

REFLECTION

A History through the Evolution of Longevity

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- 1. The Beginning*
- 2. Evolution of Grandparenthood*
- 3. The Blessing of Survivorship*

1. The Beginning

Genesis 1:1-2:3
The Creation Story Summary:

Day 6 - God created the animals to fill the earth. On day six, God also created man and woman (Adam and Eve) in his own image to commune with him. He blessed them and gave them every creature and the whole earth to rule over, care for, and cultivate.

The Creation of Adam

(Michaelangelo)



The iconic image of the hand of God giving life to Adam
(Michelangelo)



Are We Created?

Adam and Eve *by Lucas Cranach the Elder*



Creation Myth

A creation myth or creation story is a symbolic narrative of a culture, tradition or people that describes their earliest beginnings, how the world they know began and how they first came into it.

(Wikipedia, October 2011)

Table 1: Before the flood: the generations of Adam according to the book of Genesis

Name	Date of birth from Creation	Date of death from Creation
Adam	0	930
Seth*	130	1042
Enosh	235	1140
Kenan	325	1235
Mahalalel	395	1290
Jared	460	1422
Enoch†	622	987
Methuselah	687	1656
Lamech	874	1651
Noah	1056	2006
Shem, Ham, Japheth	1556	?

How did Seth feel, outliving his great, great, great-grandson Enoch by 55 years?

† And how about Enoch, sensing himself slipping away earlier than his father, grandfather, and great-grandfather?

