Croft Thesis Prospectus

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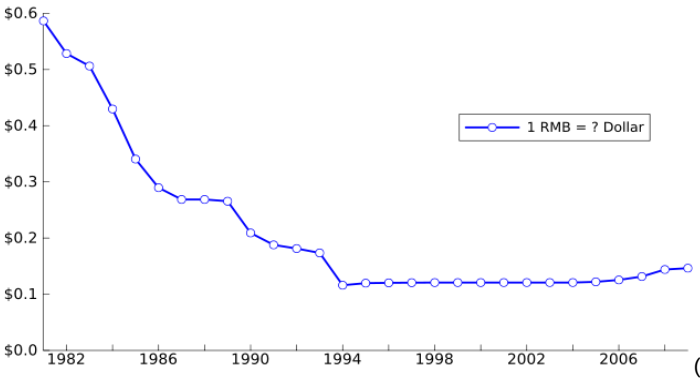
Possible Title: Currency Devaluation and Trade Imbalances: Chinese Export Growth and U.S. Trade Deficit.

Research Question: During recent times, the United States' government has raised concerns regarding the value of China's currency, claiming that the Renminbi's devaluation has caused large trade imbalances between the two countries and has given Chinese exporters a somewhat unfair advantage in trading. How exactly did the Chinese use currency depreciation in order to manipulate markets and generate export growth? And even though this policy has been successful in generating growth, is currency depreciation and low exchange rates the only factor contributing to China's trade surplus or are there other additional factors that are putting China ahead of other exporting nations, specifically the United States? In this thesis I intend to demonstrate how other factors such as degree of globalization, productivity levels, wage inequality and savings and investments rates contribute to China's trade success while at the same time becoming detrimental to the United States' world trade performance.

Background: Since the Renminbi was introduced as China's official currency in 1948, it was pegged to the dollar and its valued remained fairly stable and close to the United States' currency (around 2.4 Renminbi per dollar). It wasn't until the 1980's that the Chinese government decided to gradually open up China's economy and was forced to depreciate the Renminbi to make its economy more competitive in the exporting market. Since then, the

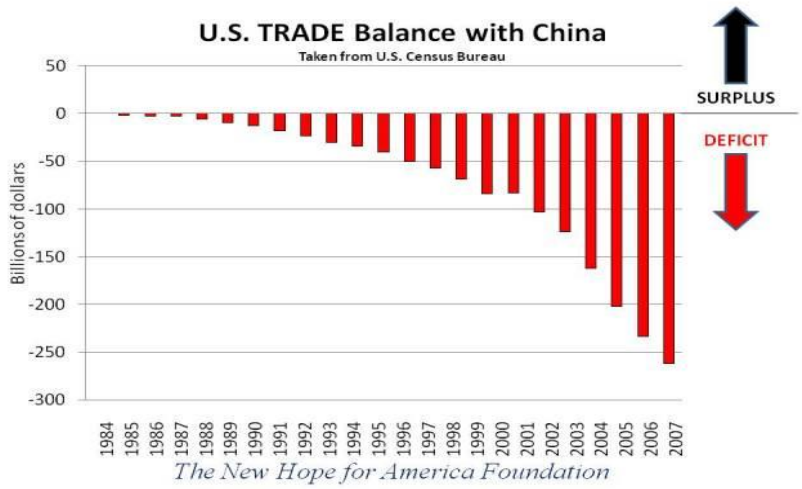
US/Renminbi exchange rate continued to decline until it reached its lowest record ever at 8.64 Yuan[1].

RMB to US Dollar Exchange Rate 1982-2006



(Tomchen 1989)

In 2005 the Chinese government lifted the dollar peg, which caused the Yuan to revalue slightly, but it wasn't long until the peg was unofficially re-instituted in response to the 2008 world financial crisis. The United States showed great dissatisfaction with this new wave of devaluation, claiming that by keeping the value of the Yuan low, Chinese exporters were profiting at the U.S.' cost. Trade deficit in the United States increased exponentially, and the American government blamed the losses on the Chinese government's currency policy choices, asking China to seriously consider a revaluation of the Yuan.



[1] Yuan is another name used to refer to the Renminbi

Importance: In an international scale, it is important to understand the issue involving currency devaluation in China because whenever the world experiences huge trade imbalances, markets are more likely to become unstable and therefore become more susceptible to economic crisis. The world is experiencing what is called a Currency War, defined as a manipulation of markets through a change in exchange rates and domestic currency values. By keeping the value of the Yuan artificially low, China is causing competing markets to struggle to recover from the recent world financial crisis. However, it is important to note that as I will analyze later in the paper, other factors are also contributing to these trade imbalances and should be addressed, and that simply revaluing the Chinese currency might not solve all the current market problems.

