Macroeconomic Aspects of the Golden Arches Theory of Conflict Prevention

Bachelor thesis, Lund University, August 29th 2007

Author: *Robert Knutsson*   Supervisor: *Klas Fregert*

ABSTRACT

This paper examines the possibility to use McDonald's as a leading indicator for economic growth and stability. A small number of alternative hypotheses are also explored. The theory that McDonald's can be used as an economic indicator originates in Thomas L. Friedman's "Golden Arches Theory of Conflict Prevention" which presents a relationship between McDonald's and political stability. Common statistical tests (chi-square) are applied on international GDP data for empirical theory testing. The results suggest that McDonald's can be used as an indicator for good long-term growth and stability.

KEYWORDS: McDonald's, macroeconomics, growth, stability, political factors, chi-square.

Table of Contents

Index of Tables

1   Introduction

The main aim of this paper is to investigate whether Thomas L. Friedman's *Golden Arches Theory of Conflict Prevention* can be transferred into the world of economics. Friedman named his theory after the McDonald's logo (two golden arches) and presented it in his book *The Lexus and the Olive Tree* where he states that "[n]o two countries that both had McDonald's had fought a war against each other since each got its McDonald's" (Friedman 2000, p. 248). This can, in some sense, be seen as a rough measure of political stability. There is one main reason why the Golden Arches Theory could be useful for predicting economic stability as well as political stability – politics and economics are closely interconnected (at least on the macro level). Much of Friedman's argumentation in his presentation of the theory is, in fact, focused on how the economy would react in case of political unrest (presented in detail later in this paper).

A simple and easily available leading indicator of economic stability, like the one McDonald's is for political stability, could be of value to many people. Workers all over the world want to know about the future economy to optimize savings and spending – ideally without having to learn about intricate economic models and their implications. Investors want similar predictions and are, thus, in also in need of leading indicators. A simple model like this one can be used in a first round of finding stable countries worthy of investment, before moving on to more complex models. Also, in many parts of the world knowledge of precise and complex models may be scarce and there this model may be of value too.

To find out if McDonald's can be used for prediction and forecasting of economic stability an empirical approach will be pursued. Common statistical tests (chi-square) will be applied to commonly available, and, widely used and accepted, macroeconomic data.

In order to keep the model simple and as widely useful as possible, this paper will be limited to investigating the effects of the mere existence of McDonald's in a country. Finding out if McDonald's exists in a country is generally very easy, while information about the total number of restaurants, restaurants per capita or burgers sold per year or capita is far more difficult. Therefore this paper will focus solely on the mere existence of McDonald's, and intentionally disregard of other, more complicated measures, even though such measures may have other merits.

The organization of this paper is as follows. First two sections coveing the Golden Arches Theory of Conflict Prevention and rudimentary relevant economic theory. The section after holds theories and hypotheses on why the Golden Arches Theory may be relevant in the world of economics. After that a more technical section where the dataset is presented and a number of different measures are explained and presented. Thereafter follows a section on the statistical tests performed, their outcomes, potential problems and errors. The paper ends with one section on suggested further studies and one concluding and summarizing findings made previously in the paper.

To summarize, this paper primarily seeks to investigate whether countries where McDonald's is present will be (1) more stable and (2) prosperous, than other countries in terms of per capita GDP.

2   The Golden Arches Theory of Conflict Prevention

Because this paper fundamentally based in the theories of Thomas L. Friedman's, it is of importance to know at least, some of his key points and facts behind them. Below is a quick summary of the Golden Arches Theory with a focus on arguments relevant to the subject of this paper.

Friedman thoroughly presented the theory in his book *The Lexus and the Olive Tree* in 1999 and later made a few smaller changes, updates and additions to it in *The World is Flat* in 2005. The McDonald's theory makes no claim of causality between McDonald's and peace, but is rather used as a metaphor or proxy for a broader set of variables that, in turn, cause political stability (Friedman 2000, p. 252).

In short McDonald's countries are thought to be different to other countries in two major ways that Friedman emphasizes; (1) they are more open to international trade and investment and (2) have a large enough middle-class to support and justify a McDonald's franchise.

The most immediate and obvious piece of evidence of openness to international trade and investment is the fact that McDonald's itself has had the possibility to establish in the country. Partaking in international trade, in turn, increases the costs of war significantly as well as the incentives not to go to war, which has a stabilizing effect on politics (Friedman 2000, p. 250). Already in 1748 French philosopher Montesquieu identified preventive effects international trade had on war in his *The Spirit of the Laws*. The main change since then is the degree to which trade affects politics and deter states from going to war (Friedman 2000, pp. 249-250). Today, with lower entry and exit barriers than ever, a war might cause companies and capital to flee the country. It might also devalue the reliability of a country and deter investors from going back once the war is over (Friedman 2005, pp. 522-523).

A large middle class (both in raw numbers and share of the population) also deters states from going to war with each other. In democracies in particular, but even in countries with other governing regimes, a large middle class will have a significant influence on the country's politics. People of the middle class are thought to appreciate and value their wealth and also have a good understanding of what has made them

wealthy. Knowing that peace is of utmost importance to keep (and expand) their wealth the demand for war is close to non-existent, which decreases the probability of war.

Over time a few flaws, or perhaps exceptions, to the Golden Arches Theory has been discovered. Since the theory was first presented McDonald's countries have gone to war on two occasions. In 1999 NATO bombed Yugoslavia (McDonald's in 1988) in the Kosovo war, but the war ended rather quickly. When NATO bombed Belgrade they made life miserable for the middle class who were deprived of their (comparatively) wealthy lives and the war came to an end in just 78 days. The Yugoslavian people showed that there was no demand for a war and that they valued their wealth much more than the geographically distant region of Kosovo (Friedman 2000, p. 252). The other occasion was when Israel (McDonald's 1993) went to war with Lebanon (McDonald's in 1999) in 2006.

Especially important to keep in mind is the relationship between McDonald's and political stability, where McDonald's can be used to predict political stability. This relationship can be illustrated like this:

McDonald's → Political stability

and is useful in the analysis further on in the paper.

3 Economic Growth and Stability

The following two sub-sections summarize some of the most widely accepted theories and models on economic growth and stability. In addition to this, some extra focus is put on how certain political factors potentially affect GDP growth and what the relationship with The Golden Arches Theory might be.

3.1 Growth theory

There is a plentiful supply of economics textbooks on growth theory and most of them probably present the same models that are presented here. The models and definitions presented here, however, have been collected from Charles I. Jones' *Introduction to Economic Growth*, which is recommended for further insight into the world of economic growth.

In 1987 Robert Solow was awarded the Nobel Prize in economics for his work on economic growth. Solow's primary contribution to the field is the Solow model, which describes growth by taking labor, capital and the level of technology into account (Jones 2002, p. 20). Subsequently Solow's basic model has been developed further to include human capital (pp. 54-55) as well as many other factors.

Another common growth model is the Romer model which, aside from labor and capital, takes research and development into (pp. 96-98), claiming that more effort spent on R&D will yield higher growth rates in the future while holding growth back in the present. For developing countries a model focusing on the transfer of ideas and technology is often used instead of Romer's model since such countries rarely are able to spend much time and resources on R&D (p. 131).

Other popular growth models puts focus on the limited access to land (pp. 170-173) and other natural resources (pp. 173-175), but are essentially extended versions of the Solow model.

3.2 Political factors

In his survey article *Political Variables in Cross-Country Growth Analysis* (1997) Aymo Brunetti presents the results from a large number of research papers on political variables and the effects on economic growth. Brunetti "distinguishes five different categories of relevant of

relevant political variables: democracy, government stability, political violence, policy volatility and subjective perception of politics" (p. 163) and finds that "policy volatility and subjective perception of politics [are] most successful as explanatory variables" (p. 163).

Democracy measures primarily deal with whether a country is democratic (and to what extent) or not, but some of the articles mentioned use more intricate measures covering political and civil liberties as well as what types of elections are usually held (Brunetti 1997, pp. 168-171). Events such as coups, revolutions, civil wars and government changes are collected in the government stability category (pp. 174-176). The category for policy volatility, which was one of the categories that worked well in describing economic growth, includes volatility in money supply, inflation, real exchange rates, tax rates, etc (pp. 178-181). Subjective perception of politics, which also worked well to explain growth, gathers factors like political risk, credibility, bureaucracy and corruption (pp. 184).