Are We Created or Did We Evolve?

This profound question has remained contested, dicey and in some cases outright controversial in the various arenas of human thought and learned study.

If We Did Evolve



This is a drawing of what *Ardipithecus ramidus* ("Ardi") likely looked like. The 4.4 million-year-old hominid opens up a new chapter on human evolution because, as the lead researcher says, "it is as close as we have ever come to finding the last common ancestor of chimpanzees and humans."
J.H. Matternes/Science/AAAS

So, we believe in evolution

Humanity, like all other life, evolved in a slow process. We were descended from ape-like creatures, as primates, and eventually developed the features we attribute to being human. This happened roughly 2 million years ago.

Answers.com

“Human societies and their evolution may be among the most complex objects available for scientific study.”

World History in Context. David Christian, 2003

We leave the controversy here, and go on to the next Chapter

2. Evolution of Grandparenthood

Caspari, 2011

Reconstruction the demography of ancient populations is tricky business. For one thing, whole populations are never preserved in the fossil records.

People today typically live long enough to become grandparents. But this was not always the case.

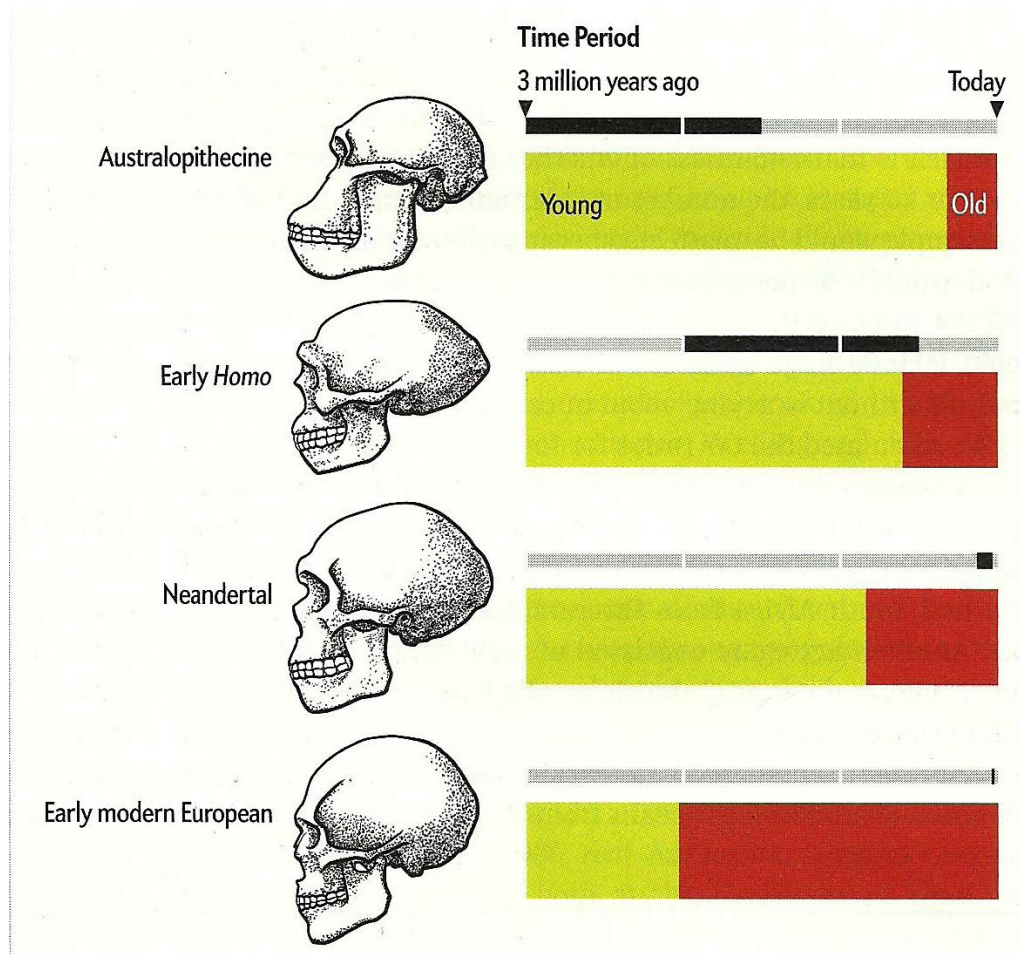
Grandparents were rare in ancient population, such as those of the Australopithecines and the Neanderthals.

