

A HISTORICAL AND ECONOMIC ANALYSIS OF THE FRENCH ECONOMY

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ABSTRACT

France is another European country that we hear a lot of discussion about, both political and economic. It is true that France has a long economic history, but is it another economic power of Europe today? The purpose of the authors in this paper, is to do an evaluation of the economy of France to see what the true economic story is about France. For that purpose a lot of economic data will be presented and discussed.

KEY WORDS: REGRESSIONS ABOUT THE FRENCH ECONOMY

HISTORICAL BACKGROUND

The history of a nation is very important, because the history prepares us of what will become of the country. In the next few pages, we are going to present some events in the French history that were instrumental of its development. This will include a brief timeline, with some of the most important events over the years.

France is found in Western Europe, bordered by the English Channel, Luxembourg, Belgium, Germany and Switzerland, as well as the Mediterranean. Today it is one of the most modern nations in the world, and a leader in Europe. It is a permanent member of the United Nations, and by 2009 rejoined the NATO, after it was withdrawn in 1959 by De Gaulle.

France was the result of the breakup of the Carolingian Empire, and Hugh Capet became the king of West Francia during 987. During the early years there were a lot of wars with the English Monarchs over land, and these wars continued against the Habsburgs.

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The best years of the French royal power, were the years of the reign of Louis XIV, 1642 – 1715, during which time the French culture dominated Europe. This power collapsed fairly quickly after Louis XIV, and was followed by the French Revolution in 1789. At that time the republic was formed, but it was taken over by Napoleon and his wars, which caused France to dominate Europe until its defeat.

The following are some key figures in the French history:

King Louis XIV 1638 – 1715. King Louis became a king while still a minor in 1642. His success

earned him the name “The Sun King”.

Napoleon Bonaparte 1769 – 1821. Napoleon was a Corsican, and he trained in the French army. He

was very successful, and this enabled him to take over and turn France into an empire.

Charles de Gaulle 1890 – 1970. De Gaulle became the leader of the French forces during World War II, after which he became the Prime Minister. After retirement he created the French

Republic and its constitution and ruled until 1969.

In the pages that follow, we are going to present a timeline of France’s history. For obvious reasons we cannot present everything that took place, but we will try to show some of the most important events.

10000 B.C. Paleolithic Age

5000 – 2500 B.C. Neolithic Age

260 Foundation of the Gallic Empire by Postumus, forming Hispania, Germania and

Britannia.

274 Battle of Chalons, victory of the Roman Empire over the Gallic Empire.

451 Battle of the Chalons, where the Romans under Theodoric I stopped Hunnic

- Invasion in Gaul.
- 511 Clovis died, his kingdom was divided among his four sons.
- 732 Battle of Tours, Charles Martel inflicted a major defeat on the invading armies of the Umayyad Caliphate.
- 768 Charlemagne and Carloman I were proclaimed Kings of the Franks after their father's death.
- 800 Charlemagne coronated Emperor Augustus by Pope Leo III.
- 1214 Battle of Bouvines. The French army defeated a combine English – Flemish force.
- 1414 Hundred years' war, (1415 – 1429). An English army under King Henry V landed in the North of France.
- 1572 St. Bartholomew's Day massacre of French Protestants.
- 1789 The French Revolution began with the storming of the Bastille.
- 1803 France sold Louisiana to the United States.
- 1804 Napoleon declared emperor by the senate, and he crowned himself emperor in Notre – Dame de Paris.
- 1806 Napoleon dissolved the Holy Roman Empire.
- 1815 Hundred Days: Battle of Waterloo.
Napoleon exiled in Saint Helena, Louis XVII became King.
- 1821 Death of Napoleon.
- 1914 Germany declares war on France.
- 1939 France declared war on Germany.
- 1944 Liberation of Paris.
- 1959 Charles de Gaulle became the first president.
- 2015 1.3 million people demonstrate in Paris against terrorism and for

Freedom of speech.

As mentioned earlier, it is almost impossible to present all the events that took place in France over the years, so the above events are just a sample of the most important ones.

CURRENT LITERATURE/STATISTICAL ANALYSIS

In this next section, which is also the most important of the paper, the authors are going to present and discuss the current economic conditions in France. Along with that, we are going to present a lot of economic data for about 45 years that will help us reach a conclusion whether France is an economic superpower of Europe or not. Based on the data, we might be able to make some recommendations about the French economy.

France, from studies previously done, has an economic freedom score of 62.5, and this score makes France the 73rd freest economy in 2015. Having said that, it is important to say that economic freedom in France has declined by more than 2 points since 2011, and that included areas such as control of government spending, fiscal freedom as well as labor freedom. Although France has dropped 2 points of freedom, it remains one of the most modern countries in the world, and as far as European countries are concerned, it plays a leading role.