There is a well-established relationship between political stability and economic growth. Growth models often use factors that are directly (capital and technology) or indirectly (long-term commitments like R&D or education) reliant on political stability. In addition to this, Brunetti takes a closer look at what factors within the realm of political stability affect growth. In conclusion, political stability causes economic growth, which can be illustrated like this:

Political stability $\rightarrow$ Economic growth

Also, the conclusion in section two about how McDonald's can be used to predict political stability can be combined with the relationship illustrated above. This produces the following line of logic:

If Political stability $\rightarrow$ Economic growth and McDonald's $\rightarrow$ Political stability then McDonald's $\rightarrow$ Economic growth must be true. Fundamentally, this proves that there might be good reasons to empirically test the relationship between McDonald's and economic growth.

4 Economics behind the McDonald's entry decision

In essence, the theory behind why McDonald's would be able to predict or explain economic growth and stability is rather simple: on entry, McDonald's makes an advanced investment decision based on (among other things) economic growth potential and stability. What exact factors the McDonald's researchers and investors take into account are of lesser importance in this case, as this paper mainly seeks to investigate broader economic phenomena and trends. In this paper, McDonald's and their decision to invest is used as a proxy measure, collecting numerous unknown economic variables under a single roof.

Speculations about what factors actually are captured within McDonald's advanced investment decision are of some value, though. By combining the economics in Friedman's theory with basic growth theory (previously presented) and other, limited and basic, economic intuition, this section aims to present a more complete economic theory on McDonald's as an indicator.

Some variables and factors can with ease be traced and translated from Friedman's Golden Arches Theory. Primarily it is the two pillars (openness to trade and a large middle class) of the theory that can be transferred from Friedman's theory on peace to a theory on economic stability. There are two basic reasons why it is possible to use many of Friedman's arguments in an economic context as well as his original context of politics. First of all, it is safe to assume that peace has a positive effect on economic growth and stability. Thus, peace causes faster growth and increased stability. Secondly it is also rather safe to assume that both peace and economic prosperity and stability is caused by the same underlying factors (i.e. increased trade promotes peace and boosts the economy).

Openness to trade can be thought to bring down the volatility in the economy for a number of reasons. Friedman points out how easy it is for firms and capital to move between open economies and claims that this puts pressure on governments not to go to war, as a war would have devastating effects on the economy. The same line of reasoning is applicable for economic stability. Both capital and firms would flee the country if the economic stability were unsatisfactory, which puts a similar pressure on governments to sustain a sound and stable economic climate. This theory works in two directions with

economic stability (and growth) causing political stability and political stability, in turn, causing more economic stability by putting pressure on politicians to favor sound politics.

Another reason why openness to trade may lead to a more stable economy is the access to foreign markets. A shock (supply or demand) on the home market will have a much smaller effect on the overall economy because goods can be bought or sold elsewhere in the world. On the other hand the rest of the world has greater influence on an open economy, which could lead to increased volatility, given that the rest of the world is more volatile than the affected country. On average, though, openness ought to be stabilizing rather than destabilizing. Else countries would be closed to a greater extent than they are.

Friedman's focus on the large middle-class can probably be applied economic stability as well. Similar to how the middle-class has a low demand for wars, it might have a low demand for economic instability. For the middle-class to actually become middle-class it has to garner a certain amount of wealth. This takes a significant amount of time, and over this time people learn (in broad terms) what works for building wealth and what does not work. Put in a public choice perspective where people put pressure on politicians to supply an environment suitable for creating wealth, this makes sense. Naturally such an environment is not solely constituted by peace, but also on a set of different factors such as: low and stable inflation, human capital, research and development and the possibility to accumulate physical capital (see, for example, Jones 2002, p. 199). The middle class might demand an environment that encourages production and where entrepreneurs can earn returns on their investments, which is good for the growth (see Jones 2002, p. 199). Perhaps countries where the middle class constitutes only a small portion of the total population have a higher demand for short-term goals and inflation.

Discussions about the Americanization (sometimes McDonaldization) of the world are not uncommon. If the world becomes more Americanized both in terms of culture and economy other countries' economies converge with the United States economy. Thus, "The Great Moderation" could cause more stable countries all around the world. "The Great Moderation" is a term used to explain the rather large drop in standard deviations for GDP growth rates and inflation that has occurred in the United States from the mid 1980s until today. The underlying causes for this moderation of growth volatility

have not yet been unveiled (Ferguson 2005). In this case this is of little importance, though, because no matter how complex and obscure the underlying causes are they may be "exported" through or along with McDonald's and other cultural influences.

To recapitulate, the following relations were stated in this section:

Large middle class

Openness　　**Americanization**

Peace

Economic growth　　Economic stability
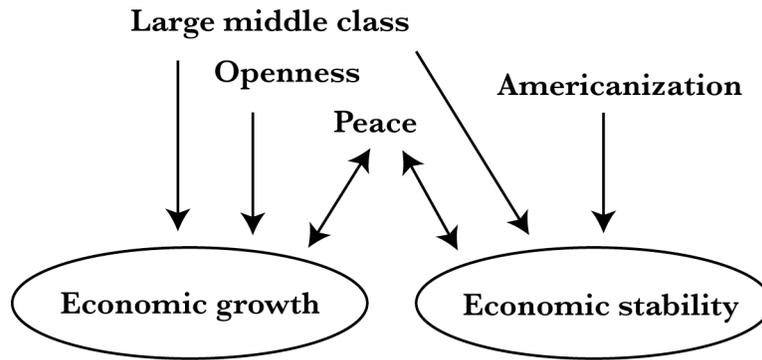
4.1 Hypotheses

As previously mentioned, this paper seeks to investigate if McDonald's can be used as a leading indicator for economic (1) growth and (2) stability. To do this, two separate hypotheses are formed – one for growth and one for stability. Explanations provided for the hypotheses below regard reasons why McDonald's would possibly choose to establish in a country.

4.1.1　　Growth hypothesis

Expected high growth rates leads McDonald's to establish in a country. Since high growth rates means potentially larger revenues, this seems like a rational hypothesis. Two reasons to be an early entrant to such a market are (1) to capture revenues from the first day expected high growth rates become actual high growth rates and (2) establish a good reputation early on.

4.1.2　　Stability hypothesis

Expected stable growth rates leads to McDonald's establishment. Companies value stability and security because they want to be able to calculate and rely on future revenues. McDonald's is no exception and, thus, increased economic stability should lead to establishment of a McDonald's franchise.

4.1.3   Alternative hypotheses

Aside from the two main hypotheses presented above, there are a number of alternative hypotheses to consider. Perhaps McDonald's is not an early entrant on new markets and, thus, cannot be used as a leading indicator. Rather McDonald's might enter a market after a certain time of high growth rates, making the company a lagging indicator, rather than a leading one.

Another viable hypothesis is that McDonald's might use a two-level GDP oriented establishment policy. Starting at the top of the worldwide GDP rankings it might work its way downward, establishing in all countries above a set minimum GDP level. More intricate variations of the GDP rank theory may also be viable explanations for McDonald's investment decision. Perhaps a rather long-term (multiple time periods) approach is held where a high expected (rather than actual) GDP rank is prioritized. In the latter case, McDonald's could probably be utilized as a leading indicator for economic growth, assuming that the expectations about which countries will climb the GDP ladder were to be correct more often than not. This differs from the hypothesis on growth (section 4.1.1), which focused on absolute growth rates, while this hypothesis is about relative growth rates.

5   Data & Measures

5.1 World Development Indicators

Every year since 1978 the World Bank Group has compiled a vast set of statistics in what they call World Development Indicators (WDI). "It is the product of intensive collaboration with numerous international organizations, government agencies, and private and nongovernmental organizations." (WDI 2006, Foreword)

In the WDI dataset time series data for a total of 210 countries and a number of aggregates is provided. Data from all countries will be used here, while all aggregates will be disregarded, as they are unnecessary for proving the thesis. WDI comes with pre-calculated one-year real GDP growth rates (WDI 2006, Country Data Technical Notes). This is the only WDI data that will be used here.

When working with the WDI data I have discovered a few obvious errors. All these errors have been abnormally high yearly GDP growth rates, while adjacent years show more normal growth rates. Even though this will obviously cause distortion and errors further on I have refrained from correcting these errors. This is simply not my job and thoroughly correcting such a vast dataset as the WDI would be impossible. After all, the errors are relatively few, so they probably will not affect the results of the statistical testing to any noticeable degree.

