EC3320

2016-2017

Michael Spagat

Lecture 9

The Frey and Waldenström paper uses government bond markets to gain insight into World War II.

The basic idea is that bond prices incorporate judgments about the probability that governments will fulfil their obligations to their bond holders. If, for example, many people think that a government will collapse then it makes sense for them to sell the bonds of that country so the prices of these bonds should fall. Of course, if a government falls then there is a very good chance that its bondholders will not be paid.

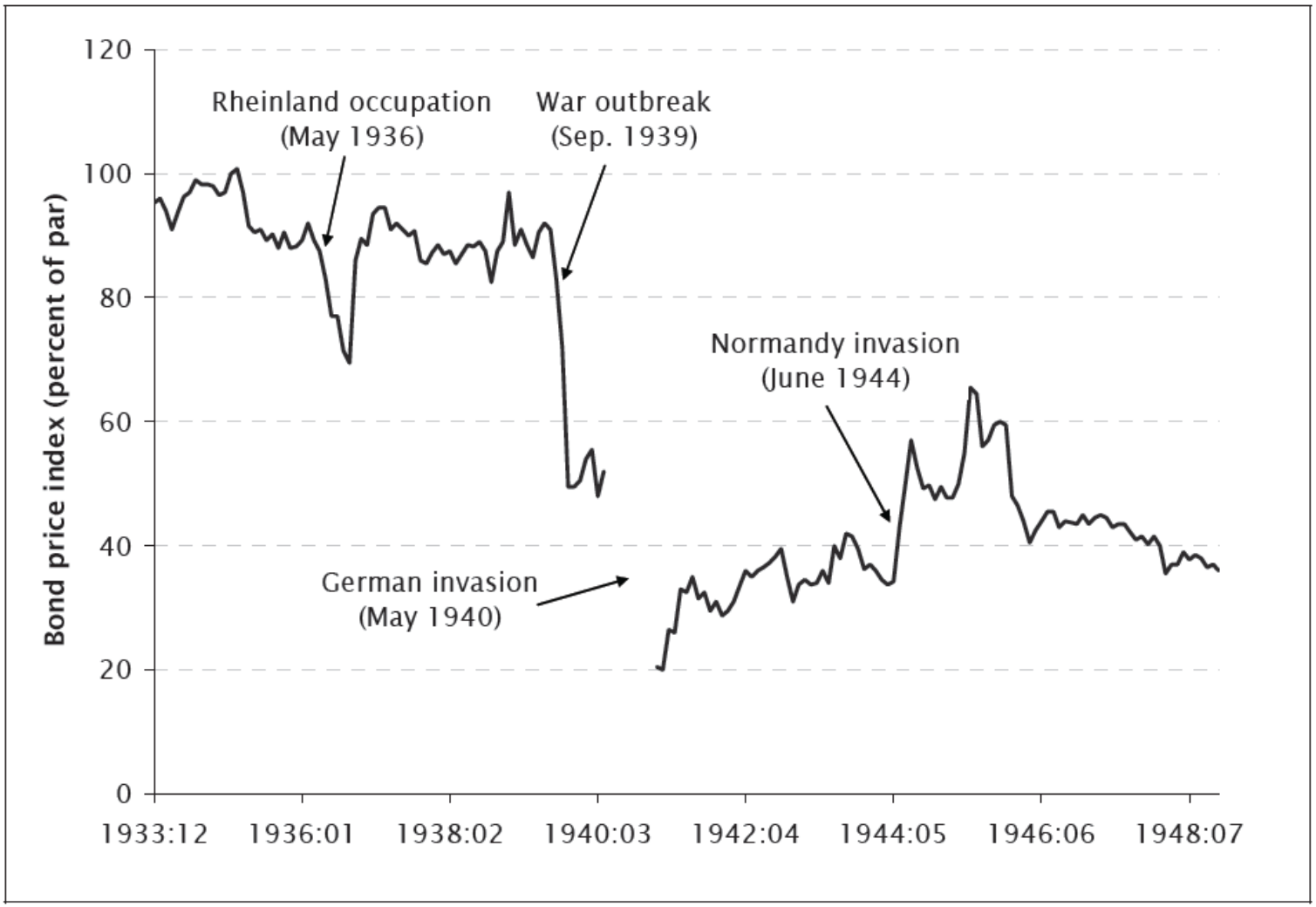
There are some distinct advantages of this approach:

1. It makes sense that financial traders will be rather less prey to wishful thinking than are, for example, people who write diaries or people who respond to surveys because financial traders are putting their own money on the line and will be penalized if they are wrong.

