HOW TO USE
POPULATION PYRAMIDS
TO
EXPLORE THE PAST

WITH AN INVESTIGATION OF
THE CRISIS OF 1996 IN NORTH KOREA

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Working Report

La même chose qui nous a plu il y a dix ans, et qui nous plaira peut-être encore avant dix ans, nous semble maintenant extravagante et ridicule. C'est bien plus la coutume et l'exemple qui nous persuade, qu'aucune connaissance certaine. Pourtant la pluralité des voix n'est pas une preuve qui vaille.
Le premier précepte est de ne comprendre rien de plus en mes jugements que ce qui se présenterait si clairement à mon esprit que je n'eusse aucune occasion de le mettre en doute.
[The very thing which was valued ten years ago and perhaps will again be prized in ten years from now, presently seems weird and ridiculous. We are more influenced by what we see around us than by reliable and trustfull knowledge. Yet, the fact that we hear the same thing from many sides does not mean that it is true.
The first precept is to comprise nothing more in my judgment than what was presented to my mind so clearly as to exclude all ground of doubt.]

—René Descartes, Discourse on method (1637, second part, p. 139-140)

"Is there any point to which you would wish to draw my attention?"
"Yes, to the curious incident of the dog in the night-time."
"The dog did nothing in the night-time."
"That was the curious incident," remarked Sherlock Holmes.

—Sir Arthur Conan Doyle, *Silver Blaze* (1892)

There is a strong family resemblance about the misdeeds, and if you have all the details of a thousand at your finger ends, it is odd if you can't unravel the thousand and first.

—Sir Arthur Conan Doyle, *The Valley of Fear* (1915)

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With an investigation of the crisis of 1996 in North Korea

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Version of 4 October 2010. Comments are welcome.

We hope that these notes will enable us to get in touch with scholars who have studied the episodes that we explore. Please, if you happen to know people who have a working interest in this kind of historiography do not hesitate to send them a copy of the present draft.

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Chapter 1
How to use population pyramids to explore the past

Why should econophysicists analyze past events?

Before coming to our topic we should perhaps answer an obvious question that is related to our title. Why should econophysicists care about the past? The answer is simple. The past is the *laboratory* which allows us to test our understanding of social phenomena. This answer may perhaps seem surprising at first sight. It can best be explained through a parallel with astrophysics.

Let us consider an astrophysicist who has built a theory of triple star systems that he wants to test. What will he do? His first step will be to identify a sample of triple star systems in a star catalogue, for instance the Hipparcos or the PPM star catalogue. In a second step he will perform on these systems the observations that are required for testing the theory. Likewise an econophysicist who wants to test a theory of (for instance) peasant uprisings will first identify a number of such events in the past history of countries with which he is familiar. In a second step he will need some reliable quantitative data about these events. Most often peasant uprisings have been militarily defeated by the armies of the government against which the rebellion was initially directed[1]. The numbers of people killed during and after such conflicts provide rough estimates of the magnitude of such phenomena.

In other words, provided they contain some reliable data, history books serve the same purpose for econophysics as star catalogues for astrophysicists. This point now begins to be well understood. It is probably for this kind of reason that the last book written by A.-L. Barbási (2010), a well-known expert in network science, contains a meticulous description of a peasant uprising that occurred in the 16th century in Transylvania (now in Rumania) which is Barabási's home region. To be sure, the description of just *one* uprising is far from constituting a catalogue of uprisings but one may expect that Barabási's very active group will produce such a catalogue within the next years.

[1] The outcome of the civil war in China (1927-1949) was one of a handful of exceptions.

In physics and in astronomy, every time a new and more accurate observation device has been invented it has led to major progress. Galileo's telescope constitutes one of the early example. More recently, the invention of the multiwire proportional chamber by the physicist Georges Charpak was a major step forward in experimental particle physics as recognized by a Nobel award in 1992.

To improve the accuracy of observations about births and deaths in major historical events is the central objective of this paper. What is presently the accuracy of such data? A specific example will convince us that this accuracy indeed needs to be improved.

How many civilians died in Iraq through violent death during the invasion of 2003 and in the 4 years afterward? A comparison of three estimates obtained through different surveys and methodologies reveals huge discrepancies. The total numbers of deaths were found to be equal to 600,000, 200,000 and 50,000 respectively (Brownstein et al 2008, p. 446). What is even worse is the fact that a comparison of the methods which were used by these study groups does not reveal why these estimates are so different. The authors observe that there is an ongoing discussion and that convincing arguments have been put forward which suggest that the highest estimate may either overestimate or underestimate the real death toll.

How can an analysis based on population pyramids be of some help in such a situation? Because it relies on data for different age-groups such an analysis allows us to separate different sorts of death such as infant mortality, death of adult males, old age mortality. Once the mortality in a "normal" population has been discounted one will be able to identify and estimate the excess-mortality due to the occupation (whether by violent deaths or not) [2].

The paper is organized as follows. First we recall the definition of a population pyramid and introduce the important distinction between static and dynamic analysis. Before beginning to use population pyramid data we discuss their reliability and accuracy. From a physicist's perspective this is a crucial step. Then, we explain how population pyramids allow us to measure birth rates. The response of birth rates to several kinds of "special events" is illustrated through various examples. Finally, we propose an agenda for further research. An appendix which provides useful information about population pyramid and census databases closes the paper.

How can population pyramids serve to explore the past?

A population pyramid gives the structure by age and sex of a population. Various

[2]Naturally, population pyramid data must be accompanied by data about emigration because population pyramids make no distinction between *permanent* emigration and death.

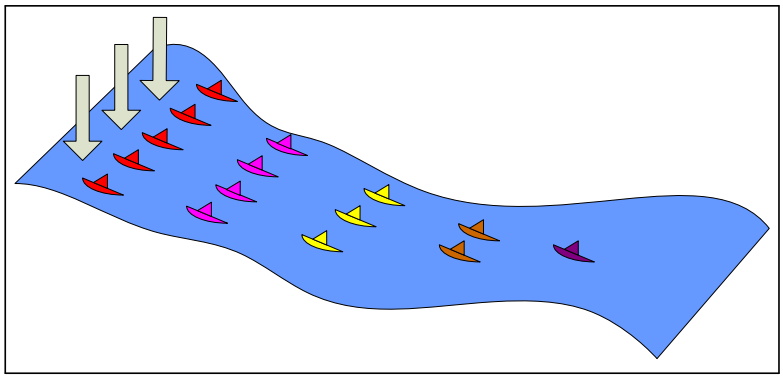

Fig. 1: Spatial analogy of the process of aging. The blue color represents the water of a river. At one point shown by the vertical arrows, small paper boats are dropped into the water in several successive batches. Each batch (represented by a different color) has approximately the same number of boats except for some random fluctuations which represent the more or less random fluctuations of birth rates. Once in the water, the boats begin to move downstream but as a result of various accidents their number decreases in the course of time until eventually all of them have sunk. In demography, each row of boats is called a cohort. The observation of one specific row in its movement downstream is called cohort analysis. Such an analysis should be distinguished from the static, instantaneous picture provided by population pyramids.

examples are given in Fig. 3a,b,c,d and Fig. 5.

A spatial parallel of aging

In physics one is more used to movement in space and time than to aging processes. So it may be worthwhile to describe a spatial parallel of the aging process which may be more suggestive to physicists. Fig. 1 pictures a parallel in which age has been replaced by a spatial variable.

Let us imagine that from a bridge on which she is standing a young girl drops small paper boats into a river. At 10am she drops a batch of 25 boats of red color. At 10:10 she drops a second batch consisting of 28 blue boats, at 10:20 she drops a third batch of 21 boats and so on with each batch of boats corresponding to a different color. Once in the water, the paper boats are carried downstream by the current. At intervals some of the boat sink, either because affected by a whirlpool or perhaps because they landed in the water on the side and quickly took in water. This analogy will help us to explain a distinction which plays an important role in demography.

The aging process of a population can be analyzed in two different ways, static or dynamic. In demography the dynamic viewpoint is called “cohort analysis”. This important distinction has a clear interpretation in the paper boat analogy.

- The static viewpoint corresponds to population pyramids. At a given moment one takes a picture of the flotilla of paperboats and one counts the number of boats of each color. It should be noted that between two successive rows there is no clear connection because the numbers in successive batches are fairly random.
- In the cohort analysis one concentrates on a specific batch as it moves down

the stream. Whereas the static view is an instantaneous snapshot, the cohort viewpoint requires an observation over a long time interval from the moment when the boats fall together in the water to the moment when the last boat of this batch sinks; in demography such an observation must cover over one century. Instead of the expression "cohort analysis" which is fairly abstract we will rather use the expressions "downstream" or"along the stream" analysis which make reference to the river analogy.

Stability of downstream changes versus instability of birth rates

As we will see later on, birth rates are highly fluctuating. Wars, periods of high food prices, displacements of population may bring about a reduction in birth rates. On the contrary, after the end of wars or during periods of economic prosperity birth rates will tend to increase. In parallel with births, babies and small children who are much more vulnerable than adults to external events will also be affected to a greater degree.

Apart from this and for reasons we do not yet understand, there are dramatic changes in fertility rates (i.e. number of children per woman) which have strong effects on birth rates. For instance, between 1990 and 2002, Poland experienced a dramatic reduction in its fertility rate from 2.0 to 1.35. Similar changes occurred during the same decade in several other countries such as for instance Italy, South Korea, Spain or Ukraine.

It is for these different reasons that in our stream analogy the number of boats in successive batches was taken as a random variable.

On the contrary, once a generation has reached the age of 5 its reduction rate in the course of time will be fairly stable, only determined by the overall standard of living and availability of healthcare. In short, when we follow a given age group downstream we would expect a very smooth and predictable evolution. However, there are two kinds of circumstances which will disrupt this smooth evolution.

- Unexpected events which produce mass mortality such as wars, epidemics or earthquakes. It is precisely in such events that we are interested. It is because they will appear as sharp falls on a fairly smooth curve that they can be identified and measured.
- When we follow an age-group downstream mass emigration or immigration will also produce rapid changes. In fact, the data make no distinction between people who died or people who moved away. In both cases, they just disappear from the census statistics.

What is the reliability and accuracy of census data?

It is a distinctive feature of physicists to care about the quality of the data that they use. Social scientists and particularly economists do not. This can be illustrated by two facts: (i) Even though the accuracy of data is much higher in physics than in the social sciences, physicists publish them with error bars whereas social scientists do not. (ii) By browsing through papers published in economic journals one quickly comes to realize that usually only 2 or 3 lines are devoted to discussing the origin, reliability and accuracy of the data that will be used. Yet, if the data are flawed the analysis will be faulty, confusing and useless. This makes the question of data accuracy a matter of cardinal importance. That is why we will give close attention to the various pitfalls that may occur.

Population pyramids rely on census data. Among statistical data recorded by government agencies, census data are considered as particularly reliable and accurate. There are two main reasons for this.

- Because censuses were among the first operations that were carried out, statistical agencies were able to develop adequate procedures and improve them in the course of time.
- In contrast to macroeconomic data (e.g. statistics of Gross Domestic Product) which require heterogeneous variables to be aggregated (a process often referred to as the problem of "adding apple to oranges") population statistics only involve the addition of data of a single kind.

In spite of this, population data (as indeed any data based on observation) should be considered carefully and viewed with a critical eye.

Basically, population pyramids by country and province require information about residence and age. Are these variables easy to define and to collect?

Residence

As is well known, the specification of the residence poses some problems for certain categories of citizens who move frequently such as for instance the personnel of the navy or army. Such problems can be solved by setting up clear rules and definitions. Let me give an illustration. At first sight, the big dip in the male population shown in Fig. 2 may look surprising. It becomes clear once one knows that in the 1990s the North Korean government has made the choice of counting the military personnel separately from the rest of the population[3].

Age

One may think that for age there should be less problems than for place of residence. Observation shows otherwise. This is can be illustrated by the following examples.

[3]Most countries do not include in their censuses the personnel of armed forces who are located overseas; counting apart the military based in the country is more uncommon.

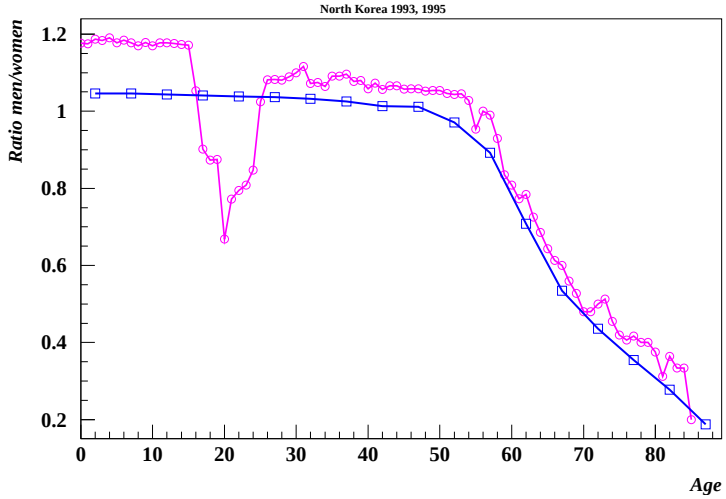

Fig. 2: Sex ratio by age in North Korea. The big dip in one of the curve is due to the fact that the military have not been included in the census of 1993. The blue curve which refers to 5-year age-groups has been corrected for this effect on the basis of previous censuses. At this point it is not clear why it gives a ratio which is lower than the other curve in ages from 0 to 18. *Sources: United Nations: population by single years of age; United Nations: World Population Prospects, 2008 revision.*

- The population pyramid of France based on the census of 1851 (Fig. 3a) shows big steps for the ages of 30, 40, 50, 60 and 70 years. For instance the population for the 50-year age group is almost twice the populations of the 49- or 51-year age groups. Why is this so?

A comparison with population pyramids of the same period in other countries such as Canada or the United States (especially at state level[4]) shows the same feature. On the contrary, twentieth century data do *not* exhibit such a feature. The most likely explanation is that this feature comes from the recording procedure. First, one must realize that French people who were 50 in 1851 were born in 1801 at a time when the registration of births by state agencies was just beginning. As a result, many of them did not know their age with precision. To the question "How old are you" asked by the census officer, they may have answered "Around 50" which was then recorded as 50 on the census form. In short, by giving the closest round number as a proxy of their age people favored multiples of 10 but also (albeit to a smaller extent) multiples of 5.

- In the case of India (Fig. 3b), in addition to the multiples of 10, the steps for ages which end with 2 or 8 are also larger than expected. The number 8 is considered as a "good" number in China. Is it the same in India? We do not know.
- As mentioned above, the bias in favor of multiples of 10 and 5 also occurs for the 1850 census in the US state of Georgia (Fig. 3c). In this case there are in addition substantial random fluctuations due to the fact that the pyramid is based on a 1% sample of the total population.

[4]For instance at the census of 1850 in Georgia the age-group of 30 has a size four times larger than those for 29 or 31.