The French economy, even though is considered to be “Socialist”, the government has privatized many large companies such as Air France, France Telecom, and others. The French economy is not all that good. It also has its problems. It’s GDP increased by 0.4% in 2014o, but its unemployment rate rose from 7.8% in 2008 to 10.4% in 2014. Also the budget deficit rose from 3.3% of GDP in 2008 to 7.5% of GDP in 2009, although it came back down to 4% in 2014. Finally its public debt rose from 68% of the GDP to 95% in 2014 and is projected to be over 100% by 2015. As can be seen in this information, France is having its own economic problems just like everyone else.

At this point, we would like to present some current figures, to give the reader a better picture of the economic conditions in France. In 2014 France had a GDP of \$2.6 trillion, and a growth rate of around 0.4%. The growth rate was higher than the previous 2 years, which as 0.3%, but not very promising. France is mostly a service oriented economy, supported by the fact that approximately 79% of its GDP comes from services.

Our research has found that the biggest problem that France faces is unemployment. In 2014 the unemployment rate was 10.2%, obviously a very high rate by any standards. On the other hand, inflation is a no issue at .6% during 2014. France is very active in trade, both exports and

imports, and in fact it is ranked 7th in the world in both of them. In 2014 it exported a total of \$582.5 billion. Its exports included machinery, chemicals, and pharmaceutical products, just to name a few. In the same year France imported vehicles, crude oil, chemicals, etc., for a total of \$678.1 billion.

The two tables that follow, will show a number of years of economic data, including the GDP, Unemployment Rates, Inflation Rates, just to name a few. Also, we are going to show most of this data in graphs, which will be easier to see the direction of the French economy of the last 45 years.

TABLE 1

			GDP	EXP. (X)	IMP. (M)	N.EXP	
YEAR	GDP	POPULAT.	2005=100	2005=100	2005=100	2005=100	INFLATION
	GR.		BILLION	BILLION	BILLION	BILLION	
	RATE	MILLION	\$	\$	\$	\$	RATE
1970	6.9	51.9	904.4	84.5	91.7	-7.2	5.5
1971	5.3	52.3	952.8	92.8	98.4	-5.6	5.4
1972	4.5	52.8	996.1	103.2	112.9	-9.7	6.1
1973	6.3	53.2	1058.9	116.2	129.9	-13.7	7.4
1974	4.3	53.7	1104.3	129.6	137.1	-7.5	13.6
1975	-0.9	54	1093.5	125.4	124.9	0.5	11.7
1976	4.3	54.3	1140.7	136.1	148.1	-12	9.6
1977	3.5	54.6	1180.1	146.9	150.8	-3.9	9.5
1978	4	54.8	1227	156.5	157.4	-0.9	9.3
1979	3.6	55	1271.1	167.1	171.3	-4.2	10.6
1980	1.6	55.2	1291.9	171.7	180.2	-8.5	13.5
1981	1.1	55.5	1304.8	179.9	177.6	2.3	13.3
1982	2.5	55.8	1337.5	177.9	183.9	-6	11.9
1983	1.2	56.1	1354.3	186.4	178.9	7.5	9.5

1984	1.5	56.5	1374.9	199.1	184.9	14.2	7.7
1985	1.6	56.8	1397.3	203.2	193.8	9.4	5.8
1986	2.3	57.2	1430.1	201.3	206.7	-5.4	2.5
1987	2.6	57.5	1467	206.9	222.6	-15.7	3.3
1988	4.7	57.8	1536.5	224.5	241.6	-17.1	2.7
1989	4.3	58.1	1603.3	246.6	261.2	-14.6	3.5
1990	2.9	58.4	1650.1	256.9	274.3	-17.4	3.4
1991	1.04	58.6	1667.2	272.9	282.5	-9.6	3.2
1992	1.6	58.8	1693.9	288.9	287.4	1.5	2.4
1993	-0.6	59.1	1683.5	290.1	277.9	12.2	2.1
1994	2.3	59.3	1722.9	313.5	302.6	10.9	1.7
1995	2.1	59.5	1758.9	340.8	325.3	15.5	1.8
1996	1.4	59.8	1783.3	354.9	333.2	21.7	2
1997	2.3	59.9	1825	400.7	359.7	41	1.2
1998	3.6	60.2	1889.9	435	402.4	32.6	0.6
1999	3.4	60.5	1954.3	456.7	430.4	26.3	0.5
2000	3.9	60.9	2030	514.8	496.5	18.3	1.7
2001	1.9	61.4	2069.7	529.5	508.3	21.2	1.6
2002	1.1	61.8	2092.8	539.6	518.2	21.4	1.9
2003	0.8	62.2	2110	533.9	522.8	11.1	2.1
2004	2.8	62.7	2168.8	561.2	555.1	6.1	2.1
2005	1.6	63.2	2203.7	581.1	590.2	-9.1	1.7
2006	2.4	63.6	2256	613.8	623.2	-9.4	1.6
2007	2.4	64	2309.3	631.2	658.9	-27.7	1.5
2008	0.2	64.4	2313.8	633.5	667.4	-33.9	2.8
2009	-2.9	64.7	2245.7	562.1	604.7	-42.6	0.1
2010	1.9	65	2289.9	612.8	658.3	-45.5	1.5
2011	2.1	65.3	2337.5	654.9	699.7	-44.8	2.1
2012	0.2	65.6	2341.8	671.6	704.4	-32.8	1.9
2013	0.6	65.9	2357.1	682.8	716.2	-33.4	0.9