2. Financial market prices evolve in real time along with the events they reflect so analysing them addresses a big issue that affects all traditional historical research – the historian knows what is going to happen in the end. It is always a challenge for historians to account for all the things that could happen at a moment in time rather than just zeroing in on what actually did happen. Financial market analysis performs this kind of work naturally.

An important disadvantage of this approach is the fact that some important historical events do not affect the probability that bondholders will be paid

Figure 2: French government bond price index, 1933-1948



Source: Swiss National Bank, Monatsberichte, 1933-1948

Table 2 (below) guides you through the picture.

Notice that the formal surrender of the German military in May of 1945 is not reflected in bond prices. It seems that the expectation of a German surrender was already accounted for in marker prices.

Table 2: Structural break points and corresponding historical events: France

Date	Price change in percent	Major events
May 1936	– 4 %*	German Occupation of Rheinland
September 1939	– 25 %**	Outbreak of W.W. II
May 1940	[– 31 %]	German Invasion of Belgium, France, Holland
June 1944	+ 16 %**	Allied Invasion in Normandy
January 1946	– 14 %**	unknown

Notes: See Table 1. [..] means the difference in the bond values between the day when trading was stopped and when it was resumed. For methodological reasons, it is not possible to identify such breaks with the econometric techniques used.

The “Diamonds are Forever…” paper by Guidolin and La Ferrara (hereafter G & F uses financial markets to learn something about a conflict in Angola.

It might, by extension, teach us about some other conflicts as well.

Here is the setting.

A war in Angola began after elections in 1992.

The results were not accepted by Jonas Savimbi who was the loser.

The charismatic Savimbi then led a rebellion for nearly ten years until his sudden death on February 22 of 2002.

G & F spot an interesting research opportunity connected to Savimbi's death.

The rebellion was, to a huge extent, based on Savimbi's personality. When Savimbi was killed by the Angolan army the rebellion was expected to quickly disintegrate and, in fact, it did.

G & F argue that it is reasonable to view Savimbi's death as an exogenous random event.

If so, there is a nice opportunity to observe economic performance in Angola with and without war and attribute the differences in economic performance to the war.

In other words, before February 22 Angola was a war economy but after February 22 it was a peace economy.

So, argue G & F, this random switch from war to peace is analogous to a controlled experimental drug trial in which some people are randomly selected to receive doses of a drug and others are randomly selected to not receive the drug.

By observing essentially the same economy with and without war we can gain insight into the impact of war on the economy.

This analogy to a random controlled trial is weakened to the extent that the death of Jonas Savimbi might be driven by economic conditions, i.e., to the extent that the end of the war is not exogenous.

Suppose, for example, that the Angolan army was defeating Savimbi's forces, in part because the Angolan economy was thriving, thus feeding the army with plenty of resources to win the war.

Then the death of Savimbi, and hence the end of the war, would have been caused by economic conditions, at least in part.

We will return to this issue later.

G & F only look at the diamond industry rather than the whole economy.

There is a simple reason for focusing on diamonds rather than on the whole economy - there is good data on stock prices in the diamond industry whereas data for the whole economy is bad.

That said, there are more positive reasons for concentrating on diamonds.

1. Diamonds are an important part of the Angolan economy so the diamond emphasis is not as narrow as it seems to be at first glance.

2. Diamond revenue was important in the war so it is a natural thing for us to look at.

G & F try to identify the impact of the termination of the war in Angola on the stock prices of companies mining diamonds in Angola.

As noted in slides 7 through 9 one thing operating in favour of the G & F analysis is the apparently random ending to the war which allows us to observe Angola at two time periods that are close to each other, one with a war and the other without.

G & F do one more thing to make this analysis resemble a controlled experiment more closely.

They compare two portfolios of mining companies.

1. Portfolio 1, the “Angola portfolio,” contains companies that were actively mining Angolan diamonds at the time of Savimbi’s death.

2. Portfolio 2, the “control portfolio” contains mining companies that were not active in Angola at the time, but were otherwise similar to the Angola-active companies.

The idea is that there could have been some changes in world economic conditions that coincided in time with the death of Jonas Savimbi and that affected the stock prices of mining companies both inside and outside Angola – if so, these changes should appear in the control portfolio and we can subtract them from the Angola portfolio.

For the control portfolio to be convincing it is constructed to track the Angola portfolio well in the period just before the death of Savimbi and, hence, the end of the war (figure 1).