Excavations in the town of Krapina, 40 kilometers north of Zagreb, held 70 Neanderthal individuals coming from a layer dated to about 130.000 years ago.

This Krapina Neanderthals had remarkably high mortality rates; no one survived past age 30.

Analyses of the fossilized teeth from hundreds of individuals found in many excavations spanning three millions years indicate that living long enough to reach grandparenthood became common relatively late in human evolution.

Grandparents first became common around 30.000 years ago, as evidenced by remains of early modern Europeans found in the Krapina excavations.

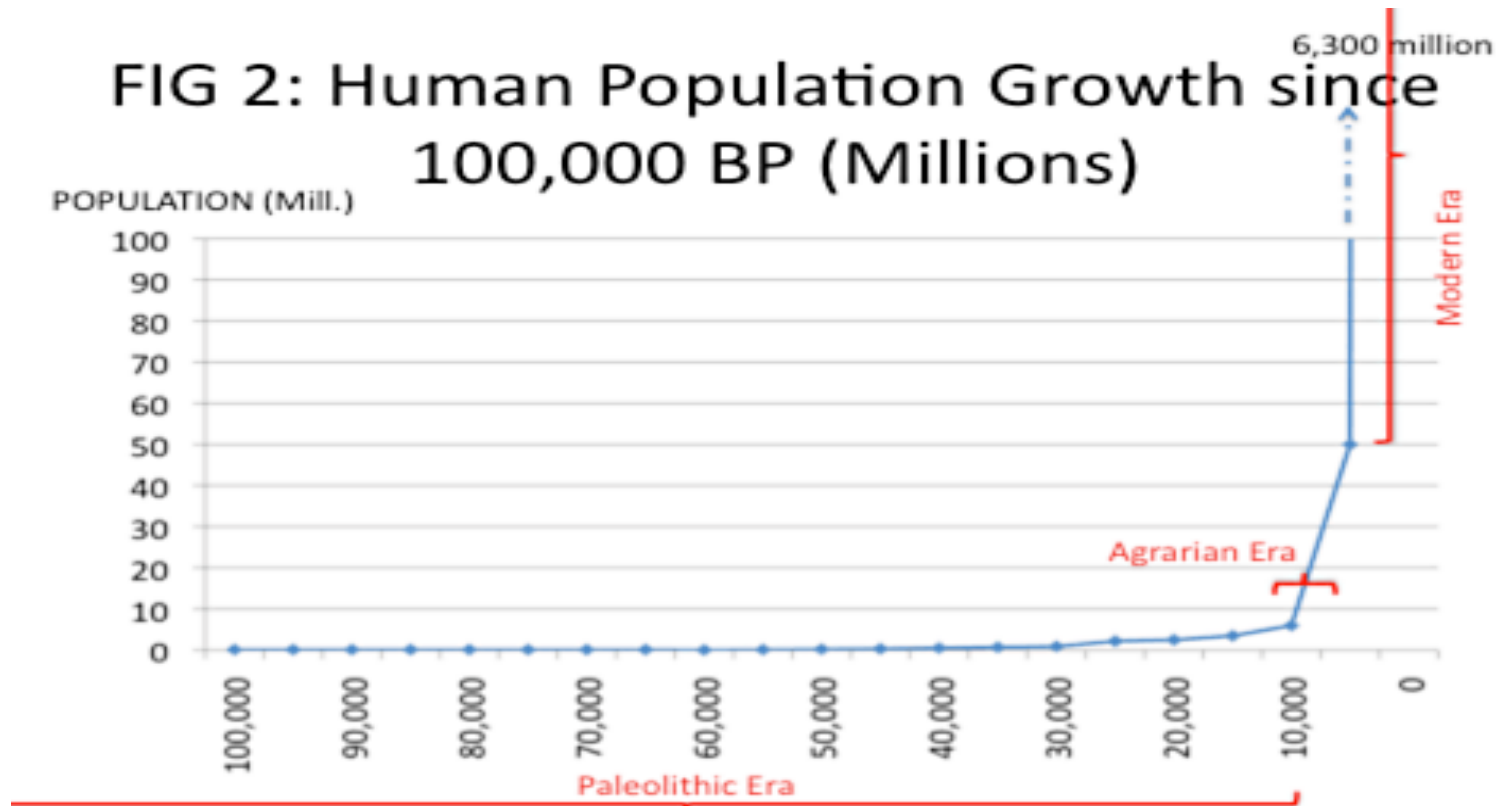


Rachel Caspari and colleagues, 2011

The Maddison Curve

(adopted from David Christian and from Angus Maddison)

FIG 2: Human Population Growth since 100,000 BP (Millions)



FOR SOURCES: Christian, *Maps of Time*, p. 143, + interpolation

Now that the number of potential grandparents surged at some point in the evolution of anatomically modern humans at about 30.000 years BP, there is another question arising. What was it that brought about this change?

Biology or Culture?

Could we trace longevity back to earlier anatomically modern humans who were not yet behaviorally modern?

Research had ruled out the possibility that a biological shift accounted for the increase in adult survivorship.

Instead, survivorship is a late result of behavioral change and cultural development (producing weaponry and tools).

*What was it that brought about the change?
There were two possibilities. Either longevity was one of the constellation of genetically controlled traits that biologically distinguished anatomically modern humans from their predecessors, or it did not come along with the emergence of modern anatomy and was instead the result of a later shift of behavior.*

3. The Blessing of Survivorship

(also by Rachel Caspari)

There can be no doubt that the increased adult survivorship has far-reaching effects. Grandparents routinely contribute economic and social resources to their descendants, increasing both the number of offspring their children can have and the survivorship of their grandchildren.

Grandparents also reinforce complex social connections that linked other relatives in one generation.

Such information is the foundation upon which human social organization is built.

•

In short, grandparents helped spur rise of civilization.