2014	0.2	66.2	2361.4	698.8	743.3	-44.5	0.5
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SOURCE: THE WORLD BANK GROUP, 2015, <http://databank.worldbank.org>

In Table 1, above, there are a number of things that we need to point out and briefly discuss. The first is the Growth Rate. From what can be seen on the table the Growth Rate over the last 45 years, ranged from a high of 6.9% in 1970, to a low of -2.9% in 2009. The last several years it has been positive, but barely over 0. The low Growth Rate can explain another thing on this table. We do not believe that it is by coincidence that the French total trade, ($X_n = X - M$), has been negative for 27 years during the last 45. In fact only 17 years have been positive. The conclusion we derive from this table is that the Population increased by 27%, the minimal growth was not enough to keep up even though the GDP during the last 45 years grew by 161%, and that resulted in the negative total trade (X_n). Several of these findings will be presented in the figures that follow.

TABLE 2

	GDP PCAP		
YEAR	2005=100	INFLATION	UNEMPL.
	THOUSAND	RATE	RATE
1970	17428	5.5	
1971	18210	5.4	
1972	18873	6.1	
1973	19889	7.4	
1974	20577	13.6	
1975	20238	11.7	
1976	20996	9.6	
1977	21626	9.5	
1978	22402	9.3	
1979	23110	10.6	

1980	23375	13.5	6.4
1981	23507	13.3	7.4
1982	23962	11.9	8.1
1983	24119	9.5	7.9
1984	24340	7.7	9.5
1985	24589	5.8	10.3
1986	25022	2.5	10.2
1987	25520	3.3	10.7
1988	26580	2.7	10.2
1989	27589	3.5	9.6
1990	28250	3.4	9.4
1991	28471	3.2	9.1
1992	28783	2.4	10.2
1993	28483	2.1	11.3
1994	29042	1.7	12.6
1995	29541	1.8	11.8
1996	29845	2	12.4
1997	30435	1.2	12.6
1998	31401	0.6	12.1
1999	32305	0.5	11.9
2000	33327	1.7	10.2
2001	33733	1.6	8.6
2002	33863	1.9	8.7
2003	33899	2.1	8.6
2004	34589	2.1	9.2
2005	34881	1.7	8.9
2006	35461	1.6	8.8
2007	36075	1.5	8
2008	35944	2.8	7.4
2009	34708	0.1	9.1

2010	35216	1.5	9.3
2011	35775	2.1	9.2
2012	35678	1.9	9.8
2013	35757	0.9	9.8
2014	35669	0.5	

SOURCE: THE WORLD BANK GROUP, 2015, <http://databank.worldbank.org>

On Table 2 that is shown above, there is one important thing that we need to point out. French Inflation is almost nonexistent. There were a few years in the 70s that the Inflation was in double digits, but it has been declining since then to a low of .5 during 2014. On the other hand, the Unemployment is a major problem of French economy reaching a 10% during 2014. What is interesting here is that the Inflation rates and the Unemployment rates prove something that we have been teaching for years, that they are inversely related, meaning that they go opposite direction, in this case Inflation is decreasing and Unemployment is increasing. We will show this in the figures that follow.