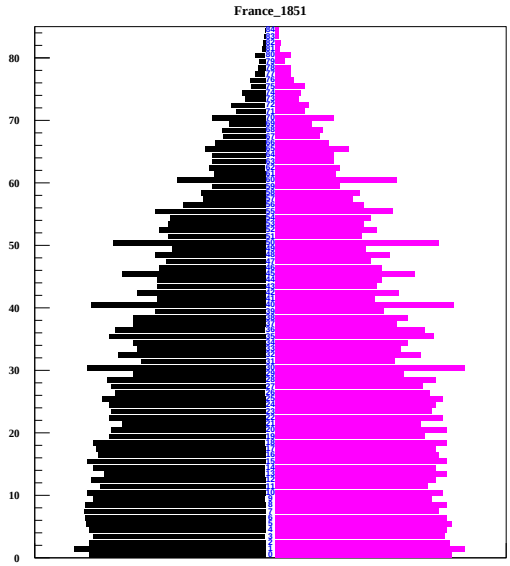

Fig. 3a: Population pyramid of France in 1851. The steps of ages that are multiples of 10 are larger than they should be. *Source: Annuaire statistique de la France, Annuaire rétrospectif (1966)*

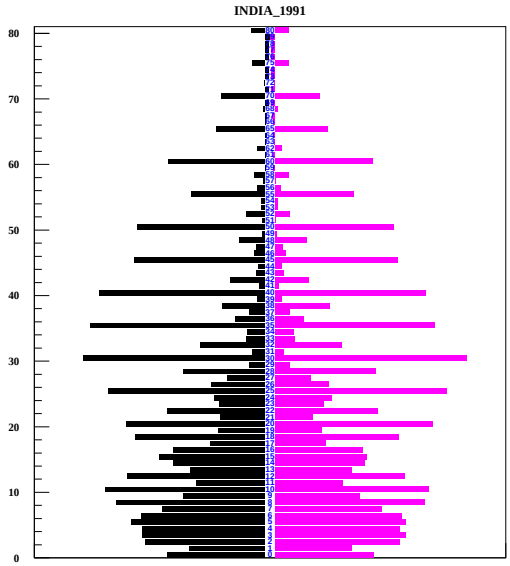

Fig. 3b: Population pyramid of India in 1991. The steps ages which are multiples of 10 or which end with 2 and 8 are much larger than expected. *Source: United Nations: Population by single years of age.*

- The case of Chile (Fig. 3d) is somewhat different in the sense that in this case the steps which are enlarged are those which end with 2. The age groups for 32, 42, 52, 62, 72 have a size which is systematically larger than the adjacent age groups. The difference is not as big as in the previous examples but it is nevertheless significant. For instance the 42-year age group is 30% larger than the 41 or 43 age-groups. How can one explain this feature? This can possibly be explained by assuming that the census agent did not ask the age but the year of birth. Thus, because the census was done in 1992, if a person born *around* 1950 rounds the number to 1950 that would produce an excess of people who were 42 year old in 1992.

Whatever the exact reasons of these discrepancies, they are very damageable for any precise analysis. To some extent they can be eliminated by constructing broader age-groups for the following age-intervals:

$$(0.5, 10.5)\ (10.5, 20.5)\ (20.5, 30.5)\ \ldots$$

In this way, one has age-groups of equal amplitude and the big steps at $10,\ 20,\ 30, \ldots$ will be divided uniformly between the two adjacent decades. Of course, such a treatment will probably not be sufficient to make a very irregular pyramid (such as the one for India) acceptable.

How to estimate birth numbers from population pyramids?

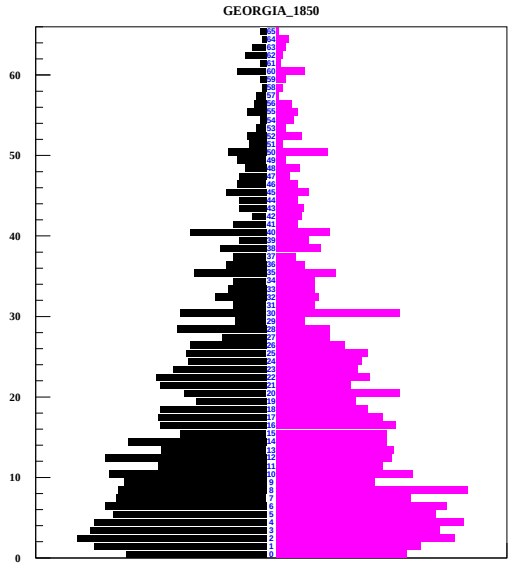

Fig. 3c Population pyramid of the US state of Georgia in 1850. The steps of ages that are multiples of 10 are larger than expected. *Source: IPUMS (USA).*

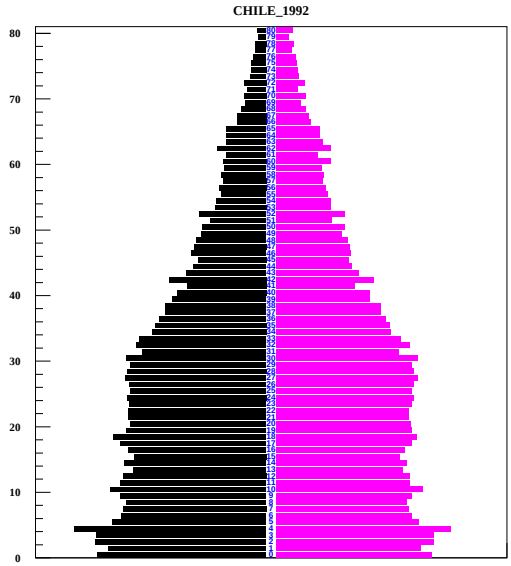

Fig. 3d: Population pyramid of Chile in 1992. the steps of ages 32, 42, 52, 62, 72 are larger than expected. *Source: United Nations: Population by single years of age.*

Birth and death rates are the two main demographic variables. Both can be estimated by using the information contained in population pyramids but birth rates are much easier to estimate than death rates. In this section we discuss how this can be done and how reliable such estimates are.

The first step of a population pyramid for year 1995 (for instance) gives of course the numbers of birth in this year. Does the population pyramid also allow us to estimate birth numbers for the years before 1995 and, if so, for how many years? For instance, the people who are 20 year-old in 1995 were born in 1975; can their number be used as a proxy for the number of people born in 1975? The answer to this question depends on what happened between 1975 and 1995. If in those years there was a big disaster or a disease which greatly affected the young people, then the age-group born in 1975 will be so much reduced until it reaches the age of 20 that it cannot well reflect its initial birth size. In other words, there can be no general answer to our question. It all depends on whether there have been special circumstances or not.

It will be helpful to illustrate this argument by an example. Fig. 4 provides a comparison between birth numbers (broken line) in Japan and age-group sizes (solid lines) derived from 3 population pyramids.

First, we must say how the 3 solid line curves were derived from the age-group numbers given by the pyramids. They are in fact identical to the steps of the pyramids but instead of the age it is the birth year which is used to label the age-groups, For instance, the people of age 20 in the pyramid of 1955 were born in 1935 and in 1955 they numbered about 1.7 million. Similarly, the people of age 60 in the pyramid

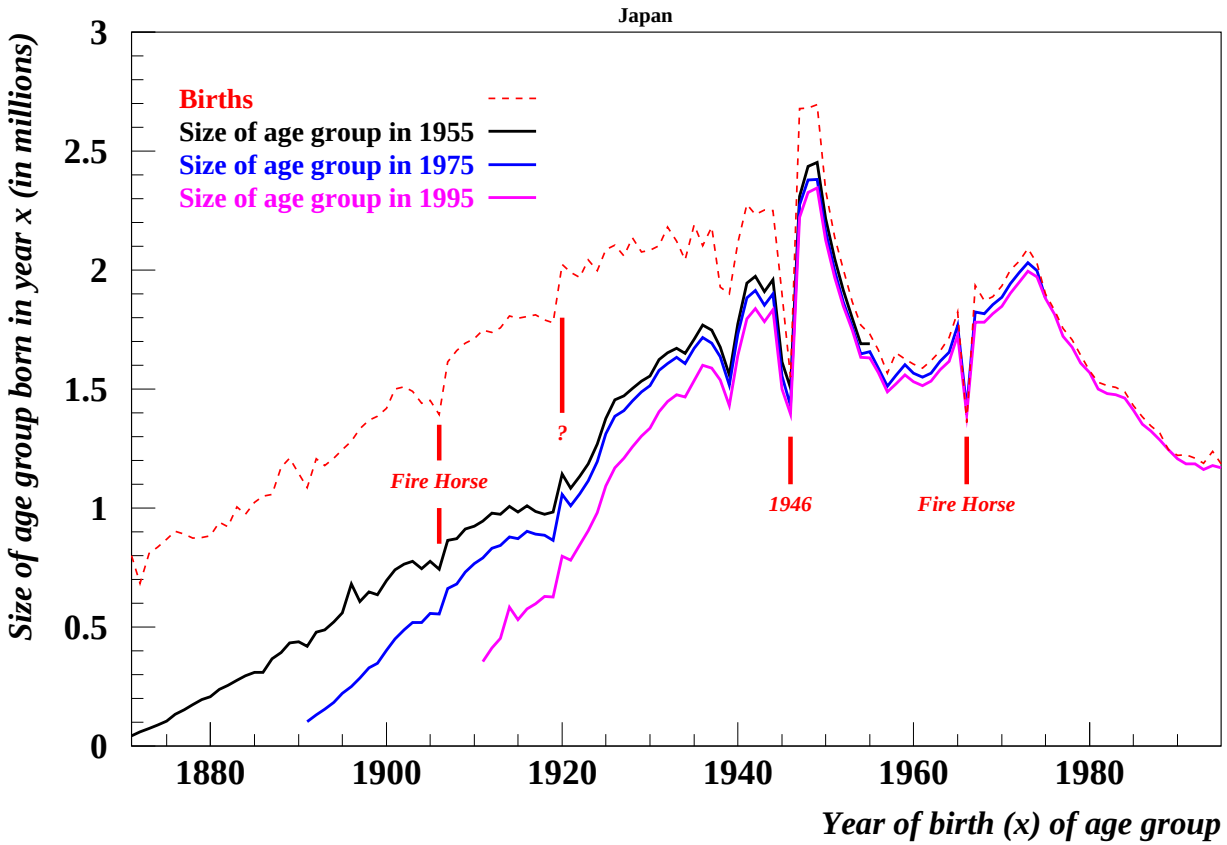

Fig. 4: Comparison of birth numbers with the sizes of steps of population pyramids. The fact that the 3 population pyramid curves closely follow the ups and downs of the number of births shows that, unless there are special circumstances, population pyramids provide good estimates of birth numbers. Between 1947 and 1957 the infant mortality rate was divided by 3, this explains the sudden increase in the distance between the broken and solid curves in the years before 1950. The fact that it became momentarily smaller in 1946 can be explained in only two ways (i) The birth data for 1946 may be incorrect (there is considerable uncertainty for Japanese vital rates in the years immediately after 1945) (ii) There was a massive inflow of Japanese (from Korea and Japan) with babies of less than one year. *Source: Historical Statistics of Japan: online database of the Ministry of Internal Affairs and Communications. The birth data are from Liesner (1989)*

of 1995 were also born in 1935, but in 1995 their number has been reduced to 1.5 million. The second curve is lower than the first because some people in this age-group have died between 1955 and 1995. In a general way, the solid line curves are all lower than the broken line curve of birth numbers; the only exception would occur in case of a major immigration inflow. The only year when this may have occurred in this graph is 1946 when many Japanese people established in China or Korea came back to Japan following the end of the war.

The fact that, despite a high mortality of young men during the war, the broken and solid line curves are fairly close shows that the sizes of age-groups provide good estimates of birth numbers. This is an important rule.

As one goes more toward the past the solid lines curves become of course lower but it can be seen that their short-term fluctuations still fairly well reflect the fluctuations

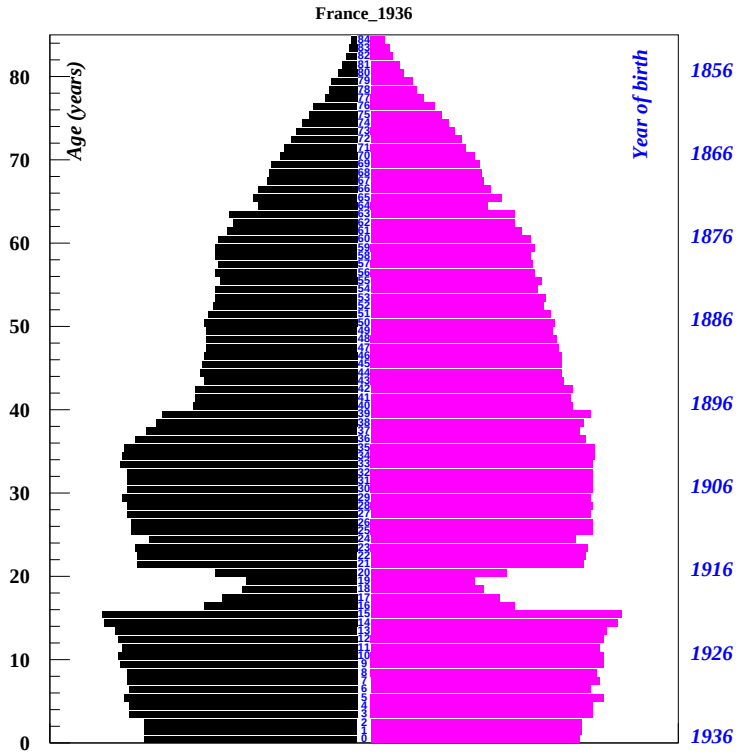

Fig. 5: Reductions in births in France during the First World War. During the 5 years of World War I France experienced a reduction in births of up to 50% Altogether this resulted in about one million "non-born" babies. The two years after the end of the war were marked by a weak and short-lived babyboom; in 1920 the birth rate was almost back to its pre-war level. In contrast, the end of World War II was marked by a strong and lasting babyboom. So far, we do not really understand the reason of this difference. *Source: Annuaire Statistique de la France 1966, Résumé Rétrospectif.*

of birth numbers. For instance, the sudden fall in births which occurred in 1906 is fairly well reproduced in the pyramids of 1955 and 1975. This event as well as the 3 others marked by vertical lines will be discussed in the next section.

Statistical signature of hardship through abrupt birth falls

We have observed previously that birth rates are subject to many fluctuations. However, abrupt falls over a period of one or two years followed by a return to the level which preceded the fall most often indicate that the population suffered some form of hardship as a result of events such as war, food shortage, or other disruptions. What makes this observation of particular interest is the fact that, as we have seen, birth rates can be easily measured on population pyramids.

Wars

France When one looks at the population pyramid of France in 1936 the first thing which attracts attention is a huge indentation around the age of 20.
Of course, one is tempted to make a connection with World War I. However, this indentation does *not* correspond to the soldiers who died in the war. As a matter

of fact, the indentation is the same for males and females. Another indication is provided by the fact that in 1936 the people corresponding to this notch are 20-year-old which means they were born in 1916. In short, the war brought about a massive reduction in birth rates: they were divided by 2.

A natural question is whether the pyramid also allows us to identify the disappearance of the more than one million soldiers who died on the battle fields. If we look at the step corresponding to an age of 40 (that is to say 20 in 1916) we see a reduction of 14% in the size of the male step. There is no such reduction on the Female side. not present on the female side. However, this reduction is much less visible than the fall in birth numbers. Not only is it much smaller but it can be identified with certainty only because it did not affect the women.

Incidentally, one can also see on this pyramid the effect of the war of 1870-1871 between France and Prussia. It appears as a reduction of 17% for the step corresponding to age 64 ($1936 - 64 = 1872$). In this case the deaths which occurred during the war are completely invisible because they affected people who are 84 year old in 1936.

United States The Civil war brought about a substantial reduction in birth rates especially on the Confederation side. This makes sense because in contrast to Connecticut and Massachusetts, the four Confederate states considered in Fig. 6 were directly confronted to military occupation by Union troops.

In contrast, neither World War I nor World War seems to have led to a reduction in birth rates. How can one understand this? For World War I, the explanation is probably that US troops played a role only in the last months of the war. During World War II some 12 million Americans (10% of the population) served in the armed forces. Thus, the lack of any reduction in birth rate may seem more surprising. One possible explanation is the following. During the Great Depression there was a marked reduction in birth rates but in 1940 with the beginning of the war came a great wave of prosperity. The two effects probably cancelled one another.

Are birth rates sensitive to food shortages?

Reductions in birth rates occur not only during wars but also as a result of other kinds of hardships. For instance one may wonder what is the impact of food shortages. Nowadays food shortages are rare in developed countries but they were fairly common in former centuries. In other words, in order to observe the effects of food shortages it is a good idea to use data from former centuries.