Figures

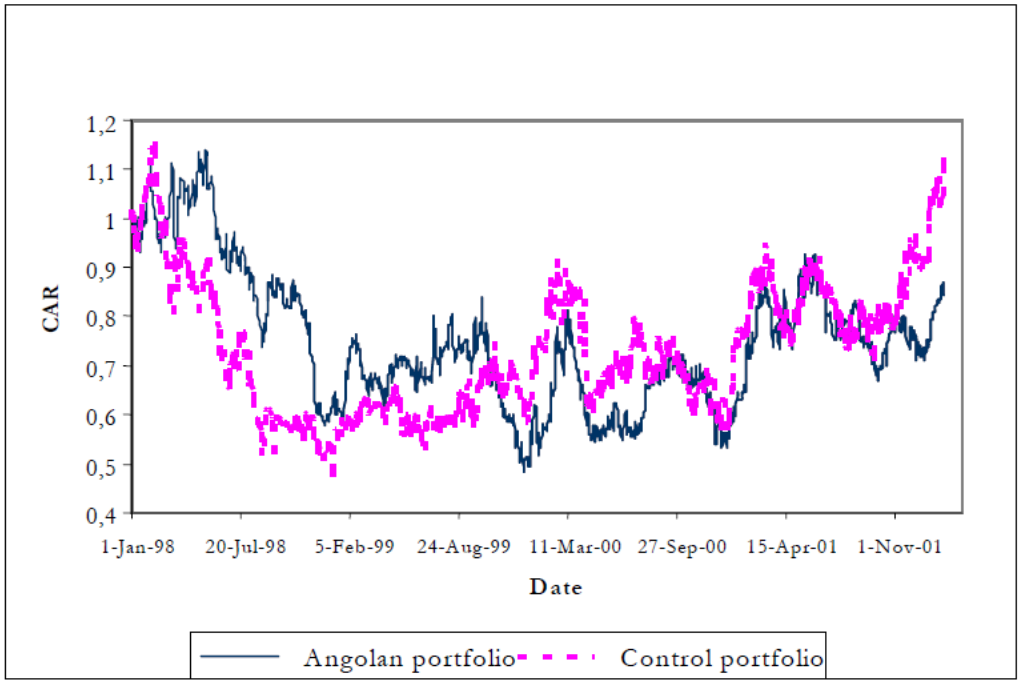


Figure 1: Angolan and Control Portfolio

Before proceeding to the main result of the paper we need to know what *cumulative abnormal returns* on a portfolio are.

"Abnormal" here means movement above or below the variation that can be explained by general movement in the market as a whole or by specific events affecting the portfolio.

G & F estimate two equations – one is for the Angola portfolio and the other is for the control portfolio.

The relevant equation is:

$$r_t = \alpha + \beta r_t^M + \theta S_t + e_t$$

r_t - the return on the Angola portfolio at time t in the equation for the Angola portfolio and the return on the control portfolio at time t in the equation for the control portfolio.

r_t^M - the return on the "market portfolio" at time t, i.e., the return on a broad stock index.

S_t - a set of dummy variables (not including the death of Jonas Savimbi) that are considered useful in explaining the returns in the Angola and control portfolio's respectively.

e_t - random shocks but we will abuse notation and use e_t for the residuals to the fit model.

G and F estimate these models for both the Angola and control portfolios and calculate the residuals to these model fits (the e_t terms).

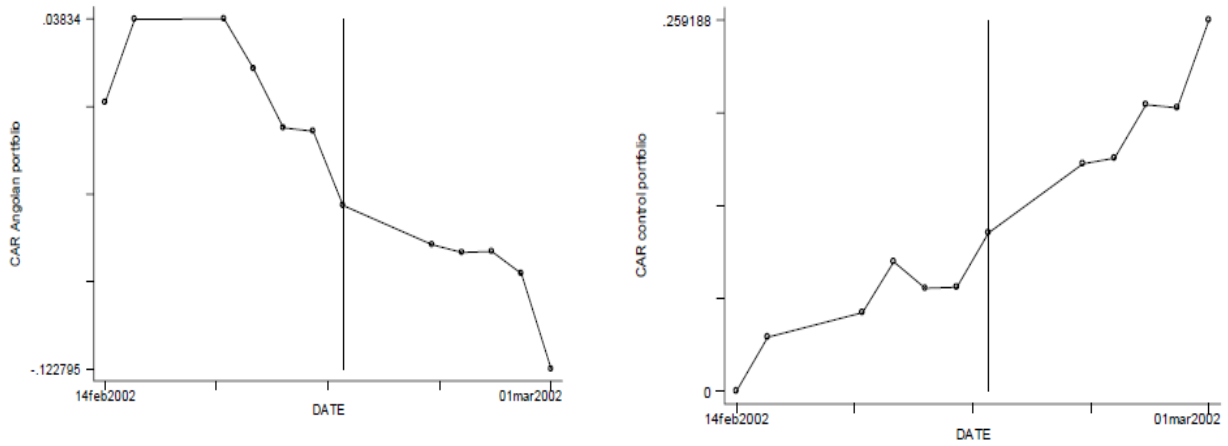
These residuals are viewed as attributable to unexplained factors not in the regressions such as the death of Savimbi.