The World Today

*“ We live in an era of unprecedented,
rapid and inexorable global ageing.”*

HelpAge International, 2002

HIGHEST AND LOWEST PROPORTION OF THE POPULATION OVER 65 YEARS OLD

Elderly as a % of total population

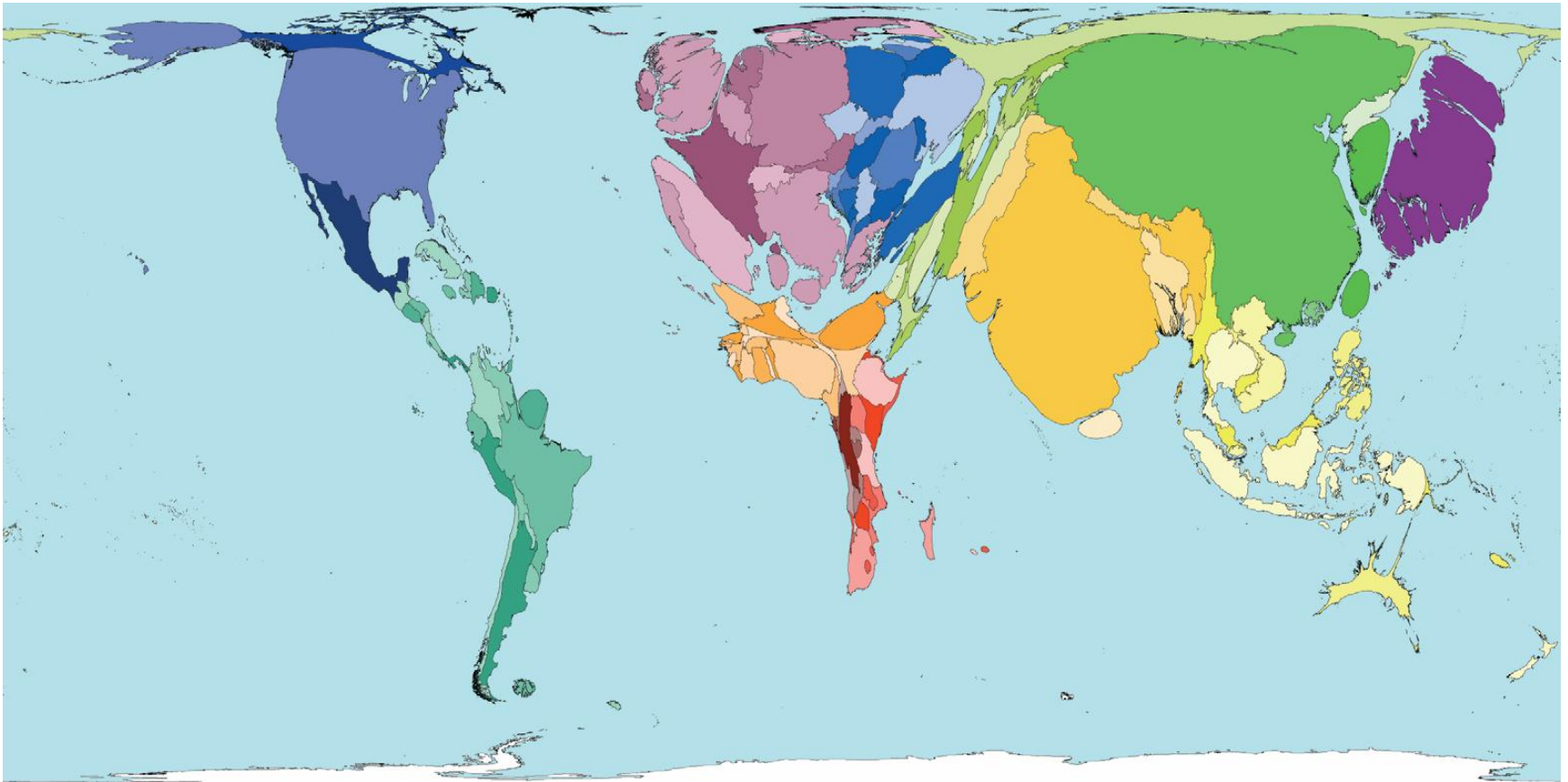
Data source: United Nations Development Programme, 2004, World Development Report

Rank	Territory	Value
1	Italy	19
2	Japan	18
2	Greece	18
4	Sweden	17
5	Belgium	17
6	Germany	17
7	Spain	17
8	San Marino	17
8	Monaco	17
8	Liechtenstein	17
193	Yemen	2
195	Eritrea	2
195	Oman	2
197	Niger	2
198	Qatar	2
199	Kuwait	1
200	United Arab Emirates	1

Total Elderly

This map shows the worldwide distribution of people 65 years and older.

© Copyright 2006 SASI Group (University of Sheffield) and Mark Newman (University of Michigan)



Indonesia today is the fourth most populous country in the world, and tenth largest with elderly population.

In 2020, the number of older people will steadily increase to 28.8 million (11% of total population) while the under five population will gradually decrease in number.

Hence, the increase in life expectancy was predicted from 45.7 years in 1970, to 65.4 in 2000, 69.9 in 2015, 76.9 in 2050, while the increase in number of old people 60+, was predicted from 4.9 million in 1950, to 21.4 in 2010 and to 79.8 in 2050.

By 2050, it is projected that of the 9.1 billion people in the world, fully 2 billion (22%) will be over age 60 and almost 400 million (4%) over 80 years of age (UN, 2009, World Population Prospects, The 2008 Revision).