France between 1800 and 1850 This was done by the present author in a study (Roehner 1990) about France in the first half of the 19th century. It was shown that in this time there was a significant correlation coefficient ($r = -0.6$) between the price of wheat and the number of births. Naturally a high price of food meant scarcity

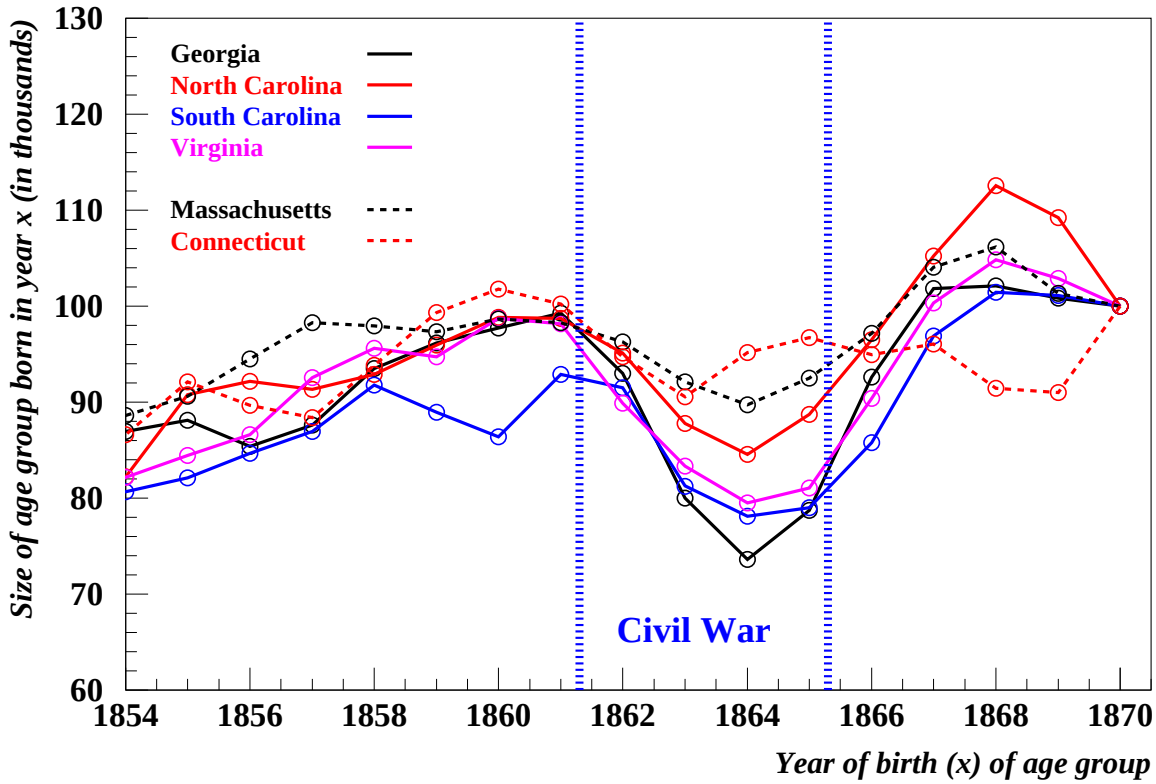

Fig. 6: Reduction in birth rates during the Civil War in the United States. Solid lines correspond to Confederation states whereas broken lines correspond to Union states. The war was marked by falls in births of up to 30% in the Confederation and of the order of 10% in the Union. This suggests that, as expected, Confederate states suffered much more than Union states. It can be noted that no records of birth statistics are available in this period. These states became so-called birth registration states only in the 1910s. In other words, the only way to explore this demographic aspect of the Civil War is to use population pyramids. *Source: IPUMS USA (University of Minnesota).*

and shortage for the poorest people. However, these reductions in birth rates were too small (compared to the noise) to be visible on the population pyramid of 1851. The same study also shows that for these relatively mild food scarcities there was *no* significant correlation between wheat prices and mortality.

In other words, birth numbers are a much more sensitive indicator of food shortages than death numbers. Thereafter we will refer to this result as the "birth-hardship criterion".

However, one must recognize that in some cases the effect on births is surprisingly small. This is what we discuss now.

The case of Henan in 1938 and 1944 It is well known that in the 1930s there were a number of serious food shortages in several provinces of China. One of the most severe occurred in Henan in June 1938 after the levees of the Yellow River were blown up by Kuomintang troops in a desperate attempt to stop the Japanese Army. We are told that almost one million people died through the flood and ensuing food shortage

and that 12 million were made homeless (see http://mygeologypage.ucdavis.edu). In 1943 there was another flood in Henan during which (according to the same web-site) "3 million of people starved to death". If one estimates the population of Henan in the 1940s to be of the order of 30 millions[5], 3 million deaths represent 10% of the population. Yet, the birth rate as reflected in the population pyramid of Henan, shows only a modest fall of 22% between 1941 and 1944. Between 1937 and 1939 the reduction was even smaller, only 18%. One must keep in mind the possibility that the figures of one and three millions of deaths are perhaps over-estimates.

Below we take the problem by the other end in the sense that we consider episodes that *are* marked by large birth reductions. The problem then is to understand what kinds of hardship were responsible.

The birth reduction of 1961 in Chinese provinces A clear case of birth reduction is provided by the Chinese province of Sichuan in south-west China. The population pyramid of this province[6] shows that between 1958 and 1961 the number of births fell by 63%. In other provinces birth numbers fell also but less. For instance, in the cities of Beijing and Shanghai the reduction was only 30%. The reduction was even smaller in the Northern provinces of Heilongjiang, Jilin and Inner Mongolia (20%). The province where the reduction was the smallest was Tibet (5%) [7]. For all provinces together the average reduction was about 40%. This is of the same magnitude than the reduction in France during World War I.

What were the factors behind these reductions?
René Dumont, a French expert in agricultural economics who traveled extensively throughout China in these years, cites mainly three factors. (i) Food shortage due to bad weather combined with the fact that many peasants were employed far away from their village in the amelioration of irrigation systems and could not take part in the harvests[8]. (ii) As the men were often sent to other places for work on dams, canals or dykes, family life was disrupted. Moreover these rapid changes generated a reaction of social resistance and the resulting conflicts added to the hardship of families (Dumont 1964 p. 387). (iii) Finally, there was already an attempt at some limited forms of birth control. Early marriage was discouraged and late marriage

[5]This rough estimate results from the population of Henan in 2010 divided by the growth factor of the total Chinese population which is about 3).

[6]All following results for Chinese provinces are derived from the census of 1982, of which a 1% sample is available on the IPUMS International website.

[7]The population pyramid of Tibet is one of the smoothest and most regular of all provinces. It has no visible indentation and moreover the male/female ratio does not show any systematic deviation from 1, a feature which is in marked contrast with many other provinces.

[8]Dumont writes the following: "Between 1955 and 1964 I observed the most extraordinary transformation of the agricultural landscape. When one flies over China from Hanoi to Beijing one sees that the regions to the south of the Yangtze are now covered with canals, levees and dikes where only water reservoirs had existed previously." (Dumont 1964, p. 393, my translation)

encouraged; economic advantages for children were restricted after the third child (Dumont 1964, p. 396).

A confirmation of the role played by the disruption of family life comes from the fact that birth reductions were twice as high in regions such as Henan and Sichuan (where hydraulic systems are of key importance) as in the northern provinces.

To the three factors listed by Dumont one can add a fourth that he does not mention but which appears fairly clearly by examining the population pyramids. After the end of the civil war in 1950 there was a babyboom in many Chinese provinces. Such episodes usually last only a few years. It seems that this boom came to an end toward 1957-1958 which means that, together with the other factors, this contributed to the birth reduction. Incidentally, after 1963 there was a second babyboom which lasted some 12-13 years.

Before we leave this topic a last remark is in order. There has been an ongoing debate about the amount of excess deaths during the years 1958-1961. Unfortunately, at this point we have no way to make reliable estimates based on population pyramids[9]. This is an ongoing work however and we hope that in the future it will be possible to solve this question.

Another cause of birth reduction

Just to show that the factors mentioned previously are not the only causes of sudden reductions in birth numbers we describe here a very different cause. In Fig. 4 there are two events labelled “Fire Horse” which are marked by sudden, short-lived birth reductions. These events occurred in 1906 and 1966 respectively. The expression “Fire Horse” refers to the Chinese calendar. This calendar comprises 12 different animals such as “Horse” and 5 different symbols such a “Fire”. This means that a specific animal together with a specific symbol will occur every $12 \times 5 = 60$ years. In Japan there is a strong belief[10] that a daughter born in a Fire Horse year will bring ill-being and suffering to her family. As a result some 10% of the couples preferred to postpone a possible birth to a later year. The fact that this reduction occurred twice and exactly in the expected years suggests that this explanation is indeed the right one.

Previously we mentioned factors which affect people in their material living conditions. The Fire Horse events show that social beliefs can have an equally strong impact on births.

Simple versus difficult cases

[9] In the next section we explain why this is a more difficult problem.
[10] Although the same calendar is used there is no similar belief in China.

In the previous section we have seen that abrupt changes in birth numbers sharply affect the shape of population pyramids. Why is this so? The reason is very simple. For any age-group the birth year represents a single year. So any short-lived event which affects births will leave its mark on only one or two steps of a pyramid. On the contrary, an event such as an earthquake or a disease will affect all ages and reduce many steps of a pyramid. As a result, it will be difficult to distinguish this effect from a multi-year trend in birth rate.

In addition the effect of special events on birth rates can lead to reductions as large as 50%. On the contrary, even major wars hardly ever kill more than 10% of an age group. For instance, over one million French soldiers were killed on the battle fields of World War I but these deaths were distributed over several age groups with the result that in each age-group the reduction did not exceed 15%.

In short, any event that (i) is concentrated in time (ii) affects only one or two age-groups and (iii) affects them strongly (effect larger than 10%) will be easy to analyze through population pyramids. On the contrary, episodes which last several years and affect a whole population from young to elderly will have only a "diluted" impact on age-groups and therefore will be hard to detect and even more difficult to analyze.

Population pyramids of North and South Korea

In the previous sections we have shown two things:

(i) That population pyramids can be used to estimate birth rates.
(ii) That a dip in birth rate provides a signature of hardship whether due to war or to other factors.

In the present section we wish to apply these clues to a specific case, namely a comparison between the population pyramids of North and South Korea (Fig. 7).

Similarities

First of all, by comparing the broad shapes of the two pyramids we see that they look fairly similar. From top to bottom (that is to say from 1915 to 2005) one can mention the following features.

- For women of old age (over 65) the slopes are almost the same which points to similar conditions in caring for the elderly. The case of men seems different but this comes from a depletion of these age groups before World War II (as will be seen below).
- In contrast to the case of European countries or Japan there was no babyboom in North and South Korea after the end of World War II[11].

[11] A babyboom can be defined by the fact that in the years after the war the birth rate is higher than it had been before the war. France provides a spectacular illustration. Between 1946 and 1969 the birth rate was on average 50% higher than

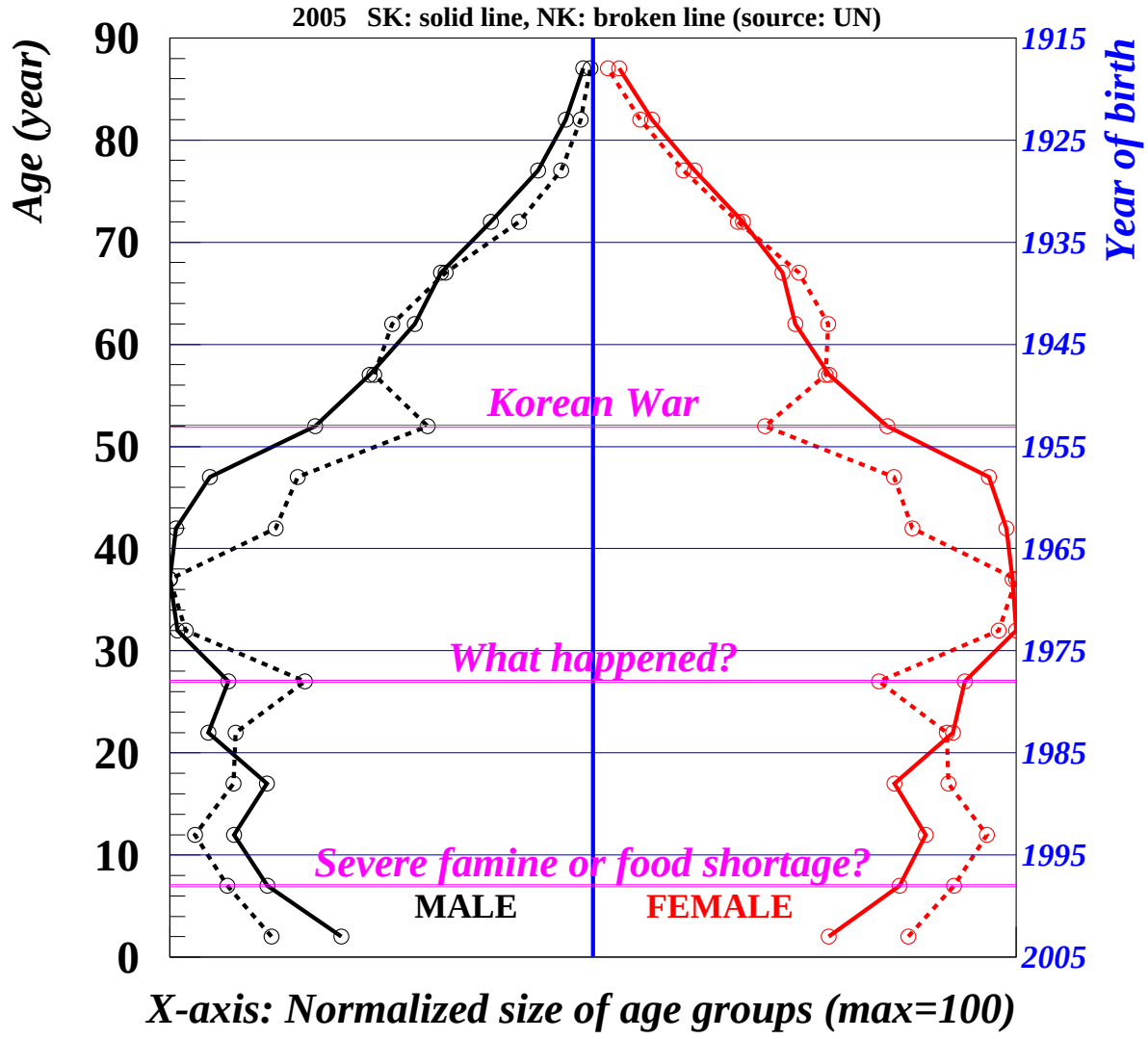

Fig. 7: Comparison of the population pyramids of South and North Korea. The comparison raises the question of what caused the dip of 1978. Two factors seem to have played a role: (i) The fact that the reduced age groups of the Korean War reached marriage age (ii) The birth-control program launched by the North Korean government possibly following the example of the one-child policy which was introduced in China around this year. *Source: United Nations: World Population Prospects, 2008 revision.*

- In both countries a babyboom started at the end of the Korean War and lasted until 1970.
- Both pyramids show a narrow base which indicates a reduction in birth rates after 1975.

Differences

between 1930-1939. In Japan birth rates in 1947-1950 were 25% higher than before the war but after 1950 they quickly came back to their pre-war level. Fig. 7 suggests that there was a small increase in births in South Korea between 1945 and 1950 but the real babyboom came after 1953.

One can note the following differences.

- From the 1965 pyramid it can be seen that for North Korean people born between 1900 and 1935 the ratio male/female is much lower than for South Korean people. It becomes as low as 0.6 whereas in South Korea it is almost 1. At this point we have no explanation.
- Whereas the Korean War did not much affect the birth rate in South Korea it strongly affected the birth rate in North Korea.
- The North Korean pyramid shows a substantial indentation around 1978. For South Korea there is also a reduction but it is more a trend than a sudden event. This indentation can be explained by two factors. (i) It occurs some 25 years after the Korean War which means that the reduced age groups due to the war will have fewer children than the normal corresponding age groups in South Korea. However, because of the dispersion in the age at marriage this effect should be less abrupt than in 1953 which means that there was probably a second factor. Indeed, in these years (and probably following the example of China) the North Korean government started a policy of birth control. More details can be found in the article "Changes in population of North Korea".

Was there a severe famine in North Korea?