We get cumulative abnormal returns (CAR) by adding together these residuals over time

$$CAR_t = \sum_{j=t_0}^{t} e_j$$

We focus on cumulative returns just to smooth out the random variation over time.

The next figure shows the main result of the G & F paper:



(a) Angolan portfolio (b) Control portfolio

Figure 2: Savimbi's death

The vertical lines marked “Date” give the date when Jonas Savimbi died.

The main point of panel (a) is that the CAR on the Angola portfolio goes down after Savimbi’s death.

Note, however, that you could question the importance of the post-war downward trend since the trend starts several days prior to the death of Savimbi…..however, it could be that market participants were anticipating that Savimbi was about to lose the war.

Panel (b) then shows that this decline is not just reflecting a general decline in diamond mining firms since the CAR on the control portfolio goes up after Savimbi’s death.

So, rather surprisingly, the end of the Savimbi rebellion was *bad* for diamond companies operating in Angola.

Most people would have predicted that the stabilization effect of the end of this war should have been good for business in general and for diamond companies in particular but the data do not bear out this expectation.

G & F offer a few possible explanations for their surprising result.

1. Few firms were willing to brave wartime Angola operations.

Thus, the few firms that did work in Angola faced little competition and, therefore, earned unusually high profits.

When the war ended the market anticipated more competition, hence, lower profits for incumbent firms.

2. The government of Angola, like plenty of other governments, charged money to diamond mining firms in exchange for providing mining concessions.

Yet since Jonas Savimbi controlled important mining areas, companies had an option to avoid the Angolan government and deal with Savimbi instead.

Of course, it was illegal to work with Savimbi, but it is likely that some companies did this anyway.

When the war ended, mining companies lost the bargaining leverage of threatening to work with Savimbi rather than the government so the government's ability to extract money from the mining companies increased.

3. In practice, much of the bargaining with mining companies was probably done by corrupt officials working on their own behalf rather than on behalf of the government of Angola and its citizens.

The war may have provided cover to both sides in these corrupt transactions by making it hard for Angolan citizens, the real losers from corruption, to understand what was going on.

When the war stopped it might have become easier to monitor the relationship between mining companies and the government, forcing the government to strike better deals for the citizenry at the expense of the mining companies.

We should bear in mind that the above explanations are only possible mechanisms that might have operated.

There is not much direct evidence for any of them.

An important conclusion from the study is that it might be wrong to assume that businesses operating in war-torn countries and the government officials in these countries are all automatically in favor of peace.

Influential actors may actually benefit economically from the continuation of a war.

The Abadie and Gardeazabal paper (henceforth “A & G) tries to estimate the economic costs of ETA’s independence-oriented terrorist campaign in the Basque region of Spain.

Here is a list of its major events in this conflict.

TABLE 1—CHRONOLOGY OF ETA'S TERRORIST ACTIVITY

Year	Killings	Kidnappings	Event
1968	2	0	First victim of ETA
1969	1	0	
1970	0	1	
1971	0	0	
1972	1	1	
1973	6	1	ETA kills Franco's Prime Minister Admiral Carrero-Blanco
1974	19	0	
1975	16	0	Dictator Franco dies
1976	17	4	
1977	11	1	First democratic elections in Spain after Franco's death
1978	67	6	Spanish Constitution approved in referendum
1979	76	13	Regional Autonomy Statute for the Basque Country approved
1980	92	13	
1981	30	10	Attempted military coup. Spain joins NATO
1982	37	8	
1983	32	5	
1984	32	0	
1985	37	3	
1986	41	3	Spain joins European Community
1987	52	1	
1988	19	1	
1989	19	1	
1990	25	0	
1991	46	0	
1992	26	0	Barcelona hosts the Summer Olympic Games
1993	14	1	
1994	13	0	
1995	15	1	
1996	5	2	
1997	13	1	
1998	6	0	ETA declares indefinite cease-fire starting on September 18
1999	0	0	ETA announces the end of cease-fire on November 28
2000	23	0	

Source: Spanish Ministry of Interior (2002).

A & G's approach is to find a region of Spain that is similar to the Basque region but not affected by terrorism.