Table 3. Average daily per capita energy consumption in different historical eras (units of energy = 1,000 calories per day)

	Food (incl. animal feed)	Home and com- merce	Industry and agri- culture	Trans- porta- tion	Total per capita	World popu- lation (millions)	Total energy consump- tion
Technological society (now)	10	66	91	63	230	6,000	1,380,000
Industrial society (100 B.P.)	7	32	24	14	77	1,600	123,200
Advanced agricultural society (1000 B.P.)	6	12	7	1	26	250	6,500
Early agricultural society (5000 B.P.)	4	4	4		12	50	600
Hunting society (10,000 B.P.)	3	2			5	6	30
Protohumans	2				2		

Based on I. G. Simmons, *Changing the Face of the Earth: Culture, Environment, History*, 2nd ed. (Oxford: Blackwell, 1996), p. 27.

49 Million Americans Struggle to Put Food on the Table

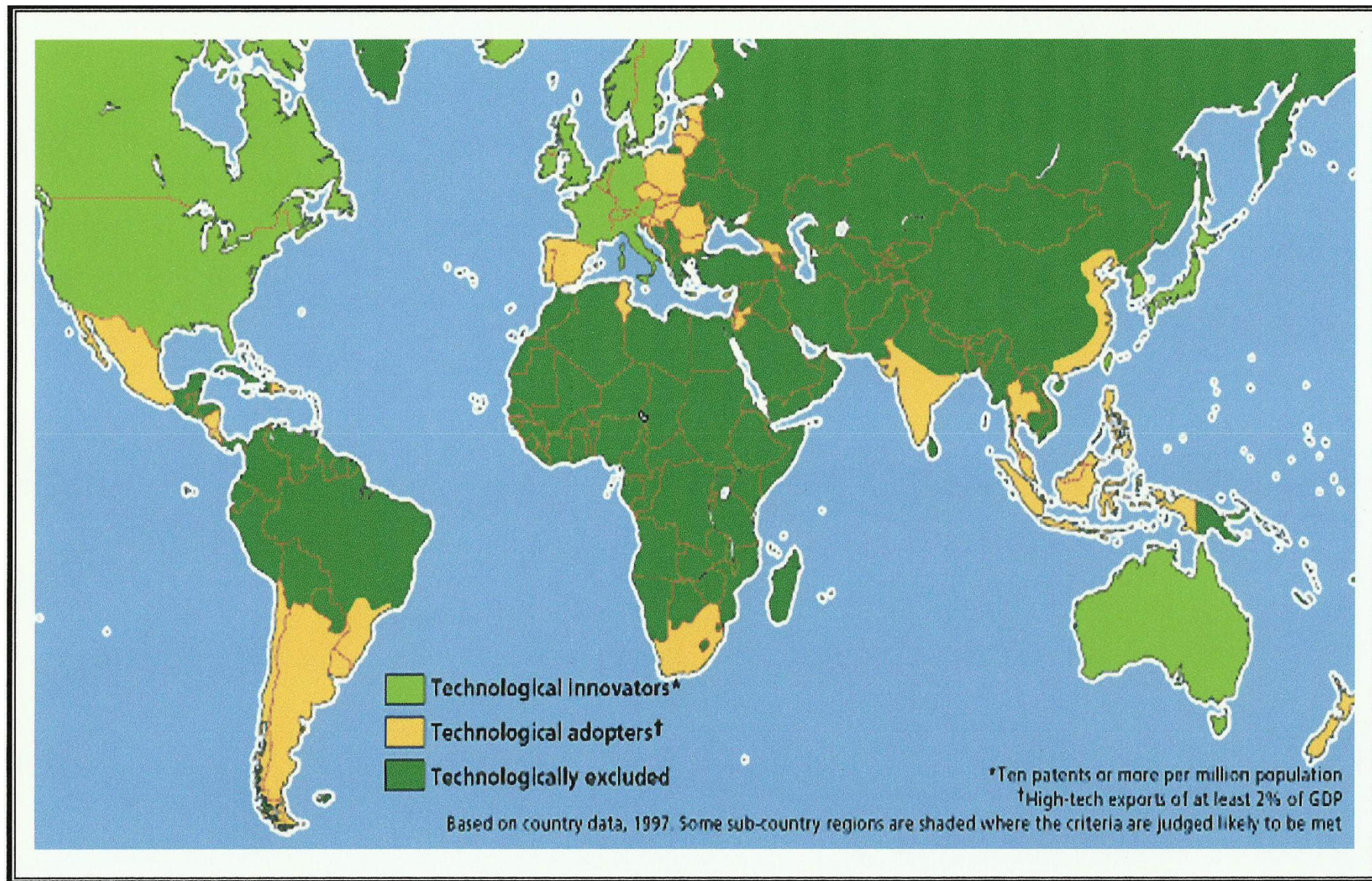
Brenda Goodman

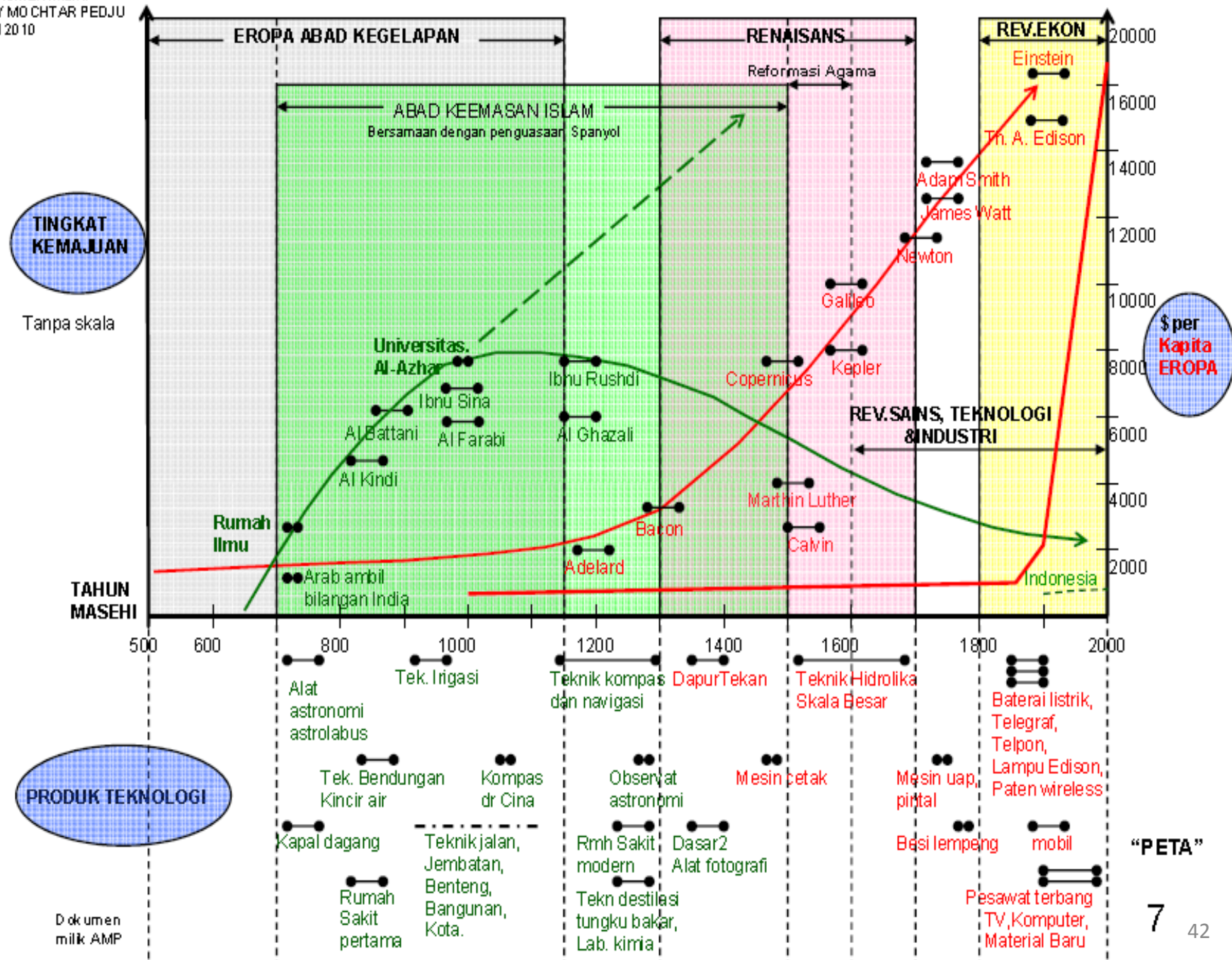
"The economy is really affecting the basic needs of households," says Barbara Laraia, PhD, associate professor in the Center for Health & Community at the University of California, San Francisco. "If people are struggling to get enough food, that means they're really constrained."

Food Insecurity and Health

Laraia says food insecurity isn't just a measure of how much people are eating. It's also a measure of diet quality and overall health.

From Web MD Health News
September 9, 2011





What is on the other side of the coin?

As life expectancy increases and fertility declines, the population pyramid is being inverted – and in some countries that is causing the entire economy to topple.