5.2 McDonald's Countries – data

All data on when McDonald's established where is collected from a Wikipedia article that makes such a listing. The reliability of Wiki sources such as Wikipedia is frequently debated for various reasons – but most commonly because anyone can enter and edit information. This particular information, however, can be credited as reliable for several reasons. Wikipedia have good moderators overlooking entries and edits, but also, and more importantly, because the article has been edited well over a hundred times in the last year, without any major changes to the data itself (Wikipedia, List of McDonald's Countries – History). In general the edits cover minor factual errors and mistakes in spelling and grammar.

5.3 McDonald's Countries – definitions

This paper focuses primarily on long-term effects on the economy and the economic status in terms of stability and growth will normally be looked on in time frames of a decade and, sometimes, half a decade. The long-term focus poses a small problem when it comes to defining what constitutes a McDonald's country for a given decade or half-decade. A given country might have a McDonald's franchise present in some, but not all, of the years, for example. As a solution to this I have used three measures. One where McDonald's has to have been present for one year, another for five years of presence and a third for presence during the full decade.

Ideally, new McDonald's countries would be isolated and studied separately, but much due to the fact that chi-square tests (a method used in the analysis) need rather large frequencies to produce valid results, I have had to settle for aggregate McDonald's measures. For example, this means that the one year McDonald's measure in the 1970s includes all countries that had a McDonald's franchise for at least one year during the 1970s and not only those that actually established in the 1970s.

5.4 McDonald's Across the World

Since the first McDonald's restaurant opened in 1940 the number of countries with McDonald's restaurants have increased to 105 in year 2005.
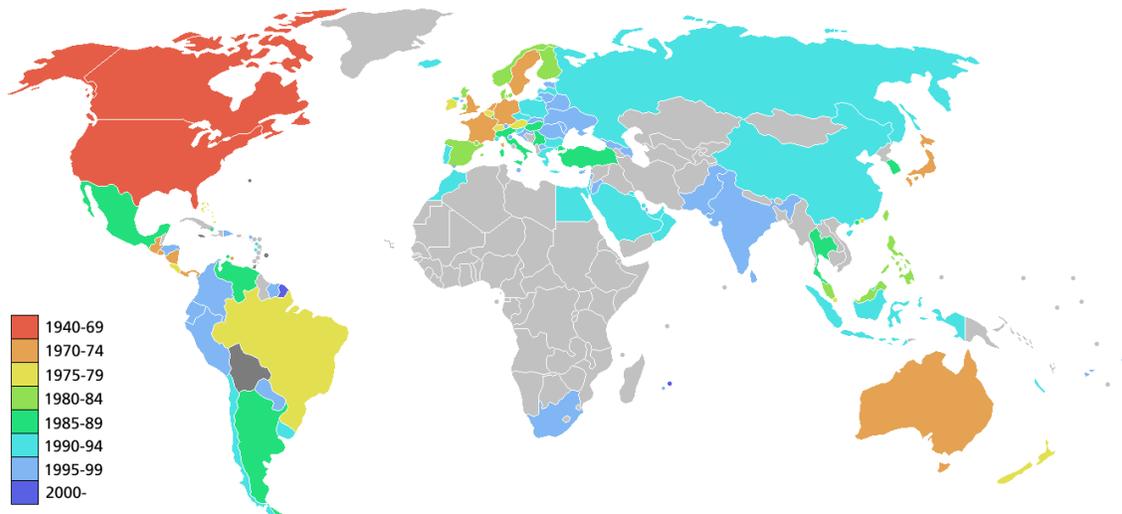
Map illustrating McDonald's world presence over time

Number of McDonald's Countries in the World
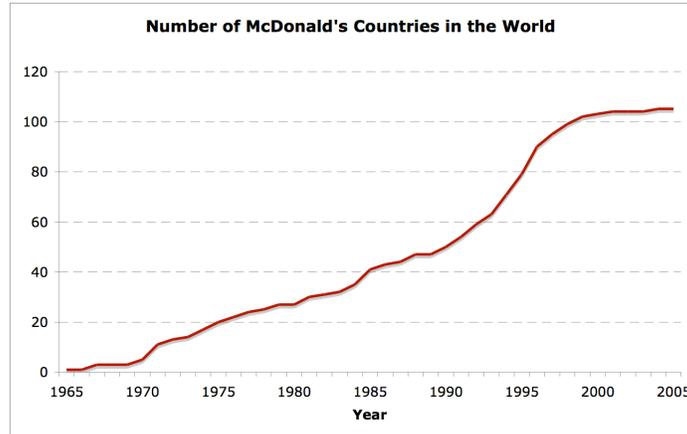
(Wikipedia: McDonald's World Locations Map)

5.5 Fast Food indicators

Prior to this study fast food has been used as an economic indicator several times. The most renowned being The Economist's Big Mac index, published in the magazine with some regularity (a few times a year) since the introduction in 1986 as "a light-hearted introduction to exchange-rate theory" (The Economist 2006, p.94). The index compares the price of a McDonald's hamburger (Big Mac) in a multitude of countries across the world and "is supposed to give a guide to the direction in which currencies should, in theory, head in the long run." (The Economist 2007)

Another fast food indicator is the Coca-Cola index – another invention from The Economist. This index identifies "a loose but clear positive relationship between Coke consumption and wealth" and an even clearer relationship with the UN human development index (The Economist 1997, pp. 116-117).

13

6 Statistics and Empirics

The statistical tests used in this analysis are of a different character than those most commonly used to identify leading indicators. Because all data used in this paper is time series data and, in addition, the McDonald's data resembles dummy variables, chi-square tests are well suited. Many similar studies use regression analysis on the other hand and this would, probably, be preferable, had it been possible. For OLS (Ordinary Least Squares) regression analysis to be possible, the data would rather have to be of a different character, for example (hamburger) consumption per capita, similar to the data used for the Coca-Cola index (see section 5.5).

As a complement to the chi-square tests, simple point estimates of growth and volatility rates are used to compare and distinguish between McDonald's and non-McDonald's countries.

6.1 Chi-square

Chi-square testing is a method where actual frequencies are compared with expected frequencies for the null hypothesis. There are two important requisites for chi-square tests to be useful. One is that no more than 20% of expected frequencies can fall short of 5 and not a single expected frequency can be below 1. If these requisites are fulfilled, chi-square tests are good to see if two groups differ from each other. More on chi-square tests can be found in most introductory university level textbook on statistics, for example *Statistics* by Robert S. Witte. Below is an example of the computer output from a chi-square test:

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
mcd5.70 * average.grwth.70	132	62,9%	78	37,1%	210	100,0%

mcd5.70 * average.grwth.70 Crosstabulation

			average.grwth.70		Total
			Lower	Higher	
mcd5.70	NMcD	Count	56	58	114
		Expected Count	57,9	56,1	114,0
	McD	Count	11	7	18
		Expected Count	9,1	8,9	18,0
Total		Count	67	65	132
		Expected Count	67,0	65,0	132,0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	,894[b]	1	,344		
Continuity Correction[a]	,479	1	,489		
Likelihood Ratio	,901	1	,342		
Fisher's Exact Test				,449	,245
Linear-by-Linear Association	,887	1	,346		
N of Valid Cases	132				

[a]. Computed only for a 2x2 table

[b]. 0 cells (,0%) have expected count less than 5. The minimum expected count is 8,86.

In the "Case Processing Summary" we can see that there were no data for 37.1% of the cells. The table below holds information about which way the result leans. Look at count and expected count for non-McDonald's countries (NMcD) and McDonald's countries (McD) respectively. We can see that non-McDonald's countries are slightly overrepresented (count >

14

expected count) in the higher column, which means that in this test, non-McDonald's countries showed over average growth rates relatively more often than McDonald's countries. In the last table called "Chi-Square Tests" we find the p-value ("Pearson Chi-Square"), which is the probability we need to establish whether there is a significant difference between the groups. In this case the value is .344 (34.4%) – exceeding the standard 10% barrier. This means there is no statistically significant difference between the groups.

6.2 Measures and definitions

These are three different time measures that I have chosen in an attempt to find potential indications in different stages in time. A leading indicator is when McDonald's has established the decade before there is an economic effect. An intermediate indicator is when there is an economic effect in the same decade as McDonald's established. A lagging indicator is when McDonald's establishes the decade after there has been an economic effect.

