

National income can be measured through three approaches :

1. the product approach measures the activity by considering the market value of all goods and services produced while excluding the value of inputs and intermediary production
2. the income approach measures the income received by households and owners of firms.
3. the expenditure approach measures how much has been spent by various economic actors, specifically the household, firms and government in an open economy.

The main assumption is that all three approaches are equivalent

GDP

The expenditure method, being the most common, national income is the sum of total consumption expenditure by the household (C), investment expenditure by the firms (I), spending by the state (G), spending by foreigners on exports minus spending on imports. This is known as net exports (X-M).

In other words, $GDP = C + I + G + (X - M)$

This being the nominal value, it has to be adjusted for inflation, which gives the real GDP

Example: the Swiss Federal Statistical Office, located in Neuchatel, establishes the national income statistics in order to quantify the performance of the Swiss economy following the UN system of national accounts. Here is GDP for 2011:

Area	Classification	Figures	Percentage (%)
C	Final consumption expenditure	336'595	58
I	Gross capital formation	121'777	20
G	General government	65'236	12
X	Exports	300'448	
M	Imports	237'271	
	Net exports (X - M)	63'177	10
	GDP	586'784	100

Other common indicators

Other common economic indicators include

- GDP/capita: GDP per population
- Gross National Product/Income (GNP, GNI): $GNP = C + I + G + X + FY$
(FY = income from abroad)
- Net National Product: $NNP = GNP - \text{depreciation}$
- Real Gross National Product (RGNP): $RGNP = GNP / DGNP$, where
 $DGNP$ (GNP deflator) = $(GNP \text{ at current prices } \times 100) / (GNP \text{ at constant prices})$

More economic indicators can be found here:

<http://www.nationmaster.com/cat/eco-economy&all=1>

Issues

The purpose of GDP is not only to account for the overall expenditure = output of the economy, but also make comparisons. Thus, according to Index Mundi, in PPP terms, Switzerland ranks 36th and Thailand 24th.

What does this tell us? We could conclude that Thailand is richer than Switzerland.

However if we compare the countries in GDP/capita terms, Switzerland ranks 13th and Thailand 119th!

Therefore, different indices = different rankings; we must therefore be careful to compare what is comparable!

One must also be careful with the comparative base i.e. methodology in use:

Gross national income per capita 2011									
Atlas methodology (US dollars)					Purchasing power parity (international dollars)				
	Ranking	Economy			Ranking	Economy			
MCO	1	Monaco	183'150	a	3	Qatar	86'440		QAT
LIE	2	Liechtenstein	137'070	a	5	Luxembourg	64'260		LUX
BMU	3	Bermuda	..	a	6	Norway	61'460		NOR
NOR	4	Norway	88'890		7	Singapore	59'380		SGP
QAT	5	Qatar	80'440		8	Macao SAR, China	56'950	a	MAC
LUX	6	Luxembourg	77'580		10	Kuwait	53'720	a	KWT
CHE	7	Switzerland	76'400		11	Switzerland	52'570		CHE
IMY	8	Isle of Man	..	a	13	Hong Kong SAR, China	52'350		HKG
DNK	9	Denmark	60'120		14	Brunei Darussalam	49'910	a	BRN
CHI	10	Channel Islands	..	a	16	United States	48'820		USA
SWE	11	Sweden	53'150		17	United Arab Emirates	47'890	b	ARE
CYM	12	Cayman Islands	..	a	21	Netherlands	43'140		NLD
FRO	13	Faeroe Islands	..	a	22	Sweden	42'200		SWE
KWT	14	Kuwait	48'900	a	23	Austria	42'050		AUT
NLD	15	Netherlands	49'650		24	Denmark	41'900		DNK

Assessment

Economic indicators:

- Give an overall view of an economy's performance
- Allow comparisons between economies
- Are consulted to develop policies
- Allow forecasting and predictions

However, they are

- Inaccurate (e.g. mistakes in accounting)
- Established over long periods thus failing to track change (e.g. NE budget)

- Fail to record grey economic activities (e.g. in slums)
- All-encompassing categories (e.g. unemployment)
- Short from including the costs of externalities
- Unable to account for the quality of life

Taking into account the above cons, other indicators have been suggested the most well-known being the Human Development Index

And an interesting case: Gross National Happiness

But are they reliable?