FIGURE 1

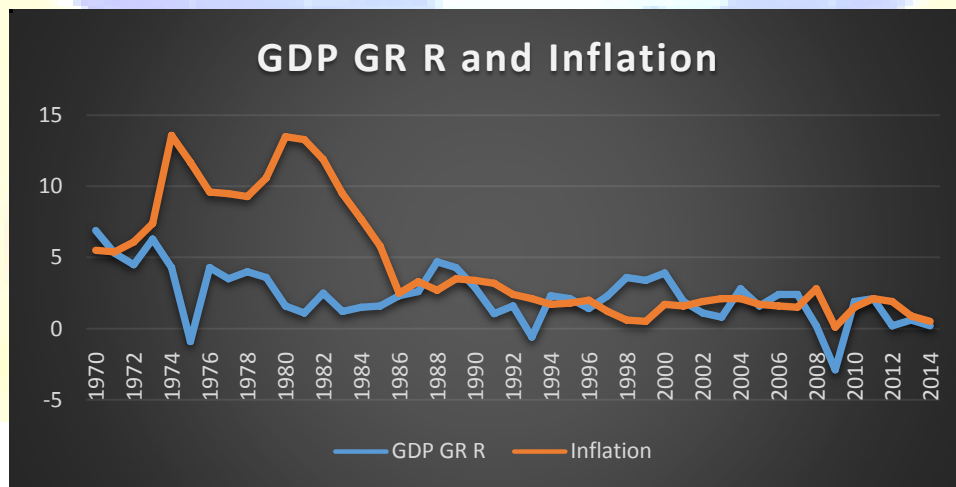


Figure 1 shows the GDP Growth Rate and the Inflation Rate. From what we can see for the most part since the mid1980s they were consistent with each other. It was only in the 1970s that some explanation is needed, and we plan to look into this further too possibly explain why the Inflation rate is so high at a time when the Growth Rate was even negative.

FIGURE 2

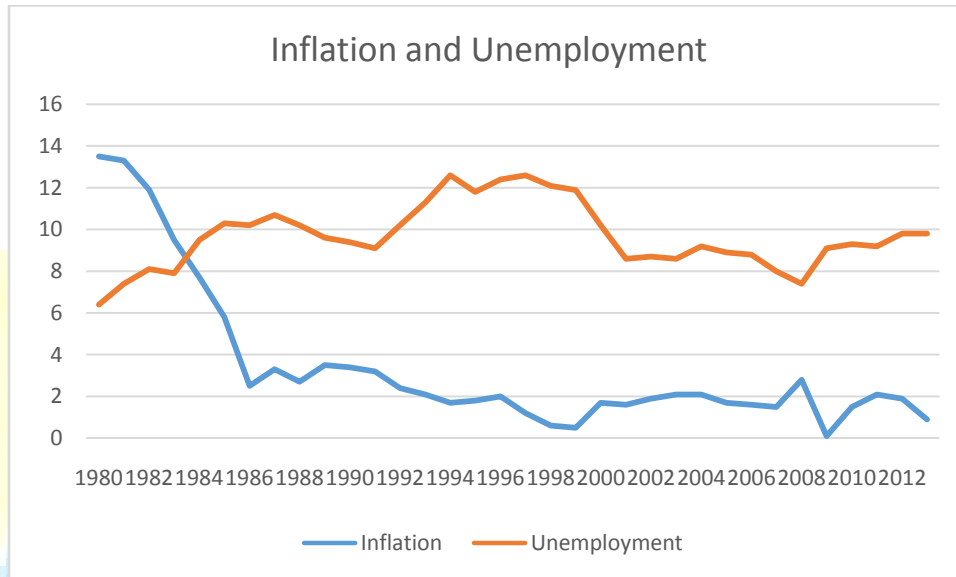


Figure 2 above shows something we discussed earlier; basically the inverse relationship between the Inflation Rate and the Unemployment Rate.

FIGURE 3

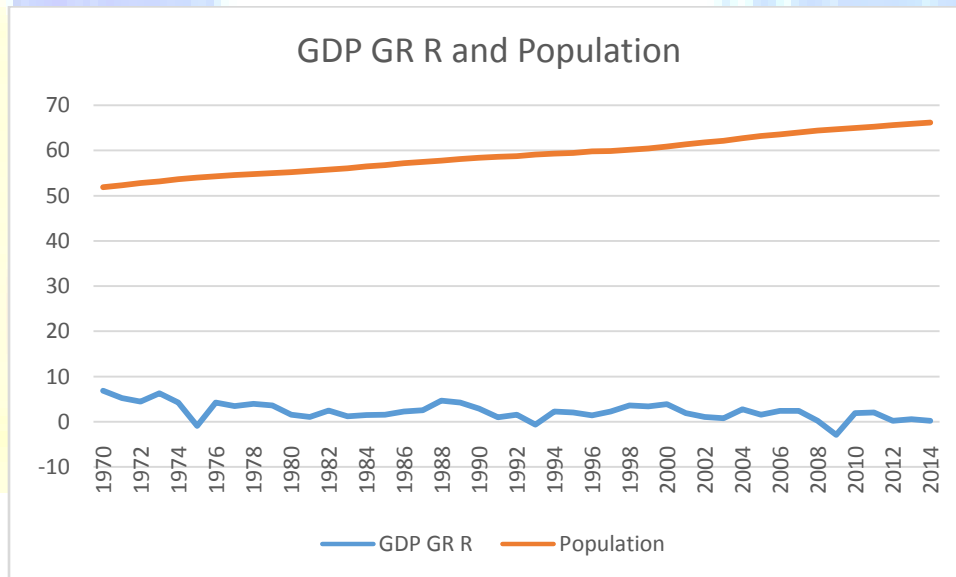


Figure 3 shows that the Growth Rate has not been keeping up with the Population increase. In fact the population has increased by 27% since 1970 but the Growth Rate has been negative in several years.