This is similar in spirit to G & F's approach of finding a portfolio that matches the Angola portfolio except that the companies in this control portfolio are not exposed to the Angolan conflict.

A & G find a control region rather than a control portfolio.

The details on how A & G search for and settle on an appropriate control region are complicated and we will skip over them but, for your information, the control region turns out to be Catalonia and Madrid, with weights of about 85% and 15% on the two of them, respectively.

The table below shows that the control region, which they call the “Synthetic Basque Country,” does match the actual Basque country pretty well.

TABLE 3—PRE-TERRORISM CHARACTERISTICS, 1960’S

	Basque Country (1)	Spain (2)	“Synthetic” Basque Country (3)
Real per capita GDP[a]	5,285.46	3,633.25	5,270.80
Investment ratio (percentage)[b]	24.65	21.79	21.58
Population density[c]	246.89	66.34	196.28
Sectoral shares (percentage)[d]			
Agriculture, forestry, and fishing	6.84	16.34	6.18
Energy and water	4.11	4.32	2.76
Industry	45.08	26.60	37.64
Construction and engineering	6.15	7.25	6.96
Marketable services	33.75	38.53	41.10
Nonmarketable services	4.07	6.97	5.37
Human capital (percentage)[e]			
Illiterates	3.32	11.66	7.65
Primary or without studies	85.97	80.15	82.33
High school	7.46	5.49	6.92
More than high school	3.26	2.70	3.10

Sources: Authors’ computations from Matilde Mas et al. (1998) and Fundación BBV (1999).

[a] 1986 USD, average for 1960–1969.

[b] Gross Total Investment/GDP, average for 1964–1969.

[c] Persons per square kilometer, 1969.

[d] Percentages over total production, 1961–1969.

[e] Percentages over working-age population, 1964–1969.

Figure 1 gives the main result of the paper:

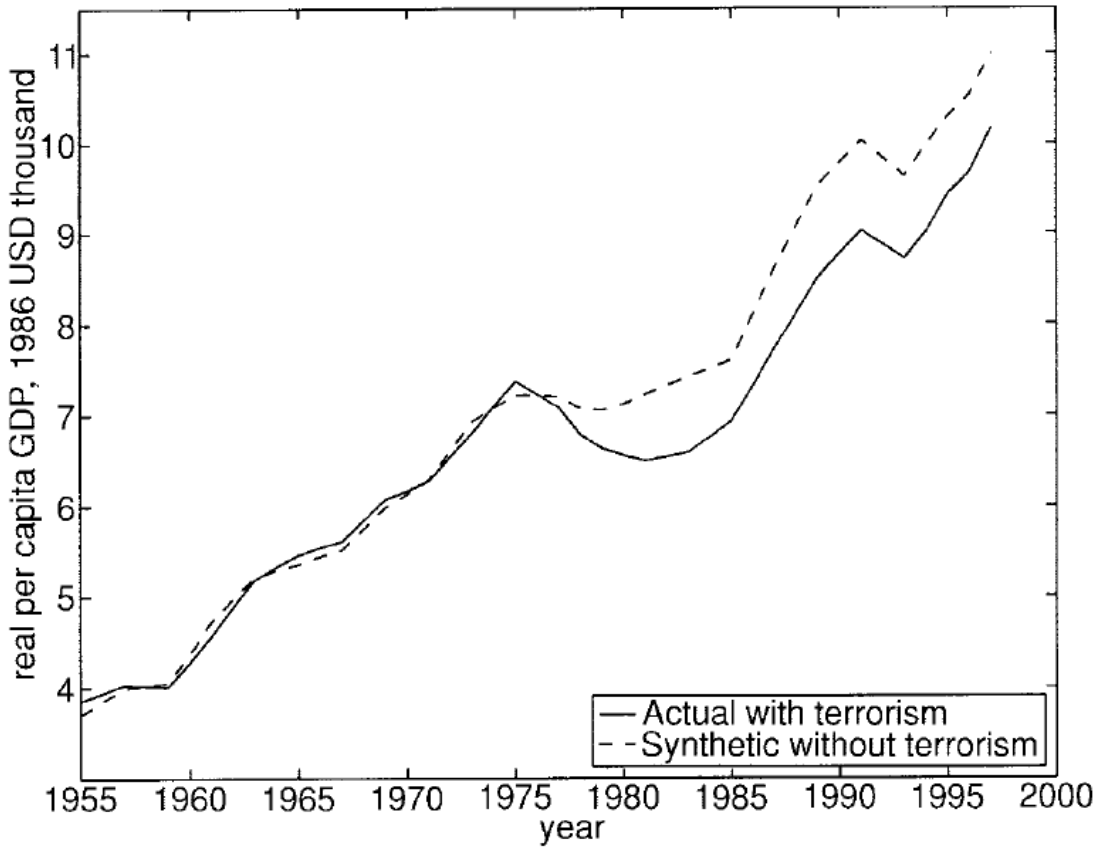


FIGURE 1. PER CAPITA GDP FOR THE BASQUE COUNTRY

Starting in the mid 1970's per capita GDP in the synthetic region started outperforming the terrorism afflicted Basque region in terms of per capita GDP.