6.3 Growth rates

6.3.1   Point Estimates of Average Growth Rates

As previously stated we assume that political stability has a positive relationship with economic growth. Also, based on the Golden Arches Theory, we assume McDonald's to be an indicator of political stability, which means could also be used as an indicator for economic growth.

Average yearly growth rates have been calculated for each period and country. Then the average of all the countries were calculated for each time period to give the GDP growth rate for the "average country" in the world.

The diagrams below compare average growth rates for McDonald's and non-McDonald's countries. McDonald's countries do not show out to have consistently higher growth rates, but a weak trend can be discerned. Non-McDonald's countries show higher growth rates in the 1970s, regardless of McDonald's measure. In all other decades, however, McDonald's countries have higher growth rates, one measure aside (McDonald's for 1 year in the 1990s). The figures in the 1970s should not be weighed to

heavily trying to disprove the hypothesis of higher growth amongst McDonald's countries for two main reasons. First of all these figures are furthest away in time from today and second of all the number of countries in which McDonald's operated during this time was very limited relative to today's number.

Average Growth
1 year McDonald's measure

Average Growth
5 year McDonald's measure

Average Growth
10 year McDonald's measure
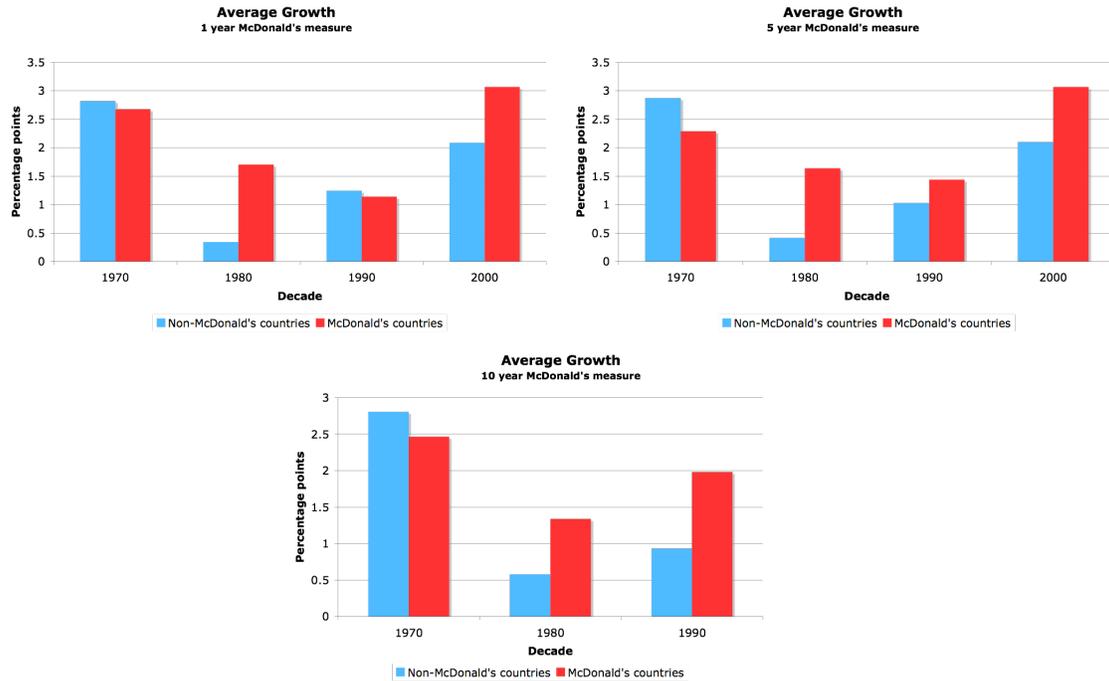
6.3.2 Average growth rates (chi-square)

To test the hypothesis more thoroughly we move on to chi-square testing. Countries have been "tagged" as either having a growth rate above or below the world average for each decade between 1960 and 2005*. The numbers of countries falling into each category have then been chi-square tested to find out if McDonald's countries show above-average growth rates relatively more often than non-McDonald's countries.

   In all tables used for displaying chi-square test results, the following notation is used: Italicized text indicates insignificant test (p-value exceeding 0.10) and asterisk (*) indicates invalid test (portion of cells with an expected frequency of less than 5 exceeds 20%). Hypothesis results are only printed for tests with p-values ≤ 0.25.

___

* The average between 2000 and 2005 is not a full decade, naturally.

Table 1   How to read test result tables

Tested	McDonald's	Years	Hypothesis	p-value
Type of tested indicator.	McDonald's measure, decade	Years tested (GDP data)	Hypothesis (in diagram headline) is supported or not for McDonald's countries	Probability value.

Presented immediately below are results form tests regarding average growth rates. The hypothesis tested is whether McDonald's countries show above-average growth rates.

Table 2   Above average growth rate (leading indicator)

Leading indicator	1 year, 1970s	1980-1990	-	*0.400*
	5 year, 1970s	1980-1990	-	*
	10 year, 1970s	1980-1990	-	*
	1 year, 1980s	1990-2000	Supported	0.001
	5 year, 1980s	1990-2000	Supported	0.000
	10 year, 1980s	1990-2000	Supported	0.002
	1 year, 1990s	2000-2005	-	*
	5 year, 1990s	2000-2005	-	*
	10 year, 1990s	2000-2005	-	*

Three of tests support the hypothesis that McDonald's can be used as a leading indicator (McDonald's one decade, above-average growth rates the next) to spot above-average growth rates while six tests do not support the hypothesis. Of those six tests five cannot be used because as they break basic requirements for chi-square tests. Three out of four valid tests point towards McDonald's being a usable leading indicator. Due to the large number of invalid tests it is difficult to draw such a conclusion, however. All things considered, though, the evidence for a useful leading indicator is stronger than for the opposite.

Table 3   Above average growth rate (intermediate indicator)

Intermediate indic.	1 year, 1970s	1970-1980	-	*0.890*
	5 year, 1970s	1970-1980	-	*0.344*
	10 year, 1970s	1970-1980	-	*0.673*
	1 year, 1980s	1980-1990	Supported	0.079
	5 year, 1980s	1980-1990	Supported	0.088
	10 year, 1980s	1980-1990	-	*0.400*
	1 year, 1990s	1990-2000	*Supported*	*0.107*
	5 year, 1990s	1990-2000	Supported	0.072
	10 year, 1990s	1990-2000	Supported	0.000
	1 year, 2000s	2000-2005	-	*
	5 year, 2000s	2000-2005	-	*

Testing for an intermediate indicator (McDonald's and above-average growth rate during the same decade) four out of eleven tests support the hypothesis. Two of the non-supporting tests, however, are invalid. It should also be noted that one test barely fails to meet the 10% requirement with a p-value of 10.7%. Most results that indicate suggest that McDonald's is not a good intermediate indicator occurs in the first time period (1970-1980) and is, thus, least important for deciding what is true today. McDonald's is most likely a useful intermediate indicator, with relatively few results indicating the contrary.

Table 4   Above average growth rate

Lagging indicator	1 year, 1970s	1960-1970	Supported	0.001
	5 year, 1970s	1960-1970	Supported	0.014
	10 year, 1970s	1960-1970	-	*
	1 year, 1980s	1970-1980	*Supported*	*0.215*
	5 year, 1980s	1970-1980	*Supported*	*0.206*
	10 year, 1980s	1970-1980	-	*0.890*
	1 year, 1990s	1980-1990	Supported	0.014
	5 year, 1990s	1980-1990	Supported	0.030
	10 year, 1990s	1980-1990	Supported	0.065
	1 year, 2000s	1990-2000	Supported	0.057
	5 year, 2000s	1990-2000	*Supported*	*0.142*

Six out of eleven tests support the hypothesis when testing for a lagging indicator (McDonald's one decade, above-average growth rates previous decade). One test is not valid and three of the non-supporting tests fall under a 25% level of significance, albeit not being strictly significant. With only a relatively small number of tests not supporting the hypothesis, it is almost certain that McDonald's is quite good lagging indicator.

6.3.3   Growth rate changes (chi-square)

Below are results from a different set of tests. The hypothesis tested is that McDonald's countries show increasing average growth rates (compared to the previous decade). Here countries are not compared to any world average. The only effect looked at is whether the average growth rate for the tested decade exceeds that of the decade previous.