FIGURE 4

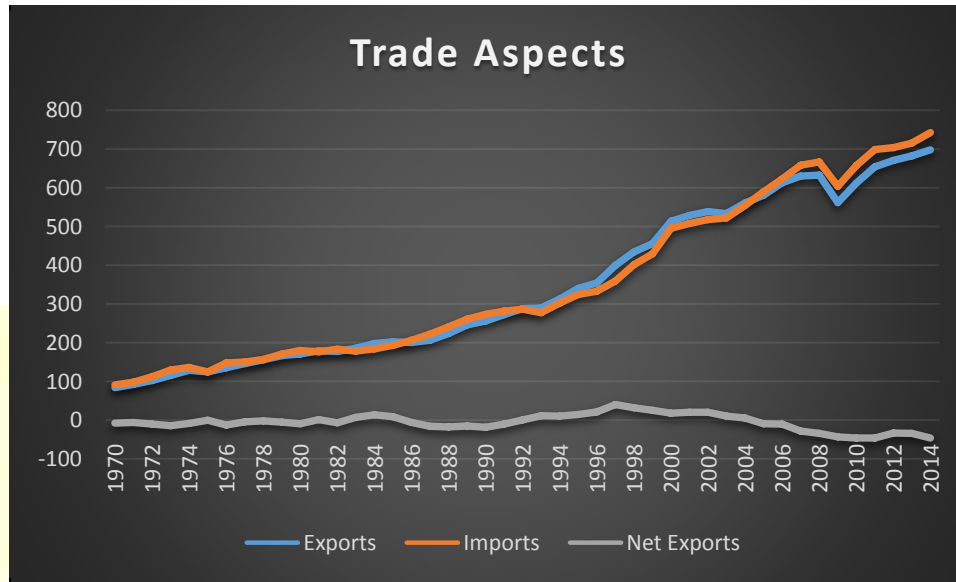
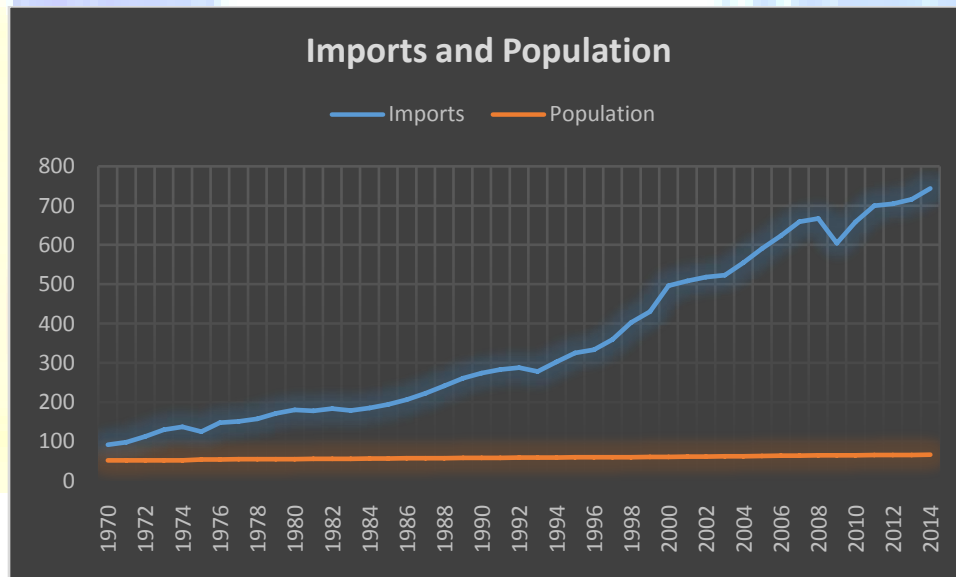


Figure 4 above shows what we discussed earlier, that since the Growth Rate did not keep up with the Population growth, even though the GDP increased by 161%, trade, specifically Imports had to make up the difference, and that is why we have negative Xn (Net Trade).

FIGURE 5



Finally, Figure 5 shows the relationship between Population and Imports, and of course explains the negative net trade (Xn) from the previous figure.

CONCLUSION

In concluding this paper, we are going to review some of our findings, and then based on those we will make some recommendations or suggestions that could eventually help the French economy.