Although this point does not originate from a comparison of the two pyramids one can hardly avoid this question because it has generated a vivid debate in recent years and even up to now. On the one hand, there are some Western experts who claim that around 1998 there was a severe famine in North Korea which caused between 600,000 and 4 millions deaths. On the other hand one has the thesis that there was indeed a food shortage but no real famine with many deaths. What is the truth?

We said that it is not the examination of the pyramid which raises this question. Indeed, the pyramid show nothing special in 1998. According to our previous hardship criterion a famine should have produced a marked indentation, at least of same magnitude as the one in 1978. But nothing of the sort can be observed.

As a matter of fact, if one believes that the population data transmitted to the United Nations by the North Korean government are basically correct, the famine thesis does not hold. This follows not only from the population pyramid but also, more simply, from the examination of the total population. During the 1990s and 2000s in normal years the natural population increase (due to the difference between birth and death rates) was about $15-7=8$ per thousand. With a population of about 20 millions one gets an annual surplus of 160,000. Now, even if one takes the lowest famine death toll estimate, namely 600,000, and if one assumes that this toll was spread over 3 years, one gets an annual population change of $160,000-600,000/3=-40,000$ which means that the population should have been decreasing over 3 years. This is

in contradiction with the data about the North Korean population[12]. The curve which shows the evolution of the population between 1961 and 2003 does not reveal any annual fall.

In short, the two claims are incompatible. One of them must be wrong. Because it would lead us too far away from the main topic of this article we will not here try to discuss the validity of the two theses. More details can be found in the longer version of the paper which is available on the author's homepage. In particular, it will be seen that the internal documents of two organizations which should be well informed on this matter, namely the US State Department and the United Nations Food and Agriculture Organization, hardly ever mention a famine in North Korea. They mention a chronic food shortage but they do *not* mention people starving to death. Beyond this debate, what is perhaps the most important point from a scientific perspective is to realize that the thesis of a famine which caused 2 million deaths is not as well established as the broad coverage it has received in western media would lead us to think[13].

Conclusion and perspectives

In this article we tried to convince the reader that population pyramids are an effective tool for exploring the demographic facet of social phenomena. As the purpose of the paper is to provide an overall introduction it focused on basic principles and some illustrations. Many questions still need to be investigated more closely. For instance in the case of a war what is the key-factor? Is it the death of soldiers, the occupation of parts of the country by foreign troops, the destruction of cities by air raids or some other factor.

As in physics one can study each factor separately

In contrast to many other questions in the social sciences for which we cannot set up many experiments, here we can. We are in the same position as the astrophysicists mentioned at the beginning of the paper. We have enough cases at our disposal to isolate one factor after another. For instance, if we wish to study the effect of air raids, we can investigate the cases of Germany or Japan in 1945, of North Korea in the Korean War, of North Vietnam in the Vietnam War, of Iraq in the First and Second Gulf Wars. Similarly, for occupation cases there are many specific episodes.

In fact, we are even in a better position than astrophysicists because we can first

[12] See for instance on Wikipedia the file Korea-North-demography.png

[13] An example chosen at random among many similar sentences reads as follows. "The exodus of North Koreans to Jilin and Liaoning Provinces [North of China] began in earnest in the waves of famine that struck North Korea in the mid-1990's, killing as many as two million people" (New York Times 24 March 2005). It can be noted that the 2 million death toll is presented here as a *fact* not an estimate or a conjecture. Incidentally, there was also an exodus of Polish people to the UK, Ireland and Iceland in the 2000s without any famine in Poland; they were just seeking better wages.

test our methodologies on *known* cases. An example will explain what we mean. By using the population pyramids of Japan for the years 1898, 1903 and 1908 it is possible to estimate the number of excess deaths due to the Russo-Japanese War of 1905. This provides a useful test of the methodology because it is possible to compare such excess-deaths to what historians tell us about the toll of the war.

Research agenda

This example suggests a 4-step research agenda.
(i) First one develops a new measurement method (ii) Then one tests it on several "known" cases. (iii) If the death estimates provided by the method agree with those given by some reliable sources, the method will be validated. (iv) Once validated, it can be used to explore cases for which there are no reliable data or for which there are conflicting data.

How to find new measurement methods?

For discovering new measurement methods (the first step in our previous agenda) the strategy that we suggest is inspired from what physicists do. To make this point clearer it may be useful to recall a well-known example.

- Light rays usually move along straight lines. This is what can be called the basic rule.
- However, in some cases they do *not* move along straight lines. This signals that some "special event" is taking place. For instance, the basic rule will not hold in a substance whose index of refraction is not uniform or in the strong gravitational field that exists in the vicinity of the Sun. In such cases the trajectory of the light-ray is bent.
- By measuring the angle of deviation of the light-rays, it is possible to get information about the "special events". Thus, in the two previous cases one can determine the gradient of the refraction index or the strength of the gravitational field.

Similarly, our strategy will comprise the following steps.

- First, one must analyze the process of aging and discover some "basic rule". As an example of such a rule, one can mention Gompertz' law which says that after the age of 40 the probability of death doubles every 8 years.
- When population pyramids show a deviation away from the basic rule this tells us that a special event has occurred.
- By comparing actual data to what the rule would led us to expect, one can determine the characteristics of the "special event".

Appendix A. Sources for census data

In order to build population pyramids by single year of age for the different provinces of a country, one needs census data about age and place of residence. Moreover, one would like to find such statistics for as many countries and as many dates as possible. Where can one find such information? There are several possible sources. Thanks to the Internet all of them are fairly easily available.

National statistical organizations

For census data the primary sources are the statistical agencies of each country. Although more and more countries publish their statistical yearbook in bilingual form (national language + English) the more detailed statistical data that we need are usually not published in bilingual form. In other words to get access to such Japanese data (for instance) one needs some knowledge of the Japanese language.

Fortunately, there are some websites which provide the information that we need for *many* countries. In what follows we restrict ourselves to such sources which are freely available on the Internet[14].

The IPUMS websites

IPUMS is an acronym which means "Integrated Public Use Microdata Series". The word "microdata" means that this website provides *individual* census data for representative samples (usually 1% samples) of the whole population of a country. There are two IPUMS websites: "IPUMS USA" gives data for American censuses from 1850 to 2000. "IPUMS International" covers several countries[15]. Through these data bases one can build population pyramids at regional level (provinces for China, canton for Switzerland, and so on).

UN database of populations by single years of age.

The United Nation provides population data by sex and single year of age for all almost all countries and at various dates. These data can be used very easily to build population pyramids at country level.

UN database of populations by 5-year age groups (1950-2010)

The Population Division of the United Nations periodically publishes a dataset entitled: "World Population Prospects". The 2008 Revision was released on 1 September 2010. Among other things, this database gives the population of all countries by sex and 5-year age groups.

It should be noted that, strictly speaking these data are *not* census data. This is clear

[14] We do not give the addresses of the websites because usually Internet addresses have only a short life-time. However, all these websites can be easily located through their titles with the help of a search engine.

[15] E.g. Argentina, Brazil, Chile, China, France, Egypt, India, Iraq, Kenya, Mexico, Pakistan, Palestine, Philippines, Puerto Rico, South Africa, Spain, Switzerland, Thailand, United Kingdom, Venezuela, Vietnam. It can be noted that some important countries are missing, e.g. Germany, Indonesia, Japan, Korea, Russia. Except for a few cases the dates are posterior to 1970.

from the fact that the tables are given for the same years (1950, 1955, 1960, 1965, . . .) in each country whereas actual censuses take place in different years depending on the country. In other words, the data given in this database are estimates computed by the Population Division.

There are two sections about “Sources” and “Assumptions” in which official sources are listed. However, this list mentions only the most recent censuses. For instance in the case of Korea (North and South) no indication is given about the sources which were used for the estimates of 1950 and 1955. Moreover, the “Assumptions” section does not say precisely how the interpolations (or extrapolations) have been performed. The assertion which is made that “population data from all sources were evaluated for completeness, accuracy and consistency, and adjusted as necessary” actually means that one must trust the experts who produced the estimates. We do not intend to say that the estimates are not good but rather that one cannot know how good they are.

In addition to the previous multi-national websites one can also mention a very convenient website which gives historical data for Japan.

Historical Statistics of Japan

The statistical series on the website “Historical Statistics of Japan” are published by the Japanese Ministry of Internal Affairs and Communication. The population data give the distribution by single years of age for all censuses held in Japan between 1884 and 2000.

Acknowledgements The author would like to thank the organizers of the “4th Chinese-Europe Summer School on Complexity Sciences” held in Shanghai in August 2010. By providing a large and interested audience for the present topic, this meeting boosted the analysis of population pyramids. Many thanks also to Professors Hawoong Jeong and Beom Jun Kim for their interest and useful discussions especially about the demographic history of Korea.

The present paper was published in the APCTP Bulletin of 2010 (Roehner 2010, p. 13-25).

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Chapter 2
Famine or food scarcity in North Korea?

La pluralité des voix n'est pas une preuve qui vaille.
[The fact that we hear the same thing from many sides does not mean that it is true.]

René Descartes, Discourse on Method (1637, second part, p. 139-140)

Situations marked by acute food scarcity are not uncommon. For instance in 1946-1948 the food consumption standard of the UNRRA (United Nations Rehabilitation and Relief Administration) was 1,500 calorie per day and per person in Germany and 1,200 in Austria (New York Times 21 October 1946, p. 14)[16]. In some months the consumption fell even to lower levels. For instance, according to the New York Times (22 January 1948, p. 16), in January 1948 it fell to 1,070 per day in North Rhine – Westphalia (which includes the Ruhr). The food situation was also very difficult in the years after the war in occupied Japan. Although these levels of calorie intake are only one half of "normal" levels, the newspaper articles that we mentioned do not say that anybody died due to food scarcity.

Statistically, it is not easy to measure the calorie intake of people because in such situations many parallel circuits of distribution come to life. A more reliable criterion of difficult food situations is the price increase of food. For instance, in 1818 in the German province of Bavaria the price of wheat tripled. In 1847 in most of France the price of wheat doubled. According to an official US source cited in Kim[17] (2007, p. 216), between September 1945 and September 1946 rice prices in the US occupation zone of Korea were multiplied by 300[18]. Yet, in none of these cases is there any mention of a famine leading to thousands of deaths.

In other words, it is important to make a clear distinction between situations of food scarcity which are fairly common and cases of large-scale famine leading to massive deaths through starvation. Such cases are very rare. Yet, according to western media, it is such a large-scale famine that North Korea experienced in 1996-1998. This point

[16] As a matter of comparison, at that time the level of food consumption in the United States was 3,000 calorie daily.
[17] This source is: "United States Armed Forces in Korea" (vol. 3, chapter 6, 5).
[18] A part of this increase was probably due to a general inflationary process. The official exchange rate did not change much: from 15 won on one US dollar in October 1945 it increased to 50 in July 1947. However, it may well be that the black market rate increased much more than the official rate (that was also the case in Japan).

is documented in more detail in the next section.

Why should one ask the question raised in the title?

In the articles of the New York Times about North Korea it is stated as a fact that in the mid-1990s there was a severe famine in North Korea which cost at least two millions lives. Some illustrative excerpts read as follow:

- "The exodus of North Koreans to Jilin and Liaoning provinces [in Northern China] began in earnest in the waves of the famine that struck North Korea in the mid-1990s killing as many as two million people." (NYT 24 March 2005)
- "After all, this [President Kim Jung Il] is a man who imported Mercedes-Benzes in the late 1990s while two millions of his compatriots were dying in a famine." (NYT 10 October 2006)
- "The collapse of the Soviet Union led to a famine [in North Korea] that is estimated to have killed as many as two million people." (NYT 16 August 2007)

Why should such statements not be accepted at face value? There are many reasons but the main problem is the following. These articles rely on surveys, on the testimonies of refugees, on statements made by personnel of aid organizations and they all complain that North Korea is a very secretive country about which very little is known. For instance one article says that we know less about North Korea than about the planet Pluto[19]. The problem is that this is simply not true.

North Korea is a member of the United Nations since September 1991. The government of North Korea transmits statistical demographic data to the Statistical Division of the United Nations. These data give the total population (see Fig. 1) as well as the population by sex and age. These data are easily available on the Internet[20].
It turns out that these data are in contradiction with the claim that two million people died of famine between 1996 and 1998. They are even in contradiction with a lower estimate which is sometimes offered that 600,000 persons died. So, an honest journalist should say: "Yes, we know that the figure of 2 million deaths is in contradiction with official population data but we think that the official data are not reliable" and he (or she) should then give reasons why official data cannot be trusted and at the same time say on which records the estimate of 2 millions relies.

In fact, the articles never ever mention that there are official data and while some (like the third one cited above) say that the figure of 2 millions is an estimate, others simply present it as a fact (as do the first two articles cited above). Moreover, I have

[19]The article is entitled "Invisible Korea" (NYT 12 October 1997).

[20]See for instance the Wikipedia article in French about the Demography of North Korea. More detailed data are available on the following statistical website of the United Nations: World Population Prospects, the 2008 revision of the population database.

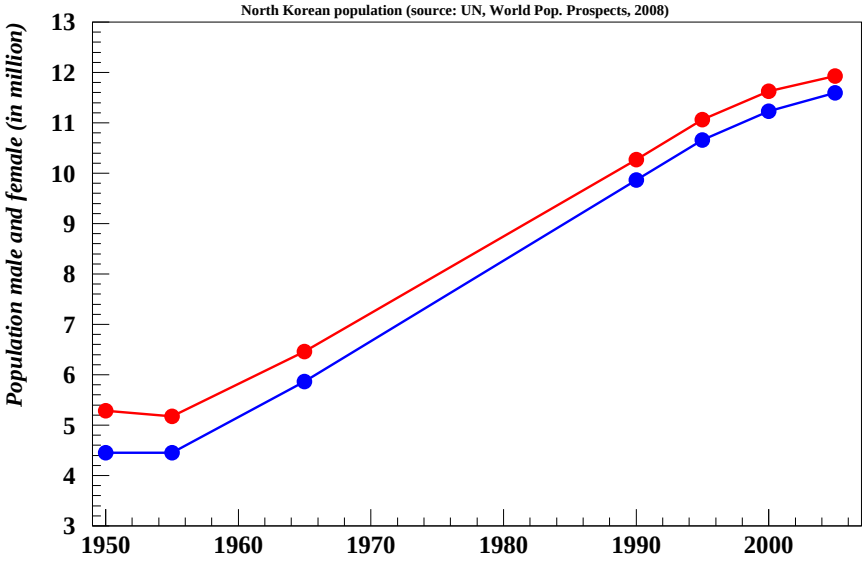

Fig. 1a: Population of North Korea, 1961-2003, (in thousands). The graph shows no annual decrease. If there had been a famine in 1996-1998 with a death toll of 600,000 (which is the lowest estimate suggested in relation to a possible famine) these 3 years would have been marked by a decrease because during the 1990s the annual natural increase was about 160,000; thus, in each of the years 1996 to 1998 the population would have decreased by 40,000. *Source: Wikipedia, article about Korea in French; it is entitled: "Démographie de la Corée du Nord".*

not seen a single article which says on which records the estimate of 2 millions is based. The standard sentence is: "Experts think that the famine cost the lives of 2 million people." Most often these experts are not named; yet sometimes their names and positions are given and we will see in a short moment who they are. Actually, some (but very few) articles mention that there is a broad range of opinions among experts with estimates going from 600,000 to 4 million (see Cumings 2005).

Foreign trade of North Korea

Another feature of the previous articles should raise our suspicion. They talk abundantly about food aid to North Korea but never about food imports[21].

It is a fact that like Switzerland or Norway, North Korea has many mountains (see Fig. 2) and is therefore not self-sufficient for food. Countries which are in this situation import the wheat, rice and other food products that they cannot produce themselves. But the articles of the New York Times about North Korea make us believe that North Korea is so closed that it has no foreign trade partners. Again, this is simply not true.

[21]The aids which are mentioned are coming from the United Nations through the World Food Program, from the United States and South Korea (at least when the relations of these two countries with North Korea are not too bad) and also from Japan. See for instance the article entitled "US details food aid plan for North Korea" (NYT 23 March 1999).