Forecasting

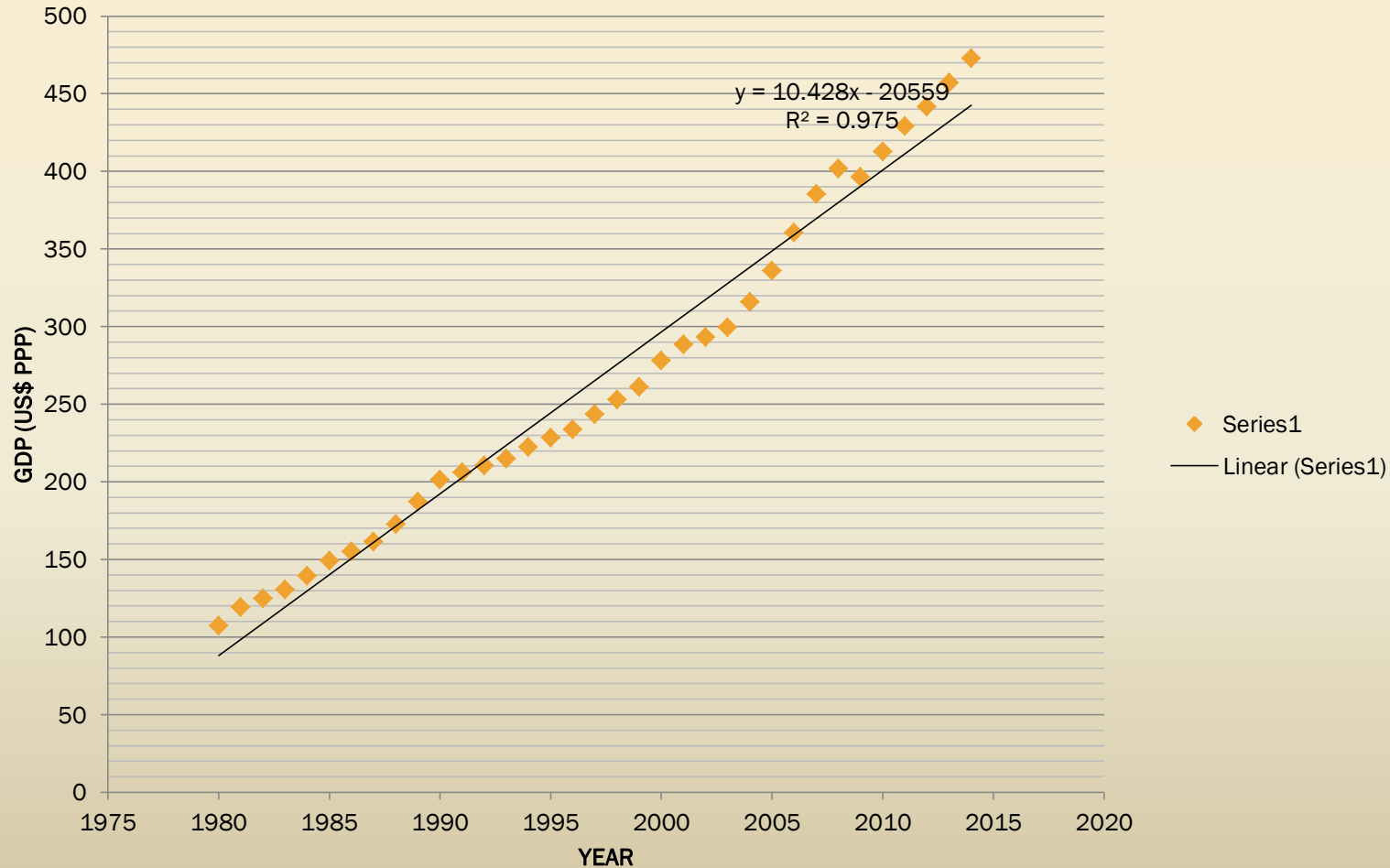
Forecasting in economics is about using historical data (i.e. past information) to predict what can happen in the future and thus take the appropriate measures/policies following economic models. The means to achieve this are statistics.



1980	107.374
1981	119.231
1982	124.76
1983	130.589
1984	139.404
1985	149.172
1986	155.01
1987	161.38
1988	172.526
1989	187.078
1990	201.174
1991	205.927
1992	210.341
1993	214.956
1994	222.458
1995	228.366
1996	233.848
1997	243.307
1998	253.008
1999	261.009
2000	277.982
2001	288.41
2002	293.281
2003	299.38
2004	315.815
2005	336.048
2006	360.573
2007	385.471
2008	401.763
2009	396.257
2010	412.612
2011	429.124
2012	441.64
2013	456.932
2014	472.83

Your thoughts?