One thing that we found through our research and it is shown on Table 1 is that the Growth Rate of France during the last 45 years has been very weak. The highest it has ever been was 6.9% and that was in 1970, but since then it has been in the very low single digits, even negative for a number of years. The projection for growth during 2015 and 2016 is good, and this is because of lower energy prices, and improving financial conditions. Our recommendation is that the French government should find ways to take advantage of the lower energy prices, and build it into its economy for faster and stronger economic growth, as well as pursue structural reforms which will help boost growth. Another thing we found, is that the GDP has increased by 161% during the last 45 years, and even though population has increased by only 27%, it was not enough to meet the demands and needs of the French, and that resulted in having negative exports and rising, meaning that imports have been increasing in order to meet their needs. Again the government should find ways to increase its exports, by strengthening external demand for French products. Obviously they have a lot to offer, but they need to create the demand. Finally we found, and it is shown on Table 2, that inflation is not a problem, since it has been below 1% or close to it for a number of years, but unemployment is major problem since it has been in double digits for the majority of the last 30 years. The very high unemployment is contributed to the very weak business confidence, which is also weakening investment, and thus delaying hiring. The French government should promote business and investment in France because this is the only thing that will speed up employment, as well as growth.

Even though this paper is complete, it does not necessarily mean that it cannot be improved. Also this paper was finished before the events of November 13, 2015, which will obviously change a lot of things in France. Any suggestions or recommendations that could improve this paper will be appreciated.

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Appendix

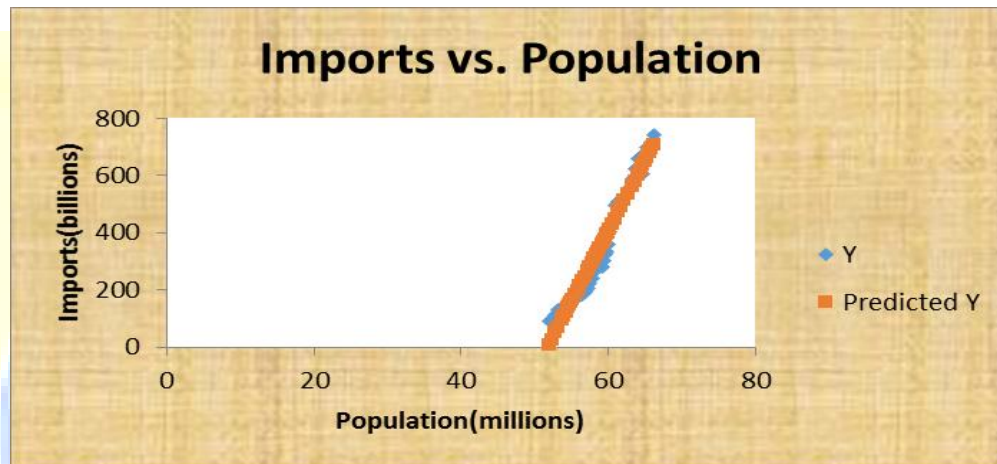
In this section of the paper, the authors ran several regressions using the data presented earlier in the paper. The regressions are an attempt to measure aspects of France’s economy. The hypothesis for each test is presented along with the findings and a graph illustrating the regressions.

Model #1

The first model uses population as independent and imports as dependent. The hypothesis is that imports do not depend on population. The value of the R^2 is 0.954, so roughly 95% of France’s

imports depend on population. The P value for this hypothesis test is 2.28×10^{-30} . Since this value is smaller than 0.05, the hypothesis is rejected. We are 95% confident that the slope of the regression line is between 45.9 and 52.5, so that each 1 million increase in population causes an increase in imports. These results are shown below in Figure 1.

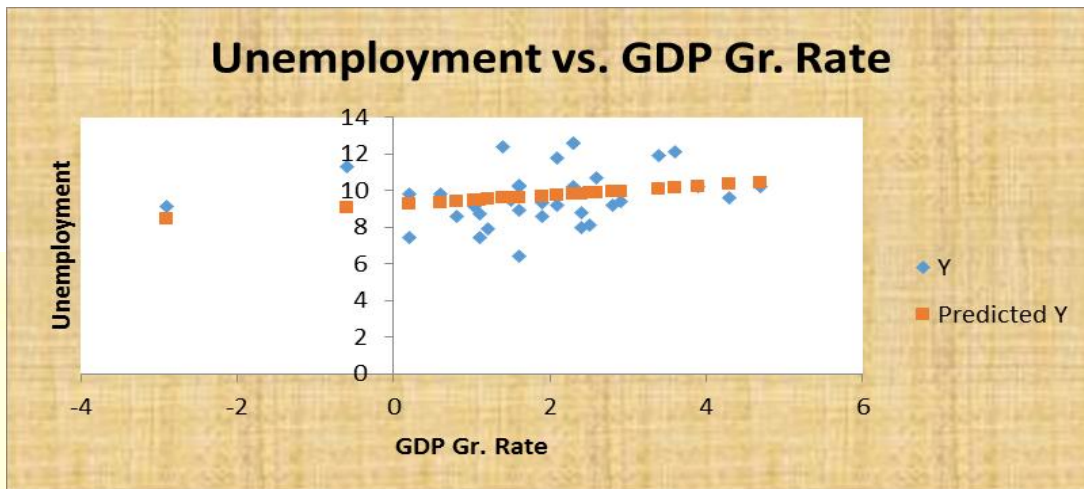
FIGURE 1



Model #2

The second model uses GDP growth rate as independent and unemployment as dependent. The hypothesis is that unemployment does not depend on GDP growth rate. The value of the R^2 is 0.058, so roughly 6% of France's unemployment depends on GDP growth rate. The P value for this hypothesis test is 0.17. Since this value is larger than 0.05, the hypothesis is accepted. We are 95% confident that the slope of the regression line is between -0.12 and 0.64, so that each 1% increase in GDP growth rate has a negligible effect on unemployment. These results are shown in Figure 2 on the next page.