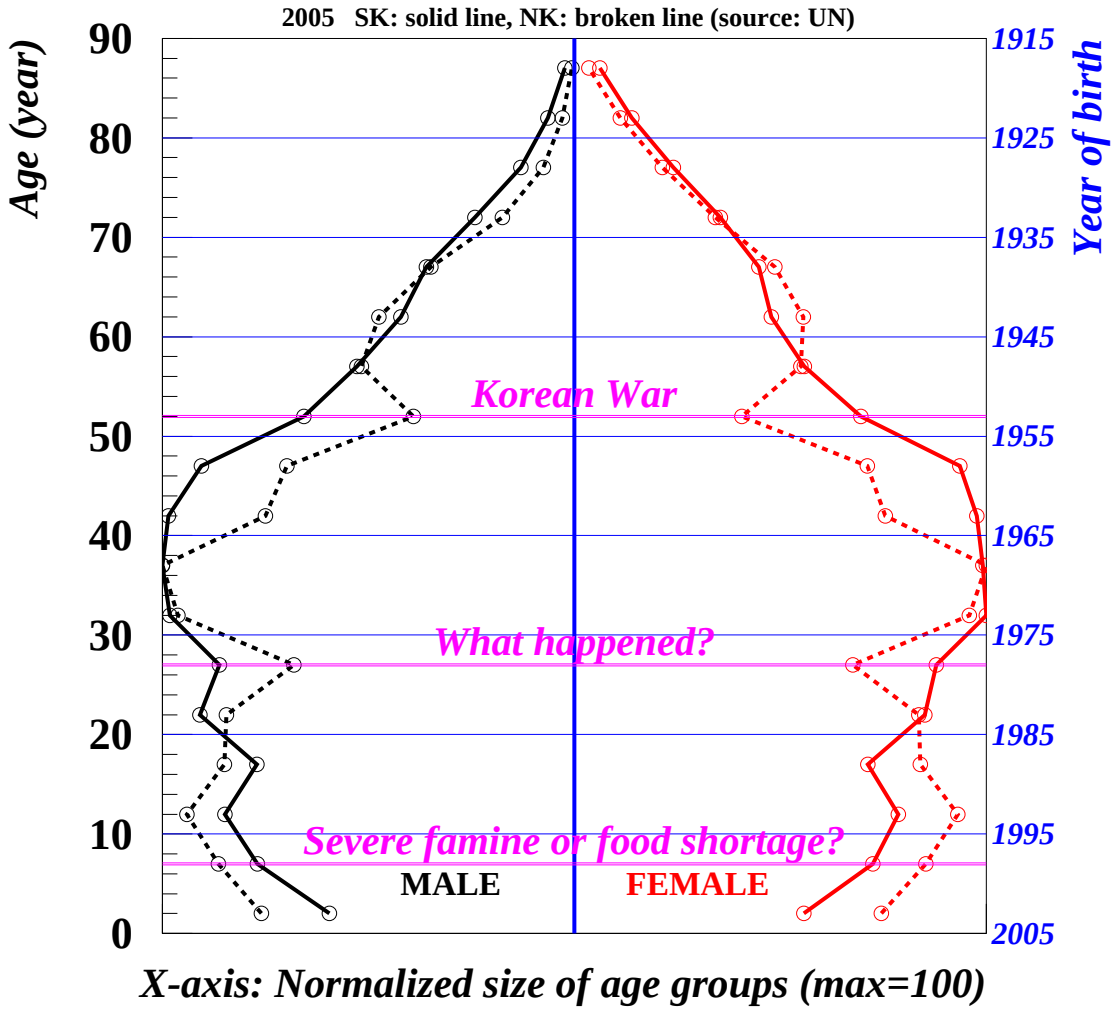

Fig. 1b: Comparison of the population pyramids of South and North Korea. The fact that around 1996-1998 there is no dip in the North Korean birth rate gives little credence to a possible famine in those years. Indeed, one has some reasons to think that food shortages result in reduced birth rates (Roehner 1990). The comparison also raises the question of what caused the dip of 1978 in North Korea? Two factors seem to have played a role: (i) The fact that the reduced age groups of the Korean War reached marriage age (ii) The birth-control program launched by the North Korean government possibly on the example of the one-child policy which was introduced in China around this year. *Source: United Nations: World Population Prospects, 2008 revision.*

As a matter of fact, North Korea has many trading partners among which its closest neighbors China, Japan and Russia are the most important[22]. To prove this point we are on firm ground because trade between two countries is recorded by both of them. As a result, if we do not trust the North Korean statistics we can rely on the Chinese, Japanese or Russian statistics. According to the "UN COMTRADE" website of the

[22] Although there are no diplomatic relations between the United States and North Korea this situation is rather exceptional. North Korea has diplomatic relations with a large number of countries. For instance, it has diplomatic relations with all the countries of the European Union with the exception of France and Estonia.

United Nations, in 1998 the exports of North Korea to China, Japan and Russia were (in millions of US dollars): 57, 220 and 8.4. Altogether, in 1997 North Korean exports totalled $950 million[23]. Naturally, as this amount is expressed in dollars it raises the queation of the exchange rate. Usually the absence of an active exchange market makes the fixation of an exchange rate a fairly arbitrary operation.

Regarding our investigation, the important question is the following: are North Korean exports sufficient to cover the imports of cereals whenever they are needed? According to a figure given on the website of the Food and Agriculture Organization (FAO) the annual domestic consumption of cereals is of the order of 5 million tons. In most years a part of this amount needs to be imported. Thus, in 2004 despite a harvest which was the best in 10 years some 25% of this amount had to be imported (FAO website). To take an extreme case let us assume that the harvest failed completely and that the total amount needs to be imported. What would be the cost? Even though the imports may consist in different cereals (wheat, rice, barley) for the sake of simplicity let us assume that it consists only of wheat. What was the price of wheat in the 1990s? It fluctuated between $100/ton and $170/ton. We will take $135/ton as an average price. The cost of importing 5 million tons would be $5 \times 135 = 675$ million dollars. Thus, even in this extreme case, the exports would cover the required imports and leave a surplus for importing other goods (such as oil) which are almost as essential as cereals.

Before we leave this topic it should be mentioned that between 1995 and 2010 there has been a rapid change in the foreign trade of North Korea in the sense that China replaced Japan as the principal trading partner. In 1996, North Korea exports to Japan represented $290 million against only $68 million for the exports to China. In the following years the exports to China increased whereas the exports to Japan stagnated or decreased. By 2006 the situation was completely reversed with exports of $1,230 million to China and only $77 million to Japan. In 2007-2009 the exports to China continued to grow but unfortunately the data for Japan are not available on the UN COMTRADE website.

How did the famine thesis emerge?

In the previous section we emphasized the role of the media and in particular of the New York Times in spreading the notion of a severe famine in North Korea. We also pointed out the role of the "experts" who backed this thesis and provided estimates. In this section we will consider these two aspects more closely.

[23] According to the French website "Marché export, Corée du Nord" at the following address: http://asiep.free.fr/coree/cornord.html

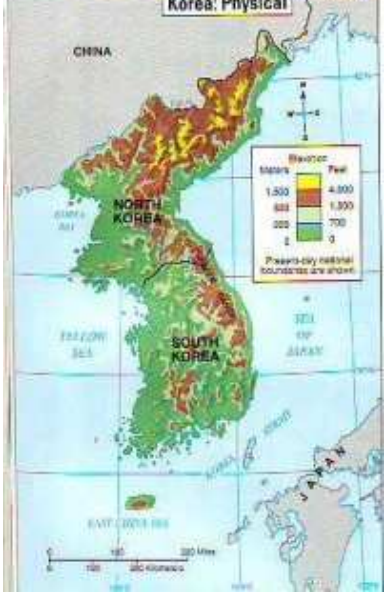

Fig. 2 Physical map of Korea. There is a marked contrast between North and South Korea in terms of farmland surfaces. The North has several mountain ranges and only few plains. *Source: http://wiki.theplaz.com/World_Cultures_Portfolio/Korea*

The role of the New York Times

Why do we devote so much attention to the role of the New York Times? It is because as far as foreign relations are concerned, this journal can to a large extent be considered as a mouthpiece of the Department of State. This statement can be illustrated by many cases. For instance, as soon as a foreign leader falls out of favor with the State Department some unflattering qualifications begin to appear in the New York Times articles. If he is energetic he is called a strongman or a mercurial leader, if he is not he is termed weak and wavering.

As an illustration the reader can (thanks to the Internet) have a look at the articles written immediately before and after the military coup against Venezuelan President Hugo Chavez on 11 April 2002. As shown by the following excerpts the comments of the New York Times and of the State Department after the overthrow of a democratically elected president were remarkably parallel (NYT 13 April 2002).

> With yesterday's resignation of President Hugo Chávez [in fact he did *not* resign] Venezuelan democracy is no longer threatened by a would-be dictator. American officials praised the Venezuelan military and the police for defying Mr. Chávez, as well as television stations and other media outlets that continued to function despite government orders to shut down. "We wish to express our solidarity with the Venezuelan people and look forward to working with all democratic forces in Venezuela to ensure the full exercise of democratic rights", said Philip T. Reeker, a State Department spokesman.

Thus, if one follows the argument of the New York Times, the best way to protect democracy is to let the military remove an elected president.

So, by tracking changes in the tone and content of the New York Times articles, one may be able able to follow the shifts and turns that take place in the State Department.

First of all, it may be of interest to look at the number of articles which contain the expressions “North Korea” and “famine”.

Table 1 Number of New York Times articles with the expressions “North Korea” + “famine”

1993	94	95	96	**97**	98	**99**	2000	01	02	03	04	05	06	07	08	09	2010
0	0	5	29	**63**	26	**46**	21	11	29	29	10	10	13	4	8	9	18

Source: New York Times (online index)

The first phase started in 1996

By the number of articles it may seem that it was 1997 which was the defining year. Yet, in 1997 the famine was considered a possibility but not as a complete certainty. The transition from one phase to the other came in 1999 with an article entitled: “ Korean famine toll: more than 2 million” (NYT 20 August 1999) which will be analyzed more closely in a short moment.

Why did we say that in 1997 the matter was still in debate? It is because at that time there were still a few articles which suggested that there was in fact no famine at all. Here are some excerpts of such an article (NYT 12 October 1997).

- While the public perception of North Korea is still of starving children in orphanages that is not the impression that many visitors are coming away with. All the commotion about famine may have in fact helped avert one.
- “People are looking much better than we expected” said Namanga Ngongi, the deputy executive director of the World Food Program, after a visit to North Korea.
- At one extreme, there are reports that the famine is so severe that people are dying in huge numbers or turning to cannibalism[24]. One informal survey of refugees suggested that in some North Korean towns 15% of the people may already have died, and an aid agency extrapolated last month that 500,000 may have died of starvation and related illnesses.
- Ethnic Koreans are often the best able to talk to ordinary North Koreans and assess conditions among their relatives. Many say the situation is grim but still far better than the hunger they remember in both Koreas during the 1950’s.
- A recent survey of 4,000 North Korean children by the World Food Program, not a representative sample, found 17% suffering from serious malnutrition. By

[24]The New York Times itself contributed to spread this story as shown by the following sentence (NYT 20 April 1997): “As famine spreads, a misery of almost unspeakable dimensions is becoming evident from the horror stories of starving babies reduced to skin and bone, of women selling their daughters, of families even resorting to cannibalism to survive.”

comparison, World Bank figures suggest that in India in the early 1990's, 43% of children were malnourished; some visitors say countries like India are chronically in worse shape than North Korea is now.

The second phase began in mid-1999

At this point the "heavy-weight" experts had not yet delivered their final verdict. This came in mid-1999. One of these articles (NYT 20 August 1999) was already mentioned. The experts' assessment took fairly staggering forms as shown by the following excerpts.

- "Two years ago we saw no food in the country *at all*, I remember distinctly not ever hearing a bird sing, or seeing a bird" said Catherine Bertini, executive director of the United Nations World Food Program.
- "We now know that more than 10% of the population starved to death" said Andrew Natsios, a former vice president of the relief agency World Vision.

The famine is no longer a possibility, it has become a certainty. Moreover, such articles are obviously written with a public relations objective. PR professionals know that in fact numbers are of little importance. Whether the death toll is 600,000 or 2 millions, who cares except a few scientists[25]? What matters is to impress in the minds of the public a few suggestive images: a country without any food, without birds, where parents are selling their children and where families resort to cannibalism. Such images will serve this purpose even though they are absurd and unbelievable.

A last question should be asked: Who are these two experts, namely Ms. Bertini and Mr. Natsios? Both are American public servants who have been (or are still) working for the USAID (United States Agency for International Development). According to the Wikipedia entry for the USAID, this organization reports to the Secretary of State. Andrew Natsios, USAID's former head, stated unequivocally in a widely distributed 2003 speech that even foreign USAID-funded contractors are an arm of the US government. Moreover, through the publication of the so-called CIA Family Jewels document it was learnt that the USAID and the CIA have had joint training programs in the 1970s [26].

Characteristically, the New York Times article does not give the affiliation of the two

[25] The fact that at this point numbers did no longer matter is illustrated by the following excerpt of the same article: "In 1995, North Korea was driven to ask for international help. By then it was too late for many of its 24 million citizens". Well, in 1995 North Korea had a population of only 18 millions according to both official figures and those given in the CIA World Factbook.

[26] Illustration of the fact that this link still exists is provided by the following episode cited in the Wikipedia article about the USAID. In December 2009, Alan Gross, a contractor for USAID, was arrested in Cuba. He (as well as US government officials) claimed that he was helping to deliver Internet access to the Jewish community. However the head of the Jewish community in Cuba denied any knowledge of Gross. He was later charged with providing satellite communications equipment to Cuban dissidents.

persons; it does not even say that they are American.

Definition and characteristics of the consolidation phase after 1999

We have seen two phases so far. (i) A first phase (1997-1998) during which horrific stories were already circulated but with an interrogation point still remaining. "This country is so secretive, isn't it[27]?" (ii) Then came a second phase (1999) marked by definitive statements in particular as to the number of deaths.

In the third phase that we will call the consolidation phase this message was repeated over and over again. Basically, each and every paper about North Korea carried this message even when the topic of the article was completely different. For instance, an article entitled "North Korea is said to apologize for currency changes" (NYT 12 February 2010) mentions that "the collapse of the Soviet bloc led to a famine that killed many North Koreans in the mid-1990s" [28]. This is the standard version. The fact that it provides at the same time a plausible explanation makes it more convincing and easy to remember even though the famine is supposed to have begun only in 1996, that is to say 6 years after the collapse of the Soviet Union.

Moreover, even if, as said above, numbers are in fact of little importance the message about the death toll needed to be repeated in similar form in order to be accepted as *the* truth.

In order to show how well this campaign worked a personal recollection may be useful.

How experts accepted trumped-up statements

Personal anecdote

I came in contact with Prof. Bruce Cumings in 2008 in relation with my study of the post-World War II occupation of Japan. These contacts convinced me that he was a researcher who was fairly honest in trying to find out the truth. Prof. Cumings is a recognized expert of post World War II Korea, somehow in the same way as John Dower is the reference for Japan. So, when in September 2010 I discovered that one of his papers was cited in the reference section of the Wikipedia article about the North Korean famine I read it with great interest.

This paper is in fact a book review that was published in December 2005 in the "London Review of Books". The first pages of this 5-page review were indeed in

[27] It is true that the wooden language and conventional phraseology used in their public declarations and official newspapers by the leaders of the DPRK much contribute to maintain the image of an opaque polity.

[28] Here is another example: "Mr. Kim has outlived previous predictions of the collapse of his government even after an estimated two million North Koreans died of famine in the mid-1990s." (NYT 3 April 2010, the article is entitled: "North Korea is said to be seeking China aid".

line with the opinion I had formed. Opinions and judgments were supported by facts and evidence. However, as soon as Cumings turns to the question of the famine the tone and content changes dramatically. The tone becomes completely emotional and the content no longer mentions any evidence. This can be seen in the following excerpt:

> "A friend of mine [i.e. Cumings'] who worked for the Mercy Foundation used to patrol the border with $100 bills, hoping to buy back young Korean women from the hundreds, more likely thousands, of Chinese men who had done the same. Entire families swallowed poison. Becker [the author of one of the two books which is reviewed in the paper] believes that Kim Jong Il has the blood of 4 million people on his hands, but experts who have studied the famine closely believe that the figure is closer to 600,000. Becker's is the highest estimate I have encountered; perhaps history will prove him to be right."