Table 5   Increasing growth rate

Tested	McDonald's	Years	Hypothesis	p-value
Leading indicator	1 year, 1970s	1980-1990	-	*0.500*
	5 year, 1970s	1980-1990	-	*0.559*
	10 year, 1970s	1980-1990	-	*

18

	1 year, 1980s	1990-2000	Not supported	0.002
	5 year, 1980s	1990-2000	Not supported	0.001
	10 year, 1980s	1990-2000	Not supported	0.017
Intermediate indic.	1 year, 1970s	1970-1980	-	*0.848*
	5 year, 1970s	1970-1980	-	*
	10 year, 1970s	1970-1980	-	*
	1 year, 1980s	1980-1990	-	*0.367*
	5 year, 1980s	1980-1990	-	*0.450*
	10 year, 1980s	1980-1990	-	*0.500*
	1 year, 1990s	1990-2000	-	*0.443*
	5 year, 1990s	1990-2000	-	*0.383*
Lagging indicator	1 year, 1970s	1960-1970	Not supported	0.012
	5 year, 1970s	1960-1970	Not supported	0.008
	10 year, 1970s	1960-1970	-	*
	1 year, 1980s	1970-1980	-	*0.603*
	5 year, 1980s	1970-1980	-	*0.558*
	10 year, 1980s	1970-1980	-	*0.848*
	1 year, 1990s	1980-1990	-	*0.639*
	5 year, 1990s	1980-1990	*Not supported*	*0.203*
	10 year, 1990s	1980-1990	-	*0.589*
	1 year, 2000s	1990-2000	-	*0.339*
	5 year, 2000s	1990-2000	-	*0.487*

Most of the tests show no significant difference between McDonald's and non-McDonald's countries. The rare few (6 of 25) that actually do show increasing growth rates for non-McDonald's countries, contrary to the initial hypothesis. Nothing suggests that McDonald's can be used as an indicator for increasing growth rates.

6.3.4   Result summary – growth

The economies of McDonald's countries appear to grow at a faster pace than other economies. Both average growth rates and chi-square tests point towards this. The economic effects are long-term and begin well before McDonald's establishes which disqualifies the measure from being a leading indicator. The results also show that the growth rates do not appear to increase when McDonald's establishes, which goes in line with the results of high growth rates prior to McDonald's establishment.

One should be wary to use the McDonald's indicator to identify economic effects, but rather use it as a rough measure of the general economic "quality" of those countries.

6.4 Volatility

Assuming that political stability (predicted by the Golden Arches Theory) has a positive relationship with economic stability we hypothesize that McDonald's countries should be

economically more stable than other countries. Standard deviations for GDP growth rates during ten-year (five year for 2000-2005) periods are used as measures of economic stability. Those were calculated in the following manner:

$$sd_{it} = \sqrt{\sum_{t=70}^{79} \frac{\left(x_t - \bar{x}\right)^2}{10}}$$

where x indicates the growth rate, i country it is and t time period and 10 is the number of years.. In this example the 1970s have been chosen as time period, hence t=70. Using all those standard deviations, the average standard deviation among all countries in the world was calculated:

$$\overline{sd} = \frac{\sum sd_i}{N}$$

N is the total number of countries.

6.4.1   Point Estimates of Average Volatility

The diagrams below show that McDonald's countries are consistently more stable (lower average standard deviation) than non-McDonald's countries. Not for any McDonald's measure, during any decade do non-McDonald's countries show lower average volatility than McDonald's countries. Thus, it is fair to conclude that these results point toward the stated hypothesis being true.
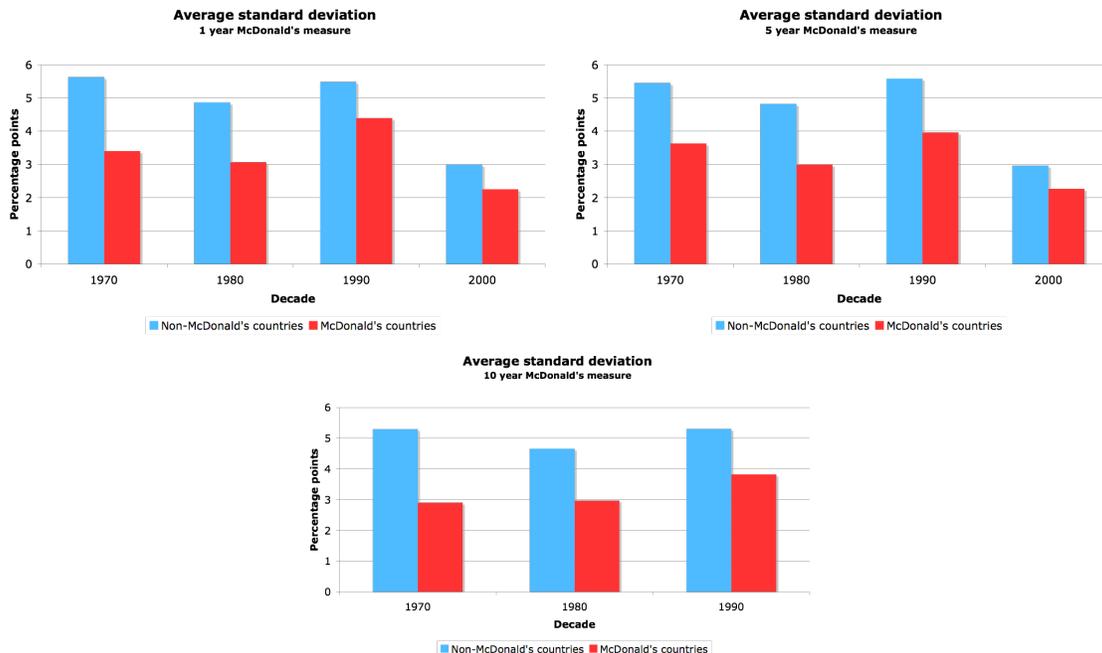
6.4.2 Average volatility (chi-square)

In a similar manner as with average growth rates (section 6.3.1) we progress by chi-square testing the number of countries showing below-average volatility.

Table 6   Below average volatility (leading indicator)

Tested	McDonald's	Years	Hypothesis	p-value
Leading indicator	1 year, 1970s	1980-1990	Supported	0.080
	5 year, 1970s	1980-1990	-	*0.306*
	10 year, 1970s	1980-1990	-	*
	1 year, 1980s	1990-2000	*Supported*	*0.150*
	5 year, 1980s	1990-2000	Supported	0.005
	10 year, 1980s	1990-2000	Supported	0.014
	1 year, 1990s	2000-2005	Supported	0.029
	5 year, 1990s	2000-2005	Supported	0.045
	10 year, 1990s	2000-2005	Supported	0.061

McDonald's appear to be able to be used as a leading indicator for economic stability as six out of nine tests support the hypothesis. Out of the three tests that do not support the hypothesis, one has a p-value of 15%, not too far from the 10% barrier and one is unusable due to violations of basic requirements. The hypothesis is strongly supported by the results. McDonald's can be used as a leading indicator for economic stability.

Table 7   Below average volatility (intermediate indicator)

Intermediate indic.	1 year, 1970s	1970-1980	Supported	0.002
	5 year, 1970s	1970-1980	Supported	0.025
	10 year, 1980s	1970-1980	-	*
	1 year, 1980s	1980-1990	Supported	0.002
	5 year, 1980s	1980-1990	Supported	0.005
	10 year, 1980s	1980-1990	Supported	0.080
	1 year, 1990s	1990-2000	-	*0.910*
	5 year, 1990s	1990-2000	-	*0.325*
	10 year, 1990s	1990-2000	*Supported*	*0.205*
	1 year, 2000s	2000-2005	Supported	0.022
	5 year, 2000s	2000-2005	Supported	0.022

McDonald's holds up rather well as an intermediate indicator too. Seven of the total eleven tests support the hypothesis that McDonald's is related to economic stability. One test fails to meet the 10% significance level, but still has a quite low p-value at 0.205. There is one invalid test within the group. The data appears to support the hypothesis that McDonald's can be used as an intermediate indicator.