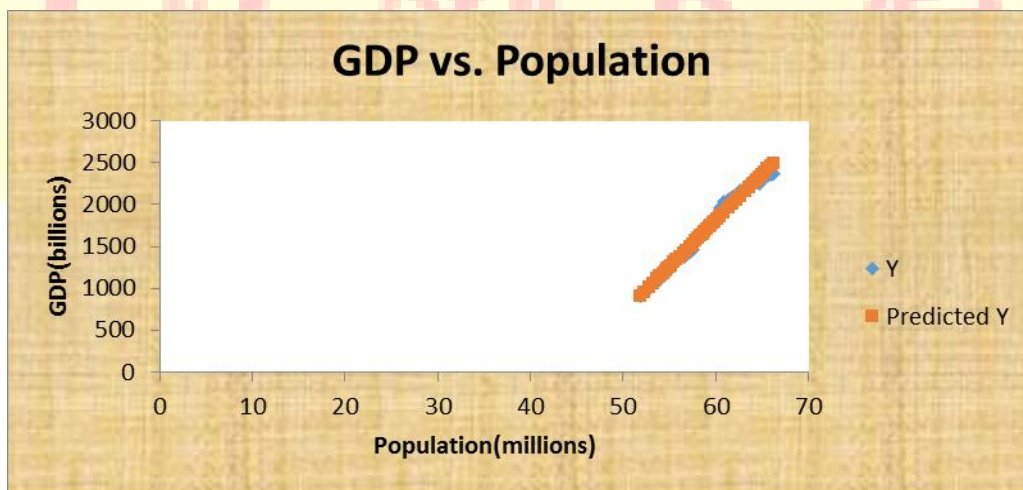
FIGURE 2



Model #3

The third model uses population as independent and GDP as dependent. The hypothesis is that GDP does not depend on population. The value of the R^2 is 0.986, so roughly 99% of France's GDP depends on population. The P value for this hypothesis test is 3.53×10^{-41} . Since this value is smaller than 0.05, the hypothesis is rejected. We are 95% confident that the slope of the regression line is between 106.4 and 114.6, so that each 1 million increase in population causes an increase in GDP. These results are shown below in Figure 3.