In the US, the budget battle is really a fight about the old.

United States' favorable demographics relative to Europe, Japan, and even China and Korea is one of the principal reasons to believe the country has a sunny economic prospects.

*Robert Rubin
US Treasury Secretary, 2011*

Programs for the elderly in the US constitute almost half of non-interest government spending, about US\$1.6 trillion of a US\$3.3 trillion total in 2010.

The figure will swell as baby boomers retire.

Freeland, 2011

Cost associated with population aging are estimated to account for about half the public-debt runup of the OECD economies over the past 20 years.

Eberstadt, 2011

Even China, the most brutal apostle of population control, now fears it will get old before it gets rich.

And India, whose fertility was once seen as its national curse, is touted as a rising investment prospect thanks to its “demographic dividend.”

The demographic squeeze may also be contributing to one of the biggest dangers in international finance: the threat of sovereign default.

Alichi, 2011

HIGHEST AND LOWEST PROPORTION OF THE POPULATION OVER 65 YEARS OLD

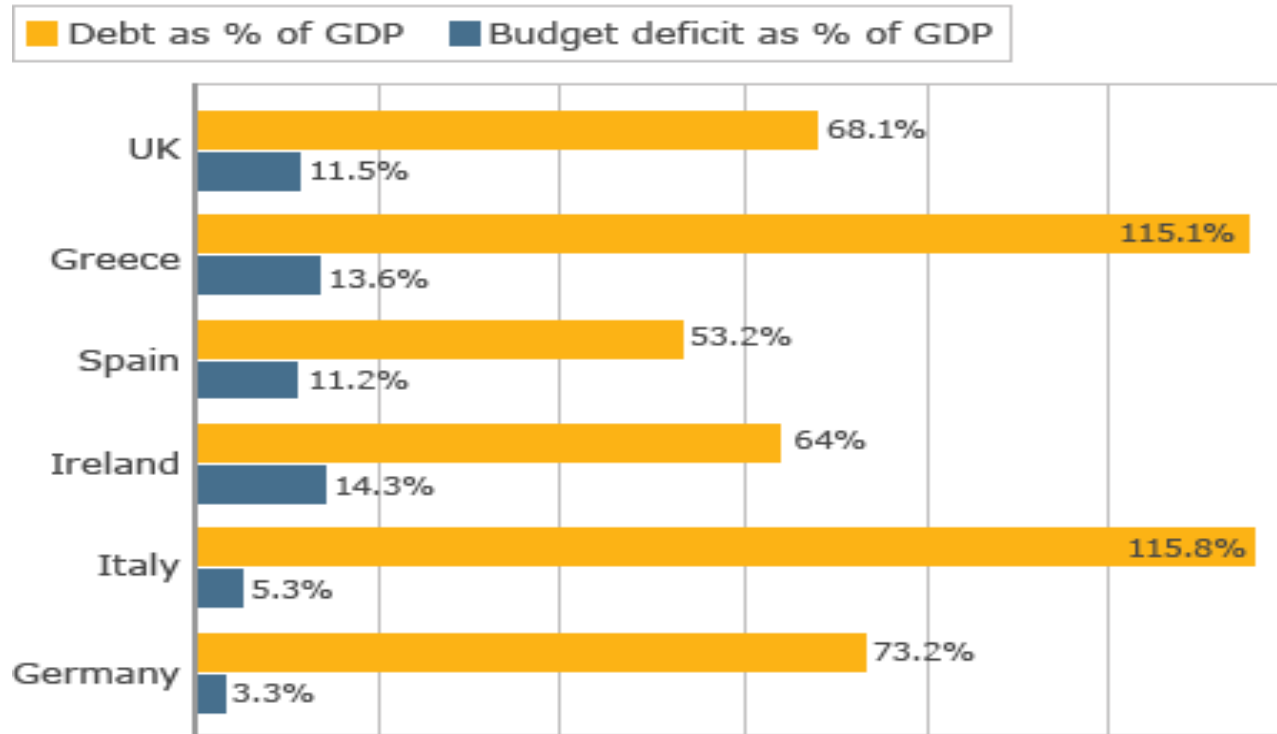
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How country debts and budget deficits compare