Table 8   Below average volatility (lagging indicator)

Lagging indicator	1 year, 1970s	1960-1970	Supported	0.008
	5 year, 1970s	1960-1970	Supported	0.006
	10 year, 1970s	1960-1970	-	*
	1 year, 1980s	1970-1980	Supported	0.000
	5 year, 1980s	1970-1980	Supported	0.000
	10 year, 1980s	1970-1980	Supported	0.002
	1 year, 1990s	1980-1990	Supported	0.006
	5 year, 1990s	1980-1990	Supported	0.005
	10 year, 1990s	1980-1990	Supported	0.004
	1 year, 2000s	1990-2000	-	*0.910*
	5 year, 2000s	1990-2000	-	*0.689*

Apparently McDonald's works rather well as a lagging indicator too. Eight of the total eleven tests support the hypothesis and all have p-values below 1%, which indicates good reliability. Also, one of the tests that do not support the hypothesis is unusable. On the whole most results suggest that McDonald's can be used as a lagging indicator for economic stability. One should note, though, that the most relevant results (closest to today in time) do not support the hypothesis.

6.4.3   Volatility change (chi-square)

Below are results for tests evaluating if McDonald's countries show decreasing volatility.

Table 9   Decreasing volatility

Tested	McDonald's	Years	Hypothesis	p-value
Leading indicator	1 year, 1970s	1980-1990	-	*0.663*
	5 year, 1970s	1980-1990	-	*0.871*
	10 year, 1970s	1980-1990	-	*0.551*
	1 year, 1980s	1990-2000	-	*0.449*
	5 year, 1980s	1990-2000	-	*0.971*
	10 year, 1980s	1990-2000	-	*
Intermediate indic.	1 year, 1970s	1970-1980	*Not supported*	0.205
	5 year, 1970s	1970-1980	*Not supported*	0.148
	10 year, 1970s	1970-1980	-	*
	1 year, 1980s	1980-1990	-	*0.491*
	5 year, 1980s	1980-1990	-	*0.649*
	10 year, 1980s	1980-1990	-	*0.663*
	1 year, 1990s	1990-2000	-	*0.455*
	5 year, 1990s	1990-2000	-	*0.748*
	10 year, 1990s	1990-2000	-	*0.570*
Lagging indicator	1 year, 1970s	1960-1970	-	*0.925*
	5 year, 1970s	1960-1970	-	*0.656*
	10 year, 1970s	1960-1970	-	*
	1 year, 1980s	1970-1980	Not supported	0.035
	5 year, 1980s	1970-1980	Not supported	0.096
	10 year, 1980s	1970-1980	*Not supported*	0.205

	1 year, 1990s	1980-1990	-	*0.672*
	5 year, 1990s	1980-1990	-	*0.739*
	10 year, 1990s	1980-1990	-	*0.491*
	1 year, 2000s	1990-2000	-	*0.296*
	5 year, 2000s	1990-2000	-	*0.600*

No tests indicate that the hypothesis that McDonald's countries should show decreasing volatility is true. Two tests indicate that the opposite is true and three tests are invalid. Nothing suggests that McDonald's can be used as an indicator for decreasing economic volatility.

6.4.4   Result summary – volatility

With both consistently lower average standard deviations and chi-square tests that indicate lower-than-average economic volatility, McDonald's can be used as an indicator for economic stability. It should not, however, be used as a leading indicator as the countries generally appear to become stable well before McDonald's enters the market. Test results investigating decreasing levels of volatility also prove this.

Similarly to the results for economic growth (section 6.3.4) McDonald's should rather be used as a rough measure for economic stability as the effects are very long-term and appear early on (relative to McDonald's establishment).

6.5   Quantitative summary of chi-square test results

A strict 10% significance level is used for this brief summary of the tests discussed earlier. Presented below are results for McDonald's countries arranged by previously presented null hypotheses. Tests that do not sufficiently meet the required expected counts have been excluded altogether (in contrast to the earlier presentation where those tests were included).

Table 10   Summary of chi-square test results

	Leading indicator	Intermediate indicator	Lagging indicator
Increased Growth Rate	0/5	0/6	0/10
Decreased Volatility	0/5	0/8	0/10
Higher Average Growth Rate	3/4	4/9	6/9
Lower Average Volatility	6/8	8/10	8/10

Left column holds posed hypotheses. Result read: results supporting hypothesis / total number of valid tests.

From this table it is easy to see that expected changes for growth rates and volatility has not been observed in reality. Thus McDonald's cannot be used to identify such changes in the economy. However, average growth rates and, especially, average volatilities can be identified by McDonald's presence.

The large number of tests also indicates that the results are fairly time consistent. Assuming that this consistency stays intact, we can use the McDonald's indicator for many years ahead.

On the other hand, one should be wary of how to use the McDonald's indicator. It has not shown out to be a strictly leading indicator due to the time consistency that rather suggests that it is an intermediate or lagged indicator as much as a leading one. Therefore it is wise to take this into account when using McDonald's as an indicator as volatility will necessarily not drop, but rather stay intact at a relatively low level. The same is true for growth rates that are generally higher already when McDonald's enters.

6.6 Errors, potential errors, etc.

6.6.1   Problems With Point Estimates

Quite a few countries have not had enough data to calculate average growth rates during some or all decades, which may have distorted the calculations slightly. Little can be done to correct this error with any reliability, so for the sake of simplicity countries with insufficient data have been removed. Those countries have not been removed altogether, though, but only for those decades where the data has been insufficient. There has also been a similar problem with incomplete data. Some countries have data for one or a few, but not all, of the years in a decade, which, too, might distort the results slightly. In the case of incomplete data the data has been used to its fullest extent and averages have been calculated for all decades and countries that have data for at least one year. High growth during this year distorts the growth averages upwards and vice versa. Assuming that data is sometimes distorted upwards and sometimes downwards, and taking into account the vastness of the dataset, distortions will probably be relatively small – bordering to insignificant.

Similar data problems are present when calculating standard deviations of growth rates and a similar approach has been used to circumvent the problems. One difference is

that at least two data points are necessary to calculate the standard deviation, which means that countries with data for only one year have been deemed insufficient. In the end, though, the same assumptions stand and the data problems ought to have little effect on the final results.

6.6.2   Median growth and volatility

To avoid skewed results due to misrepresentative averages (one or a few very high growth rates can distort an average significantly) the same tests, but using median growth rates and median volatility has been performed. In broad terms the results were similar to those for average growth and volatility rates, indicating that the average measures were not significantly distorted.

The results from these will not be presented further for a few reasons. Primarily because the results are very similar, which would make the text somewhat repetitious. Also, it is slightly dishonest to present what is essentially one result as two separate results since it may cause an illusion of the results being more compelling than they actually are. Finally there is a technical problem that discourages use of the median measure. On a number of instances an odd number of countries have sufficient data for analysis, which creates three groups of countries (higher, lower, tie) instead of two. This, in turn, makes the results from chi-square testing less reliable.

Aside from this, I have also refrained from using the median measure to circumvent the data problems for the 2000s (previously mentioned) to avoid unintentionally cherry-picking results that prove or disprove the theory.

6.6.3   Autocorrelation

An underlying factor affecting both growth and volatility may make the results appear more compelling than they actually are. If the two are strongly auto correlated, presenting growth and volatility separately is a bit like presenting the same thing twice.

Whether autocorrelation is a significant problem for the results in this essay or not is unclear, it is safe to say that the problem is present – to some extent.

6.6.4 Heteroskedasticity

What econometricians refer to as heteroskedasticity is the problem when standard deviations increase (for example) with increasing x values. Regarding the tests previously presented in this paper, there is a potential risk that heteroskedasticity might thwart the results and conclusions.

In general McDonald's countries have appeared to be less volatile and slower growing than non-McDonald's countries. In other words, McDonald's countries tend to have small standard deviations and low growth rates, while non-McDonald's countries show the exact opposite. Also, it is intuitively appealing that faster growing countries yield higher standard deviations as they may grow 15% one year and 10% the next, while a slower-growing country may rather fluctuate between 2% and 3%. These are all signs of heteroskedasticity, but it is difficult to estimate the extent of the problem due to the nature of the tests performed. One should be wary, though, that the results might be heteroskedastic. Some economists say that "high economic growth reduces volatility and makes countries less subject to an economic downturn" (Easterly et al, p. 11) which would indicate heteroskedasticity, but with less volatility for higher x values. Thus, it is unclear which way the results are biased.