Does the fact that girls turn to prostitution mean that there was a famine in the country? There have been many cases of this kind even in countries where there was no famine. In 1945-1947 many Japanese girls "sold themselves" to GIs who sustained them (along possibly with part of their families). There was indeed a shortage of food and jobs in Japan at that time but we have never heard that there was a famine which killed thousands.

After reading this review I wrote to Prof. Cumings to ask him on what evidence was based the estimate of 600,000 deaths that he seemed to favor. I got the following replies.
"This is my wife's estimate. She is working on a book on the NK famine, but it isn't going to be finished for a while. So I don't have better info for you." (email of 22 September 2010). "Meanwhile the media uses 2 million all the time, as if they know what they are talking about." (email of 23 September 2010)

In other words, here is a well-known expert who for over 12 years (from 1998 to now) has not been able to form a personal opinion as to the sources and evidence on which was based the figure of 2 millions that "the media use all the time", but who nevertheless supports the famine story both by repeating the estimate of "experts" and by adding his own personal testimony as a further proof.

What is the evidence for the 2 million estimate?

Can we try to fill the gap that Cumings' non-answer left open? The excerpts cited above provide some elements on which the 2 million deaths statement seems to rely.

- The main objective element was the immigration of North Korean people to China.

- Interviews of some of these emigrants provided survey estimates.
- Statement made by officials of relief organization confirmed the estimates made by the immigrants

It is not difficult to show the fragility of such arguments.
(i) In the 2000s, hundreds of thousands people from Poland and from the Baltic states left their country to work in Germany, the United Kingdom, Ireland or Iceland. Does this prove that there was a severe famine in Poland or the Baltic states? In fact, they were simply looking for better salaries.
(ii) Let us for a moment assume that the people who were interviewed were honestly reporting what they have seen. An emigrant may be able to provide an estimate for the village or town that he left but certainly not for the whole country. I have not seen any serious attempt to put together various local testimonies to cover a vast area.
(iii) The "experts" do not say on what evidence they base their claim. Moreover, we have seen that for at least two of them their affiliation with the USAID should make us take their claims with some caution.

Do well-informed sources mention a famine?

If, as suggested in the previous section, we cannot really trust the American media on this question, are there other sources that we can use. It would be useless to turn to European media because on such a matter they have little proper means of information and rely heavily on the news given by US news agencies. On the contrary, China has a long borderline with North Korea and after being its close ally during the Korean War has maintained solid ties with this country.

China Daily

So we turn to the online search engine of "China Daily" which is a semi-official daily newspaper published in Beijing. The search engine covers only the period 2000-2010 but this is enough for, as we have seen, over this time interval New York Times has 162 articles containing the words "North Korea" and "famine".

If we use only "North Korea" as keyword we get 6,744 articles. If we add "famine" we get only 4 articles, and in fact none of them really refers to a famine in North Korea. For instance, one of these articles is entitled "Hot heads prevail as temperature plummets" (30 July 2007). In this article the two words occur together rather fortuitously.

Of course, it may be said that as the Chinese medias are mostly state controlled this test is not really convincing. As a second test we will look into the internal reports of the US State Department.

What do the internal files of the US Department of State say?

The "State Department Bureau of Intelligence and Research" (INR) is in charge of providing background analysis to US decision makers. The INR is one of the 16 branches of the United States Intelligence Community. Information about its budget and number of employees is classified. Of course, to be useful, the analyses of the INR must reflect the *real* situation as closely as possible. If there has been a public relation campaign for the purpose of promoting the notion of a severe famine in North Korea, the INR does not wish to be fooled by it but will try to keep its assessments as realistic as possible.

Some of the archives of the INR reports have been made available as a part of the "National Security Archives" of George Washington University. What do these reports say? Below we list reports relevant to the food situation in North Korea that were published in the years 1996-1999 during which the famine was supposed to take place.

(1) April 4, 1996 *DPRK: Grappling with food shortage*
State Department Bureau of Intelligence and Research Intelligence Assessment, Document 4 [FOIA Release]

(2) May 11, 1996 *DPRK: Famine nears*
State Department Bureau of Intelligence and Research Intelligence Assessment, Document 7 [FOIA Release]

(3) ca. December 1, 1996 *North Korea: food shortage and political stability*
State Department Bureau of Intelligence and Research, Document 10 [FOIA Release].

(4) March 3, 1998 In his inaugural speech president Kim Dae Jung pledged that "South Korea would not be stingy in extending food aid to North Korea from the government and private organizations."
State Department Bureau of Intelligence and Research Intelligence Brief, Document 15.

(5) July 6, 1998 *DPRK: Food supply precarious*
State Department Bureau of Intelligence and Research Intelligence Brief, Document 16 [FOIA Release]. An excerpt reads as follows. This brief note comments on observations of recent Western visitors to North Korea that the people seem "reasonably well-fed" and in overall better physical shape than last year, according to reports from the US Embassy in Seoul. Despite these reports, international organizations continued to forecast a persistent and deepening food crisis.

In short, there are several reports about food scarcity or about a threatening famine but we did not find a single account of a famine actually taking place.

It is true that these archives certainly do not include *all* the reports of the INR[29]. However, there would be no reason to keep out reports about the famine since this was precisely the official version.

What does the CIA World Factbook say?

The CIA World Factbook is not an internal document. It is available on the Internet. Surprisingly however, as shown by the following excerpt, it gives basically the same version as the reports of the INR, namely that there was a food shortage but no real famine.

"Large-scale international food aid deliveries have allowed the people of North Korea to escape widespread starvation since famine threatened in 1995, but the population continues to suffer from prolonged malnutrition and poor living conditions."

In the next section we will see that the population data given by this Factbook are fairly consistent with official North Korean statistics.

What does the Food and Agriculture Organization (FAO) say?

We did not find mention of a famine in North Korea in the archives of the FAO. There are mentions of food scarcity and international aid through the World Food Program, but of course, many countries benefit from such programs even though they do not face a severe famine.

In a report of 23 November 2004 it is mentioned that the World Food Program has provided the DPRK with almost 4 million tons of food assistance, valued at $1.3 billion, since 1995.

As was mentioned earlier the annual cereal consumption of North Korea is about 5 million tons. In other words, the World Food Program has provided on average 10% of the consumption. This figure is consistent with the picture of a country which needs to import part of the food that it consumes.

As a matter of fact, would it not have been a shame and a tragic failure if the UN, the FAO and the WFP had left millions of people die from starvation while these organizations were actively engaged in providing relief and had personnel in the country to manage this aid? After the Second World War, the UNRRA (United Nations Relief and Rehabilitation Administration) was created precisely to avert such disasters in the countries which were just emerging from the war[30]. As far as we know, the UNRRA was indeed able to prevent major famines. Is it conceivable that 60 years later in a world in which agricultural production has greatly expanded, the FAO would be unable to prevent a disaster?

[29] Even in the published reports some sentences are "whitened" because the information is considered sensible.

[30] In spite of its name, the UNRRA was in fact an American initiative. It was proposed to the US Congress by President Roosevelt on 9 June 1943 to provide relief to liberated areas.

Are the North Korean population statistics reliable?

The CIA World Factbook provides basic statistics for all countries. It does not give the sources of the data but it is logical to think that the Agency tried to rely on reliable sources. So, the question which comes naturally to mind is whether or not the data about North Korea differ from those that the North Korean Government has transmitted to the United Nations.

Table 2 Comparison of North Korean population statistics and CIA World Factbook data (2010)

	Male Total	Male $0-14$	Male $15-65$	Male $65+$	Female Total	Female $0-14$	Female $15-65$	Female $65+$
CIA	$11,036$	$2,440$	$7,776$	820	$11,626$	$2,376$	$7,945$	$1,305$
UN	$11,849$	$2,600$	$8,368$	881	$12,128$	$2,475$	$8,191$	$1,462$
(UN – CIA)/UN	6.8%	6.1%	7.0%	6.9%	4.1%	4.0%	3.0%	10.7%

Notes: The data are expressed in thousands. A famine toll of 2 million would result in a difference of about 10%. Instead, the difference is about two times smaller. Moreover, the fact that the differences are notably larger for men than for women suggests that they are not due to a famine toll but to some other factors.
Sources: CIA World Factbook, UN: World Population Prospects

These differences are summarized in Table 2.

The magnitude of the differences in Table 2 is *not* compatible with a famine toll of 2 millions. Of course, these differences are compatible with a death toll of 600,000 which represents only 2.6% of the population but the fact that the differences for males are about twice as large as those for females suggests that they are related to some other factors than a famine, may be a different way of counting the military.

Comparison with other famines

Thw Wikipedia website provides a list of major known famines. Let us consider some of them in more detail.

Finnish famine of 1868

One of them is the Finnish famine of 1866-1868 which culminated in 1868[31]. Whereas in the decade 1871-1880 the average annual number of deaths was 42,500, in 1868 it reached 137,720, a 220% increase. Yet, even in such a dramatic case, the break-down according to causes of death reports only 2,350 deaths directly caused by starvation. Almost all these deaths occurred in rural counties, only one is reported to have occurred in the cities and towns, a (Statistique Internationale 1907, p. 842, Suomenmaan 1871 p. 66). The bulk of the excess mortality was due to various diseases and

[31] In Finland the famine is known as ”the great hunger years”, or “Suuret nälkävuodet”.

fevers. In particular the infant mortality jumped to almost 40% of live births which accounted for some 20% of the excess-deaths.

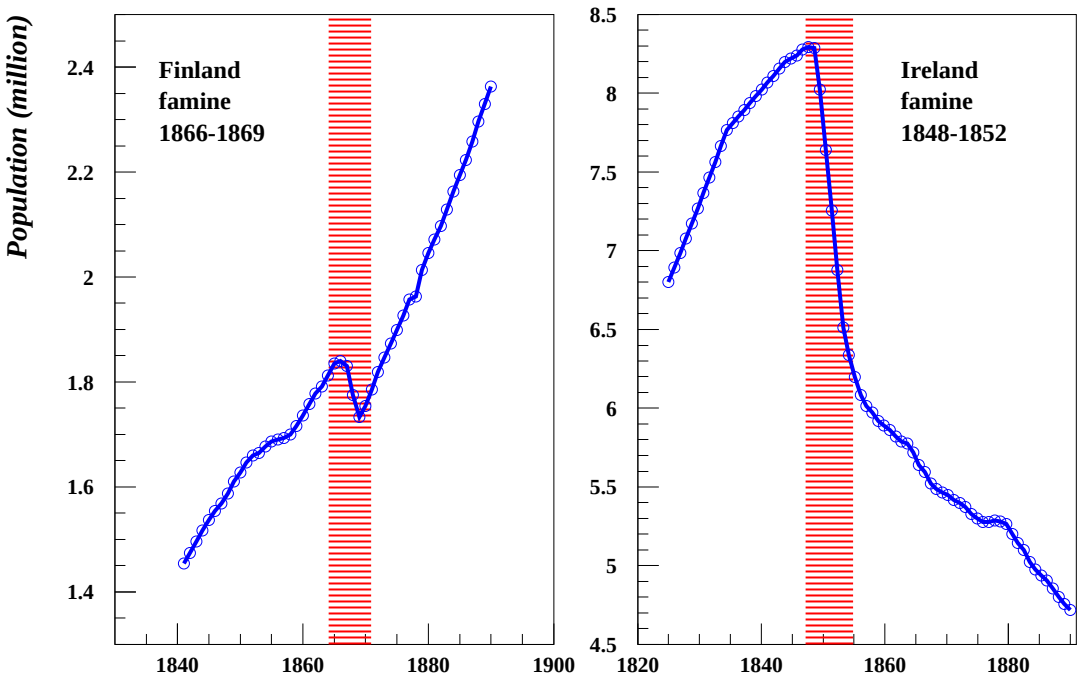

Fig. 3 Two examples of famines. Both cases were marked by steep declines in population. However, the graph revealsclearly that the two cases are very different. In Finland the decline was short-lived but in Ireland it continued until 1933; in fact, the population experienced a substantial increase only in the 1970s). The population data for Ireland are for the whole island. *Source: Flora (1987, p. 51, 60, 89)*

The famine was accompanied by a massive emigration of the Finnish people.

Ireland

In contrast to the famine in Finland, the Irish famine was not just a short-lived accident due to climatic factors. It marked the beginning of a long process of population decline and economic stagnation. As a matter of fact, the Irish population began to increase substantially only in the late 1970s.

As is well known, the famine was marked by a massive emigration particularly to England and to the United States.

The food scarcity problem in North Korea differed markedly from these cases in at least two ways:

- According to North Korean data there was no population decline.
- Although some people moved to China there was no *massive* emigration (otherwise there would have been a drop in population).

Other cases of inflated death estimates

In the natural sciences like physics and chemistry there is a basic principle which is to never draw a conclusion from a single case. For instance, in the study of the free fall of an object under the influence of gravity one does not study the fall of just *one* object. One studies (and wants to explain) the fall of all objects whatever their size, density or shape and whatever the fluid in which they fall. It is only when this objective is achieved that one is able to claim a real understanding of the phenomenon.
Should we not do the same here?

In other words, if the reports about hardship and fatalities have been inflated (willingly or not) in the case of North Korea is it not natural to think that there have been similar episodes elsewhere? If we can find a collection of such cases we will be in a much better position for understanding the phenomenon. Naturally, this is a fairly ambitious objective because it requires to study cases in different times and places. In this section our objective will be more modest. We will describe a few cases for which there is fairly good proof of doctored fatality data. A more thorough investigation will be conducted in the near future.

How many Kosovars were killed by Serbian forces in 1999?

Let us first briefly recall some background information.

Background information

The region of Kosovo has been part of Serbia for a long time but in spite of enjoying a large degree of autonomy as indeed the other regions of the Yugoslavia Federation there has been an enduring agitation for independence[32]. Naturally, the accession to independence of many countries formerly part of the USSR, the subsequent disintegration of Yugoslavia and the nationalistic reaction in Serbia gave a new impetus to separatism tendencies. In 1998-1999 the conflict between the pro-independence guerrilla (the Kosovo Liberation Army or KLA) and Serbian forces became more acute[33]. As in all civil wars[34] there was a spiral of violence and retaliations.

When NATO aircraft began to bomb Kosovo and other parts of Serbia (24 March 1999) there had been only a limited flight of Kosovars to nearby countries, namely Albania and Macedonia. On March 19 the United Nations High Commissioner for Refugees reported that 28,000 Kosovo Albanians had already crossed the border to

[32] More details can be found in Roehner (2002).

[33] The last Report on Kosovo before the beginning of the bombing campaign was released by the UN Secretary-General on 17 March 1999. It shows that with respect to killings and kidnappings the responsibility was shared by the two sides.

[34] As well-known examples of gruesome civil wars one can mention the American Civil War, the Spanish civil war, the conflict between Croats and Serbs during World War II.

Fig. 3: Map of Serbia, Vojvoidina, Montenegro and Kosovo.

these countries. (NYT 11 May 1999). In later weeks the flow of refugees became much larger reaching close to a million. As during these weeks the bombing campaign was in full swing with thousands of raids taking place during night and day it is difficult to say if they fled the bombs or the threat of Serb forces[35]

Similarly and fairly uncontroversially, the vast majority of the war crimes[36] which eventually came to light took place after the bombing began. In other words, they were hardly the reason of the intervention but rather its consequence.

[35]Some of the refugees made clear reference to the bombing campaign as the reason of their departure. Here is one testimony: "Her sons [the sons of a refugee] were terrified by the thunderous concussions of NATO bombs" (NYT 20 April 1999). Of course, this is not an aspect to which much attention was given in the interviews of the refugees that took place in Albania or Macedonia.

[36]The Racak massacre of 45 people on 15 January 1999 is an isolated exception.