First estimates for 2009

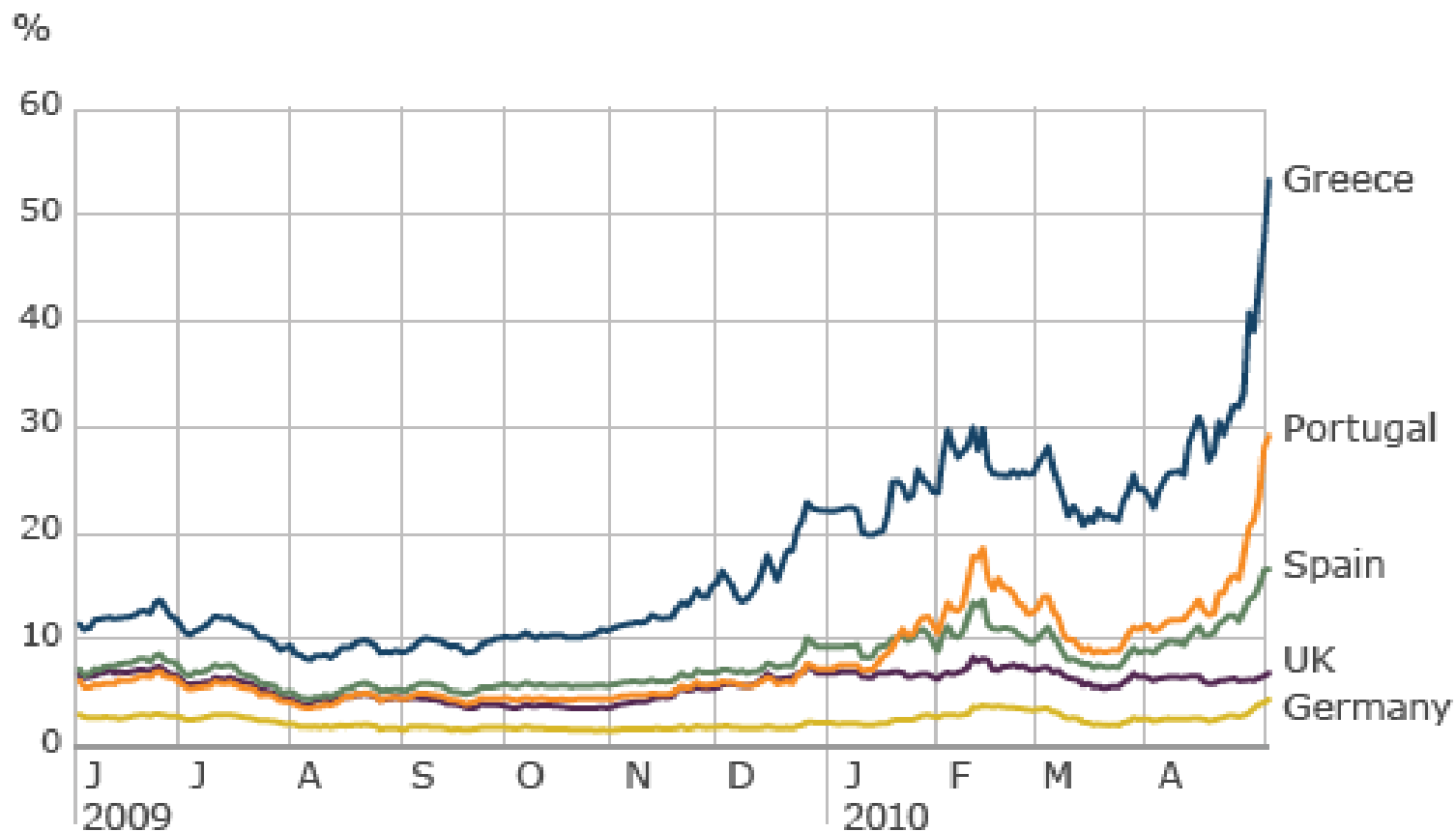


Source: European Commission

How does Greece's situation compare with other countries?

As this chart shows, Greece is not the only nation breaking the eurozone rule which says that the budget deficit in each of the 16 member states must not exceed 3% of GDP.

The UK, whose figure of 11.5% is well beyond the 3% figure, is not a member of the eurozone.



Source: CMA DataVision

PROBABILITY OF COUNTRIES BEING UNABLE TO PAY BACK DEBT

With any debtor, there is a chance they will not be able to repay their debts. These figures in the above graph express the likelihood as a percentage called the Cumulative Probability of Default (CPD)

The figures express the probability of a country defaulting sometime over the next five years

BBC News, 2 May 2010