6.6.5 Insufficient data

As already stated repeatedly the dataset is insufficient in many aspects. There is a consistent overrepresentation of non-McDonald's countries among countries with insufficient GDP data. By assuming that countries with insufficient bookkeeping are, on average, less stable and slower growing than other countries the discovered overrepresentation can be used to further prove the null hypotheses. If this assumption appears unfair and arbitrary, think about individuals on the micro level. Richer people tend to keep better track of their money than do poor.
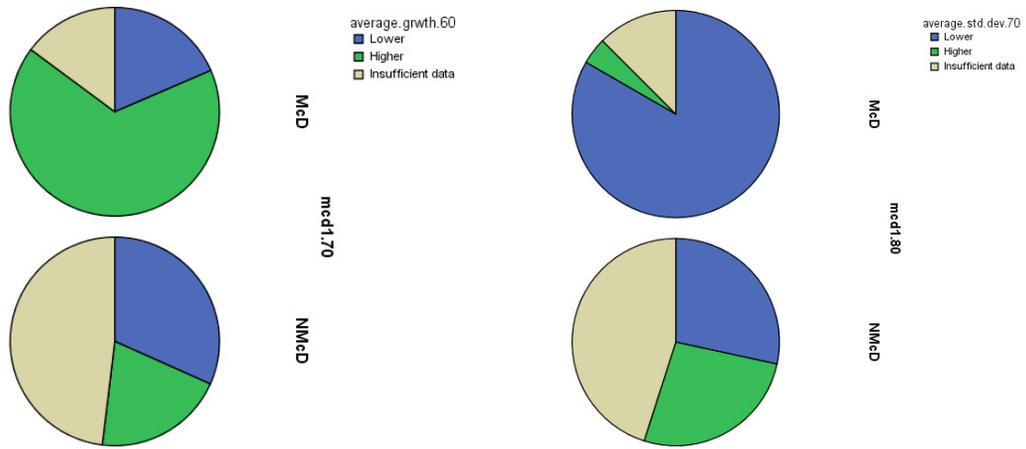
Diagrams illustrate average growth between 1960-1970 and average volatility 1970-1980 respectively for McDonald's (McD) and non-McDonald's (NMcD) countries. Both use a one year McDonald's measure.

7   Further studies

A logical successor to this paper would one carrying out a more rigorous econometric approach, perhaps using panel data. Exactly how the data should be set up, what tests should be performed, and so forth is unclear to me, however.

Another way to develop the McDonald's indicator further is to switch the dummyesque McDonald's measure used in this paper for a more complex and intricate measure, such as per capita hamburger consumption, McDonald's restaurants per capita, or something similar. Some data of this kind is available at Nation Master*, but the datasets tend to be rather limited with few countries and relatively short time series.

A closer look at what happens when a single country gets a McDonald's franchise would also be an interesting next step to take. Chi-square tests require large numbers to produce proper results, which eliminated this. There ought to be good ways to isolate and test this, however.

An interesting idea brought forward to me by a friend, is to construct an index or ranking table based on common international companies where each company represents a certain level of economic development. A country's development could then, aided by this index/ranking table, be traced simply by looking at which companies decided to open up shop. While not immediately related to McDonald's per se, but still in the theoretical vicinity, this idea is worthy of mention.

---

* Nation Master: http://www.nationmaster.com/statistics

8 Conclusion

In its original state *The Golden Arches Theory of Conflict Prevention* held together rather well with just a small number of wars as exceptions. After testing theories on economics (greater stability and growth rates) formed from and rooted in *The Golden Arches Theory* the conclusion is that they do not hold up *as well* as the original theory. However, they do hold up rather well, with a larger number of exceptions, but yet with distinct positive results.

The data tells us that McDonald's countries are (1) economically more stable and (2) more prosperous than other countries – especially in the long run. On the other hand, there appears to be no discernable trend in the development of these economies, as McDonald's countries do not appear to become more stable or prosperous before, during or after McDonald's establishment. These results do appear quite contradictory, but there are possible explanations behind this. Either the trend is so small and long-running that it is not caught by the rough measures used in this paper, or the data for newly McDonaldized countries is watered down by the data of a large number of old McDonald's countries.

To use McDonald's as a leading indicator has proven to be rather difficult. Not necessarily because the results are not there, but perhaps more so because the results are everywhere else too. Where the results point to McDonald's being a usable leading indicator they also point to being a lagging indicator and (what I have chosen to call) and intermediate indicator. Thus, the trend does not appear to begin when McDonald's establish, but rather be far more generic and long-term.

A look for a McDonald's country cannot be seen as a quest for an emerging star, but rather something far blander. If a restaurant is found, that country's economy is probably already growing more quickly than those of other countries and it is probably more stable too, and those traits will probably be true for quite some time ahead.

The tests presented in this paper have produced some useful results, albeit not as distinct as I had initially hoped them to be. McDonald's has proven to be a suitable as an initial measure or indicator of a country's general economic state. One should always keep in mind, though, that *all* McDonald's countries do not adhere to these results – but

most of them do. Other important limitations are those of causality. McDonald's does not create either peace or (at least not to any significant degree) economic prosperity and stability. More likely the reverse is true and McDonald's choose to establish when the outlook is good in terms of both peace and economic growth and stability. Therefore it would be useless to subsidize or "force" McDonald's to establish in countries – no matter how great appeal such a policy might have.

What (if anything) has made this paper interesting is the previously underexplored McDonald's dataset. This paper has begun to lightly scratch on the surface, but I expect that a lot more can be done with it. There ought to be a lot of other data with which it would be both possible and interesting to pair the McDonald's data, as it is in no way limited to the GDP approach used here.

9   References

Brunetti, Aymo, (1997), *Political Variables in Cross-Country Growth Analysis*, Journal of Economic Surveys Vol. 11, No. 2. Blackwell Publishers Ltd.

Easterly, William; Islam, Roumeen; Stiglitz, Joseph E., (2000), 'Shaken and Stirred: Explaining Growth Volatility', The World Bank.

Ferguson, Roger W. Jr, (2005), *Asset Price Levels and Volatility: Causes and Implications* Fetched August 11, 2007.
http://www.federalreserve.gov/boarddocs/speeches/2005/200511152/default.htm

Friedman, Thomas L, (2000), *The Lexus and the Olive Tree*, Anchor Books, First Edition.

Friedman, Thomas L, (2005), *The World is Flat*, Twenty-First Century, Penguin Books, Second Edition.

Jones, Charles, (2002), *Introduction to Economic Growth*, W.W Norton & Company, Inc, Second Edition

Witte, Robert S; Witte, John S., (2006), *Statistics*, Wiley, Eight Edition.

The Economist, (2007), *The Big Mac index*, February

The Economist, (2006), *McCurrencies*, May 27, 2006 Vol. 379, Iss. 8479

The Economist, (1997), *Next year, the french-fry index*, Vol. 345, Iss. 8048

Wikipedia: List of McDonald's countries. Fetched March 23, 2007.
http://en.wikipedia.org/wiki/List_of_countries_with_McDonald%27s_franchises

Wikipedia: McDonald's World Locations Map. Fetched July 7, 2007.
http://upload.wikimedia.org/wikipedia/commons/0/08/Mcdonalds_World_locations_map.PNG

World Bank Group, (2006), *World Development Indicators*.

