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More on the 7 Year Economic Cycle and the Bell Normal Curves

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Abstract

Here is a paper on mathematical economics that provides a solution to the old question as to why the economy goes through a 7-year cycle. The answer lies in astrotheology mathematical physics. The Bell Normal Curve is used to explain this phenomenon. The viscous forces in the economy, whatever they may be, must be overcome by the inertial forces. Further study of these forces should be undertaken so that the negative impact of the cycle can be overcome.

Keywords: Bell Normal Curve; Economic cycle; Savings rate; Astrotheology; Mathematics

Introduction

It has been known for some time that the economy goes through a complete economic cycle approximately every 7 years. In a previous paper, I showed that the root cause for this phenomenon is demographics and the fertility of women. Having children necessitates spending. In this paper, we look at the and its equation, apply mathematics from Astrotheology Physics to try to understand why it takes 7 years to come to a resolution of a recession. The answer lies in the inertial forces overcoming the viscous forces as found in the Reynold's number. We begin with the Bell Normal curves [1-2].

Bell Normal Curves

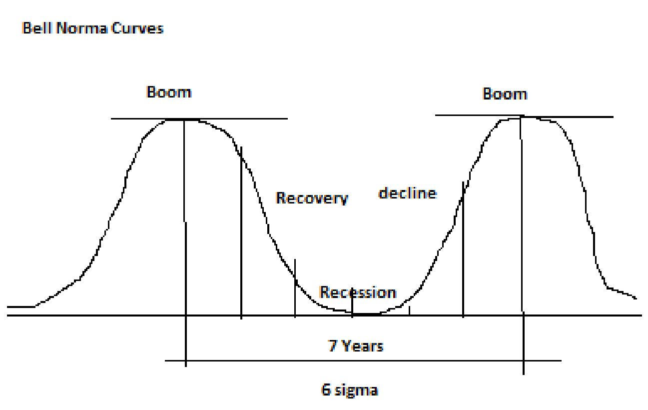

Figure 1: Bell Normal Curve showing the economic cycle.

The equation for the Bell Normal Curve is:

Φ=1/(2π) ∫e-t²/2

Take the derivative,

Φ'=1/(2π) e-t²/2

6=1/(2π) e-t²/2

t=2.6943~2.7=e99.63%e1

-t²/2=6

t=√12=3.46

2t=6.9282~7 years or 1 cycle

Re=Inertial Forces/Viscous forces

Re=ρv/=density * velocity/Poission's ratio

We know from Astrotheology physcs that Re=0.403

Re=(0.127) (sin 1)/(0.27)

=1/25=1/(8π)

=1/ Period T

Since 1 rad=0.4 of a cycle, and Re=0.403,

=1/[(1/(2π))(2π)]

=1

The Viscous forces in the economy equal the inertial forces at the "boom".

Reynold's Number

Re=IF/VF

Density=Mass/ Volume=ρ=0.126

υ=0.27

Re=ρv/υ

v=a=0.8415=sin 1 rad.=sin t =~6σ/7 tears

Re=(0.1272)(0.8415)/0.27)=0.396~0.4=Re

Re=0.4=1/[2π]

=1/253=1/Period T=t

t=1 rad/ (2π)=0.4 of a cycle

t=Re

Now

e6=0.403=Re=t

So the energy in the economy, when the Re=1, or viscous overs inertial forces, is at t=6σ =7 years.

Savings Rate

Φ;=1/(2π) e-t²/2

7 years/ 6 σ=360°

7/60°=1.167=1/(2π) e-t²/2

7.33=e-t²/2

Lnn (7.33)=-t²/2

t=2

Ln 2=0.1353~Savings

Now the Savings=Investments, or S=I

S=1/7=14.29%

1-S=0.8571=sin 59°

360°/59°=61.0°

sin 61°=0.8746

1-0.8746=0.1254

=1/7.97~S=I

sin 60°=0.866

1-sin 60°=0.134~0.1353 or 7.7 years

So, an economic cycle is about 7 years.

Φ'=6σ/7 years=1/(2π)e-t²/2

0.8571=1/(2π)e-t²/2

0.8751(2π)=e-t²/2

5.4984=e-t²/2

Ln (5.4984)=-t²/2

t=0.1358

Now the cross product from Physics, and E=1/t

S=|E||t|sin t

=(1/2)(2)(sin 1 rad)=0.8415

=1-sin 1

=0.1585

e-t=0.1585 =1/(2π)=1 rad=t

Conclusion

So we see that the Bell Normal Curve adequately explains why the economy takes 7 years to complete one economic cycle. Admittedly, the economy is very complex and there are other factors that influence its duration.

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