(Just to be clear what A & G call the "synthetic region" is what I have been calling the "control region.")

The next figure provides a reality check on this result by testing whether the timing of the gap between the Basque region and the synthetic one coincides with the upswing in ETA terrorist activity.

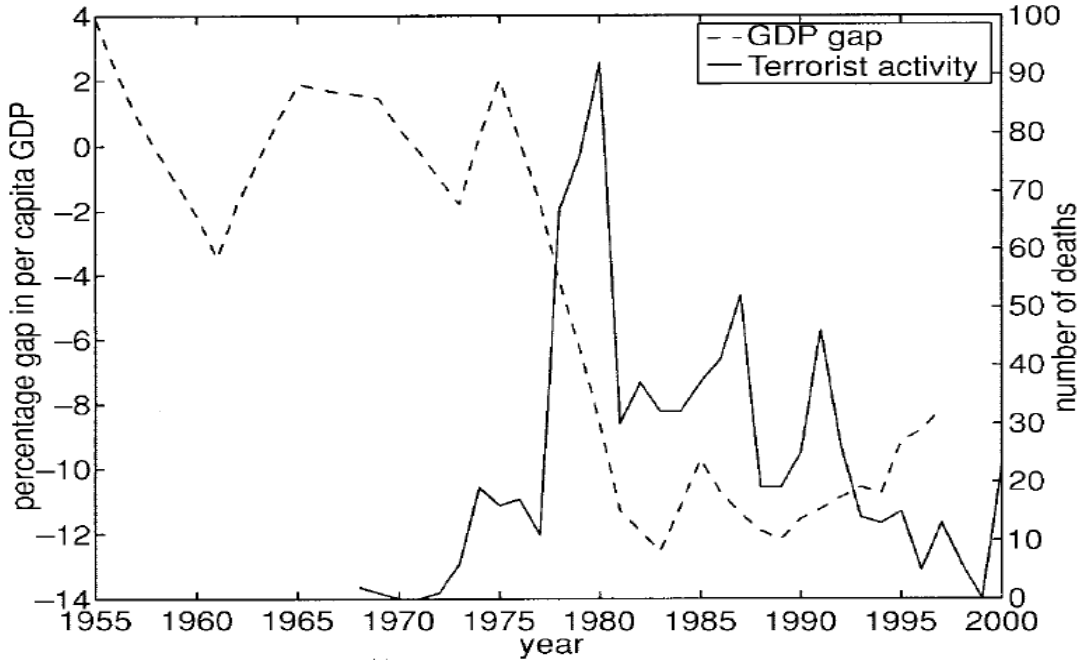


FIGURE 2. TERRORIST ACTIVITY AND ESTIMATED GAP

You can see that, indeed, the gap only opens up (negative values on the y axis) after the terrorist campaign heats up in the mid 1970's.

A & G also do a separate stock portfolio approach that closely resembles G & F's Angola analysis.

They construct a Basque portfolio and a non-Basque portfolio where the classification into the two categories is based on the opinions of investment professionals operating in the Basque region.

This figure gives the results:

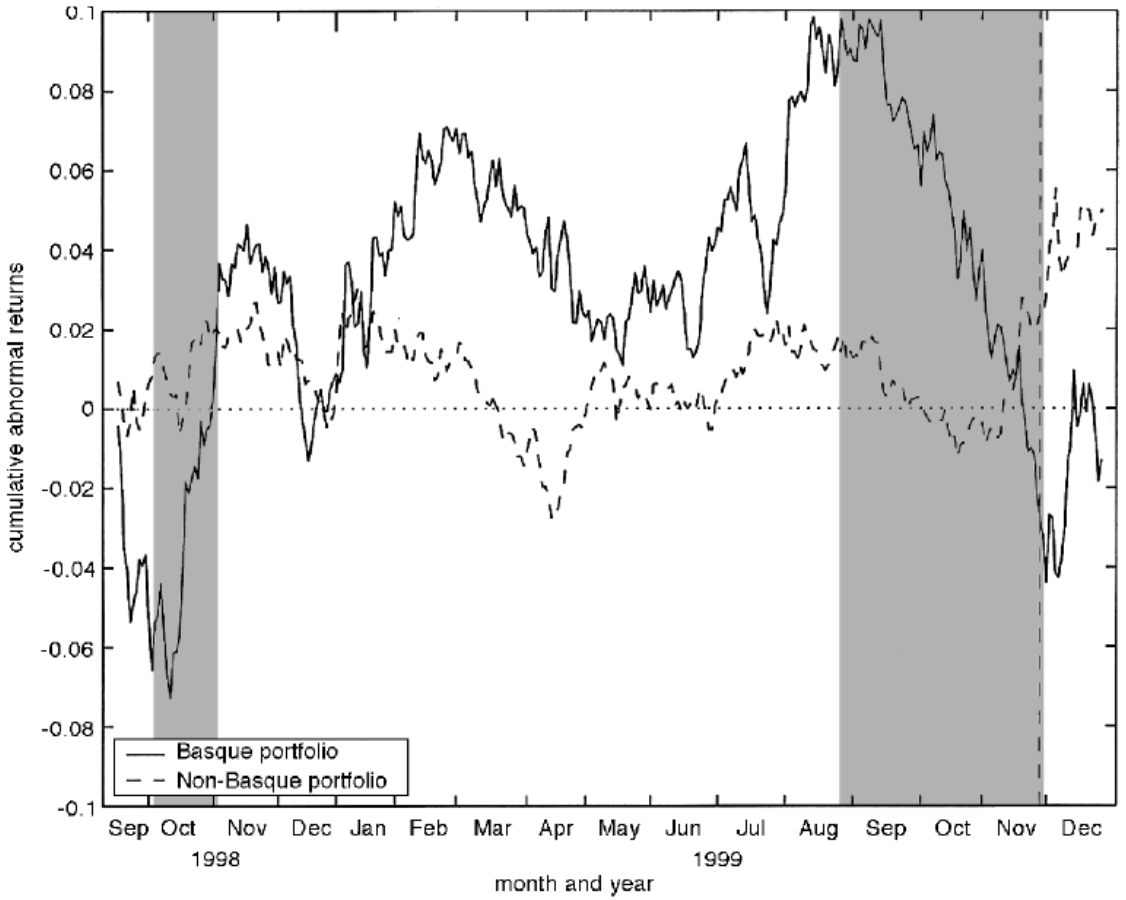


FIGURE 6. CUMULATIVE ABNORMAL PORTFOLIO RETURNS

The first shaded area (on the left) is a hopeful period of an ETA truce.

Notice that the Basque portfolio shoots up to meet the Non-Basque one during this period.

The second shaded area is a period when the truce unravels.

This time the Basque portfolio shoots down through the non-Basque one.

Overall I would say that Abadie and Gardeazabal make a pretty good case that terrorism has been costly for the Basque region of Spain.

Europe outgrew China over a very long period of time:

Urbanization rate (percentage of population living in cities with more than 10,000 inhabitants)			*GDP per capita (in 1990 international dollars)*		
Year	*China*	*Europe*	***Year***	*China*	*Europe*
762	3%		**1**	$450	$550
1000		0%	**960**	$450	$422
1120	3.1%		**1300**	$600	$576
1500	3.8%	5.6%			
1650	4%	8.3%	**1700**	$600	$924
1820	3.8%	10%	**1820**	$600	$1,090