10 Appendix

10.1 List of McDonald's countries, chronological order

(1940) USA – Puerto Rico 10 November 1967, the U.S. Virgin Islands 4 September 1970, Guam 10 June 1971, Saipan 18 March 1993, American Samoa 29 September 2000.
(1967) Canada – 1 June
(1970) Costa Rica – 28 December
(1971) Japan – 20 July
(1971) Netherlands – 21 August – also in Netherlands Antilles from 16 August 1974 (Sint Maarten 15 December 1995), Aruba 4 April 1985
(1971) Panama – 1 September
(1971) Germany – 22 November (then West Germany)
(1971) Australia – 30 May
(1972) France – 30 June – Martinique 16 December 1991, Guadeloupe 8 April 1992, New Caledonia 26 July 1994, Tahiti 10 December 1996, Reunion 14 December 1997, French Guiana 22 February 2000.
(1972) El Salvador – 20 July
(1973) Sweden – 27 October
(1974) Guatemala – 6 June
(1974) United Kingdom – 1 October - England 1 October 1974, Wales 3 December 1984, Scotland 23 November 1987, Northern Ireland 14 October 1991, Isle of Man 15 December 1997, Gibraltar 13 August 1999.
(1975) China (People's Republic of.) – 8 January - Hong Kong 8 January 1975, Macao 11 April 1987, Shenzhen 8 October 1990.
(1975) Nicaragua
(1975) Bahamas – 4 August
(1976) New Zealand – 7 June
(1976) Switzerland – 20 October
(1977) Ireland – 9 May
(1977) Austria – 21 July
(1978) Belgium 21 March
(1979) Brazil – 13 February
(1979) Singapore – 20 October
(1981) Spain – 10 March
(1981) Denmark – 15 April
(1981) Philippines – 27 September
(1982) Malaysia – 29 April
(1983) Norway – 18 November
(1984) Taiwan – 28 January
(1984) Andorra – 29 June
(1984) Finland – 14 December
(1985) Thailand – 23 February

(1985) Luxembourg – 17 July
(1985) Venezuela – 31 August
(1985) Italy – 15 October
(1985) Mexico – 29 October
(1986) Cuba - 24 April - available only in Guantanamo Bay and inaccessible to Cubans.
(1986) Turkey – 24 October
(1986) Argentina – 24 November
(1988) Serbia – 24 March
(1988) South Korea – 29 March
(1988) Hungary – 30 April
(1990) Russia – 31 January – (then Union of Soviet Socialist Republics)
(1990) Chile – 19 November
(1991) Indonesia – 23 February
(1991) Portugal – 23 May
(1991) Greece – 12 November
(1991) Uruguay – 18 November
(1992) Czech Republic – 20 March (then part of Czechoslovakia)
(1992) Poland – 17 June
(1992) Monaco – 20 November
(1992) Brunei – 12 December
(1992) Morocco – 18 December
(1993) Iceland – 3 September
(1993) Israel – 14 October
(1993) Slovenia – 2 December
(1993) Saudi Arabia – 8 December
(1994) Kuwait – 15 June
(1994) Oman – 30 July
(1994) Egypt – 20 October
(1994) Bulgaria – 10 December
(1994) Bahrain – 15 December
(1994) Latvia – 15 December
(1994) United Arab Emirates – 21 December
(1995) Estonia – 29 April
(1995) Romania – 16 June
(1995) Malta – 7 July
(1995) Colombia – 14 July
(1995) Slovakia – 13 October
(1995) South Africa – 11 November
(1995) Qatar – 13 December
(1995) Honduras – 14 December
(1996) Croatia – 2 February
(1996) Samoa – 2 March
(1996) Fiji – 1 May
(1996) Liechtenstein – 3 May
(1996) Lithuania - 31 May
(1996) India – 13 October

(1996) Peru – 18 October
(1996) Jordan – 7 November
(1996) Paraguay – 21 November
(1996) Dominican Republic – 30 November
(1996) Belarus – 10 December
(1997) Ukraine – 28 May
(1997) Cyprus – 12 June
(1997) Macedonia – 6 September
(1997) Ecuador – 9 October
(1997) Suriname – 18 December
(1998) Moldova – 30 April
(1998) Lebanon – 18 September
(1998) Pakistan – 19 September
(1998) Sri Lanka – 16 October
(1999) Georgia – 5 February

(1999) San Marino – 6 July
(1999) Azerbaijan – 6 November
(2001) Mauritius – 4 July
(2004) Montenegro – (then part of Serbia and Montenegro)

Former locations

(1994-1994) Iran (2 days)
(1997-2002) Bolivia
(1996-1996) Barbados (6 months)
(1994-2003) Trinidad and Tobago
(1985-1995) Bermuda
(1995-2005) Jamaica

10.2 List of McDonald's countries, alphabetical order

Andorra – 29 June 1984
Argentina – 24 November 1986
Australia – 30 May 1971
Austria – 21 July 1977
Azerbaijan – 6 November 1999
Bahrain – 15 December 1994
Belarus – 10 December 1996
Belgium 21 March 1978
Brazil – 13 February 1979
Brunei – 12 December 1992
Bulgaria – 10 December 1994
Canada – 1 June 1967
Chile – 19 November 1990
Colombia – 14 July 1995
Costa Rica – 28 December 1970
Croatia – 2 February 1996
Cuba **-** 24 April 1986 **-** available only in Guantanamo Bay and inaccessible to Cubans.
People's Republic of China – Hong Kong 8 January 1975, Macao 11 April 1987, Shenzhen 8 October 1990.
Cyprus – 12 June 1997
Czech Republic – 20 March 1992 (then part of Czechoslovakia)
Denmark – 15 April 1981
Dominican Republic – 30 November 1996
El Salvador – 20 July 1972
Ecuador – 9 October1 1997
Egypt – 20 October 1994
Estonia – 29 April 1995
Fiji – 1 May 1996
Finland – 14 December 1984
France – 30 June 1972 – Martinique 16 December 1991, Guadeloupe 8 April 1992, New Caledonia
26 July 1994, Tahiti 10 December 1996, Reunion 14 December 1997, French Guiana 22 February 2000.

Georgia – 5 February 1999
Germany – 22 November 1971 (then West Germany)
Greece – 12 November 1991
Guatemala – 6 June 1974
Honduras – 14 December 1995
Hungary – 30 April 1988
Iceland – 3 September 1993
India – 13 October 1996
Indonesia – 23 February 1991
Ireland – 9 May 1977
Israel – 14 October 1993
Italy – 15 October 1985
Japan – 20 July 1971
Jordan – 7 November 1996
Kuwait – 15 June 1994
Latvia – 15 December 1994
Lebanon – 18 September 1998
Liechtenstein – 3 May 1996
Lithuania **-** 31 May 1996
Luxembourg – 17 July 1985
Macedonia – 6 September 1997
Malaysia – 29 April 1982
Malta – 7 July 1995
Mauritius – 4 July 2001
Mexico – 29 October 1985
Moldova – 30 April 1998
Monaco – 20 November 1992
Montenegro – 2004 (then part of Serbia and Montenegro)
Morocco – 18 December 1992
Netherlands – 21 August 1971 – also in Netherlands Antilles from 16 August 1974 (Sint Maarten 15 December 1995), Aruba 4 April 1985
New Zealand – 7 June 1976
Nicaragua – 1975
Norway – 18 November 1983

1

Oman – 30 July 1994
Pakistan – 19 September 1998
Panama – 1 September 1971
Paraguay – 21 November 1996
Peru – 18 October 1996
Philippines – 27 September 1981
Poland – 17 June 1992
Portugal – 23 May 1991
Qatar – 13 December 1995
Romania – 16 June 1995
Russia – 31 January 1990 – (then Union of
Soviet Socialist Republics)
Samoa – 2 March 1996
San Marino – 6 July 1999
Saudi Arabia – 8 December 1993
Serbia – 24 March 1988
Singapore – 20 October 1979
Slovakia – 13 October 1995
Slovenia – 2 December 1993
South Africa – 11 November 1995
South Korea – 29 March 1988
Spain – 10 March 1981

Sri Lanka – 16 October 1998
Suriname – 18 December 1997
Sweden – 27 October 1973
Switzerland – 20 October 1976
Taiwan – 28 January 1984
Thailand – 23 February 1985
Turkey – 24 October 1986
USA – 1940, Puerto Rico 10 November 1967,
the U.S. Virgin Islands 4 September 1970,
Guam 10
June 1971, Saipan 18 March 1993, American
Samoa 29 September 2000.
United Kingdom – England 1 October 1974,
Wales 3 December 1984, Scotland 23 November
1987, Northern Ireland 14 October 1991, Isle of
Man 15 December 1997, Gibraltar 13 August
1999.
Ukraine – 28 May 1997
United Arab Emirates – 21 December 1994
Uruguay – 18 November 1991
Venezuela – 31 August 1985

10.3 Notes on Select Countries

Various circumstances for certain countries have made some further explanations and
clarifications necessary.

The McDonald's in *Cuba* is located on American soil in Guantanamo Bay and is not
available to Cubans. Therefore, Cuba is never counted as a McDonald's country in any
of the tests. Germany, once divided in East and West, has been treated in accordance
with the WDI treatment. In the WDI data there is data for East Germany and, simply,
Germany. The USSR does not exist in the WDI dataset. Therefore the 1991 McDonald's
entry in the USSR has been allocated to Russia.

Numerous countries and regions available in the list of McDonald's countries are
not available in the WDI dataset. Those countries have simply been ignored.