49,830	14,688	-5
2014	31,929	20,409	-4
2015	26,141	28,357	-3
2016	39,965	39,401	-2
2017	44,188	54,745	-1
2018	76,066	76,066	0
2019	105,690	105,690	1
2020		146,851	2
2021		204,042	3
2022		283,507	4
2023		393,919	5
2024		547,332	6

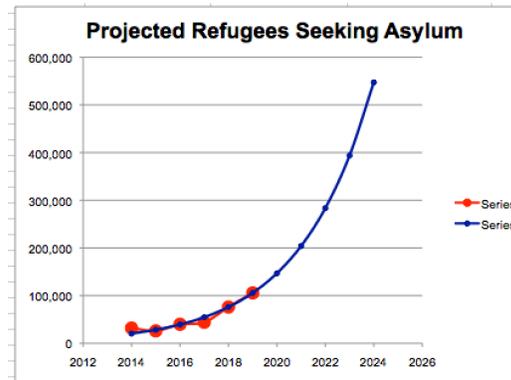


Figure 3. Table and graphs for projecting number of asylum seekers.

For refugees *granted* asylum, $C = 61460,$

$$k = \ln(80468/61460) = \ln(1.30927\dots) = 0.269473,$$

$$y = 61460 e^{0.269473t}.$$

Year	Refugees Granted Asylum	Projected Refugees Granted Asylum	t
2010	1,444	7,118	-8
2011	1,573	9,319	-7
2012	2,100	12,201	-6
2013	3,485	15,975	-5
2014	10,304	20,916	-4
2015	24,838	27,384	-3
2016	46,427	35,853	-2
2017	38,948	46,942	-1
2018	61,460	61,460	0
2019	80,468	80,468	1
2020		105,355	2
2021		137,938	3
2022		180,599	4
2023		236,454	5
2024		309,583	6

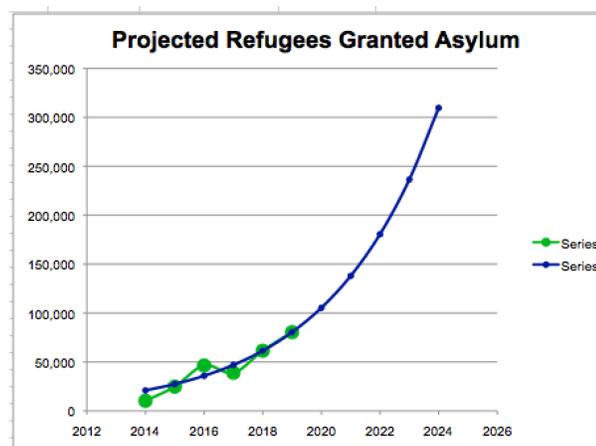


Figure 4. Table and graphs for projecting number of refugees granted asylum.

9 Conclusions

If the application process were to become more efficient and asylum easier to obtain, the number of refugees inhabiting the camps and draining the economy would decline. Instead of wearing down the economy, the refugees would be able to obtain employment status and contribute to the economy.

Asylum seekers seem to hold the future of Greece in the palm of their hands. With continued assistance from the EU and careful decision making moving forward, the current status of Greece can slowly begin to reverse. Educating asylum applicants, teaching them the culture, and preparing them for life beyond the walls of refugee camps is the first step. As our research shows, asylum seekers will not stop seeking refuge anytime soon. According to the numbers we projected, it is possible that Greece could collapse unless measures are taken. Therefore, it is crucial to the process that applications be submitted and assessed in a timely manner. Currently the standards of granting asylum are being evaluated to hopefully once again make it easier to obtain. It is our strong belief that granting asylum is the key to building the workforce in Greece and to Greece once again becoming the strong independent country we once knew.

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