Method: To explain the usage of currency devaluation in China in order to generate economic growth, I intend to use past studies and economic models that explain the effects of exchange rates and currency policy in the economy, as well as past historic events in which currency devaluation was used and what kind of results were achieved. Additionally, I will compare the results to studies done in another country, Brazil, where the domestic currency is extremely overvalued but yet the country finds itself enjoying great economic success in the past decade.

To understand what is truly affecting trade deficit, I will use multiple regressions and the OLS method by gathering different variables and analyzing their individual impact on trade deficit. The variables I intend to be using are the following (different variables might be added/removed in future research):

Dependent Variable: United States-China Trade Deficit[2]

Independent Variables: Official Exchange Rate (U.S./China)[3]

[2] "Amount of imports less amount of exports from the United States to China" (U.S. Census Bureau)

Economic Globalization Index (China)[4]

Research and Development Expenditure (China)[5]

Gross Savings (China)[6]

Findings: After running a multiple regression to test the effect that those independent variables mentioned above have on U.S.-China trade deficit, I have found that the combination of all those variables prove to be extremely significant (see table below):

Regression Statistics	
Multiple R	0.98698308
R Square	0.9741356
Adjusted R Square	0.966177322
Standard Error	14306.28576
Observations	18

The R-Square value of approximately 0.975 tells us that 97.5% of the distribution of U.S.-China trade deficit can be explained by the combination of different independent variables used to run the model. Individually, every variable but Economic Globalization appear to be significant at the 95% confidence level (see table below):

[3] "Official exchange rate refers to the exchange rate determined by national authorities or to the rate determined in the legally sanctioned exchange market. It is calculated as an annual average based on monthly averages (local currency units relative to the U.S. dollar)" (World Bank Data-World Development Indicators)

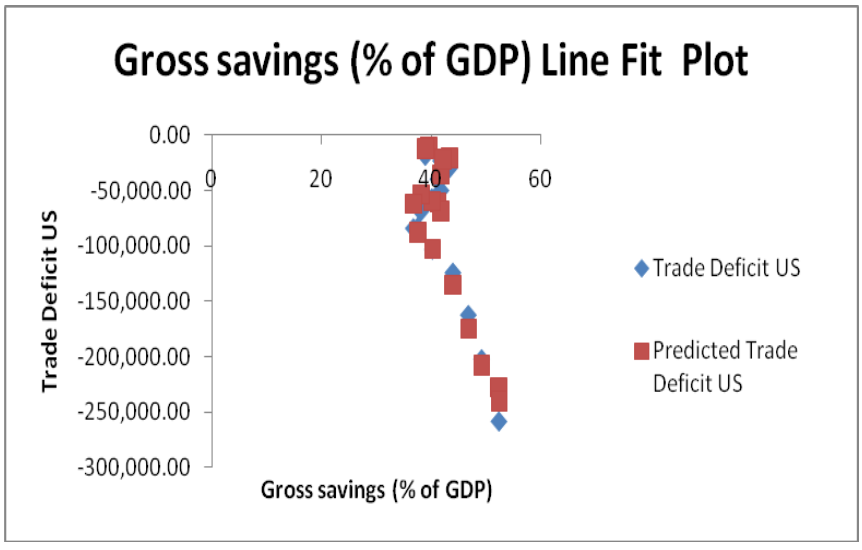
[4] "Long distance flows of goods, capital and services as well as information and perceptions that accompany market exchanges" (Dreher, published in 2006)

[5] "Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development" (World Bank Data- World Development Indicators)

[6] "Gross savings are calculated as gross national income less total consumption, plus net transfers" (World Bank Data- World Development Indicators

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	346496.1432	68558.70922	5.05401	0.0002209
Official exchange rate (LCU per US$, period average)	10114.9869	4098.380256	2.46804	0.0282384
Economic Globalization	-3254.90253	1846.435905	-1.7628	0.1014107
Research and development expenditure (% of GDP)	-77408.556	14743.68088	-5.2503	0.0001568
Gross savings (% of GDP)	-7224.59446	945.694201	-7.6395	3.691E-06

In the results, we see that Gross Savings is statistically extremely significant, with a p-value of less than .00003. Research and development as well as official exchange rates also tell us a lot about changes in trade imbalances. The coefficients tell us how much impact each variable has on trade imbalance, explaining how much deficit changes as one of the independent variables increases/decreases by one unit. For example, as gross savings goes up 1% in China, trade deficit with the U.S. goes down by about $7,225.594. As simplified in the graph, the relationship between the two variables is very linear and strong:



Preliminary Conclusions: As noted in the regression model results, Gross Savings, Research and Development Expenditures, and Exchange Rates are all factors considered to be statistically significant and affecting the U.S.-China trade deficit, not only currency devaluation.

With further research, I intend to examine how each specific variable is creating trade imbalances and based on the findings, suggest possible solutions to avoid future deficit in the United States.

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