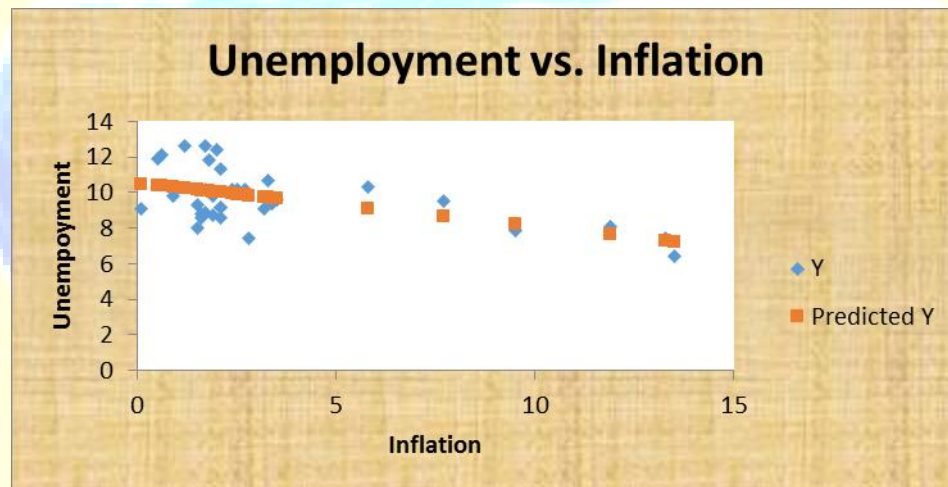
FIGURE 3



Model #4

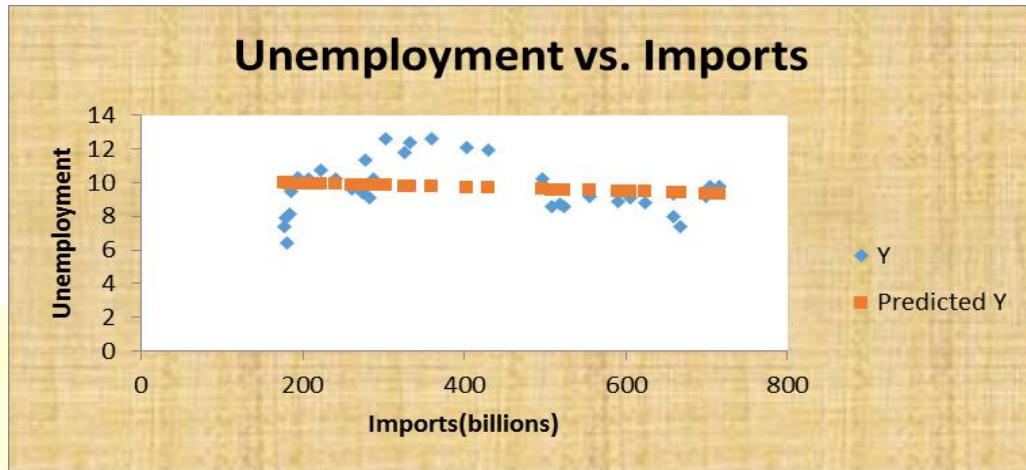
The fourth model uses inflation as independent and unemployment as dependent. The hypothesis is that unemployment does not depend on inflation. The value of the R^2 is 0.299, so roughly 30% of France's unemployment depends on inflation. The P value for this hypothesis test is 0.0008. Since this value is smaller than 0.05, the hypothesis is rejected. We are 95% confident that the slope of the regression line is between -0.37

and -0.11, so that each 1% increase in inflation causes a slight decrease in unemployment. These results are shown below in Figure 4.

FIGURE 4**Model #5**

The fifth model uses imports as independent and unemployment as dependent. The hypothesis is that unemployment does not depend on imports. The value of the R^2 is 0.02, so roughly 2% of France's unemployment depends on imports. The P value for this hypothesis test is 0.426. Since this value is larger than 0.05, the hypothesis is accepted. We are 95% confident that the slope of the regression line is between -0.004 and 0.002, so that that each 1 billion increase in imports has a negligible effect on unemployment. These results are shown in Figure 5 on the next page.

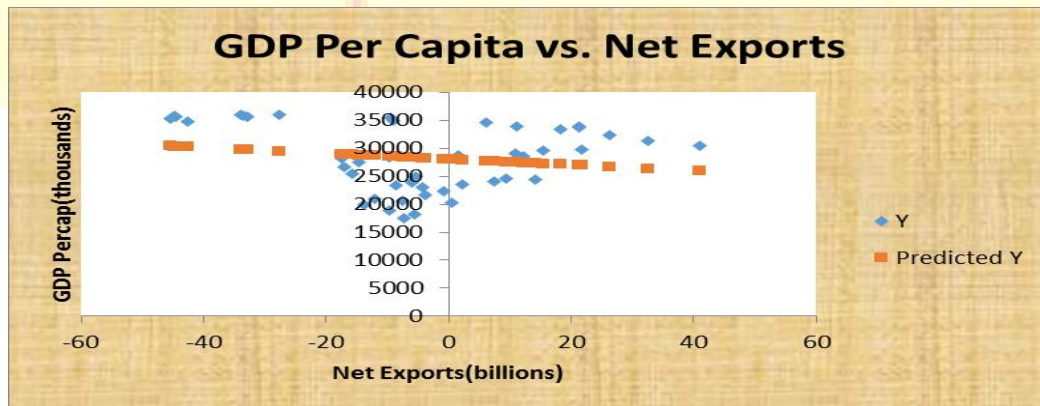
FIGURE 5



Model #6

The final model uses net exports as independent and GDP per capita as dependent. The hypothesis is that GDP per capita does not depend on net exports. The value of the R^2 is 0.034, so roughly 3% of France's GDP per capita depends on net exports. The P value for this hypothesis test is 0.228. Since this value is larger than 0.05, the hypothesis is accepted. We are 95% confident that the slope of the regression line is between -136.2 and 33.3, so that each 1 billion increase in net trade has a small effect on GDP per capita. These results are shown in Figure 6 on the next page.

FIGURE 6



.The purpose of our appendix was to explain in more detail several aspects of the French economy. In our attempt to do that we ran several regressions in order to explain different hypothesis. From what can be seen in the different models, we found some models where the hypothesis is accepted and some where the hypothesis is rejected. We believe that this way we can get a much better picture of the economy. All the outcomes of the regressions are very interesting and pretty much expected. Model # 4 though seems to stand out. All of us in the field of Economics for years have been saying that there is an inverse relation between the rate of unemployment and the rate of inflation. This model actually proves that by showing that each 1% increase in inflation will cause a decrease in the unemployment rate, and this is done at the 95% confidence level. Even though the results are interesting, this does not mean that they are 100% conclusive. More work is needed before we can say that the results are solid.