What was eventually the death tool of this conflict? Estimates made with the benefit of hindsight in 2002-2003 suggest that there were fatality numbers of similar magnitude for the three following kinds of victims: (i) Kosovars killed by Serb forces (ii) Serbs living in Kosovo who were killed by Albanian Kosovars (especially in the months following the bombing campaign) (iii) Serbs and Kosovars killed by NATO bombs. Each one of this number is estimated to be around 1,500 (with estimates ranging from 1,000 to 2,000). By adding together the victims of the war crimes attributed to the Serbs (see for insistance the list given on Wikipedia in the article on the Kosovo war) one gets a total of 594. The order of magnitude of this number is consistent with the body count that we cite below.

Naturally, as in all wars, it was essential to win the broadest support of public opinion especially in the countries which took part in the NATO offensive, that is to say the United States and western European countries. The NATO offensive has been started to prevent ethnic cleansing by Serb forces, so any proof (or allegation) of massacres of Kosovars was a step in the right direction from the point of view of NATO commanders and officials at the US Department of State.

Newspaper excerpts

As we have already done for North Korea we will again rely on excerpts of the New York Times. In selecting these excerpts our main goal is to show that the dynamics of this episode was basically the same as in the case of North Korea. First, there was a phase during which a broad range of death estimates was circulated along with horrific stories but still with an interrogation mark. In the second phase, an estimate of 10,000 deaths was selected as the most reliable. In subsequent years and numerous articles it was presented as *the* truth. This last phase was previously referred to as the consolidation phase.

Phase 1: April-June 1999

- NYT 19 April 1999. In San Francisco on Thursday [15 April] President Clinton said that the Serbs had displaced "over a million Kosovars" and had killed and raped[37] "thousands upon thousands of them"
- NYT 19 April 1999. The State Department said that more than 400 cities, towns and villages in Kosovo had been destroyed by Serbian forces and it released a list of more than 100 places in Kosovo where "war crimes or violations of international humanitarian law" had been reported.

These numbers, especially the first one, are supposedly based on aerial photographs.

- NYT 1 May 1999. Near Orahovac, as many as 700 Albanian men were used

[37] In such conflicts the allegation about rapes can hardly ever be verified because only a small percentage of the victims complain openly and, in contrast to killings, there is no possibility of body counts.

as human shields last week. The men were forced to stand in front of tanks in the rain for two days with their hands tied behind their heads. A few eventually escaped by paying the soldiers 10,000 German marks, about $5,400.
A story which although not very plausible (it seems physically impossible to stand with hands behind the head for so long) sounds true because of the details which make it real.

- NYT 11 May 1999. A report of the State Department said that refugee accounts suggested that Serbian forces had executed more than 4,000 Kosovars.

[*However the article adds:* there was no suggestion that American intelligence agencies had been able to verify most, or even many, of the accounts by the refugees of war crimes.
The doubts which are expressed show that one is still in the initial phase, not yet in the consolidation phase. But the later would begin soon after President Milosevic was charged with war crimes on 27 May 1999.

Turning point in late June 1999: the figure of 10,000 deaths becomes "the" truth

- NYT 18 July 1999. At least 10,000 people were slaughtered by Serbian forces during their three-month campaign to drive the Albanians from Kosovo, according to war crimes investigators, NATO peacekeeping troops and aid agencies struggling to keep up with fresh reports each day of newly discovered bodies and graves. Mr. Williamson, the tribunal official, said the numbers had grown to 280 grave sites with more than 6,100 reported bodies.

The number of 10,000 will become the accepted truth for American officials in spite of the fact that actual evidence did never reveal more than 2,000 deaths. In particular the number of 6,100 bodies is a highly inflated estimate in so far as one year later, in October 2000, only 2,788 bodies had been exhumed in Kosovo. Up to July 1999 2,150 bodies had been discovered of which 850 (40%) were thought to be victims of war crimes (Agence France Presse 3 August 1999: "Top UN official in Kosovo sparks storm over mass grave body count").

- NYT 10 December 1999. The State Department estimated today that 10,000 Kosovar Albanians were killed this year in the Serbian campaign to force out the Albanian population. The estimate of deaths is broadly in line with those provided by newspaper accounts and in recent months by human rights groups and the United Nations, as well as by NATO.

The suggestion which is made here is that such a convergence makes the estimate reliable. This is not true however because the only reliable data are the body counts and these are much lower.
Investigators of war crimes have exhumed 2,100 bodies. Investigators said they believed that they would uncover thousands of additional bodies next year.

In fact the campaign of 2000 led to the discovery of only 638 bodies. As the count was not in agreement with the 10,000 it was suggested that the Serbs had been able to destroy some evidence. Indeed, in 2001 there were some discoveries in Serbia. These numbers were in the hundreds, however, not in the amount of several thousands as would have been required to reach the "target" of 10,000.

- NYT 6 August 2000. Despite revisionist claims to the contrary, original NATO estimates that more than 10,000 Kosovar Albanians were killed in Kosovo by Serb police and paramilitaries between March and May 1999 will be proved right. [*When and by whom?*]

Consolidation phase, mid-1999 to now: 10,000 deaths is the truth After July 1999 the 10,000 deaths attributed to the Serbs remained the truth until now in spite of the fact that the number of bodies exhumed and attributed to Serb killings never exceeded 1,500. Of course, as will be seen in the following excerpts, the 10,000 estimate is never attributed to the US State Department but always to independent, non-American organizations most often the UN.

An investigation using the search engine of the New York Times shows that between 1 January 2002 and 31 December 2009 the two key-words "Kosovo" and "10,000" appear together in 72 articles (that is about once every month). In fact, almost every time that Kosovo and Serbia were mentioned in the same article this figure was cited, even when the main subject of the article was fairly different. Just like the 2 million deaths in North Korea, the 10,000 deaths in Kosovo became "the" truth being repeated over and over again.

Here are a three examples:

- NYT 15 February 2005 *Title: Serbian President visits Kosovo.* Troops sent by the central government in Belgrade to quell an insurgency by ethnic Albanian rebels were forced by NATO-led troops to leave, after being accused of widespread atrocities against Albanian civilians. **The United Nations estimates that up to 10,000 Kosovo Albanians were killed.**
- NYT 6 September 2007 *Title: Serbia says use of force is an option in Kosovo.* **United Nations officials estimate that up to 10,000 ethnic Albanians lost their lives in the conflict.**
- NYT 4 August 2009 *Title: Serbs' claim of Kosovo organ ring is investigated.* A conflict over control of Kosovo in which **10,000 people were killed, most of them ethnic Albanians.**

Whereas, in the first two articles the figure is still presented as an estimate, in the third article it is presented as a fact.

NATO bombings.

Fig. 4: Map showing the locations of NATO bombings which caused the death of civilians. It can be noted that most of these bombings occurred in Kosovo. This is a German map. "Luftangriffe" means "bomber attacks". *Source: Frankfurter Rundschau Online, 28 February 2005*

During April and May 1999 the bombings of civilians was occasionally mentioned but always from the point of view (and with the comments) of NATO officials. It is not that the other version was not available. Of course, Serb news could be read, listened and watched, but exactly as with the North Korean statistical data this source was mostly ignored.

Here is an excerpt about one of these "incidents".

NYT 31 May 1999. About noon today in Varvarin, four allied fighter jets [F-16s aircraft according to other reports] attacked the bridge, dropping precision-guided bombs in two passes in a six-minute raid, the NATO official said. The pilots did not see any civilians when they executed this strike.

A journalist of the "Irish Times" was not far away. He wrote that the area around the bridge was filled with hundreds of people celebrating an Orthodox holiday in and around the nearby church, a market place and a fairground. The photographs that he took can be seen on the Internet. Apart from the 10 civilian who died, they show that this was a very narrow bridge of limited usefulness (200km away from Kosovo). They also show that other houses nearby were damaged as well.

A "truth" building machinery

In the case of North Korea the "truth" favored by the State Department was that in the wake of the collapse of the Soviet Union there was a great famine in North Korea

which cost 2 million lives. As shown earlier, apart from more specific arguments, this version should have raised suspicion for the simple reason that the alleged famine occurred around 1998 that is to say 8 years after the collapse of the Soviet Union in 1990.

In the case of Kosovo the "truth" favored by the State Department was that the NATO strike prevented the Serbs from carrying out a campaign of ethnic cleansing in Kosovo. This version ignored the fact that the flight of the Kosovars really began only after the bombing campaign started. Before 24 March 1999 the conflict in Kosovo was between the guerrilla troops of the KLA and Serbian forces[38].

After an initial phase that lasted some 3 months (from April to the end of June) during which various data were circulated, the figure of 10,000 Kosovars killed by the Serbs became the official version. It would then be repeated at the average rate of once every week.

So far, we have described the accounts of the New York Times. It would be a fairly tedious task to show that the stories about Kosovo in the other US media were fairly similar. Just to show that such an assumption is not unreasonable we give below two excerpts. It will be seen that the sentences are very much the same as in the New York Times.

- In the "Seattle Times" of 5 July 2010 one reads: "Some 10,000 Albanians were killed and close to a million forced out of their homes". As was the case in the New York Times this sentence appears in an article whose title is "Serb lawmaker shot in Kosovo" which has no direct relation with the Kosovo War. Altogether (as of 6 October 2010) there had been 184 articles in the Seattle Times which mentioned the key-words "Kosovo" + "10,000".
- In "USA Today" of 10 May 2010 one reads:

The mass atrocities that were committed during the bloody Serb crackdown on the Kosovo separatists that killed at least 10,000 people and left nearly a million displaced."

In other words, in addition to being repeated in the same way in the course of time this message was also repeated identically across a broad spectrum of newspapers. From the perspective of social phenomena such a broad consensus (especially about an account which is not true) requires an explanation. During a war, newspapers accept usually to cooperate with the government for preventing leaks of sensitive information. But what was the rationale here?

The State Department's rationale for rewriting history

[38] In other words, this was a conflict of the same kind as those which have been going on for years in Kashmir, in the South of Thailand or in Sri Lanka without triggering any US Intervention.

Posing the problem

Needless to say, all nations write (and rewrite) history and especially their own history in a way which is consistent with how they see themselves. In history books published in the United Kingdom the British Raj [39] will be presented in a more favorable light than in books published in the United States. For instance one should not expect to see in a British book a serious investigation of the number of Indian people who were killed in retaliation after the Sepoy Rebellion of 1858. This attitude is well understandable because for almost one century between 1850 and 1947 the British Raj was part of the core identity of the British nation. Similarly, an European historian who would try to write a more realistic history of the American War of Independence would certainly be ignored both by the American public and by US historians.

For Kosovo we are on a different ground because this has no connection with the core identity of the United States or of the other countries which took an active part in the NATO operation. Here the matter is not a question about identity but rather a political issue. In rewriting the history of the Kosovo War the objective was to provide a justification of the NATO intervention. Naturally, it is the very decision of waging this campaign which made such a justification indispensable.

Thus, we must understand what was the rationale behind this decision. Was the objective of the United States only to bring peace to the region by solving a problem that the European countries were obviously unable to handle? It may have been one of the objectives, but if we want to get a deeper insight we should not limit ourselves to just one case. The more (similar) cases our explanation can account for, the more satisfactory it will be.

Expansionism of great powers

As in the game of chess, the strength of a great power can be measured by the area of the checkerboard that it can control, in other words by the number of close allies that it has across the world. This is nothing new. Only the forms of this criterion have changed in the course of time.

- In the Middle Age, the power of a duke or of a king could be measured by the number of his vassals.
- In the 19th century the power of a nation was in proportion to the size of its colonial empire. In control of the largest empire, Britain was also the dominant country. When a country was defeated in a war (e.g. Germany or Turkey in the First World War) it lost its colonial empire. On the contrary, the victors (e.g. Britain, France or Japan) received the colonial possessions taken away from the defeated

[39] This expression which uses the Hindi word “raj”, meaning reign, refers to the British colonial empire in South Asia which included Bangladesh, Burma, India, Pakistan, Singapore, Sri Lanka.

powers.

- The Cold war was largely a struggle between the United States and the Soviet Union for winning more countries on their sides. When all Eastern European countries defected to the western side, the Soviet Union suffered a great defeat which was made worse when many Soviet republics followed the example set by the East European countries.

In this light the attempts made by the US State Department to destabilize the governments of Cuba or North Korea have an easy interpretation. They tend to complete the victory won in the Cold War by eliminating the last Communist regimes. Propagating the story of a great famine in North Korea certainly goes in this direction because this emphasizes the economic failure of the Communist system and stigmatizes its leaders[40].

The lasting results of the operation in Kosovo and Serbia

The case of Kosovo is far less clear however. It is true that Yugoslavia was a Socialist Republic and that its president, Slobodan Milosevic, was a Serbian communist leader. Yet, in 1999 Yugoslavia had already disintegrated into several countries the independence of which was quickly recognized by the allies of the United States and particularly by Germany. In order to understand the move that led to the Kosovo war it is useful to compare the situation before and after the war in terms of political allegiance.

Table 3 Political situation in Yugoslavia before and after the Kosovo War (1998-2001)

	1998	2001
Serbia	Leader who antagonized the US	Close ties with the US
Montenegro	Ally of Serbia	Close ties with the US
Kosovo	Powder keg	Close ties with the US

Notes: Testimony of the close ties between post-1999 Kosovo and the United States was the construction of the big US base of Camp Bondsteel in eastern Kosovo near Urosevac (see Fig. 3)

Table 3 shows that the Kosovo operation was highly successful in the sense that it turned 3 regions from opponents to allies and allowed the construction of the US base of Camp Bondsteel. As explained on 5 June 2001 by US Secretary of Defense Donald Rumsfeld to troops at Camp Bondsteel such bases are an essential element of US prosperity.

[40]Remember the sentence cited in the book review by Bruce Cumings: “Kim Jong Il has the blood of 4 million people on his hands”. If you were a head of state would you like to meet a president who has the blood of so many of his citizens on his hands?

> "How much should we spend on the armed services? My view is we don't spend on you, we invest in you. The men and women in the armed services are not a drain on our economic strength. Indeed you safeguard it. You're not a burden on our economy, you are the critical foundation for growth."

It would be interesting to explain this statement in more detail but it would lead us too far away from our present topic.

Fig. 5a: Aerial view of camp Bonsteel in Kosovo. The camp was built after the action of NATO against Serbia in June 1999. Established near Urosevac in eastern Kosovo (see the map in Fig. 3) it houses 7,000 US troops. *Source: Wikipedia, entry "Camp Bondsteel" (public domain).*

Fig. 5b: The five occupation zones of Kosovo. KFOR entered Kosovo on 12 June 1999 after the adoption of UN Security Council Resolution 1244. The French sector is in the north; the US sector is in the south-east. *Source: Wikipedia, "KFOR" (public domain).*

How did a friendly government emerge in Belgrade?

Table 3 does not refer to the situation in 1999 after the Kosovo war, it refers to the situation 2 years later after the elimination of President Milosevic. It is highly likely that one of the objectives of the bombing campaign was to destabilize the Milosevic government in the same way as a major objective of the First Gulf war was to remove President Saddam Hussein. In both cases this objective was achieved only later on.

In the second case this objective was achieved through the Second Golf War. How was it achieved in Serbia? This result was obtained by funding, organizing and encouraging opposition groups to Milosevic. It would take us too far away from the topic of this study to explain how this was done; more details can be found in an article by Roger Cohen (2000) in the New York Times.

One must take a moment to realize how an extraordinary achievement this really is.

During this crisis the United States had: (i) played a leading role in the bombing campaign against Serbia and Kosovo (ii) pictured Serbian armed forces as having committed atrocities and massacres on a large scale (iii) encouraged the independence of Kosovo and Montenegro.

After that, one would expect the Serbian people to develop a bitter hostility against America. Surprisingly, this is not at all what happened.

Less than two years after the bombing campaign the Serbian people brought to power a government which was on the US side to the point of delivering their former president to the international tribunal in The Hague. Actually, this is not an isolated case. The bombing of Italy, Germany, Japan, Panama, Iraq also brought to power pro-US governments. In the case of Serbia the *tour de force* is that, in contrast to the other countries, this was achieved *without* a military occupation. It is the magic of massive public relations campaigns together with steady support provided to opposition groups which did the trick.