CH GDP historical data

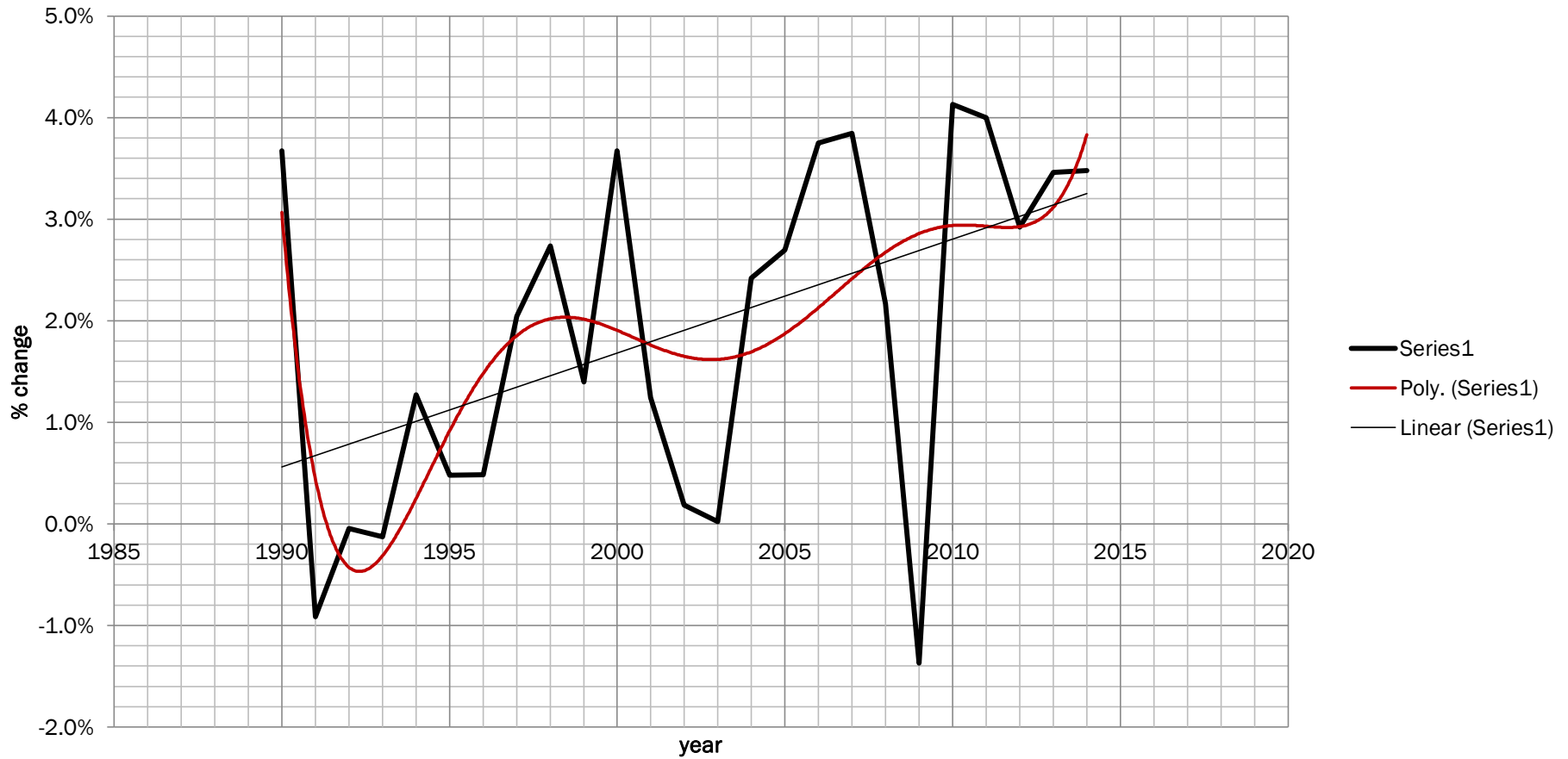


A common way to establish forecasts is by establishing the % change in GDP from one year to another and then look at the trend growth i.e. average over given periods