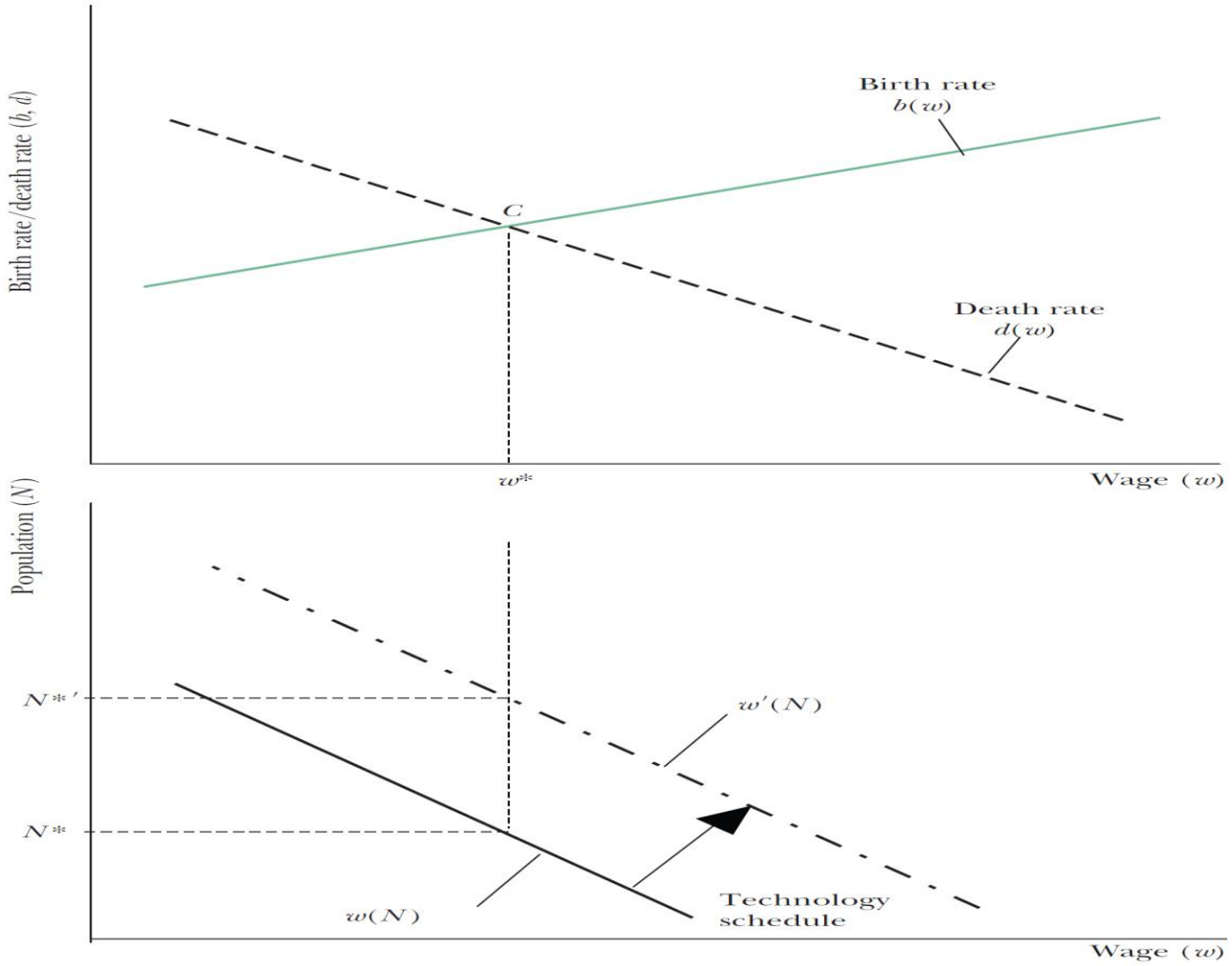
Source: Maddison (2007).

The paper by Voightländer and Voth provides quite an unexpected explanation for why Europe diverged from China. *They claim that Europe had a lot more wars than China did and that this actually explains why Europe grew more than China.*

I want to briefly discuss the theory behind this surprising claim.

The next slide gives a graphical exposition of a Malthusian economy.

Figure 2
Unique Equilibrium in the Malthusian Model



Notes: In the Malthusian model, birth rates increase with wages, while death rates decline (upper panel). Wages, in turn, depend negatively on population (lower panel)—due to decreasing returns to labor in an economy with fixed land supply. The intersection of birth and death rates yields zero population growth, and thus a stable population N^*. If mortality shocks move wages beyond w^*, population grows. Rising population exerts downward pressure on wages, and the economy returns to point C. If technology improves, the $w(N)$ schedule shifts out, so that a higher population can be sustained at any given wage. However, technological change does not affect the steady state wage w^*.

Note, first of all, that the Malthusian model is considered to be a pretty decent one until the last few centuries.

There are two main ideas underlying the model:

1. There is a fixed amount of land to go around so when the number of people increases wages each one will become less productive than he/she was before so wages will decrease.

2. If wages increase, for example due to technological progress that makes everyone more productive, then population will increase exactly enough to drive wages back to where they were before. (The picture depicts exactly this type of change – technology improves, leading to a temporary increase in wages that is eventually lost through population growth.

The equilibrium wage depicted on the previous slide could be a minimum survival level although it could be some socially determined level that might be higher than bare subsistence.

A big war will cause a sudden decrease in population.

This will raise wages rise temporarily.

The population will then start to grow back towards its original level while wages also fall back toward their original level.

This means that the survivors of a war will temporarily earn unusually high incomes because each one will have lots of land to his/her self.

If there is a constant supply of wars then wages can be held permanently above their equilibrium levels.

This is the mechanism that Voightländer and Voth propose to explain why Europe outgrew China.