Two more cases: Syria-Lebanon and Tibet

In this section we briefly mention two other stories just to suggest that there is indeed a large set of similar cases. In the short accounts that follow we will raise questions rather than provide answers.

In search for the truth

Our objective is the same as in the rest of this chapter, namely to suggest that even stories which were (and still are) repeated for years in all media may not necessarily be true. In so doing, we simply follow the precept given by the philosopher and physicist René Descartes. At that time[41], conceptions and understandings were distorted by the influence of religion. Actually, back in the 17th century, the Church was shaping public opinions very much in the same way as the media are molding our own opinions nowadays. Religious prejudice, widespread deceptive evidence or trumped-up statements are hardly conducive to fruitful scientific investigation. Thus, as in the days of Descartes, social scientists must begin by filtering out falsehoods. It is the necessity of such a step that we wish to emphasize. If historical accounts that we think reliable are in fact riddled with misrepresentations any attempt of developing a real understanding will fail from the start. Let us illustrate this idea by an example.

Misrepresentation of the occupation of Japan

In all accounts of the occupation of Japan that I have been able to read (whether written by Americans, Australians, or Japanese) the reality is misrepresented in many important ways[42].

- We are told that there were no confrontations between Americans and Japanese. In fact, there were hundreds. Just to mention a few of the incidents: military trains

[41] The "Discourse on method was written in 1637 that is to say 4 years after the trial of Galileo in Rome by the Church.
[42] For more details, see Roehner (2008)

were fired at, allied warehouses and barracks were set afire, allied soldiers were beaten.

- We are told that the country was ruled by the Japanese government and the Diet. In fact, all and every law proposal or government order had to be submitted to and approved by American headquarters.
- We are told that the occupation was an introduction to democracy. In reality, censorship was everywhere: phone calls, private mail, books (the publication of the account of the "Tokyo War Crimes" trial was not allowed, it was published in the months following the Peace Treaty), newspapers, radio broadcasts films, kabuko theater, post stamps, songs (performance of the national anthem "Kimigayo" was not allowed). What can be the meaning of the word "democracy" under such conditions?
- We are told that US authorities provided relief when food and other commodities were in short supply. This is indeed true, but at the same time Japan had to export coal and other products to Korea and China. Moreover, the Japanese government had to pay the cost of the occupation (about one fourth of the budget) as well as the commodities provided by the Allies.
- We are told that the United States encouraged the economic development of Japan. In fact, occupation authorities severely curtailed it at least until 1948. For instance, there was a production ceiling for cars and trucks and a limitation on the size of ships that the Japanese were allowed to build.

Of course, such a misrepresentation had its usefulness in so far as it contributed to make Japan into a trusted ally of the United States.

As already stated, the principal objective of any major power is to turn hostile or non-cooperative governments into friendly governments. We are taking a particular interest in the actions of the US government because it has developed a whole array of tactics and strategies that in terms of effectiveness surpasses by far what is being done (or has been done in the past) by other powers. The two following stories illustrate two aspects of such strategies.

Syria and Lebanon

From the perspective of the US State Department there were basically 4 hostile forces in the Middle East in the early 2000s, namely Iran, Iraq, Syria and the Hezbollah movement in South Lebanon[43]. The ideal scenario would have been that by destroying one of the nodes of this network the others would also collapse. This kind of domino effect worked well in Eastern Europe in 1989-1990. This was probably one of the objectives behind the invasion of Iraq in March 2003. Yet, in late 2004 it be-

[43] After winning the Palestinian legislative election of January 2006, Hamas (mainly, but not only, established in the Gaza Strip) became a fifth hostile component.

came obvious that there would be no domino effect. Therefore something else had to be tried especially against Syria and Hezbollah which appeared as the weakest nodes.

During 2005 a vast public relation campaign was orchestrated for the purpose of charging the Syrian government of Bashar al-Assad with the assassination of former Lebanese Prime Minister Rafic (also spelled Rafik) Hariri on 14 February 2005. Although the truth is not yet known (perhaps it never will) enough is known to understand that the investigation led in the name of the United Nations by the UN prosecutor, Detlev Mehlis, was highly biased. For instance, pro-Syrian Lebanese officials were jailed for over 3 years without any charge brought against them; in addition there were false witnesses and trumped-up testimonies as well as other irregularities. More fundamentally, Syrian implication was the only line of investigation that was followed; other possible leads were completely ignored. Such information was leaked progressively in the course of time. However, when the first report was published in October 2005 few (if any) media were able or willing to question the procedure or its conclusions. There was the same consensus as in the two cases that we discussed earlier.

Other attempts were made to reduce this network of opponents.

- Israel tried two military operations: one against Hezbollah (12 July 2006–14 August 2006), another against Hamas in January 2009.
- After the Iranian Presidential election of June 2009 a large-scale media campaign was conducted to bolster the protests of opponents in Iran. In this matter the question of whether or not there were irregularities is largely irrelevant. Indeed, it is obvious that elections with fraud on a much larger scale (such as the two elections, presidential and legislative, in Afghanistan in 2010) did *not* lead to media campaigns of sizeable proportion.

What will be the future? Of course, nobody knows. In recent years there have been much speculations about a bombing campaign against Iran. The previous examples of North Vietnam in 1965-1972, Iraq in 1990-1991 or Serbia in 1999 clearly suggest that bombing campaigns without ground forces cannot destabilize a government even when there is a fairly strong domestic opposition movement as was the case in Serbia. Of course, this does not mean that there will be no bombing operation for history shows that the same mistakes are repeated over and over again[44].

There are good reasons for a return to the policy of military intervention. After all, US bases and naval forces across the world must have some action opportunities. Is this not the best possible training to keep them in good shape? And US Army contractors must have new profit openings.

[44]For instance, Hitler wanted at all cost to avoid a war on two fronts; nevertheless this is what happened.

Over the past 50 years there has been at least one new US military intervention every decade. In 1982-1984 US Marines were sent to Lebanon; in 1990-1991 there was the First Gulf War; in 2001 the invasion of Afghanistan; in 2003 the invasion of Iraq; in early 2010 substantial reinforcements were sent to Afghanistan. So, it seems that military interventions became rather more frequent in recent years. It would be surprising therefore not to see a new major intervention in the next five years that is to say over 2011-2015. Iran, of course, would be the most obvious target at least if the present regime cannot be brought down by providing additional support to domestic social and political opposition movements.

Tibet

The story which is repeated in almost all media is that Communist China invaded Tibet by force in 1950 and that in the repression of various uprisings that followed over one million people were killed. This is certainly not the true story. However, we will refrain from giving an historical account because this would lead us too far away from the purpose of this chapter[45]. In line with the inquiries conducted in the previous section, we will focus here on the question of the number of deaths.

Fig. 5 shows the population pyramid of Tibet as observed in the census of 1982, a census whose reliability is recognized by most western demographers.
One does *not* see any substantial reduction of the male adult population; nor does one see any abrupt reduction in birth rates of the kind which usually go with periods of severe hardship.

Only few people have had access to the archives held by Tibetans in exile in India in which the testimonies of witnesses of killings are reported. In spite of being a militant of the "Free Tibet" movement, one of these persons (see French 2003) writes that such testimonies have been recorded by accepting even flawed evidence[46].

- Hearsay and second hand evidence was accepted.
- No attempt was made to see if the same incidents were not counted several times by different witnesses.
- There were no attempts to check the global estimates made by refugees. This is usually the most serious problem. It has already been mentioned in relation with the famine in North Korea and with the killings in Serbia. In each case, refugees came along with global estimates that they were in no way able to substantiate through personal observations.
- No tribunal would accept written testimonies without being able to cross-examine the witnesses. After all, they may have been written or at least comple-

[45] Interested readers can find more details in a related study by the present author (Roehner 2010) which is available on his website.

[46] After Irish rebellions the English authorities pioneered similar methods In many places they led to numbers of protestants allegedly killed which surpassed by a wide margin the total protestant population.

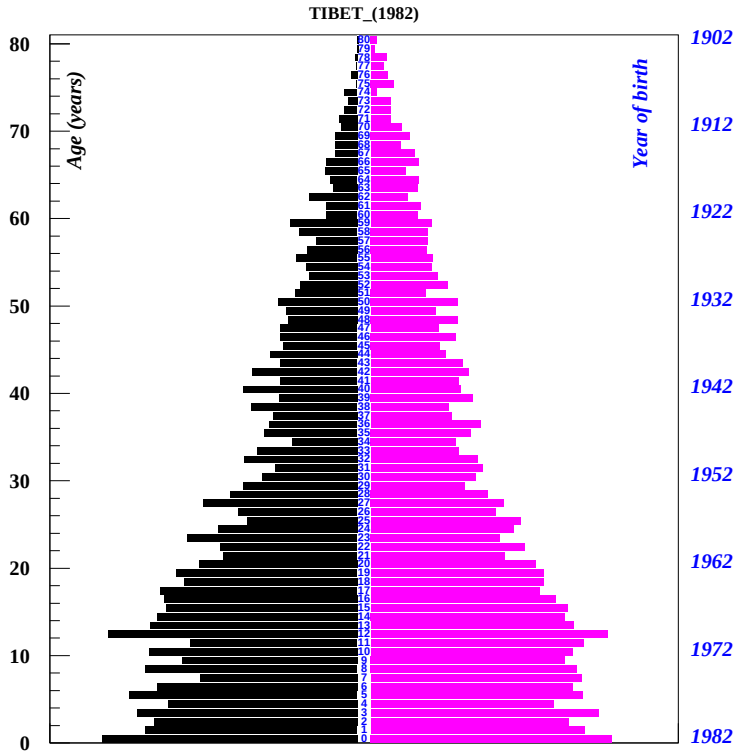

Fig. 5: Population pyramid of Tibet. Except for random fluctuations due to the small population and to the 1% sampling proportion, this population pyramid is the most regular of all the pyramids of Chinese provinces. In particular, it shows no reduction in number of births around 1961 and its male/female ratio is not substantially (and steadily) different from 1. As a death toll of one million would represent almost the whole male population of Tibet it would have a dramatic and clearly visible effect on the population pyramid. *Source: IPUMS International (University of Minnesota), 1% sample of Chinese census data.*

mented by a clever writer.

The objective of one million Tibetans killed was set to high to be plausible. The State Department experts should have first taken a look at the population pyramid and then set a target compatible with it. No doubt this procedure would have led to a much smaller number.

Conclusion

The palette of actions of hegemonic powers comprises mainly 5 elements:

1 Funding of political groups. This funding may go to opposition groups when the government in question is not favorable enough or to majority groups if he is.

2 Public relation campaigns as those against North Korea or Serbia that we analyzed in the present study.

3 Exerting financial pressure. This means is used especially if the country in question needs a loan or is facing difficulty with its creditors.

4 Bombing campaigns as those against Iraq in 1990-1991 or against Serbia in 1999.

5 Military occupation of the country as in Afghanistan in 2001 and Iraq in 2003.

The overall objective is to replace hostile governments by friendly governments. In so doing, as stated by US Secretary of Defense Donald Rumsfeld, the State Department and the US Armed forces safeguard economic growth in the United States. Because a friendly government will grant more economic advantages than a hostile government, this is an important objective at any time but especially in times of economic crisis.

In short, the 2 million death campaign or the 10,000 killings campaign did not occur just by chance. They were (and still are) important components of a global strategy.

Naturally, these two cases are not the only ones of that kind. As a matter of fact, each campaign against hostile (or not friendly enough) governments comprises the first two elements in the above list. While it is not easy to get reliable information about the first the second one can be seen by everybody. The problem is that when this kind of campaign begins usually one does not have reliable information about the events. That information may become available only years later.

So, what can we do?
I think any media campaign which is both massive and highly consensual (for instance with many websites giving the same message) should raise our suspicion even before one can get the real facts.

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Chapter 3
How many soldiers died?

To be completed

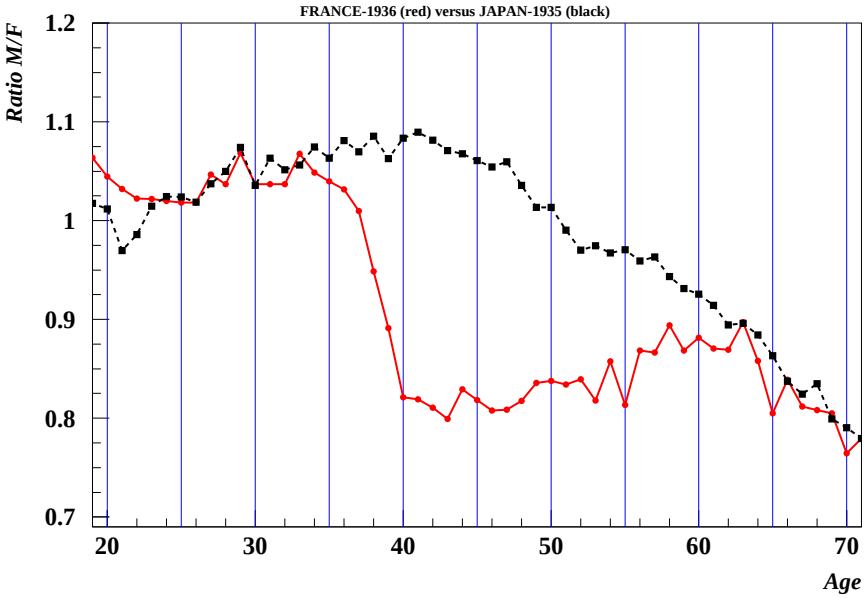

Fig. 1: Male/female ratio in France and Japan. World War I lasted from August 1914 and November 1918. Many French soldiers died on the battlefields. Japan, in contrast, had a very small war toll to the point that it is possible to consider this country as not having been affected by the war. The difference between the two series is largest for people aged 40 in 1936 that is to say 20 in 1916. It decreases for higher age and almost disappears for people aged 60 in 1936 (that is to say 40 in 1916 and 38 in 1918). In other words, this graph shows which age groups were affected and to what extent. *Source: Data for France: Annuaire Statistique de la France 1966, Résumé Rétrospectif. Data for Japan: Historical Statistics of Japan (Website)*

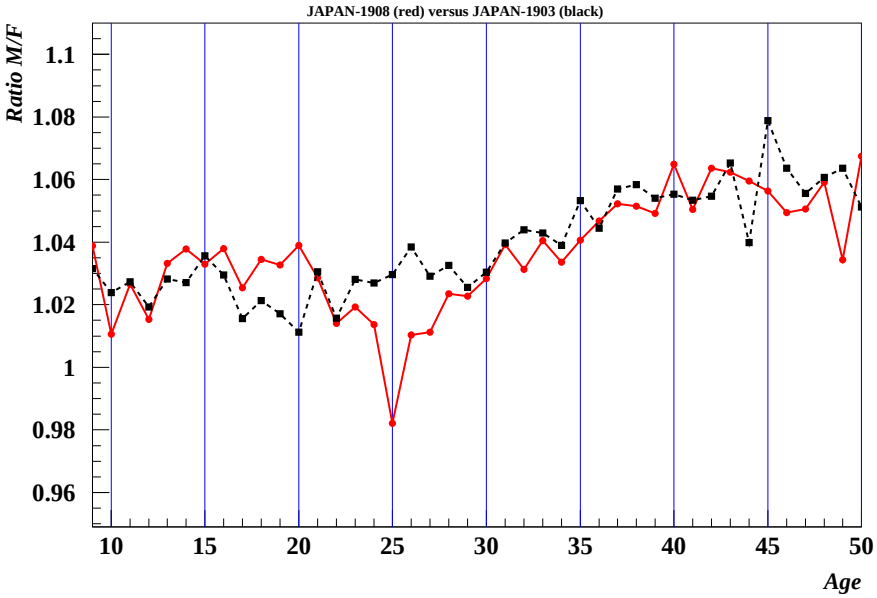

Fig. 2: Male/female ratio in Japan before and after the Russo-Japanese War. The Russo-Japanese War too place from February 1904 to September 1905. The data of the census of 1903 provide a reference benchmark of the shape of Japan's population pyramide in a period without war. The comparison shows that the war did not last long, did not involve many age groups and that the war toll was not very high. *Source: Historical Statistics of Japan (Website).*