year	%change
1990	3.7%
1991	-0.9%
1992	0.0%
1993	-0.1%
1994	1.3%
1995	0.5%
1996	0.5%
1997	2.0%
1998	2.7%
1999	1.4%
2000	3.7%
2001	1.2%
2002	0.2%
2003	0.0%
2004	2.4%
2005	2.7%
2006	3.8%
2007	3.8%
2008	2.2%
2009	-1.37%
2010	4.13%
2011	4.00%
2012	2.92%
2013	3.46%
2014	3.48%
average (1990-2014) =	1.9%
average (1990-1999) =	1.1%
average (2000-2009) =	2.1%
average (2010-2014) =	3.6%
average (2008-2014) =	2.7%

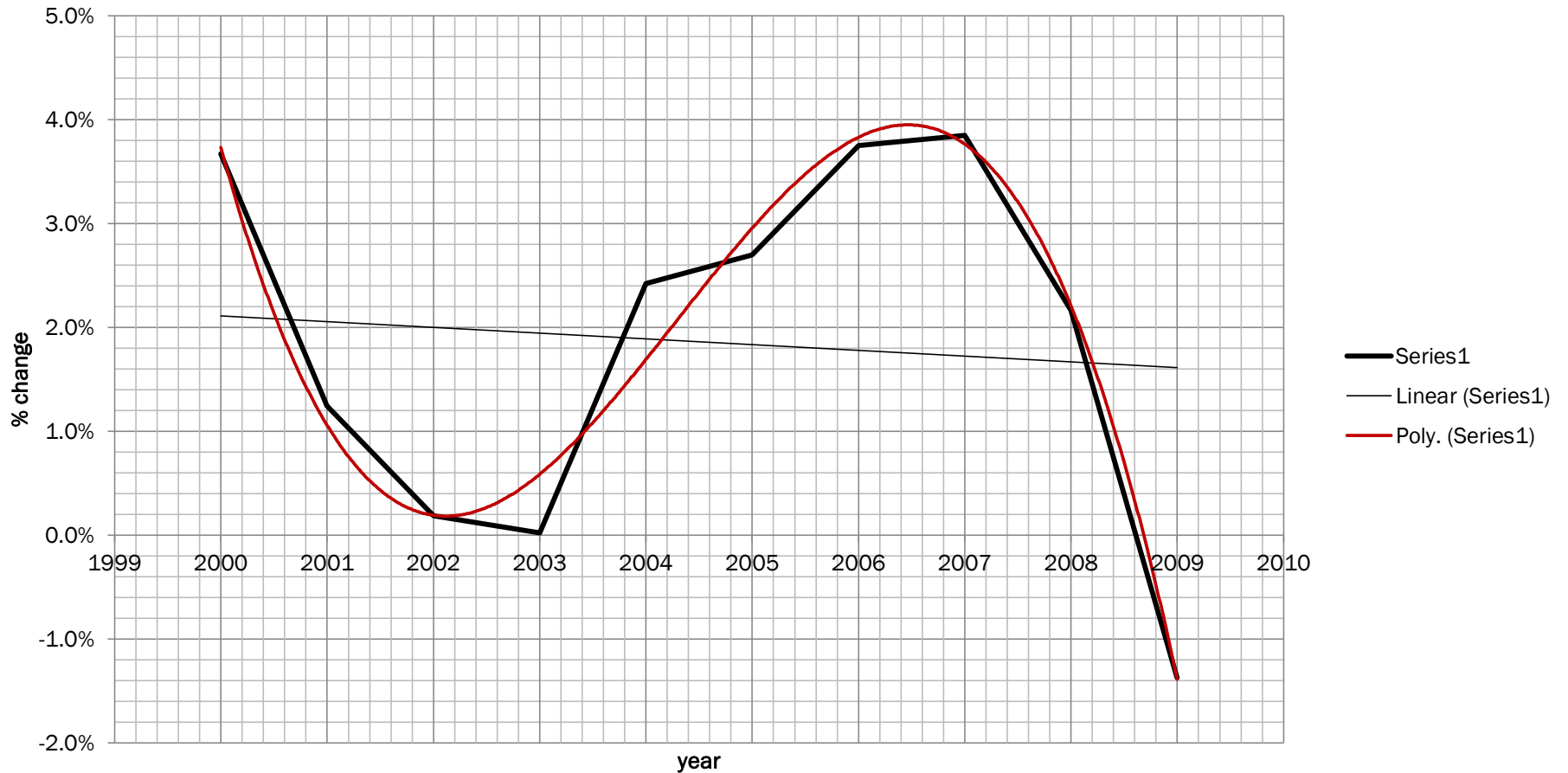
Average 1 - Your thoughts?



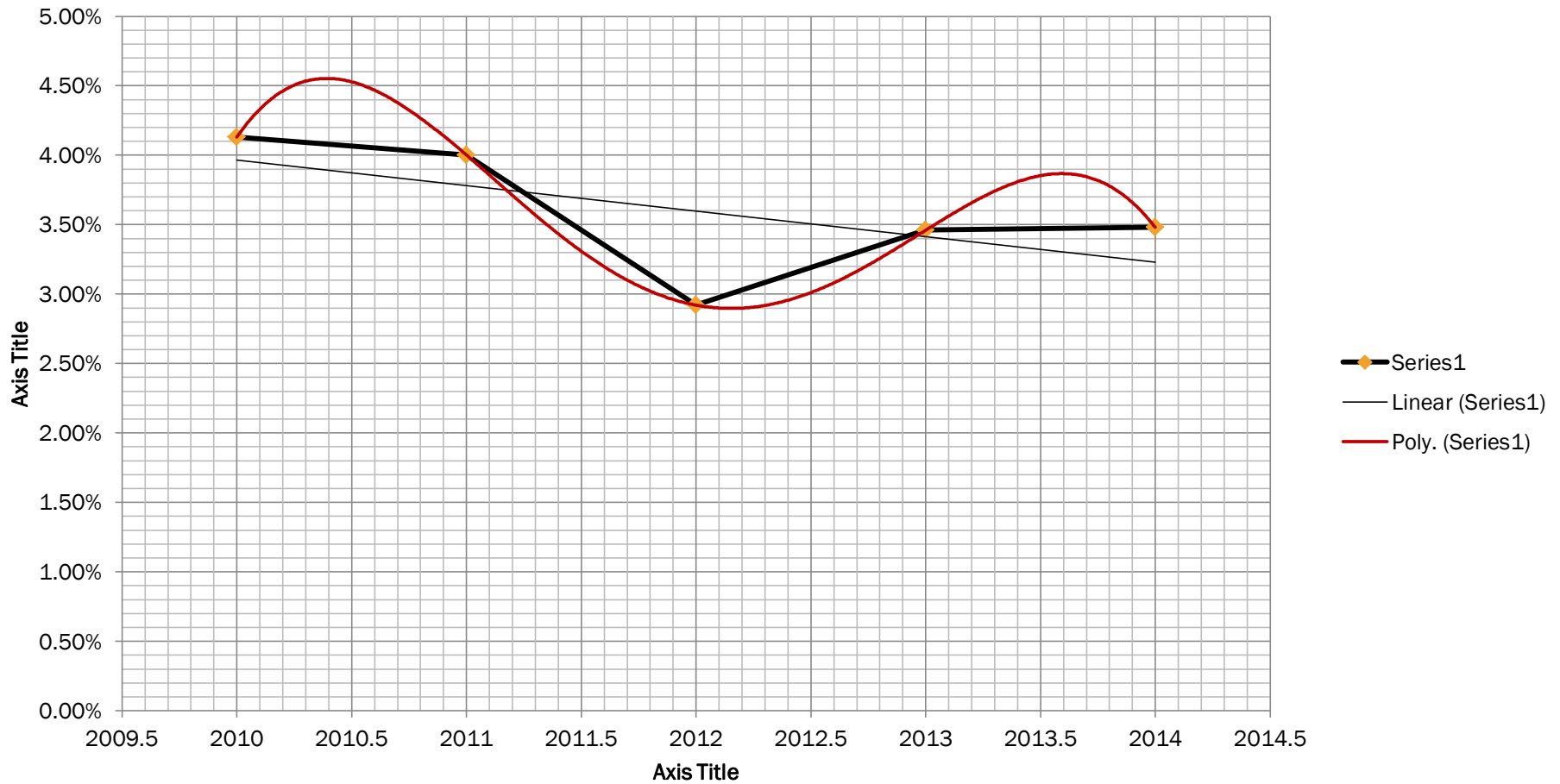
Average 2 - Your thoughts?



Average 3 - Your thoughts?



Average 4 - Your thoughts?



Average 5 - Your thoughts?

